Illinois EMS for Children
Pediatric Moderate Sedation in the Emergency Department, 2007
Summary Report

Abstract

In May 2007, Illinois EMS for Children conducted a statewide survey regarding pediatric moderate sedation in the Emergency Department. Included in the survey were two case scenarios that described patients undergoing sedation and asked questions related to these cases (Case 1 involved a diagnostic procedure; Case 2 involved a therapeutic procedure).

Responses were obtained from 77 hospitals (64% response rate). Areas of particular concern included the following:

- **Meperidine Use** – Meperidine (which is not recommended for use in pediatric patients due to heightened risk of seizure activity) continues to be a drug of choice in higher than expected numbers (Case 1 - 11%, Case 2 - 10%).
- **Chloral Hydrate Use** – A substantial number of respondents reported using Chloral Hydrate (Case 1 - 31%, Case 2 - 12%) even when presented with choices of more preferable sedating medications (with more rapid onset/offset times).
- **Patient Monitoring** – The person responsible for monitoring the sedated patient was allowed to perform or assist in the procedure more often than expected (Case 1 - 28%, Case 2 - 29%).

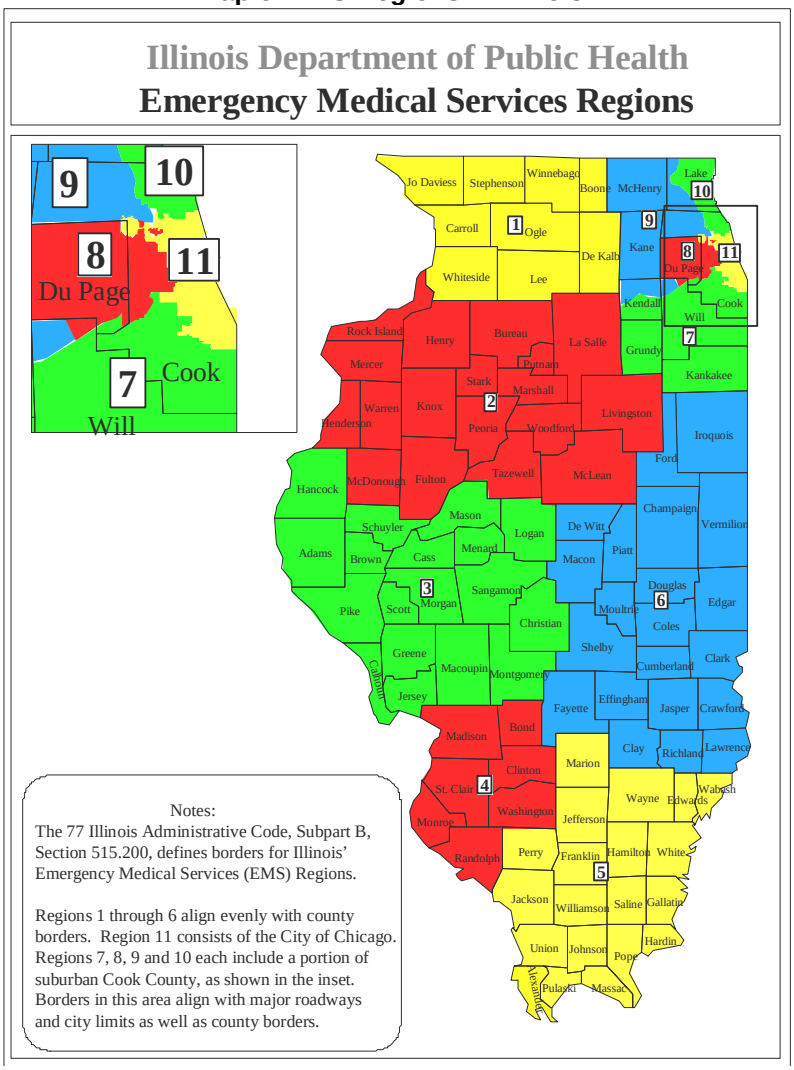
This report summarizes results from the survey. Following the report an appendix presents a line listing of all questions and overall responses (beginning on page 9).

