



STATE OF IOWA

IOWA DENTAL BOARD

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

PHIL MCCOLLUM
INTERIM DIRECTOR

IOWA DENTAL BOARD

AGENDA

April 10-11, 2014

Location: Iowa Dental Board, 400 SW 8th St., Suite D, Des Moines, Iowa

Members: *Steve Bradley, D.D.S., Board Chair; Steven Fuller, D.D.S., Board Vice Chair; Matthew McCullough, D.D.S., Board Secretary; Kaaren Vargas, D.D.S.; Tom Jeneary, D.D.S.; Mary Kelly, R.D.H.; Nancy Slach, R.D.H.; Diane Meier, Public Member; Lori Elmitt, Public Member*

Thursday, April 10, 2014

COMMITTEE MEETINGS:

9:00 A.M. EXECUTIVE COMMITTEE

9:30 A.M. DENTAL HYGIENE COMMITTEE
(See separate committee agendas)

10:30 A.M. BOARD MEETING:

OPEN SESSION

I. CALL MEETING TO ORDER – ROLL CALL

II. 1st OPPORTUNITY FOR PUBLIC COMMENT

III. APPROVAL OF OPEN SESSION MINUTES

a. January 30, 2014 – Quarterly Meeting

IV. REPORTS

A. EXECUTIVE DIRECTOR'S REPORT

B. LEGAL REPORT

a. Pending litigation

C. ANESTHESIA CREDENTIALS COMMITTEE REPORT

a. Actions Taken by the Committee on General Anesthesia & Moderate Sedation Permit Applications

- b. Recommendations – RE: Proposed Rulemaking, Iowa Administrative Code 650—Chapter 29, “Sedation and Nitrous Oxide Inhalation Analgesia”
- c. Other Committee Recommendations, if any

D. CONTINUING EDUCATION ADVISORY COMMITTEE REPORT

- a. Recommendations: RE: Continuing Education Course Applications
- b. Recommendations: RE: Continuing Education Sponsor Applications
- c. Other Committee Recommendations, if any

E. BUDGET REVIEW COMMITTEE REPORT

- a. Review of Quarterly IDB Financial Report
- b. Other Committee Recommendations, if any

F. EXECUTIVE COMMITTEE REPORT

- a. Update on Executive Director Position

G. LICENSURE/REGISTRATION COMMITTEE REPORT

- a. Actions Taken by the Committee on Applications
- b. Pending Licensure/Registration Application, If Any, Will Be Discussed under Agenda Item VIII
- c. Other Committee Recommendations, if any

H. DENTAL HYGIENE COMMITTEE REPORT

- a. Pending Dental Hygiene Applications, If Any, Will Be Discussed under Agenda Item VIII
- b. Report RE: Actions Taken at the Dental Hygiene Committee Meeting
- c. Other Committee Recommendations, if any

I. DENTAL ASSISTANT REGISTRATION COMMITTEE

J. EXAMINATIONS REPORTS

- a. CRDTS (CENTRAL REGIONAL DENTAL TESTING SERVICE) – Dental Steering Committee Report
- b. CRDTS – Dental Hygiene Examination Review Committee Report
- c. CRDTS – Dental Examination Review Committee Report

K. IOWA PRACTITIONER REVIEW COMMITTEE REPORT

- a. Quarterly Update

L. SKILLED CARE FACILITY TASK FORCE REPORT

- a. Committee Update
- b. Committee Recommendations, if any

**M. EDUCATIONAL STANDARDS FOR EXPANDED FUNCTIONS
TRAINING REPORT**

- a. Committee Update
- b. Recommendations RE: Expanded Functions Course Applications
- c. Other Committee Recommendations, If Any

V. ADMINISTRATIVE RULES/ADMINISTRATIVE RULE WAIVERS

- a. Draft for Discussion – Proposed Amendments to Ch. 15, “Fees” (RE: Proposed Fee Increase)
- b. Draft for Discussion – Proposed Amendments to Ch. 10, “General Requirements”; Ch. 20, “Dental Assistants”; Ch. 23 (new chapter), “Expanded Functions for Dental Auxiliaries” (RE: Current and Newly-Proposed Expanded Functions)
- c. Draft for Discussion – Proposed Amendments to Ch. 29, “Sedation and Nitrous Oxide Inhalation Analgesia” (RE: Capnography and PALS/ACLS Certification)
- d. Other Recommendations, if any

VI. LEGISLATIVE UPDATE

VII. OTHER BUSINESS

- a. American Association of Dental Boards (AADB) – Guidelines on Standards of Conduct for State Boards and Board Members
- b. Public Health Supervision – Sealant Program
- c. Other Items, if any

VIII. APPLICATIONS FOR LICENSURE/REGISTRATION & OTHER REQUESTS*

- a. Ratification of Actions Taken on Applications Since Last Meeting
- b. Pending Licensure/Registration Applications*
 - i. Amy D. Valquier, D.A. – Application for Registration/Qualification
 - ii. Ashley A. Ball, D.A. – Application for Registration
 - iii. Randi K. Larson, D.A. – Application for Registration/Qualification
 - iv. Isamar Sanchez, D.A. – Application for Registration/Qualification
 - v. Madeline N. Kennedy, D.A. – Application for Registration/Qualification
 - vi. Catherine Reno, D.D.S. – Application for Reinstatement

IX. 2nd OPPORTUNITY FOR PUBLIC COMMENT

X. PRESENTATION:

Affordable Care Act and Impact on Dentistry - by Dr. Peter Damiano, D.D.S.,
Professor, University of Iowa College of Dentistry

XI. CLOSED SESSION*

XII. ACTION, IF ANY ON CLOSED SESSION ITEMS

- a. Approval of Closed Session Minutes

- b. Licensure/Registration Applications
- c. Statement(s) of Charges
- d. Combined Statement(s) of Charges, Settlement Agreement(s) and Final Order(s)
- e. Settlement Agreement(s)
- f. Final Hearing Decisions
- g. Final Action on Non-Public Cases Left Open
- h. Final Action on Non-Public Cases Closed
- i. Other Closes Session Items

FRIDAY, APRIL 11, 2014

8:30 A.M. **BOARD RECONVENES**

XIII. CONTINUE WITH ANY CLOSED SESSION AGENDA ITEMS

XIV. OPEN SESSION

- a. Action, If Any, On Closed Session Agenda Items
 - i. Approval of Closed Session Minutes
 - ii. Licensure/Registration Applications
 - iii. Statement(s) of Charges
 - iv. Combined Statement(s) of Charges, Settlement Agreement(s) and Final Order(s)
 - v. Settlement Agreement(s)
 - vi. Final Hearing Decisions
 - vii. Final Action on Non-Public Cases Left Open
 - viii. Final Action on Non-Public Cases Closed
 - ix. Other Closed Session Items
- b. Other Open Session Items, If Any

XV. ADJOURN

NEXT QUARTERLY MEETING: July 31-August 1, 2014

If you require the assistance of auxiliary aids or services to participate in or attend the meeting because of a disability, please call the office of the Board at 515-281-5157.

*These matters constitute a sufficient basis for the board to consider a closed session under the provisions of section 21.5(1), (a), (c), (d), (f), (g), and (h) of the 2013 Code of Iowa. These sections provide that a governmental body may hold a closed session only by affirmative public vote of either two-thirds of the members of the body or all of the members present at the meeting to review or discuss records which are required or authorized by state or federal law to be kept confidential, to discuss whether to initiate licensee disciplinary investigations or proceedings, and to discuss the decision to be rendered in a contested case conducted according to the provisions of Iowa Code Chapter 17A.

**Pursuant to Iowa Code section 272C.6(1), a licensee may request that their disciplinary hearing be held in closed session.

***Pursuant to Iowa Code section 21.5(1)(i) this follow up discussion will be in closed session, at the request of the individual.



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MINUTES

January 30, 2014
Conference Room
400 S.W. 8th St., Suite D
Des Moines, Iowa

Board Members

Steven Bradley, D.D.S.,	Present
Steven C. Fuller, D.D.S.	Present
Matthew J. McCullough, D.D.S.	Present
Thomas M. Jeneary, D.D.S.	Present
Kaaren G. Vargas, D.D.S.	Present
Mary C. Kelly, R.D.H.	Present
Nancy A. Slach, R.D.H.	Present
Diane Meier, Public Member	Present
Lori Elmitt, Public Member	Present

January 30, 2014

Staff Members

Phil McCollum, Christel Braness, Brian Sedars, Dee Ann Argo, Janet Arjes

Attorney General's Office

Sara Scott, Assistant Attorney General

Other Attendees

Eileen Cacioppo, R.D.H., Iowa Dental Hygienists' Association
Larry Carl, Iowa Dental Association
Lynh Patterson, Delta Dental
Tracy Rodgers, Iowa Department of Public Health
Miriam Burk, Iowa Dental Hygienists' Association
Sarah Barsdorf, Iowa Dental Hygienists' Association
Steven Thies, D.D.S., Iowa Academy of General Dentistry
Francisco Olalde, Office of Statewide Clinical Education Programs, University of Iowa
Lori Pelke, Midwest Dental

I. CALL TO ORDER FOR JANUARY 30, 2014

Dr. Bradley called the open session meeting of the Iowa Dental Board to order at 10:27 a.m. on Thursday, January 30, 2014. A quorum was established with all members present.

Roll Call:

<u>Member</u>	<u>Bradley</u>	<u>Elmitt</u>	<u>Fuller</u>	<u>Jeneary</u>	<u>Kelly</u>	<u>McCullough</u>	<u>Meier</u>	<u>Slach</u>	<u>Vargas</u>
Present	x	x	x	x	x	x	x	x	x
Absent									

II. 1st OPPORTUNITY FOR PUBLIC COMMENT

Dr. Bradley asked everyone to introduce themselves.

Dr. Bradley allowed the opportunity for public comment.

III. APPROVAL OF OPEN SESSION MINUTES

- *October 31-November 1, 2013 Quarterly Meeting Minutes*

Ms. Kelly reported that she had two items in the minutes, which required correction. On approximately page 15 or 17, Ms. Kelly noted that Dr. Cowen's name had been spelled incorrectly. Ms. Kelly provided the correct spelling.

Ms. Kelly reported that on approximately page 17, in reference to the new expanded functions educational standards committee, Ms. Kelly asked that the second line be updated to be more inclusive of the current and newer expanded functions. The original draft was not specific enough in regards to the intent of the committee.

❖ MOVED by FULLER, SECONDED by MEIER, to approve open session minutes with the changes as noted. Motion APPROVED unanimously.

- *December 20, 2013 – Teleconference Minutes*

❖ MOVED by FULLER, SECONDED by MEIER, to approve the minutes as submitted. Motion carried.

IV. REPORTS

EXECUTIVE DIRECTOR'S REPORT

Mr. McCollum reported that the Board is between renewal seasons. Staff is planning ahead for the upcoming dental renewals and applications for license from the new graduates. The hope is that the IDB Online Services site will continue to be utilized to streamline processes in order to make renewals and applications more efficient.

Mr. McCollum reported that staff is working to implement some of the suggestions to make the system more user friendly and improve the overall experience. Board staff will continue to implement changes to improve the system as they are able.

Mr. McCollum reported that one of the suggestions would be to put something in place to allow employers to be notified when a license/registration status changes. For example, if a license/registration is not renewed by August 31 in a renewal year, it would notify the employer informing them of the status change. This would allow time for the employer to work with the licensee/registrant to see that renewal is completed prior to the license/registration lapsing.

Mr. McCollum provided a brief overview on the statistics relating to licensees, registrants and permit holders since the AMANDA database was implemented.

Dr. Bradley asked when the employer notification will be put into operation. Mr. McCollum is hoping that it will be implemented prior to this upcoming renewal in 2014.

LEGAL REPORT

Ms. Scott reported that Dr. Buckley's request for judicial review has been submitted to the District Court. The judge has indicated that it may be a few months before a decision will be issued.

ANESTHESIA CREDENTIALS COMMITTEE REPORT

Dr. Vargas reported that the Anesthesia Credentials Committee recently met to review applications and to discuss other committee-related matters.

Dr. Vargas provided an overview of the committee discussions, including actions taken and the committee's recommendations regarding the proposed rules changes.

CONTINUING EDUCATION ADVISORY COMMITTEE REPORT

- *Recommendations RE: Continuing Education Course Applications*

Ms. Elmitt provided an overview of the committee's recommendations.

- ❖ MOVED by ELMITT, SECONDED by KELLY, to approve the course recommendations with the exception of the courses "I-Smile Coordinator Meeting," submitted by IDPH, and "The Affordable Care Act and Implications for Dentistry," submitted by the Iowa Dental Association. Motion APPROVED unanimously.
- ❖ MOVED by MCCULLOUGH, SECONDED by MEIER, to approve the course "I-Smile Coordinator Meeting," submitted by IDPH. Motion APPROVED. Ms. Kelly recused herself from the vote on this motion since she was the presenter of the course in question.
- ❖ MOVED by KELLY, SECONDED by MEIER, to approve the Affordable Care Act course.

Dr. Fuller reported that the Iowa Dental Association may submit a request for reconsideration of this course.

Ms. Kelly stated that the course would be valuable to practitioners. Ms. Kelly noted that the only provision to deny credit is Iowa Administrative Code 650—25.3(7)c, which prohibits approval of courses, which address government regulations. Ms. Kelly stated that this course addresses more than just government regulations.

Ms. Elmitt and Ms. Braness reported that the committee recommended denial of the course based on the information provided, which strongly suggested a focus on the change in government regulations. Ms. Braness stated that a request for rule waiver might be the easiest way to address this without appearing to be in violation of the rules.

Mr. McCollum reminded the Board, that prior to granting credit that the course must comply with the Iowa Administrative Code 650. Mr. McCollum recommended that the Continuing Education Advisory Committee further review this course along with Iowa Administrative Code 650—Chapter 25 to ensure compliance with the rules prior to the Board making a final decision regarding continuing education credit.

Ms. Kelly withdrew the motion, and asked that the matter be referred back to the Continuing Education Advisory Committee for further review and discussion.

Ms. Cacioppo expressed her agreement with the concerns. The course needs to be in compliance with the rules prior to credit being awarded by the Board.

- *Recommendations RE: Continuing Education Sponsor Application(s)*
- ❖ MOVED by ELMITT, SECONDED by MCCULLOUGH, to approve the sponsor application from Compliance Training Partners as recommended. Motion APPROVED unanimously.
- *Other Committee Recommendations, If Any*

Ms. Braness provided an overview of the request from the Academy of General Dentistry (AGD). The AGD has asked the Board if they would accept their continuing education transcript as evidence of course completion.

- ❖ MOVED by FULLER, SECONDED by MCCULLOUGH, to accept the AGD transcript as proof of continuing education. Motion APPROVED unanimously.

Ms. Braness provided an overview of a request from a licensee asking for continuing education credit for the use of CEREC in the practice of dentistry.

The Board members agreed that credit could not be awarded for the use of CEREC within a dental practice; however, licensees are welcome to establish study clubs devoted to the study and education of clinical practices related to the use of CEREC. Continuing education courses, which apply to clinical dentistry, completed through a study club would be eligible for continuing education credit.

- MOVED by JENEARY, SECONDED by VARGAS, to DENY credit for the use of CEREC in the practice of dentistry. Motion APPROVED unanimously.

BUDGET REVIEW COMMITTEE REPORT

- *Review of Quarterly IDB Financial Report*

Dr. Fuller reported that the committee has not met since the last quarterly meeting. The financial status update has been provided for the Board members' review.

- *Other Committee Recommendations, If Any*

There were no other recommendations from the committee.

EXECUTIVE COMMITTEE REPORT

Dr. Bradley reported that Ms. Johnson resigned in December 2013; and reported that Mr. McCollum is serving as interim director until a new director is appointed.

LICENSURE/REGISTRATION COMMITTEE REPORT

- *Actions Taken by Committee on Applications*

Dr. McCullough provided an overview of applications reviewed and actions taken by the committee since the last quarterly Board meeting. Dr. McCullough noted that a copy of the list of actions taken by the committee was included in the Board members' meeting folders.

- ❖ MOVED by MCCULLOUGH, SECONDED by FULLER, to APPROVE the list as submitted. Motion APPROVED unanimously.
- *Pending Licensure/Registration Applications, If Any – Will be Discussed under Agenda Item VIII*
- *Other Committee Recommendations, If Any*

There were no other recommendations from the committee.

DENTAL HYGIENE COMMITTEE REPORT

- *Pending Dental Hygiene Applications, If Any – Will be Discussed Under Agenda Item VIII*
- *Report RE: Actions Taken at Dental Hygiene Committee Meeting*

Ms. Kelly reported the Dental Hygiene Committee met earlier that morning. Ms. Kelly reported that the Dental Hygiene Committee discussed the supervision level required for the use of Oraqix and Arestin. The Dental Hygiene Committee determined that these products may be used by dental

hygienists under general supervision. The Dental Hygiene Committee will send a letter responding to the request for clarification.

- *Committee Recommendations, If Any*

There were no other recommendations from the committee.

DENTAL ASSISTANT REGISTRATION COMMITTEE REPORT

Dr. Bradley reported that that the Dental Assistant Registration Committee met the week prior to the Board meeting, and that he had been unable to attend the meeting. Dr. Bradley asked Dr. Fuller and Dr. Jeneary to report to the Board about this. Mr. McCollum indicated that the minutes have not been approved, and will be forwarded at a later date.

Dr. Fuller provided a brief overview of the topics, which were discussed at the meeting. The committee discussed updating the radiography exam. There was also some discussion regarding the composition of the committee with respect to dental assistants. Currently, there is only one dental assistant appointed to the committee. Dr. Fuller recommended adding a dental assistant from private practice, or who works as an educator. Another item for discussion related to dentists whose spouses may have been registered as dental assistants previously, who need to return to work quickly. The committee will continue to look at this issue and try to find a way to address these needs and allow people to return to work quickly when necessary.

EXAMINATIONS REPORT

- *CRDTS – Dental Steering Committee Report*

Dr. Bradley reported that the committee last met in the fall of 2013, and that there was nothing new to report.

- *CRDTS – Dental Hygiene Examination Review Committee Report*

Ms. Kelly had nothing to report.

- *CRDTS – Dental Examinations Review Committee Report*

Dr. Vargas thanked the Board for being appointed to the committee. Dr. Vargas reported that the committee met earlier in the month. The committee is considering some changes related to the CRDTS examination. For example, there is currently no time limit on the examination. Some students are taking advantage of this since taking extra time does not result in failure. Modifications are being proposed to address concerns as appropriate.

Dr. Bradley encouraged everyone, who has not already done so, to participate and observe an examination.

QUARTERLY IPRC REPORT

Mr. Sedars provided an overview of the current IPRC data.

GERIATRICS TASK FORCE REPORT

Dr. Kanellis reported that the committee has met once. The next meeting is scheduled for February 14, 2014. Committee members and interested parties may participate by phone as requested due to weather and travel. Dr. Kanellis did not have anything further to report

Dr. Bradley thanked Dr. Kanellis for participating in this part of the meeting.

EDUCATION STANDARDS FOR EXPANDED FUNCTIONS TRAINING REPORT

Ms. Slach reported that there is a concern regarding the committee composition, as there may be too many Board members appointed to the committee. If all of the Board members appointed to the committee were to be in attendance, there would be a quorum of the Board, which makes the meetings subject to open meetings laws. Dr. Bradley chose to remove himself from the committee.

- ❖ MOVED by FULLER, SECONDED by BRADLEY, to appoint Dr. Kanellis to the committee. Motion APPROVED unanimously.

V. ADMINISTRATIVE RULES/PETITION FOR RULE WAIVER

Dr. Bradley reported that the Board had proposed rule amendments in three different areas. Dr. Bradley asked Mr. McCollum to address these items. Mr. McCollum reported that these items were brought forward from the last Board meeting. To date, staff has not drafted wording for these proposals. Mr. McCollum wanted to take the opportunity to reaffirm and get further clarification from the Board about how to draft the proposed changes. Drafts will be presented at the next meeting. To date, the following are the administrative rule changes the Board has proposed:

1. *Iowa Administrative Code 650—Chapter 15*
 - a. Increase the dental license renewal fee in the amount of \$50 per biennium;
2. *Iowa Administrative Code 650—Chapters 10 and 20*
 - a. Address and implement the proposed changes to expanded functions tasks as recommended by the Expanded Functions Task Force; and
 - b. Implement changes to allow dental hygienists to perform the existing expanded functions, which are currently limited to registered dental assistants, and fall outside the scope of practice of dental hygiene; and
3. *Iowa Administrative Code 650—Chapter 29:*
 - a. Allow PALS certification in lieu of ACLS for moderate sedation permit holders, who sedate pediatric patients; and
 - b. Require capnography for all moderate sedation permit holders. The Anesthesia Credentials Committee has not made a recommendation on this matter to date.

Mr. McCollum reported on the sedation recommendations. This is the area, in particular, where staff needed further direction prior to drafting the proposed changes. Mr. McCollum provided some overview of the discussions, which have occurred.

At the last Board meeting, the Board suggested drafting rules, which would allow PALS in lieu of ACLS and to require moderate sedation permit holders to use capnography. Iowa Administrative Code 650 – Chapter 29 currently requires moderate sedation and general anesthesia permit holders to maintain ACLS certification, and makes no reference to PALS certification. ACLS is more focused on cardiac events, whereas PALS is more focused on airway management.

Mr. McCollum reported that the Anesthesia Credentials Committee also discussed whether all sedation permit holders, who sedate children, should be required to maintain certification in ACLS *and* PALS. Mr. McCollum reported that he learned that the University of Iowa College of Dentistry requires all of their oral surgeons to have current certifications in ACLS and PALS in order to sedate children at the university hospitals and clinics.

Board staff needed direction as to whether ACLS and PALS should be required of all sedation permit holders, who sedate children. Mr. McCollum reported that the Anesthesia Credentials Committee is in agreement regarding the Board's recommendation to allow PALS certification in lieu of ACLS, and was not opposed to requiring ACLS and PALS for all permit holders, who provide sedation to pediatric patients.

Dr. Vargas reported that the PALS recommendation for moderate sedation permit holders, who sedate pediatric patients, was not really an issue since everyone is in agreement with this suggestion.

The airway is the big issue with children, who are being sedated. Therefore, it may be recommended that all permit holders, who sedate pediatric patients, should have both ACLS and PALS certifications. The general consensus of the committee was that this would not be unreasonable. Mr. McCollum reported that the impact would be limited since moderate sedation permit holders are required to obtain formal training (e.g. ADA-accredited residency program) and be granted that qualification by the Board prior to sedating pediatric patients.

Dr. Vargas reported that the PALS courses are a little more skewed towards the medical treatment and practice, and not as directly targeted for dental treatment. However, the airway management training is important since these are the types of emergencies that occur more frequently with pediatric patients.

Dr. Vargas and Mr. McCollum recommended that the Board draft rules regarding the recommendation to allow PALS in lieu of ACLS for moderate sedation permit holders, who sedate pediatric patients since that is a clean change, on which everyone appears to be in agreement. The area still in question was whether to require this of all sedation permit holders

Mr. McCollum indicated that he was not certain how to proceed in drafting rules regarding the capnography for moderate sedation permit holders since the Anesthesia Credentials Committee is

still reviewing this. Staff can draft rules now based on the Board's recommendations, and review this further after the next meeting of the Anesthesia Credentials Committee.

Mr. McCollum indicated that the Board can look at everything at the next meeting; however, for now, the recommendation for allowing PALS in lieu of ACLS is clear, and will be drafted for the next meeting.

Dr. Vargas provided some explanation behind the reasoning for recommending the use of capnography. Capnography measures expired carbon dioxide. Currently, pulse oximetry is the only measure of oxygen levels for moderate sedation permit holders. The problem with pulse oximetry is that there is a 30 second delay in the reporting. This becomes a concern, particularly with children. Capnography measures oxygen levels with each breath; therefore, the readings occur in real time. Most complications and deaths occur when someone transitions into general anesthesia without the practitioner realizing this.

Mr. McCollum stated that additional information will be available at the next meeting in the form of draft rules and more detailed recommendations from the Anesthesia Credentials Committee.

Mr. Carl, IDA, would ask that the draft of rules be made available prior to a formal presentation at the Board meeting. Mr. Carl stated that he has found that changes become more difficult to make following the formal presentation at a Board meeting. Mr. Carl would ask for at least two (2) weeks to review the proposed drafts prior to a formal presentation to the Board.

Mr. McCollum is open to that request. The other parties reviewing the first drafts would need to be aware that these would be drafts made by Board staff, and may not be representative of what the Board may choose to pursue.

VI. LEGISLATIVE UPDATE

Mr. McCollum reported that there is a senate study bill (3010), which has been introduced this legislative session. This study bill relates to the Board's request to change the Iowa Code with respect the position of the executive director of the Iowa Dental Board. This proposal will change the executive director position to an at-will position to match the other licensing boards. The Senate has inquired about the fiscal impact of the Board's request. Following the review of information related to the payment of the executive director, it was determined that this bill has no fiscal impact.

Ms. Kelly stated that she feels good about this given the recent discussion regarding this position. The intent is good to more closely match the other licensing boards. Mr. McCollum stated that the proposed change would bring the position of the director in line with what the Board had originally believed the position to be. He also clarified that this proposed change only applies to the administrator position. This bill will not impact staff members who are not administrators.

VII. OTHER BUSINESS

REPORT ON OPTIONS FOR STRATEGIC PLANNING PROCESS

Dr. Vargas stated that she does not have a lot to report at this time given the recent transitions. Dr. Vargas got some information from “The American Board” that planned a strategic planning retreat for their organization. Dr. Vargas asked the executive secretary who they were using so that Dr. Vargas could get an idea of cost. They are using a company called ACS Quantum Strategies, based in California. Two days of strategic planning, including a half day retreat, with this company costs approximately \$7000-8000. There will be a fiscal impact to the Board pursuing this.

Dr. Vargas reported that the University of Iowa College of Dentistry has strategic planners available as well. Dr. Vargas has not inquired about local options. Dr. Vargas wanted the Board to be aware of the financial impact since these services are not inexpensive. Dr. Vargas feels that it is important that the Board consider doing this. Dr. Vargas recommended waiting to move forward with this until there is a permanent director in place.

Ms. Kelly agreed with Dr. Vargas. Ms. Elmitt recommended that the information be collected and made available so that the Board can move forward with this once the executive director position has been filled.

AADA/AADB MID-YEAR MEETING

Ms. Braness reported that the mid-year meetings of the American Association of Dental Administrators (AADA) and the American Association of Dental Boards (AADB) are scheduled to meet the beginning of April 2014 in Chicago, IL. The meetings are scheduled to be held shortly before the next quarterly meeting of the Board. Ms. Braness asked if any of the Board members would be available to travel to the meeting.

Several Board members indicated that they would not be available. Other Board members indicated that were not sure if they would be available to travel to the meeting. The Board asked that staff forward an email following the meeting to verify availability.

VIII. APPLICATIONS FOR LICENSURE/REGISTRATION & OTHER REQUESTS

- *Ratification of Actions Taken on Applications Since Last Meeting*

Mr. McCollum reported that the Board was provided an updated list of actions taken in response to applications for license, registration, qualification, and permit.

❖ **MOVED** by FULLER, **SECONDED** by MEIER, to approve the list as submitted. Motion **APPROVED** unanimously.

- *Pending Licensure/Registration Applications*

- *Angela M. Ervin, R.D.H.*

Ms. Kelly reported that Dental Hygiene Committee recommended approval of this application.

❖ MOVED by KELLY, SECONDED by MCCULLOUGH, to issue the license. Motion APPROVED.

IX. 2nd OPPORTUNITY FOR PUBLIC COMMENT

Dr. Bradley offered the opportunity for public comment.

Ms. Cacioppo inquired about the current chairman of CRDTS, and who currently filled the position. Dr. Bradley stated that he could not recall the name of the current chairman.

Ms. Cacioppo suggested that the Board revisit Iowa Administrative Code 650—Chapter 25 to update and revise some of the regulations to better address some of the recent continuing education concerns. The idea would be to put some of the past committee and Board recommendations into rule form to give sponsors a better idea of what is and is not allowed for credit. Mr. McCollum proposed that the Continuing Education Advisory Committee review this and come back to the Board with further recommendations. Mr. McCollum suggested that the committee meet in person to discuss these concerns. Ms. Cacioppo and Ms. Elmitt agreed that this would be a good idea.

Dr. Thies asked about the notice of the upcoming Anesthesia Credentials Committee meetings. In particular, he was interested in observing the upcoming discussions related to the proposed rule changes. Ms. Braness replied that those notices for the meetings are posted in advance and that arrangements could be made for his participation as requested.

Mr. Carl, IDA, reported that he had not attended the last meeting. Mr. Carl indicated that he reviewed the minutes from the last meeting. Mr. Carl inquired about the Education Standards for Expanded Functions Committee given the adopted changes at this meeting to the October 2013 meeting minutes. Mr. Carl asked for some clarification about the intent of the new committee. Mr. Carl also asked for confirmation that the committee recommendations will be reviewed and approved by the Board for a final decision. Mr. McCollum reported that the committee has not yet met. All recommendations will come back to the Board for final decision. Mr. McCollum stated that the adopted change to the minutes clarified the intent of the committee a little more. The question had been posed as to what this committee will review. The intent is to make this committee the primary group to initially review and make recommendations for all expanded functions courses as it relates to the educational standards for both the current expanded functions and the newly-proposed expanded functions.

Mr. Carl inquired about the composition of the committee. Mr. McCollum and Ms. Braness reported that the committee was composed of the Dental Assistant Registration Committee in addition to the appointment of other interested parties to ensure representation of all dental professions. Mr. McCollum asked Ms. Braness to forward a list of the committee members to Mr. Carl for his review.

Dr. Thies also asked for clarification on the expanded functions committee. Dr. Thies asked if the scope of the committee has expanded. Mr. McCollum clarified that previously-approved training courses will not be subject to further review and approval by the new committee. However, the scope of the committee has broadened slightly in that it will review new course requests for the

current and recently proposed expanded functions. The committee composition has expanded beyond the Dental Assistant Registration Committee since these expanded functions will now have bearing on dental hygienists.

Mr. Carl inquired about the request from Dr. Rabedeaux. Mr. Carl asked if this committee will consider this request. Mr. McCollum stated that the new committee would review this request and make a recommendation to the Board.

Dr. Thies asked for a clarification on Dr. Rabedeaux’s request. Dr. Fuller explained that Dr. Rabedeaux is asking the Board to consider changing the clinical practice requirement, to begin training in expanded functions, from two (2) years to one (1) year.

Mr. Carl reported that the Iowa Dental Association trustees discussed this matter, and would request that the waiting period be eliminated. They would prefer that the dentists, the auxiliary, education, and their qualifications determine when it was appropriate to have staff train in, and perform, expanded functions. Mr. Carl indicated that further communication will be forwarded to the Board concerning this.

XI. CLOSED SESSION

- ❖ MOVED by FULLER, SECONDED by VARGAS, for the Board to go into closed session at 11:43 a.m. on Thursday, January 30, 2014, pursuant to Iowa Code Sections 21.5(1)(a), (b) and (f) to discuss and review complaints and investigative reports which are required by state law to be kept confidential and to discuss whether to initiate disciplinary investigations or proceedings.

<u>Member</u>	<u>Bradley</u>	<u>Elmitt</u>	<u>Fuller</u>	<u>Jeneary</u>	<u>Kelly</u>	<u>McCullough</u>	<u>Meier</u>	<u>Slach</u>	<u>Vargas</u>
Aye	x	x	x	x	x	x	x	x	x
Nay									
Absent									

Motion APPROVED by ROLL CALL.

- The Board went into closed session at 11:43 a.m.

XVI. OPEN SESSION

- ❖ MOVED by FULLER, SECONDED by VARGAS, to return to open session. Motion APPROVED unanimously.

- The Board reconvened in open session at 1:42 p.m. on January 30, 2014.

1. Closed Session Minutes

- ❖ MOVED by FULLER, SECONDED by KELLY, to approve the closed session minutes for the October 31, 2013 quarterly meeting. Motion APPROVED unanimously.

- ❖ MOVED by FULLER, SECONDED by JENEARY, to approve the closed session minutes for the December 20, 2013 teleconference meeting. Motion APPROVED unanimously.

2. *Disciplinary Orders*

- ❖ MOVED by MEIER, SECONDED by VARGAS, to approve the proposed Combined Statement of Charges, Settlement Agreement and Final Order in the Matter of Jessica A. Pundt, R.D.A, file number 13-032. Motion APPROVED unanimously.
- ❖ MOVED by MEIER, SECONDED by VARGAS, to approve the proposed Combined Statement of Charges, Settlement Agreement and Final Order in the Matter of David A. Neal, D.D.S., file number 13-050. Motion APPROVED unanimously.
- ❖ MOVED by MEIER, SECONDED by VARGAS, to approve the proposed Combined Statement of Charges, Settlement Agreement and Final Order in the Matter of Janet S. Tresnak, D.D.S., file numbers 13-0040, 13-0042, 13-0044, 13-0047. Motion APPROVED unanimously.
- ❖ MOVED by MEIER, SECONDED by VARGAS, to approve the proposed Combined Statement of Charges, Settlement Agreement and Final Order in the Matter of Devin M. Weber, D.A., file number 13-0078. Motion APPROVED unanimously.
- ❖ MOVED by KELLY, SECONDED by SLACH, to approve the proposed Combined Statement of Charges, Settlement Agreement and Final Order in the Matter of Beth A. Neal, D.H., file number 13-0030. Motion APPROVED unanimously.

3. *Request to Modify or Terminate Existing Orders*

- ❖ MOVED by MEIER, SECONDED by VARGAS, to approve the request for modification of Board Order in the Matter of James A. Knight, D.D.S., file number 11-048. Motion APPROVED unanimously.

4. *Final Action on Cases*

- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to keep open file number 11-046. Motion APPROVED unanimously.
- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to keep open file number 12-006. Motion APPROVED unanimously.
- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to keep open file number 12-178. Motion APPROVED unanimously.
- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to close file number 13-036. Motion APPROVED unanimously.
- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to close file number 13-043. Motion APPROVED unanimously.

- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to close file number 13-0037. Motion APPROVED unanimously.
- ❖ MOVED by McCULLOUGH, SECONDED by FULLER, to close file number 14-0004. Motion APPROVED unanimously.
- ❖ MOVED by MCCULLOUGH, SECONDED by FULLER, to keep open file number 13-0049. Motion APPROVED unanimously.
- ❖ MOVED by MCCULLOUGH, SECONDED by FULLER, to close file number 13-0053. Motion APPROVED unanimously.
- ❖ MOVED by MCCULLOUGH, SECONDED by FULLER, to close file number 13-0075. Motion APPROVED unanimously. Mary Kelly, recused.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-039. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0038. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0039. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0058. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to keep open file number 13-0065. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to keep open file number 13-0066. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0068. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0069. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0070. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0076. Motion APPROVED unanimously.

- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0079. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to keep open file number 13-0082. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to keep open file number 13-0083. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0084. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to keep open file number 13-0086. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0089. Motion APPROVED unanimously.
- ❖ MOVED by ELMITT, SECONDED by JENEARY, to close file number 13-0091. Motion APPROVED unanimously.
- ❖ MOVED by KELLY, SECONDED by SLACH, to close file number 13-0048. Motion APPROVED unanimously.
- ❖ MOVED by KELLY, SECONDED by SLACH, to close file number 14-0006. Motion APPROVED unanimously.
- ❖ MOVED by KELLY, SECONDED by SLACH, to keep open file number 13-0001. Motion APPROVED unanimously. Dr. Steven Bradley, recused.

5. *Licensure/Registration Issues*

- ❖ MOVED by VARGAS, SECONDED by FULLER, to approve the reinstatement of an Iowa dental license with probationary terms in the Matter of Catherine P. Reno, D.D.S., file number 12-032. Motion APPROVED unanimously.
- ❖ MOVED by VARGAS, SECONDED by FULLER, to close file number 13-0092. Motion APPROVED unanimously.
- ❖ MOVED by VARGAS, SECONDED by FULLER, to close file number 14-0012. Motion APPROVED unanimously.
- ❖ MOVED by VARGAS, SECONDED by FULLER, to close file number 14-0013. Motion APPROVED unanimously.

- ❖ MOVED by KELLY, SECONDED by SLACH, to approve the issuance of a dental hygiene license to Angela M. Ervin, D.H., and to close file number 14-0005. Motion APPROVED unanimously.

6. *Other Closed Session Matters*

- ❖ MOVED by JENEARY, SECONDED by ELMITT, to close file number 09-230. Motion APPROVED unanimously. Dr. Matthew McCullough, recused.
- ❖ MOVED by JENEARY, SECONDED by ELMITT, to approve the courses submitted for remediation in the Matter of Gene V. Mueller, D.D.S., file number 10-115. Motion APPROVED unanimously.

XVII. ADJOURN

- ❖ MOVED by KELLY, SECONDED by VARGAS, to adjourn the meeting. Motion APPROVED unanimously.

The meeting was adjourned at 2:20 p.m. on January 30, 2014.

NEXT MEETING OF THE BOARD

The next meeting of the Board is scheduled for April 10-11, 2014, in Des Moines, Iowa.

These minutes are respectfully submitted by Christel Braness, Program Planner 2, Iowa Dental Board.

Report ID: FMR331C
 Source: I/3 Finance
 Budget FY: 2014
 Fiscal Month: 9 (MARCH)
 Department: 588

STATE OF IOWA
 FINANCIAL STATUS REPORT

Page: 127 of 380
 Run Date: 03/27/2014
 Run Time: 08:56:30 AM

Fund: 0001 General Fund
 Unit: 2062 BDE Retained Fees

Obj/Rev Class	Obj/Rev Class Name	Prior Months (A)	Current Month (B)	Total Year To Date (C=A+B)	Annual Budget (D)	Percent of Budget (E=C/D)
Revenue Collected						
234	Gov Transfer In Other Agencies	0.00	39,635.85	39,635.85	39,676.00	99.90
401	Fees, Licenses & Permits	1,169,514.14	8,053.88	1,177,568.02	1,178,496.00	99.92
Total Revenue Collected:		1,169,514.14	47,689.73	1,217,203.87	1,218,172.00	99.92
Expenditures						
101	Personal Services	398,921.79	45,145.77	444,067.56	663,730.00	66.90
202	In State Travel	3,311.62	113.88	3,425.50	9,500.00	36.06
203	State Vehicle Operation	1,947.04	240.87	2,187.91	3,000.00	72.93
204	State Vehicle Depreciation	216.00	0.00	216.00	4,320.00	5.00
205	Out Of State Travel	0.00	0.00	0.00	6,000.00	0.00
301	Office Supplies	6,398.97	679.36	7,078.33	9,500.00	74.51
309	Printing & Binding	6,150.23	203.39	6,353.62	10,000.00	63.54
313	Postage	10,929.68	345.96	11,275.64	17,000.00	66.33
401	Communications	5,188.82	843.67	6,032.49	12,250.00	49.24
402	Rentals	33,893.90	4,166.47	38,060.37	50,200.00	75.82
405	Prof & Scientific Services	0.00	0.00	0.00	4,000.00	0.00
406	Outside Services	13,015.76	1,161.60	14,177.36	16,500.00	85.92
407	Intra-State Transfers	628.21	0.00	628.21	2,600.00	24.16
409	Outside Repairs/Service	0.00	0.00	0.00	1,000.00	0.00

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STATE OF IOWA
 FINANCIAL STATUS REPORT

Page: 128 of 380
 Run Date: 03/27/2014
 Run Time: 08:56:30 AM

Fund: 0001 General Fund
 Unit: 2062 BDE Retained Fees

Obj/Rev Class	Obj/Rev Class Name	Prior Months (A)	Current Month (B)	Total Year To Date (C=A+B)	Annual Budget (D)	Percent of Budget (E=C/D)
414	Reimbursements To Other Agency	10,890.83	1,361.35	12,252.18	21,000.00	58.34
416	ITD Reimbursements	16,941.18	2,649.50	19,590.68	23,310.00	84.04
418	IT Outside Services	541.56	0.00	541.56	3,000.00	18.05
432	Gov Transfer Attorney General	12,506.24	2,186.38	14,692.62	27,000.00	54.42
433	Gov Transfer Auditor of State	1,735.01	0.00	1,735.01	2,000.00	86.75
434	Gov Transfer Other Agencies	1,024.25	30.00	1,054.25	3,100.00	34.01
501	Equipment	0.00	0.00	0.00	600.00	0.00
502	Office Equipment	1,059.00	0.00	1,059.00	4,500.00	23.53
503	Equipment-Non Inventory	0.00	0.00	0.00	50.00	0.00
510	IT Equipment & Software	71,297.42	96.63	71,394.05	135,000.00	52.88
601	Claims	0.00	0.00	0.00	71,000.00	0.00
602	Other Expenses & Obligations	12,658.92	0.00	12,658.92	118,012.00	10.73
Total Expenditures:		609,256.43	59,224.83	668,481.26	1,218,172.00	54.88
Total Obligations (Exp+Enc):		609,256.43	59,224.83	668,481.26	1,218,172.00	54.88
Total Commitments (Exp+Enc+Pre):		609,256.43	59,224.83	668,481.26		
Remaining Authority (Rev-Obl):		560,257.71	(11,535.10)	548,722.61	0.00	0.00

REPORT TO THE IOWA DENTAL BOARD

FYI ONLY

DATE OF MEETING: April 10, 2014
RE: Quarterly Report on IPRC Activities
SUBMITTED BY: Brian Sedars, Health Professions Investigator
ACTION REQUESTED: None.

The Iowa Practitioner Review Committee evaluates, assists, and monitors the recovery, rehabilitation, or maintenance of dentists, hygienists, or assistants who self-report impairments. As necessary, the Committee notifies the Board in the event of noncompliance with contract provisions.

The IPRC is both an advocate for the health of a practitioner and a means to protect the health and safety of the public.

The Board's administrative rules require the Committee to submit a quarterly report to the Board on the activities of the IPRC. Below is the quarterly report.

Iowa Dental Board Iowa Practitioner Review Committee

Current Numbers (as of 3/25/14) 2014
Totals

Self Reports	0
Current Participants	10
Contracts under Review	0
Discharged Participants	0



STATE OF IOWA

IOWA DENTAL BOARD

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

PHIL MCCOLLUM
INTERIM DIRECTOR

March 21st, 2014

During the October 31st, 2013, Iowa Dental Board meeting the Board directed staff to proceed with drafting rule amendments in the following areas:

- *Fees – Iowa Administrative Code 650—Chapter 15.* Amend the rules to increase fees to cover projected costs for FY 2015 by increasing dental renewal fees from \$315 to \$365, an increase of \$25 per year for dentists only.
- *EFDA Task Force Recommendations -- Iowa Administrative Code 650—Chapters 10, 20, and newly proposed 23.* Amend the rules to implement the proposed expanded functions for dental auxiliary as recommended by the Expanded Function Dental Auxiliary (EFDA) Task Force.
- *Allow dental hygienists to perform current expanded functions -- Iowa Administrative Code 650 — Chapters 10 and newly proposed 23.* Amend the rules to authorize dental hygienists to perform the expanded function duties listed in chapter 20, provided they receive the same expanded function training required of a registered dental assistant.
- *Allow PALS certification in lieu of ACLS -- Iowa Administrative Code 650—Chapter 29.* Amend the rules to accept PALS certification in lieu of ACLS for moderate sedation permit holders who sedate children.
- *Require capnography for Moderate Sedation permit holders -- Iowa Administrative Code 650—Chapter 29.* Amend the rules to require capnography for all moderate sedation permit holders. (*The Anesthesia Credentials Committee has not made a formal recommendation supporting this change as of this date. The Committee will meet to consider this issue prior to the next Board meeting)

Fees

The members of the Budget Review Committee met on September 20th, 2013, to review the final budget numbers of the previous fiscal FY13, the current fiscal FY14, and the proposed FY15 projections. Following review, the members recommended to the full Board during the October 31st, 2013 meeting that the Board consider raising dental renewal fees in order to prevent a possible budget shortfall during FY15.

Using current projections as of March 2014, it appears that such a budget shortfall in FY15 may not exist provided that Board staff levels remain unchanged. Revenue has come in slightly higher than originally projected and expenses have been less than anticipated. This is partly due to the unfilled Executive Director position.

Current projections will be reviewed by the members of the Budget Review Committee prior to the April 10th, 2014, Board meeting so that an updated recommendation can be made to the full Board.

Expanded Function Dental Auxiliary (EFDA) Task Force Recommendations & Allowing dental hygienists to perform current expanded functions

Dental assistant registration became effective in July 2001. 650 IAC 20.2(153) states that the term “dental assistant” does not include persons otherwise actively licensed in Iowa to practice dental hygiene or nursing who are engaged in the practice of said profession. Rules related to expanded functions for dental assistants became effective in October 2003.

Board rules have been interpreted to allow a licensed dental hygienist to work as a dental assistant under the scope of their dental hygiene license. When dental assistant registration became effective in 2001, there were no duties that dental assistants could perform that a dental hygienist could not also perform.

Since the expanded function rules became effective in 2003, the Board office has received multiple inquiries as to whether dental hygienists were also eligible to take expanded function training and perform those same duties.

The rules related to the current expanded function duties was placed in chapter 20, which regulates the scope of practice for dental assistants. Chapter 20.3(3) states that a dentist may delegate an expanded function duty to a “registered dental assistant” and makes no reference to any other persons. Since dental hygienists are excluded in that chapter from being considered a dental assistant, no provisions existed to allow a dental hygienist to perform those expanded function duties. Because of this, Board rules have been interpreted to exclude dental hygienists from being able to perform those expanded function duties not already allowed within their scope of practice.

In 2011, the Iowa Dental Board considered revising the current rules to allow dental hygienists to perform those same expanded function duties provided that they meet the same educational requirements, as it was imposing a hardship on many hygienists who were previously registered as expanded function dental assistants and lost the ability to continue to perform some duties once they became licensed as a dental hygienist. The adoption of those rules was delayed at that time.

In 2012 the Iowa Dental Board appointed an Expanded Function Dental Auxiliary (EFDA) Task Force to consider increasing the number of expanded functions that appropriately trained dental auxiliary personnel could perform. The EFDA Task Force released its final report to the Board in July 2013.

The Iowa Dental Board met and considered those recommendations during their October 31st, 2013, meeting and directed staff to draft proposed rules based on the final recommendations of the Task Force. The Board also directed staff to draft rules that would allow dental hygienists to perform the current dental assistant expanded functions that currently fall outside the scope of practice of dental hygiene.

The attached draft creates a new chapter 23 to regulate all expanded function duties that can be delegated to either dental assistants or dental hygienists, and sets the educational and training requirements associated with them. Should rules change in the future that would expand the scope of practice of only one of those professions, such rules would be placed in their respective governing sections.

The draft removes the current expanded functions from the dental assistant chapter 20.3(3) and places them in the new chapter 23.4, removes the Expanded Function Training Approval from 20.15 and places them in a new chapter 23.5, and removes the requirement for a dental assistant to have 2 years of clinical experience in order to participate in an expanded function program. The draft adds clarification to 20.3(2)a and 23.3(2)a by adding “removable appliances”, amends both 20.3(2)e and 10.3(1)e to remove the word “synthetic”, and renumbers 20.3(4) to 20.3(3).

The EFDA Task Force recommendations expand the scope of duties that dental auxiliaries can perform related to removable appliances as it allows auxiliary the ability to take both final impressions and records for the fabrication of dentures and partial dentures. I have added clarification to both 20.3(2)a and 23.3(2)a making it clear that neither dental assistants nor dental auxiliary can authorize the fabrication of removable appliances, that responsibility remains with the dentist.

The EFDA Task Force recommendations would allow expanded function dental auxiliary to remove adhesives with hand instrumentation only. I have amended both 20.3(2)e and 10.3(1)e to remove the word “synthetic” to allow such procedures to be delegated to dental assistants.

The Board has also received one request from Dr. Steve Rabedeaux and one request from the Iowa Dental Association (IDA) asking that the Board reduce the waiting period before registered dental assistants are allowed to perform expanded function duties.

Current Board rules under 20.15 require that dental assistants either be DANB certified or have 2 years of clinical experience before being eligible to participate in an expanded function program.

Dr. Rabedeaux is requesting that the Board consider reducing that waiting period to one (1) year, and the IDA is requesting that all waiting period requirements be removed and the decision be left to the discretion of the supervising dentist.

Since all attached rules are draft versions for discussion, I have removed all mandatory waiting periods for all expanded function duties in 23.5. The decision would be left up to the discretion of the supervising dentist.

Allow PALS certification in lieu of ACLS

Iowa Administrative Code 650—Chapter 29.4(4) requires dentists administering moderate sedation to maintain current certification in Advanced Cardiac Life Support (ACLS) which is focused on the management of emergencies occurring in adults.

Iowa Administrative Code 650—Chapter 29.4(8) requires dentists utilizing moderate

sedation on pediatric patients to have completed an accredited residency program that includes formal training in anesthesia and clinical experience in managing pediatric patients. Graduates of such programs are typically certified in Pediatric Advanced Life Support (PALS) which is focused on the management of emergencies occurring in infants and children.

Both ACLS and PALS standards are set by the American Heart Association.

The proposed rule change would allow moderate sedation permit holders who sedate pediatric patients to maintain PALS certification in lieu of ACLS certification.