I. Survey Results

In 2007, 121 emergency departments (EDs) actively participated in the Illinois EMSC regional CQI program. Of these, 109 are recognized as PCCC, EDAP or SEDP facilities. The 121 EDs were surveyed regarding pediatric moderate sedation using a Web-based application. The survey consisted of two distinct sections. The first section was a general survey of hospital policy and procedure related to moderate sedation; all participants were instructed to complete this section. The second section included two case scenarios with follow-up questions related to how the individual hospital would respond in each scenario. There was an "opt out" option for hospitals that did not routinely perform pediatric moderate sedation in their Emergency Department. As a result, there were more overall responses to the general survey than to the case scenario section. The survey form is available online at http://www.luhs.org/depts/emsc/ModSedSurveyForm.pdf.

Of the 121 facilities, 77 (64%) participated in the survey. After data submission, participants were provided with Web-based reports that allowed comparison of their results to their region, to similar sized facilities, and to the rest of the state. For this summary, responses were aggregated for facilities in the Chicago and suburban areas (regions 7 through 11 – please see map below) and compared with those for the rest of the state (regions 1 through 6).

Map of EMS Regions in Illinois



Separately, responses were aggregated for "larger" facilities (greater than 6,000 pediatric ED visits per year) and compared with "smaller" facilities (6,000 or less visits). Statistically significant differences found in these comparisons are noted in this summary.

Highlights from the general survey questions are presented below. 77 facilities responded to at least some of the general survey questions.

Services/Areas Performing Moderate Sedation

- 99% of responding facilities reported that they perform pediatric sedation in the ED. In addition, other common locations for sedation included Radiology/MRI/CT (45%), the Pediatric Unit (31%), and the GI lab (25%).
- 58% reported no age restrictions for ED moderate sedation. For those reporting age restrictions, the most common were for neonates less than one month old (27%) and infants (24%).

Policies/Clinical Guidelines

- 99% of facilities have policies/clinical guidelines for moderate sedation. Of these, 66% of the policies/guidelines specifically address pediatrics and 82% include NPO status guidelines. Only 56% of facilities reported that they updated/reviewed these policies/guidelines in the past 12 months.
- 71% of facilities require an IV to be started on all pediatric patients undergoing moderate sedation. Hospitals located in Regions 1-6 are slightly more likely to require an IV than hospitals located in Regions 7-11 (79% vs 63%).

Credentialing

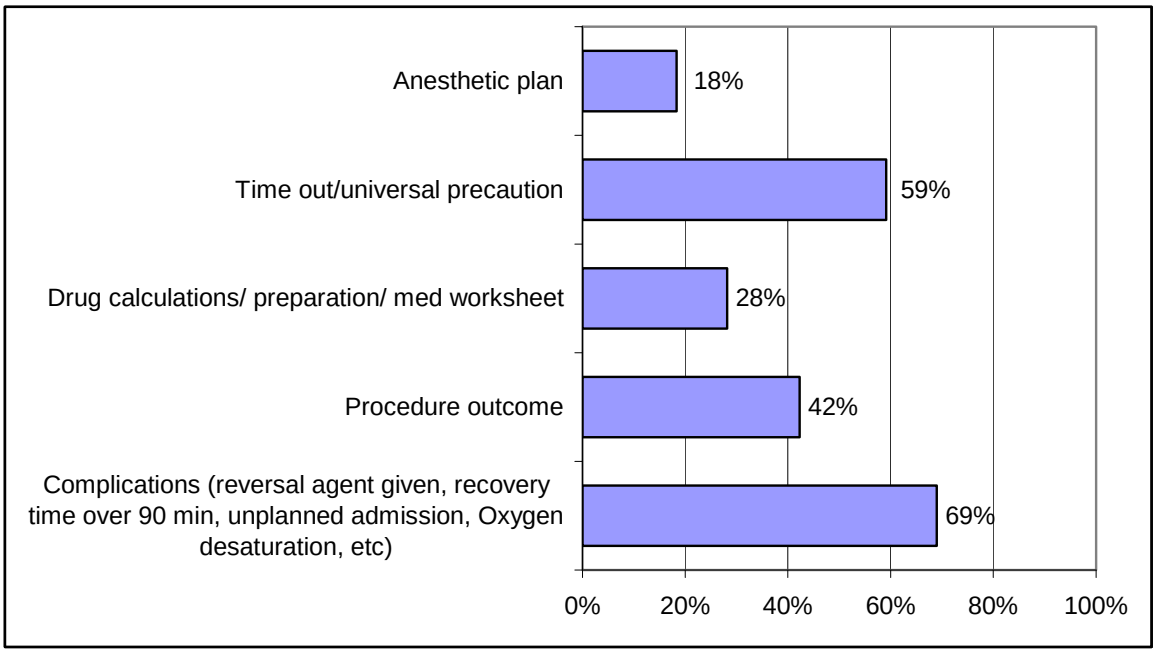
- 86% of facilities require physicians to undergo a credentialing process before being allowed to administer/perform sedation.
- For physician credentialing, 50% of facilities require PALS/APLS/NRP training. The percentage is higher in Regions 1-6 than in Regions 7-11 (55% vs 44%).
- Also for physician credentialing, 39% require one of the following: practical competency test, self-assessment, self-study, or written competency test. As with the PALS/APLS/NRP training, a higher percentage was found in Regions 1-6 than in Regions 7-11 (42% vs 35%).
- For other medical staff (non-physicians), 75% of facilities require a sedation competency course/process before being allowed to assist with sedation.

Quality Improvement

- Although required by Joint Commission, only 83% of facilities reported that they conduct sedation-related chart reviews for Quality Improvement (QI) purposes.

- The quality improvement indicators shown in Figure 1 below are associated with patient safety. Inclusion of these indicators in the chart review process was lower than expected.

Figure 1. Patient Safety Indicators Included in Chart Reviews



- Information obtained from QI indicators is used most frequently in reviews at hospital-wide QI meetings (51%), ED QI meetings (46%), and staff meetings (41%). The information is also used to implement staff education (49%).

II. Case Scenario Results

The first case scenario consisted of the following:

Case Description for Case 1:

A 3-year-old male is brought in by his mother after he fell playing in the park about 2 hours ago. He has a 2cm hematoma on the right side of his head.
The mother states he was unresponsive for about 5 minutes and threw up 3 times initially, but has not thrown up in the last 90 minutes or during the car ride to the ED.
There are no focal findings. He will require moderate sedation for a CT of the brain.
The child is very anxious and the mother states he will not hold still during the head CT.
Sedation is discussed with the mother and she agrees to this.
His vital signs are: Temp: 37.3/99.1 HR: 114 RR: 22 BP: 98/62 O2 saturation: 99% on RA
There are no other injuries or contraindications to sedation.

The second case scenario consisted of the following:

Case Description for Case 2:

A six-year-old female has suffered a severely angulated wrist fracture in a fall. The child is very agitated and cries when any stranger comes near her.
The orthopedist will perform a fracture reduction, and the child will need moderate sedation to undergo the procedure.
Her vital signs are: Temp: 36.4/97.5 HR: 110 RR: 28 BP: 108/70 O2 saturation: 99% on RA
There are no other injuries or contraindications to sedation.

Both of these cases required moderate sedation. By design, Case 1 represented a diagnostic intervention (non-painful) while Case 2 represented a child in need of a therapeutic intervention (painful). In total, 56 facilities responded to questions about Case 1 and 52 responded to questions about Case 2.

Assessment

- On assessment, high usage was found for Aldrete scoring (Case 1 - 63%, Case 2 - 67%) and pain scoring (Case 1 - 82%, Case 2 - 92%).
- Considering the Joint Commission's Patient Care Sedation Standards, a lower use than expected was found for an anesthetic plan (Case 1 - 52%, Case 2 - 60%).
- Considering the current emphasis on patient safety, lower uses than expected were found for equipment checklist (Case 1 - 71%, Case 2 - 77%), history of anesthesia (Case 1 - 80%, Case 2 - 81%), physician credential check (Case 1 - 30%, Case 2 - 35%), and timeout/universal precautions (Case 1 - 75%, Case 2 - 90%).

NPO Status

- Results for Case 1 were consistent with the American Society of Anesthesiologists' NPO status guidelines. Following this patient's drinking apple juice, 65% of facilities would wait at least 2 hours before performing sedation. Following the patient's

eating a full lunch, 53% of facilities would wait at least 6 hours. (Note: Survey respondents may have interpreted the case as more emergent than intended and superseded ASA guidelines.)

Equipment and Supplies

- For Case 1, 84% of facilities would perform sedation in the ED and then transport to Radiology, 11% would sedate in Radiology, and 5% would sedate in the ED using a portable CT.
- High availability was found for pulse oximeter (Case 1 - 100%, Case 2 - 100%), BP monitor (Case 1 - 96%, Case 2 - 100%), IV access and/or IV equipment (Case 1 - 91%, Case 2 - 98%), oxygen (Case 1 - 98%, Case 2 - 100%), and bag-valve mask (Case 1 - 89%, Case 2 - 90%).
- Low availability was found for end-tidal CO_2 monitor/detector (Case 1 - 30%, Case 2 - 37%), and age/size-appropriate ETT (Case 1 - 54%, Case 2 - 65%).