Require capnography for Moderate Sedation permit holders

The Iowa Dental Board previously amended rules in 2013 which required all general anesthesia/deep sedation permit holders to use capnography at all facilities where they provide sedation beginning January 1, 2014. This was to remain consistent with the practices of the American Association of Oral and Maxillofacial Surgeons (AAOMS).

The Board is now considering requiring all moderate sedation permit holders to use capnography as an added measure of safety. Currently, pulse oximetry is the only measure of oxygen levels required for moderate sedation permit holders.

Pulse oximetry measures the oxygen saturation in blood and a 30 second delay can exist in the reporting of pulse oximetry results, so it is slow to indicate change in ventilation. Capnography measures expired carbon dioxide in the airway (exhaled breath), and provides a breath-to-breath status of ventilation in the patient in real time.

Such a delay in reporting is particularly concerning when sedating children who do not have the same oxygen reserve capacity as adults.

The members of the Board's Anesthesia Credentials Committee have not made a formal recommendation supporting this change as of this date. The Committee will meet to consider this issue prior to the next Board meeting and provide a recommendation at that time.

The intent of this document is to serve as a 'staff draft' for a basis of discussion and is not a Notice of Intended Action. These drafts are being provided in advance of the upcoming April 10th, 2014, Board meeting in order to seek input that can be presented during that meeting to assist the members should they decide to start the formal rulemaking process.

Phil McCollum
Interim Director
Iowa Dental Board

Attachments

Proposed rule amendments to Chapter 10.3

Proposed rule amendments to Chapter 15.4

Proposed rule amendments to Chapter 20.3

Proposed rule amendments to Chapter 20.15

Proposed NEW CHAPTER 23 Expanded Functions for Dental Auxiliaries

Proposed rule amendments to Chapter 29.4

Proposed rule amendments to Chapter 29.5

Final EFDA Task Force report to the Board

650—10.3 (153) Authorized practice of a dental hygienist.

10.3(1) “Practice of dental hygiene” as defined in Iowa Code section 153.15 means the performance of the following educational, therapeutic, preventive and diagnostic dental hygiene procedures which are delegated by and under the supervision of a dentist licensed pursuant to Iowa Code chapter 153.

a. Educational. Assessing the need for, planning, implementing, and evaluating oral health education programs for individual patients and community groups; conducting workshops and in-service training sessions on dental health for nurses, school personnel, institutional staff, community groups and other agencies providing consultation and technical assistance for promotional, preventive and educational services.

b. Therapeutic. Identifying and evaluating factors which indicate the need for and performing (1) oral prophylaxis, which includes supragingival and subgingival debridement of plaque, and detection and removal of calculus with instruments or any other devices; (2) periodontal scaling and root planing; (3) removing and polishing hardened excess restorative material; (4) administering local anesthesia with the proper permit; (5) administering nitrous oxide inhalation analgesia in accordance with 650—subrules 29.6(4) and 29.6(5); (6) applying or administering medicaments prescribed by a dentist, including chemotherapeutic agents and medicaments or therapies for the treatment of periodontal disease and caries.

c. Preventive. Applying pit and fissure sealants and other medications or methods for caries and periodontal disease control; organizing and administering fluoride rinse or sealant programs.

d. Diagnostic. Reviewing medical and dental health histories; performing oral inspection; indexing dental and periodontal disease; making occlusal registrations for mounting study casts; testing pulp vitality; analyzing dietary surveys.

e. The following services may only be delegated by a dentist to a dental hygienist: administration of local anesthesia, placement of sealants, and the removal of any plaque, stain, calculus, or hard natural or synthetic material except by toothbrush, floss, or rubber cup coronal polish.

10.3(2) All authorized services provided by a dental hygienist shall be performed under the general, direct, or public health supervision of a dentist currently licensed in the state of Iowa in accordance with 650—1.1(153) and 650—10.5(153).

10.3(3) Under the general or public health supervision of a dentist, a dental hygienist may provide educational services, assessment, screening, or data collection for the preparation of preliminary written records for evaluation by a licensed dentist. A dentist is not required to examine a patient prior to the provision of these dental hygiene services.

10.3(4) The administration of local anesthesia or nitrous oxide inhalation analgesia shall only be provided under the direct supervision of a dentist.

10.3(5) All other authorized services provided by a dental hygienist to a new patient shall be provided under the direct or public health supervision of a dentist. An examination by the dentist must take place during an initial visit by a new patient, except when hygiene services are provided under public health supervision.

10.3(6) Subsequent examination and monitoring of the patient, including definitive diagnosis and treatment planning, is the responsibility of the dentist and shall be carried out in a reasonable period of time in accordance with the professional judgment of the dentist based upon the individual needs of the patient.

10.3(7) General supervision shall not preclude the use of direct supervision when in the professional judgment of the dentist such supervision is necessary to meet the individual needs of the patient.

This rule is intended to implement Iowa Code section 153.15.

650—15.4 (153) Renewal fees. All fees are nonrefundable. Each two-year renewal period begins on September 1 and runs through August 31. Dental licenses, moderate sedation permits, and general anesthesia permits expire in even-numbered years. Dental hygiene licenses, local anesthesia permits, dental assistant registration and qualification in dental radiography expire in odd-numbered years. To avoid late fees, paper renewal applications must be postmarked on or received in the board office by August 31. To avoid late fees, online renewal applications must be time-stamped no later than 11:59 p.m. (CST) on August 31.

15.4(1) Dental license renewal. The fee for renewal of a license to practice dentistry for a biennial period is ~~\$315~~ \$365 for an active practitioner and ~~\$315~~ \$365 for an inactive practitioner.

15.4(2) Dental hygiene license renewal. The fee for renewal of a license to practice dental hygiene for a biennial period is \$150 for an active practitioner and \$150 for an inactive practitioner.

15.4(3) General anesthesia permit renewal. The fee for renewal of a general anesthesia permit is \$125.

15.4(4) Moderate sedation permit renewal. The fee for renewal of a moderate sedation permit is \$125.

15.4(5) Local anesthesia permit renewal. The fee for renewal of a permit to authorize a dental hygienist to administer local anesthesia is \$25.

15.4(6) Dental assistant registration renewal. The fee for renewal of registration as a registered dental assistant is \$75.

15.4(7) Combined renewal application—dental assistant registration and qualification in radiography. The fee for a combined application to renew both a registration as a registered dental assistant and a radiography qualification is \$115.

15.4(8) Dental assistant qualification in radiography renewal. The fee for renewal of a certificate of qualification in dental radiography is \$40.

15.4(9) Faculty permit renewal. The fee for renewal of a faculty permit is ~~\$315~~ \$365.

15.4(10) Resident license renewal. The fee for renewal or extension of a resident license is \$40.

[ARC 0265C, IAB 8/8/12, effective 9/12/12]

650—20.3 (153) Scope of practice.

20.3(1) In all instances, a dentist assumes responsibility for determining, on the basis of diagnosis, the specific treatment patients will receive and which aspects of treatment may be delegated to qualified personnel as authorized in these rules.

20.3(2) A licensed dentist may delegate to a dental assistant those procedures for which the dental assistant has received training. This delegation shall be based on the best interests of the patient. The dentist shall exercise supervision and shall be fully responsible for all acts performed by a dental assistant. A dentist may not delegate to a dental assistant any of the following:

- a.* Diagnosis, examination, treatment planning, or prescription, including prescription for drugs and medicaments or authorization for restorative, prosthodontic, orthodontic, or removable appliances.
- b.* Surgical procedures on hard and soft tissues within the oral cavity and any other intraoral procedure that contributes to or results in an irreversible alteration to the oral anatomy.
- c.* Administration of local anesthesia.
- d.* Placement of sealants.
- e.* Removal of any plaque, stain, or hard natural or synthetic material except by toothbrush, floss, or rubber cup coronal polish, or removal of any calculus.
- f.* Dental radiography, unless the assistant is qualified pursuant to 650—Chapter 22.
- g.* Those procedures that require the professional judgment and skill of a dentist.

~~**20.3(3)** A dentist may delegate an expanded function duty to a registered dental assistant if the assistant has completed board approved training pursuant to rule 650—20.16(153) in the specific expanded function that will be delegated. The supervising dentist and registered dental assistant shall be responsible for maintaining in the office of practice documentation of board approved training. In addition to the other duties authorized under this rule, a dentist may delegate any of the following expanded function duties:~~

- ~~*a.* Taking occlusal registrations;~~
- ~~*b.* Placement and removal of gingival retraction;~~
- ~~*c.* Taking final impressions;~~
- ~~*d.* Fabrication and removal of provisional restorations;~~
- ~~*e.* Applying cavity liners and bases, desensitizing agents, and bonding systems;~~
- ~~*f.* Placement and removal of dry socket medication;~~
- ~~*g.* Placement of periodontal dressings;~~
- ~~*h.* Testing pulp vitality; and~~
- ~~*i.* Monitoring of nitrous oxide inhalation analgesia.~~

20.3(4) 20.3(3) A dental assistant may perform duties consistent with these rules under the supervision of a licensed dentist. The specific duties dental assistants may perform are based upon:

- a.* The education of the dental assistant.
- b.* The experience of the dental assistant.

650—20.15 (153) Expanded function training approval. Expanded function training shall be eligible for board approval if the training is offered through a program accredited by the Commission on Dental Accreditation of the American Dental Association or another program prior approved by the board, which may include on the job training offered by a dentist licensed in Iowa. Training must consist of the following:

1. An initial assessment to determine the base entry level of all participants in the program. At a minimum, participants must meet one of the following:

- Be currently certified by the Dental Assisting National Board, or
- Have two years of clinical dental assisting experience as a registered dental assistant, or
- Have two years of clinical dental assisting experience as a dental assistant in a state that does not require registration;

2. A didactic component;

3. A laboratory component, if necessary;

4. A clinical component, which may be obtained under the personal supervision of the participant's supervising dentist while the participant is concurrently enrolled in the training program; and

5. A postcourse competency assessment at the conclusion of the training program.

[ARC 0265C, IAB 8/8/12, effective 9/12/12; ARC 0985C, IAB 9/4/13, effective 10/9/13]

Proposed NEW Chapter

Chapter 23 Expanded Functions for Dental Auxiliaries

650—23.1 Expanded Function training required. A registered dental assistant shall not perform any procedures listed in this chapter unless the assistant has successfully met the educational and training requirements of 650—23.5. A licensed dental hygienist shall not perform any procedures listed in this chapter which are not within the scope of practice of dental hygiene unless the hygienist has successfully met the educational and training requirements of 650—23.5. The following procedures are considered within the scope of practice of dental hygiene: taking occlusal registrations; applying cavity liners and bases, desensitizing agents, and bonding systems; placement of periodontal dressings; testing pulp vitality; and monitoring of nitrous oxide inhalation analgesia.

650—23.2 (153) Definitions.

“Dental Auxiliaries” as used in this chapter include persons licensed as a dental hygienist or persons registered as a dental assistant in the state of Iowa. Dental assistant trainees are not eligible to perform procedures listed in this chapter.

650—23.3 (153) Scope of practice.

23.3(1) In all instances, a dentist assumes responsibility for determining, on the basis of diagnosis, the specific treatment patients will receive and which aspects of treatment may be delegated to qualified dental auxiliary personnel as authorized by this chapter.

23.3(2) A licensed dentist may delegate to dental auxiliary only those procedures for which the dental auxiliary has received the required expanded function training pursuant to 650—23.1 of this chapter. This delegation shall be based on the best interests of the patient. The dentist shall exercise direct supervision and shall be fully responsible for all acts performed by dental auxiliary. A dentist may not delegate to dental auxiliary any of the following:

- a. Diagnosis, examination, treatment planning, or prescription, including prescription for drugs and medicaments or authorization for restorative, prosthodontic, orthodontic, or removable appliances.
- b. Those procedures that require the professional judgment and skill of a dentist.

650—23.4 (153) Expanded function procedures.

A licensed dentist may delegate any of the following expanded function procedures to qualified dental auxiliary personnel:

1. Taking occlusal registrations;
2. Placement and removal of gingival retraction;

3. Fabrication and removal of provisional restorations;
4. Applying cavity liners and bases, desensitizing agents, and bonding systems;
5. Placement and removal of dry socket medication;
6. Placement of periodontal dressings;
7. Testing pulp vitality;
8. Monitoring of nitrous oxide inhalation analgesia;
9. Removal of adhesives (hand instrumentation only);
10. Placement and shaping of amalgam following preparation of a tooth by a dentist;
11. Placement and shaping of composite following preparation of a tooth by a dentist;
12. Forming and placement of stainless steel crowns;
13. Taking final impressions and records for the fabrication of dentures and partial dentures;
14. Denture reline (soft reline only, where denture is not relieved or modified);
15. Preliminary charting of existing dental restorations and teeth

These procedures refer to both primary and permanent teeth.

650—23.5 (153) Educational and training requirements.

Expanded function procedure training shall be eligible for board approval if the training is offered through a program accredited by the Commission on Dental Accreditation of the American Dental Association or another program prior-approved by the board, which may include on-the-job training offered by a dentist licensed in Iowa. The supervising dentist and the dental auxiliary shall be responsible for maintaining in the office of practice, documentation of the board approved training. Training must consist of the following:

1. An initial assessment to determine the base entry level of all participants in the program. At a minimum, participants must meet the following:
 - a. Be currently certified by the Dental Assisting National Board (DANB), or be licensed as a dental hygienist.
2. A didactic component;
3. A laboratory component, if necessary;
4. A clinical component, which may be obtained under the personal supervision of the participant's supervising dentist while the participant is concurrently enrolled in the training program; and
5. A postcourse competency assessment at the conclusion of the training program.

650—29.4 (153) Requirements for the issuance of moderate sedation permits.

29.4(1) A permit may be issued to a licensed dentist to use moderate sedation for dental patients provided the dentist meets the following requirements:

a. Has successfully completed a training program approved by the board that meets the American Dental Association Guidelines for Teaching Pain Control and Sedation to Dentists and Dental Students and that consists of a minimum of 60 hours of instruction and management of at least 20 patients; and

b. Has formal training in airway management; or

c. Has submitted evidence of successful completion of an accredited residency program that includes formal training and clinical experience in moderate sedation, which is approved by the board; and

d. Has completed a peer review evaluation, as may be required by the board, prior to issuance of a permit.

29.4(2) A dentist utilizing moderate sedation shall maintain a properly equipped facility. The dentist shall maintain and be trained on the following equipment at each facility where sedation is provided: capnography, EKG monitor, positive pressure oxygen, suction, laryngoscope and blades, endotracheal tubes, magill forceps, oral airways, stethoscope, blood pressure monitoring device, pulse oximeter, emergency drugs, defibrillator. A licensee may submit a request to the board for an exemption from any of the provisions of this subrule. Exemption requests will be considered by the board on an individual basis and shall be granted only if the board determines that there is a reasonable basis for the exemption.

29.4(3) The dentist shall ensure that each facility where sedation services are provided is permanently equipped pursuant to subrule 29.4(2) and staffed with trained auxiliary personnel capable of reasonably handling procedures, problems and emergencies incident to the administration of moderate sedation. Auxiliary personnel shall maintain current certification in basic life support and be capable of administering basic life support.

29.4(4) A dentist administering moderate sedation must document and maintain current, successful completion of an Advanced Cardiac Life Support (ACLS) course. A dentist administering moderate sedation to pediatric patients may maintain current certification in Pediatric Advanced Life Support (PALS) in lieu of ACLS.

29.4(5) A dentist who is performing a procedure for which moderate sedation is being employed shall not administer the pharmacologic agents and monitor the patient without the presence and assistance of at least one qualified auxiliary personnel in the room who is qualified under subrule 29.4(3).

29.4(6) Dentists qualified to administer moderate sedation may administer nitrous oxide inhalation analgesia provided they meet the requirement of rule 650—29.6(153).

29.4(7) If moderate sedation results in a general anesthetic state, the rules for deep sedation/general anesthesia apply.

29.4(8) A dentist utilizing moderate sedation on pediatric or ASA category 3 or 4 patients must have completed an accredited residency program that includes formal training in anesthesia and clinical experience in managing pediatric or ASA category 3 or 4 patients. A dentist who does not meet the requirements of this subrule is prohibited from utilizing moderate sedation on pediatric or ASA category 3 or 4 patients.

[ARC 8614B, IAB 3/10/10, effective 4/14/10; ARC 1194C, IAB 11/27/13, effective 11/4/13]

650—29.5 (153) Permit holders.

29.5(1) No dentist shall use or permit the use of deep sedation/general anesthesia or moderate sedation for dental patients, unless the dentist possesses a current permit issued by the board. No dentist shall use or permit the use of deep sedation/general anesthesia or moderate sedation for dental patients in a facility that has not successfully passed an equipment inspection pursuant to the requirements of subrule 29.3(2). A dentist holding a permit shall be subject to review and facility inspection at a frequency described in subrule 29.5(10).

29.5(2) An application for a deep sedation/general anesthesia permit must include the appropriate fee as specified in 650—Chapter 15, as well as evidence indicating compliance with rule 650—29.3(153).

29.5(3) An application for a moderate sedation permit must include the appropriate fee as specified in 650—Chapter 15, as well as evidence indicating compliance with rule 650—29.4(153).

29.5(4) If a facility has not been previously inspected, no permit shall be issued until the facility has been inspected and successfully passed.

29.5(5) Permits shall be renewed biennially at the time of license renewal following submission of proper application and may involve board reevaluation of credentials, facilities, equipment, personnel, and procedures of a previously qualified dentist to determine if the dentist is still qualified. The appropriate fee for renewal as specified in 650—Chapter 15 of these rules must accompany the application.

29.5(6) Upon the recommendation of the anesthesia credentials committee that is based on the evaluation of credentials, facilities, equipment, personnel and procedures of a dentist, the board may determine that restrictions may be placed on a permit.

29.5(7) The actual costs associated with the on-site evaluation of the facility shall be the primary responsibility of the licensee. The cost to the licensee shall not exceed the fee as specified in 650—Chapter 15.

29.5(8) Permit holders shall follow the American Dental Association's guidelines for the use of sedation and general anesthesia for dentists, except as otherwise specified in these rules.

29.5(9) A dentist utilizing moderate sedation on pediatric or ASA category 3 or 4 patients must have completed an accredited residency program that includes formal training in anesthesia and clinical experience in managing pediatric or ASA category 3 or 4 patients. A dentist who does not meet the requirements of this subrule is prohibited from utilizing moderate sedation on pediatric or ASA category 3 or 4 patients.

29.5(10) Frequency of facility inspections.

a. The board office will conduct ongoing facility inspections of each facility every five years, with the exception of the University of Iowa College of Dentistry.

b. The University of Iowa College of Dentistry shall submit written verification to the board office every five years indicating that it is properly equipped pursuant to this chapter.

29.5(11) Use of capnography required beginning January 1, 2014. Consistent with the practices of the American Association of Oral and Maxillofacial Surgeons (AAOMS), all general anesthesia/deep sedation permit holders shall use capnography at all facilities where they provide sedation beginning January 1, 2014.

29.5(12) Use of capnography required for moderate sedation permit holders. Beginning January 1, 2015, all moderate sedation permit holders shall use capnography at all facilities where they provide sedation.

Expanded Function Dental Auxiliary Taskforce
Report to Iowa Dental Board
July 18, 2013

Background

In 2012, the Iowa Dental Association leadership proposed that the Iowa Dental Board consider increasing the number of expanded functions that appropriately trained and certified dental auxiliaries are allowed to perform. Specifically, they requested that the following procedures be considered:

1. Forming, placing, or shaping amalgam and composite materials following the preparation of a tooth by a dentist
2. Forming and placement of stainless steel crowns
3. Taking final impressions
4. Taking records for the fabrication of dentures and partial dentures
5. Cementation of final restorations along with removal of adhesives

The Iowa Dental Board appointed a task force (EFDA Task Force) to consider this recommendation and to make recommendations to the Board. Task force members included:

Michael Kanellis, DDS – Chair
Steve Bradley, DDS
Eileen Cacioppo, RDH
Lori Elmitt
Mary Kelly, RDH
Mary Mariani, DDS
George North, DDS
Jane Slach, RDA

The EFDA task force met in Iowa City on five separate occasions to discuss the merits and logistics of creating a new level of expanded function auxiliary. Meeting dates for the task force were: 11/16/12, 1/4/13, 2/8/13, 4/5/13, 6/28/13.

Discussions among EFDA Taskforce members was broad-based and included conversations on the following topics:

1. Potential merits of increasing the number of expanded functions that dental auxiliaries can perform.
2. Background of EFDA's in Iowa (Historical perspective by Dr. North)
3. Quality of care provided by EFDA's
4. Procedures considered for inclusion

5. Would Iowa dentists utilize restorative expanded function dental auxiliaries?
6. What other states are doing
7. Mechanism for training and competency-based evaluation/certification

Members of the EFDA Taskforce requested a survey of Iowa Dentists to find out how many dentists might utilize Expanded Function Dental Auxiliaries to perform additional procedures. To obtain this information, several questions were added to Dr. Peter Damiano’s “Medicaid Survey of Iowa Dentists”, conducted as part of the Dental Safety Net in Iowa Project (DSNI). Detailed information about the DSNI Project can be found at: <http://ppc.uiowa.edu/health/study/dental-safety-net-iowa-dsni-project>.

The “Medicaid Survey of Iowa Dentists” was mailed to all private practice dentists in Iowa, including specialists. Dentists from the University of Iowa College of Dentistry were not surveyed. A brief statement describing EFDA’s was included in the survey, as follows:

The Iowa Dental Board has convened a task force to look at the possibility of increasing the number of procedures that EFDAs (Dental Assistants and Dental Hygienists) can perform under the supervision of a dentist. Auxiliaries would be required to receive additional education and demonstrate competency in order to provide each procedure. The following questions are intended to explore Iowa dentists’ attitudes about additional expanded functions.

The survey response rate was 58% (n=776/1389).

The first EFDA related question included in the survey was intended to determine how many dentists in Iowa were utilizing EFDAs to provide currently allowed expanded functions. 55% of respondents indicated they were utilizing an EFDA to provide at least one of the currently allowed expanded functions. Responses broken down by specific functions follows:

Do you ever delegate these duties to an EFDA in your practice?	
Remove temporary crowns	42%
Take final impressions	22%
Fabricate temporary crowns	44%
Apply cavity liners, bonding systems, etc.	18%
Test pulp vitality	15%
Take occlusal registrations	42%
Place/remove gingival retraction	26%

The second EFDA related question was intended to determine how many dentists would consider utilizing an EFDA to provide the additional recommended procedures. 68% of respondents indicated

they would consider utilizing an EFDA to provide at least one of the proposed additional expanded functions. Responses broken down by specific functions follows:

If the practice act was changed, would you consider using an EFDA to provide the following services?	
Remove cement following permanent cementation of crowns/bridges	61%
Place/shape amalgam restorations following tooth prep by a dentist	21%
Place/shape composite restorations following tooth prep by a dentist	17%
Fit/cement stainless steel crowns on primary teeth	31%
Take final impressions/records for dentures	32%
Cement final restorations	21%

The final EFDA related question on the survey was intended to determine if dentists would be willing to cover the costs to send one of their auxiliaries to a course where they could become certified to provide additional EFDA procedures. 43% indicated they would either moderately or extremely consider covering this cost:

How seriously would you consider covering the costs to send one of your own auxiliaries to a course where they could become certified to provide the services listed in the previous question?	
Not at all	38%
Slightly	19%
Moderately	22%
Extremely	21%

Task Force members were charged with investigating and reporting on restorative expanded functions allowed in other states. States were selected based on data from the Dental Assisting National Board (DANB) website: <http://www.danb.org> The DANB website has a comprehensive list on a state by state basis describing titles for dental assistants who are allowed to provide expanded functions, and many different groupings of what expanded functions are allowed. Examples of states that allow EFDA's to place and contour amalgam and composites and to place stainless steel crowns includes Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, Ohio, Pennsylvania, Virginia and Washington.

At the final meeting of the EFDA task force, a list of consensus statements was agreed upon that guide the task force's final recommendations to the Iowa Dental Board:

Consensus Statements Regarding Expanded Function Dental Auxiliaries

Members of the Expanded Function Dental Auxiliary Task Force appointed by the Iowa Dental Board are in agreement with the following statements related to Expanded Function Dental Auxiliaries. These background consensus statements are presented in support of the Task Force's final recommendations to the Board.

1. The EFDA Task Force is confident that the recommended additional expanded functions can be performed by appropriately trained dental auxiliaries under the direct supervision of a dentist.
2. The EFDA Task Force believes that if the recommended additional expanded functions are approved, a significant number of Iowa Dentists will be willing to employ auxiliaries who have received the appropriate training to provide these procedures.
3. The EFDA Task Force believes that employing EFDAs will improve the efficiency and increase the capacity of dental practices to treat patients, and as a result, more patients in Iowa will be able to access dental care.
4. The EFDA Task Force believes that increasing the number of expanded functions dental auxiliaries can perform will provide career advancement opportunities for dental auxiliaries in Iowa.
5. The EFDA Task Force believes that a training program for EFDAs can be established at no additional cost to the State of Iowa.

List of Recommended Procedures

Following review of the IDA recommendations, and consideration of multiple other procedures, members of the Expanded Function Dental Auxiliary Task Force recommend the following procedures be added to what appropriately trained and certified EFDA's can perform in Iowa. These procedures refer to both primary and permanent teeth.

1. Removal of adhesives (hand instrumentation only)
2. Placement and shaping of amalgam following preparation of a tooth by a dentist
3. Placement and shaping of composite following preparation of a tooth by a dentist
4. Forming and placement of stainless steel crowns
5. Taking final impressions and records for the fabrication of dentures and partial dentures ("records" component is a new function)
6. Denture tissue conditioning reline (soft reline only, where denture is not relieved or modified)
7. Preliminary charting of existing dental restorations and teeth

Additional Recommendation

Considerable discussion took place among EFDA Task Force members related to including procedures that could be done by hygienists in nursing home settings. These additional procedures were not included in the list of final recommendations because some of them were not reversible, and most/all of them would be performed under indirect supervision. However, due to the opportunities presented through these discussions, the EFDA Task Force makes the following recommendation to the Iowa Dental Board:

1. The Iowa Dental Board is encouraged to appoint a separate task force to look at “best practices in oral health care delivery in nursing homes” in Iowa.

If the Iowa Dental Board decides to move forward with the recommendations of the EFDA Task Force, the following “next steps” are recommended:

Next Steps

1. Approval by the Iowa Dental Board to proceed
2. The Iowa Dental Board should charge the College of Dentistry with proposing a final curriculum for the additional EFDA procedures
3. The University of Iowa College of Dentistry would assign faculty to create/finalize a curriculum for training (estimate 6 months to have curriculum finalized)
4. EFDA task force, working with the Dental Board and the College of Dentistry would propose a method for competency-based assessment and certification
5. Final approval by Iowa Dental Board and Implementation of training
6. Announcement in IDA Journal

Respectfully submitted on behalf of the EFDA Task Force,

Michael Kanellis, DDS, MS
Chair, Expanded Function Task Force
7/23/13

Standards for Capnography

American Society of Anesthesiologists (ASA) – Standards for Basic Anesthetic Monitoring
2010 Update

RESPIRONICS
Envisioning tomorrow. Improving today.

SUMMARY

The American Society of Anesthesiologists (ASA) - Standards for Basic Anesthetic Monitoring, updated in 2010, now notes that the adequacy of ventilation during both general anesthesia and moderate and deep sedation shall be continually evaluated by both “qualitative clinical signs” and monitoring of expired carbon dioxide (1). This safety improvement long in the making identifies the monitoring of expired carbon dioxide as means to assess the adequacy of ventilation and has been implemented in part due to the risks associated with procedural sedation. (2)

In the United States, the standards relevant for carbon dioxide monitoring during anesthesia include clinical standards from the primary professional medical society of anesthesia practitioners in the United States, the American Society of Anesthesiologists (ASA) and international consensus standards for respiratory gas monitoring equipment (i.e. ISO/IEC 80601-2-55). The ASA clinical standards, termed minimum standards for basic anesthetic monitoring, were approved by the ASA House of Delegates¹ on October 21, 1986, and last amended at the 2010 Meeting of the ASA (October 20, 2010) with an effective date of July 1, 2011 and a later date with respect to continued coverage of professional liability insurance by some providers (3). This amendment expanded the use of exhaled carbon dioxide to include moderate or deep sedation. The ASA clinical standards have been widely adopted by anesthesia providers in the United States and now define the standard of care in the United States.

This standard requires that during all anesthetics, the continuous evaluation of the patient’s oxygenation, ventilation, circulation and body temperature. Section 3.1 Ventilation is intended to “ensure adequate ventilation of the patient during all anesthetics.” It includes 4 sections under methods which directly and indirectly require the use of carbon dioxide monitoring during general anesthesia, the placement and use of airway devices such as endotracheal tubes and laryngeal masks, mechanical ventilation and moderate and deep sedation. The carbon dioxide monitoring requirements with respect to each of these sections is summarized below.

SECTION 3.2.1

ADEQUACY OF VENTILATION DURING GENERAL ANESTHESIA

“Every patient receiving general anesthesia shall have the adequacy of ventilation continually evaluated.”

This includes qualitative clinical signs and monitoring. It notes that “Continual monitoring for the presence of expired carbon dioxide shall be performed unless invalidated by the nature of the patient, procedure or equipment.” Also, it notes “quantitative monitoring of the volume of expired gas is strongly encouraged.”

SECTION 3.2.2

ASSESSMENT OF ENDOTRACHEAL TUBE AND LARYNGEAL MASK POSITION

This section includes (besides clinical assessment) requirements for using expired carbon dioxide analysis from the placement of the patient interface (endotracheal tube or laryngeal mask) to its removal. This includes the availability of an audible alarm based upon the end-tidal CO₂ value. During placement, carbon dioxide must be identified in the expired gas but afterwards quantitative analysis of expired carbon dioxide gas is required.

SECTION 3.2.3

DISCONNECTION FROM A MECHANICAL VENTILATOR

This section requires the continuous use of a device to detect disconnection of components of a breathing system and the use of an audible alarm signal if a threshold has been exceeded.

The monitoring of proximal carbon dioxide (at or near the wye) can help this requirement to be met.

¹ The House of Delegates is the primary legislative and governing body of the ASA.

SECTION 3.2.4 MODERATE AND DEEP SEDATION

This section has mandated the assessment of the “adequacy of ventilation” by monitoring for the presence of exhaled carbon dioxide. Other surrogates, such as respiratory rate, a qualitative measure of ventilation, do not allow assessment of the “adequacy of ventilation.” A capnometer provides a quantitative measurement of the presence of exhaled carbon dioxide as well as a measure of the respiratory rate. With the 2010 amendments, this section (shown below) has been revised and the bar has been raised by requiring monitoring of exhaled carbon dioxide during moderate and deep sedation.

“During regional anesthesia (with no sedation) or local anesthesia (with no sedation), the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs. During moderate or deep sedation the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of exhaled carbon dioxide unless precluded or invalidated by the nature of the patient, procedure, or equipment.”

Carbon dioxide monitoring is required based upon the level of sedation, moderate or deep, irrespective of location (e.g. hospital, surgery center; doctors office) or type of anesthesia (inhaled or IV) or anesthetic used.

REFERENCES

1. ASA Standards for Basic Anesthetic Monitoring, Standards and Practice Parameters (Approved by the ASA House of Delegates on October 21, 1986, and last amended on October 20, 2010 with an effective date of July 1, 2011) - viewed 7-18-12 (www.asahq.org)
2. “No Patient Shall be Harmed by Opioid-Induced Respiratory Depression”, APSF, Fall 2011, The Official Journal of the Anesthesia Patient Safety Foundation.
3. PPM Anesthesia & the Law - A Risk Management Newsletter; Issue 31.1.



Message from President Arthur C. Jee, DMD

June
2012

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Annual Meeting goes bagless

Plan your exhibit hall visits before you leave home

ABOMS survey to evaluate recertification exam content

Save money – double your benefits: Buy the OAE bundle from aaomsstore.com

aaomsstore.com monthly special - Dental Implant DVD only \$10 while supplies last

ICD-10-CM Coding Course set for August 4, Schaumburg, IL

Still time to apply for research awards and fellowships

Dear Colleagues:

Last weekend the AAOMS Board of Trustees and senior staff welcomed more than 70 executive staff and elected officials of the state and regional OMS societies to our Rosemont, Illinois headquarters for the 2012 State Leadership Conference. This biennial meeting encourages participants to share ideas, exchange information about legislative and regulatory initiatives, and discuss regional and national trends affecting OMS practice. Additional perspectives were provided this year by guest presenters Ms. Marilyn Moats Kennedy, who offered insight into the generational traits that distinguish individuals who join professional associations; Mr. Christopher Rorick, AAOMS's Washington, DC representative and director of Government Relations at Bryan Cave LLC, who updated participants on the status of health reform in the nation's capital; and Mr. Paul Meyer, Tecker International, who discussed the key elements of association strategic planning. Representatives of 30 state and three regional societies attended this year's meeting. In my opinion there is no better venue than the day-and-a-half State Leadership Conference for an exchange of information between AAOMS and its component societies. If your state society representatives were unable to attend this year's program, please encourage them to join us in June 2014.

Capnography is coming to the OMS office in 2014

In recent years, capnography monitoring equipment, long a standard of care in the hospital OR, has been

improved and now offers real benefits in such outpatient surgery sites as the OMS office. Following the lead of the American Society of Anesthesiologists (ASA), the American Heart Association and other organizations that develop parameters of care and practice guidelines for their dental and medical surgical specialists, the AAOMS Board of Trustees approved the following revised guidelines requiring capnography equipment in the OMS office beginning in 2014:

During moderate or deep sedation and general anesthesia the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of exhaled carbon dioxide unless precluded or invalidated by the nature of the patient, procedure or equipment; and

Improvements in monitoring exhaled CO₂ during anesthesia continue to evolve. Beginning in 2014, AAOMS Office Anesthesia Evaluations will require capnography for moderate sedation, deep sedation and general anesthesia unless precluded or invalidated by the nature of the patient, procedure or equipment.

The statements appear in the *2012 Parameters of Care: Clinical Practice Guidelines for Oral and Maxillofacial Surgery (AAOMS ParCare 12), version 5.0*, which is also a component of the revised *Office Anesthesia Evaluation Manual, 8th edition*. Additional information about the new capnography guidelines will be provided in the July/August issue of *AAOMS Today*.

ASDA application for specialty recognition to be decided by 2012 ADA House

Many of you may be aware that the American Society of Dentist Anesthesiologists (ASDA) is once again petitioning the ADA for specialty recognition of dental anesthesiology. Their *Application for Recognition of Anesthesiology as a Dental Specialty* was submitted to the ADA on June 1, 2011, and will be voted upon by the ADA House of Delegates at this October's ADA Annual Session. ADA's Council on Dental Education and Licensure (CDEL), which must review all applications for specialty status before they are referred to the ADA House, voted May 4, 2012 to support the ASDA application and submits its recommendation to the House. Given the importance of safe and effective office-based anesthesia to OMSs and their patients, AAOMS reviewed the ASDA's application with considerable interest. I will discuss this issue in my upcoming *AAOMS Today* President's Column, and I encourage you to review the application and the ASDA's proposed standards revision as well. Anesthesia is critical to the practice of oral and maxillofacial surgery and we must remain alert to all developments that impact its safe and effective administration in the dental operator.

AAOMS Anesthesia Evaluation Update

As of June 6, 2012, 97.5% of AAOMS Members have successfully completed an initial AAOMS Office Anesthesia Evaluation in compliance with state society and AAOMS bylaws. All members who offer moderate sedation, deep sedation or general anesthesia in an office setting must undergo an office anesthesia evaluation and be subsequently re-evaluated every 5 years.

July 1, 2012 deadline

AAOMS and State OMS societies are working to complete the office anesthesia evaluations for a small number of remaining members who have yet to complete an initial evaluation. If you have never completed an office anesthesia evaluation and have not scheduled an evaluation with your state society, please note that you must have an evaluation completed by July 1, 2012, to avoid a loss of, or disruption to, your membership status. If you have not already done so, please schedule your office anesthesia evaluation today.

Office anesthesia re-evaluation

Re-evaluation is an ongoing process which must occur for members and states to remain compliant. State societies are completing and scheduling re-evaluations regularly. If your most recent office anesthesia evaluation was completed in 2007, you are due for a re-evaluation this year and should schedule your re-evaluation as soon as possible.

And don't forget to attend the Reference Committee meetings at 7:30 am, Tuesday, September 11. The

Reference Committees are your opportunity to comment on AAOMS's resolutions and other areas of interest to you.

AAOMS 94th Annual Meeting – September 10-15 – San Diego

Early Bird registration discount ends July 1. [Register now](#) and save!

Advance annual meeting program in the mail

Your print copy of the 94th Annual Meeting advance program should arrive at your home or office this month. But you don't need to wait until it hits your mailbox. All of the information in the print version is currently available [online](#), including convenient [online registration](#) and [hotel reservations](#) through onPeak, the association's official annual meeting housing agent.

Tickets selling briskly for President's Event

*Don't miss this year's [President's Event](#), Thursday, September 13, at [Petco Park](#), home of the San Diego Padres. This once in a lifetime experience offers access to the outfield and dugout; batting practice; Inflatable Speed Pitch, Inflatable Basketball, or Fantasy Baseball with batting cage, pitchers, ball shaggers, batting helmets, bats and balls, as well as excellent food and great music. Tickets are \$75 if purchased before the registration deadline and \$95 on site. Tickets for guests under the age of 21 are specially priced at \$60 when purchased in advance. **Please note: Tickets for the President's Event will not be mailed to attendees in advance. All tickets must be picked up at the Annual Meeting Registration Desk. In addition, lost tickets cannot be replaced.***

AAOMS Annual Meeting goes GREENER New app puts annual meeting in the palm of your hand



Need to check your personal schedule, find information about a presenter, locate a restaurant for dinner, chat with a colleague, or locate a particular vendor in the exhibit hall? The new AAOMS Annual Meeting app for your smartphone or tablet can help you accomplish all of these tasks, and much more. The new app, which will be available to all meeting participants later this summer, is part of AAOMS's green initiative. You'll find it a welcome enhancement for your San Diego experience.

Updated final program is smaller, more user friendly

AAOMS's Annual Meeting final program also reflects the association's green philosophy. This year's program has been downsized. The new program is now contained in a pocket folder that includes individual pamphlets for daily schedules, special events, the exhibit hall, business sessions, and other meeting functions. The entire folder fits in a pocket or purse. You can choose to carry the entire program folder, or only those portions that relate to your daily schedule.

Annual Meeting goes bagless

If you're like me, your closets are filled with old meeting bags that you thought you would reuse when you returned home. The additions of the new meeting app and the smaller, more portable final program encouraged us to free our membership from the weight of printed meeting materials and canvas meeting bags. We have, therefore, eliminated the meeting bag from the 94th Annual Meeting in San Diego. So come to San Diego and enjoy the meeting without the added burden of extra papers and program books.

Plan your exhibit hall visits before you leave home

The [AAOMS Virtual Exhibit Hall](#) offers an interactive map of the annual meeting's vendor booths in the San Diego Convention Center's exhibit area. When you click on a vendor's name you are immediately transferred to the company's Web site where you can view their products and services from the comfort of your home or office. Maximize your time in San Diego by selecting the booths you want to visit and the products that interest you most before you leave for the meeting. Set time aside to attend the new [Product Theaters](#) from noon to 1:00 pm on Thursday and Friday, September 13-14, where select exhibitors will offer in-depth looks at the products and services offered by prominent exhibitor companies.

Don't forget the **Member Services Pavilion** where familiar AAOMS services and partners display their products and services from Wednesday through Saturday. Exhibiting in the Pavilion are the AAOMS Resource Booth, the OMS Foundation, OMSPAC, Treloar & Heisel, OMS National Insurance Company (OMSNIC), the International Association of OMS (IAOMS), Health Volunteers Overseas (HVO) and the AAOMS Membership Services-CareerLine office, where you can learn about new member benefits, check on your membership status, or sponsor your assistants for AAOMS allied staff membership. The Membership Office is also the place to post resumes and available career opportunities on the bulletin boards or through the AAOMS Career Line.

ABOMS survey to evaluate recertification exam content

In order to insure a fair and relevant examination process, the American Board of Oral and Maxillofacial Surgery has embarked on an in-depth evaluation of the current content of the Recertification Examination. A practice analysis survey will be e-mailed **next week** to all diplomates of the ABOMS who are required to participate in Certification Maintenance. It is critical that every Diplomate who receives this survey responds with complete and accurate information, as thus data will guide the ABOMS in the construction of an examination that truly reflects the contemporary practice of oral and maxillofacial surgery.

Save money – double your benefits: Buy the OAE bundle from aaomsstore.com

The newly revised [Office Anesthesia Evaluation Manual](#), 8th edition, is now available from the AAOMS estore in its traditional [hard-copy binder](#) AND a brand new, [downloadable e-pub](#) for your smartphone or tablet. Purchase the versions individually at a cost of \$95 each, or buy them together at the low [bundled](#) cost of \$158. Both versions feature updated algorithms from the American Heart Association's Pediatric Advanced Life Support (PALS) and Advanced Cardiac Life Support (ACLS), as well as the new *AAOMS Parameters of Care: Patient Assessment and Anesthesia in Outpatient Facilities*. The *Office Anesthesia Evaluation Manual* is an essential tool that assists OMS offices in preparing for their OAE inspection, helps anesthesia assistants study for the Dental Anesthesia Assistant National Certification Examination (DAANCE) and serves as a reference in the event of an anesthesia emergency.

aaomsstore.com monthly special Dental Implant DVD only \$10 while supplies last

Take advantage of extraordinary savings! Throughout June, [A Patient's Guide to Dental Implants: Your Smile for a Lifetime](#), AAOMS's Dental Implant DVD, will be available for just \$10 while supplies last! Regularly \$25,

this DVD is perfect to play in your waiting room, for community presentations or even patient giveaways!

ICD-10-CM Coding Course set for August 4, Schaumburg, IL

AAOMS's new ICD-10-CM Coding Course, *Developing Expertise in OMS Diagnosis Coding*, is designed to teach OMS coding professionals how to become proficient in the ICD-10-CM coding system that is tentatively scheduled for implementation October 1, 2014. Register now to attend the one-day workshop in August 4, 2012 at the Hyatt Regency in Schaumburg, IL. You and your staff will learn about the history, structure, and format of ICD-10-CM; how it compares to ICD-9-CM; and how to apply the new coding conventions and guidelines to OMS diagnostic code assignment.

Still time to apply for research awards and fellowships

The application deadline for Oral and Maxillofacial Surgery Foundation research awards and fellowships is approaching! Applications must be received by 5:00 pm, EDT, **Sunday, July 15, 2012**. The OMS Foundation offers: Research Support Grants, Student Research Training Awards, Clinical Surgery Fellowships, and Practitioner Innovation Development Awards.

Be Recognized at the Annual Meeting

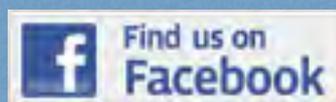
Get the recognition you deserve at the Annual Meeting. Make a gift to REAP—Research and Education Advance Patient care by August 31, 2012, and secure your spot on the OMS Foundation roster of donors. Your gift to REAP is a meaningful investment in our specialty. The OMS Foundation's annual funding of research awards, fellowships and other projects allow our specialty to develop new areas of scientific study which will improve patient care now and in the future.

Sincerely,



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Guideline for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures

Developed and Endorsed by

American Academy of Pediatrics and the American Academy of Pediatric Dentistry

Adopted

2006

Reaffirmed

2011

Abstract

The safe sedation of children for procedures requires a systematic approach that includes the following: no administration of sedating medication without the safety net of medical supervision, careful pre-sedation evaluation for underlying medical or surgical conditions that would place the child at increased risk from sedating medications, appropriate fasting for elective procedures and a balance between depth of sedation and risk for those who are unable to fast because of the urgent nature of the procedure, a focused airway examination for large tonsils or anatomic airway abnormalities that might increase the potential for airway obstruction, a clear understanding of the pharmacokinetic and pharmacodynamic effects of the medications used for sedation as well as an appreciation for drug interactions, appropriate training and skills in airway management to allow rescue of the patient, age- and size-appropriate equipment for airway management and venous access, appropriate medications and reversal agents, sufficient numbers of people to both carry out the procedure and monitor the patient, appropriate physiologic monitoring during and after the procedure, a properly equipped and staffed recovery area, recovery to pre-sedation level of consciousness before discharge from medical supervision, and appropriate discharge instructions.

Introduction

Invasive diagnostic and minor surgical procedures on pediatric patients outside the traditional operating room setting have increased in the last decade. As a consequence of this change and the increased awareness of the importance of providing analgesia and anxiolysis, the need for sedation for procedures in physician offices, dental offices, subspecialty procedure suites, imaging facilities, emergency departments, and ambulatory surgery centers also has markedly increased.¹⁻³⁷ In recognition of this need for both elective and emergency use of sedation in nontraditional settings, the American Academy of Pediatrics (AAP) and American Academy of Pediatric Dentistry (AAPD) have published a series of guidelines for the monitoring and

management of pediatric patients during and after sedation for a procedure.³⁸⁻⁴² The purpose of this updated statement is to unify the guidelines for sedation used by medical and dental practitioners, add clarifications regarding monitoring modalities, provide new information from medical and dental literature, and suggest methods for further improvement in safety and outcomes. With the revision of this document, the Joint Commission on Accreditation of Healthcare Organizations, the American Society of Anesthesiologists (ASA), the AAP, and the AAPD will use similar language to define sedation categories and the expected physiologic responses.⁴¹⁻⁴⁴

This revised statement reflects the current understanding of appropriate monitoring needs both during and after sedation for a procedure.^{4,5,12,19,21,22,26,45-53} The monitoring and care outlined in this guideline may be exceeded at any time, based on the judgment of the responsible practitioner. Although intended to encourage high-quality patient care, adherence to this guideline cannot guarantee a specific patient outcome. However, structured sedation protocols designed to incorporate the principles in this document have been widely implemented and shown to reduce morbidity.^{29,32-34,37,54,55} This guideline is proffered with the awareness that, regardless of the intended level of sedation or route of administration, the sedation of a pediatric patient represents a continuum and may result in respiratory depression and the loss of the patient's protective reflexes.^{43,57-60}

Sedation of pediatric patients has serious associated risks, such as hypoventilation, apnea, airway obstruction, laryngospasm, and cardiopulmonary impairment.^{2,6,22,45,46,54,60-69} These adverse responses during and after sedation for a diagnostic or therapeutic procedure may be minimized, but not completely eliminated, by a careful preprocedure review of the patient's underlying medical conditions and consideration of how the sedation process might affect or be affected by these conditions.⁵⁴ Appropriate drug selection for the intended procedure as well as the presence of an individual with the skills needed to rescue a patient from an adverse response are essential.

Appropriate physiologic monitoring and continuous observation by personnel not directly involved with the procedure allow for accurate and rapid diagnosis of complications and initiation of appropriate rescue interventions.^{46,51,54}

The sedation of children is different from the sedation of adults. Sedation in children often is administered to control behavior to allow the safe completion of a procedure. A child's ability to control his or her own behavior to cooperate for a procedure depends both on his or her chronologic and developmental age. Often, children younger than six years and those with developmental delay require deep levels of sedation to gain control of their behavior.⁵⁷ Therefore, the need for deep sedation should be anticipated. Children in this age group are particularly vulnerable to the sedating medication's effects on respiratory drive, patency of the airway, and protective reflexes.⁴⁶ Studies have shown that it is common for children to pass from the intended level of sedation to a deeper, unintended level of sedation.^{56,59,70} For older and cooperative children, other modalities, such as parental presence, hypnosis, distraction, topical local anesthetics, and guided imagery, may reduce the need for or the needed depth of pharmacologic sedation.^{31,71-81}

The concept of rescue is essential to safe sedation. Practitioners of sedation must have the skills to rescue the patient from a deeper level than that intended for the procedure. For example, if the intended level of sedation is "minimal," practitioners must be able to rescue from "moderate sedation"; if the intended level of sedation is "moderate," practitioners must have the skills to rescue from "deep sedation"; if the intended level of sedation is "deep," practitioners must have the skills to rescue from a state of "general anesthesia." The ability to rescue means that practitioners must be able to recognize the various levels of sedation and have the skills necessary to provide appropriate cardiopulmonary support if needed. Sedation and anesthesia in a nonhospital environment (private physician or dental office or freestanding imaging facility) may be associated with an increased incidence of "failure to rescue" the patient should an adverse event occur, because the only backup in this venue may be to activate emergency medical services (EMS).^{46,82} Rescue therapies require specific training and skills.^{46,54,83,84} Maintenance of the skills needed to perform successful bag-valve-mask ventilation is essential to successfully rescue a child who has become apneic or developed airway obstruction. Familiarity with emergency airway management procedure algorithms is essential.⁸³⁻⁸⁷ Practitioners should have an in-depth knowledge of the agents they intend to use and their potential complications. A number of reviews and hand-books for sedating pediatric patients are available.^{32,48,55,88-93} This guideline is intended for all venues in which sedation for a procedure might be performed (hospital, surgical center, freestanding imaging facility, dental facility, or private office).