Medications

- As seen in Table 1 below, the distribution of medications was similar between the two case scenarios, with the exception of Morphine which was more typically used in Case 2 in which the patient experienced greater pain (Case 1 - 28%, Case 2 - 62%).

Table 1. Medications Typically Used for Moderate Sedation

Medication	Case 1	Case 2
Ativan (Lorazepam)	24%	27%
Brevital (Methohexital)	4%	8%
Chloral Hydrate	31%	12%
Clonidine	0%	0%
Demerol (Meperidine)	11%	10%
Diprivan (Propofol)	11%	13%
Droperidol	0%	0%
Etomidate	13%	19%
Fentanyl	28%	37%
Haldol	2%	0%
Ketamine	41%	52%
Morphine	28%	62%
Nembutal (Pentobarbital)	6%	4%
Nitrous Oxide	2%	2%
Phenergan (Promethazine)	7%	8%
Precedex (Dexmedetomidine)	0%	0%
Thorazine (Chlorpromazine)	2%	4%
Valium (Diazepam)	9%	12%
Versed (Midazolam)	80%	88%
Other	7%	8%

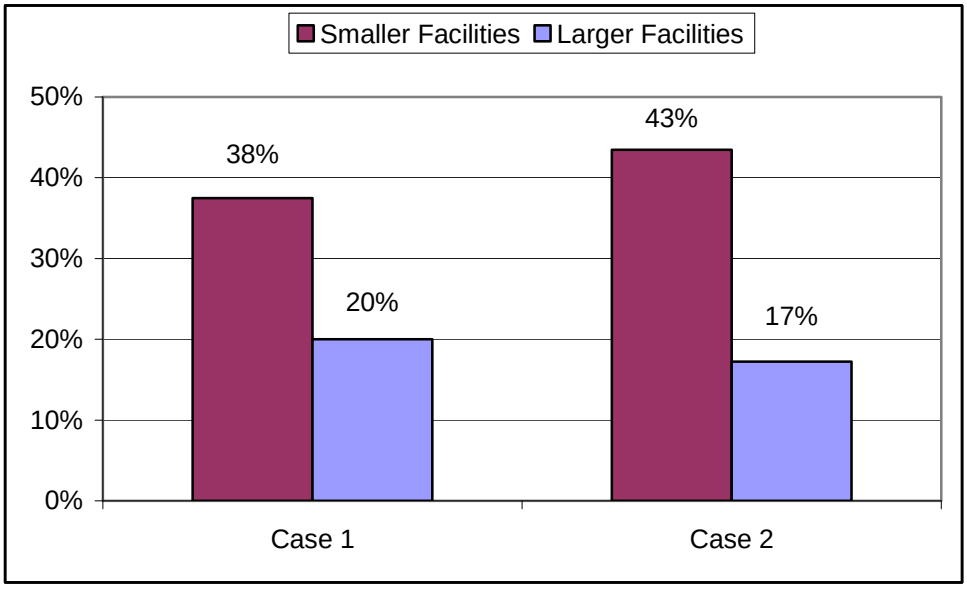
- Other than Morphine, the highest medication usage was found for Versed (Case 1 - 80%, Case 2 - 88%) and Ketamine (Case 1 - 41%, Case 2 - 52%).

- **Although other medications are preferred, usage was found for Chloral Hydrate (Case 1 - 31%, Case 2 - 12%) and Etomidate (Case 1 - 13%, Case 2 - 19%).** Facilities in Regions 7-11 used Chloral Hydrate significantly more than facilities in Regions 1-6 at 46% vs 18% in Case 1 ($p < 0.05$) and 19% vs 4% in Case 2.
- **Meperidine (which is not recommended for use in pediatric patients) continues to be a drug of choice in higher than expected numbers (Case 1 - 11%, Case 2 - 10%).** Smaller facilities used this medication significantly more than larger facilities at 21% vs 3% in Case 1 ($p < 0.05$) and 17% vs 3% in Case 2.

Monitoring and Assessment During the Procedure

- On an extremely positive note, overall assessment of ABC's was very high, including heart rate (Case 1 - 100%, Case 2 - 98%), respiratory rate (Case 1 - 96%, Case 2 - 98%), oxygen saturation (Case 1 - 100%, Case 2 - 100%), blood pressure (Case 1 - 92%, Case 2 - 96%), and level of consciousness (Case 1 - 96%, Case 2 - 96%).
- Assessment was performed either continuously or every five minutes at most facilities (Case 1 - 93%, Case 2 - 96%).
- Check/re-check of head position was performed less frequently (Case 1 - 38%, Case 2 - 46%), and med dosage/route was monitored more often in Case 2 than in Case 1 (Case 1 - 74%, Case 2 - 92%)
- **The person responsible for monitoring the sedated patient was allowed to perform or assist in the procedure more than expected (Case 1 - 28%, Case 2 - 29%).** As shown in Figure 2 below, this occurred significantly more frequently at smaller facilities than at larger facilities at 38% vs 20% in Case 1 and 43% vs 17% in Case 2 ($p < 0.05$).

Figure 2. Person Responsible for Monitoring the Sedated Patient Is Allowed to Perform or Assist with the Procedure



Discharge Criteria

- Discharge criteria included the routinely recommended objective measures of patient's return to pre-sedation mental status (Case 1 - 98%, Case 2 - 98%), patient's return to pre-sedation activity level (Case 1 - 87%, Case 2 - 87%), stable vital signs (Case 1 - 96%, Case 2 - 94%), and oxygen saturation greater than 95% on room air or at patient's baseline (Case 1 - 89%, Case 2 - 88%).
- The use of physician discretion and a specified length of time are discouraged as discharge criteria. However, both criteria were selected by a substantial number of respondents (for physician discretion: Case 1 - 36%, Case 2 - 44%; specified length of time: Case 1 - 30%, Case 2 - 33%).

III. Conclusions

In this survey of pediatric moderate sedation, strong compliance was found with recommendations regarding equipment/supply availability, monitoring/assessment during the procedure, and discharge criteria.

On the other hand, initial assessment and QI indicators, particularly items associated with patient safety, were not found as frequently as expected. Further, sedation medications included the on-going use of Meperidine, especially at smaller facilities. Current literature indicates that Meperidine should not be administered to children as it has been demonstrated that it has an active metabolite, normeperidine, that has no analgesic properties, but can cause central nervous system excitability and lead to seizures (Bishop-Kurylo, D. Pediatric Pain Management in the Emergency Department. *Topics in Emergency Medicine.* 2002;24(1):19-30).

Other opportunities for improvement include encouraging an annual review of moderate sedation policies/guidelines, incorporating pediatric concerns into policies/guidelines, credentialing associated with formal courses or testing/assessment, availability of ETT, and limiting discharge criteria to objective, rather than subjective, measures.

Lastly, the survey also looked at whether the person responsible for constant monitoring/assessment of the sedated patient can perform or assist in the procedure. Although the AAP/AAPD *Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures: an update* (2006) does permit this person to assist with "interruptible patient-related tasks of short duration," the **main responsibility** is "to monitor appropriate physiologic parameters and to assist in any supportive or resuscitation measures if required." Results showed that more than one-fourth of all responding facilities reported that this person can assist in the procedure (more often at smaller facilities, and particularly during the more complex case scenario). The concern is that if this practice is not strictly limited, it has the potential to distract from the overarching need for constant patient monitoring/assessment during sedation.

Appendix 1. Totals for All Survey Questions (77 respondents)

(Note: Questions 1 through 3 asked for demographic data and are not reported here.)

For reference, 100%:		
4. Does your hospital have a moderate sedation policy/clinical guideline?	99%	
4.a. Does your hospital's moderate sedation policy/clinical guideline specifically address pediatrics?	66%	
4.b. Are NPO status guidelines included in your hospital's moderate sedation policy/clinical guideline?	82%	
4.c. How recently has your moderate sedation policy/clinical guideline been updated/reviewed?		
In the past 6 months	22%	
In the past 12 months	34%	
Has not been updated/reviewed in the past year	44%	
5. Does your hospital require an IV to be started on all pediatric patients undergoing moderate sedation?	71%	
6. Does your hospital require physicians to undergo a credentialing process before being allowed to administer/perform sedation?	86%	
6.a. What is included in your hospital's sedation credentialing process for physicians?		
Minimal # years of experience	6%	
Minimal # of supervised procedures	19%	
PALS/APLS/NRP training	50%	
Pharmacology course	10%	
Practical competency test	15%	
Recommendation by Anesthesia department	17%	
Self-assessment	11%	
Self-study	19%	
Written competency test	24%	
Other	28%	
None	0%	