There are other guidelines for specific situations and personnel that are beyond the scope of this document. Specifically, guidelines for the delivery of general anesthesia and monitored anesthesia care (sedation or analgesia), outside or within the operating room by anesthesiologists or other

practitioners functioning within a department of anesthesiology, are addressed by policies developed by the ASA and by individual departments of anesthesiology.⁹⁴ Also, guidelines for the sedation of patients undergoing mechanical ventilation in a critical care environment or for providing analgesia for patients postoperatively, patients with chronic painful conditions, and hospice care are beyond the scope of this document.

Definitions of terms for this report

- "Pediatric patients": all patients through 21 years of age, as defined by the AAP.
- "Must" or "shall": an imperative need or duty that is essential, indispensable, or mandatory.
- "Should": the recommended need and/or duty.
- "May" or "could": freedom or liberty to follow a suggested or reasonable alternative.
- "Medical supervision" or "medical personnel": a current, licensed practitioner in medicine, surgery, or dentistry trained in the administration of medications used for procedural sedation and the management of complications associated with these medications.
- "Are encouraged": a suggested or reasonable action to be taken.
- "ASA Physical Status Classification": guidelines for classifying the baseline health status according to the ASA (see Appendix B).
- "Minimal sedation" (old terminology "anxiolysis"): a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected.
- "Moderate sedation" (old terminology "conscious sedation" or "sedation/analgesia"): a drug-induced depression of consciousness during which patients respond purposefully to verbal commands (eg, "open your eyes" either alone or accompanied by light tactile stimulation—a light tap on the shoulder or face, not a sternal rub). For older patients, this level of sedation implies an interactive state; for younger patients, age-appropriate behaviors (eg, crying) occur and are expected. Reflex withdrawal, although a normal response to a painful stimulus, is not considered as the only age-appropriate purposeful response (eg, it must be accompanied by another response, such as pushing away the painful stimulus so as to confirm a higher cognitive function). With moderate sedation, no intervention is required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained. However, in the case of procedures that may themselves cause airway obstruction (eg, dental or endoscopic), the practitioner must recognize an obstruction and assist the patient in opening the airway. If the patient is not making spontaneous efforts to open his/her airway so as to relieve the obstruction, then the patient should be considered to be deeply sedated.
- "Deep sedation" ("deep sedation/analgesia"): a drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully (see discussion of reflex withdrawal above) after repeated verbal or painful

stimulation (eg, purposefully pushing away the noxious stimuli). The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained. A state of deep sedation may be accompanied by partial or complete loss of protective airway reflexes.

- “General anesthesia”: a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive-pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

Goals of sedation

The goals of sedation in the pediatric patient for diagnostic and therapeutic procedures are: 1) to guard the patient’s safety and welfare, 2) to minimize physical discomfort and pain, 3) to control anxiety, minimize psychological trauma, and maximize the potential for amnesia, 4) to control behavior and/or movement so as to allow the safe completion of the procedure, and 5) to return the patient to a state in which safe discharge from medical supervision, as determined by recognized criteria, is possible (Appendix A).

These goals can best be achieved by selecting the lowest dose of drug with the highest therapeutic index for the procedure. It is beyond the scope of this document to specify which drugs are appropriate for which procedures; however, the selection of the fewest number of drugs and matching drug selection to the type and goal of the procedure are essential for safe practice.^{53,88,91-93,95-97} For example, analgesic medications such as opioids are indicated for painful procedures. For non-painful procedures, such as computed tomography or magnetic resonance imaging (MRI), sedatives/hypnotics are preferred. When both sedation and analgesia are desirable (eg, fracture reduction), either single agents with analgesic/sedative properties or combination regimens commonly are used. Anxiolysis and amnesia are additional goals that should be considered in selection of agents for particular patients. However, the potential for an adverse outcome may be increased when three or more sedating medications are administered.^{44,98} Knowledge of each drug’s time of onset, peak response, and duration of action is essential. Although the concept of titration of drug to effect is critical, one must know whether the previous dose has taken full effect before administering additional drug. Such management will improve safety and outcomes. Drugs with long durations of action (eg, chloral hydrate, intramuscular pentobarbital, phenothiazines) will require longer periods of observation even after the child achieves currently used recovery and discharge criteria.^{45,99,100} This concept is particularly important for infants and toddlers transported in car safety seats who are at risk of re-sedation after discharge because of residual prolonged drug effects with the potential for airway obstruction.^{45,46}

General guidelines

Candidates

Patients who are in ASA classes I and II are frequently considered appropriate candidates for minimal, moderate, or deep sedation (Appendix B). Children in ASA classes III and IV, children with special needs, and those with anatomic airway abnormalities or extreme tonsillar hypertrophy present issues that require additional and individual consideration, particularly for moderate and deep sedation.⁵¹ Practitioners are encouraged to consult with appropriate subspecialists and/or an anesthesiologist for patients at increased risk of experiencing adverse sedation events because of their underlying medical/surgical conditions.

Responsible person

The pediatric patient shall be accompanied to and from the treatment facility by a parent, legal guardian, or other responsible person. It is preferable to have two or more adults accompany children who are still in car safety seats if transportation to and from a treatment facility is provided by one of the adults.¹⁰¹

Facilities

The practitioner who uses sedation must have immediately available facilities, personnel, and equipment to manage emergency and rescue situations. The most common serious complications of sedation involve compromise of the airway or depressed respirations resulting in airway obstruction, hypoventilation, hypoxemia, and apnea. Hypotension and cardiopulmonary arrest may occur, usually from inadequate recognition and treatment of respiratory compromise. Other rare complications may also include seizures and allergic reactions. Facilities providing pediatric sedation should monitor for, and be prepared to treat, such complications.

Back-up emergency services

A protocol for access to back-up emergency services shall be clearly identified, with an outline of the procedures necessary for immediate use. For nonhospital facilities, a protocol for ready access to ambulance service and immediate activation of the EMS system for life-threatening complications must be established and maintained. It should be understood that the availability of EMS services does not replace the practitioner’s responsibility to provide initial rescue in managing life-threatening complications.

On-site monitoring and rescue equipment

An emergency cart or kit must be immediately accessible. This cart or kit must contain equipment to provide the necessary age- and size-appropriate drugs and equipment to resuscitate a nonbreathing and unconscious child. The contents of the kit must allow for the provision of continuous life support while the patient is being transported to a medical facility or to another area within a medical facility. All equipment and drugs must be checked and maintained on a scheduled basis (see Appendices C and D for suggested drugs and emergency life support equipment to consider before the need for rescue occurs). Monitoring devices, such as electrocardiography (ECG)

machines, pulse oximeters (with size-appropriate oximeter probes), end-tidal carbon dioxide monitors, and defibrillators (with size-appropriate defibrillator paddles), must have a safety and function check on a regular basis as required by local or state regulation.

Documentation before sedation

Documentation shall include, but not be limited to, the guidelines that follow:

1. Informed consent. The patient record shall document that appropriate informed consent was obtained according to local, state, and institutional requirements.¹⁰²
2. Instructions and information provided to the responsible person. The practitioner shall provide verbal and/or written instructions to the responsible person. Information shall include objectives of the sedation and anticipated changes in behavior during and after sedation. Special instructions shall be given to the adult responsible for infants and toddlers who will be transported home in a car safety seat regarding the need to carefully observe the child's head position so as to avoid airway obstruction. Transportation by car safety seat poses a particular risk for infants who have received medications known to have a long half-life, such as chloral hydrate, intramuscular pentobarbital, or phenothiazine.^{45,46,100,103} Consideration for a longer period of observation shall be given if the responsible person's ability to observe the child is limited (eg, only one adult who also has to drive). Another indication for prolonged observation would be a child with an anatomic airway problem or a severe underlying medical condition. A 24-hour telephone number for the practitioner or his or her associates shall be provided to all patients and their families. Instructions shall include limitations of activities and appropriate dietary precautions.

Dietary precautions

Agents used for sedation have the potential to impair protective airway reflexes, particularly during deep sedation. Although a rare occurrence, pulmonary aspiration may occur if the child regurgitates and cannot protect his or her airway. Therefore, it is prudent that before sedation, the practitioner evaluate preceding food and fluid intake. It is likely that the risk of aspiration during procedural sedation differs from that during general anesthesia involving tracheal intubation or other airway manipulation.^{104,105} However, because the absolute risk of aspiration during procedural sedation is not yet known, guidelines for fasting periods before elective sedation generally should follow those used for elective general anesthesia. For emergency procedures in children who have not fasted, the risks of sedation and the possibility of aspiration must be balanced against the benefits of performing the procedure promptly (see below). Further research is needed to better elucidate the relationships between various fasting intervals and sedation complications.

Before Elective Sedation

Children receiving sedation for elective procedures should generally follow the same fasting guidelines as before general anesthesia (Table 1). It is permissible for routine necessary medications to be taken with a sip of water on the day of the procedure.

For the Emergency Patient

The practitioner must always balance the possible risks of sedating nonfasted patients with the benefits and necessity for completing the procedure. In this circumstance, the use of sedation must be preceded by an evaluation of food and fluid intake. There are few published studies with adequate statistical power to provide guidance to the practitioner regarding safety or risk of pulmonary aspiration of gastric contents during procedural sedation.¹⁰⁴⁻¹⁰⁹ When protective airway reflexes are lost, gastric contents may be regurgitated into the airway. Therefore, patients with a history of recent oral intake or with other known risk factors, such as trauma, decreased level of consciousness, extreme obesity, pregnancy, or bowel motility dysfunction, require careful evaluation before administration of sedatives. When proper fasting has not been ensured, the increased risks of sedation must be carefully weighed against its benefits, and the lightest effective sedation should be used. The use of agents with less risk of depressing protective airway reflexes may be preferred.¹¹⁰ Some emergency patients requiring deep sedation may require protection of the airway before sedation.

Use of immobilization devices

Immobilization devices, such as papoose boards, must be applied in such a way as to avoid airway obstruction or chest restriction. The child's head position and respiratory excursions should be checked frequently to ensure airway patency. If an immobilization device is used, a hand or foot should be kept exposed, and the child should never be left unattended. If sedating medications are administered in conjunction with an immobilization device, monitoring must be used at a level consistent with the level of sedation achieved.

Documentation at the time of sedation

1. Health evaluation. Before sedation, a health evaluation shall be performed by an appropriately-licensed practitioner and reviewed by the sedation team at the time of treatment for possible interval changes. The purpose of this evaluation is not only to document baseline status but also to determine whether patients present specific risk factors that may warrant additional consultation before sedation. This evaluation will also screen out patients whose sedation will require more advanced airway or cardiovascular management skills or alterations in the doses or types of medications used for procedural sedation.

A new concern for the practitioner is the widespread use of medications that may interfere with drug absorption or metabolism and, therefore, enhance or shorten the effect time of sedating medications. Herbal medicines

(eg, St. John's wort, echinacea) may alter drug pharmacokinetics through inhibition of the cytochrome P450 system, resulting in prolonged drug effect and altered (increased or decreased) blood drug concentrations.¹¹¹⁻¹¹⁶ Kava may increase the effects of sedatives by potentiating gamma-aminobutyric acid inhibitory neurotransmission, and valerian may itself produce sedation that apparently is mediated through modulation of gamma-aminobutyric acid neurotransmission and receptor function.^{117,118} Drugs such as erythromycin, cimetidine, and others also may inhibit the cytochrome P450 system, resulting in prolonged sedation with midazolam as well as other medications competing for the same enzyme systems.¹¹⁹⁻¹²² Medications used to treat human immunodeficiency virus infection, some anticonvulsants, and some psychotropic medications also may produce clinically important drug-drug interactions.¹²³⁻¹²⁵ Therefore, a careful drug history is a vital part of the safe sedation of children. The clinician should consult various sources (a pharmacist, textbooks, online services, or handheld databases) for specific information on drug interactions.¹²⁶

The health evaluation should include:

- Age and weight;
- Health history, including: 1) allergies and previous allergic or adverse drug reactions, 2) medication/drug history, including dosage, time, route, and site of administration for prescription, over-the-counter, herbal, or illicit drugs, 3) relevant diseases, physical abnormalities, and neurologic impairment that might increase the potential for airway obstruction, such as a history of snoring or obstructive sleep apnea,^{127,128} 4) pregnancy status, 5) a summary of previous relevant hospitalizations, 6) history of sedation or general anesthesia and any complications or unexpected responses, and 7) relevant family history, particularly related to anesthesia;
- Review of systems with a special focus on abnormalities of cardiac, pulmonary, renal, or hepatic function that might alter the child's expected responses to sedating/analgesic medications;
- Vital signs, including heart rate, blood pressure, respiratory rate, and temperature (for some children who are very upset or noncooperative, this may not be possible and a note should be written to document this occurrence);
- Physical examination, including a focused evaluation of the airway (tonsillar hypertrophy, abnormal anatomy—eg, mandibular hypoplasia) to determine whether there is an increased risk of airway obstruction^{54,129,130};
- Physical status evaluation [ASA classification (see Appendix B)];
- Name, address, and telephone number of the child's medical home.

For hospitalized patients, the current hospital record may suffice for adequate documentation of pre-sedation health; however, a brief note shall be written documenting that the chart was reviewed, positive findings were noted, and a management plan was formulated. If the clinical or emergency condition of the patient precludes acquiring complete information before sedation, this health evaluation should be obtained as soon as feasible.

2. Prescriptions. When prescriptions are used for sedation, a copy of the prescription or a note describing the content of the prescription should be in the patient's chart along with a description of the instructions that were given to the responsible person. **Prescription medications intended to accomplish procedural sedation must not be administered without the benefit of direct supervision by trained medical personnel.** Administration of sedating medications at home poses an unacceptable risk, particularly for infants and preschool-aged children traveling in car safety seats.⁴⁶

Documentation during treatment

The patient's chart shall contain a time-based record that includes the name, route, site, time, dosage, and patient effect of administered drugs. Before sedation, a "time out" should be performed to confirm the patient's name, procedure to be performed, and site of the procedure.⁴³ During administration, the inspired concentrations of oxygen and inhalation sedation agents and the duration of their administration shall be documented. Before drug administrations, special attention must be paid to calculation of dosage (ie, mg/kg). The patient's chart shall contain documentation at the time of treatment that the patient's level of consciousness and responsiveness, heart rate, blood pressure, respiratory rate, and oxygen saturation were monitored until the patient attained predetermined discharge criteria (see Appendix A). A variety of sedation scoring systems are available and may aid this process.^{70,100} Adverse events and their treatment shall be documented.

Documentation after treatment

The time and condition of the child at discharge from the treatment area or facility shall be documented; this should include documentation that the child's level of consciousness and oxygen saturation in room air have returned to a state that is safe for discharge by recognized criteria (see Appendix A). Patients receiving supplemental oxygen before the procedure should have a similar oxygen need after the procedure. Because some sedation medications are known to have a long half-life and may delay a patient's complete return to baseline or pose the risk of re-sedation,^{45,103,131,132} some patients might benefit from a longer period of less-intense observation (eg, a step-down observation area) before discharge from medical supervision.¹³³ Several scales to evaluate recovery have been devised and validated.^{70,134,135} A recently described and simple evaluation tool may be the ability of the infant or child to remain awake for at least 20 minutes when placed in a quiet environment.¹⁰⁰

Continuous quality improvement

The essence of medical error reduction is a careful examination of index events and root cause analysis of how the event could be avoided in the future.¹³⁷⁻¹⁴¹ Therefore, each facility should maintain records that track adverse events, such as desaturation, apnea, laryngospasm, the need for airway interventions including jaw thrust, positive pressure ventilation, prolonged sedation, unanticipated use of reversal agents, unintended or prolonged hospital admission, and unsatisfactory sedation/analgesia/anoxiolysis. Such events can then be examined for assessment of risk reduction and improvement in patient satisfaction.

Preparation and setting up for sedation procedures

Part of the safety net of sedation is to use a systematic approach so as to not overlook having an important drug, piece of equipment, or monitor immediately available at the time of a developing emergency. To avoid this problem, it is helpful to use an acronym that allows the same setup and checklist for every procedure. A commonly used acronym useful in planning and preparation for a procedure is **SOAPME**:

- S** = Size-appropriate **suction** catheters and a functioning **suction** apparatus (eg, Yankauer-type suction)
- O** = An adequate **oxygen** supply and functioning flow meters/other devices to allow its delivery
- A** = **Airway**: size-appropriate airway equipment [nasopharyngeal and oropharyngeal airways, laryngoscope blades (checked and functioning), endotracheal tubes, stylets, face mask, bag-valve-mask or equivalent device (functioning)]
- P** = **Pharmacy**: all the basic drugs needed to support life during an emergency, including antagonists as indicated
- M** = **Monitors**: functioning pulse oximeter with size-appropriate oximeter probes^{141,142} and other monitors as appropriate for the procedure (eg, noninvasive blood pressure, end-tidal carbon dioxide, ECG, stethoscope)
- E** = Special **equipment or drugs** for a particular case (eg, defibrillator)

Specific guidelines for intended level of sedation

Minimal sedation

Minimal sedation (old terminology “anoxiolysis”) is a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected. Children who have received minimal sedation generally will not require more than observation and intermittent assessment of their level of sedation. Some children will become moderately sedated despite the intended level of minimal sedation; should this occur, then the guidelines for moderate sedation apply.⁵⁷

Moderate sedation

“Moderate sedation” (old terminology “conscious sedation” or “sedation/analgesia”) is a drug-induced depression of con-

sciousness during which patients respond purposefully to verbal commands or following light tactile stimulation (see Definition of Terms for This Report). No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function usually is maintained. The caveat that loss of consciousness should be unlikely is a particularly important aspect of the definition of moderate sedation. The drugs and techniques used should carry a margin of safety wide enough to render unintended loss of consciousness highly unlikely. Because the patient who receives moderate sedation may progress into a state of deep sedation and obtundation, the practitioner should be prepared to increase the level of vigilance corresponding to what is necessary for deep sedation.⁵⁷

Personnel

The practitioner

The practitioner responsible for the treatment of the patient and/or the administration of drugs for sedation must be competent to use such techniques, to provide the level of monitoring provided in this guideline, and to manage complications of these techniques (ie, to be able to rescue the patient). Because the level of intended sedation may be exceeded, the practitioner must be sufficiently skilled to provide rescue should the child progress to a level of deep sedation. The practitioner must be trained in, and capable of providing, at the minimum, bag-valve-mask ventilation so as to be able to oxygenate a child who develops airway obstruction or apnea. Training in, and maintenance of, advanced pediatric airway skills is required; regular skills reinforcement is strongly encouraged.

Support personnel

The use of moderate sedation shall include provision of a person, in addition to the practitioner, whose responsibility is to monitor appropriate physiologic parameters and to assist in any supportive or resuscitation measures, if required. This individual may also be responsible for assisting with interruptible patient-related tasks of short duration.⁴⁴ This individual must be trained in and capable of providing pediatric basic life support. The support person shall have specific assignments in the event of an emergency and current knowledge of the emergency cart inventory. The practitioner and all ancillary personnel should participate in periodic reviews and practice drills of the facility’s emergency protocol to ensure proper function of the equipment and coordination of staff roles in such emergencies.

Monitoring and Documentation

Baseline

Before administration of sedative medications, a baseline determination of vital signs shall be documented. For some children who are very upset or noncooperative, this may not be possible and a note should be written to document this happenstance.

During the procedure

The practitioner shall document the name, route, site, time of administration, and dosage of all drugs administered. There shall be continuous monitoring of oxygen saturation and heart rate and intermittent recording of respiratory rate and blood pressure; these should be recorded in a time-based record. Restraining devices should be checked to prevent airway obstruction or chest restriction. If a restraint device is used, a hand or foot should be kept exposed. The child's head position should be checked frequently to ensure airway patency. A functioning suction apparatus must be present.

After the procedure

The child who has received moderate sedation must be observed in a suitably equipped recovery facility [eg, the facility must have functioning suction apparatus as well as the capacity to deliver more than 90 percent oxygen and positive-pressure ventilation (eg, bag and mask with oxygen capacity as described previously)]. The patient's vital signs should be recorded at specific intervals. If the patient is not fully alert, oxygen saturation and heart rate monitoring shall be used continuously until appropriate discharge criteria are met (see Appendix A). Because sedation medications with a long half-life may delay the patient's complete return to baseline or pose the risk of re sedation, some patients might benefit from a longer period of less-intense observation (eg, a step-down observation area where multiple patients can be observed simultaneously) before discharge from medical supervision (see also Documentation Before Sedation for instructions to families).^{45,103,131,132} A recently described and simple evaluation tool may be the ability of the infant or child to remain awake for at least 20 minutes when placed in a quiet environment.¹⁰⁰ Patients who have received reversal agents, such as flumazenil or naloxone, will also require a longer period of observation, because the duration of the drugs administered may exceed the duration of the antagonist, which can lead to re sedation.

Deep sedation

Deep sedation is a drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully after repeated verbal or painful stimulation (see Definition of Terms for this report). The state and risks of deep sedation may be indistinguishable from those of general anesthesia.

Personnel

There must be one person available whose only responsibility is to constantly observe the patient's vital signs, airway patency, and adequacy of ventilation and to either administer drugs or direct their administration. At least one individual must be present who is trained in, and capable of, providing advanced pediatric life support, and who is skilled in airway management and cardiopulmonary resuscitation; training in pediatric advanced life support is required.

Equipment

In addition to the equipment previously cited for moderate sedation, an electrocardiographic monitor and a defibrillator for use in pediatric patients should be readily available.

Vascular Access

Patients receiving deep sedation should have an intravenous line placed at the start of the procedure or have a person skilled in establishing vascular access in pediatric patients immediately available.

Monitoring and Documentation

A competent individual shall observe the patient continuously. The monitoring shall include all parameters described for moderate sedation. Vital signs, including oxygen saturation and heart rate, must be documented at least every five minutes in a time-based record. The use of a precordial stethoscope or capnograph for patients difficult to observe (eg, during MRI, in a darkened room) to aid in monitoring adequacy of ventilation is encouraged.¹⁴³ The practitioner shall document the name, route, site, time of administration, and dosage of all drugs administered. The inspired concentrations of inhalation sedation agents and oxygen and the duration of administration shall be documented.

Postsedation Care

The facility and procedures followed for postsedation care shall conform to those described under "Moderate Sedation."

Special considerations

Local anesthetic agents

All local anesthetic agents are cardiac depressants and may cause central nervous system excitation or depression. Particular attention should be paid to dosage in small children.^{64,66} To ensure that the patient will not receive an excessive dose, the maximum allowable safe dosage (ie, mg/kg) should be calculated before administration. There may be enhanced sedative effects when the highest recommended doses of local anesthetic drugs are used in combination with other sedatives or narcotics (see Tables two and three for limits and conversion tables of commonly used local anesthetics).^{64,144-157} In general, when administering local anesthetic drugs, the practitioner should aspirate frequently so as to minimize the likelihood that the needle is in a blood vessel; lower doses should be used when injecting into vascular tissues.¹⁵⁸

Pulse oximetry

The new generation of pulse oximeters is less susceptible to motion artifacts and may be more useful than older oximeters that do not contain the updated software.¹⁵⁹⁻¹⁶³ Oximeters that change tone with changes in hemoglobin saturation provide immediate aural warning to everyone within hearing distance. It is essential that any oximeter probe is positioned properly; clip-on devices are prone to easy displacement, which may produce artifactual data (eg, under- or overestimation of oxygen saturation).^{141,142}

Capnography

Expired carbon dioxide monitoring is valuable to diagnose the simple presence or absence of respirations, airway obstruction, or respiratory depression, particularly in patients sedated in less-accessible locations, such as magnetic resonance imaging or computerized axial tomography devices or darkened rooms.^{47,49,50,143,164-173} The use of expired carbon dioxide monitoring devices is encouraged for sedated children, particularly in situations where other means of assessing the adequacy of ventilation are limited. Several manufacturers have produced nasal cannulae that allow simultaneous delivery of oxygen and measurement of expired carbon dioxide values.^{164,165} Although these devices can have a high degree of false-positive alarms, they are also very accurate for the detection of complete airway obstruction or apnea.^{166,168,173}

Adjuncts to airway management and resuscitation

The vast majority of sedation complications can be managed with simple maneuvers, such as supplemental oxygen, opening the airway, suctioning, and bag-mask-valve ventilation. Occasionally, endotracheal intubation is required for more prolonged ventilatory support. In addition to standard endotracheal intubation techniques, a number of new devices are available for the management of patients with abnormal airway anatomy or airway obstruction. Examples include the laryngeal mask airway (LMA), the cuffed oropharyngeal airway, and a variety of kits to perform an emergency cricothyrotomy.

The largest clinical experience in pediatrics is with the LMA, which is available in a variety of sizes and can even be used in neonates. Use of the LMA is now being introduced into advanced airway training courses, and familiarity with insertion techniques can be life saving.^{174,175} The LMA also can serve as a bridge to secure airway management in children with anatomic airway abnormalities.^{176,177} Practitioners are encouraged to gain experience with these techniques as they become incorporated into pediatric advanced life support courses.

An additional emergency device with which to become familiar is the intraosseous needle. Intraosseous needles also are available in several sizes and can be life saving in the rare situation when rapid establishment of intravenous access is not possible. Familiarity with the use of these adjuncts for the management of emergencies can be obtained by keeping current with resuscitation courses, such as Pediatric Advanced Life Support and Advanced Pediatric Life Support or other approved programs.

Patient simulators

Advances in technology, particularly patient simulators that allow a variety of programmed adverse events (eg, apnea, bronchospasm, laryngospasm), response to medical interventions, and printouts of physiologic parameters, are now available. The use of such devices is encouraged to better train medical professionals to respond more appropriately and effectively to rare events.¹⁷⁸⁻¹⁸⁰

Monitoring during MRI

The powerful magnetic field and the generation of radiofrequency emissions necessitate the use of special equipment to provide continuous patient monitoring throughout the MRI scanning procedure. Pulse oximeters capable of continuous function during scanning should be used in any sedated or restrained pediatric patient. Thermal injuries can result if appropriate precautions are not taken; avoid coiling the oximeter wire and place the probe as far from the magnetic coil as possible to diminish the possibility of injury. Electrocardiogram monitoring during magnetic resonance imaging has been associated with thermal injury; special MRI-compatible ECG pads are essential to allow safe monitoring.¹⁸¹⁻¹⁸⁴ Expired carbon dioxide monitoring is strongly encouraged in this setting.

Nitrous oxide

Inhalation sedation/analgesia equipment that delivers nitrous oxide must have the capacity of delivering 100 percent and never less than 25 percent oxygen concentration at a flow rate appropriate to the size of the patient. Equipment that delivers variable ratios of nitrous oxide to oxygen and that has a delivery system that covers the mouth and nose must be used in conjunction with a calibrated and functional oxygen analyzer. All nitrous oxide-to-oxygen inhalation devices should be calibrated in accordance with appropriate state and local requirements. Consideration should be given to the National Institute of Occupational Safety and Health standards for the scavenging of waste gases.¹⁸⁵ Newly constructed or reconstructed treatment facilities, especially those with piped-in nitrous oxide and oxygen, must have appropriate state or local inspections to certify proper function of inhalation sedation/analgesia systems before any delivery of patient care.

Nitrous oxide in oxygen with varying concentrations has been successfully used for many years to provide analgesia for a variety of painful procedures in children.^{15,186-210} The use of nitrous oxide for minimal sedation is defined as the administration of nitrous oxide (50 percent or less) with the balance as oxygen, without any other sedative, narcotic, or other depressant drug before or concurrent with the nitrous oxide to an otherwise healthy patient in ASA class I or II. The patient is able to maintain verbal communication throughout the procedure. It should be noted that although local anesthetics have sedative properties, for purposes of this guideline, they are not considered sedatives in this circumstance. If nitrous oxide in oxygen is combined with other sedating medications, such as chloral hydrate, midazolam, or an opioid, or if nitrous oxide is used in concentrations greater than 50 percent, the likelihood for moderate or deep sedation increases.^{211,212} In this situation, the clinician must be prepared to institute the guidelines for moderate or deep sedation as indicated by the patient's response.²¹³

Table 1. APPROPRIATE INTAKE OF FOOD AND LIQUIDS BEFORE ELECTIVE SEDATION*

Ingested Material	Minimum Fasting Period (h)
Clear liquids: water, fruit juices without pulp, carbonated beverages, clear tea, black coffee	2
Breast milk	4
Infant formula	6
Nonhuman milk: because nonhuman milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period	6
Light meal: a light meal typically consists of toast and clear liquids. Meals that include fried or fatty foods or meat may prolong gastric emptying time. Both the amount and type of foods ingested must be considered when determining an appropriate fasting period.	6

* American Society of Anesthesiologists. Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures. A Report of the American Society of Anesthesiologists. Available at: "<http://www.asahq.org/publicationsAndServices/npoguide.html>".

Table 2. COMMONLY USED LOCAL ANESTHETIC AGENTS: DOSES, DURATION, AND CALCULATIONS*

Local Anesthetic	Maximum Dose with Epinephrine (mg/kg)†		Duration of Action (min) ‡
	Medical	Dental	
<i>Esters</i>			
Procaine	10.0	6	60-90
Chlorprocaine	20.0	12	30-60
Tetracaine	1.5	1	180-600
<i>Amides</i>			
Lidocaine	7.0	4.4	90-200
Mepivacaine	7.0	4.4	120-240
Bupivacaine	3.0	1.3	180-600
Levobupivacaine	3.0	2	180-600
Ropivacaine	3.0	2	180-600
Articaine		7	60-230

* Maximum recommended doses and duration of action. Note that lower doses should be used in very vascular areas.

† These are maximum doses of local anesthetics combined with epinephrine; lower doses are recommended when used without epinephrine. Doses of amides should be decreased by 30 percent in infants younger than six months. When lidocaine is being administered intravascularly (eg, during intravenous regional anesthesia), the dose should be decreased to three to five mg/kg; long-acting local anesthetic agents should not be used for intravenous regional anesthesia.

‡ Duration of action is dependent on concentration, total dose, and site of administration; use of epinephrine; and the patient's age.

Table 3. LOCAL ANESTHETIC PERCENT CONCENTRATION: CONVERSION TO mg/mL

Concentration (%)	mg/mL
3.0	30.0
2.5	25.0
2.0	20.0
1.0	10.0
0.5	5.0
0.25	2.5
0.125	1.25

Appendix A. Recommended Discharge Criteria

1. Cardiovascular function and airway patency are satisfactory and stable.
2. The patient is easily arousable, and protective reflexes are intact.
3. The patient can talk (if age appropriate).
4. The patient can sit up unaided (if age appropriate).
5. For a very young or handicapped child incapable of the usually expected responses, the premedation level of responsiveness or a level as close as possible to the normal level for that child should be achieved.
6. The state of hydration is adequate.

Appendix B. ASA Physical Status Classification

Class I	A normally healthy patient.
Class II	A patient with mild systemic disease (eg, controlled reactive airway disease).
Class III	A patient with severe systemic disease (eg, a child who is actively wheezing).
Class IV	A patient with severe systemic disease that is a constant threat to life (eg, a child with status asthmaticus).
Class V	A moribund patient who is not expected to survive without the operation (eg, a patient with severe cardiomyopathy requiring heart transplantation).

Appendix C. Drugs* That May Be Needed to Rescue a Sedated Patient⁴⁴

Albuterol for inhalation
 Ammonia spirits
 Atropine
 Diphenhydramine
 Diazepam
 Epinephrine (1:1000, 1:10 000)
 Flumazenil
 Glucose (25 percent or 50 percent)
 Lidocaine (cardiac lidocaine, local infiltration)
 Lorazepam
 Methylprednisolone
 Naloxone
 Oxygen
 Fosphenytoin
 Racemic epinephrine
 Rocuronium
 Sodium bicarbonate
 Succinylcholine

* The choice of emergency drugs may vary according to individual or procedural needs.

Appendix D. Emergency Equipment[†] That May Be Needed to Rescue a Sedated Patient[‡]

Intravenous Equipment

Assorted IV catheters (eg, 24-, 22-, 20-, 18-, 16-gauge)
 Tourniquets
 Alcohol wipes
 Adhesive tape
 Assorted syringes (eg, 1-, 3-, 5-, 10-mL)
 IV tubing
 Pediatric drip (60 drops/mL)
 Pediatric burette
 Adult drip (10 drops/mL)
 Extension tubing
 3-way stopcocks
 IV fluid
 Lactated Ringer solution
 Normal saline solution
 D₅ 0.25 normal saline solution
 Pediatric IV boards
 Assorted IV needles (eg, 25-, 22-, 20-, and 18-gauge)
 Intraosseous bone marrow needle
 Sterile gauze pads

Airway Management Equipment

Face masks (infant, child, small adult, medium adult, large adult)
 Breathing bag and valve set
 Oropharyngeal airways (infant, child, small adult, medium adult, large adult)
 Nasopharyngeal airways (small, medium, large)
 Laryngeal mask airways (1, 1.5, 2, 2.5, 3, 4, and 5)
 Laryngoscope handles (with extra batteries)
 Laryngoscope blades (with extra light bulbs)
 Straight (Miller) No. 1, 2, and 3
 Curved (Macintosh) No. 2 and 3
 Endotracheal tubes (2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, and 6.0 uncuffed and 6.0, 7.0, and 8.0 cuffed)
 Stylettes (appropriate sizes for endotracheal tubes)
 Surgical lubricant
 Suction catheters (appropriate sizes for endotracheal tubes)
 Yankauer-type suction
 Nasogastric tubes
 Nebulizer with medication kits
 Gloves (sterile and nonsterile, latex free)

[†] The choice of emergency equipment may vary according to individual or procedural needs.

[‡] The practitioner is referred to the SOAPME acronym described in the text in preparation for sedating a child for a procedure.

References

- Milnes AR. Intravenous procedural sedation: An alternative to general anesthesia in the treatment of early childhood caries. *J Can Dent Assoc* 2003;69:298-302.
- Law AK, Ng DK, Chan KK. Use of intramuscular ketamine for endoscopy sedation in children. *Pediatr Int* 2003;45:180-5.
- Rothermel LK. Newer pharmacologic agents for procedural sedation of children in the emergency department—Etomidate and propofol. *Curr Opin Pediatr* 2003;15:200-3.
- Flood RG, Krauss B. Procedural sedation and analgesia for children in the emergency department. *Emerg Med Clin North Am* 2003;21:121-39.
- Jaggar SI, Haxby E. Sedation, anaesthesia and monitoring for bronchoscopy. *Pediatr Respir Rev* 2002;3:321-7.
- de Blic J, Marchac V, Scheinmann P. Complications of flexible bronchoscopy in children: Prospective study of 1,328 procedures. *Eur Respir J* 2002;20:1271-6.
- Mason KP, Michna E, DiNardo JA, et al. Evolution of a protocol for ketamine-induced sedation as an alternative to general anesthesia for interventional radiologic procedures in pediatric patients. *Radiology* 2002;225:457-65.
- Haupt M. Project USAP 2000—Use of sedative agents by pediatric dentists: A 15-year follow-up survey. *Pediatr Dent* 2002;24:289-94.
- Vinson DR, Bradbury DR. Etomidate for procedural sedation in emergency medicine. *Ann Emerg Med* 2002;39:592-8.
- Everitt IJ, Barnett P. Comparison of two benzodiazepines used for sedation of children undergoing suturing of a laceration in an emergency department. *Pediatr Emerg Care* 2002;18:72-4.
- Karian VE, Burrows PE, Zurakowski D, Connor L, Poznauskis L, Park MK. The development of a pediatric radiology sedation program. *Pediatr Radiol* 2002;32:348-53.
- Kaplan RF, Yang CI. Sedation and analgesia in pediatric patients for procedures outside the operating room. *Anesthesiol Clin North America* 2002;20:181-94.
- Wheeler DS, Jensen RA, Poss WB. A randomized, blinded comparison of chloral hydrate and midazolam sedation in children undergoing echocardiography. *Clin Pediatr* 2001;40:381-7.
- Hain RD, Campbell C. Invasive procedures carried out in conscious children: Contrast between North American and European paediatric oncology centres. *Arch Dis Child* 2001;85:12-5.
- Kennedy RM, Luhmann JD. Pharmacological management of pain and anxiety during emergency procedures in children. *Pediatr Drugs* 2001;3:337-54.
- Kanagasundaram SA, Lane LJ, Cavalletto BP, Keneally JP, Cooper MG. Efficacy and safety of nitrous oxide in alleviating pain and anxiety during painful procedures. *Arch Dis Child* 2001;84:492-5.
- Younge PA, Kendall JM. Sedation for children requiring wound repair: A randomised controlled double blind comparison of oral midazolam and oral ketamine. *Emerg Med J* 2001;18:30-3.
- Ljungman G, Gordh T, Sorensen S, Kreuger A. Lumbar puncture in pediatric oncology: Conscious sedation vs. general anesthesia. *Med Pediatr Oncol* 2001;36:372-9.
- Poe SS, Nolan MT, Dang D, et al. Ensuring safety of patients receiving sedation for procedures: Evaluation of clinical practice guidelines. *Jt Comm J Qual Improv* 2001;27:28-41.
- D'Agostino J, Terndrup TE. Chloral hydrate versus midazolam for sedation of children for neuroimaging: A randomized clinical trial. *Pediatr Emerg Care* 2000;16:1-4.
- Green SM, Kuppermann N, Rothrock SG, Hummel CB, Ho M. Predictors of adverse events with intramuscular ketamine sedation in children. *Ann Emerg Med* 2000;35:35-42.
- Pena BM, Krauss B. Adverse events of procedural sedation and analgesia in a pediatric emergency department. *Ann Emerg Med* 1999;34:483-91.
- Hopkins KL, Davis PC, Sanders CL, Churchill LH. Sedation for pediatric imaging studies. *Neuroimaging Clin N Am* 1999;9:1-10.
- Bauman LA, Kish I, Baumann RC, Politis GD. Pediatric sedation with analgesia. *Am J Emerg Med* 1999;17:1-3.
- Bhatt-Mehta V, Rosen DA. Sedation in children: Current concepts. *Pharmacotherapy* 1998;18:790-807.
- Morton NS, Oomen GJ. Development of a selection and monitoring protocol for safe sedation of children. *Pediatr Anaesth* 1998;8:65-8.
- Murphy MS. Sedation for invasive procedures in paediatrics. *Arch Dis Child* 1997;77:281-4.
- Webb MD, Moore PA. Sedation for pediatric dental patients. *Dent Clin North Am* 2002;46:803-14.
- Malviya S, Voepel-Lewis T, Tait AR, Merkel S. Sedation/analgesia for diagnostic and therapeutic procedures in children. *J Perianesth Nurs* 2000;15:415-22.
- Zempsky WT, Schechter NL. Office-based pain management. The 15-minute consultation. *Pediatr Clin North Am* 2000;47:601-15.
- Kennedy RM, Luhmann JD. The "ouchless emergency department." Getting closer: Advances in decreasing distress during painful procedures in the emergency department. *Pediatr Clin North Am* 1999;46:1215-47.
- Rodriguez E, Jordan R. Contemporary trends in pediatric sedation and analgesia. *Emerg Med Clin North Am* 2002;20:199-222.
- Ruess L, O'Connor SC, Mikita CP, Creamer KM. Sedation for pediatric diagnostic imaging: Use of pediatric and nursing resources as an alternative to a radiology department sedation team. *Pediatr Radiol* 2002;32:505-10.
- Weiss S. Sedation of pediatric patients for nuclear medicine procedures. *Semin Nucl Med* 1993;23:190-8.

35. Wilson S. Pharmacologic behavior management for pediatric dental treatment. *Pediatr Clin North Am* 2000; 47:1159-75.
36. McCarty EC, Mencio GA, Green NE. Anesthesia and analgesia for the ambulatory management of fractures in children. *J Am Acad Orthop Surg* 1999;7:81-91.
37. Egelhoff JC, Ball WS Jr, Koch BL, Parks TD. Safety and efficacy of sedation in children using a structured sedation program. *AJR Am J Roentgenol* 1997;168:1259-62.
38. American Academy of Pediatrics Committee on Drugs and Section on Anesthesiology. Guidelines for the elective use of conscious sedation, deep sedation, and general anesthesia in pediatric patients. *Pediatrics* 1985;76:317-21.
39. American Academy of Pediatric Dentistry. Guidelines for the elective use of conscious sedation, deep sedation, and general anesthesia in pediatric patients. *ASDC J Dent Child* 1986;53:21-2.
40. American Academy of Pediatrics, Committee on Drugs. Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures. *Pediatrics* 1992;89:1110-5.
41. American Academy of Pediatrics, Committee on Drugs. Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures: Addendum. *Pediatrics* 2002;110:836-8.
42. American Academy of Pediatric Dentistry. Guidelines on the elective use of minimal, moderate, and deep sedation and general anesthesia for pediatric dental patients. Chicago, Ill. *Pediatr Dent* 2004;26(suppl):95-105.
43. Joint Commission on Accreditation of Healthcare Organizations. Comprehensive Accreditation Manual for Hospitals: The Official Handbook by the JCAHO. Oakbrook Terrace, Ill: Joint Commission on Accreditation of Healthcare Organizations; 2005.
44. American Society of Anesthesiologists, Task Force on Sedation and Analgesia by Non-Anesthesiologists. Practice guidelines for sedation and analgesia by non-anesthesiologists. *Anesthesiology* 2002;96:1004-17.
45. Coté CJ, Karl HW, Notterman DA, Weinberg JA, McCloskey C. Adverse sedation events in pediatrics: Analysis of medications used for sedation. *Pediatrics* 2000; 106:633-44.
46. Coté CJ, Notterman DA, Karl HW, Weinberg JA, McCloskey C. Adverse sedation events in pediatrics: A critical incident analysis of contributory factors. *Pediatrics* 2000; 105:805-14.
47. Kim G, Green SM, Denmark TK, Krauss B. Ventilatory response during dissociative sedation in children—A pilot study. *Acad Emerg Med* 2003;10:140-5.
48. Coté CJ. Sedation for the pediatric patient. A review. *Pediatr Clin North Am* 1994;41:31-58.
49. Mason KP, Burrows PE, Dorsey MM, Zurakowski D, Krauss B. Accuracy of capnography with a 30 foot nasal cannula for monitoring respiratory rate and end-tidal CO₂ in children. *J Clin Monit Comput* 2000;16:259-62.
50. McQuillen KK, Steele DW. Capnography during sedation/analgesia in the pediatric emergency department. *Pediatr Emerg Care* 2000;16:401-4.
51. Malviya S, Voepel-Lewis T, Tait AR. Adverse events and risk factors associated with the sedation of children by non-anesthesiologists. *Anesth Analg* 1997;85:1207-13.
52. Coté CJ, Rolf N, Liu LM, et al. A single-blind study of combined pulse oximetry and capnography in children. *Anesthesiology* 1991;74:980-7.
53. Scottish Intercollegiate Guidelines Network. Safe sedation of children undergoing diagnostic and therapeutic procedures. A national clinical guideline. Edinburgh, Scotland: Scottish Intercollegiate Guidelines Network; 2003. Available at: “www.sign.ac.uk/pdf/sign58.pdf”. Accessed February 7, 2006.
54. Hoffman GM, Nowakowski R, Troshynski TJ, Berens RJ, Weisman SJ. Risk reduction in pediatric procedural sedation by application of an American Academy of Pediatrics/American Society of Anesthesiologists process model. *Pediatrics* 2002;109:236-43.
55. Krauss B. Management of acute pain and anxiety in children undergoing procedures in the emergency department. *Pediatr Emerg Care* 2001;17:115-22.
56. Dial S, Silver P, Bock K, Sagy M. Pediatric sedation for procedures titrated to a desired degree of immobility results in unpredictable depth of sedation. *Pediatr Emerg Care* 2001;17:414-20.
57. Maxwell LG, Yaster M. The myth of conscious sedation. *Arch Pediatr Adolesc Med* 1996;150:665-7.
58. Coté CJ. “Conscious sedation”: Time for this oxymoron to go away! *J Pediatr* 2001;139:15-7.
59. Motas D, McDermott NB, VanSickle T, Friesen RH. Depth of consciousness and deep sedation attained in children as administered by nonanaesthesiologists in a children’s hospital. *Pediatr Anaesth* 2004;14:256-60.
60. Nahata MC, Clotz MA, Krogg EA. Adverse effects of meperidine, promethazine, and chlorpromazine for sedation in pediatric patients. *Clin Pediatr* 1985;24:558-60.
61. Brown ET, Corbett SW, Green SM. Iatrogenic cardiopulmonary arrest during pediatric sedation with meperidine, promethazine, and chlorpromazine. *Pediatr Emerg Care* 2001;17:351-3.
62. Benusis KP, Kapaun D, Furnam LJ. Respiratory depression in a child following meperidine, promethazine, and chlorpromazine premedication: Report of case. *J Dent Child* 1979;46:50-3.
63. Garriott JC, Di Maio VJ. Death in the dental chair: Three drug fatalities in dental patients. *J Toxicol Clin Toxicol* 1982;19:987-95.
64. Goodson JM, Moore PA. Life-threatening reactions after pedodontic sedation: An assessment of narcotic, local anesthetic, and antiemetic drug interaction. *J Am Dent Assoc* 1983;107:239-45.
65. Jastak JT, Pallasch T. Death after chloral hydrate sedation: Report of case. *J Am Dent Assoc* 1988;116:345-8.

66. Jastak JT, Peskin RM. Major morbidity or mortality from office anesthetic procedures: A closed-claim analysis of 13 cases. *Anesth Prog* 1991;38:39-44.
67. Kaufman E, Jastak JT. Sedation for outpatient dental procedures. *Compend Contin Educ Dent* 1995;16:462, 464, 466.
68. Wilson S. Pharmacological management of the pediatric dental patient. *Pediatr Dent* 2004;26:131-6.
69. Sams DR, Thornton JB, Wright JT. The assessment of two oral sedation drug regimens in pediatric dental patients. *J Dent Child* 1992;59:306-12.
70. Malviya S, Voepel-Lewis T, Tait AR, Merkel S, Tremper K, Naughton N. Depth of sedation in children undergoing computed tomography: Validity and reliability of the University of Michigan Sedation Scale (UMSS). *Br J Anaesth* 2002;88:241-5.
71. Newton JT, Shah S, Patel H, Sturmev P. Nonpharmacological approaches to behaviour management in children. *Dent Update* 2003;30:194-9.
72. Peretz B, Bimstein E. The use of imagery suggestions during administration of local anesthetic in pediatric dental patients. *ASDC J Dent Child* 2000;67:263-7.
73. Iserson KV. Hypnosis for pediatric fracture reduction. *J Emerg Med* 1999;17:53-6.
74. Rusy LM, Weisman SJ. Complementary therapies for acute pediatric pain management. *Pediatr Clin North Am* 2000;47:589-99.
75. Langley P. Guided imagery: A review of effectiveness in the care of children. *Pediatr Nurs* 1999;11:18-21.
76. Ott MJ. Imagine the possibilities! Guided imagery with toddlers and pre-schoolers. *Pediatr Nurs* 1996;22:34-8.
77. Singer AJ, Stark MJ. LET versus EMLA for pretreating lacerations: A randomized trial. *Acad Emerg Med* 2001; 8:223-30.
78. Taddio A, Gurguis MG, Koren G. Lidocaine-prilocaine cream versus tetracaine gel for procedural pain in children. *Ann Pharmacother* 2002;36:687-92.
79. Eichenfield LF, Funk A, Fallon-Friedlander S, Cunningham BB. A clinical study to evaluate the efficacy of ELA-Max (4% liposomal lidocaine) as compared with eutectic mixture of local anesthetics cream for pain reduction of venipuncture in children. *Pediatrics* 2002;109:1093-9.
80. Shaw AJ, Welbury RR. The use of hypnosis in a sedation clinic for dental extractions in children: Report of 20 cases. *ASDC J Dent Child* 1996;63:418-20.
81. Aitken JC, Wilson S, Coury D, Moursi AM. The effect of music distraction on pain, anxiety and behavior in pediatric dental patients. *Pediatr Dent* 2002;24:114-8.
82. Domino KB. Office-based anesthesia: Lessons learned from the closed claims project. *ASA Newsletter* 2001;65: 9-11, 15.
83. American Heart Association. *Pediatric Advanced Life Support Provider Manual*. Dallas, Tx: American Heart Association; 2002.
84. American Academy of Pediatrics, American College of Emergency Physicians. *Advanced Pediatric Life Support*. 4th ed. Fuchs S, Gausche-Hill M, Yamoto L, eds. Boston, Ma: Jones and Bartlett Publishers; 2004.
85. Wheeler M. Management strategies for the difficult pediatric airway. In: Riazi J, ed. *Anesthesiology Clinics of North America*. Philadelphia, Pa: WB Saunders Co; 1998:743-61.
86. Sullivan KJ, Kissoon N. Securing the child's airway in the emergency department. *Pediatr Emerg Care* 2002;18: 108-21.
87. Levy RJ, Helfaer MA. Pediatric airway issues. *Crit Care Clin* 2000;16:489-504.
88. Krauss B, Green SM. Procedural sedation and analgesia in children. *Lancet* 2006;367:766-80.
89. Krauss B, Green SM. Sedation and analgesia for procedures in children. *N Engl J Med* 2000;342:938-45.
90. Ferrari LR. *Anesthesia and Pain Management for the Pediatrician*. Baltimore, Md: John Hopkins University Press; 1999.
91. Malviya S, Naughton NN, Tremper KT, eds. *Sedation Analgesia for Diagnostic and Therapeutic Procedures*. Totowa, NJ: Humana Press; 2001.
92. Yaster M, Krane EJ, Kaplan RF, Coté CJ, Lappe DG, eds. *Pediatric Pain Management and Sedation Handbook*. St. Louis, Mo: CV Mosby; 1997.
93. Cravero JP, Blike GT. Review of pediatric sedation. *Anesth Analg* 2004;99:1355-64.
94. *Standards for Basic Intra-operative Monitoring*. Chicago, Ill: American Society of Anesthesiologists; 1991.
95. Mace SE, Barata IA, Cravero JP, et al. Clinical policy: Evidence-based approach to pharmacologic agents used in pediatric sedation and analgesia in the emergency department. *Ann Emerg Med* 2004;44:342-77.
96. Deshpande JK, Tobias JD, eds. *The Pediatric Pain Handbook*. St. Louis, Mo: Mosby; 1996.
97. Alcaino EA. Conscious sedation in paediatric dentistry: Current philosophies and techniques. *Ann R Australas Coll Dent Surg* 2000;15:206-10.
98. Mitchell AA, Louik C, Lacouture P, Slone D, Goldman P, Shapiro S. Risks to children from computed tomographic scan premedication. *JAMA* 1982;247:2385-8.
99. Pershad J, Palmisano P, Nichols M. Chloral hydrate: The good and the bad. *Pediatr Emerg Care* 1999;15:432-5.
100. Malviya S, Voepel-Lewis T, Ludomirsky A, Marshall J, Tait AR. Can we improve the assessment of discharge readiness? A comparative study of observational and objective measures of depth of sedation in children. *Anesthesiology* 2004;100:218-24.
101. American Academy of Pediatrics, Committee on Injury and Poison Prevention. *Transporting children with special health care needs*. *Pediatrics* 1999;104:988-92.