Note: Numbers are the % of "Yes" responses

7. Does your hospital require other medical staff to undergo a sedation competency course/process before being allowed to assist with sedation?	75%	

8. Does your hospital have a formal pediatric sedation service/team?	7%	

9. Does your hospital conduct moderate sedation chart reviews for quality improvement (QI) purposes?	83%	

9.a. What indicators are included in chart reviews?		
a. Airway assessment/Mallampati Classification	52%	
b. Physical assessment	55%	
c. ASA Classification	54%	
d. Anesthetic plan	18%	
e. Immediate prior-to-sedation physical assessment	58%	
f. Time out/universal precaution	59%	
g. Site marking	39%	
h. Procedure	62%	
i. Consent signed	66%	
j. Equipment checklist	42%	
k. Drug calculations/preparation/ med worksheet	28%	
l. Monitoring during/post sedation at appropriate intervals	66%	
m. Vital signs	73%	
n. Pain score	54%	
o. Pre-op meds	45%	
p. Aldrete score	46%	
q. Modified Ramsey score	15%	
r. Dept/Unit procedure was performed	48%	
s. Staff names/role in procedure	54%	
t. Procedure outcome	42%	
u. Complications (reversal agent given, recovery time over 90 min, unplanned admission, Oxygen desaturation, etc)	69%	
v. Discharge instructions	56%	
w. Patient/parent education (explanation of procedure)	48%	
x. Patient/parent education (explanation of moderate sedation)	44%	
Other	11%	

Note: Numbers are the % of “Yes” responses

9.b. What is done with the indicator information?		
Implement staff education	49%	
Review at staff meetings	41%	
Review at ED QI meetings	46%	
Review at hospital-wide QI meetings	51%	
Nothing	3%	
I Don't Know	10%	
Other	7%	

10. Which of the following services/areas perform pediatric sedation?		
Burn unit	6%	
ED	99%	
EEG	6%	
GI lab	25%	
Outpatient center	21%	
PACU	17%	
Pediatric unit	31%	
PICU	24%	
Radiology/MRI/CT	45%	
Urology	0%	
None	0%	
Other	20%	

11. Does your ED perform moderate sedation to pediatric patients in the ED?	99%	

11.a. Does your ED restrict performing moderate sedation on any of the following age groups?		
Neonate (less than 1 month)	27%	
Infant	24%	
Toddler	18%	
Preschool	20%	
School age	15%	
Preadolescent	17%	
Adolescent	13%	
No age restrictions	58%	
Other	6%	

Note: Numbers are the % of "Yes" responses

IV. Totals for All Case Scenario 1 Questions (56 respondents)

Case Description

A 3-year-old male is brought in by his mother after he fell playing in the park about 2 hours ago. He has a 2cm hematoma on the right side of his head.
The mother states he was unresponsive for about 5 minutes and threw up 3 times initially, but has not thrown up in the last 90 minutes or during the car ride to the ED.
There are no focal findings. He will require moderate sedation for a CT of the brain.
The child is very anxious and the mother states he will not hold still during the head CT. Sedation is discussed with the mother and she agrees to this.
His vital signs are: Temp: 37.3/99.1 HR: 114 RR: 22 BP: 98/62 O2 saturation: 99% on RA
There are no other injuries or contraindications to sedation.

Case 1. Question 1. What would be included in the pre-sedation assessment of this patient?

Aldrete score	63%	
Allergies	96%	
Anesthetic plan	52%	
ASA classification	71%	
Body habitus	21%	
Drug calculations/preparation/ medication worksheet	57%	
Equipment checklist	71%	
History of anesthesia	80%	
History and Physical	88%	
Mallampati classification/Airway assessment	52%	
Modified Ramsey score	14%	
NPO Status	89%	
Pain Score	82%	
Physician credential check	30%	
Time out/universal precautions	75%	
Vital signs	93%	
Other	25%	
None	0%	

Note: Numbers are the % of “Yes” responses

Case 1. Question 2.a. Following the patient drinking apple juice, how long would you routinely wait before sedating this patient?

0 hours since consumption	24%
1 hour	11%
2 hours	38%
4 hours	24%
6 hours	4%
Nothing after midnight	0%

Case 1. Question 2.b. Following the patient having a full lunch, how long would you routinely wait before sedating this patient?

0 hours since consumption	15%
1 hour	4%
2 hours	13%
4 hours	15%
6 hours	51%
Nothing after midnight	2%

Case 1. Question 3. In this scenario, where would you routinely sedate this patient?

In the ED (using a portable CT)	5%
In the ED, then transport to Radiology	84%
In Radiology	11%
Other	0%

Note: Numbers are the % of “Yes” responses

Case 1. Question 3.a. Based on where this patient would be sedated, what monitoring equipment, supplies & medications would be required at the bedside (or taken with you during transport)?

Pulse oximeter	100%	
End-tidal CO2 monitor/detector	30%	
BP monitor	96%	
Thermometer	15%	
Defibrillator	69%	
IV equipment	78%	
IV access	81%	
Suction equipment	93%	
Oxygen	98%	
Stethoscope	85%	
ETT (correct patient size)	54%	
Bag - valve mask (correct size)	89%	
Nasal cannula	76%	
Naloxone (dose calculated)	74%	
Flumazenil (dose calculated)	63%	
Crash cart/respiratory box	78%	
Cardiac monitor	91%	
Other	9%	
None	0%	

Case 1. Question 4. In this scenario, is the person responsible for monitoring the sedated patient allowed to perform or assist with the procedure?

28% 

Note: Numbers are the % of “Yes” responses

Case 1. Question 5. Which of the following medication(s) would you typically use to moderately sedate this patient?

Ativan (Lorazepam)	24%	
Brevital (Methohexital)	4%	
Chloral Hydrate	31%	
Clonidine	0%	
Demerol (Meperidine)	11%	
Diprivan (Propofol)	11%	
Droperidol	0%	
Etomidate	13%	
Fentanyl	28%	
Haldol	2%	
Ketamine	41%	
Morphine	28%	
Nembutal (Pentobarbital)	6%	
Nitrous Oxide	2%	
Phenergan (Promethazine)	7%	
Precedex (Dexmedetomidine)	0%	
Thorazine (Chlorpromazine)	2%	
Valium (Diazepam)	9%	
Versed (Midazolam)	80%	
Other	7%	

Note: Numbers are the % of “Yes” responses

Case 1. Question 6. DURING the CT procedure, what monitoring/charting would be required?

Head position check/re-check	38%	
Heart rate	100%	
Respiratory rate	96%	
Oxygen saturation	100%	
Blood pressure	92%	
Temperature	23%	
Skin color	77%	
Capnography	17%	
Level of Consciousness (LOC)	96%	
Modified Ramsey score	17%	
Protective reflexes	25%	
Aldrete score	40%	
I and O	15%	
Pain score	49%	
Med dosage/route	74%	
Other	6%	
None	0%	

Case 1. Question 7. DURING the CT procedure, how often would patient assessment be performed?

Continuously	51%	
Every 5 minutes	42%	
Every 10 minutes	2%	
Every 15 minutes	4%	
Not standardized	0%	
Other - Per condition	2%	

Note: Numbers are the % of “Yes” responses

Case 1. Question 8. What discharge criteria would this patient need to meet before disposition?

Returned to pre-sedation mental status (e.g., able to talk if age appropriate)	98%	
Returned to pre-sedation activity level (e.g., awake, able to sit up unaided if age-appropriate)	87%	
After a specified length of stay	30%	
Able to take fluids	77%	
Stable vital signs	96%	
Oxygen saturation greater than 95% on room air or at patient's baseline	89%	
Cardiovascular function and airway patency are satisfactory and stable	74%	
Easily arousable	74%	
Pain adequately controlled	81%	
Physician discretion	36%	
After a specified length of stay when a reversal agent was given	55%	
Able to be discharged to responsible adult and/or second adult to monitor child on trip home	68%	
Patient/parent discharge instructions given	89%	
Patient is provided a 24-hour emergency telephone contact	60%	
Other	11%	
None	0%	

Note: Numbers are the % of "Yes" responses

V. Totals for All Case Scenario 2 Questions (52 respondents)

Case Description

A six-year-old female has suffered a severely angulated wrist fracture in a fall. The child is very agitated and cries when any stranger comes near her.
The orthopedist will perform a fracture reduction, and the child will need moderate sedation to undergo the procedure.
Her vital signs are: Temp: 36.4/97.5 HR: 110 RR: 28 BP: 108/70 O2 saturation: 99% on RA
There are no other injuries or contraindications to sedation.