102. American Academy of Pediatrics, Committee on Bioethics. Informed consent, parental permission, and assent in pediatric practice. *Pediatrics* 1995;95:314-7.
103. Malviya S, Voepel-Lewis T, Prochaska G, Tait AR. Prolonged recovery and delayed side effects of sedation for diagnostic imaging studies in children. *Pediatrics* 2000;105(3):e42.
104. Babl FE, Puspitadewi A, Barnett P, Oakley E, Spicer M. Preprocedural fasting state and adverse events in children receiving nitrous oxide for procedural sedation and analgesia. *Pediatr Emerg Care* 2005;21:736-43.
105. Roback MG, Bajaj L, Wathen JE, Bothner J. Preprocedural fasting and adverse events in procedural sedation and analgesia in a pediatric emergency department: Are they related? *Ann Emerg Med* 2004;44:454-9.
106. Agrawal D, Manzi SF, Gupta R, Krauss B. Preprocedural fasting state and adverse events in children undergoing procedural sedation and analgesia in a pediatric emergency department. *Ann Emerg Med* 2003;42:636-46.
107. Green SM. Fasting is a consideration—not a necessity—for emergency department procedural sedation and analgesia. *Ann Emerg Med* 2003;42:647-50.
108. Green SM, Krauss B. Pulmonary aspiration risk during emergency department procedural sedation—An examination of the role of fasting and sedation depth. *Acad Emerg Med* 2002;9:35-42.
109. Treston G. Prolonged pre-procedure fasting time is unnecessary when using titrated intravenous ketamine for paediatric procedural sedation. *Emerg Med Australas* 2004;16:145-50.
110. Green SM, Krauss B. Ketamine is a safe, effective, and appropriate technique for emergency department paediatric procedural sedation. *Emerg Med J* 2004;21:271-2.
111. Gorski JC, Huang SM, Pinto A, et al. The effect of echinacea (*Echinacea purpurea* root) on cytochrome P450 activity in vivo. *Clin Pharmacol Ther* 2004;75:89-100.
112. Hall SD, Wang Z, Huang SM, et al. The interaction between St John's wort and an oral contraceptive. *Clin Pharmacol Ther* 2003;74:525-35.
113. Markowitz JS, Donovan JL, DeVane CL, et al. Effect of St. John's wort on drug metabolism by induction of cytochrome P450 3A4 enzyme. *JAMA* 2003;290:1500-4.
114. Spinella M. Herbal medicines and epilepsy: The potential for benefit and adverse effects. *Epilepsy Behav* 2001;2:524-32.
115. Wang Z, Gorski JC, Hamman MA, Huang SM, Lesko LJ, Hall SD. The effects of St John's wort (*Hypericum perforatum*) on human cytochrome P450 activity. *Clin Pharmacol Ther* 2001;70:317-26.
116. Xie HG, Kim RB. St John's wort-associated drug interactions: Short-term inhibition and long-term induction? *Clin Pharmacol Ther* 2005 Jul;78(1):19-24.
117. Ang-Lee MK, Moss J, Yuan CS. Herbal medicines and perioperative care. *JAMA* 2001;286:208-16.
118. Abebe W. Herbal medication: Potential for adverse interactions with analgesic drugs. *J Clin Pharm Ther* 2002;27:391-401.
119. von Rosensteel NA, Adam D. Macrolide antibacterials. Drug interactions of clinical significance. *Drug Saf* 1995;13:105-22.
120. Hiller A, Olkkola KT, Isohanni P, Saarnivaara L. Unconsciousness associated with midazolam and erythromycin. *Br J Anaesth* 1990;65:826-8.
121. Mattila MJ, Idanpaan-Heikkila JJ, Tornwall M, Vanakoski J. Oral single doses of erythromycin and roxithromycin may increase the effects of midazolam on human performance. *Pharmacol Toxicol* 1993;73:180-5.
122. Olkkola KT, Aranko K, Luurila H, et al. A potentially hazardous interaction between erythromycin and midazolam. *Clin Pharmacol Ther* 1993;53:298-05.
123. Flockhart DA, Oesterheld JR. Cytochrome P450-mediated drug interactions. *Child Adolesc Psychiatr Clin N Am* 2000;9:43-76.
124. Yuan R, Flockhart DA, Balian JD. Pharmacokinetic and pharmacodynamic consequences of metabolism-based drug interactions with alprazolam, midazolam, and triazolam. *J Clin Pharmacol* 1999;39:1109-25.
125. Young B. Review: Mixing new cocktails: Drug interactions in antiretroviral regimens. *AIDS Patient Care STDS* 2005;19:286-97.
126. Wilkinson GR. Drug metabolism and variability among patients in drug response. *N Engl J Med* 2005;352:2211-21.
127. American Academy of Pediatrics, Section on Pediatric Pulmonology, Subcommittee on Obstructive Sleep Apnea Syndrome. Clinical practice guideline: Diagnosis and management of childhood obstructive sleep apnea syndrome. *Pediatrics* 2002;109:704-12.
128. Schechter MS. Technical report: Diagnosis and management of childhood obstructive sleep apnea syndrome. *Pediatrics* 2002;109(4):e69.
129. Litman RS, Kottra JA, Berkowitz RJ, Ward DS. Upper airway obstruction during midazolam/nitrous oxide sedation in children with enlarged tonsils. *Pediatr Dent* 1998;20:318-20.
130. Fishbaugh DF, Wilson S, Preisch JW, Weaver JM II. Relationship of tonsil size on an airway blockage maneuver in children during sedation. *Pediatr Dent* 1997;19:277-81.
131. Mayers DJ, Hindmarsh KW, Sankaran K, Gorecki DK, Kasian GF. Chloral hydrate disposition following single-dose administration to critically ill neonates and children. *Dev Pharmacol Ther* 1991;16:71-7.
132. Terndrup TE, Dire DJ, Madden CM, Davis H, Cantor RM, Gavula DP. A prospective analysis of intramuscular meperidine, promethazine, and chlorpromazine in pediatric emergency department patients. *Ann Emerg Med* 1991;20:31-5.
133. Coté CJ. Discharge criteria for children sedated by non-anesthesiologists: Is "safe" really safe enough? *Anesthesiology* 2004;100:207-9.

134. Macnab AJ, Levine M, Glick N, Susak L, Baker-Brown G. A research tool for measurement of recovery from sedation: The Vancouver Sedative Recovery Scale. *J Pediatr Surg* 1991;26:1263-7.
135. Chernik DA, Gillings D, Laine H, et al. Validity and reliability of the Observer's Assessment of Alertness/Sedation Scale: Study with intravenous midazolam. *J Clin Psychopharmacol* 1990;10:244-51.
136. Bagian JP, Lee C, Gosbee J, et al. Developing and deploying a patient safety program in a large health care delivery system: You can't fix what you don't know about. *Jt Comm J Qual Improv* 2001;27:522-32.
137. May T, Aulisio MP. Medical malpractice, mistake prevention, and compensation. *Kennedy Inst Ethics J* 2001; 11:135-46.
138. Kazandjian VA. When you hear hoofs, think horses, not zebras: An evidence-based model of health care accountability. *J Eval Clin Pract* 2002;8:205-13.
139. Connor M, Ponte PR, Conway J. Multidisciplinary approaches to reducing error and risk in a patient care setting. *Crit Care Nurs Clin North Am* 2002;14:359-67.
140. Gosbee J. Human factors engineering and patient safety. *Qual Saf Health Care* 2002;11:352-4.
141. Barker SJ, Hyatt J, Shah NK, Kao YJ. The effect of sensor malpositioning on pulse oximeter accuracy during hypoxemia. *Anesthesiology* 1993;79:248-54.
142. Kelleher JF, Ruff RH. The penumbra effect: Vasomotion-dependent pulse oximeter artifact due to probe malposition. *Anesthesiology* 1989;71:787-91.
143. Hart LS, Berns SD, Houck CS, Boenning DA. The value of end-tidal CO₂ monitoring when comparing three methods of conscious sedation for children undergoing painful procedures in the emergency department. *Pediatr Emerg Care* 1997;13:189-93.
144. Aubuchon RW. Sedation liabilities in pedodontics (abstr). *Pediatr Dent* 1982;4:171-80.
145. Fitzmaurice LS, Wasserman GS, Knapp JF, Roberts DK, Waeckerle JF, Fox M. TAC use and absorption of cocaine in a pediatric emergency department. *Ann Emerg Med* 1990;19:515-8.
146. Tipton GA, DeWitt GW, Eisenstein SJ. Topical TAC (tetracaine, adrenaline, cocaine) solution for local anesthesia in children: Prescribing inconsistency and acute toxicity. *South Med J* 1989;82:1344-6.
147. Gunter JB. Benefit and risks of local anesthetics in infants and children. *Paediatr Drugs* 2002;4:649-72.
148. Resar LM, Helfaer MA. Recurrent seizures in a neonate after lidocaine administration. *J Perinatol* 1998;18:193-5.
149. Yagiela JA, Neidle EA, Dowd FJ. Local anesthetics. In: *Pharmacology and Therapeutics for Dentistry*. Elsevier Health Sciences 2004;251-70.
150. Haas DA. An update on local anesthetics in dentistry. *J Can Dent Assoc* 2002;68:546-51.
151. Malamed SF. Local anesthetic considerations in dental specialties. In: *Handbook of Local Anesthesia*, 5th ed. St. Louis, Mo: Mosby; 2004:269, 274-5.
152. Malamed SF. The needle. In: *Handbook of Local Anesthesia*, 5th ed. St. Louis, Mo: Mosby; 2004:99-107.
153. Malamed SF. Clinical action of specific agents. In: *Handbook of Local Anesthesia*, 5th ed. St. Louis, Mo: Mosby; 2004:55-81.
154. Ram D, Amir E. Comparison of articaine 4% and lidocaine 2% in pediatric dental patients. *Intl J Pediatric Dent* 2006;16:252-6.
155. Jakobs W, Ladwig B, Cichon P, Ortel R, Kirch W. Serum levels of articaine 2% and 4% in children. *Anesth Prog* 1995;42:113-5.
156. Wright GZ, Weinberger SJ, Friedman CS, Plotzke OB. Use of articaine local anesthesia in children under 4 years of age—A retrospective report. *Anesth Report* 1989;36:268-71.
157. Malamed SF, Gagnon S, Leblanc D. A comparison between articaine HCl and lidocaine HCl in pediatric dental patients. *Pediatr Dent* 2000;22:307-11.
158. American Academy of Pediatric Dentistry. Guideline on appropriate use of local anesthesia for pediatric dental patients. *Pediatr Dent* 2005;27(suppl):101-6.
159. Next-generation pulse oximetry. *Health Devices* 2003; 32:49-103.
160. Barker SJ. "Motion-resistant" pulse oximetry: A comparison of new and old models. *Anesth Analg* 2002;95: 967-72.
161. Malviya S, Reynolds PI, Voepel-Lewis T, et al. False alarms and sensitivity of conventional pulse oximetry versus the Masimo SET technology in the pediatric postanesthesia care unit. *Anesth Analg* 2000;90:1336-40.
162. Barker SJ, Shah NK. Effects of motion on the performance of pulse oximeters in volunteers. *Anesthesiology* 1996;85:774-81.
163. Barker SJ, Shah NK. The effects of motion on the performance of pulse oximeters in volunteers (revised publication). *Anesthesiology* 1997;86:101-8.
164. Colman Y, Krauss B. Microstream capnography technology: A new approach to an old problem. *J Clin Monit Comput* 1999;15:403-9.
165. Wright SW. Conscious sedation in the emergency department: The value of capnography and pulse oximetry. *Ann Emerg Med* 1992;21:551-5.
166. Crosswell RJ, Dilley DC, Lucas WJ, Vann WF Jr. A comparison of conventional versus electronic monitoring of sedated pediatric dental patients. *Pediatr Dent* 1995; 17:332-9.
167. Tobias JD. End-tidal carbon dioxide monitoring during sedation with a combination of midazolam and ketamine for children undergoing painful, invasive procedures. *Pediatr Emerg Care* 1999;15:173-5.
168. Primosch RE, Buzzi IM, Jerrell G. Monitoring pediatric dental patients with nasal mask capnography. *Pediatr Dent* 2000;22:120-4.

169. Roelofse J. Conscious sedation: Making our treatment options safe and sound. *SADJ* 2000;55:273-6.
170. Wilson S, Creedon RL, George M, Troutman K. A history of sedation guidelines: Where we are headed in the future. *Pediatr Dent* 1996;18:194-9.
171. Miner JR, Heegaard W, Plummer D. End-tidal carbon dioxide monitoring during procedural sedation. *Acad Emerg Med* 2002;9:275-80.
172. Vascello LA, Bowe EA. A case for capnographic monitoring as a standard of care. *J Oral Maxillofac Surg* 1999;57:1342-7.
173. Iwasaki J, Vann WF Jr, Dilley DC, Anderson JA. An investigation of capnography and pulse oximetry as monitors of pediatric patients sedated for dental treatment. *Pediatr Dent* 1989;11:111-7.
174. Berry AM, Brimacombe JR, Verghese C. The laryngeal mask airway in emergency medicine, neonatal resuscitation, and intensive care medicine. *Int Anesthesiol Clin* 1998;36:91-109.
175. Patterson MD. Resuscitation update for the pediatrician. *Pediatr Clin North Am* 1999;46:1285-303.
176. Selim M, Mowafi H, Al Ghamdi A, Adu-Gyamfi Y. Intubation via LMA in pediatric patients with difficult airways. *Can J Anaesth* 1999;46:891-3.
177. Munro HM, Butler PJ, Washington EJ. Freeman-Sheldon (whistling face) syndrome. *Anaesthetic and airway management. Paediatr Anaesth* 1997;7:345-8.
178. Rowe R, Cohen RA. An evaluation of a virtual reality airway simulator. *Anesth Analg* 2002;95:62-6.
179. Medina LS, Racadio JM, Schwid HA. Computers in radiology. The sedation, analgesia, and contrast media computerized simulator: A new approach to train and evaluate radiologists' responses to critical incidents. *Pediatr Radiol* 2000;30:299-305.
180. Blike G, Cravero J, Nelson E. Same patients, same critical events-different systems of care, different outcomes: Description of a human factors approach aimed at improving the efficacy and safety of sedation/analgesia care. *Qual Manag Health Care* 2001;10:17-36.
181. Kanal E, Shellock FG, Talagala L. Safety considerations in MR imaging. *Radiology* 1990;176:593-606.
182. Shellock FG, Kanal E. Burns associated with the use of monitoring equipment during MR procedures. *J Magn Reson Imaging* 1996;6:271-2.
183. Shellock FG. Magnetic resonance safety update 2002: Implants and devices. *J Magn Reson Imaging* 2002;16:485-96.
184. Dempsey MF, Condon B, Hadley DM. MRI safety review. *Semin Ultrasound CT MR*. 2002;23:392-401
185. National Institute for Occupational Safety and Health (NIOSH). Criteria for a Recommended Standard: Occupational Exposure to Waste Anesthetic Gases and Vapors. Cincinnati, Oh. Publication 77-140. 1977. Ref Type: Statute.
186. O'Sullivan I, Bengner J. Nitrous oxide in emergency medicine. *Emerg Med J* 2003;20:214-7.
187. Kennedy RM, Luhmann JD, Luhmann SJ. Emergency department management of pain and anxiety related to orthopedic fracture care: A guide to analgesic techniques and procedural sedation in children. *Paediatr Drugs* 2004; 6:11-31.
188. Frampton A, Browne GJ, Lam LT, Cooper MG, Lane LG. Nurse administered relative analgesia using high concentration nitrous oxide to facilitate minor procedures in children in an emergency department. *Emerg Med J* 2003;20:410-3.
189. Everitt I, Younge P, Barnett P. Paediatric sedation in emergency department: What is our practice? *Emerg Med (Fremantle)* 2002;14:62-6.
190. Krauss B. Continuous-flow nitrous oxide: Searching for the ideal procedural anxiolytic for toddlers. *Ann Emerg Med* 2001;37:61-2.
191. Otley CC, Nguyen TH. Conscious sedation of pediatric patients with combination oral benzodiazepines and inhaled nitrous oxide. *Dermatol Surg* 2000;26:1041-4.
192. Luhmann JD, Kennedy RM, Jaffe DM, McAllister JD. Continuous-flow delivery of nitrous oxide and oxygen: A safe and cost-effective technique for inhalation analgesia and sedation of pediatric patients. *Pediatr Emerg Care* 1999;15:388-92.
193. Burton JH, Auble TE, Fuchs SM. Effectiveness of 50% nitrous oxide/50% oxygen during laceration repair in children. *Acad Emerg Med* 1998;5:112-7.
194. Gregory PR, Sullivan JA. Nitrous oxide compared with intravenous regional anesthesia in pediatric forearm fracture manipulation. *J Pediatr Orthop* 1996;16:187-91.
195. Hennrikus WL, Shin AY, Klingelberger CE. Self-administered nitrous oxide and a hematoma block for analgesia in the outpatient reduction of fractures in children. *J Bone Joint Surg Am* 1995;77:335-9.
196. Hennrikus WL, Simpson RB, Klingelberger CE, Reis MT. Self-administered nitrous oxide analgesia for pediatric fracture reductions. *J Pediatr Orthop* 1994;14:538-42.
197. Wattenmaker I, Kasser JR, McGravey A. Self-administered nitrous oxide for fracture reduction in children in an emergency room setting. *J Orthop Trauma* 1990;4:35-8.
198. Gamis AS, Knapp JF, Glenski JA. Nitrous oxide analgesia in a pediatric emergency department. *Ann Emerg Med* 1989;18:177-81.
199. Kalach N, Barbier C, el Kohen R, et al. [Tolerance of nitrous oxide-oxygen sedation for painful procedures in emergency pediatrics: Report of 600 cases] [article in French]. *Arch Pediatr* 2002;9:1213-5.
200. Michaud L, Gottrand F, Ganga-Zandzou PS, et al. Nitrous oxide sedation in pediatric patients undergoing gastrointestinal endoscopy. *J Pediatr Gastroenterol Nutr* 1999; 28:310-4.

201. Baskett PJ. Analgesia for the dressing of burns in children: A method using neuroleptanalgesia and Entonox. *Postgrad Med J* 1972;48:138-42.
202. Veerkamp JS, van Amerongen WE, Hoogstraten J, Groen HJ. Dental treatment of fearful children, using nitrous oxide. Part 1: Treatment times. *ASDC J Dent Child* 1991; 58:453-7.
203. Veerkamp JS, Gruythuysen RJ, van Amerongen WE, Hoogstraten J. Dental treatment of fearful children using nitrous oxide. Part 3: Anxiety during sequential visits. *ASDC J Dent Child* 1993;60:175-82.
204. Veerkamp JS, Gruythuysen RJ, van Amerongen WE, Hoogstraten J. Dental treatment of fearful children using nitrous oxide. Part 2: The parent's point of view. *ASDC J Dent Child* 1992;59:115-9.
205. Veerkamp JS, Gruythuysen RJ, Hoogstraten J, van Amerongen WE. Dental treatment of fearful children using nitrous oxide. Part 4: Anxiety after two years. *ASDC J Dent Child* 1993;60:372-6.
206. Houpt MI, Limb R, Livingston RL. Clinical effects of nitrous oxide conscious sedation in children. *Pediatr Dent* 2004;26:29-36.
207. Shapira J, Holan G, Guelmann M, Cahan S. Evaluation of the effect of nitrous oxide and hydroxyzine in controlling the behavior of the pediatric dental patient. *Pediatr Dent* 1992;14:167-70.
208. Primosch RE, Buzzi IM, Jerrell G. Effect of nitrous oxide-oxygen inhalation with scavenging on behavioral and physiological parameters during routine pediatric dental treatment. *Pediatr Dent* 1999;21:417-20.
209. McCann W, Wilson S, Larsen P, Stehle B. The effects of nitrous oxide on behavior and physiological parameters during conscious sedation with a moderate dose of chloral hydrate and hydroxyzine. *Pediatr Dent* 1996;18: 35-41.
210. Wilson S, Matusak A, Casamassimo PS, Larsen P. The effects of nitrous oxide on pediatric dental patients sedated with chloral hydrate and hydroxyzine. *Pediatr Dent* 1998;20:253-8.
211. Litman RS, Kottra JA, Berkowitz RJ, Ward DS. Breathing patterns and levels of consciousness in children during administration of nitrous oxide after oral midazolam premedication. *J Oral Maxillofac Surg* 1997;55:1372-7.
212. Litman RS, Kottra JA, Verga KA, Berkowitz RJ, Ward DS. Chloral hydrate sedation: The additive sedative and respiratory depressant effects of nitrous oxide. *Anesth Analg* 1998;86:724-8.
213. American Academy of Pediatric Dentistry. Guideline on appropriate use of nitrous oxide for pediatric dental patients. *Pediatr Dent* 2005;27(suppl):107-9.



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IOWA DENTAL BOARD

February 16, 2014

Anesthesia Committee
Iowa Dental Board
400 SW 8th Street Suite D
Des Moines, IA 50309-4687

Dear Anesthesia Committee:

Regarding capnography and moderate sedation, I have enclosed a copy of the American Dental Association Guidelines and the Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists.

Neither guideline requires capnography for moderate sedation. Please note that the anesthesiology guidelines recommend consideration of carbon dioxide monitoring "for patients whose ventilation cannot be directly observed during moderate sedation." Dentists providing moderate sedation are working in the oral cavity and positioned to observe the chest ventilations. A dentist is constantly observing ventilation. Moderate sedation permit holders in Iowa should not be required to monitor sedation with capnography.

Thank you,

Dr. Stephen R. Thies

SEDATION DENTISTRY FOR ANXIETY RELIEF

ADA American Dental Association®

Guidelines for the Use of Sedation and General Anesthesia by Dentists

As adopted by the October 2012 ADA House of Delegates

I. Introduction

The administration of local anesthesia, sedation and general anesthesia is an integral part of dental practice. The American Dental Association is committed to the safe and effective use of these modalities by appropriately educated and trained dentists. The purpose of these guidelines is to assist dentists in the delivery of safe and effective sedation and anesthesia.

Dentists providing sedation and anesthesia in compliance with their state rules and/or regulations prior to adoption of this document are not subject to *Section III. Educational Requirements*.

II. Definitions

Methods of Anxiety and Pain Control

analgesia - the diminution or elimination of pain.

conscious sedation¹ - a minimally depressed level of consciousness that retains the patient's ability to independently and continuously maintain an airway and respond appropriately to physical stimulation or verbal command and that is produced by a pharmacological or non-pharmacological method or a combination thereof.

In accord with this particular definition, the drugs and/or techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely. Further, patients whose only response is reflex withdrawal from repeated painful stimuli would not be considered to be in a state of conscious sedation.

combination inhalation-enteral conscious sedation (combined conscious sedation) - conscious sedation using inhalation and enteral agents.

When the intent is anxiolysis only, and the appropriate dosage of agents is administered, then the definition of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) does not apply.

local anesthesia - the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.

Note: Although the use of local anesthetics is the foundation of pain control in dentistry and has a long record of safety, dentists must be aware of the maximum, safe dosage limits for each patient. Large doses of local anesthetics in themselves may result in central nervous system depression, especially in combination with sedative agents.

minimal sedation - a minimally depressed level of consciousness, produced by a pharmacological method, that retains the patient's ability to independently and continuously maintain an airway and respond *normally* to

¹ Parenteral conscious sedation may be achieved with the administration of a single agent or by the administration of more than one agent.

Documentation: An appropriate sedative record must be maintained, including the names of all drugs administered, including local anesthetics, dosages, and monitored physiological parameters.

5. Recovery and Discharge

- Oxygen and suction equipment must be immediately available if a separate recovery area is utilized.
- The qualified dentist or appropriately trained clinical staff must monitor the patient during recovery until the patient is ready for discharge by the dentist.
- The qualified dentist must determine and document that level of consciousness, oxygenation, ventilation and circulation are satisfactory prior to discharge.
- Post-operative verbal and written instructions must be given to the patient, parent, escort, guardian or care giver.

6. Emergency Management

- If a patient enters a deeper level of sedation than the dentist is qualified to provide, the dentist must stop the dental procedure until the patient returns to the intended level of sedation.
- The qualified dentist is responsible for the sedative management, adequacy of the facility and staff, diagnosis and treatment of emergencies related to the administration of minimal sedation and providing the equipment and protocols for patient rescue.

7. Management of Children

For children 12 years of age and under, the American Dental Association supports the use of the American Academy of Pediatrics/American Academy of Pediatric Dentistry *Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures*.

B. Moderate Sedation

1. Patient Evaluation

Patients considered for moderate sedation must be suitably evaluated prior to the start of any sedative procedure. In healthy or medically stable individuals (ASA I, II) this should consist of at least a review of their current medical history and medication use. However, patients with significant medical considerations (e.g., ASA III, IV) may require consultation with their primary care physician or consulting medical specialist.

2. Pre-operative Preparation

- The patient, parent, guardian or care giver must be advised regarding the procedure associated with the delivery of any sedative agents and informed consent for the proposed sedation must be obtained.
- Determination of adequate oxygen supply and equipment necessary to deliver oxygen under positive pressure must be completed.
- Baseline vital signs must be obtained unless the patient's behavior prohibits such determination.
- A focused physical evaluation must be performed as deemed appropriate.
- Preoperative dietary restrictions must be considered based on the sedative technique prescribed.
- Pre-operative verbal or written instructions must be given to the patient, parent, escort, guardian or care giver.

3. Personnel and Equipment Requirements

Personnel:

- At least one additional person trained in Basic Life Support for Healthcare Providers must be present in addition to the dentist.

Equipment:

- A positive-pressure oxygen delivery system suitable for the patient being treated must be immediately available.
- When inhalation equipment is used, it must have a fail-safe system that is appropriately checked and calibrated. The equipment must also have either (1) a functioning device that prohibits the delivery of less than 30% oxygen or (2) an appropriately calibrated and functioning in-line oxygen analyzer with audible alarm.
- An appropriate scavenging system must be available if gases other than oxygen or air are used.
- The equipment necessary to establish intravenous access must be available.

4. Monitoring and Documentation

Monitoring: A qualified dentist administering moderate sedation must remain in the operatory room to monitor the patient continuously until the patient meets the criteria for recovery. When active treatment concludes and the patient recovers to a minimally sedated level a qualified auxiliary may be directed by the dentist to remain with the patient and continue to monitor them as explained in the guidelines until they are discharged from the facility. The dentist must not leave the facility until the patient meets the criteria for discharge and is discharged from the facility. Monitoring must include:

Consciousness:

- Level of consciousness (e.g., responsiveness to verbal command) must be continually assessed.

Oxygenation:

- Color of mucosa, skin or blood must be evaluated continually.
- Oxygen saturation must be evaluated by pulse oximetry continuously.

Ventilation:

- The dentist must observe chest excursions continually.
- The dentist must monitor ventilation. This can be accomplished by auscultation of breath sounds, monitoring end-tidal CO₂ or by verbal communication with the patient.

Circulation:

- The dentist must continually evaluate blood pressure and heart rate (unless the patient is unable to tolerate and this is noted in the time-oriented anesthesia record).
- Continuous ECG monitoring of patients with significant cardiovascular disease should be considered.

Documentation:

- Appropriate time-oriented anesthetic record must be maintained, including the names of all drugs, dosages and their administration times, including local anesthetics, dosages and monitored physiological parameters. (See Additional Sources of Information for sample of a time-oriented anesthetic record).
- Pulse oximetry, heart rate, respiratory rate, blood pressure and level of consciousness must be recorded continually.

5. Recovery and Discharge

Pulmonary Ventilation.

It is the opinion of the Task Force that the primary causes of morbidity associated with sedation/analgesia are drug-induced respiratory depression and airway obstruction. For both moderate and deep sedation, the literature is insufficient to evaluate the benefit of monitoring ventilatory function by observation or auscultation. However, the consultants strongly agree that monitoring of ventilatory function by observation or auscultation reduces the risk of adverse outcomes associated with sedation/analgesia. The consultants were equivocal regarding the ability of capnography to decrease risks during moderate sedation, while agreeing that it may decrease risks during deep sedation. In circumstances in which patients are physically separated from the caregiver, the Task Force believes that automated apnea monitoring (by detection of exhaled carbon dioxide or other means) may decrease risks during both moderate and deep sedation, while cautioning practitioners that impedance plethysmography may fail to detect airway obstruction. The Task Force emphasizes that because ventilation and oxygenation are separate though related physiologic processes, monitoring oxygenation by pulse oximetry is not a substitute for monitoring ventilatory function.

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Recommendations.

Monitoring of patient response to verbal commands should be routine during moderate sedation, except in patients who are unable to respond appropriately (*e.g.*, young children, mentally impaired or uncooperative patients), or during procedures where movement could be detrimental. During deep sedation, patient responsiveness to a more profound stimulus should be sought, unless contraindicated, to ensure that the patient has not drifted into a state of general anesthesia. During procedures where a verbal response is not possible (*e.g.*, oral surgery, upper endoscopy), the ability to give a “thumbs up” or other indication of consciousness in response to verbal or tactile (light tap) stimulation suggests that the patient will be able to control his airway and take deep breaths if necessary, corresponding to a state of moderate sedation. Note that a response limited to reflex withdrawal from a painful stimulus is not considered a purposeful response and thus represents a state of general anesthesia.

All patients undergoing sedation/analgesia should be monitored by pulse oximetry with appropriate alarms. If available, the variable pitch “beep,” which gives a continuous audible indication of the oxygen saturation reading, may be helpful. In addition, ventilatory function should be continually monitored by observation or auscultation. Monitoring of exhaled carbon dioxide should be considered for all patients receiving deep sedation and for patients whose ventilation cannot be directly observed during moderate sedation. When possible, blood pressure should be determined before sedation/analgesia is initiated. Once sedation–analgesia is established, blood pressure should be measured at 5-min intervals during the procedure, unless such monitoring interferes with the procedure (*e.g.*, pediatric magnetic resonance imaging, where stimulation from the blood pressure cuff could arouse an appropriately sedated patient). Electrocardiographic monitoring should be used in all patients undergoing deep sedation. It should also be used during moderate sedation in patients with significant cardiovascular disease or those who are undergoing procedures where dysrhythmias are anticipated.

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THE LATEST ASA MANDATE: CO₂ MONITORING FOR MODERATE AND DEEP SEDATION

The 2010 House of Delegates of the American Society of Anesthesiologists (ASA) amended its Standards for Basic Anesthetic Monitoring to include mandatory exhaled end-tidal carbon dioxide (E_tCO₂) monitoring during both moderate and deep sedation to its existing requirement for endotracheal and laryngeal mask airway general anesthesia. It became effective as of July 2011 and now reads:

"During regional anesthesia (with no sedation) or local anesthesia (with no sedation), the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs. During moderate or deep sedation, the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of exhaled carbon dioxide unless precluded or invalidated by the nature of the patient, procedure, or equipment."

Rather than supported by the highest level of evidence-based Class A, Level 1 scientific data, this amendment was a consensus document initiated by the ASA Committee on Standards and Practice Parameters, approved by the ASA Board of Directors, and passed by the October 2010 ASA House of Delegates with supposedly little debate. This new standard makes perfect sense for medical anesthesiologists, particularly those who are based in hospitals, because it costs them essentially nothing to obtain this sometimes very valuable information. Because in most instances ASA physician anesthesiologist members provide moderate and deep sedation in the same operating rooms as they do general anesthesia, they already have the equipment to monitor E_tCO₂, and they already routinely use nasal cannula O₂ for their sedations. All that is really needed for them to meet this mandate is to either exchange their O₂ cannulas for those with a CO₂ sampling port for connecting to their E_tCO₂ monitor or to insert an intravenous catheter into a standard O₂ cannula and connect it to monitor. Because modern, "high-tech" physician anesthesiologists rarely use a precordial or pretracheal stethoscope in the operating room and their heads are almost never only a few inches away from the moderately sedated patient's open mouth and nose to monitor breathing like the operating dentist does from his or her usual position, monitoring E_tCO₂ for the anesthesiologist is far superior to the pulse oximeter for immediately

detecting an obstructed airway, opiate-induced apnea, or other airway problems that only much later may be detected by the pulse oximeter. Monitoring E_tCO₂ is particularly important when anesthesiologists provide moderate sedation for patients who are too medically compromised to safely undergo general anesthesia and who would almost never be sedated in a dental office, such as an ASA IV patient with severe chronic obstructive pulmonary disease who may retain high levels of CO₂ during sedation or a morbidly obese, insulin-dependent diabetic patient with severe obstructive sleep apnea. Additionally, when the anesthesiologist is also not the person giving the local anesthetic (as in a breast biopsy) or in the case of a colonoscopy (during which the moderate sedation is not accompanied by any local anesthesia), the anesthesiologist's only option for managing severe discomfort in the moderately sedated patient is to deepen the level of sedation by supplementing with more fentanyl, ketamine, or propofol until the patient becomes unconsciousness, when monitoring E_tCO₂ may be deemed much more important, particularly if insertion of a laryngeal mask airway device or tracheal intubation then becomes necessary if the airway becomes compromised. However, an endodontist who may be licensed for only moderate sedation does not legally have the option of deepening the level from moderate sedation to light general anesthesia in the dental office but rather must either reinforce the local anesthesia with periodontal ligament, intraosseous, or intrapulpal local anesthetic techniques or reschedule the endodontic treatment when a dentist anesthesiologist can be brought into the office to manage the discomfort associated with the endodontic procedure.

To complicate this far-reaching ASA requirement, the Centers for Medicare and Medicaid Services (CMS) in 2009 and 2010 rewrote their CMS Hospital Conditions of Participation and Interpretive Guidelines that govern anesthesia services. The CMS mandated that all anesthesia services in a hospital be organized by a qualified physician and consistently implemented in every hospital department and area where "anesthesia services" are rendered. However, as opposed to the ASA standards, the CMS definition of "anesthesia services" excludes topical and local anesthesia, minimal sedation, moderate sedation/analgesia (conscious sedation), and labor epidural analgesia. Thus, even though the CMS does not require standardization of any monitoring, including E_tCO₂, throughout the hospital for moderate sedation, because the ASA standards require anesthesiologists to monitor E_tCO₂ for all of their moderate sedations, the

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ASA believes that other less qualified, nonanesthesiologist sedation practitioners need it even more than their members to enhance their margin of safety. Therefore, if an ASA member is the hospital's "physician in charge of anesthesia services," he or she may have little choice but to require the monitoring of E_tCO_2 in all hospital areas where moderate sedation is administered if it is required in the hospital's operating rooms.

The CMS will not permit a double standard for monitoring E_tCO_2 by anesthesia specialists providing deep sedation in the operating room but not by dentists in the hospital's oral surgery clinic. If monitoring E_tCO_2 is the standard for deep sedation in a hospital's dental clinic, what are the medical-legal implications for deep sedation across the street in the private oral surgery office, where only healthy patients receive deep sedation by oral surgeons who follow the American Dental Association (ADA) guidelines for monitoring that do not mandate monitoring E_tCO_2 for deep sedation? Because the majority of ADA delegates do not administer moderate or deep sedation and because all dentists, including those with extensive anesthesia training, are regarded by the ASA as nonanesthesiologists, will the monitoring guidelines passed by the ADA House of Delegates measure up against those passed by the ASA House of Delegates that is composed entirely of the best-trained physician anesthesiologists in the world?

From your editor's extensive experience in the operating room administering intravenous moderate sedation to morbidly obese ASA IV pre-heart transplant multiple extraction dental patients with left ventricular ejection fractions of less than 10%, there is no question that monitoring E_tCO_2 can be a very valuable tool for monitoring airway patency and ventilation in that venue. One can argue that a pregnant patient in an obstetrical laboring suite who is being continuously infused with narcotic-containing local anesthetic from a labor epidural pump should have E_tCO_2 monitoring. The same argument can be made for every barely conscious patient entering the postanesthesia care unit (PACU) who is then left by the anesthesiologist with skilled nurses to watch them while they fully recover from their general anesthetic. Surprisingly, E_tCO_2 monitoring is not required in the PACU, even though many of these patients are initially considerably more deeply sedated than most moderately sedated patients in the operating room, in a dental office, or in a cardiac catheterization lab. More surprisingly, after complex surgery, even severely medically compromised unconscious patients who remain intubated in the PACU who are spontaneously breathing supplemental O_2 on a "T-piece" are not required by ASA standards to have E_tCO_2 monitored by the PACU nurses. Until the ASA mandates E_tCO_2 monitoring in these critical care

areas, it seems unreasonable for them to expect that it be required in dental offices for moderate sedation, as defined in the ADA Guidelines, wherein "the drugs and/or techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely." Perhaps the ASA Delegates oppose mandating E_tCO_2 monitoring in these critical areas because of the huge expense in purchasing the necessary additional equipment to accomplish it.

Yes, the CMS requirement that mandates standardization throughout the hospital can reduce confusion and improve patient safety in some instances. However, this one-size-fits-all mentality does not always make sense. For instance, the standard of care after endotracheal intubation of a critically ill patient by a nonanesthesiologist emergency room physician is to obtain a chest radiograph to determine if the tube is in the correct position. If that were to become the "postintubation standard" throughout the hospital, every patient in an operating room who is intubated by an "expert intubation specialist" (anesthesiologist) would need an unnecessary radiograph, exposing them to radiation for no benefit and foolishly raising the cost of health care when resources are so limited in today's economy. The ASA and CMS standards are fine for hospitals and anesthesiologists who treat many critically ill patients, but they do not necessarily pertain to the type of patients and the level of moderate sedation taking place in the dental office.

Even more important than this E_tCO_2 monitoring issue is the overriding point that it is our profession that should be setting the anesthesia standards for dentistry; clearly, the ASA wants to do that for us. The organization must believe that we do not have the expertise to do it ourselves. Because the ASA regards dentists as nonanesthesiologists in their standards, the ADA is apparently perceived as not having enough expertise in anesthesiology to self-regulate all aspects of dental anesthesiology. Thus, by default, the ASA standards may appear to some to also apply to all levels of sedation and anesthesia in dentistry. Dentists must have a recognized level of expertise in anesthesiology to be able to accept ASA standards, modify them, or reject them and make our own. It is hoped that organized dentistry will realize that dentistry must regain control of its own destiny if this integral part of dental practice is to survive under our control. If monitoring E_tCO_2 is deemed a necessity for moderate and deep sedation, dentistry must make that decision for itself, and it is hoped that dentistry will have the clout for its standards to be accepted when they conflict with those of other professions.

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Clinical Policy: Procedural Sedation and Analgesia in the Emergency Department

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0196-0644/\$-see front matter
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<http://dx.doi.org/10.1016/j.annemergmed.2013.10.015>

[Ann Emerg Med. 2014;63:247-258.]

ABSTRACT

This clinical policy from the American College of Emergency Physicians is the revision of a 2005 clinical policy evaluating critical questions related to procedural sedation in the emergency department.¹ A writing subcommittee reviewed the literature to derive evidence-based recommendations to help clinicians answer the following critical questions: (1) In patients undergoing

procedural sedation and analgesia in the emergency department, does preprocedural fasting demonstrate a reduction in the risk of emesis or aspiration? (2) In patients undergoing procedural sedation and analgesia in the emergency department, does the routine use of capnography reduce the incidence of adverse respiratory events? (3) In patients undergoing procedural sedation and analgesia in the emergency department, what is the minimum number of personnel necessary to manage complications? (4) In patients undergoing procedural sedation and analgesia in the emergency department, can ketamine, propofol, etomidate,

dexmedetomidine, alfentanil and remifentanil be safely administered? A literature search was performed, the evidence was graded, and recommendations were given based on the strength of the available data in the medical literature.

INTRODUCTION

Procedural sedation and analgesia is a common emergency department (ED) clinical practice that alleviates pain, anxiety, and suffering for patients during medical procedures. Effective sedation enhances the performance of these procedures, with improvements in the patient and medical provider experience. Procedural sedation involves administering sedative or dissociative agents with or without the concomitant delivery of analgesic agents.

The practice of emergency medicine requires physicians to have expertise in critical care skills, including advanced airway management, cardiovascular and ventilator resuscitation techniques, and analgesia. Expertise in procedural sedation and analgesia is included as a core competency in emergency medicine residency training, as well as pediatric emergency medicine fellowships.²⁻⁴

Procedural sedation and analgesia continues to be a topic that attracts a great deal of attention by policymaking entities within medical specialties, as well as regulatory agencies.⁵⁻⁸ Given the frequent use of procedural sedation and analgesia by emergency physicians, as well as the continued development of research and clinical evidence for this practice, the Clinical Policies Committee of the American College of Emergency Physicians (ACEP) has developed this revision of the previous clinical policy.¹

Since the previous ACEP clinical policy on procedural sedation and analgesia,¹ a great deal of literature has been published addressing clinical procedural sedation and analgesia practice both within the field of emergency medicine and by other specialties. The Centers for Medicare & Medicaid Services (CMS) has issued revised hospital anesthesia services interpretive guidelines that address the broad categorization of anesthesia and analgesia while noting that the level of sedation for specific sedation agents may vary in accordance with dosing, patient selection, and route of administration.⁵ This revised language is particularly helpful in light of specific short-acting sedatives, such as propofol, that have clinical use as a procedural sedation and analgesia medication outside of the operative and procedure suites. The CMS guidelines note that "for some medications there is no bright line that distinguishes when their pharmacological properties bring about the physiologic transition from the analgesic to the anesthetic effects."⁵ The CMS guidelines emphasize that hospital policies must be based on nationally recognized guidelines; the source of the guidelines may include a number of specialty organizations, including ACEP. As noted by CMS: "The ED is a unique environment where patients present on an unscheduled basis with often very complex problems that may require several emergent or urgent interventions to proceed simultaneously to prevent further morbidity or mortality."⁹ The unique procedural sedation and analgesia qualifications of

emergency physicians are also recognized by CMS: "...emergency medicine-trained physicians have very specific skill sets to manage airways and ventilation that is necessary to provide patient rescue. Therefore, these practitioners are uniquely qualified to provide all levels of analgesia/sedation and anesthesia (moderate to deep to general)."⁹

Critical questions relevant to the current practice of emergency medicine were developed for this revision, which addresses these critical questions in addition to offering a summary of recent concepts, agents, and developments in procedural sedation and analgesia.

DEFINITIONS

Procedural sedation should be viewed as a treatment strategy for the administration of sedative or analgesic medications to intentionally suppress a patient's level of consciousness. The intended sedation depth should vary in accordance with the specific needs of the patient and procedure. Sedation depths of "mild," "moderate," and "deep" levels of altered consciousness are frequently cited in the medical literature. These descriptors should be visualized as depressed levels of consciousness along a continuum of sedation that leads to general anesthesia. This clinical policy includes items classified by CMS as anesthesia services including sedation and anesthesia.⁵

Procedural sedation and analgesia: Procedural sedation and analgesia refers to the technique of administering sedatives or dissociative agents with or without analgesics to induce an altered state of consciousness that allows the patient to tolerate painful or unpleasant procedures while preserving cardiorespiratory function.¹ The intent of the sedation, not necessarily the agent itself, determines whether medication is being delivered to relieve anxiety (anxiolysis) or to facilitate a specific procedure as with procedural sedation.

Minimal sedation: Minimal sedation describes a patient with a near-baseline level of alertness, a pharmacologically induced state during which patients respond normally to verbal commands. Although cognitive function and coordination might be impaired, ventilatory and cardiovascular functions are unaffected.^{5,10} In the ED, minimal sedation is commonly administered to facilitate minor procedures.

Moderate sedation: Moderate sedation is a pharmacologically induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.^{1,5,10} Moderate-sedation patients often exhibit eyelid ptosis, slurred speech, and delayed or altered responses to verbal stimuli. Event amnesia will frequently occur under moderate sedation levels. In the ED, moderate sedation is commonly achieved with a benzodiazepine, often in conjunction with an opioid such as fentanyl.

Dissociative sedation: Dissociative sedation is a trance-like cataleptic state characterized by profound analgesia and amnesia, with retention of protective airway reflexes, spontaneous

respirations, and cardiopulmonary stability.^{1,11} In the ED, ketamine is commonly administered to evoke dissociative levels of sedation. Dissociative state can facilitate moderate to severely painful procedures, as well as procedures requiring immobilization in uncooperative patients.

Deep sedation: Deep sedation is a pharmacologically induced depression of consciousness during which patients cannot be easily aroused but respond purposefully after repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.^{1,5,10} Monitoring for deep sedation encounters should emphasize the potential for reduction in ventilation and cardiovascular complications, including changes to pulse rate, heart rhythm, and blood pressure.

Deep sedation is commonly achieved with short-acting sedative agents such as propofol, etomidate, or a benzodiazepine. For painful procedures, an opioid such as fentanyl or morphine sulfate may be used in concert with the sedative. Many recent studies have described the use of ketamine administered with propofol to evoke deep sedation levels during painful ED procedures.¹¹⁻²⁰

General anesthesia: General anesthesia describes a depth of sedation characterized by unresponsiveness to all stimuli and the absence of airway protective reflexes, a pharmacologically induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive-pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.^{1,5,10}

METHODOLOGY

This clinical policy was created after careful review and critical analysis of the medical literature. Searches of MEDLINE, MEDLINE InProcess, Cochrane Systematic Review Database, and Cochrane Database of Clinical Trials were performed. All searches were limited to English-language sources, human studies, pediatrics, and adults. Specific key words/phrases and years used in the searches are identified under each critical question. In addition, relevant articles from the bibliographies of included studies and more recent articles identified by committee members and reviewers were included.

This policy is a product of the ACEP clinical policy development process, including expert review, and is based on the existing literature; when literature was not available, consensus of emergency physicians was used. Expert review comments were received from emergency physicians, pediatric emergency physicians, toxicologists, a pediatric anesthesiologist, a pharmacist, and individual members of the American Academy of Pediatrics, the American College of Medical Toxicology, ACEP's Emergency Medicine Practice Committee, Medical-Legal Committee, and Pediatric Emergency Medicine

Committee, ACEP's Toxicology Section, and ACEP's Emergency Medicine Workforce Section. The draft was also open to comments from ACEP membership through *EM Today*. Their responses were used to further refine and enhance this policy; however, their responses do not imply endorsement of this clinical policy. Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology or the practice environment changes significantly. ACEP was the funding source for this clinical policy.

Assessment of Classes of Evidence

All articles used in the formulation of this clinical policy were graded by at least 2 subcommittee members and assigned a Class of Evidence. In doing so, subcommittee members assigned design classes to each article, with design 1 representing the strongest study design and subsequent design classes (eg, design 2, design 3) representing respectively weaker study designs for therapeutic, diagnostic, or prognostic clinical reports, or meta-analyses (Appendix A). Articles were then graded on dimensions related to the study's methodological features, including but not necessarily limited to randomization processes, blinding, allocation concealment, methods of data collection, outcome measures and their assessment, selection and misclassification biases, sample size, and generalizability. Using predetermined formulas related to the study's design, methodological quality, and applicability to the critical question, articles received a final Class of Evidence grade (ie, Class I, Class II, Class III, or Class X) (Appendix B). Articles identified with fatal flaws or that were not applicable to the critical question received a Class of Evidence grade "X" and were not used in formulating recommendations for this policy. Grading was done with respect to the specific critical questions; thus, the level of evidence for any one study may vary according to the question. As such, it was possible for a single article to receive different Classes of Evidence as different critical questions were answered from the same study. Question-specific Classes of Evidence grading may be found in the Evidentiary Table (available online at www.annemergmed.com).

Translation of Classes of Evidence to Recommendation Levels

Strength of recommendations regarding each critical question were made by subcommittee members using results from strength of evidence grading, expert opinion, and consensus among subcommittee members according to the following guidelines:

Level A recommendations. Generally accepted principles for patient care that reflect a high degree of clinical certainty (ie, based on evidence from 1 or more Class of Evidence I or multiple Class of Evidence II studies).

Level B recommendations. Recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate clinical certainty (ie, based on evidence from 1 or more Class of Evidence II studies or strong consensus of Class of Evidence III studies).

Level C recommendations. Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of any adequate published literature, based on expert consensus. In instances in which consensus

recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

When possible, clinically oriented statistics (eg, likelihood ratios, number needed to treat) were presented to help the reader better understand how the results may be applied to the individual patient. For a definition of these statistical concepts, see Appendix C.

This policy is not intended to be a complete manual on the evaluation and management of patients undergoing procedural sedation and analgesia but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.

It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain adequate empirical data to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.

Recommendations offered in this policy are not intended to represent the only diagnostic or management options available to the emergency physician. ACEP clearly recognizes the importance of the individual physician's judgment and patient preferences. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the critical questions addressed in this policy.

Scope of Application. This guideline is intended for physicians working in EDs.

Inclusion Criteria. This guideline is intended for patients of all ages in the ED who have emergent or urgent conditions that require pain and/or anxiety management to successfully accomplish an interventional or diagnostic procedure and for high-risk patients (eg, those with underlying cardiopulmonary disorders, multiple trauma, head trauma, who have ingested a central nervous system depressant such as alcohol), with the understanding that these patients are at increased risk of complications from procedural sedation and analgesia.

Exclusion Criteria. This guideline is not intended for patients receiving inhalational anesthetics, patients who receive analgesia for pain control without sedatives, patients who receive sedation solely for the purpose of managing anxiety and behavioral emergencies, and patients who are intubated.

CRITICAL QUESTIONS

1. In patients undergoing procedural sedation and analgesia in the emergency department, does preprocedural fasting demonstrate a reduction in the risk of emesis or aspiration?

Recommendations

Level A recommendations. None specified.

Level B recommendations. Do not delay procedural sedation in adults or pediatrics in the ED based on fasting time. Preprocedural fasting for any duration has not demonstrated a reduction in the risk of emesis or aspiration when administering procedural sedation and analgesia.

Level C recommendations. None specified.

Key words/phrases for literature searches: conscious sedation, sedation, procedural sedation, procedural analgesia, moderate sedation, deep sedation, fasting, gastric emptying, complication, aspiration, emesis, and variations and combinations of the key words/phrases; years January 2004 to May 2012.

Emesis or aspiration during procedural sedation in the ED is rare.²¹ For healthy patients undergoing elective sedation/analgesia, other professional society guidelines outside of emergency medicine recommend a 2-hour fasting time for clear liquids, 4-hour fasting time for breast milk, and a 6-hour fasting time for solids. However, the guidelines are based on the extrapolation of general anesthesia cases in the operating room, in which airway manipulation during intubation and extubation increases the aspiration risk. Thus, it is not clear whether applying these guidelines to ED procedural sedation and analgesia reduces the risk of emesis or aspiration. Moreover, even within the framework of these guidelines, emergent sedations are an exclusion from fasting requirements.²²

As a result, guidelines for elective procedures in the operating room (eg, nothing by mouth, preoperative fasting guidelines) are not directly applicable in the ED. In addition, multiple other practice guidelines and systematic reviews do not find evidence to support a specific fasting period before ED procedural sedation. Two systematic reviews^{23,24} and 2 practice advisories^{11,25} acknowledge the lack of evidence to support specific preprocedural fasting requirements.

Four Class II trials with pediatric patients²⁶⁻²⁹ and 1 Class II trial with adult and pediatric patients³⁰ examined the effect of fasting time (0 to >8 hours) on emesis and aspiration during ED procedural sedation. None of these studies demonstrated a significant difference in rates of emesis or aspiration when comparing fasting times. In addition, no serious adverse events caused by emesis or aspiration were found. The current evidence does not support the rationale put forth in the non-emergency medicine guidelines that adhering to a minimum fasting time reduces adverse events in ED procedural sedation.

Roback et al²⁶ performed a single-center study of 1,555 pediatric patients undergoing procedural sedation with ketamine, midazolam, midazolam/ketamine, midazolam/fentanyl, and a small number of other agents. The study found no relationship between fasting time and the proportion of patients with adverse events. Respiratory adverse events were defined as apnea, laryngospasm, pulse oximetry less than 90% on room air at the elevation of the study site (5,280 feet), and aspiration. Any adverse events (vomiting or adverse respiratory event) occurred in 12.0% in the 0- to 2-hour group, 16.4% in the 2- to 4-hour

group, 14.0% in the 4- to 6-hour group, 14.6% in the 6- to 8-hour group, and 14.5% in the greater than 8 hours group. Using the group that fasted 0 to 2 hours as the reference group, the difference in proportion of any adverse events was 4.3% in the 2- to 4-hour group, 2.0% in the 4- to 6-hour group, 2.6% in the 6- to 8-hour group, and 2.5% in the greater than 8 hours group. There were no aspiration events documented in the entire cohort of 1,555 patients.

Treston²⁷ included 257 pediatric patients undergoing procedural sedation with ketamine. In this study also, fasting time did not correlate with the incidence of emesis, which occurred in 6.6% in the 1 hour or less fasting group, 14.0% in the 1- to 2-hour fasting group, and 15.7% in the 3 hours or greater group. Using the group that fasted 1 hour or less as the reference group, the difference in proportion of vomiting in the 1- to 2-hour fasting group was 7.3%; in the 3-hour or greater group, 9.1%. No clinically detectable aspiration occurred, and no airway maneuvers or suctioning was required.

Babl et al²⁸ conducted a study of 218 consecutive pediatric patients undergoing procedural sedation with nitrous oxide. Fasting guidelines for solids were not met by 71.1% of the patients. There was no statistical difference in incidence of emesis, which occurred in 7.1% of patients who did not meet fasting guidelines for solids compared with 6.3% in those who met guidelines. Serious adverse events were defined as pulse oximetry less than 95%, apnea, stridor, airway misalignment requiring repositioning, laryngospasm, bronchospasm, cardiovascular instability, pulmonary aspiration, unplanned hospital admission, endotracheal intubation, permanent neurologic injury, or death. There were no serious adverse events observed.

McKee et al²⁹ examined 471 pediatric patients undergoing procedural sedation with ketamine, in which pre-sedation oral analgesic administration was recorded. In this Class II study, 42.7% of patients received oral analgesics within 6 hours of sedation. Emesis occurred in 5.0% of patients who received oral analgesics compared with 2.6% of patients who did not receive oral analgesics. Additional adverse events recorded were hypoxia (desaturation requiring supplemental oxygen), hypoventilation, laryngospasm, apnea, bradycardia, or tachycardia. Total adverse events were similar for patients receiving oral analgesia (5.0%) and those not receiving oral analgesia (5.6%). The authors did not report episodes of intubation, aspiration, unplanned admission, or death, although these were not explicit outcome measures in the study.

Bell et al³⁰ followed 400 adult and pediatric patients undergoing procedural sedation with propofol. The authors found that 70.5% of those enrolled did not meet American Society of Anesthesiologists (ASA) fasting guidelines for solids or liquids. They identified no significant difference between the groups meeting and not meeting fasting guidelines with respect to adverse events that included emesis and respiratory interventions. Emesis occurred in 0.4% of patients who did not meet fasting guidelines compared with 0.8% of those who met guidelines. The combined endpoint of respiratory adverse events was defined as transient apnea, pulse oximetry less than 95%,

respiratory rate less than 12 breaths/min, elevated end-tidal carbon dioxide (ETCO₂) greater than 10 mm Hg, vomiting, and aspiration. Respiratory adverse events occurred in 22.4% of patients who did not meet fasting guidelines compared with 19.5% of those who met guidelines. With only 2 episodes of emesis and no aspiration events, this combined endpoint was driven primarily by interventions less likely to be related to fasting, such as respiratory depression and desaturation. The combined endpoint of respiratory interventions was defined as basic airway maneuvers, Guedel/bag-valve-mask, and suctioning. Respiratory interventions occurred in 33.3% of patients who did not meet fasting guidelines compared with 24.6% of those who met guidelines. With only 3 interventions requiring suctioning, this combined endpoint is predominantly weighted by basic airway and bag-valve-mask interventions, which are less likely to be affected by fasting. There were no aspiration events, intubations, laryngeal mask airway insertions, or unplanned admissions related to sedation or recovery in either group.

Future research should focus on the identification of a potential high-risk population that might benefit from a fasting time or a sedation agent with better efficacy after patient fasting if such a delay is to be relevant in any ED procedural sedations. In addition, research into the harms of enforcing fasting periods would bring balance to the literature. Concerns about procedural difficulty, ED resource utilization, and pediatric hypoglycemia related to enforced fasting periods for ED procedural sedation have not been evaluated.

2. In patients undergoing procedural sedation and analgesia in the emergency department, does the routine use of capnography reduce the incidence of adverse respiratory events?

Recommendations

Level A recommendations. None specified.

Level B recommendations. Capnography* may be used as an adjunct to pulse oximetry and clinical assessment to detect hypoventilation and apnea earlier than pulse oximetry and/or clinical assessment alone in patients undergoing procedural sedation and analgesia in the ED.

*Capnography includes all forms of quantitative exhaled carbon dioxide analysis.

Level C recommendations. None specified.

Key words/phrases for literature searches: sedation, procedural sedation and analgesia, conscious sedation, moderate sedation, deep sedation, capnography, end tidal carbon dioxide, complications, adverse events, and variations and combinations of the key words/phrases; years January 2004 to May 2012.

Capnography allows continuous measurement of exhaled carbon dioxide and displays the resulting waveform graphically. It provides an advantage over pulse oximetry alone by identifying respiratory depression more consistently. Capnometry is the numeric display of exhaled carbon dioxide concentrations. ETCO₂ is the highest value of carbon dioxide measured during the end of expiration of each breath. These measurements can be

used to assess the adequacy of ventilation during procedural sedation and analgesia. Detectable respiratory events such as hypoxia, respiratory depression, and/or apnea are common and may be precursors of more serious events during procedural sedation and analgesia.³¹⁻³³ Monitoring of ET_{CO}₂ detects hypoventilation earlier than methods such as pulse oximetry and pulse rate alone, particularly when supplemental oxygen is administered.³⁴⁻³⁸ However, adverse respiratory events leading to serious patient-centered outcomes, such as aspiration, unplanned intubation, or cardiac arrest, are exceedingly rare events in procedural sedation and analgesia both within and outside of the ED.^{39,40} In an attempt to minimize these adverse events further, the routine use of capnography monitoring during all procedural sedation and analgesia has been recommended.^{7,41} Both the diagnostic monitoring performance and clinical benefit of capnography have been studied.³¹⁻³⁶

Waugh et al³⁵ published a Class III meta-analysis of capnography as a monitoring device. This systematic review included 5 studies, 3 Class III studies performed in the ED,³⁵⁻³⁷ one Class III study performed outside of the ED,³⁸ and a study graded an X for this question.⁴² This meta-analysis reported improved diagnostic performance with capnography. In the meta-analysis, capnography was 17.6 (95% confidence interval [CI] 2.5 to 122) times more likely to detect respiratory depression than standard monitoring alone. This meta-analysis is limited by the range of definitions across studies of hypoxia and respiratory depression, capnography results used in the definition of respiratory depression leading to incorporation bias, individual single-center studies of limited power, and results showing significant heterogeneity. Results of each of the included studies in the meta-analysis were graded and are discussed below.

The first ED trial, a Class III study in 2002 by Miner et al,³⁵ demonstrated that all episodes of respiratory depression were detected by carbon dioxide monitoring, whereas pulse oximetry detected only 33%. There was no correlation between capnography and provider observation as measured by the Observer Assessment of Alertness/Sedation Scale.

The second Class III ED study was performed by Burton et al³⁶ in 2006. In this study of 60 patients, 60% had abnormal ET_{CO}₂ levels, and 56% of these went on to have respiratory events defined broadly as ranging from oxygen desaturation below 92%, to any intervention, including supplemental oxygen, directed verbal stimuli, repositioning, and/or bag-mask-valve ventilation as a result of hypoventilation or apnea. ET_{CO}₂ abnormalities were demonstrated before pulse oximetry in 70% of the patients with these events. Similar results were reported by Vargo et al³⁸ during procedural sedation and analgesia for upper endoscopy, with 100% of respiratory events detected by capnography, 50% by pulse oximetry, and none by provider observation.

Last, in a Class III study by Deitch et al,³⁷ propofol with supplemental oxygen versus room air in procedural sedation was compared. This study also assessed the ability to detect respiratory depression by the provider compared with the addition of capnography. Physicians were able to detect

respiratory depression in 92% of the patients who developed hypoxia but in only 3.7% of the patients with respiratory depression who did not develop hypoxia.

Deitch et al^{33,44} also performed 2 similar Class III studies with other agents and variable amounts of oxygen supplementation. In a 2007 study of 80 patients with supplemental oxygen versus room air during sedation with fentanyl and midazolam, 35% of patients had respiratory depression, with none of these episodes detected by the providers.⁴³ In a 2011 study of 117 patients with high-flow oxygen versus room air during sedation with midazolam and fentanyl, 49% of patients had respiratory depression, but this was detected only in 25% of patients by pulse oximetry.⁴⁴ Finally, Anderson et al⁴⁵ performed another Class III study with propofol sedation in pediatric orthopedic procedures, in which 100% of the episodes of apnea and 60% of the episodes of airway obstruction were detected by capnography before pulse oximetry.

Whether use of capnography provides clinically important benefit has been evaluated in a variety of settings. Evidence from 2 studies performed outside the ED has demonstrated decreased hypoxia with the use of capnography. Lightdale et al³¹ performed a Class II randomized trial of capnography use during pediatric endoscopy and showed a significant reduction in hypoxia, from 24% to 11%. In a similar Class II study performed in adult endoscopy, Qadeer et al³² reported a reduction in hypoxia from 69% to 46% with the use of capnography. In 2010, Deitch et al³³ performed a Class II randomized, controlled trial to determine whether capnography decreases the incidence of hypoxic events in patients receiving propofol for procedural sedation and analgesia in the ED. This study reported a sensitivity of 100% (95% CI 90% to 100%) and specificity of 64% (95% CI 53% to 73%). More important, it demonstrated a benefit with an absolute risk reduction of 17% (95% CI 1.3% to 33%) related to hypoxia. One Class III study performed by Sivilotti et al⁴⁶ did not detect a statistically significant benefit (odds ratio 1.4 [95% CI 0.47 to 4.3]), but this study was not primarily designed to address the use of capnography.

Although the routine use of capnography appears to decrease the incidence of hypoxia and respiratory events as defined in these studies (Level B recommendation), currently there is a lack of evidence that capnography reduces the incidence of serious adverse events during procedural sedation and analgesia such as neurologic injury caused by hypoxia, aspiration, or death. Future studies should focus on these areas to provide a better understanding of these outcomes.

3. In patients undergoing procedural sedation and analgesia in the emergency department, what is the minimum number of personnel necessary to manage complications?

Recommendations

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. During procedural sedation and analgesia, a nurse or other qualified individual should be present for continuous monitoring of the patient, in addition

to the provider performing the procedure. Physicians who are working or consulting in the ED should coordinate procedures requiring procedural sedation and analgesia with the ED staff.

Key words/phrases for literature searches: conscious sedation, sedation, procedural sedation, moderate sedation, deep sedation, personnel, complications, adverse events, and variations and combinations of the key words/phrases; years January 2004 to May 2012.

Procedural sedation and analgesia, including moderate and deep levels, has been demonstrated to be both safe and effective when properly administered by experienced emergency physicians.⁴⁷⁻⁵⁶ Personnel providing procedural sedation and analgesia must have an understanding of the medications used, the ability to monitor the patient's response to those medications, and the skills necessary to intervene in managing potential complications. The determination of specific medications for procedural sedation that may be safely administered by a nurse with provider supervision is beyond the scope of this critical question. However, in a 2011 statement, ACEP expressed strong support for qualified ED nurses to administer propofol, ketamine, and other sedatives under the direct supervision of a privileged emergency physician.⁵⁷ Individuals considered qualified to monitor patients for complications should be capable of detecting events such as hypotension, hypoventilation, hypoxia, and dysrhythmias.

Sedation to anesthesia is a continuum, and it is not always possible to predict how individual patients receiving medications will respond. The Joint Commission stipulates that "individuals administering moderate or deep sedation and anesthesia are qualified and have credentials to manage and rescue patients at whatever level of sedation or anesthesia is achieved, either intentionally or unintentionally."⁶ It is important for institutions to ensure that all individuals permitted to supervise moderate or deep sedation are able to (1) choose appropriate pharmacologic agents; (2) monitor patients to detect complications such as hypotension, hypoventilation, hypoxia, and dysrhythmias; and (3) manage the potential complications.

The literature does not provide clear evidence on the number and type of personnel necessary to safely provide procedural sedation and analgesia. There are 2 Class III studies reporting data from the same observational database comprised of more than 1,000 consecutive emergency-directed procedural sedation cases.^{58,59} The rate of complications defined as airway obstruction, apnea, hypotension, and hypoxia was similar (ie, approximately 4%) whether a single physician administered the sedation and performed the procedure or 2 physicians were present, with 1 administering the sedation and the other performing the procedure. In both scenarios, a nurse was present to monitor the patient. All complications were resolved successfully and no patient experiencing a complication required hospital admission.^{58,59} These Class III studies were primarily limited by the fact that the decision to staff 1 or 2 physicians was not randomized or determined a priori. The physicians were allowed to choose which staffing they believed was appropriate on a case-by-case basis and then the 2 personnel models were

compared. Similarly, in a third Class III study that specifically looked at 457 sedations in ED patients with orthopedic injuries requiring procedural sedation and analgesia, there was no difference in the incidence of adverse events requiring intervention between cases using a 1 physician and 1 nurse model compared with a 2 physician and 1 nurse model. Adverse events requiring intervention in this study were defined as those events requiring one or more of the following: vigorous tactile stimulation, airway repositioning (chin lift, jaw thrust, neck extension, midline repositioning), suctioning, supplemental or increased oxygen delivery, placement of oral or nasal airway, application of positive pressure or ventilation with bag mask, tracheal intubation (laryngeal mask airway or endotracheal tube intubation), administration of reversal agents (flumazenil or naloxone), administration of antidysrhythmic agents, and chest compressions. All adverse events requiring intervention in this study were resolved successfully and none resulted in subsequent sequelae.⁶⁰

Although it would seem reasonable that some patients with more complex needs may require 2 physicians for the safe practice of procedural sedation and analgesia in the ED, there is no evidence that specifically identifies which cases, if any, require dual-physician involvement to prevent adverse outcome. ED providers supervising procedural sedation and analgesia appear capable of determining whether additional resources are necessary to complete the procedure safely.

Future studies of the staffing necessary for procedural sedation and analgesia should measure patient-centered outcomes, as well as control for the type of medication and dosing administered, type of procedure performed, type of medical personnel present, patient comorbidities, and current clinical condition.

4. In patients undergoing procedural sedation and analgesia in the emergency department, can ketamine, propofol, etomidate, dexmedetomidine, alfentanil, and remifentanyl be safely administered?

Recommendations

Level A recommendations. Ketamine can be safely administered to children for procedural sedation and analgesia in the ED. Propofol can be safely administered to children and adults for procedural sedation and analgesia in the ED.

Level B recommendations. Etomidate can be safely administered to adults for procedural sedation and analgesia in the ED. A combination of propofol and ketamine can be safely administered to children and adults for procedural sedation and analgesia.

Level C recommendations. Ketamine can be safely administered to adults for procedural sedation and analgesia in the ED. Alfentanil can be safely administered to adults for procedural sedation and analgesia in the ED. Etomidate can be safely administered to children for procedural sedation and analgesia in the ED.

Key words/phrases for literature searches: ketamine, propofol, etomidate, dexmedetomidine, remifentanyl, fentanyl, adverse

events, procedural sedation, conscious sedation, deep sedation, and variations and combinations of the key words/phrases; years January 2004 to May 2012.

During recent years, there has been a continuously growing body of evidence addressing ketamine, midazolam, fentanyl, propofol, and etomidate that significantly adds to the depth of understanding of these agents' use in the ED.^{1,11-20,30,39,43,58,61-88}

The use of short-acting sedative agents such as propofol and etomidate for ED procedural sedation and analgesia has gained widespread acceptance. Brief-acting sedative agents confer shorter periods of impaired levels of consciousness and subsequently less risk for adverse respiratory events.^{62,71-73,75} An additional benefit to shorter periods of patient impaired consciousness is a reduction of patient monitoring time that allows reduced allocations of intense patient monitoring periods by medical and nursing staff.

Propofol is an agent that has attracted a great deal of attention by investigators and publications since the previous clinical policy was published.¹ Since then, multiple studies have demonstrated findings that support and strengthen the use of propofol for both adult and pediatric patients.^{15,17,18,39,39,43,62-69,83,88} These investigations include a Class I study,¹⁵ 2 Class II studies,^{66,83} and multiple Class III investigations.^{30,64,65} The patient population across studies reporting use of propofol as a procedural sedation and analgesia agent in the ED setting is currently well in excess of 26,000.^{39,62,63}

The combination of ketamine and propofol ("ketofol") has gained a degree of interest for ED procedural sedation and analgesia patients.^{12-20,69} These investigations and reports include 1 Class I study in pediatric patients,¹⁶ a Class I study with both pediatric and adult patients,¹⁵ and a single Class III study in adults.¹⁴ This intravenous combination typically allows drug dosing that is less than that used with either propofol or ketamine as a sole agent. Studies using ketamine or propofol as a single agent in ED procedural sedation and analgesia routinely use 1.0 mg/kg as an initial dosing regimen for each drug. When ketamine and propofol are combined during ED procedural sedation and analgesia, dosing regimens typically use approximately 0.5 mg/kg to 0.75 mg/kg for each agent. An additional advantage of this combination strategy has been argued to be a reduction in the adverse risks associated with propofol and ketamine.^{12-16,20,69} Propofol-associated hypotension and respiratory depression can theoretically be reduced with increases in circulatory norepinephrine induced by ketamine. Similarly, the relatively greater risks for ketamine-associated nausea and emergence reactions are theoretically reduced by the antiemetic and anxiolytic properties of propofol. Studies have demonstrated a reduction in concomitant analgesic agent when a ketamine and propofol combination is used simultaneously in comparison to administration of propofol as a single agent.^{17,18}

In the 2 Class I studies, the combination of ketamine and propofol, when compared with a single-drug procedural sedation and analgesia regimen of either ketamine or propofol, resulted in higher provider satisfaction with the sedation encounter.^{15,16} In

both of these studies, respiratory depression rates were similar between the treatment groups. In the Class I study involving a pediatric population, the total patient sedation times were shorter, an approximate 19% reduction of 3 minutes, with the combined ketamine and propofol regimen compared with ketamine alone in pediatric procedural sedation and analgesia patients.¹⁶

Ketamine is widely used for children undergoing procedural sedation and analgesia in the ED. Multiple studies have continued to support this practice.^{11,70-76,89} Studies addressing the use of ketamine as a sole agent in the adult procedural sedation and analgesia ED population have also been published.^{77,78} Intravenous ketamine use in the adult population remains less common, likely because of reported rates of emergence phenomena, including recovery agitation.⁷⁹

Studies have continued to address the administration of adjunctive agents with ketamine separate from propofol.⁸⁰⁻⁸² In a double-blind, randomized, placebo-controlled trial, Langston et al⁸⁰ demonstrated a significant reduction in vomiting with the use of ondansetron in pediatric patients receiving ketamine for ED procedural sedation and analgesia. No adverse events were associated with the use of ondansetron in this trial. Two trials reported an assessment of atropine as an additional agent during ketamine ED procedural sedation and analgesia. Brown et al⁸¹ reported a reduction in observed hypersalivation, although hypersalivation associated with ketamine use during ED procedural sedation and analgesia appears to uncommonly have clinical implications.^{81,82}

Recent studies have evaluated the use and safety of etomidate in both adult and pediatric patients, including studies comparing it with other ED procedural sedation and analgesia agents.^{58,83-85} Etomidate has clinical characteristics similar to those of propofol including onset of sedation, sedation depth, and duration of clinical effects. One disadvantage of etomidate use during procedural sedation is etomidate-associated myoclonus.⁸³ Myoclonus has been described extensively with clinical events that range from mild to severe in 20% to 40% of patients receiving etomidate during ED procedural sedation and analgesia.^{90,91} These myoclonus events uncommonly result in clinically significant effects. Although trials investigating etomidate-induced adrenal suppression in procedural sedation are not available, numerous studies have demonstrated cortisol depression for up to 24 hours with as little as a single dose of etomidate. However, the levels consistently remain in the normal range, with no clinically significant sequelae.⁹²⁻⁹⁵

Reports and studies addressing new sedative agents in ED procedural sedation and analgesia have been few since the previous clinical policy.¹ Alfentanil is an agent that has been described for procedural sedation and analgesia in the ED.^{66,87} Alfentanil is an ultrashort-acting analogue of fentanyl. Miner et al,⁶⁶ in a Class II study, reported alfentanil to be safe and effective when added to propofol procedural sedation and analgesia in the ED. They noted an increase in patients who required stimulation to induce ventilation during ED procedural sedation and analgesia among the supplemental alfentanil patients. The authors subsequently concluded there was no benefit derived from the addition of

alfentanil to propofol with regard to rates of hypoventilation. In this study, recovery rates were noted to be longer when alfentanil was added to propofol as part of the propofol procedural sedation and analgesia regimen.⁶⁶

Remifentanil is an ultrashort-acting synthetic opioid used in general anesthesia for sedation and analgesia, and has been described in brief reports for ED procedural sedation and analgesia.^{88,96} Dexmedetomidine is a newer sedative agent. To date, only a case report has been published addressing the use of dexmedetomidine in the ED procedural sedation and analgesia population.⁹⁷

Future studies should seek to contribute to the body of evidence about the safety and efficacy profile of the multiple classes of sedative agents used for ED procedural sedation and analgesia. As newer agents that are similar in function to existing drugs become available, future policies should focus on the safety and efficacy of sedative agents according to their classification rather than the specific agent alone.

CONCLUSION

Safe and effective sedation and analgesia in the ED is a critical skill that is core to the practice of emergency medicine. Successful performance requires recognition of not only pitfalls associated with the medications but also consideration for the complexity of patients' underlying physiology and illness or injury. Emergency physicians are qualified to manage sedation requirements across all ages, involving a broad range of complicated patient presentations. It is clear that in typical ED populations, sedation is both safe and effective in providing increased patient comfort and ease of procedural performance.

Future ED studies should further investigate the unique sedation challenges encountered in high-risk patient subgroups to identify best practices for procedural sedation monitoring and performance. Further, the potential effect of various environments of care encountered across different EDs should also be considered when evaluating the safe performance of procedural sedation. Ultimately, a focus on patient-centered outcomes should be the prevailing core principle by which these future studies are designed.

Relevant industry relationships: *Dr. Mace has received research grants through the Cleveland Clinic from Baxter, Gebauer Company, Luitpold Pharmaceuticals, Venaxis, and Regency Therapeutics.*

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

REFERENCES

1. Godwin SA, Caro DA, Wolf SJ, et al. American College of Emergency Physicians. ACEP clinical policy: procedural sedation and analgesia in the emergency department. *Ann Emerg Med.* 2005;45:177-196.
2. Perina DG, Brunett P, Caro DA, et al. 2011 EM Model Review Task Force. The 2011 model of the clinical practice of emergency medicine. *Acad Emerg Med.* 2012;19:e19-e40.
3. Accreditation Council for Graduate Medical Education. ACGME program requirements for graduate medical education in emergency medicine and pediatric emergency medicine. July 1, 2007. Available at: <http://www.acgme.org/acgmeweb/tabid/131/ProgramandInstitutionalGuidelines/HospitalBasedAccreditation/EmergencyMedicine.aspx>. Accessed November 9, 2012.
4. American Osteopathic Association and American College of Osteopathic Emergency Physicians. Basic standards for residency training in emergency medicine. July 2011. Available at: <http://www.osteopathic.org/inside-aoa/accreditation/postdoctoral-training-approval/postdoctoral-training-standards/Documents/basic-standards-for-residency-training-in-emergency-medicine.pdf>. Accessed November 9, 2012.
5. Centers for Medicare & Medicaid Services (CMS). Revised appendix A, interpretive guidelines for hospitals—state operations manual, anesthesia services. Effective December 2, 2011. Available at: <http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R74SOMA.pdf>. Accessed: November 9, 2012.
6. The Joint Commission. *Hospital Accreditation Standards*. Oakbrook Terrace, IL: TJC Publication; 2013.
7. American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists. Practice guidelines for sedation and analgesia by non-anesthesiologists. *Anesthesiology.* 2002;96:1004-1017.
8. Cote CJ, Wilson S. American Academy of Pediatrics, American Academy of Pediatric Dentistry, Work Group on Sedation. Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures: an update. *Pediatrics.* 2006;118:2587-2602.
9. Centers for Medicare & Medicaid Services (CMS). FAQs for revisions to anesthesia services interpretive guidelines. CMS letter to State Survey Agency Directors, January 14, 2011.
10. American Society of Anesthesiologists. Continuum of depth of sedation: definition of general anesthesia and levels of sedation/analgesia. October 21, 2009. Available at: <http://www.asahq.org/Home/For-Members/Clinical-Information/Standards-Guidelines-and-Statements>. Accessed: November 9, 2012.
11. Green SM, Roback MG, Kennedy RM, et al. Clinical practice guideline for emergency department ketamine dissociative sedation: 2011 update. *Ann Emerg Med.* 2011;57:449-461.
12. Willman EV, Andolfatto G. A prospective evaluation of "ketofol" (ketamine/propofol combination) for procedural sedation and analgesia in the emergency department. *Ann Emerg Med.* 2007;49:23-30.
13. Andolfatto G, Willman E. A prospective case series of pediatric procedural sedation and analgesia in the emergency department using single-syringe ketamine-propofol combination (ketofol). *Acad Emerg Med.* 2010;17:194-201.
14. Andolfatto G, Willman E. A prospective case series of single-syringe ketamine-propofol (ketofol) for emergency department procedural sedation and analgesia in adults. *Acad Emerg Med.* 2011;18:237-245.
15. David H, Shipp J. A randomized controlled trial of ketamine/propofol versus propofol alone for emergency department procedural sedation. *Ann Emerg Med.* 2011;57:435-441.
16. Shah A, Mosdossy G, McLeod S, et al. A blinded, randomized controlled trial to evaluate ketamine/propofol versus ketamine alone for procedural sedation in children. *Ann Emerg Med.* 2011;57:425-433.
17. Messenger DW, Murray HE, Dungey PE, et al. Subdissociative-dose ketamine versus fentanyl for analgesia during propofol procedural sedation: a randomized clinical trial. *Acad Emerg Med.* 2008;15:877-886.

18. Erden IA, Pamuk AG, Akinci SB, et al. Comparison of propofol-fentanyl with propofol-fentanyl-ketamine combination in pediatric patients undergoing interventional radiology procedures. *Paediatr Anaesth*. 2009;19:500-506.
19. Donnelly RF, Willman E, Andolfatto G. Stability of ketamine-propofol mixtures for procedural sedation and analgesia in the emergency department. *Can J Hosp Pharm*. 2008;61:426-430.
20. Sharieff GQ, Trocinski DR, Kanegaye JT, et al. Ketamine-propofol combination sedation for fracture reduction in the pediatric emergency department. *Pediatr Emerg Care*. 2007;23:881-884.
21. Agrawal D, Manzi SF, Gupta R, et al. Preprocedural fasting state and adverse events in children undergoing procedural sedation and analgesia in a pediatric emergency department. *Ann Emerg Med*. 2003;42:636-646.
22. Apfelbaum JL, Caplan RA, Connis RT, et al. Practice guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: application to healthy patients undergoing elective procedures. An updated report by the American Society of Anesthesiologists Committee on Standards and Practice Parameters. *Anesthesiology*. 2011;114:495-511.
23. Molina JA, Lobo CA, Goh HK, et al. Review of studies and guidelines on fasting and procedural sedation at the emergency department. *Int J Evid Based Healthc*. 2010;8:75-78.
24. Thorpe RJ, Bengler J. Pre-procedural fasting in emergency sedation. *Emerg Med J*. 2010;27:254-261.
25. Green SM, Roback MG, Miner JR, et al. Fasting and emergency department procedural sedation and analgesia: a consensus-based clinical practice advisory. *Ann Emerg Med*. 2007;49:454-461.
26. Roback MG, Bajaj L, Wathen JE, et al. Preprocedural fasting and adverse events in procedural sedation and analgesia in a pediatric emergency department: are they related? *Ann Emerg Med*. 2004;44:454-459.
27. Treston G. Prolonged pre-procedure fasting time is unnecessary when using titrated intravenous ketamine for paediatric procedural sedation. *Emerg Med Australas*. 2004;16:145-150.
28. Babl FE, Puspitadewi A, Barnett P, et al. Preprocedural fasting state and adverse events in children receiving nitrous oxide for procedural sedation and analgesia. *Pediatr Emerg Care*. 2005;21:736-743.
29. McKee MR, Sharieff GQ, Kanegaye JT, et al. Oral analgesia before pediatric ketamine sedation is not associated with an increased risk of emesis and other adverse events. *J Emerg Med*. 2008;35:23-28.
30. Bell A, Treston G, McNabb C, et al. Profiling adverse respiratory events and vomiting when using propofol for emergency department procedural sedation. *Emerg Med Australas*. 2007;19:405-410.
31. Lightdale JR, Goldmann DA, Feldman HA, et al. Microstream capnography improves patient monitoring during moderate sedation: a randomized, controlled trial. *Pediatrics*. 2006;117:e1170-e1178.
32. Qadeer MA, Vargo JJ, Dumot JA, et al. Capnographic monitoring of respiratory activity improves safety of sedation for endoscopic cholangiopancreatography and ultrasonography. *Gastroenterology*. 2009;136:1568-1576.
33. Deitch K, Miner J, Chudnofsky CR, et al. Does end tidal CO₂ monitoring during emergency department procedural sedation and analgesia with propofol decrease the incidence of hypoxic events? A randomized, controlled trial. *Ann Emerg Med*. 2010;55:258-264.
34. Waugh JB, Epps CA, Khodneva YA. Capnography enhances surveillance of respiratory events during procedural sedation: a meta-analysis. *J Clin Anesth*. 2011;23:189-196.
35. Miner JR, Heegaard W, Plummer D. End-tidal carbon dioxide monitoring during procedural sedation. *Acad Emerg Med*. 2002;9:275-280.
36. Burton JH, Harrah JD, Germann CA, et al. Does end-tidal carbon dioxide monitoring detect respiratory events prior to current sedation monitoring practices? *Acad Emerg Med*. 2006;13:500-504.
37. Deitch K, Chudnofsky CR, Dominici P. The utility of supplemental oxygen during emergency department procedural sedation with propofol: a randomized controlled trial. *Ann Emerg Med*. 2008;52:1-8.
38. Vargo JJ, Zuccaro G, Dumot JA, et al. Automated graphic assessment of respiratory activity is superior to pulse oximetry and visual assessment for the detection of early respiratory depression during therapeutic upper endoscopy. *Gastrointest Endosc*. 2002;55:826-831.
39. Mallory MD, Baxter AL, Yanosky DJ, et al. Emergency physician-administered propofol sedation: a report on 25,433 sedations from the Pediatric Sedation Research Consortium. *Ann Emerg Med*. 2011;57:462-468.
40. Cravero JP, Blike GT, Beach M, et al. Incidence and nature of adverse events during pediatric sedation/anesthesia for procedures outside the operating room: report from the Pediatric Sedation Research Consortium. *Pediatrics*. 2006;118:1087-1096.
41. Standards and Practice Parameters Committee, American Society of Anesthesiologists. Standards for basic anesthetic monitoring. July 1, 2011. Available at: <http://www.asahq.org/Home/For-Members/Clinical-Information/Standards-Guidelines-and-Statements>. Accessed: November 9, 2012.
42. Soto RG, Fu ES, Vila H Jr, et al. Capnography accurately detects apnea during monitored anesthesia care. *Anesth Analg*. 2004;99:379-382.
43. Deitch K, Chudnofsky CR, Dominici P. The utility of supplemental oxygen during emergency department procedural sedation and analgesia with midazolam and fentanyl: a randomized, controlled trial. *Ann Emerg Med*. 2007;49:1-8.
44. Deitch K, Chudnofsky CR, Dominici P, et al. The utility of high-flow oxygen during emergency department procedural sedation and analgesia with propofol: a randomized, controlled trial. *Ann Emerg Med*. 2011;58:360-364.
45. Anderson JL, Junkins E, Pribble C, et al. Capnography and depth of sedation during propofol sedation in children. *Ann Emerg Med*. 2007;49:9-13.
46. Sivilotti ML, Messenger DW, van Vlymen J, et al. A comparative evaluation of capnometry versus pulse oximetry during procedural sedation and analgesia on room air. *CJEM*. 2010;12:397-404.
47. Terndrup TE, Cantor RM, Madden CM. Intramuscular meperidine, promethazine, and chlorpromazine: analysis of use and complications in 487 pediatric emergency department patients. *Ann Emerg Med*. 1989;18:528-533.
48. Chudnofsky CR, Wright SW, Dronen SC, et al. The safety of fentanyl use in the emergency department. *Ann Emerg Med*. 1989;18:635-639.
49. Chudnofsky CR, Weber JE, Stoyanoff PJ, et al. A combination of midazolam and ketamine for procedural sedation and analgesia in adult emergency department patients. *Acad Emerg Med*. 2000;7:228-235.
50. Dachs RJ, Innes GM. Intravenous ketamine sedation of pediatric patients in the emergency department. *Ann Emerg Med*. 1997;29:146-150.
51. Barsan WG, Tomassoni AJ, Seger D, et al. Safety assessment of high-dose narcotic analgesia for emergency department procedures. *Ann Emerg Med*. 1993;22:1444-1449.
52. Vinson DR, Bradbury DR. Etomidate for procedural sedation in emergency medicine. *Ann Emerg Med*. 2002;39:592-598.
53. Ruth WJ, Burton JH, Bock AJ. Intravenous etomidate for procedural sedation in emergency department patients. *Acad Emerg Med*. 2001;8:13-18.
54. Havel CJ Jr, Strait RT, Hennes H. A clinical trial of propofol vs. midazolam for procedural sedation in a pediatric emergency department. *Acad Emerg Med*. 1999;6:989-997.
55. Guenther E, Pribble CG, Junkins EP Jr, et al. Propofol sedation by emergency physicians for elective pediatric outpatient procedures. *Ann Emerg Med*. 2003;42:783-791.
56. Bassett KE, Anderson JL, Pribble CG, et al. Propofol for procedural sedation in children in the emergency department. *Ann Emerg Med*. 2003;42:773-782.

57. O'Connor RE, Sama A, Burton JH, et al. American College of Emergency Physicians. Procedural sedation and analgesia in the emergency department: recommendations for physician credentialing, privileging, and practice. *Ann Emerg Med.* 2011;58:365-370.
58. Sacchetti A, Senula G, Strickland J, et al. Procedural sedation in the community emergency department: initial results of the ProSCED registry. *Acad Emerg Med.* 2007;14:41-46.
59. Hogan K, Sacchetti A, Aman L, et al. The safety of single-physician procedural sedation in the emergency department. *Emerg Med J.* 2006;23:922-923.
60. Vinson DR, Hoehn CL. Sedation-assisted orthopedic reduction in emergency medicine: the safety and success of a one physician/one nurse model. *West J Emerg Med.* 2013;14:47-54.
61. Miner JR, Martel ML, Meyer M, et al. Procedural sedation of critically ill patients in the emergency department. *Acad Emerg Med.* 2005;12:124-128.
62. Miner JR, Burton JH. Clinical practice advisory: emergency department procedural sedation with propofol. *Ann Emerg Med.* 2007;50:182-187.
63. Burton JH, Miner JR, Shipley ER, et al. Propofol for emergency department procedural sedation and analgesia: a tale of three centers. *Acad Emerg Med.* 2006;13:24-30.
64. Kuypers MI, Mencl F, Verhagen MF, et al. Safety and efficacy of procedural sedation with propofol in a country with a young emergency medicine training program. *Eur J Emerg Med.* 2011;18:162-167.
65. Senula G, Sacchetti A, Moore S, et al. Impact of addition of propofol to ED formulary. *Am J Emerg Med.* 2010;28:880-883.
66. Miner JR, Gray RO, Stephens D, et al. Randomized clinical trial of propofol with and without alfentanil for deep procedural sedation in the emergency department. *Acad Emerg Med.* 2009;16:825-834.
67. Weaver CS, Hauter WE, Brizendine EJ, et al. Emergency department procedural sedation with propofol: is it safe? *J Emerg Med.* 2007;33:355-361.
68. Miner JR, Gray RO, Bahr J, et al. Randomized clinical trial of propofol versus ketamine for procedural sedation in the emergency department. *Acad Emerg Med.* 2010;17:604-611.
69. Phillips W, Anderson A, Rosengreen M, et al. Propofol versus propofol/ketamine for brief painful procedures in the emergency department: clinical and bispectral index scale comparison. *J Pain Palliat Care Pharmacother.* 2010;24:349-355.
70. McQueen A, Wright RO, Kido MM, et al. Procedural sedation and analgesia outcomes in children after discharge from the emergency department: ketamine versus fentanyl/midazolam. *Ann Emerg Med.* 2009;54:191-197.
71. Melendez E, Bachur R. Serious adverse events during procedural sedation with ketamine. *Pediatr Emerg Care.* 2009;25:325-328.
72. Green SM, Roback MG, Krauss B, et al. Predictors of airway and respiratory adverse events with ketamine sedation in the emergency department: an individual-patient data meta-analysis of 8,282 children. *Ann Emerg Med.* 2009;54:158-168.
73. Green SM, Roback MG, Krauss B, et al. Predictors of emesis and recovery agitation with emergency department ketamine sedation: an individual-patient data meta-analysis of 8,282 children. *Ann Emerg Med.* 2009;54:171-180.
74. Dilli D, Dallar Y, Sorgui NH. Intravenous ketamine plus midazolam vs. intravenous ketamine for sedation in lumbar puncture: a randomized controlled trial. *Indian Pediatr.* 2008;45:899-904.
75. Vardy JM, Dignon N, Mukherjee N, et al. Audit of the safety and effectiveness of ketamine for procedural sedation in the emergency department. *Emerg Med J.* 2008;25:579-582.
76. Bleiberg AH, Salvaggio CA, Roy LC, et al. Low-dose ketamine: efficacy in pediatric sedation. *Pediatr Emerg Care.* 2007;23:158-162.
77. Green SM, Sherwin TS. Incidence and severity of recovery agitation after ketamine sedation in young adults. *Am J Emerg Med.* 2005;23:142-144.
78. Newton A, Fitton L. Intravenous ketamine for adult procedural sedation in the emergency department: a prospective cohort study. *Emerg Med J.* 2008;25:498-501.
79. Strayer RJ, Nelson LS. Adverse events associated with ketamine for procedural sedation in adults. *Am J Emerg Med.* 2008;26:985-1028.
80. Langston WT, Wathen JE, Roback MG, et al. Effect of ondansetron on the incidence of vomiting associated with ketamine sedation in children: a double-blind, randomized, placebo-controlled trial. *Ann Emerg Med.* 2008;52:30-34.
81. Brown L, Christian-Kopp S, Sherwin TS, et al. Adjunctive atropine is unnecessary during ketamine sedation in children. *Acad Emerg Med.* 2008;15:314-318.
82. Heinz P, Geelhoed GC, Wee C, et al. Is atropine needed with ketamine sedation? A prospective, randomised, double blind study. *Emerg Med J.* 2006;23:206-209.
83. Miner JR, Danahy M, Moch A, et al. Randomized clinical trial of etomidate versus propofol for procedural sedation in the emergency department. *Ann Emerg Med.* 2007;49:15-22.
84. Lee-Jayaram JJ, Green A, Siembieda J, et al. Ketamine/midazolam versus etomidate/fentanyl: procedural sedation for pediatric orthopedic reductions. *Pediatr Emerg Care.* 2010;26:408-412.
85. Di Liddo L, D'Angelo A, Nguyen B, et al. Etomidate versus midazolam for procedural sedation in pediatric outpatients: a randomized controlled trial. *Ann Emerg Med.* 2006;48:433-440.
86. Cicero M, Graneto J. Etomidate for procedural sedation in the elderly: a retrospective comparison between age groups. *Am J Emerg Med.* 2011;29:1111-1116.
87. Miner JR, Gray R, Delavari P, et al. Alfentanil for procedural sedation in the emergency department. *Ann Emerg Med.* 2011;57:117-121.
88. Dunn MJ, Mitchell R, De Souza C, et al. Evaluation of propofol and remifentanyl for intravenous sedation for reducing shoulder dislocations in the emergency department. *Emerg Med J.* 2006;23:57-58.
89. Krauss B, Green SM. Procedural sedation and analgesia in children. *Lancet.* 2006;367:766-780.
90. Van Keulen SG, Burton JH. Myoclonus associated with etomidate for ED procedural sedation and analgesia. *Am J Emerg Med.* 2003;21:556-558.
91. Falk J, Zed PJ. Etomidate for procedural sedation in the emergency department. *Ann Pharmacother.* 2004;38:1272-1277.
92. Schenarts CL, Burton JH, Riker RR. Adrenocortical dysfunction following etomidate induction in emergency department patients. *Acad Emerg Med.* 2001;8:1-7.
93. Absalom A, Pledger D, Kong A. Adrenocortical function in critically ill patients 24 h after a single dose of etomidate. *Anaesthesia.* 1999;54:861-867.
94. Allolio B, Stuttmann R, Leonhard U, et al. Adrenocortical suppression by a single induction dose of etomidate. *Klin Wochenschr.* 1984;62:1014-1017.
95. Allolio B, Dorr H, Stuttmann R, et al. Effect of a single bolus of etomidate upon eight major corticosteroid hormones and plasma ACTH. *Clin Endocrinol (Oxf).* 1985;22:281-286.
96. Sacchetti A, Jachowski J, Heisler J, et al. Remifentanyl use in emergency department patients: initial experience. *Emerg Med J.* 2012;29:928-929.
97. Jewett J, Phillips WJ. Dexmedetomidine for procedural sedation in the emergency department. *Eur J Emerg Med.* 2010;17:60.

Appendix A. Literature classification schema.*

Design/Class	Therapy [†]	Diagnosis [‡]	Prognosis [§]
1	Randomized, controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (eg, consensus, review)	Case series Case report Other (eg, consensus, review)	Case series Case report Other (eg, consensus, review)

*Some designs (eg, surveys) will not fit this schema and should be assessed individually.

[†]Objective is to measure therapeutic efficacy comparing interventions.

[‡]Objective is to determine the sensitivity and specificity of diagnostic tests.

[§]Objective is to predict outcome including mortality and morbidity.

Appendix B. Approach to downgrading strength of evidence.

Downgrading	Design/Class		
	1	2	3
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

Appendix C. Likelihood ratios and number needed to treat.*

LR (+)	LR (-)	
1.0	1.0	Useless
1-5	0.5-1	Rarely of value, only minimally changes pretest probability
10	0.1	Worthwhile test, may be diagnostic if the result is concordant with pretest probability
20	0.05	Strong test, usually diagnostic
100	0.01	Very accurate test, almost always diagnostic even in the setting of low or high pretest probability

LR, likelihood ratio.

*Number needed to treat (NNT): number of patients who need to be treated to achieve 1 additional good outcome; $NNT=1/\text{absolute risk reduction} \times 100$, where absolute risk reduction is the risk difference between 2 event rates (ie, experimental and control groups).

Evidentiary Table.