Case 2. Question 1. What would be included in the pre-sedation assessment of this patient?

Aldrete score	67%	
Allergies	100%	
Anesthetic plan	60%	
ASA classification	71%	
Body habitus	35%	
Drug calculations/preparation/ medication worksheet	65%	
Equipment checklist	77%	
History of anesthesia	81%	
History and Physical	96%	
Mallampati classification/Airway assessment	56%	
Modified Ramsey score	21%	
NPO Status	100%	
Pain Score	92%	
Physician credential check	35%	
Time out/universal precautions	90%	
Vital signs	100%	
Other	19%	
None	0%	

Note: Numbers are the % of “Yes” responses

Case 2. Question 2. What monitoring equipment, supplies & medication would be required at the bedside for this patient?

Pulse oximeter	100%
End-tidal CO2 monitor/detector	37%
BP monitor	100%
Thermometer	27%
Defibrillator	71%
IV equipment	87%
IV access	88%
Suction equipment	94%
Oxygen	100%
Stethoscope	85%
ETT (correct patient size)	65%
Bag - valve mask (correct size)	90%
Nasal cannula	79%
Naloxone (dose calculated)	79%
Flumazenil (dose calculated)	65%
Crash cart/respiratory box	85%
Cardiac monitor	94%
Other	12%
None	0%

Case 2. Question 3. In this scenario, is the person responsible for monitoring the sedated patient allowed to perform or assist with the procedure? 29%

Note: Numbers are the % of “Yes” responses

Case 2. Question 4. Which of the following medication(s) would you typically use to moderately sedate this patient?

Ativan (Lorazepam)	27%	
Brevital (Methohexital)	8%	
Chloral Hydrate	12%	
Clonidine	0%	
Demerol (Meperidine)	10%	
Diprivan (Propofol)	13%	
Droperidol	0%	
Etomidate	19%	
Fentanyl	37%	
Haldol	0%	
Ketamine	52%	
Morphine	62%	
Nembutal (Pentobarbital)	4%	
Nitrous Oxide	2%	
Phenergan (Promethazine)	8%	
Precedex (Dexmedetomidine)	0%	
Thorazine (Chlorpromazine)	4%	
Valium (Diazepam)	12%	
Versed (Midazolam)	88%	
Other	8%	

Note: Numbers are the % of “Yes” responses

Case 2. Question 5. DURING the procedure, what monitoring/charting would be required?

Head position check/re-check	46%	
Heart rate	98%	
Respiratory rate	98%	
Oxygen saturation	100%	
Blood pressure	96%	
Temperature	29%	
Skin color	83%	
Capnography	13%	
Level of Consciousness (LOC)	96%	
Modified Ramsey score	25%	
Protective reflexes	46%	
Aldrete score	44%	
I and O	21%	
Pain score	71%	
Med dosage/route	92%	
Other	6%	
None	0%	

Case 2. Question 6. DURING the procedure, how often would patient assessment be performed?

Continuously	58%	
Every 5 minutes	38%	
Every 10 minutes	2%	
Every 15 minutes	0%	
Not standardized	0%	
Other - Per condition	2%	

Note: Numbers are the % of “Yes” responses

Case 2. Question 7. What discharge criteria would this patient need to meet before disposition?		
Returned to pre-sedation mental status (e.g., able to talk if age appropriate)	98%	
Returned to pre-sedation activity level (e.g., awake, able to sit up unaided if age-appropriate)	87%	
After a specified length of stay	33%	
Able to take fluids	77%	
Stable vital signs	94%	
Oxygen saturation greater than 95% on room air or at patient's baseline	88%	
Cardiovascular function and airway patency are satisfactory and stable	79%	
Easily arousable	79%	
Pain adequately controlled	83%	
Physician discretion	44%	
After a specified length of stay when a reversal agent was given	50%	
Able to be discharged to responsible adult and/or second adult to monitor child on trip home	71%	
Patient/parent discharge instructions given	96%	
Patient is provided a 24-hour emergency telephone contact	69%	
Other	6%	
None	0%	

Note: Numbers are the % of "Yes" responses