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Andolfatto and Willman ¹⁴	2011	Prospective, uncontrolled, observational trial	Adult patients 21 y of age or older receiving ketofol as a 1:1 mixture of 10 mg/mL propofol and 10 mg/mL ketamine	Patients evaluated for drug dosages administered, adverse events, recovery time; patient and staff satisfaction were recorded	728 patients received a median ketofol dose of 0.7 mg/kg with median recovery time of 14 min; ketofol administered primarily for orthopedic procedure patients; complications included BVM use in 2.1%, apnea in 0.5%, and hypoxia in 0.3%; recovery agitation was reported in 3.6%, with 1.8% of all study patients requiring treatment for recovery agitation; rigidity was reported in 1.5% of patients; excess secretions noted in 1 patient with vomiting in 1 patient; dysrhythmia and hypotension were reported in 1 patient who required admission; staff and patients reported satisfaction as high	Design limitations included nonblinded, nonrandomized enrollment, with no comparative group; premedication not standardized; enrollment of patients limited by physician selection bias and convenience	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
David and Shipp ¹⁵	2011	Double blinded, randomized, placebo-controlled trial	Adult and pediatric patients treated with IV fentanyl by protocol and then randomized to treatment protocol with either placebo or ketamine administered as a bolus of 0.5 mg/kg; both treatment groups then received IV propofol by protocol dosing with 1.0 mg/kg bolus followed by 0.5 mg/kg bolus doses as needed	Primary outcome variable was the rate of predefined, observed respiratory depression; secondary outcomes included dose of propofol, provider satisfaction, and sedation quality	200 subjects enrolled with 110 randomized to receive placebo and 110 to the ketamine treatment arm; 96 placebo and 97 ketamine patients completed the study; sedation performed primarily for orthopedic and suturing procedures; baseline characteristics were similar between groups except for more male patients in the placebo group; respiratory depression was similar between the groups, with 22% of ketamine patients experiencing respiratory depression compared with 28% of placebo patients; provider satisfaction with sedation was higher in the ketamine group; patients in the ketamine group received less propofol	Blinding limited in the study because of nystagmus and secretions in ketamine group; nystagmus blinded by use of sunglasses; no secretions reported in any patients	I

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Shah et al ¹⁶	2011	Double-blinded, randomized, controlled study	Pediatric orthopedic ED patients randomized to treatment protocol with either ketamine 1.0 mg/kg as initial bolus plus ketamine 0.25 mg/kg as needed or propofol/ketamine administered as 0.5 mg/kg propofol plus 0.5 mg/kg ketamine initial bolus with additional ketamine 0.25 mg/kg as needed	Primary outcome variable was the total sedation time; secondary outcomes included time to recovery, efficacy, adverse events, and provider satisfaction	136 subjects enrolled with 69 randomized to receive ketamine alone and 67 to the propofol/ketamine treatment arm; baseline characteristics were similar between groups; total sedation time and recovery time were shorter with propofol/ketamine; there was less vomiting and higher satisfaction with propofol/ketamine; respiratory depression was similar between the groups	Opiate and O ₂ treatment not standardized in the treatment protocol	I

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Roback et al ²⁶	2004	Prospective observational cohort study	Single-center study of 1,555 pediatric patients undergoing procedural sedation	Case definition: patient fasting times of 0-2 h (reference group), 2-4 h, 4-6 h, 6-8 h, and >8 h; outcomes: emesis and adverse respiratory events (apnea, laryngospasm, desaturations, and aspiration)	Adverse events (vomiting or adverse respiratory event) occurred in 18/150 (12%) in the 0- to 2-h group, 64/391 (16.4%) in the 2- to 4-h group, 60/430 (14%) in the 4- to 6-h group, 41/281 (14.6%) in the 6- to 8-h group, and 44/303 (14.5%) in the >8-h group; using the group that fasted 0-2 h as the reference group, the difference in proportion of any adverse events was 4.3% (95% CI -2.0% to 10.7%) in the 2- to 4-h group, 2.0% (95% CI -4.2% to 8.1%) in the 4- to 6-h group, 2.6% (95% CI -4.0% to 9.2%) in the 6- to 8-h group, and 2.5% (95% CI -4.0 to 9.1%) in the >8-h group;* compared with the group that fasted for 0-2 h, the OR for adverse events in the 2- to 4-h group was 1.4 (95% CI 0.8 to 2.5), in the 4- to 6-h group 1.2 (95% CI 0.7 to 2.1), in the 6- to 8-h group 1.3 (95% CI 0.7 to 2.3), and in the >8-h group 1.3 (95% CI 0.7 to 2.2); there were no aspiration events documented in the entire cohort of 1,555 patients (0%; 95% CI 0% to 0.2%)*	One fourth of patients in the initial cohort were excluded; the adverse event rate in this group was not different from that in the groups in which fasting status was documented; distinction between solids and liquid fasting time was not consistently documented; did not evaluate rationale for some patients meeting fasting guidelines and others not meeting guidelines; outcome measured with knowledge of fasting status; multiple sedation agents used	II

*Calculations of 95% CI and difference in proportions were performed in Stata version 11.2 when not reported in the original article.

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Treston ²⁷	2004	Prospective observational cohort study	Single-center study of 257 pediatric patients undergoing procedural sedation with ketamine	Case definition: patient fasting times of 1 h, 2-3 h, and >3 h; outcome: emesis	Vomiting occurred in 2/30 (6.6%) in the 1 h or less fasting group, 14/100 (14.0%) in the 1- to 2-h fasting group, and 20/127 (15.7%) in the 3 h or greater group; using the group that fasted 1 h or less as the reference group, the difference in proportion of vomiting in the 1- to 2-h fasting group was 7.3% (95% CI -3.9% to 18.5%) and in the 3-h or greater group was 9.1% (95% CI -1.9% to 20.0%);* no clinically detectable aspiration occurred and no airway maneuvers or suctioning was required (0%; 95% CI 0% to 1.4%)*	Not powered to detect a difference in emesis rate; did not evaluate rationale for some patients meeting fasting guidelines and others not meeting guidelines; outcome measured with knowledge of fasting status	II

*Calculations of 95% CI and difference in proportions were performed in Stata version 11.2 when not reported in the original article.

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Babl et al ²⁸	2005	Prospective observational cohort study	Single-center study of 218 consecutive pediatric patients undergoing procedural sedation with nitrous oxide	Case definition: patients not meeting ASA fasting guideline (6 h for solids and 2 h for liquids); outcome: emesis	155/218 (71.1%) did not meet fasting guidelines for solids; emesis occurred in 11/155 (7.1%) of those who did not meet fasting guidelines for solids compared with 4/63 (6.3%) in those who met guidelines (difference=0.7%; 95% CI -6.5% to 8.0%);* serious adverse events were defined as desaturation less than 95% SpO ₂ , apnea, stridor, airway misalignment requiring repositioning, laryngospasm, bronchospasm, cardiovascular instability, pulmonary aspiration, unplanned hospital admission, endotracheal intubation, permanent neurologic injury, or death; there were no serious adverse events observed (0%; 95% CI 0% to 1.7%)	Not powered to detect a difference in emesis rate; convenience sample; did not evaluate rationale for some patients meeting fasting guidelines and others not meeting guidelines; outcome measured with knowledge of fasting status	II

*Calculations of 95% CI and difference in proportions were performed in Stata version 11.2 when not reported in the original article.

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
McKee et al ²⁹	2008	Prospective observational cohort study	Single-center study of 471 pediatric patients undergoing procedural sedation with ketamine	Case definition: patients receiving oral analgesic before sedation; outcome: emesis	201/471 (42.7%) received oral analgesics within 6 h of sedation; emesis occurred in 10/201 (5.0%) patients who received oral analgesics compared with 7/270 (2.6%) patients who did not receive oral analgesics, difference=2.4% (95% CI -1.1% to 6.5%); additional adverse events recorded were hypoxia (desaturation requiring supplemental O ₂), hypoventilation, laryngospasm, apnea, bradycardia, or tachycardia; total adverse events were similar for those receiving oral analgesia (5.0%) and those not receiving oral analgesia (5.6%) difference=-0.6% (95% CI -4.7% to 3.9%); results were similar in a secondary analysis of patients receiving oral analgesics within 4 h; the authors did not describe episodes of intubation, aspiration, unplanned admission, or death, although these were not explicit outcome measures in the study	Did not evaluate rationale for some patients receiving oral analgesics and others not receiving oral analgesics; outcome measured with knowledge of oral analgesic administration; it is implied that all of the patients met the department fasting guidelines of 2 h for liquids and 4 h for solids, but this is not explicit; fasting times were similar between groups	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Bell et al ³⁰	2007	Prospective, uncontrolled, observational trial	Single-center study of 400 patients undergoing procedural sedation with propofol; fasting status was evaluated; adult and pediatric patients receiving propofol by protocol with initial bolus of 0.5 mg/kg to 1.0 mg/kg followed by 10-mg to 40-mg bolus doses as needed	Patients not meeting ASA fasting guideline (6 h for solids and 2 h for liquids); patients evaluated for drug dosages administered, NPO status, and adverse events, including emesis	282/400 (70.5%) did not meet fasting guidelines for solids or liquids; emesis occurred in 1/282 (0.4%) of those who did not meet fasting guidelines compared with 1/118 (0.8%) in those who met guidelines, difference=0.4% (95% CI -2.3% to 1.3%);* respiratory adverse events occurred in 63/282 (22.4%) of those who did not meet fasting guidelines compared with 23/118 (19.5%) of those who met guidelines, difference=2.8% (95% CI -5.8% to 11.5%);* respiratory interventions occurred in 94/282 (33.3%) of those who did not meet fasting guidelines compared with 29/118 (24.6%) of those who met guidelines, difference=8.8% (95% CI -0.8% to 18.3%);* there were no aspiration events, intubations, LMA insertions, or unplanned admissions related to sedation or recovery in either group (0%, 95% CI 0% to 0.9%)*	Not powered to detect a difference in emesis rate; further design limitations included nonblinded, nonrandomized enrollment, with no comparative group; premedication not standardized; enrollment of patients limited by physician selection bias and convenience	II for fasting III for agents

*Calculations of 95% CI and difference in proportions were performed in Stata version 11.2 when not reported in the original article.

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Lightdale et al ³¹	2006	Randomized controlled trial	Capnographic measures of hypoventilation used to alert providers at 15 s vs 60 s; pediatric endoscopy with supplemental O ₂	Primary outcome was hypoxia defined as pulse oximetry <95% for >5 s; secondary outcomes included abnormal ventilation, termination of procedure, BVM, sedation reversals, or seizures	163 patients with 11% vs 24% of patients with hypoxia in the 15 s vs 60 s arms, respectively; ARR=13% RRR=54% NNT=7.7	Unable to blind; generalizability	II
Qadeer et al ³²	2009	Randomized controlled trial	Capnography vs blinded to capnography results during procedural sedation with opioid and benzodiazepine during ERCP and EUS	Primary outcome: hypoxia defined as O ₂ saturation <90% for ≥15 s; secondary outcomes: severe hypoxia ≤85%; supplemental O ₂ use, apnea ≥15 s; and abnormal ventilation defined as capnography flat line for ≥5 s but <15 s, >75% reduction in amplitude of respiratory waves for ≥5 s	263 patients enrolled with similar patients characteristics in each arm; 85 patients (69%) from the blinded arm and 57 (46%) from the open arm developed at least 1 episode of hypoxia; ARR=23% RRR=33% NNT=4.3	Generalizability of results from a study on ERCP and EUS to ED procedural sedation; incorporation bias was important for secondary outcomes only	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Deitch et al ³³	2010	Randomized controlled trial	Capnography vs no access to capnography by the provider in ED procedural sedation with propofol and supplemental O ₂	The primary outcome was hypoxia defined as SpO ₂ <93%; respiratory depression was defined as ETCO ₂ >50 mm Hg, change from baseline of ≥10%, or loss wave form >15 s	132 patients with 25% vs 42% patients with hypoxia in the capnography and no capnography arm, respectively; ARR=17%; RRR=59% NNT=5.9	Single center; incorporation bias; unable to blind; 35% excluded because of missing data without sensitivity analysis	II
Waugh et al ³⁴	2011	Meta-analysis of prospective studies	Capnography in addition to standard monitoring in procedural sedation	Respiratory complications	Five studies included in this systematic review; respiratory events as defined by the various studies were 17.6 times more likely to be detected (95% CI 2.5 to 122) by capnography compared with standard monitoring alone	There was significant heterogeneity in these results, with an <i>I</i> ² (%) of 85.2; generalizability because not all of these studies occurred in the ED setting; 4 of the 5 studies were Class III evidence and 1 study was level X	III
Miner et al ³⁵	2002	Prospective observational	This study prospectively evaluated the ability of ETCO ₂ to detect respiratory depression in ED procedural sedation with various agents	Respiratory depression was defined as: oxygen saturation <90% for ≥1 min; ETCO ₂ >50 mm Hg; absent waveform/airway obstruction measured by ETCO ₂ ; secondary outcome was ventilatory assistance	74 patients, with 14.9% meeting criteria for respiratory depression; 33% of these were detected by pulse oximetry and 100% were detected by ETCO ₂ criteria	Single center; small numbers	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Burton et al ³⁶	2006	Prospective observational	Detection of acute respiratory events with ETCO ₂ compared with pulse oximetry or clinical examination	Acute respiratory event: SpO ₂ ≤92%, increased O ₂ use, BVM, oral/nasal airway, repositioning, or stimulation	60 patients with 20 (33%) acute respiratory events; 17/20 (85%) detected by ETCO ₂ ; 70% (95% CI 58% to 82%) ETCO ₂ before pulse oximetry	Single-center design; convenience sample; incorporation bias; study ended early; not all of these outcomes are likely to be clinically important	III
Deitch et al ³⁷	2008	Randomized controlled trial of supplemental O ₂ vs room air	Supplemental O ₂ vs room air to reduce hypoxia in ED procedural sedation with propofol; evaluation of blinded capnography in detecting respiratory depression compared with physician assessment was a secondary hypothesis of the trial	Primary outcome was hypoxia defined as oxygen saturation ≥93%; secondary outcome was detection of respiratory depression defined as hypoxia, ETCO ₂ >10 mm Hg from baseline or loss of ETCO ₂ waveform	110 patients; 52 with respiratory depression; 9 with both hypoxia and respiratory depression criteria, 16 with only hypoxia, and 27 with only ETCO ₂ criteria	Single center; incorporation bias; not the primary hypothesis of study	III
Vargo et al ³⁸	2002	Prospective blinded observational	Provider observation vs pulse oximetry <90% vs capnography >25% difference from baseline value in GI endoscopy	Outcomes: apnea >30 s; disordered respiration defined as 45 s containing 30 s of apnea; alveolar hypoventilation defined as ETCO ₂ ≥25% baseline value; and hypoxia defined as pulse oximetry <90%	49 patients enrolled; 54 episodes of disordered respiration in 28 patients; 50% detected by pulse oximetry, 0% by observation, and 100% by capnography	Generalizability; incorporation bias	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Deitch et al ⁴³	2007	Randomized controlled trial	Supplemental O ₂ vs room air to reduce hypoxia in ED procedural sedation with midazolam and fentanyl; evaluation of blinded capnography in detecting respiratory depression compared with physician assessment was a secondary hypothesis of the trial	Primary outcome was hypoxia defined as oxygen saturation <90%; secondary outcome of respiratory depression was defined as hypoxia, ETCO ₂ change of >10 mm Hg from baseline, or loss of ETCO ₂ waveform	80 patients, 11 with hypoxia and 28 with respiratory depression; physicians detected 0 of 28 with respiratory depression, but no adverse events	Single center; incorporation bias in the definition of respiratory depression; evaluation of capnography was not the primary hypothesis of the study	III
Deitch et al ⁴⁴	2011	Randomized controlled trial	High-flow O ₂ vs room air to reduce hypoxia in ED procedural sedation with midazolam and fentanyl; evaluation of blinded capnography in detecting respiratory depression compared with physician assessment was a secondary hypothesis of the trial	Primary outcome was hypoxia defined as oxygen saturation <93%; secondary outcome of respiratory depression was defined as ETCO ₂ change of >50 mm Hg, >10 mm Hg change from baseline, or loss of ETCO ₂ waveform	117 patients analyzed; 58 patients developed respiratory depression and only 29 of these developed hypoxia	Single center; incorporation bias in the definition of respiratory depression; evaluation of capnography was not the primary hypothesis of the study	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Anderson et al ⁴⁵	2007	Prospective observational study; pediatric orthopedic procedures	Detection of apnea or airway obstruction with capnography compared with pulse oximetry or clinical examination in patients receiving opioid and propofol, as well as supplemental O ₂	First to detect adverse respiratory events: hypoxia, hypercarbia, or apnea; hypoxia was defined as oxygen saturation <90% at 4,330 feet elevation; hypercarbia was ETCO ₂ >50 mm Hg or >10% increase from baseline; apnea was defined as cessation of spontaneous breathing >30 s or absent CO ₂ waveform	125 patients enrolled and 14 adverse airway or respiratory events; apnea (5/5) was detected by capnography before pulse oximetry; airway obstruction (6/10) was detected by capnography before pulse oximetry	Single-center design; limited to children; convenience sample; no blinding; incorporation bias because ETCO ₂ was used in the definition of adverse respiratory events	III
Sivilotti et al ⁴⁶	2010	Prospective observational nested in a randomized controlled trial	Capnography vs pulse oximetry in first detection of respiratory depression; this study was nested in a randomized controlled trial of propofol sedation with either low-dose ketamine or fentanyl	Composite endpoint of respiratory events includes oxygen desaturation <92% and hypoventilation defined as ETCO ₂ >50 mm Hg, a rise of 10 mm Hg from baseline, or loss of waveform	63 patients were enrolled and 36 (57%) developed O ₂ desaturation at some point; hypoventilation was associated with hypoxia crude OR=1.4; hypoventilation did not precede hypoxia in any patient	Study was not designed to answer this clinical question; incorporation bias for all outcomes	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Sacchetti et al ⁵⁸	2007	Retrospective review of prospective database	Procedural sedation and analgesia with physician doing both sedation and procedure vs physician doing only sedation	Complication rate including airway obstruction, apnea, hypotension, and hypoxia	N=1,028; sedation on 980 patients; complication rate: physician doing sedation and procedure=4.1%, physician doing sedation only=4.0% ($P>.9$)	Did not define procedural sedation; excluded sedation cases performed in ED but not under the direction of the emergency physician; did not control for when the physician performed sedation only vs sedation and procedure; did not assess for differences in patient comorbidities or severity of illness	III
Hogan et al ⁵⁹	2006	Retrospective review of prospective database	Procedural sedation and analgesia by single emergency physician with monitoring by emergency nurse vs monitoring by additional emergency physician	Complication rate including airway obstruction, apnea, hypotension, and hypoxia	N=1,028; sedation on 980 patients; complication rate: nurse monitored=4.0%, physician monitored=4.2%; ($P>.7$)	Did not prospectively determine when nurse monitoring or physician monitoring should apply	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Vinson and Hoehn ⁶⁰	2013	Retrospective, consecutive multicenter case series	1 physician and 1 nurse vs 2 physicians and 1 nurse procedural sedation and analgesia in ED patients requiring closed reduction of major joint dislocations and forearm fractures	Incidence of success of the procedure and adverse events requiring intervention	In 98.4% (435/442) patients, a single emergency physician simultaneously managed both the procedural sedation and the initial orthopedic reduction without the assistance of a second physician; the reduction was successful or satisfactory in 96.6% (425/435) (95% CI 95.8% to 98.8%) of these cases, with a low incidence of intervention-requiring adverse events (2.8% [12/435]; 95% CI 1.5% to 4.8%); adverse events requiring intervention occurred in 12 (2.8%) of 435 cases using the 1 physician and 1 nurse model and in none of the 22 cases with 2 physicians and 1 nurse ($P=.43$)	Retrospective chart review; small numbers (N=22) of cases using 2 physicians for procedural sedation and analgesia; focused solely on orthopedic procedures so generalizability to other procedural sedation and analgesia indications is limited	III
Kuypers et al ⁶⁴	2011	Prospective, uncontrolled, multicenter observational trial	Adult and pediatric patients receiving propofol by protocol with initial bolus of 0.5 mg/kg followed by repeated bolus doses as needed; IV fentanyl administered before propofol at the discretion of the attending physician	Patients evaluated for drug dosages administered, quality of sedation, and adverse events	386 patients received propofol, with a median dose of 1.0 mg/kg; 99.5% of procedures were successful; majority of patients with either dislocation reduction or electrical cardioversion; complications included apnea in 11%; BVM use not reported, hypoxia in 5%, hypotension in 3%; vomiting noted in 1 patient	Design limitations included nonblinded, nonrandomized enrollment, with no comparative group; premedication not standardized; enrollment of patients limited by physician selection bias and convenience	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Senula et al ⁶⁵	2010	Prospective, controlled, nonrandomized, single-center observational trial	Adult and pediatric patients receiving procedural sedation before and after introduction of propofol to ED formulary	Primary outcome variable was the frequency of propofol use for sedation; secondary variables included the rate of predefined observed respiratory depression, efficacy, and duration of recovery	573 subjects enrolled and analyzed, with 255 enrolled before propofol use and 318 enrolled after propofol introduction; baseline characteristics were similar between groups except for more male patients and more children in the postpropofol group; sedation performed primarily for orthopedic procedures; complications and procedure failures decreased after propofol introduction; propofol use increased with time in the postpropofol period	Flaws in design	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Miner et al ⁶⁶	2009	Nonblinded, randomized, controlled study	Adult patients treated with IV morphine for analgesia by protocol and then randomized to treatment protocol with propofol 1.0 mg/kg bolus accompanied by either placebo or alfentanil 10 µg/kg	Primary outcome variables included depth of sedation, rate of predefined observed respiratory depression, efficacy, and duration of recovery; the secondary objective was to compare rates of clinical vs subclinical respiratory depression rates	145 patients enrolled and analyzed, with 74 randomized to receive placebo and 71 to alfentanil treatment; baseline characteristics were similar between groups; no significant difference was observed in adverse respiratory events between groups except for patients requiring stimulation to induce breathing to resolve hypoventilation, with more patients requiring stimulus in the alfentanil group; procedure success was similar between groups; recovery times were longer in alfentanil-treated patients	Nonblinded to patients and providers	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Miner et al ⁸³	2007	Nonblinded, randomized, controlled study	Adult patients treated with IV morphine for analgesia by protocol and then randomized to treatment protocol with either etomidate or propofol administered by treatment protocol; propofol administered as 1.0 mg/kg bolus followed by 0.5 mg/kg bolus doses as needed; etomidate administered as 0.1 mg/kg followed by 0.05 mg/kg bolus as needed	Outcome variables included the rate of predefined, observed respiratory depression, efficacy, and duration of recovery	214 patients enrolled and analyzed, with 105 randomized to receive etomidate and 109 to propofol treatment; baseline characteristics were similar between groups; myoclonus noted in 20% of etomidate patients, 1.8% of propofol patients; no significant difference observed in adverse respiratory events between groups, including BVM used in 3.8% of etomidate and 4.6% of propofol patients; procedure success was more common in the propofol-treated patients; recovery times were similar in the 2 groups; sedation performed primarily for orthopedic and incision and drainage procedures	Nonblinded to patients and providers	II

ARR, absolute risk reduction; ASA, American Society of Anesthesiologists; BVM, bag-valve-mask; CI, confidence interval; CO₂, carbon dioxide; ED, emergency department; ERCP, endoscopic retrograde cholangiopancreatography; ETCO₂, end-tidal carbon dioxide; EUS, endoscopic ultrasonography; GI, gastrointestinal; h, hour; Hg, mercury; IV, intravenous; kg, kilogram; LMA, laryngeal mask airway; µg, microgram; mg, milligram; min, minute; ml, milliliter; mm, millimeter; NNT, number needed to treat; NPO, nothing by mouth; O₂, oxygen; OR, odds ratio; RRR, relative risk reduction; s, seconds; SpO₂, oxygen saturation; vs, versus; y, year.



Clinical Practice Guideline: The Use of Capnography During Procedural Sedation/Analgesia in the Emergency Department

Full Version

[Formerly known as Emergency Nursing Resource (ENR)]

Do emergency department patients receiving procedural sedation/analgesia who are monitored with capnography, as compared to those monitored per common practice (vital signs, pulse oximetry, and clinical assessment), have better outcomes because hypoventilation and apnea are detected earlier during sedation and recovery?

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In addition, variations in practice, which take into account the needs of the individual patient and the resources and limitations unique to the institution, may warrant approaches, treatments and/or procedures that differ from the recommendations outlined in the CPGs. Therefore, these recommendations should not be construed as dictating an exclusive course of management, treatment or care, nor does the use of such recommendations guarantee a particular outcome. CPGs are never intended to replace a practitioner's best nursing judgment based on the clinical circumstances of a particular patient or patient population. CPGs are published by ENA for educational and informational purposes only, and ENA does not approve or endorse any specific methods, practices, or sources of information. ENA assumes no liability for any injury and/or damage to persons or property arising out of or related to the use of or reliance on any CPG

Publication Date: December 2009, Title Edited March 2013

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Background/Significance

Medication administration and patient monitoring are common roles for emergency nurses during procedural sedation and analgesia. Negative outcomes associated with sedation are usually related to airway or respiratory issues. Unfortunately, the usual parameters monitored during sedation in the ED, vital signs and pulse oximetry (SpO₂), are late to respond to hypoventilation. It is common to use supplemental oxygen to increase the patient's oxygen reserves before and during sedation. However, superoxygenated patients desaturate only after prolonged apnea so this practice inadvertently further negates the use of pulse oximetry as an early warning sign for respiratory depression or upper airway obstruction (Dietch, Chudnofsky, & Dominici, 2008). End tidal CO₂ (ETCO₂) monitoring has been shown to detect hypoventilation before changes in vital signs, SpO₂, or clinicians' observations (Anderson, Junkins, Pribble, & Guether, 2007; Burton, Harrah, Germann, & Dillon, 2006; Hart, Berns, Houck, & Boenning, 1997; Miner, Heegard, & Plummer, 2002; Pino, 2007; Yildizdas, Yapicioglu, & Yilmaz, 2004; Lightdale, Goldmann, Feldman, Newburg, & DiNardo, 2006; Krauss & Hess, 2007; Dietch, Chudnofsky, & Dominici, 2008). Also, unlike SpO₂, measurement of ETCO₂ is less likely to be affected by patient movement or low peripheral perfusion states (Krauss & Hess, 2007). Many authors support the use of capnography as the preferred method to detect hypoventilation during procedural sedation (American Academy of Pediatrics; American Academy of Pediatric Dentistry, 2006; Gilboy & Hawkins, 2006; Green, 2007; Hertzog & Havidich, 2007; Jakubaszko & Sololowski, 2008). A recent study demonstrated a 17% reduction in the incidence of hypoxia (42% v. 25%) when capnography was used in addition to standard monitoring during PSA in adult patients receiving propofol (Dietch, Miner, Chudnofsky, Dominici, & Latta, In press.). However, it is unclear whether a sub-clinical episode of respiratory depression, upper airway obstruction, or a brief period of desaturation is clinically significant or if earlier detection with capnography makes any difference in patient outcomes. As a result there is no clear consensus in the literature regarding the use of ETCO₂ monitoring during PSA in the ED (American College of Emergency Physicians, 2005; Scottish Intercollegiate Guidelines Network, 2004; Smalley & Nowicki, 2007; Levine & Platt, 2005). This Clinical Practice Guideline is intended to provide information on capnography during sedation using an evidence-based approach.

Methodology

This CPG was created based on a thorough review and critical analysis of the literature following ENA's Guidelines for the Development of Clinical Practice Guidelines. Via a comprehensive literature search, all articles relevant to the topic were identified. The following databases were searched: PubMed, eTBLAST, Cochrane - British Medical Journal, Agency for Healthcare Research and Quality (AHRQ; www.ahrq.gov), and the National Guideline Clearinghouse (www.guidelines.gov). Searches were conducted using the key words "capnography" or "end tidal CO₂" and "sedation" and "emergency." Searches were limited to English language articles on human subjects from 2002- November 8, 2009. In addition, the reference lists of articles found via literature search were scanned for pertinent references.

Articles that met the following criteria were chosen to formulate the CPG: research studies, meta-analyses, systematic reviews, and existing guidelines relevant to the topic. Other types of article were also reviewed and provided as additional information. The CPG authors used standardized worksheets, including Evidence-Appraisal Table Template, Critique Worksheet and AGREE Work Sheet, to prepare tables of evidence ranking each article in terms of the level of evidence, quality of evidence, and relevance and applicability to practice. Clinical findings and levels of recommendations regarding patient

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management were then made by the Clinical Guidelines Committee according to the ENA's classification of levels of recommendation for practice, which include: Level A High, Level B. Moderate, Level C. Weak or Not recommended for practice (See Table 1).

Table 1. Levels of Recommendation for Practice

<p><u>Level A recommendations: High</u></p> <ul style="list-style-type: none"> • Reflects a high degree of clinical certainty • Based on availability of high quality level I, II and/or III evidence available using Melnyk & Fineout-Overholt grading system (Melnyk & Fineout-Overholt, 2005) • Based on consistent and good quality evidence; has relevance and applicability to emergency nursing practice • Is beneficial
<p><u>Level B recommendations: Moderate</u></p> <ul style="list-style-type: none"> • Reflects moderate clinical certainty • Based on availability of Level III and/or Level IV and V evidence using Melnyk & Fineout-Overholt grading system (Melnyk & Fineout-Overholt, 2005) • There are some minor or inconsistencies in quality evidence; has relevance and applicability to emergency nursing practice • Is likely to be beneficial
<p><u>Level C recommendations: Weak</u></p> <ul style="list-style-type: none"> • Level V, VI and/or VII evidence available using Melnyk & Fineout-Overholt grading system (Melnyk & Fineout-Overholt, 2005) - Based on consensus, usual practice, evidence, case series for studies of treatment or screening, anecdotal evidence and/or opinion • There is limited or low quality patient-oriented evidence; has relevance and applicability to emergency nursing practice • Has limited or unknown effectiveness
<p><u>Not recommended for practice</u></p> <ul style="list-style-type: none"> • No objective evidence or only anecdotal evidence available; or the supportive evidence is from poorly controlled or uncontrolled studies • Other indications for not recommending evidence for practice may include: <ul style="list-style-type: none"> ○ Conflicting evidence ○ Harmfulness has been demonstrated ○ Cost or burden necessary for intervention exceeds anticipated benefit ○ Does not have relevance or applicability to emergency nursing practice • There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. For example: <ul style="list-style-type: none"> ○ Heterogeneity of results ○ Uncertainty about effect magnitude and consequences, ○ Strength of prior beliefs ○ Publication bias

Evidence Table and Other Resources

The articles reviewed to formulate the CPG are described in the Evidence Table. Other articles relevant to capnography were reviewed to serve as additional resources (Other Resources Table).

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Summary of Literature Review

Interpretation of Capnography Results

An elevated ETCO₂ level indicates retention of CO₂ due to hypoventilation and/or a decreased respiratory rate (Krauss & Hess, 2007). A decrease in ETCO₂ may indicate hyperventilation or respiratory depression with low tidal volumes (Krauss & Hess, 2007). One study noted that most abnormal ETCO₂ values were lower than the patient's baseline although no hyperventilation or increase in respiratory rate was observed (Burton, Harrah, Germann, & Dillon, 2006). Most authors cite the following criteria as significant ETCO₂ findings warranting intervention: absolute change in ETCO₂ of 10 mm Hg or greater, ETCO₂ 50 mm Hg or greater, or absent waveform (i.e. apnea) (Dietch, Chudnofsky, & Dominici, 2008; McQuillin & Steele, 2000; Miner, Heegard, & Plummer, 2002; Hart, Berns, Houck, & Boenning, 1997; Jakubaszko & Sololowski, 2008). In addition to the previous parameters, Burton et al. considered an ETCO₂ of 30 mm Hg or less abnormal (2006). One study found that a change in ETCO₂ of greater than 10% of the patient's baseline, instead of an absolute change of 10 mm Hg, identified twice the number of patients who developed hypoxia (Dietch, Chudnofsky, & Dominici, 2008). A subsequent study by the same investigators defined respiratory depression as ETCO₂ greater than 50 mm Hg, a change of 10% from baseline, or loss of waveform for 15 seconds or more (Dietch, Miner, Chudnofsky, Dominici, & Latta, In press.) This study found that most patients who developed hypoxia had an ETCO₂ change greater than 10% from baseline but loss of waveform was most likely to result in hypoxia (Dietch, Miner, Chudnofsky, Dominici, & Latta, In press.).

Initial interventions for hypoventilation include repositioning the patient's head to restore airway patency and verbal or physical stimulation to encourage the patient to breathe (Hertzog & Havidich, 2007; Krauss & Hess, 2007). If these measures are inadequate to reverse the situation then decreasing medication doses, ceasing medication administration, or the administering reversal agents may be considered (Krauss & Hess, 2007). If apnea occurs and is unresponsive to repositioning or stimulation, bag-mask ventilation is indicated (Krauss & Hess, 2007).

The completion of the procedure does not end the risk of respiratory depression. McQuillin and Steele (2000) found that the highest ETCO₂ levels occurred after the end of the procedure but before the patients returned to their baseline level of consciousness.

Use of Supplemental Oxygen

Supplemental oxygen may delay the onset of hypoxia which may delay the recognition of hypoventilation during PSA (Miner, Heegard, & Plummer, 2002; American College of Emergency Physicians, 2005; Green, 2007). In light of this information, monitoring with ETCO₂ is more likely to be helpful if supplemental oxygen is used during sedation (Dietch, Chudnofsky, & Dominici, 2008; Green, 2007).

Description of Decision Options/Interventions and the Level of Recommendation

Conclusions and recommendations about the use of capnography for procedural sedation and analgesia (PSA) in adults and children in the emergency department:

- Capnography is a useful technique for detecting respiratory depression during and after PSA.
- ETCO_2 is a more sensitive indicator of respiratory depression than SpO_2 or clinician assessment during PSA as well as in the recovery phase.
- There is a lack of evidence to support that using capnography during PSA directly improves patient outcomes.
- Capnography is a useful adjunct for monitoring patients during PSA in the emergency department (Level B).

Bibliography

- American Academy of Pediatrics; American Academy of Pediatric Dentistry. (2006). Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures: An update. *Pediatrics*, *118*, 25887-2602.
- American College of Emergency Physicians. (2005). Clinical policy: Procedural sedation and analgesia in the emergency department. *Annals of Emergency Medicine*, *45*, 177-196.
- Anderson, J., Junkins, E., Pribble, C., & Guether, E. (2007). Capnography and depth of sedation during propofol sedation in children. *Annals of Emergency Medicine*, *49*, 9-13.
- Burton, J., Harrah, J., Germann, C., & Dillon, D. (2006). Does end-tidal carbon dioxide monitoring detect respiratory events prior to current sedation monitoring practices? *Academic Emergency Medicine*, *13*, 500-504.
- Dietch, K., Chudnofsky, C., & Dominici, P. (2008). The utility of supplemental oxygen during emergency department procedural sedation with propofol: A randomized, controlled trial. *Annals of Emergency Medicine*, *52*, 1-8.
- Dietch, K., Chudnofsky, C., & Dominici, P. (2008). The utility of supplemental oxygen during emergency department procedural sedation with propofol: A randomized, controlled trial. *Annals of Emergency Medicine*, *52*, 1-8.
- Dietch, K., Miner, J., Chudnofsky, C., Dominici, P., & Latta, D. (In press.). Does end tidal CO₂ monitoring during emergency department procedural sedation and analgesia with propofol decrease the incidence of hypoxic events? A randomized, controlled trial. *Annals of Emergency Medicine*, In press.
- Fineout-Overholt, E., Melynk, B., & Schultz, H. (2005). Transforming health care from the inside out: Advancing evidence-based practice in the 21st Century; *Journal of Professional Nursing* *21*(6), 335-344.
- Gilboy, N., & Hawkins, M. (2006). Noninvasive monitoring of end-tidal carbon dioxide in the emergency department. *Advanced Emergency Nursing Journal*, *28*, 301-313.
- Green, S. (2007). Research advances in procedural sedation and analgesia. *Annals of Emergency Medicine*, *49*, 31-36.
- Hart, L., Berns, S., Houck, C., & Boening, D. (1997). The value of end-tidal CO₂ monitoring when comparing three methods of conscious sedation for children undergoing painful procedures in the emergency department. *Pediatric Emergency Care*, *13*, 189-193.
- Hertzog, J., & Havidich, J. (2007). Non-anesthesiologist-provided pediatric procedural sedation: An update. *Current Opinions in Anaesthesiology*, *20*, 365-372.
- Jakubaszko, J., & Sololowski, J. (2008). Respiratory depression in two different propofol protocols of procedural sedation in the elderly. *Annals of Emergency Medicine*, *51*, 548.
- Krauss, B., & Hess, D. (2007). Capnography for procedural sedation and analgesia in the emergency department. *Annals of Emergency Medicine*, *50*, 172-181.
- Levine, D., & Platt, S. (2005). Novel monitoring techniques for use with procedural sedation. *Current opinions in pediatrics*, *17*, 351-354.
- Lightdale, J., Goldmann, D., Feldman, H., Newburg, A., & DiNardo, J. F. (2006). Microstream capnography improves patient monitoring during moderate sedation: A randomized, controlled trial. *Pediatrics*, *117*, e1170-e1178.
- McQuillin, K., & Steele, D. (2000). Capnography during sedation / analgesia in the pediatric emergency department. *Pediatric Emergency Care*, *16*, 401-404.
- Miner, J., Heegard, W., & Plummer, D. (2002). End-tidal carbon dioxide monitoring during procedural sedation. *Academic Emergency Medicine*, *9*, 275-280.

- Pino, R. (2007). The nature of anesthesia and procedural sedation outside of the operating room. *Current Opinions in Anaesthesiology*, 20, 347-351.
- Scottish Intercollegiate Guidelines Network. (2004). *Safe sedation for children undergoing diagnostic and therapeutic procedures: A national clinical Guideline*. Edinburgh: Scottish Intercollegiate Guidelines Network.
- Smalley, A., & Nowicki, T. (2007). Sedation in the emergency department. *Current Opinions in Anaesthesiology*, 20, 379-383.
- Yildizdas, D., Yapicioglu, H., & Yilmaz, H. (2004). The value of capnography during sedation or sedation/analgesia in pediatric minor procedures. *Pediatric Emergency Care*, 20, 162-165.

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Acknowledgement

ENA would like to acknowledge the 2009 Institute for Emergency Nursing Research (IENR) Committee for the review of this document. Members of the IENR Committees include:

Cynthia L. Dakin, PhD, RN, Chairperson
Gail Pisarcik Lenehan, EdD, RN, FAEN, FAAN, ENA Board of Directors Liaison
Sarah Anderson, PhD, RN, CEN, SANE-A
Susan Barnason, PhD, RN, APRN-CNS, CEN, CCRN
Gordon Gillespie, PhD, RN, PHCNS-BC, CEN, CPEN, CCRN, FAEN
Vicki Keough, PhD, RN, ACNP
Stephen Stapleton, PhD(c), RN, CEN

ENA also acknowledges the assistance of Leslie Gates in coordinating the work of the Committee.



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DATE: January 8, 2014
TO: Administrators, State Dental Boards
FROM: James Tarrant, AADB Executive Director
SUBJECT: AADB Guidelines on Standards of Conduct for State Boards and Board Members

The American Association of Dental Boards (AADB) is pleased to provide you with a complimentary copy of the AADB Guidelines on Standards of Conduct for State Boards and Board Members. The Guidelines were adopted by the AADB General Assembly at the 130th AADB Annual Meeting in October 2013. The guidelines were sent for review and comment by communities of interest including the American Dental Education Association (ADEA), the American Dental Association (ADA), the American Dental Hygienist Association (ADHA), and the American Student Dental Association (ASDA). In addition, the committee who researched and drafted the guidelines included dental board administrators, members of the AADB Executive Council, dental board attorneys and consultants from the ADA and ADEA.

The AADB hopes the guideline document will assist dental boards in maintaining high standards of ethics in the performance of their duties to protect the public.

If you need additional copies, please visit the AADB website www.dentalboards.org and click on the on-line store tab to order the publication.

Enc.

cc: Dr. Richard Valachovic, ADEA Executive Director
Members, AADB Executive Council



American Association of Dental Boards

Guidelines on Standards of Conduct for State Boards and Board Members

**Report of the AADB Committee to
Develop Guidelines on Standards of
Conduct and Ethics for State Boards
and Board Members**

Approved by the General Assembly at the
130th AADB Annual Meeting, October 30, 2013

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Standards of Conduct and Ethics for State Boards and Board Members

**A Guideline Document published by
the American Association of Dental Boards**

**Report of the AADB Committee to Develop Guidelines on Standards
of Conduct and Ethics for State Boards and Board Members**

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Standards of Conduct and Ethics for State Boards and Board Members

"The graduation of knowledgeable and skilled clinicians in dentistry is a necessary, but not sufficient, condition for ensuring quality oral health care. The further requirement is the commitment of graduates applying their abilities with integrity that is, providing quality care in their patient's interest. Ultimately, good dentistry depends on individuals committed to treating society and their patients fairly, that is, ethically." D.A. Nash, D.M.D.

SECTION I: INTRODUCTION

This document, *Standards of Conduct and Ethics for State Boards and Board Members*, provides guidelines incorporating best practices for state boards and guidance for the personal conduct of individual members of these boards. State dental board members may be appointed or selected as required by the individual state. Appointment to the state dental board brings with it certain obligations. Foremost among these is an obligation to protect the safety and well-being of the public. Informed, unbiased participation and decision-making is required to fulfill this obligation. Understanding and incorporating the principles and recommendations in this document should assist boards and their members to discharge their duty to the public.

The definitions, principles, concepts and recommendations presented are not intended to be exhaustive, but rather provide a framework and guide for reference by state boards and their individual members. Dental boards are encouraged to seek additional counsel in instances where the guidance of this document is insufficient. This document is not intended to provide legal advice or the basis for any conclusion that may conflict with any relevant statute or rule.

SECTION II: CORE PRINCIPLES

Core principles provide a foundation for standards of conduct defining ethical board behavior and are based on shared human values. The following core principles incorporate characteristics and values that can be associated with good character and ethical behavior. Additional information about these concepts can be found in resources identified in Appendix A of this document.

- **Accountability:** obligation or willingness to accept responsibility for actions, decisions, and policies.
- **Beneficence:** duty to act for the benefit of others.
- **Dignity:** respect for individuals and the knowledge and contributions brought to the decision-making process.
- **Ethical conduct:** behavior that promotes the well-being of oneself or others while maintaining high standards of competence and integrity. Ethical conduct is observed in individual behaviors and as a member of a collective body.
- **Fidelity:** loyalty, keeping one's promise to fulfill attendant charges and responsibilities.

- **Integrity:** honesty and moral courage; appropriate use of authority.
- **Justice:** duty to be fair in all interactions; objectivity.
- **Nonmaleficence:** to protect from harm.
- **Transparency:** action in all matters that is characterized by open and readily available for scrutiny.
- **Veracity:** honesty and trustworthiness.

SECTION III: CONFLICT OF INTEREST

A conflict of interest occurs when a vested interest may influence or be perceived to influence an individual's decision or action. Avoiding a conflict of interest or the appearance of having a conflict of interest is the responsibility of each board member. Board member actions should be transparent. Board members should disclose any conflict of interest and recuse themselves from deliberation and voting if a conflict of interest exists. A board member should identify any unrecognized conflict of interest that may exist for any other board member and strictly follow board policy with regard to recognizing and addressing such conflicts.

A board member is expected to make decisions that serve the interest of the public. Board members must recognize this responsibility, deliberate accordingly and act in an appropriate manner. Depending on the issue or the parties involved, there may be an occasion when a conflict of interest arises due to a board member's concurrent roles or responsibilities in professional associations, societies or organizations. On those occasions, it may be appropriate for board members to seek advice and guidance about recusing themselves from the deliberations.

SECTION IV: ETHICAL CONSIDERATIONS FOR BOARDS

The Role and Responsibility of the Board

A primary goal of a board is to protect the general public by licensing individuals who demonstrate an acceptable standard of competency in a regulated field. Licensing boards are responsible for issuing licenses to qualified candidates, determining whether licenses should be renewed, setting standards for license renewal, investigating complaints about the performance of licensees and promulgating rules to enforce legislative directives and intent. A board may also be responsible for establishing and enforcing standards of practice. Additional responsibilities may include enforcing licensure laws against fraudulent, unethical or illegal practices. The authority and actions of a regulatory board are collective.

A board is most effective when all members are engaged and actively participate. Individual states define the composition of a board and provide guidelines for board member qualification, term of office, authority, and responsibilities.

This document provides information on best practices and guidelines for consideration that can assist boards and board members to discharge their ethical responsibilities

A State Board should:

- **Conduct an orientation for new board members.** The orientation program for new board members should be structured and comprehensive. Included within the orientation process should be an emphasis on board members' ethical responsibility and obligation to protect the public.
- **Provide ongoing updates for current members.** The board should provide resources for current members to enhance their knowledge and understanding of changes in protocol, legislation or statute and best practices. Updates of information about board processes and procedures should occur in a timely manner and on a regular basis.
- **Maintain a Policy and Procedures Manual** or comparable document unless all detail regarding board operation and protocol is specified in statute and rule. The composition of the board changes, board member terms mature and new members are appointed on a regular basis. Therefore, the board should incorporate a process that periodically verifies that all board members are informed regarding the board's policy and procedures manual and location of the information that guides operation of the board. The board should create a system or process that verifies that all members have reviewed or accessed this information. The board should have a schedule and protocol for systematically reviewing and updating its Policy and Procedures Manual or source(s) of information that guides its operation.
- **Model appropriate behavior.** In the conduct of its meetings, a board should adhere to published meeting protocol as appropriate. The board should follow the administrative rules under which it operates or, in the absence of specific guidelines, should operate in a manner that affords transparency, fairness, clear communication, adequate notice of meetings, acceptance of public testimony and other practices that potentially impact the success and effectiveness of its actions.
- **Provide information pertaining to licensing requirements.** A board should provide guidance on how to obtain information about licensees, report violations or make inquiries,
- **Provide information for licensees and other interested parties** regarding how they can receive appropriate notification of changes in rules and regulations that govern the profession.

SECTION V: ETHICAL CONSIDERATIONS FOR BOARD MEMBERS

The Role of the Board Member

A board member's primary responsibility is to view any issue from the perspective that protects the interest and safety of the public. In any deliberation or interaction, a board member may

have a responsibility to several groups. These may include, for example, licensees, potential licensees, board member colleagues, and other professional groups. The board member's preeminent concern, however, should always be that of the public consumer.

The public expects board members to have experience that supports thoughtful and deliberate decision-making in all circumstances. The board member also has an obligation to ensure that during the decision making process the impact on all parties involved will be considered; including the effect for the licensee and the public.

Board members have an obligation, within the structure of the board, to monitor the profession in a manner that maintains the public's confidence. In this role, each member, regardless of his or her professional designation, has a responsibility to function as a team member and support decisions made by the board as a group. Although comprised of individual members, boards are viewed as one voice by the general public.

Board Member Conduct and Responsibility

These standards of conduct apply to all members of the board including dentists, dental hygienists, dental assistants and public members. The statements about board conduct and responsibility are intended to assist board members in fulfilling their duties as board members and in their interactions with colleagues, non-dental professionals, the general public, and other professional organizations. Commentary is provided to enhance clarity for the statements.

- **Lead by example.** A board member should dedicate himself/herself to upholding ethical and professional standards while serving the public and the board. (Dignity)
- **Exercise caution in personal communication, whether written, verbal or electronic.** Written and electronic communication should maintain the confidentiality of board business or decisions. Board members should not criticize collective board actions or offer opinions that might harm public trust in the regulatory process. Board members should not communicate in a manner that disparages any member of the board. All personal and professional interaction should be respectful and courteous. Board members should accept feedback or mentoring in a gracious and professional matter. (Integrity)
- **Collaborate as a team.** Board members should conduct themselves in a manner that promotes cooperation and trust among members as well as with other associated entities. (Transparency and integrity)
- **Be familiar with board policy and procedure.** Board members should familiarize themselves with board policy and procedure at the time of initial appointment and remain knowledgeable as policy changes or new procedures are instituted. Board members should recognize budget and financial implications of board function and board actions. (Accountability)

- **Attend meetings and actively participate.** Board members should attend and participate in board meetings including deliberation and voting. Absence and lack of participation, especially when opinions differ, negatively impacts the quality of proceedings and outcomes. (Accountability)
- **Recognize personal and professional bias and refrain from allowing such bias to influence decision making or voting.** In making decisions, board members should consider the interest of the public they serve and not be influenced by personal or professional bias. (Justice)
- **Act independently in decision making and voting.** Board members should seek accurate information. Board members should not allow themselves to be bribed, coerced or unduly influenced by any individual, lobby group, or personal or professional affiliation. (Integrity)
- **Place the mission of the board ahead of personal agendas.** Membership on the board should not be sought or maintained for personal, professional association or political gain. Board work and board decisions should consistently serve the interest of the public. (Accountability)
- **Act in a professional manner.** Board members represent the board and should dress, speak and act in a professional manner during board meetings or in circumstances in which they are representing the board. (Dignity)
- **Pursue excellence in fulfilling one's duties.** Board members should consistently endeavor to increase their abilities and understanding as required or recommended. (Accountability)
- **Model professional integrity.** To sustain public confidence, the conduct of members should be above all suspicion and criticism. Integrity also requires members to observe principles of independence and objectivity and maintain unimpeachable standards of professional conduct. (Integrity)
- **Decisions of the board.** Board members should refrain from engaging in divisive behavior that undermines the authority of the board or confidence in its decisions. Board members should refrain from attempting to influence or pressure other members of the board, novice or experienced. (Fidelity)
- **Interpret and enforce board policies consistently and fairly.** Board members should be cognizant of historical patterns of action, seek information about precedent, and otherwise interpret and apply law and policy in a consistent manner. (Justice)
- **Maintain confidentiality.** Each member of the Board is expected to uphold the strict confidentiality of meetings held in executive session as directed by state laws governing such meetings. A board member should not share, reproduce, transmit, divulge or otherwise disclose any confidential information related to the affairs of the board or confidential patient records. Upon termination of public service to the board, each member should promptly return

documents, electronic and physical files, reference materials and other property entrusted to the member for the purpose of fulfilling board responsibilities. The return of these items does not abrogate the retiring board member from his or her continuing obligation of confidentiality with respect to information acquired as a consequence of tenure on the board. (Nonmaleficence)

- **Understand board organizational structure and its position within the licensing and regulatory agency structure of the state.** Knowledge of organizational structure and respect or protocol and procedure is critical for a board member to function effectively. (Beneficence)

Appendix A: Resources

1. American Association of Dental Boards (AADB): <http://www.dentalboards.org>
2. American College of Dentists (ACD):
[http://www.acd.org/PDF/Ethics Handbook for Dentists \(s\).pdf](http://www.acd.org/PDF/Ethics%20Handbook%20for%20Dentists%20(s).pdf) The American College of Dentists developed and manages Courses Online Dental Ethics (CODE), a series of online courses in dental ethics and related resources at <http://www.dentaethics.org>.
3. American Dental Assistants Association (ADAA):
Policy on Principles and Ethics and Code of Professional Conduct
[http://www.dentalassistant.org/content/details/ADAA Code of Professional Conduct.pdf](http://www.dentalassistant.org/content/details/ADAA%20Code%20of%20Professional%20Conduct.pdf)
4. American Dental Association (ADA):
Principles of Ethics and Code of Professional Responsibility:
[http://www.ada.org/sections/about/pdfs/code of ethics 2012.pdf](http://www.ada.org/sections/about/pdfs/code%20of%20ethics%202012.pdf)
5. American Dental Hygienists' Association (ADHA):
Code of Ethics: www.adha.org/bylaws-ethics
6. American Student Dental Association (ASDA):
<http://www.asdanet.org/codeofethics.aspx>
7. International Association of Dental Research (IADR):
Code of Ethics: <http://www.iadr.com/i4a/pages/index.cfm?pageid=3562>
8. State or local dental, dental hygiene or dental assisting societies may also have resources or educational materials available for use.

Appendix B: Dental and Allied Dental Educators

As a result of their role and responsibility, board members may interact with various individuals, constituencies or stakeholders. Following is an outline listing some of these groups. This list is not intended to be comprehensive.

- Candidates for licensure
- Licensed oral health professionals
- Organized dental, allied and educational groups/members
 - American Association of Dental Boards
 - American Dental Association
 - o Council and Commission members
 - o State and local component society representatives
 - National Dental Association
 - Hispanic Dental Association
 - Native American Dental Association
 - American Dental Hygienists' Association
 - American Dental Assistants Association
 - American Dental Education Association
 - American Student Dental Association
 - Dental Laboratory Technology
 - Dental Specialty Organizations
- Dental and Allied Dental Educators
- Board member colleagues
- General public
- Complainants
- Testing agencies and their representatives
- Government agency supervisors or government employee staff
- Non-dental professionals and personnel, including but not limited to:
 - Attorneys
 - Medical professionals (physicians, psychologists, addiction counselors, nurses)
 - Legislators, public officials and law enforcement representatives
 - Drug enforcement agency personnel
 - Child welfare personnel
- Public health personnel/departments
- Industry representatives and vendors
- Continuing education sponsors

Appendix C: Sample Code of Ethics

This template for a Code of Ethics is provided for guidance. Sections and language provided in the template may not be applicable in all situations. A Board may consider creating a Code of Ethics to provide guidance to its members. This template is only provided for guidance and should not be deemed as required for state dental boards by the American Association of Dental Boards. Reprinted with permission from the Texas State Board of Dental Examiners.

[STATE] = Name of State

[Dental Board] = Dental Board; Board of Dental Examiners, etc.

SAMPLE ETHICS POLICY

I. Purpose.

Pursuant to [Section] [STATE] [Government Code], the [STATE] [Dental Board] promulgates the following Ethics Policy addressing the ethical responsibilities of the [STATE] [DENTAL BOARD] Members and employees. This Ethics Policy adds to the ethical responsibilities and obligations [required by state law] of Board Members and state employees. This Ethics Policy is not an exclusive and complete statement of legal and ethical responsibilities and its provisions are not the only statements of legal and ethical responsibility that may apply in a particular situation. This Policy does not supersede any applicable federal or [STATE] law or administrative rule. All Dental Board Members and employees must familiarize themselves with this ethics policy. All State Board of Dental Examiners' employees must abide by all applicable federal and [STATE] laws, administrative rules, and Dental Board conduct policies, including this Policy. A [Dental Board]' employee who violates any provision of the Agency's conduct policies is subject to termination of the employee's state employment or another employment-related sanction. A [Dental Board]' employee or Board Member who violates any applicable federal or [STATE] law or rule may be subject to civil or criminal penalties.

II. Definitions. The following definitions apply to this Ethics Policy, unless the context clearly indicates otherwise:

1. "Agency" or "Board" means the [STATE] [Dental Board].
2. "Business entity" means any entity recognized by law through which business for profit is conducted, including a sole proprietorship, partnership, firm, corporation, holding company, joint stock company, receivership, or trust. [state] [definition reference]
3. "Confidential information" means any non-public information of the Board, including but not limited to information as described by the [state] [definition reference].
4. "Conflict of interest" means any professional, personal, or private relationship or interest that an individual has and of which the individual is actually aware, that could reasonably be expected to diminish or appear to diminish the individual's independence

of judgment in the performance of his or her duties, obligations, or responsibilities to the Board.

5. "General Counsel" means the General Counsel of the [STATE] [Dental Board].

6. "Member" means a member of the [STATE] [Dental Board].

7. "Participated" means to have taken action through decision, approval, disapproval, recommendation, giving advice, investigation, or similar action. [STATE] [definition reference].

8. "Particular Matter" means a specific investigation, application, request for a ruling or determination, rulemaking proceeding, contract, claim, accusation, charge, arrest, or judicial or other proceeding. [STATE] [definition reference].

9. "Policy" means Ethics Policy. 10. "Staff" or "employee" means an individual or individuals employed by the Board.

III. Code of Ethics. When conducting personal or professional activities, Board members and employees are governed by this Policy and all applicable state statutes.

A. **General Ethical Responsibilities.** A [Dental Board]' employee or board member shall:

1. exercise his or her duties with the highest degree of honesty;
2. avoid actions and relationships that could discredit the board in the eyes of the public or adversely affect the public's confidence in the board;
3. avoid actions and relationships that could create the appearance of impropriety or wrongdoing; and
4. comply with all applicable laws, rules, and policies. (See Appendix A for a partial list) [CLICK HERE TO VIEW APPENDIX A](#)

B. **Gifts, Benefits, or Favors.** A [Dental Board]' employee or board member shall not:

1. accept or solicit any gift, favor, or service that might reasonably tend to influence the employee or board member in the discharge of official duties, or that the individual knows or should know is being offered with the intent to influence the individual's official conduct; or
2. Intentionally or knowingly solicit, accept, or agree to accept any benefit for having exercised his or her official powers or performed his or her official duties in favor of another. An association or organization of employees of the dental board may not solicit, accept, or agree to accept anything of value from a business entity regulated by the dental board and from which the business entity must obtain a permit to operate that business in this state or from an individual directly or indirectly connected with that business entity.

- C. **Confidentiality.** A [Dental Board]' employee or board member shall not disclose confidential information, information that is excepted from public disclosure under the [STATE] [Public Information Act] [state] [code], or information that has been ordered sealed by a court, that was acquired by reason of the individual's official position, or accept other employment, including self-employment, or engage in a business, charity, nonprofit organization, or professional activity that the employee might reasonably expect would require or induce the employee to disclose confidential information, information that is excepted from public disclosure under the [STATE][Public Information Act], or information that has been ordered sealed by a court, that was acquired by reason of the employee's official position.
- D. **Employment.** A [Dental Board]' employee or board member shall not accept other employment, including self-employment, or compensation or engage in a business, charity, nonprofit organization, or professional activity that could reasonably be expected to impair the individual's independence of judgment in the performance of the individual's official duties.
- E. **Investments.** A [Dental Board]' employee or board member shall not make personal investments, or have a personal or financial interest, that could reasonably be expected to create a substantial conflict between the individual's private interest and the public interest.
- F. **Use of State Resources.** A [Dental Board]' employee or board member shall not utilize state time, property, facilities, or equipment for any purpose other than official state business, unless such use is reasonable and incidental and does not result in any direct cost to the state or [STATE] [Dental Board], interfere with the individual's official duties, and interfere with [Dental Board]' functions.
- G. **Improper use of official position or state issued items.** A [Dental Board]' employee or board member shall not utilize his or her official position, or state issued items, such as a badge, indicating such position for financial gain, obtaining privileges, or avoiding consequences of illegal acts.
- H. **Misleading Statements.** A [Dental Board]' employee or board member shall not knowingly make misleading statements, either oral or written, or provide false information, in the course of official state business.

- I. **Use of state time or resources for political activity.** A [Dental Board]' employee or board member shall not engage in any political activity while on state time or utilize state resources for any political activity.

- J. **A [Dental Board]' board member shall not,** unless required for the disposition of an ex parte matter authorized by law, communicate, directly or indirectly, with any party or representative of the party in connection with any matter before the board, except on notice and opportunity for all parties to participate.

- K. **Former Employees.** A former employee of the [Dental Board], who was compensated, as of the last date of state employment shall not represent any person or entity, or receive compensation for services rendered on behalf of any person or entity, regarding a particular matter in which the former employee participated during the period of state service or employment, either through personal involvement or because the case or proceeding was a matter within the employee's official responsibility.

- L. **A [Dental Board]' employee and board member shall:**
 - (1) perform his or her official duties in a lawful, professional, and ethical manner befitting the state and [STATE] [Dental Board]; and
 - (2) report any conduct or activity that the employee believes to be in violation of this ethics policy to the Executive Director [administrator] or General Counsel.

- M. **A [Dental Board]' member shall not** serve as an expert witness in a suit involving a health care liability claim against a dentist for injury to or death of a patient unless the member receives approval from the board or an executive committee of the board to serve as an expert witness.

This position statement was approved by the [Dental Board] on [DATE].

Click [HERE](#) to return to the main directory of Policy Statements.

Click [HERE](#) to review or order a copy of the Dental Practice Act ([STATE] [Code]).

Click [HERE](#) to return to the directory of Rules and Regulations.

APPENDIX A – LAWS APPLICABLE TO BOARD MEMBERS AND STAFF Board members and employees must comply with all applicable laws and be aware of the following statutes. The omission of any applicable statute from this list, however, does not excuse a violation of its provisions:

GENERAL STANDARDS OF CONDUCT

- [STATE] Government Code (Prohibition Against Solicitation or Acceptance of Certain Gifts, Favors, Services or Other Financial Benefits) • [STATE] Penal Code (Prohibition Against Bribery and Corrupt Influence) • [STATE] Penal Code (Prohibition Against Abuse of Official Capacity; Prohibition Against Official Oppression of Any Person)

DISCLOSURE OF CONFLICTS OF INTEREST

- [STATE] Government Code (Requirement of Disclosure by Board Member of Private Interest in Measure or Decision Pending Before the Board; Removal from Office for Violation)

CONFIDENTIAL INFORMATION

- [STATE] Government Code (Prohibition Against Distribution or Misuse of Confidential Information) • [STATE] Penal Code (Prohibition Against Misuse of Official Non-Public Information) Other

GIFTS AND ENTERTAINMENT

- [STATE] Government Code (Prohibits acceptance of gifts, favors, or services that may “reasonably tend to influence” or that the Employee “knows or should know are intended to influence his official conduct”) • [STATE] Penal Code (Prohibits Bribery) • [STATE] Penal Code (Prohibits gifts to public servants. For purposes of [STATE]Penal Code § 36.08, a gift does not include an item with a value of less than \$50.00, excluding cash or a negotiable instrument as described by [STATE]Business and Commerce Code, and certain other exceptions contained in [STATE]Penal Code .

LOBBYING PROHIBITION

- [STATE] Government Code (Representation by Former Officer or Employee of Regulatory Agency Restricted for Two Years)

EX PARTE PROHIBITION

- [STATE] Government Code (Prohibition against ex parte communication)

10.30.13

Braness, Christel [IDB]

From: McCollum, Phil [IDB]
Sent: Wednesday, March 26, 2014 1:26 PM
To: Braness, Christel [IDB]
Subject: FW: Please consider this Dental Assisting Issue

See request below

Phil McCollum
Interim Director
Iowa Dental Board
515-281-5157
visit us on the web <http://www.dentalboard.iowa.gov/>

Confidentiality Notice: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient(s), please contact the sender by reply e-mail and destroy all copies of the original message.

From: Susan R. Hyland [mailto:klas-hyland@juno.com]
Sent: Wednesday, March 26, 2014 8:27 AM
To: McCollum, Phil [IDB]
Subject: Please consider this Dental Assisting Issue

Mr. McCollum,
Re: Utilization of Dental Assistants in Public Health Supervision Settings.

Dental Assistants have been very beneficial in sealant programs when working under general supervision. Their assistance with rinsing, drying and suctioning helps to create the optimal environment to provide quality dental sealants. Dental Assistants also improve the cost effectiveness of the programs by cleaning and preparing the on-site work area and providing instrument sterilization when these facilities are available, i.e. on a mobile dental van.

The development of public health supervision for dental hygienists has increased access to sealants and other preventive services. The program I worked for has a mobile dental clinic, so this allowed the volunteer dentists to provide more dental treatment instead of spending time doing sealant exams.

The problem is the realization that dental assistants can no longer work effectively in these programs because of the supervision issue. Some Dental Assisting functions that would be helpful in public health would include intraoral air/water and suctioning, instrument passing, work area preparation and cleaning, and instrument sterilization. Utilization of the curing light is another issue that could use clarification.

I do not believe this issue was addressed when dental assisting functions were reviewed recently.

Thank you for your consideration of this concern.

Susan Hyland, RDH, BSDH

1010 Scenic View BLVD.

Altoona, IA 50009

klas-hyland@juno.com



APPLICATION FOR IOWA DENTAL ASSISTANT REGISTRATION & DENTAL RADIOGRAPHY QUALIFICATION

RECEIVED

IOWA DENTAL BOARD
400 S.W. 8th Street, Suite D, Des Moines, Iowa 50309-4687
Ph. (515) 281-5157 <http://www.dentalboard.iowa.gov>

OCT 23 2013

IOWA DENTAL BOARD

This form must be completed and returned to the Iowa Dental Board. Include the *non-refundable* application fee. (Registration only: \$40; **OR** registration *and* radiography qualification: \$60) Do not submit payment in cash. Complete each question on the application. If not applicable, mark "N/A."

Full Legal Name: (Last, First, Middle)			
Valquier-Argumaniz, Amy Diane			
Other Names Used: (e.g. Maiden Name)			
Maiden Name: Study Valquier			
Home Address:			
1008 Sunset Blvd			
City:	County:	State:	Zip:
Shenandoah	Page	IOWA	51601
Home Phone:		Home E-mail:	
(712) 215-3563		Amydval@yahoo.com	
Work Address:			
1700 Summit St.			
City:	County:	State:	Zip:
Red Oak	Montgomery	IOWA	51566
Work Phone:	Work Fax:	Work E-mail:	
(712) 623-4988	(712) 623-5231	N/A	

BASIS FOR APPLICATION

1. I have worked in a dental office for a minimum of six month as a dental assistant trainee, within 12 months of my first date of employment in Iowa. Trainee Number: <u>T11800</u> (*Complete the Affidavit of Employment.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. I have at least 6 months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. (*Complete the Affidavit of Employment.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. I am a graduate of an ADA-accredited postsecondary dental assisting program. (*Complete the Certification of Education.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4. I have completed Board-approved training in dental radiography with the past 2 years, passed an examination in dental radiography, and am also applying for a qualification in dental radiography. (If yes, the application fee is \$60.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

For office use only:	Registration #:	Date Issued:
-----------------------------	-----------------	--------------

#14-77376771
#60

Name of Applicant: Amy Valguier Argumaniz

QUALIFICATIONS & EXPERIENCE

1. Do you currently take dental x-rays in Iowa?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
2. Do you now hold, or have you ever held, a certificate of qualification in dental radiography issued by the Iowa Dental Board? If yes, what is the qualification number? _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
3. Did you complete a course of study using the dental assistant trainee manual, or other course approved by the Board in the area of dental radiography within the past 2 years?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
4. Did you complete clinical (i.e. on-the job) dental radiography training under the supervision of a dentist? If yes, the supervising dentist must verify this training on the Affidavit of Employment. (If training was completed outside of Iowa, the training dentist must certify training in all competencies prior-approved by the Board. Contact the Board for further details.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
5. Did you complete a course of study approved by the Board in the areas of infection control/hazardous materials and jurisprudence using the study manual or at an ADA-accredited post secondary school (i.e. community college)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
6. Are you currently certified in CPR by nationally-recognized provider? Online certification is not accepted. Date of expiration: <u>8/31/2015</u> (You must provide proof of current certification in CPR upon request.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
7. Are you registered, certified or qualified as a dental assistant in another state? If yes, which states: _____ (Provide written verification from each state in which you are registered, certified or qualified.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
8. Provide a chronological listing of all dental-related employment in the last 5 years. Include months, years, location (city & state), and type of practice. Attach additional sheets of paper, if necessary, labeled with your name and signed by you.				
Employer Dentist Name & Location	Type of Work (e.g. chairside, lab, office)	From (Mo/Yr):	To (Mo/Yr):	Avg. Hours per Week
Michael P. McCormack DDS 1700 Summit St. Red Oak IA 51566	Office Chairside, Lab	4/13	Present	40

REGISTRATION INFORMATION

List all state/countries in which you are or have ever been registered, certified or qualified.
Please note: you will be required to request written certifications of all registrations.

State/Country	Registration No.	Date Issued	Registration Type	Basis for Registration
N/A	N/A	N/A	N/A	N/A

HEARTSAVER CPR AED

**Heartsaver®
CPR AED**



**American
Heart
Association.**

Amy Valquier

This card certifies that the above individual has successfully completed the objectives and skills evaluations in accordance with the curriculum of the AHA Heartsaver CPR AED Program. Optional completed modules are those **NOT** marked out:

Child CPR AED

Infant CPR

Written test

Issue Date 8/10/2013

Recommended Renewal Date 8/31/2015

HEARTSAVER CPR AED

Training Center Name UTHC-EMSLRC TC ID # TCCIA05137
200 Hawkins Dr. Iowa City IA 52242
319-353-7495
Shenandoah

TC Info

Course Location

Instructor Name

Holder's Signature

Ty Davison 07130184992 Inst. ID #

© 2011 American Heart Association. Tempering with this card will alter its appearance. 90-1610

Name of Applicant: Amy Valguier Arguement

PERSONAL & CONFIDENTIAL DATA

Privacy Act Notice: Disclosure of your Social Security Number on this registration application is required by 42 U.S.C. § 666(a)(13), Iowa Code §§ 272J.8(1) and 261.126(1), and Iowa Code § 272D.8(1). The number will be used in connection with the collection of child support obligations, college student loan obligations, and debts owed to the state of Iowa, and as an internal means to accurately identify registrations, and may also be shared with taxing authorities as allowed by law including Iowa Code § 421.18.			
Social Security Number: [REDACTED]		Gender: <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	U.S. citizen: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If no, visa type or alien registration number: <input type="checkbox"/> Student Visa <input type="checkbox"/> Work Visa <input type="checkbox"/> Alien Registration		If visa, provide expiration date of current visa:	
Date of birth: <u>3/23/79</u>	City of Birth: <u>Hamburg</u>	State of birth: <u>IA</u>	Country of birth: <u>USA</u>

EXAMINATION INFORMATION

1. Did you successfully complete the Board examination in dental radiography or the Dental Assisting National Board (DANB) radiography examination? (DANB radiography examination must have been completed after January 1986.)	[REDACTED]
2. Did you successfully complete the Iowa dental assistant jurisprudence examination? Date completed: <u>June 6, 2013</u>	[REDACTED]
3. Did you successfully complete the Board-approved examination in infection control/hazardous materials, or the Dental Assisting National Board Infection Control Examination (DANB ICE)? (DANB ICE must have been completed after June 1991.) Date completed: <u>May 9, 2013</u>	[REDACTED]
4. Have you ever passed any of the Dental Assisting National Board (DANB) examinations? If yes, which examinations?	[REDACTED]

DEFINITIONS

Important! Read these definitions before completing the following questions.

“Medical condition” means any physiological, mental, or psychological condition, impairment, or disorder, including drug addiction and alcoholism.

“Chemical substances” means alcohol, legal and illegal drugs, or medications, including those taken pursuant to a valid prescription for legitimate medical purposes and in accordance with the prescriber’s direction, as well as those used illegally.

“Currently” does not mean on the day of, or even in weeks or months preceding the completion of this application. Rather, it means recently enough so that the use of chemical substances or medical conditions may have an ongoing impact on the ability to function and practice, or has adversely affected the ability to function and practice within the past two (2) years.

“Improper use of drugs or other chemical substances” means ANY of the following:

1. The use of any controlled drug, legend drug, or other chemical substance for any purpose other than as directed by a licensed health care practitioner; and
2. The use of any substance, including but not limited to, petroleum products, adhesive products, nitrous oxide, and other chemical substances for mood enhancement.

“Illegal use of drugs or other chemical substances” means the manufacture, possession, distribution, or use of any drug or chemical substance prohibited by law.

Name of Applicant: Amy Valquier Argumaniz

In answering each of the following questions, please check the appropriate box next to each question. **FOR EACH "YES" ANSWER TO QUESTIONS 1 THROUGH 15, YOU MUST PROVIDE A SIGNED STATEMENT GIVING FULL DETAILS, INCLUDING DATE(S), LOCATION(S), ACTION(S), ORGANIZATION(S) OR PARTIES INVOLVED, AND SPECIFIC REASON(S).**

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	5. Except for minor speeding or parking offenses, have you ever been arrested, charged, convicted, found guilty of, or entered a plea of guilty or no contest to a felony or misdemeanor crime or offense, including actions that resulted in a deferred or expunged judgment?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	6. Have you ever been terminated or requested to withdraw from any dental assisting school or training program?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	7. Have you ever been requested to repeat a portion of any dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	8. Have you ever received a warning, reprimand, or been placed on probation during a dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	9. Have you ever been denied a registration/certificate to practice dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	10. Have you ever voluntarily surrendered a registration/certification issued to you by any professional licensing agency?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	11. If yes, was license/registration disciplinary action pending against you, or were you under investigation by a licensing agency at the time the voluntary surrender of license/registration was tendered?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	12. Have any settlement agreements been rendered or any judgments entered against you resulting from your practice of dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	13. Are charges or an investigation currently pending relative to your license/registration in any other state?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	14. Has any jurisdiction of the United States or other nation ever limited, restricted, warned, censured, placed on probation, suspended, or revoked a license/registration you held?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	15. Have you ever been notified of any charges filed against you by a licensing or disciplinary agency of any jurisdiction of the U.S. or other nation?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>16. I certify that I am at least 17 years of age and am a high school graduate or equivalent.</p> <p><input type="checkbox"/> High School Graduate OR <input checked="" type="checkbox"/> GED</p> <p>Date graduated/GED obtained: <u>2/9/1999</u></p> <p>Name of high school/location diploma/GED obtained: <u>Iowa Western Community College</u></p>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	17. Do you understand that if registration is granted by this Board, it will be based in part on the truth of the statements contained herein, which, if false, may subject you to criminal prosecution and revocation of the registration?

August 29, 2002

*Aggravated
Misdemeanor*

I was arrested and charged with Prohibited Acts. I plead guilty and was ordered to undergo a substance abuse evaluation, pay fines, and was placed on supervised probation for 2 years. I successfully completed out patient treatment, & paid off my fines so they released me a year early in March of 2004.

March 08, 2004

*Simple
Misdemeanor*

I was arrested and charged with Drug Paraphernalia. I plead guilty and was ordered to pay fines. I got my fines all paid off.

March 04, 2011

*Serious
Misdemeanor*

I was arrested and Charged with Possession of a Controlled Substance. I plead guilty and was placed on unsupervised probation for a year, pay fines and undergo a substance abuse evaluation. I completed the evaluation before 8/1/11 and was told I had to attend a class twice a week, I went for about a month but then I got called to go back to work and my work schedule didn't coincide with the class schedule. Since there was no face to face contact for a month they discharged me from the class.

1-8-14

*Amy Velazquez
Arguemaniz*

RECEIVED

DEC 12 2013

IN THE IOWA DISTRICT COURT FOR PAGE COUNTY IOWA DENTAL BOARD

STATE OF IOWA,) NO. AGCR103834
 Plaintiff,)
 vs.)
 AMY D. ARGUMANIZ-VALQUIER,) ORDER
 Defendant.)

FILED
 2011 MAY 23 AM 10:58
 CLERK DISTRICT COURT
 PAGE COUNTY, IOWA

State appears by County Attorney Jeremy Peterson. Defendant appears with counsel Jon Johnson and pursuant to agreement enters written plea of guilty to Possession of a Controlled Substance, to-wit: Methamphetamine, in violation of Section 124.401(5). Court enters judgment of conviction for said charge. Defendant is sentenced to 90 days in the county jail. Defendant is fined \$315. Defendant given credit for time served. Sentence is suspended, and Defendant is placed on unsupervised probation for a period of one year. Defendant to obtain substance abuse evaluation and follow recommendations for counseling or treatment. This shall be completed by August 1, 2011. Defendant's driving privileges are revoked for a period of 180 days. Defendant to pay court costs and court appointed attorney fees. Appeal bond set in the amount of \$2,500. Appearance bond exonerated. Defendant may make payment of \$100 per month commencing July 11, 2011.

Dated this 23rd day of May, 2011.

[Signature]
 /s/ JAMES S. HECKERMAN, JUDGE

Certified to be a full and true copy of the original on file in the office of the clerk of the District Court, Page County, Iowa.

November 22 2013
Robin Shipley Clerk
 By: *[Signature]* Designee



COPIES MAILED / *mailed 5-24-11*

PGCA-em
 ATDRW-em
 4DOC
 Lion-Shen-em
 DEFT
 POSH-em
 ODS



STATE OF IOWA

Criminal History Record Check Request Form



DCI Account Number: _____
(if applicable)

To: Iowa Division of Criminal Investigation
Support Operations Bureau, 1st Floor
215 E. 7th Street
Des Moines, Iowa 50319
(515) 725-6066
(515) 725-6080 Fax

From: Amy Diane Valquier-Argumaniz
1005 Sunset Blvd
Shenandoah, IA 57601
Phone: (712) 215-5563
Fax: _____

I am requesting an Iowa Criminal History Record Check on:

Last Name (mandatory)	First Name (mandatory)	Middle Name (recommended)
<u>Valquier-Argumaniz</u>	<u>Amy</u>	<u>Diane</u>
Date of Birth (mandatory)	Gender (mandatory)	Social Security Number (recommended)
<u>03-23-79</u>	<input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	██████ ██████

Waiver Information: Without a signed waiver from the subject of the request, a complete criminal history record may not be releasable, per Code of Iowa, Chapter 692.2. For complete criminal history record information, as allowed by law, always obtain a waiver signature from the subject of the request.

Waiver Release: I hereby give permission for the above requesting official to conduct an Iowa criminal history record check with the Division of Criminal Investigation (DCI). Any criminal history data concerning me that is maintained by the DCI may be released as allowed by law.

Waiver Signature: Amy Valquier

Iowa Criminal History Record Check Results

As of 12-4-13, a search of the provided name and date of birth revealed:

- No Iowa Criminal History Record found with DCI
- Iowa Criminal History Record attached, DCI # 679377

DCI initials JD

(DCI use only)

IOWA CRIMINAL HISTORY
MISDEMEANOR CONVICTIONS ONLY

DCI 00679377
PAGE 1 OF 2
DATE PRINTED-
2013/12/04

DCI:00679377

NAME: ARGUMANIZ, AMY DIANE
ARGUMANIZ, AMY DIANI
ARGUMANIZ- VALQUIEL, AMY DIANE
ARGUMANIZ-VALQUIER, AMY DIANE
ARGUMANIZ-VALQUIER, AMY DIANI
STUDY, AMY DIANE
VALQUIEL, AMY DIANE
VALQUIER, AMY DIANE ARGUMANIZ
VALQUIER, AMY DIANI

DOB	SEX	RAC	HGT	WGT	EYE	HAIR	SKN	POB
19790323	F	W	504	140	BLU	BRO		XX
19810519								

ADDITIONAL IDENTIFIERS

TAT L ANKL
TAT L CALF
TAT R ANKL

CCH RECORD ***

01 ARRESTED 20020829

AGENCY: IA0360000 FREMONT CO SO
CHARGE NO- 02 IA STATUTE IA124.407
PROHIBITED ACTS (GATHERING USE DRUGS)
TRK#: 064852902

COURT DISPOSITION

AGENCY: IA036015J FREMONT CO DIST COURT
COUNT NO- 02 IA STATUTE IA124.402(1)(E)
POSS CONTR SUBS, KEEP OR PERMIT USE IN STRUCTURE OR VEH
COURT CASE ID: 04361 FECR005435
CHARGE CLASS: MISDEMEANOR CONVICTION
TRK#: 064852902
SUBSTANCE ABUSE EVALUATION
RESTITUTION

SENTENCE		DISP EFF DAT
FINE	\$500	20030210
PROBATION	2Y	20030210
PRISON	2Y	20030210

02 ARRESTED 20040308

AGENCY: IA0650000 MILLS CO SO
CHARGE NO- 04 IA STATUTE IA124-414
POSS DRUG PARAPHERNALIA
TRK#: 059154004

COURT DISPOSITION

AGENCY: IA065015J MILLS CO DIST COURT
COUNT NO- 04 IA STATUTE IA124.414
POSSESSION OF DRUG PARAPHERNALIA
COURT CASE ID: 04651 SMMG008162
CHARGE CLASS: MISDEMEANOR CONVICTION

TRK#: 059154004

SENTENCE		DISP EFF DAT
FINE	\$100	20040913

03 ARRESTED 20110304

AGENCY: IA0730200 SHENANDOAH PD
 CHARGE NO- 01 IA STATUTE IA124.401(5)B
 POSSESSION OF A CONTROLLED SUBSTANCE - 2ND OFFENSE
 TRK#: 085828901

COURT DISPOSITION

AGENCY: IA073015J PAGE CO DIST COURT
 COUNT NO- 01 IA STATUTE IA124.401(5)
 POSSESSION OF A CONTROLLED SUBSTANCE
 COURT CASE ID: 04731 AGCR103834
 CHARGE CLASS: MISDEMEANOR CONVICTION
 TRK#: 085828901
 LICENSE REVOKED
 SUBSTANCE ABUSE EVALUATION

SENTENCE		DISP EFF DAT
SUSPENDED JAIL	90D	20110523
JAIL	90D	20110523
	DL REVOKED 180DAYS	
FINE	\$315	20110523
UNSUPERVISED	365D	20110523
PROBATION	SA COMPLETED BY 8/1/11	

AN ARREST WITHOUT DISPOSITION IS NOT AN INDICATION OF GUILT. THIS RECORD MAINTAINED BY THE IOWA DIVISION OF CRIMINAL INVESTIGATION, BUREAU OF IDENTIFICATION IS A PUBLIC RECORD BUT CAN ONLY BE RELEASED TO NON-LAW ENFORCEMENT AGENCIES BY THE DCI.

IN THE ABSENCE OF FINGERPRINTS FOR POSITIVE IDENTIFICATION THIS RECORD IS BASED ON INFORMATION FURNISHED. WE CANNOT CONFIRM OR DENY THAT THE RECORD COVERS THE SUBJECT OF YOUR INQUIRY.

DIVISION OF CRIMINAL INVESTIGATION

Name of Applicant: Amy Valguiser Argumaniz

AFFIDAVIT OF APPLICANT

IN STATE OF IOWA COUNTY OF Montgomery

I, Amy Valguiser Argumaniz, hereby declare under penalty of perjury that I am the person described and identified in this application and that the attached photograph is a true likeness of myself. I also declare, under penalty of perjury, that if I did not personally complete the foregoing application that I have fully read and confirmed each question and accompanying answer, and take full responsibility for all answers contained in this application.

If registration is issued to me, I understand that if I violate state law, my registration may be revoked as provided by law. I declare under penalty of perjury that my answers and all statements made by me on this application are true and correct. Should I furnish any false information or have substantial omission in this application, I hereby agree that such act shall constitute cause for denial, suspension, or revocation of my registration.

I hereby authorize the Iowa Dental Board and/or its agents to verify any information including, but not limited to, criminal history and motor vehicle driving records. I authorize all colleges or universities, employers and law enforcement agencies to release any information concerning my background to the Iowa Dental Board for registration purposes. I do hereby release said person(s) from any and all liability that may be incurred as a result of furnishing such information. A photocopy of this release form will be valid as an original thereof, even though the said photocopy does not contain an original writing of my signature.

Signature of Applicant Amy Valguiser Argumaniz Date 10-12-13

AFFADAVIT OF EMPLOYMENT

The dental assistant's supervising dentist should complete this form.

Applicants for dental assistant registration who are not graduates of a ADA-accredited postsecondary dental assisting program must either (1) work in a dental office for a minimum of six months as a dental assistant trainee, within 12 months of the first date of employment, or (2) have had at least six months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. To verify that the dental assistant meets one of these requirements, the supervising dentist must complete and sign the following form.

I hereby certify that the applicant, Amy Valguier, has successfully completed didactic and clinical training and has worked as a dental assistant under my supervision on the following dates at the following locations:

Date:

4/9/13 - 10/14/13

Location:

Red Oak Dental Center
Red Oak Iowa

YES NO I further certify that the applicant has received Board-approved clinical training in dental radiography within the last two (2) years and has exhibited clinical proficiency in the area of dental radiography.

M. P. McCormack
Printed Name of Dentist

07697
License #

[Signature]
Dentist's Signature

10/14/13
Date

Return completed form to:
IOWA DENTAL BOARD
400 S.W. 8th St, Suite D
Des Moines, IA 50309-4687
Phone (515) 281-5157



APPLICATION FOR IOWA DENTAL ASSISTANT REGISTRATION & DENTAL RADIOGRAPHY QUALIFICATION

RECEIVED

JAN 06 2014

IOWA DENTAL BOARD

400 S.W. 8th Street, Suite D, Des Moines, Iowa 50309-4687 IOWA DENTAL BOARD
Ph. (515) 281-5157 <http://www.dentalboard.iowa.gov>

This form must be completed and returned to the Iowa Dental Board. Include the *non-refundable* application fee. (Registration only: \$40; **OR** registration *and* radiography qualification: \$60) Do not submit payment in cash. Complete each question on the application. If not applicable, mark "N/A."

Full Legal Name: (Last, First, Middle) Ball, Ashley, Ann			
Other Names Used: (e.g. Maiden Name)			
Home Address: 1611 Center Point Rd NE Apt #8			
City: Cedar Rapids	County: Linn	State: IA	Zip: 52402
Home Phone: 561-232-9507		Home E-mail: ashleyannball@gmail.com	
Work Address: 1515 Blairs ferry Rd			
City: Cedar Rapids	County: Linn	State: IA	Zip: 52402
Work Phone: 319-393-7000	Work Fax: 319-294-5813	Work E-mail: aball@gentledentalcr.com	

BASIS FOR APPLICATION

1. I have worked in a dental office for a minimum of six month as a dental assistant trainee, within 12 months of my first date of employment in Iowa. Trainee Number: T10936 (*Complete the Affidavit of Employment.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. I have at least 6 months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. (*Complete the Affidavit of Employment.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
3. I am a graduate of an ADA-accredited postsecondary dental assisting program. (*Complete the Certification of Education.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4. I have completed Board-approved training in dental radiography with the past 2 years, passed an examination in dental radiography, and am also applying for a qualification in dental radiography. (If yes, the application fee is \$60.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

For office use only:	Registration #:	Date Issued:
-----------------------------	------------------------	---------------------

28367
\$40.00
1/7/14

Name of Applicant: Ashley Ball

QUALIFICATIONS & EXPERIENCE

1. Do you currently take dental x-rays in Iowa?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Do you now hold, or have you ever held, a certificate of qualification in dental radiography issued by the Iowa Dental Board? If yes, what is the qualification number? _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Did you complete a course of study using the dental assistant trainee manual, or other course approved by the Board in the area of dental radiography within the past 2 years?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4. Did you complete clinical (i.e. on-the job) dental radiography training under the supervision of a dentist? If yes, the supervising dentist must verify this training on the Affidavit of Employment. (If training was completed outside of Iowa, the training dentist must certify training in all competencies prior-approved by the Board. Contact the Board for further details.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5. Did you complete a course of study approved by the Board in the areas of infection control/hazardous materials and jurisprudence using the study manual or at an ADA-accredited post secondary school (i.e. community college)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6. Are you currently certified in CPR by nationally-recognized provider? Online certification is not accepted. Date of expiration: <u>1/2/2016</u> (You must provide proof of current certification in CPR upon request.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7. Are you registered, certified or qualified as a dental assistant in another state? If yes, which states: _____ (Provide written verification from each state in which you are registered, certified or qualified.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

8. Provide a chronological listing of all dental-related employment in the last 5 years. Include months, years, location (city & state), and type of practice. Attach additional sheets of paper, if necessary, labeled with your name and signed by you.

Employer Dentist Name & Location	Type of Work (e.g. chairside, lab, office)	From (Mo/Yr):	To (Mo/Yr):	Avg. Hours per Week
Gentle Dental, IA	Chairside	4/13	Current	38-40
Kurt Bally ^{Modery} Dental, FL	Chairside	9/12	3/13	35
Michael Pechan, FL	Chairside	6/12	8/12	30-35
Gentle Dental, IA	Chairside	12/10	12/11	38-40

REGISTRATION INFORMATION

List all state/countries in which you are or have ever been registered, certified or qualified.
Please note: you will be required to request written certifications of all registrations.

State/Country	Registration No.	Date Issued	Registration Type	Basis for Registration

Name of Applicant: Asnuey Ball

QUALIFICATIONS & EXPERIENCE

1. Do you currently take dental x-rays in Iowa?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Do you now hold, or have you ever held, a certificate of qualification in dental radiography issued by the Iowa Dental Board? If yes, what is the qualification number? _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Did you complete a course of study using the dental assistant trainee manual, or other course approved by the Board in the area of dental radiography within the past 2 years?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. Did you complete clinical (i.e. on-the job) dental radiography training under the supervision of a dentist? If yes, the supervising dentist must verify this training on the Affidavit of Employment. (If training was completed outside of Iowa, the training dentist must certify training in all competencies prior-approved by the Board. Contact the Board for further details.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5. Did you complete a course of study approved by the Board in the areas of infection control/hazardous materials and jurisprudence using the study manual or at an ADA-accredited post secondary school (i.e. community college)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6. Are you currently certified in CPR by nationally-recognized provider? Online certification is not accepted. Date of expiration: <u>1/2/2016</u> (You must provide proof of current certification in CPR upon request.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7. Are you registered, certified or qualified as a dental assistant in another state? If yes, which states: _____ (Provide written verification from each state in which you are registered, certified or qualified.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

8. Provide a chronological listing of all dental-related employment in the last 5 years. Include months, years, location (city & state), and type of practice. Attach additional sheets of paper, if necessary, labeled with your name and signed by you.

Employer Dentist Name & Location	Type of Work (e.g. chairside, lab, office)	From (Mo/Yr):	To (Mo/Yr):	Avg. Hours per Week
Gentle Dental, IA	chairside	4/13	current	38-40
Kurt Bailey, IA	chairside	9/12	3/13	35
Michael Pechan, IA	chairside	6/12	8/12	30-35
Gentle Dental, IA	chairside	12/10	12/11	38-40

REGISTRATION INFORMATION

List all state/countries in which you are or have ever been registered, certified or qualified.
Please note: you will be required to request written certifications of all registrations.

State/Country	Registration No.	Date Issued	Registration Type	Basis for Registration
NA				

HEALTHCARE PROVIDER

Healthcare Provider



Training Center Name **Kirkwood Community College IA5131**

Cedar Rapids, Iowa 52404 (319-398-7118)
Info

Course Location **Kirkwood Community College**

Instructor Name **Suzanne Klenk 12081140700**

Holder's
Signature

Ashley Ball

This card certifies that the above individual has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association BLS for Healthcare Providers (CPR and AED) Program.

1/2/2014

1/2/2016

Issue Date

Recommended Renewal Date

© 2011 American Heart Association Tampering with this card will alter its appearance. 90-1801

→
PEEL
HERE
→

This card contains unique security features to protect against forgery.

90-1801 3/11

Name of Applicant: Ashley Ball

PERSONAL & CONFIDENTIAL DATA

Privacy Act Notice: Disclosure of your Social Security Number on this registration application is required by 42 U.S.C. § 666(a)(13), Iowa Code §§ 272J.8(1) and 261.126(1), and Iowa Code § 272D.8(1). The number will be used in connection with the collection of child support obligations, college student loan obligations, and debts owed to the state of Iowa, and as an internal means to accurately identify registrations, and may also be shared with taxing authorities as allowed by law including Iowa Code § 421.18.

Social Security Number: [REDACTED]	Gender: <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	U.S. citizen: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If no, visa type or alien registration number: <input type="checkbox"/> Student Visa <input type="checkbox"/> Work Visa <input type="checkbox"/> Alien Registration Provide visa or alien registration number: <u>NA</u> If visa, provide expiration date of current visa:			
Date of birth: <u>10/10/1988</u>	City of Birth: <u>OHUMWA</u>	State of birth: <u>IA</u>	Country of birth: <u>Wapello</u>

EXAMINATION INFORMATION

1. Did you successfully complete the Board examination in dental radiography or the Dental Assisting National Board (DANB) radiography examination? (DANB radiography examination must have been completed after January 1986.)	[REDACTED]
2. Did you successfully complete the Iowa dental assistant jurisprudence examination? Date completed: <u>11/22/13</u>	
3. Did you successfully complete the Board-approved examination in infection control/hazardous materials, or the Dental Assisting National Board Infection Control Examination (DANB ICE)? (DANB ICE must have been completed after June 1991.) Date completed: <u>12/4/13</u>	
4. Have you ever passed any of the Dental Assisting National Board (DANB) examinations? If yes, which examinations?	

DEFINITIONS

Important! Read these definitions before completing the following questions.

“Medical condition” means any physiological, mental, or psychological condition, impairment, or disorder, including drug addiction and alcoholism.

“Chemical substances” means alcohol, legal and illegal drugs, or medications, including those taken pursuant to a valid prescription for legitimate medical purposes and in accordance with the prescriber’s direction, as well as those used illegally.

“Currently” does not mean on the day of, or even in weeks or months preceding the completion of this application. Rather, it means recently enough so that the use of chemical substances or medical conditions may have an ongoing impact on the ability to function and practice, or has adversely affected the ability to function and practice within the past two (2) years.

“Improper use of drugs or other chemical substances” means ANY of the following:

1. The use of any controlled drug, legend drug, or other chemical substance for any purpose other than as directed by a licensed health care practitioner; and
2. The use of any substance, including but not limited to, petroleum products, adhesive products, nitrous oxide, and other chemical substances for mood enhancement.

“Illegal use of drugs or other chemical substances” means the manufacture, possession, distribution, or use of any drug or chemical substance prohibited by law.

Name of Applicant: Ashley Ball

In answering each of the following questions, please check the appropriate box next to each question. **FOR EACH "YES" ANSWER TO QUESTIONS 1 THROUGH 15, YOU MUST PROVIDE A SIGNED STATEMENT GIVING FULL DETAILS, INCLUDING DATE(S), LOCATION(S), ACTION(S), ORGANIZATION(S) OR PARTIES INVOLVED, AND SPECIFIC REASON(S).**

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	5. Except for minor speeding or parking offenses, have you ever been arrested, charged, convicted, found guilty of, or entered a plea of guilty or no contest to a felony or misdemeanor crime or offense, including actions that resulted in a deferred or expunged judgment? <i>(See enclosed letter of explanation)</i>
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	6. Have you ever been terminated or requested to withdraw from any dental assisting school or training program?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	7. Have you ever been requested to repeat a portion of any dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	8. Have you ever received a warning, reprimand, or been placed on probation during a dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	9. Have you ever been denied a registration/certificate to practice dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	10. Have you ever voluntarily surrendered a registration/certification issued to you by any professional licensing agency?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	11. If yes, was license/registration disciplinary action pending against you, or were you under investigation by a licensing agency at the time the voluntary surrender of license/registration was tendered?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	12. Have any settlement agreements been rendered or any judgments entered against you resulting from your practice of dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	13. Are charges or an investigation currently pending relative to your licensc/registration in any other state?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	14. Has any jurisdiction of the United States or other nation ever limited, restricted, warned, censured, placed on probation, suspended, or revoked a license/registration you held?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	15. Have you ever been notified of any charges filed against you by a licensing or disciplinary agency of any jurisdiction of the U.S. or other nation?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>16. I certify that I am at least 17 years of age and am a high school graduate or equivalent.</p> <p><input checked="" type="checkbox"/> High School Graduate OR <input type="checkbox"/> GED</p> <p>Date graduated/GED obtained: <u>2007</u></p> <p>Name of high school/location diploma/GED obtained: <u>Humwa High School</u></p>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	17. Do you understand that if registration is granted by this Board, it will be based in part on the truth of the statements contained herein, which, if false, may subject you to criminal prosecution and revocation of the registration?

To Whom It May Concern:

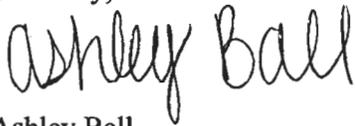
On April 2, 2008 I was issued a ticket for possession of a controlled substance. I was living in an apartment at Kirkwood and my roommate was smoking marijuana and because I was a tenant on the lease and did not call the police I received a possession of controlled substance charge. It was later deferred and expunged. I was required to complete a substance abuse program.

On 04-11-2008 and 04-12-2008 in Story County, Iowa I was issued a ticket for possession of alcohol under legal age. I was charged a fine that was paid at that time.

On 02-22-2010 I was charged with assault. I was in an altercation with another woman at Kirkwood College. The charges were deferred and expunged because neither party pressed charges.

On 09-11-2010 in Johnson County, Iowa, I was issued a ticket for open container in a public place. I was charged a fine that was paid at that time.

Sincerely,

A handwritten signature in cursive script that reads "Ashley Ball". The signature is written in black ink and is positioned above the printed name.

Ashley Ball

Arjes, Janet [IDB]

From: Arjes, Janet [IDB]
Sent: Tuesday, January 21, 2014 5:25 PM
To: 'Ashley Ball'
Subject: RE: Criminal History

Thank you, Ashley.

Janet Arjes
Executive Officer
Iowa Dental Board
515-281-3248

visit us on the web <http://www.dentalboard.iowa.gov/> Confidentiality Notice: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient(s), please contact the sender by reply e-mail and destroy all copies of the original message.

-----Original Message-----

From: Ashley Ball [<mailto:ashleyannball@gmail.com>]
Sent: Tuesday, January 21, 2014 5:00 PM
To: Arjes, Janet [IDB]
Subject: Criminal History

Hi Janet,

Regarding my underage drinking tickets, the possession of alcohol underage tickets came from me not being 21 and drinking outside in Ames during Veshia. Both tickets were issued within the same night but it had just turned midnight so it therefor it was a new day. The open container ticket resulted from me tailgating a Iowa Hawkeye football game, and they had just changes the laws to where drinking in public was against the law. All fines were paid for. I realized that, not only is it costly to drink but harmful to my body.

Regarding my possession charge, I was required to attend several ASAC classes, prior to that class, I was drug tested and it was negative. I also successfully completed the 20 hrs of community services. I do not drink nor do I smoke or use any type of drugs. I received a deferred judgement because I completed everything the court had ask me to do in the amount of time allowed.

Regarding my assault charge, I also successfully completed my 20 hours of community services and paid all the fines within 60 days. I received a deferred judgement also. I am not a criminal nor am I bad person, when were young we tend to make bad choices which I have learned valuable lessons from.

Since then I have not been in any trouble with law. My history has not prohibited me from receiving any dental assisting job. I had gained a lot of knowledge from the two highly respected offices, I worked for in Florida. I hope I have provided enough information, I honestly love working as a dental assistant. I have gained so much great feedback from patients.

Sent from my iPhone

Arjes, Janet [IDB]

From: Arjes, Janet [IDB]
Sent: Tuesday, February 11, 2014 12:36 PM
To: 'Ashley Ball'
Subject: RE: Criminal History

Thanks, Ashley.

Janet Arjes
Executive Officer
Iowa Dental Board
515-281-3248

visit us on the web <http://www.dentalboard.iowa.gov/>

***Confidentiality Notice:** This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient(s), please contact the sender by reply e-mail and destroy all copies of the original message.*

From: Ashley Ball [<mailto:ashleyannball@gmail.com>]
Sent: Tuesday, February 11, 2014 12:29 PM
To: Arjes, Janet [IDB]
Subject: Re: Criminal History

The assault resulted from both parties exchanging words, having conflicts, such as we couldn't be in the same environment without negative things being said. The other party was on the internet saying racial comments about me being an African American and threats were made towards me. The night of the assault, we were both in the same area, words were exchanged and we had an altercation. The police were called by some bystanders.

Sent from my iPhone

Jan. 13. 2014 3:16PM Div. of Criminal Investigation

No. 6589 P. 1



STATE OF IOWA Criminal History Record Check Request Form



To: Iowa Division of Criminal Investigation
Support Operations Bureau, 1st Floor
215 E. 7th Street
Des Moines, Iowa 50319
(515) 725-6066
(515) 725-6080 Fax

DCI Account Number: _____

From: Ashley Ann Ball (if applicable)
1111 Center Point Rd
NE Apt #8 Cedar Rapids IA 52402
Phone: 561-732-9507
Fax: (319) 294-5813

I am requesting an Iowa Criminal History Record Check on:

Last Name (mandatory) Ball	First Name (mandatory) Ashley	Middle Name (recommended) Ann
Date of Birth (mandatory) 10/10/1988	Gender (mandatory) <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	Social Security Number (recommended) [REDACTED]

Waiver Information: Without a signed waiver from the subject of the request, a complete criminal history record may not be releasable, per Code of Iowa, Chapter 692.2. For complete criminal history record information, as allowed by law, always obtain a waiver signature from the subject of the request.

Waiver Release: I hereby give permission for the above requesting official to conduct an Iowa criminal history record check with the Division of Criminal Investigation (DCI). Any criminal history data concerning me that is maintained by the DCI may be released as allowed by law.

Waiver Signature: Ashley Ball

Iowa Criminal History Record Check Results

As of 1-13-2014, a search of the provided name and date of birth revealed:

- No Iowa Criminal History Record found with DCI
- Iowa Criminal History Record attached, DCI # 831418

DCI initials go

(DCI use only)
STATE OF IOWA
D.P.S.
14 JAN - 8 PM 4:21
DIV. OF CRIMINAL
INVESTIGATION

DCI-77 (08/25/10)

Received Time Jan 8 2014 2:50PM No 0104

Received Time Jan. 14. 2014 10:55AM No. 3966

Jan. 13. 2014 3:16PM Div of Criminal Investigation

No. 6589 P. 2

IOWA CRIMINAL HISTORY
NON CONVICTION

DCI 00831418
PAGE 1 OF 2
DATE PRINTED-
2014/01/13

DCI:00831418

NAME: BALL,ASHLEY ANN

DOB	SEX	RAC	HGT	WGT	EYE	HAIR	SKN	POB
19881010	F	B	506	150	BRO	BLK		IA

ADDITIONAL IDENTIFIERS

CCH RECORD ***

01 ARRESTED 20080403

AGENCY: IA0570100 CEDAR RAPIDS PD
 CHARGE NO- 01 IA STATUTE IA124.401(5)
 POSSESSION OF A CONTROLLED SUBSTANCE
 TRK#: 5A005JT01

COURT DISPOSITION

AGENCY: IA057015J LINN CO DIST COURT
 COUNT NO- 01 IA STATUTE IA124.401(5)
 POSSESSION OF A CONTROLLED SUBSTANCE
 COURT CASE ID: 06571 SRCR077020
 CHARGE CLASS: NON CONVICTION
 TRK#: 5A005JT01
 SUBSTANCE ABUSE EVALUATION

SENTENCE		DISP EFF DAT
DEFERRED JUDGEMENT	1Y	20080918
PROBATION	1Y	20080918
COMMUNITY SERVICE	20H	20080918
DISCHARGED FROM		20090731
DEFERRED JUDGEMENT		

02 ARRESTED 20100222

AGENCY: IA0570100 CEDAR RAPIDS PD
 CHARGE NO- 01 IA STATUTE IA708.2(2)
 ASSAULT CAUSING BODILY INJURY-1978
 TRK#: 5A0090K01

COURT DISPOSITION

AGENCY: IA057015J LINN CO DIST COURT
 COUNT NO- 01 IA STATUTE IA708.2(2)
 ASSAULT CAUSING BODILY INJURY-1978
 COURT CASE ID: 06571 SRCR087310
 CHARGE CLASS: NON CONVICTION
 TRK#: 5A0090K01
 RESTITUTION

SENTENCE		DISP EFF DAT
DEFERRED JUDGEMENT	1Y	20100921
PROBATION	1Y	20100921
COMMUNITY SERVICE	20H	20100921
DISCHARGED FROM		20110415
DEFERRED JUDGEMENT		

Jan. 13. 2014 3:16PM Div of Criminal Investigation

No. 6589 P. 3

DCI 00831418

PAGE 2 OF 2

AN ARREST WITHOUT DISPOSITION IS NOT AN INDICATION OF GUILT. THIS RECORD MAINTAINED BY THE IOWA DIVISION OF CRIMINAL INVESTIGATION, BUREAU OF IDENTIFICATION IS A PUBLIC RECORD BUT CAN ONLY BE RELEASED TO NON-LAW ENFORCEMENT AGENCIES BY THE DCI.

IN THE ABSENCE OF FINGERPRINTS FOR POSITIVE IDENTIFICATION THIS RECORD IS BASED ON INFORMATION FURNISHED. WE CANNOT CONFIRM OR DENY THAT THE RECORD COVERS THE SUBJECT OF YOUR INQUIRY.

DIVISION OF CRIMINAL INVESTIGATION

go

Name of Applicant: Ashley Ball

AFFIDAVIT OF APPLICANT

IN STATE OF IOWA COUNTY OF Linn

I, Ashley Ball, hereby declare under penalty of perjury that I am the person described and identified in this application and that the attached photograph is a true likeness of myself. I also declare, under penalty of perjury, that if I did not personally complete the foregoing application that I have fully read and confirmed each question and accompanying answer, and take full responsibility for all answers contained in this application.

If registration is issued to me, I understand that if I violate state law, my registration may be revoked as provided by law. I declare under penalty of perjury that my answers and all statements made by me on this application are true and correct. Should I furnish any false information or have substantial omission in this application, I hereby agree that such act shall constitute cause for denial, suspension, or revocation of my registration.

I hereby authorize the Iowa Dental Board and/or its agents to verify any information including, but not limited to, criminal history and motor vehicle driving records. I authorize all colleges or universities, employers and law enforcement agencies to release any information concerning my background to the Iowa Dental Board for registration purposes. I do hereby release said person(s) from any and all liability that may be incurred as a result of furnishing such information. A photocopy of this release form will be valid as an original thereof, even though the said photocopy does not contain an original writing of my signature.

Signature of Applicant Ashley Ball Date 1/3/14

AFFADAVIT OF EMPLOYMENT

The dental assistant's supervising dentist should complete this form.

Applicants for dental assistant registration who are not graduates of a ADA-accredited postsecondary dental assisting program must either (1) work in a dental office for a minimum of six months as a dental assistant trainee, within 12 months of the first date of employment, or (2) have had at least six months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. To verify that the dental assistant meets one of these requirements, the supervising dentist must complete and sign the following form.

I hereby certify that the applicant, Ashley Ann Ball, has successfully completed didactic and clinical training and has worked as a dental assistant under my supervision on the following dates at the following locations:

Date:

Location:

4-09-2013 thru present

Gentle Dental

1515 Blairs Ferry Rd NE.

Cedar Rapids, IA 52402

YES NO I further certify that the applicant has received Board-approved clinical training in dental radiography within the last two (2) years and has exhibited clinical proficiency in the area of dental radiography.

Tom Moriarity
Printed Name of Dentist

08245
License #

[Signature]
Dentist's Signature

01-03-2014
Date

Return completed form to:
IOWA DENTAL BOARD
400 S.W. 8th St, Suite D
Des Moines, IA 50309-4687
Phone (515) 281-5157



APPLICATION FOR IOWA DENTAL ASSISTANT REGISTRATION & DENTAL RADIOGRAPHY QUALIFICATION

RECEIVED

IOWA DENTAL BOARD
400 S.W. 8th Street, Suite D, Des Moines, Iowa 50309-4687
Ph. (515) 281-5157 <http://www.dentalboard.iowa.gov>

OCT 17 2013

IOWA DENTAL BOARD

This form must be completed and returned to the Iowa Dental Board. Include the *non-refundable* application fee. (Registration only: \$40; **OR** registration *and* radiography qualification: \$60) Do not submit payment in cash. Complete each question on the application. If not applicable, mark "N/A."

Full Legal Name: (Last, First, Middle) Larson Randi Kay			
Other Names Used: (e.g. Maiden Name) N/A			
Home Address: 1645 Plymouth ave			
City: Waterloo	County: Blackhawk	State: IA	Zip: 50702
Home Phone: 319-486-0382		Home E-mail: Randikay08@yahoo.com	
Work Address: 715 Bluegrass Circle			
City: Cedar Falls	County: Blackhawk	State: IA	Zip: 50813
Work Phone: 319-266-3545	Work Fax: 319/277-7088	Work E-mail: N/A	

BASIS FOR APPLICATION

1. I have worked in a dental office for a minimum of six month as a dental assistant trainee, within 12 months of my first date of employment in Iowa. Trainee Number: _____ (*Complete the Affidavit of Employment.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. I have at least 6 months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. (*Complete the Affidavit of Employment.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. I am a graduate of an ADA-accredited postsecondary dental assisting program. (*Complete the Certification of Education.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. I have completed Board-approved training in dental radiography with the past 2 years, passed an examination in dental radiography, and am also applying for a qualification in dental radiography. (If yes, the application fee is \$60.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

For office use only:	Registration #:	Date Issued:
-----------------------------	-----------------	--------------

#1261
#60

Name of Applicant: Larson Randi

QUALIFICATIONS & EXPERIENCE

1. Do you currently take dental x-rays in Iowa?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Do you now hold, or have you ever held, a certificate of qualification in dental radiography issued by the Iowa Dental Board? If yes, what is the qualification number? _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Did you complete a course of study using the dental assistant trainee manual, or other course approved by the Board in the area of dental radiography within the past 2 years?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. Did you complete clinical (i.e. on-the job) dental radiography training under the supervision of a dentist? If yes, the supervising dentist must verify this training on the Affidavit of Employment. (If training was completed outside of Iowa, the training dentist must certify training in all competencies prior-approved by the Board. Contact the Board for further details.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
5. Did you complete a course of study approved by the Board in the areas of infection control/hazardous materials and jurisprudence using the study manual or at an ADA-accredited post secondary school (i.e. community college)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6. Are you currently certified in CPR by nationally-recognized provider? Online certification is not accepted. Date of expiration: <u>11/30/14</u> (You must provide proof of current certification in CPR upon request.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7. Are you registered, certified or qualified as a dental assistant in another state? If yes, which states: _____ (Provide written verification from each state in which you are registered, certified or qualified.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

8. Provide a chronological listing of all dental-related employment in the last 5 years. Include months, years, location (city & state), and type of practice. Attach additional sheets of paper, if necessary, labeled with your name and signed by you.

Employer Dentist Name & Location	Type of Work (e.g. chairside, lab, office)	From (Mo/Yr):	To (Mo/Yr):	Avg. Hours per Week
N/A	N/A			

REGISTRATION INFORMATION :

List all state/countries in which you are or have ever been registered, certified or qualified.
Please note: you will be required to request written certifications of all registrations.

State/Country	Registration No.	Date Issued	Registration Type	Basis for Registration

Larson, Randi
Name of Applicant: Randi Larson

PERSONAL & CONFIDENTIAL DATA

Privacy Act Notice: Disclosure of your Social Security Number on this registration application is required by 42 U.S.C. § 666(a)(13), Iowa Code §§ 272J.8(1) and 261.126(1), and Iowa Code § 272D.8(1). The number will be used in connection with the collection of child support obligations, college student loan obligations, and debts owed to the state of Iowa, and as an internal means to accurately identify registrations, and may also be shared with taxing authorities as allowed by law including Iowa Code § 421.18.			
Social Security Number: [REDACTED]		Gender: <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	U.S. citizen: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If no, visa type or alien registration number: <input type="checkbox"/> Student Visa <input type="checkbox"/> Work Visa <input type="checkbox"/> Alien Registration		Provide visa or alien registration number: If visa, provide expiration date of current visa:	
Date of birth: 11/03/86	City of Birth: Waterloo	State of birth: IA	Country of birth: USA

EXAMINATION INFORMATION

<p>1. Did you successfully complete the Board examination in dental radiography or the Dental Assisting National Board (DANB) radiography examination? (DANB radiography examination must have been completed after January 1986.)</p>	
<p>2. Did you successfully complete the Iowa dental assistant jurisprudence examination? Date completed: <u>July 12, 2013</u></p>	
<p>3. Did you successfully complete the Board-approved examination in infection control/hazardous materials, or the Dental Assisting National Board Infection Control Examination (DANB ICE)? (DANB ICE must have been completed after June 1991.) Date completed: <u>7/20/13</u></p>	
<p>4. Have you ever passed any of the Dental Assisting National Board (DANB) examinations? If yes, which examinations?</p>	

DEFINITIONS

Important! Read these definitions before completing the following questions.

“Medical condition” means any physiological, mental, or psychological condition, impairment, or disorder, including drug addiction and alcoholism.

“Chemical substances” means alcohol, legal and illegal drugs, or medications, including those taken pursuant to a valid prescription for legitimate medical purposes and in accordance with the prescriber’s direction, as well as those used illegally.

“Currently” does not mean on the day of, or even in weeks or months preceding the completion of this application. Rather, it means recently enough so that the use of chemical substances or medical conditions may have an ongoing impact on the ability to function and practice, or has adversely affected the ability to function and practice within the past two (2) years.

“Improper use of drugs or other chemical substances” means ANY of the following:

1. The use of any controlled drug, legend drug, or other chemical substance for any purpose other than as directed by a licensed health care practitioner; and
2. The use of any substance, including but not limited to, petroleum products, adhesive products, nitrous oxide, and other chemical substances for mood enhancement.

“Illegal use of drugs or other chemical substances” means the manufacture, possession, distribution, or use of any drug or chemical substance prohibited by law.

Dear Dental Board,

Hello my name is Randi Larson, I am writing you today to explain some of the major mistakes I have made in my life. May 2006 I was charged with a Public Intoxication I was 18 at the time with my friends and we decided to go to the bar and play pool the cops came in and I was under age I was arrested for public Intoxication. In July 2006 I was charged with Public Intoxication and Assault Charge against my mother once again I was 18 I had been drinking with some friends and went home my mother told me to get my stuff and get out I would not listen we kept arguing back and forth and my mom told me to leave or she was going to call the cops during that time I was intoxicated and didn't care if she did so she went a head a called the cops I spouted off to the cops and they put handcuffs on me and took me to jail and in that time they also put the assault charge on me. November 2009 I was arrested for Domestic Assault on Nicholas my boyfriend now, we were having an argument the neighbor called the cops , as Nicholas was turning away I grabbed his shoulder which lead into a scratch on his neck so there for I was the one who went to jail because he had a mark. I regret these horrible decisions and I have taken the necessary steps in changing my life. I have also attended counseling sessions for my anger and I have quite drinking.

I am now an honor graduate from Hawkeye Community College; I work at Dr. Thomas J Strub. I am also a mother and have made it a personal goal and responsibility to be the best role model for my daughter. I ask that you please consider my license and I know you will not regret it. I am passionate about my job and pray that I can continue to do the work I love.

Sincerely,



Randi Larson



Name of Applicant: Larson, Randi

PERSONAL & CONFIDENTIAL DATA

In answering each of the following questions, please check the appropriate box next to each question. **FOR EACH "YES" ANSWER TO QUESTIONS 1 THROUGH 15, YOU MUST PROVIDE A SIGNED STATEMENT GIVING FULL DETAILS, INCLUDING DATE(S), LOCATION(S), ACTION(S), ORGANIZATION(S) OR PARTIES INVOLVED, AND SPECIFIC REASON(S).**

1. Do you currently have a medical condition that in any way impairs or limits your ability to practice dental assisting with reasonable skill and safety?
2. Are you currently engaged in the illegal or improper use of drugs or other chemical substances?
3. Do you currently use alcohol, drugs, or other chemical substances that would in any way impair or limit your ability to practice dental assisting with reasonable skill and safety?
4. If yes to questions 1 to 3, are you receiving ongoing treatment or participating in a monitoring program that reduces or eliminates the limitations or impairments caused by either your medical condition or use of alcohol, drugs, or other chemical substances?

If you answered yes to any of the questions above, please provide a statement below providing the details as requested in the instructions above. Please add a separate sheet of paper if necessary.

In 2009 my boyfriend and I were having a verbal argument which resulted in the police ~~been~~ getting called. As he was walking away I grabbed his shoulder my hand slipped and ~~he~~ got a scratch on his neck for that reason I got arrested because the police had been called and he had a physical injury. No charges were pressed by him. I took the necessary steps in resolving this which ~~since~~ ~~been~~ expunged ~~and~~ deferred from my record. I haven't ~~had~~ been in any legal trouble since and I learned from this incident.

Randi Larson
Signature

7/26/13
Date

Name of Applicant: Larson, Randi

In answering each of the following questions, please check the appropriate box next to each question. **FOR EACH "YES" ANSWER TO QUESTIONS 1 THROUGH 15, YOU MUST PROVIDE A SIGNED STATEMENT GIVING FULL DETAILS, INCLUDING DATE(S), LOCATION(S), ACTION(S), ORGANIZATION(S) OR PARTIES INVOLVED, AND SPECIFIC REASON(S).**

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	5. Except for minor speeding or parking offenses, have you ever been arrested, charged, convicted, found guilty of, or entered a plea of guilty or no contest to a felony or misdemeanor crime or offense, including actions that resulted in a deferred or expunged judgment?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	6. Have you ever been terminated or requested to withdraw from any dental assisting school or training program?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	7. Have you ever been requested to repeat a portion of any dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	8. Have you ever received a warning, reprimand, or been placed on probation during a dental assisting training program/school?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	9. Have you ever been denied a registration/certificate to practice dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	10. Have you ever voluntarily surrendered a registration/certification issued to you by any professional licensing agency?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	11. If yes, was license/registration disciplinary action pending against you, or were you under investigation by a licensing agency at the time the voluntary surrender of license/registration was tendered?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	12. Have any settlement agreements been rendered or any judgments entered against you resulting from your practice of dental assisting?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	13. Are charges or an investigation currently pending relative to your license/registration in any other state?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	14. Has any jurisdiction of the United States or other nation ever limited, restricted, warned, censured, placed on probation, suspended, or revoked a license/registration you held?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	15. Have you ever been notified of any charges filed against you by a licensing or disciplinary agency of any jurisdiction of the U.S. or other nation?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	16. I certify that I am at least 17 years of age and am a high school graduate or equivalent. <input checked="" type="checkbox"/> High School Graduate OR <input type="checkbox"/> GED Date graduated/GED obtained: <u>May 2005</u> Name of high school/location diploma/GED obtained: <u>West High School</u>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	17. Do you understand that if registration is granted by this Board, it will be based in part on the truth of the statements contained herein, which, if false, may subject you to criminal prosecution and revocation of the registration?



**STATE OF IOWA
Criminal History Record Check
Request Form**

RECEIVED

FEB 13 2014



MAIL

**To: Iowa Division of Criminal Investigation
Support Operations Bureau, 1st Floor
215 E. 7th Street
Des Moines, Iowa 50319
(515) 725-6066
(515) 725-6080 Fax**

DCI Account Number: _____
(if applicable)

From: Randi Larson
1145 Plymouth Ave
Waterloo, IA 50702
Phone: 319-486-0382
Fax: _____

I am requesting an Iowa Criminal History Record Check on:

Last Name (mandatory)	First Name (mandatory)	Middle Name (recommended)
Larson	Randi	Kay
Date of Birth (mandatory)	Gender (mandatory)	Social Security Number (recommended)
Nov. 3, 1986	<input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	[REDACTED]

Waiver Information: Without a signed waiver from the subject of the request, a complete criminal history record may not be releasable, per Code of Iowa, Chapter 692.2. For complete criminal history record information, as allowed by law, always obtain a waiver signature from the subject of the request.

Waiver Release: I hereby give permission for the above requesting official to conduct an Iowa criminal history record check with the Division of Criminal Investigation (DCI). Any criminal history data concerning me that is maintained by the DCI may be released as allowed by law.

Waiver Signature: Randi Larson

Iowa Criminal History Record Check Results

As of 2-4-14, a search of the provided name and date of birth revealed:

- No Iowa Criminal History Record found with DCI
- Iowa Criminal History Record attached, DCI # 775864

DCI initials DW HP

(DCI use only)

STATE OF IOWA
D.P.S.
14 JAN 31 PM 4:21
DIV. OF CRIMINAL
INVESTIGATION

IOWA CRIMINAL HISTORY
MISDEMEANOR CONVICTIONS ONLY

DCI 00775864
PAGE 1 OF 2
DATE PRINTED-
2014/02/04

DCI:00775864

NAME: LARSON, RANDI KAY

DOB	SEX	RAC	HGT	WGT	EYE	HAIR	SKN	POB
19861103	F	W	507	172	BLU	BRO	FAR	IA

ADDITIONAL IDENTIFIERS PHOTO AVAILABLE: Y
CCH RECORD ***

01 ARRESTED 20060510

AGENCY: IA0070300 WATERLOO PD
CHARGE NO- 01 IA STATUTE IA708.2A(2)(B)
DOMESTIC ASSAULT
TRK#: 602356001
CHARGE NO- 02 IA STATUTE IA123.46
PUBLIC INTOXICATION
TRK#: 602356002

COURT DISPOSITION

AGENCY: IA007015J BLACK HAWK CO DIST COURT
COUNT NO- 01 IA STATUTE IA708.2(6)
ASSAULT
COURT CASE ID: 01071 SRCR139498
CHARGE CLASS: MISDEMEANOR CONVICTION
TRK#: 602356001

SENTENCE		DISP EFF DAT
FINE	\$50	20060707

COURT DISPOSITION

AGENCY: IA007015J BLACK HAWK CO DIST COURT
COUNT NO- 01 IA STATUTE IA123.46
CONSUMPTION / INTOXICATION - 1978
COURT CASE ID: 01071 SMCR139499
CHARGE CLASS: MISDEMEANOR CONVICTION
TRK#: 602356002

SENTENCE		DISP EFF DAT
FINE	\$100	20060707

02 ARRESTED 20060519

AGENCY: IA0070300 WATERLOO PD
CHARGE NO- 01 IA STATUTE IA123.46
PUBLIC INTOXICATION
TRK#: 602370001

COURT DISPOSITION

AGENCY: IA007015J BLACK HAWK CO DIST COURT
COUNT NO- 01 IA STATUTE IA123.46
CONSUMPTION / INTOXICATION - 1978
COURT CASE ID: 01071 SMCR139700
CHARGE CLASS: MISDEMEANOR CONVICTION
TRK#: 602370001

SENTENCE		DISP EFF DAT
FINE	\$100	20060530

03 ARRESTED 20091107

AGENCY: IA0070300 WATERLOO PD
CHARGE NO- 01 IA STATUTE IA708.2A(3)(B)
DOMESTIC ABUSE ASSAULT - 2ND OFFENSE
TRK#: 6A00C1Q01

COURT DISPOSITION

AGENCY: IA007015J BLACK HAWK CO DIST COURT
COUNT NO- 01 IA STATUTE IA708.2A(3)(B)
DOMESTIC ABUSE ASSAULT - 2ND OFFENSE
COURT CASE ID: 01071 AGCR165327
CHARGE CLASS: NON CONVICTION
TRK#: 6A00C1Q01
RESTITUTION

SENTENCE		DISP EFF	DAT	APPEAL	DATE
DEFERRED JUDGEMENT		20100322			
FINE	\$315	20100322			
	CIVIL PENALTY				
UNSUPERVISED	1Y	20100322		20110222	
PROBATION					
DISCHARGED FROM		20111220			
DEFERRED JUDGEMENT					

AN ARREST WITHOUT DISPOSITION IS NOT AN INDICATION OF GUILT. THIS RECORD MAINTAINED BY THE IOWA DIVISION OF CRIMINAL INVESTIGATION, BUREAU OF IDENTIFICATION IS A PUBLIC RECORD BUT CAN ONLY BE RELEASED TO NON-LAW ENFORCEMENT AGENCIES BY THE DCI.

IN THE ABSENCE OF FINGERPRINTS FOR POSITIVE IDENTIFICATION THIS RECORD IS BASED ON INFORMATION FURNISHED. WE CANNOT CONFIRM OR DENY THAT THE RECORD COVERS THE SUBJECT OF YOUR INQUIRY.
DIVISION OF CRIMINAL INVESTIGATION

dw
hb

CLERK OF IOWA DISTRICT COURT FOR BLACK HAWK COUNTY

CLERK'S CERTIFICATE

IN THE IOWA DISTRICT COURT, BLACK HAWK COUNTY, ss.

I hereby certify that the foregoing is a full, true and correct copy of:

EXPUNGED

CASE NUMBER: 01071 AGCR165327

COMPLAINT;
DEFERRED JUDGMENT & SENTENCE
MOTION TO EXPUNGE RECORD & ORDER GRANTING EXPUNGEMENT

Date: 11/15/2013

/s/ DEBRA A. HUDSPETH

Clerk of Court/Designee
BLACK HAWK County



COMPLAINT

NL

STATE OF IOWA, COUNTY OF BLACK HAWK

2009 NOV -9 AM 8:20

BLACK HAWK COUNTY, IOWA

STATE OF IOWA
Vs

Before (Judge, Magistrate):
Criminal Case No :

Agc 165327
Waterloo Case #: 2009-120123

BHCSO #: _____

Larson, Randi Kay, DOB: 11/3/86, RACE: W, SEX: F, SSN: XXXXXXXXXX

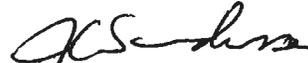
The Defendant is accused of the crime of **Domestic Abuse Assault Enhanced-(Aggravated)**, in that the defendant on or about 11/07/09, at or about 2140 hours in the City of Waterloo, in Black Hawk County, did Any act which is intended to cause pain or injury to. The defendant and victim have been together 4 years, living together and also have a child together. The defendant has a prior Domestic Abuse Assault Serious which enhances this domestic abuse Assault to an aggravated misdemeanor.

in violation of: 708.2A 3b Code of Iowa

STATE OF IOWA,
COUNTY OF BLACK HAWK, SS.

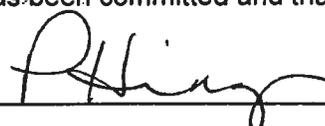
I, the undersigned, being first duly sworn and under oath, state that the following facts known by me or told to me by other reliable person form the basis for my belief that Larson, Randi Kay, the Defendant committed the crime charged:

On 11/07/09 at approximately 2140 hours, officers were dispatched to 157 Lovejoy Ave on a report from the victim that he woke up to his girlfriend hitting him. Dispatch also received a call from the neighbor stating that the downstairs subjects are physically fighting. Upon officers arrival we met with both the defendant and victim to get their sides of the story about the assault. The victim stated that his girlfriend went out with her sister to drink and came home and assaulted him while he was sleeping. The victim had a torn shirt, several scratches around his neck, he was bleeding from the left side of his lip and had scratches on both arms from the defendant. The defendant stated that she was just defending herself because her boyfriend rubbed her face into the carpet and hit her in the ribs. The defendant had no signs of any marks to her face or ribs but complained her ribs were hurting her really bad. The defendant was placed under arrest and transported to the Blackhawk County Jail. This assault domestic would have been classified as a serious but do to her prior assault DA this one was enhanced to an aggravated misdemeanor.


PO J.C. Saunders S3624

Subscribed and sworn to before me by the said, PO J. Saunders, on 11/7/09. Complaint and Affidavit filed and probable cause found that the offense has been committed and that Defendant committed it.





Court _____ Police _____ Prosecutor _____ Defendant _____

IN THE IOWA DISTRICT COURT IN AND FOR BLACK HAWK COUNTY

STATE OF IOWA,

Plaintiff,

vs.

Randi Kay Carson

DOB: 11-5-86

PIN # BL 1336015

Defendant.

Case No. SCR/A6CR165327

DEFERRED JUDGMENT AND SENTENCE

2010 MAR 22 PM 4:10
 CLERK OF DISTRICT COURT
 BLACK HAWK COUNTY, IOWA
 X2 FILED

APPEARANCES: B. Williams for the State.
A. Abbott for the Defendant.

On this date the defendant appeared in court [with] [by] his/her attorney for purposes of sentencing. The defendant ~~had~~ previously entered a [written] plea of guilty to the offense of Assault SA Causing Bodily Injury contrary to Section 706.2A(2)(a) of the Iowa Criminal Code. The Court finds that the plea was freely, voluntarily and intelligently made and that there was a factual basis for the plea.

Pursuant to said Section and 903.1 of the Iowa Criminal Code,

IT IS THE JUDGMENT AND SENTENCE OF THE COURT AS FOLLOWS:

1. That judgment in this case is deferred, and the defendant is placed on [] self [] supervised probation for a period of one years. If supervised, probation is subject to the terms of probation approved by the judges of the First Judicial District and any conditions set by the Department of Correctional Services.
2. That as special conditions of his/her probation, the defendant shall not engage in any further illegal activity, & complete BEP.
3. That the defendant shall:
 [] () pay a civil penalty of \$ 315.00 and () pay a law enforcement fee of \$125, in accordance with paragraph 4 below.
 [] complete _____ hours of community service by _____.

Distributed To:

Co Atty	_____
DCS/Res Fac	<u>✓</u> <u>✓</u>
PDO/Deft Atty	<u>A. Abbott</u>
Sheriff/Jail	<u>✓</u>
AUD/FIN/Victim	_____
DOT/Comm/BEP	_____
Defendant	_____
Date	_____

4. The defendant shall pay the costs of this prosecution in the amount of \$ 140.00 :
- immediately
- per DCS
- in installments of 100.00 per month
[beginning] [by] 4-22-2010.
5. The defendant shall pay any applicable victim restitution in accordance with paragraph 4.
6. If defendant was represented by court-appointed counsel, the defendant must pay restitution for attorney fees pursuant to Section 815.9 for any costs incurred, and judgment is ordered for the same.
7. That the defendant shall obtain a substance abuse evaluation, comply with any recommendations that result and file a substance abuse report by 7-1-2010.
8. That this matter shall be reviewed by the Court in approximately one year(s).
9. Reasons for sentence: Nature of offense
 Plea agreement Prior record Age
 Employment Family circumstances
10. Formal reporting waived by the parties.

Dated this 22nd day of March, 2010.


JOSEPH MOOTHART
DISTRICT ASSOCIATE JUDGE

Copies to: Counsel of Record
Defendant
 DCS
Supreme Court Administrator
Court Administrator

IN THE DISTRICT COURT OF THE STATE OF IOWA
IN AND FOR BLACK/HAWK COUNTY

2011 DEC 15 PM 12:00
CLERK OF DISTRICT COURT
BLACK HAWK COUNTY, IOWA

2011 DEC 20 PM 3:54
CLERK OF DISTRICT COURT
BLACK HAWK COUNTY, IOWA

FILED

STATE OF IOWA
Plaintiff

Case No. Agcr 16532

vs.

Randi Larson
Defendant

MOTION

I payed off my fine and would
like ~~my judgement debt~~ ~~it~~ expunged from
my record.

Randi Larson
Defendant's Signature

157 Love Joy Ave
Street Address

Waterloo IA 50701
City State Zip

11-03-86 319-493-9494
Date of Birth Phone Number

12/20/11
Granted. Clerk
is to expunge the
record.
Nate Call

CC: COUNTY ATTY COLLECTIONS

2011 DEC 30 1:28
CLERK OF DISTRICT COURT
BLACK HAWK COUNTY, IOWA
CAV
DSV
Destv

12-21-11

RECEIVED

OCT 15 2013

CERTIFICATION OF DENTAL ASSISTING EDUCATION

IOWA DENTAL BOARD

As part of the application process, the Iowa Dental Board requires that the school at which the applicant received her/his dental assisting education complete this form. The completed form must be mailed directly from the school to the IOWA DENTAL BOARD. Any processing fees are the applicant's responsibility. The applicant's signature authorizes release of information, favorable or otherwise, directly to the Board.

Print Name: Randi Kay Larson

Date of Birth or Last 4 of SSN: 11/03/86

Signature: Randi Larson

Date: 7/26/13

***** This portion of the form should be completed by the school. *****

IT IS HEREBY CERTIFIED THAT Randi K Larson
(Name of Applicant)

RECEIVED DENTAL ASSISTING EDUCATION AT Hawkeye Community College
(Name of School)

LOCATED AT 1501 E. Orange Rd, Waterloo, IA 50701
(Full Address of School)

FROM August 2011 TO July 2013
(Month/Year) (Month/Year)

GRANTED A DIPLOMA WITH THE DEGREE OF Dental Assisting

DATE DIPLOMA RECEIVED May 2013
(Month/Year)

Was the school accredited by the Commission on Dental Accreditation of the American Dental Association at the time the applicant graduated? Yes No

Did the student ever receive a warning, reprimand? Yes No

Was the student placed on probation or disciplined? Yes No

If yes, please provide details concerning the action taken.

President, Dean, Secretary, or Registrar:

Print Name Risa K. Wheeler

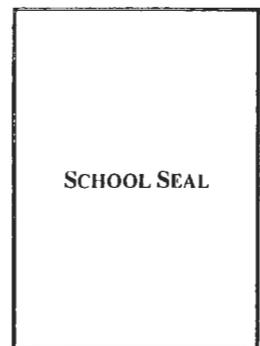
Title Clerk II

Signature Risa K. Wheeler

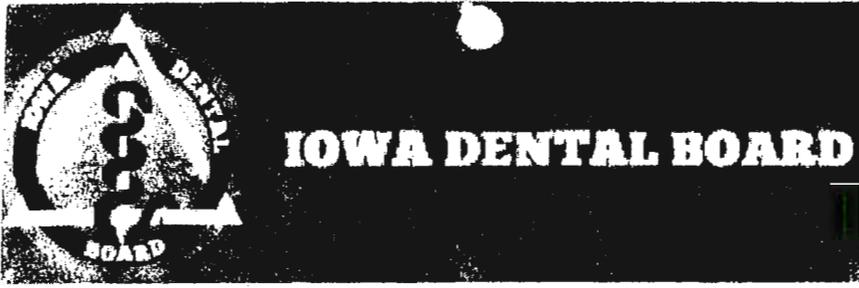
Date 10/11/13

Phone # 319-296-2460

Fax # 319-296-1609



Return completed form to:
IOWA DENTAL BOARD
400 S.W. 8th St, Suite D
Des Moines, IA 50309-4687
Phone (515) 281-5157



License Detail Report

First Name: Isamar

Last Name: Sanchez

March 12, 2014 10:55 am

Balance

Out of State License Information

State/Country	Active	License No.	Date Issued	License Type	How Obtained
---------------	--------	-------------	-------------	--------------	--------------

Question List and Details

Do you currently have a medical condition that in any way impairs or limits your ability to practice dental assisting with reasonable skill and safety?

Are you currently engaged in the illegal or improper use of drugs or other chemical substances?

Do you currently use alcohol, drugs, or other chemical substances that would in any way impair or limit your ability to practice dental assisting with reasonable skill and safety?

Are you receiving ongoing treatment or participating in a monitoring program that reduces or eliminates the limitations or impairments caused by either your medical conditions or use of alcohol, drugs, or other chemical substances?

Except for minor speeding or parking offenses, have you ever been arrested, charged, convicted, found guilty of, or entered a plea of guilty or no contest to a felony or misdemeanor crime or offense, including actions that resulted in a deferred or expunged judgment?

Yes

battery ticket in 2007 from a fight while in school, happened at moline high school in Moline, IL. I had court hearings and served community service.

Have you ever been terminated or requested to withdraw from any dental assisting school or training program?

No

Have you ever been requested to repeat a portion of any dental assisting training program/school?

No

Have you ever received a warning, reprimand, or been placed on probation during a dental assisting training program/school?

No

Have you ever been denied a registration / certificate to practice dental assisting?

No

Have you ever voluntarily surrendered a registration / certificate issued to you by any professional licensing agency?

No

Was a license / registration disciplinary action pending against you, or were you under investigation by a licensing agency at the time a voluntary surrender of license / registration was tendered?

No

Have any settlement agreements been rendered or any judgments entered against you resulting from your practice of dental assisting?

No

Are any charges or an investigation currently pending relative to your license / registration in any other state?

No

Has any jurisdiction of the United States or other nation ever limited, restricted, warned, censured, placed on probation, suspended, or revoked a license / registration you held?

No

Have you ever been notified of any charges filed against you by a licensing or disciplinary agency of any jurisdiction of the U.S. or other nation?

No

Attachments

Arjes, Janet [IDB]

From: Isamar Sanchez [isasanchez91@yahoo.com]
Sent: Thursday, March 13, 2014 10:36 AM
To: Arjes, Janet [IDB]
Subject: Re: Question

Yes, they both happened while I was at school. I wasn't very popular with the girls in my school and it ended up in an altercation. Both I and the other girls got charged with battery. I did community service for both charges.

Sent from my iPhone

On Mar 13, 2014, at 10:00 AM, "Arjes, Janet [IDB]" <Janet.Arjes@iowa.gov> wrote:

Isamar,

Can you give more details about your 2007 battery charge(s)? On the court document, it appears you were charged twice, once in March and once in May. Thanks.

Janet Arjes
Executive Officer
Iowa Dental Board
515-281-3248

visit us on the web <http://www.dentalboard.iowa.gov/>

Confidentiality Notice: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient(s), please contact the sender by reply e-mail and destroy all copies of the original message.

This email message and its attachments may contain confidential information that is exempt from disclosure under Iowa Code chapters 22.139A, and other applicable law. Confidential information is for the sole use of the intended recipient. If you believe that you have received this transmission in error, please reply to the sender, and then delete all copies of this message and any attachments. If you are not the intended recipient, you are hereby notified that any review, use, retention, dissemination, distribution, or copying of this message is strictly prohibited by law.



Iowa Division of Criminal Investigation



STATE OF IOWA CRIMINAL HISTORY RECORD CHECK

Date: 2014/3/12

Request ID: 20140312C3063246

SEARCH CRITERIA PROVIDED

Search First Name: Isamar

Search Last Name: Sanchez

Search Date of Birth: 1991/1/4

SEARCH RESULT

No DCI criminal history record found based on information provided.

Your session will end after 15 minutes of inactivity.

[Home](#) [Search Again](#)

Version 1.0.2.7

AFFIDAVIT OF EMPLOYMENT

The dental assistant's supervising dentist should complete this form.

Applicants for dental assistant registration who are not graduates of a ADA-accredited postsecondary dental assisting program must either (1) work in a dental office for a minimum of six months as a dental assistant trainee, within 12 months of the first date of employment, or (2) have had at least six months of prior dental assisting experience under the supervision of a licensed dentist within the past two years. To verify that the dental assistant meets one of these requirements, the supervising dentist must complete and sign the following form.

I hereby certify that the applicant, Jeanmar Sanchez, has successfully completed didactic and clinical training and has worked as a dental assistant under my supervision on the following dates at the following locations:

Date:

Location:

3/11/13 - present

LeClaire Family Dentistry
126 S Cody Rd

LeClaire, IA 52753

YES NO I further certify that the applicant has received Board-approved clinical training in dental radiography within the last two (2) years and has exhibited clinical proficiency in the area of dental radiography.

Anna Zak Stecher

Printed Name of Dentist

8678

License #



Dentist's Signature

3/12/14

Date

Return completed form to:
IOWA DENTAL BOARD
400 S.W. 8th St, Suite D
Des Moines, IA 50309-4687
Phone (515) 281-5157



License Detail Report

First Name: Madeline

Last Name: Kennedy

September 14, 2013 10:27 am

Balance

Question List and Details

Do you currently have a medical condition that in any way impairs or limits your ability to practice dental assisting with reasonable skill and safety?

Are you currently engaged in the illegal or improper use of drugs or other chemical substances?

Do you currently use alcohol, drugs, or other chemical substances that would in any way impair or limit your ability to practice dental assisting with reasonable skill and safety?

Are you receiving ongoing treatment or participating in a monitoring program that reduces or eliminates the limitations or impairments caused by either your medical conditions or use of alcohol, drugs, or other chemical substances?

Except for minor speeding or parking offenses, have you ever been arrested, charged, convicted, found guilty of, or entered a plea of guilty or no contest to a felony or misdemeanor crime or offense, including actions that resulted in a deferred or expunged judgment?

Have you ever been terminated or requested to withdraw from any dental assisting school or training program? No

Have you ever been requested to repeat a portion of any dental assisting training program/school? No

Have you ever received a warning, reprimand, or been placed on probation during a dental assisting training program/school? No

Have you ever been denied a registration / certificate to practice dental assisting? No

Have you ever voluntarily surrendered a registration / certificate issued to you by any professional licensing agency? No

Was a license / registration disciplinary action pending against you, or were you under investigation by a licensing agency at the time a voluntary surrender of license / registration was tendered? No

Have any settlement agreements been rendered or any judgments entered against you resulting from your practice of dental assisting? No

Are any charges or an investigation currently pending relative to your license / registration in any other state? No

Has any jurisdiction of the United States or other nation ever limited, restricted, warned, censured, placed on probation, suspended, or revoked a license / registration you held? No

Have you ever been notified of any charges filed against you by a licensing or disciplinary agency of any jurisdiction of the U.S. or other nation? No

Charged with Fraudulent use of a credit card when I was 18. It was my parents credit card. The conviction was expunged from my record in September of 2012.

Attachments

SCN_0004.pdf

Jurisprudence results

SCN_0006.pdf

Expunged Conviction

SCN_0006.pdf

Expunged Conviction

IOWA CRIMINAL HISTORY
NON CONVICTION

DCI 00945200
PAGE 1 OF 1
DATE PRINTED-
2014/02/10

DCI:00945200

NAME: KENNEDY,MADELINE NICHOLE

DOB SEX RAC HGT WGT EYE HAIR SKN POB
19930620 F W 507 130 BLU BLN FAR IA

ADDITIONAL IDENTIFIERS PHOTO AVAILABLE: Y
CCH RECORD ***

01 ARRESTED 20111208
AGENCY: IA0570100 CEDAR RAPIDS PD
CHARGE NO- 01 IA STATUTE IA715A.6(2)-B
UNAUTH. USE OF CREDIT CARD UND \$10,000
TRK#: 5A00FEE01

COURT DISPOSITION

AGENCY: IA057015J LINN CO DIST COURT
COUNT NO- 01 IA STATUTE IA715A.6(2)-C
UNAUTH. USE OF CREDIT CARD < \$1,000
COURT CASE ID: 06571 AGCR096593
CHARGE CLASS: NON CONVICTION
TRK#: 5A00FEE01

SENTENCE		DISP EFF DAT
DEFERRED JUDGEMENT		20120301
PROBATION	1Y	20120301
COMMUNITY SERVICE	IN LIEU OF CP,FEES,CC	20120301
DISCHARGED FROM	EXPUNGED 09/24/2012	20120924
DEFERRED JUDGEMENT		

AN ARREST WITHOUT DISPOSITION IS NOT AN INDICATION OF GUILT. THIS RECORD MAINTAINED BY THE IOWA DIVISION OF CRIMINAL INVESTIGATION, BUREAU OF IDENTIFICATION IS A PUBLIC RECORD BUT CAN ONLY BE RELEASED TO NON-LAW ENFORCEMENT AGENCIES BY THE DCI. IN THE ABSENCE OF FINGERPRINTS FOR POSITIVE IDENTIFICATION THIS RECORD IS BASED ON INFORMATION FURNISHED. WE CANNOT CONFIRM OR DENY THAT THE RECORD COVERS THE SUBJECT OF YOUR INQUIRY. DIVISION OF CRIMINAL INVESTIGATION

FILED
CLERK OF DISTRICT COURT
IN THE IOWA DISTRICT COURT AND FOR LINN COUNTY
2012 SEP 21 PM 1:10
LINN COUNTY, IOWA

The State of Iowa,

Plaintiff,

vs.

Madeline Nichole Kennedy,

Defendant.

NO. AGCR096593

ORDER FOR DISCHARGE
FROM SELF SUPERVISED PROBATION

UPON THE RECOMMENDATION OF THE SIXTH JUDICIAL DISTRICT DEPARTMENT OF CORRECTIONAL SERVICES, the Court hereby discharges the defendant from probation and the defendant shall no longer be held to answer for this crime.

THE COURT ORDERS THE FILE EXPUNGED.

The State has had an opportunity to review and file a resistance to this action.
Clerk to notify counsel and the Sixth Judicial District Department of Correctional Services.

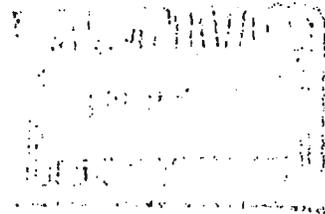
Dated this 21 day of Sept, 2012.



Judge, Sixth Judicial District

Defendant's Address: 4042 Soutter Avenue SE, Cedar Rapids IA 52403

cc: County Attorney
Defense Counsel
DCS: Tomlinson (9/20/12) 9-21-12
Defendant
Client ID 6219483



9-24-12
BY MT TO: COUNTY ATTORNEY
DCS: LCR
MT

FILED
CLERK OF DISTRICT COURT
IN THE IOWA DISTRICT COURT AND FOR LINN COUNTY
2012 SEP 21 11:13 AM
LINN COUNTY, IOWA

The State of Iowa,

Plaintiff,

vs.

Madeline Nichole Kennedy,

Defendant.

NO. AGCR096593

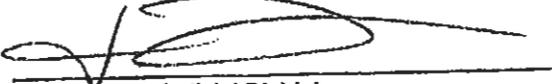
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FROM SELF SUPERVISED PROBATION

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Clerk to notify counsel and the Sixth Judicial District Department of Correctional Services.

Dated this 21 day of Sept, 2012.

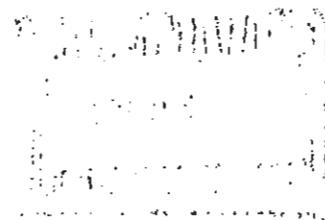


Judge, Sixth Judicial District

Defendant's Address: 4042 Souther Avenue SE, Cedar Rapids IA 52403

cc: County Attorney
Defense Counsel
DCS: Tomlinson (9/20/12) 9-21-12
Defendant
Client ID 6219483

9-24-12
BY Mt TO: COUNTY ATTORNEY
Clerk MT





**STATE OF IOWA
 Criminal History Record Check
 Request Form**



To: Iowa Division of Criminal Investigation
 Support Operations Bureau, 1st Floor
 215 E. 7th Street
 Des Moines, Iowa 50319
 (515) 725-6066
 (515) 725-6080 Fax

DCI Account Number: _____
 (if applicable)

From: Madeline Kennedy
600 ~~300~~ Ashton Place NE
Apt 308, Cedar Rapids,
Iowa 52401

Phone: 319-929-3849
 Fax: 319-363-0223
281-7969

I am requesting an Iowa Criminal History Record Check on:

Last Name (mandatory)	First Name (mandatory)	Middle Name (recommended)
Kennedy	Madeline	Nichole
Date of Birth (mandatory)	Gender (mandatory)	Social Security Number (recommended)
06/20/1993	<input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	[REDACTED]
<p>Waiver Information: Without a signed waiver from the subject of the request, complete criminal history record may not be releasable, per Code of Iowa, Chapter 692.2. For complete criminal history record information, as allowed by law, always obtain a waiver signature from the subject of the request.</p>		
<p>Waiver Release: I hereby give permission for the above requesting official to conduct an Iowa criminal history record check with the Division of Criminal Investigation (DCI). Any criminal history data concerning me that is maintained by the DCI may be released as allowed by law.</p>		
<p>Waiver Signature: <u>Madeline Kennedy</u></p>		

<p>Iowa Criminal History Record Check Results</p> <p>As of <u>2/10/14</u>, a search of the provided name and date of birth revealed:</p> <p><input type="checkbox"/> No Iowa Criminal History Record found with DCI</p> <p><input checked="" type="checkbox"/> Iowa Criminal History Record attached, DCI # <u>945 200</u></p> <p>DCI initials <u>AK</u></p>	<p>(DCI use only)</p> <p>STATE OF IOWA D.P.S. DIV. OF CRIMINAL INVESTIGATION 4 FEB -5 PM 4:21</p>
---	---

please FAX results to
 The Iowa Dental Board

RECEIVED

JAN 16 2014

CERTIFICATION OF DENTAL ASSISTING EDUCATION IOWA DENTAL BOARD

As part of the application process, the Iowa Dental Board requires that the school at which the applicant received her/his dental assisting education complete this form. The completed form must be mailed directly from the school to the IOWA DENTAL BOARD. Any processing fees are the applicant's responsibility. The applicant's signature authorizes release of information, favorable or otherwise, directly to the Board.

Print Name: madeline Nichole Kennedy Date of Birth or Last 4 of SSN: [redacted]

Signature: [handwritten signature] Date: 10/25/13

***** This portion of the form should be completed by the school. *****

IT IS HEREBY CERTIFIED THAT madeline Nichole Kennedy (Name of Applicant)

RECEIVED DENTAL ASSISTING EDUCATION AT Kirkwood Community College (Name of School)

LOCATED AT 6301 Kirkwood Blvd SW Cedar Rapids, Iowa 52409 (Full Address of School)

FROM January 22, 2013 TO December 12, 2013 (Month/Year)

GRANTED A DIPLOMA WITH THE DEGREE OF Dental Assisting

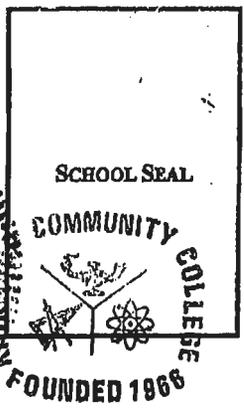
DATE DIPLOMA RECEIVED 12-16-13 (Month/Year)

- Was the school accredited by the Commission on Dental Accreditation of the American Dental Association at the time the applicant graduated? Yes [checked] No []
Did the student ever receive a warning, reprimand? Yes [] No [checked]
Was the student placed on probation or disciplined? Yes [] No [checked]

If yes, please provide details concerning the action taken.

President, Dean, Secretary, or Registrar: Print Name: Dana Rauch Signature: Registrar Phone #: 319-398-7600

Title: Registrar Date: 11-6-13 Fax #: 319-398-7928



Return Completed Form to: IOWA DENTAL BOARD 400 S.W. 8th St, Suite D Des Moines, IA 50309-4687 Phone (515) 281-5157