DENTAL BOARD OF CALIFORNIA

SUPPLEMENTAL REPORT TO CALIFORNIA STATE LEGISLATURE REGARDING FINDINGS RELEVANT TO INFORM DENTAL ANESTHESIA AND SEDATION STANDARDS

May 2022

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EXECUTIVE SUMMARY

The Dental Board of California (Board) submitted the Report to California State Legislature Regarding Findings Relevant to Inform Dental Anesthesia and Sedation Standards (Report) as required by Senate Bill (SB) 501 (Glazer, Chapter 929, Statutes of 2018) and Business and Professions Code (BPC) section 1601.4, subdivision (a)(2) on December 22, 2021.

The first half of the Report summarized the Board's statistical findings regarding adverse events reported to the Board after the administration of anesthesia and/or sedation before or during dental procedures. The adverse events reported to the Board were submitted by dental licensees, physicians and surgeons, anesthesiologists, and other various reporting sources from the period of January 1, 2017, to June 30, 2021.

The second half of the Report discussed relevant professional guidelines, recommendations, or best practices for the provision of dental anesthesia and sedation care and how they compare to California laws and regulations effective January 1, 2022.

The Report concluded that with the implementation of new minimal, moderate, and deep sedation and general anesthesia provisions enacted by SB 501 that became effective on January 1, 2022, California will have some of the highest patient monitoring standards for the administration of minimal, moderate, and deep sedation and general anesthesia to dental patients of all age groups and especially for children. California statutes continue to meet and generally exceed the guidelines of all the organizations that are involved in the administration of anesthesia to children in dental offices.

This Supplemental Report provides additional information and corrects information previously reported in the Report. The Board continues to collect information on adverse effects of anesthesia and sedation levels in dentistry, and the next Board report regarding pediatric deaths related to general anesthesia and deep sedation in dentistry will be submitted to the California State Legislature at the time of the Board's Sunset Review pursuant to the requirements of BPC section 1601.4, subdivision (b).

INTRODUCTION

In 2018, SB 501 (Glazer, Chapter 929, Statutes of 2018) amended BPC section 1601.4, subdivision (a), to require the Board to review available data on all adverse events related to general anesthesia and deep sedation, moderate sedation, and minimal sedation in dentistry and relevant professional guidelines, recommendations, or best practices for the provision of dental anesthesia and sedation care. SB 501, among other things, also required the Board, by January 1, 2022, to report to the California State Legislature any findings relevant to inform dental anesthesia and sedation standards.

The Board receives reports on adverse events related to general anesthesia and sedation in accordance with BPC section 1680, subdivision (z), which requires licensees to report the death of a patient during the performance of any dental or dental hygiene procedure, the discovery of a death of a patient whose death is related to dental or dental hygiene procedure performed by the licensee, or, except for a scheduled hospitalization, the removal to a hospital or emergency center for medical treatment of any patient to whom oral conscious sedation, conscious sedation, or general anesthesia was administered, or any patient as a result of dental or dental hygiene treatment. In addition, BPC section 1680, subdivision (z), requires the licensee to report a death or hospitalization when sedation and/or anesthesia is used for a dental procedure on a form approved by the Board and include all of the following information:

- the date of the procedure;
- the patient's age in years and months, weight, and sex;
- the patient's American Society of Anesthesiologists (ASA) physical status;
- the patient's primary diagnosis;
- the patient's coexisting diagnoses;
- the procedures performed;
- the sedation setting;
- the medications used;
- the monitoring equipment used;
- the category of the provider responsible for sedation oversight;
- the category of the provider delivering sedation;
- the category of the provider monitoring the patient during sedation;
- whether the person supervising the sedation performed one or more of the procedures;
- the planned airway management;
- the planned depth of sedation;
- the complications that occurred;
- a description of what was unexpected about the airway management;
- whether there was transportation of the patient during sedation;
- the category of the provider conducting resuscitation measures; and
- the resuscitation equipment utilized.

As required by Assembly Bill (AB) 2235 (Thurmond, Chapter 519, Statutes of 2016), the Board created a "Courtesy Form for Reporting of Anesthesia Death or Hospitalization" (Courtesy Form) and posted the Courtesy Form on the Board's website.

To fulfill the report requirement mandated by SB 501, the Board reviewed the death or hospitalization incident reports and prepared a draft Report for submission to the California State Legislature. The draft Report was provided to the public for discussion at the Board's November 18-19, 2021 meeting. On November 17, 2021, the Board received a letter from the American Association of Oral and Maxillofacial Surgeons (AAOMS) expressing concerns that the draft Report had omitted provider specificity data, intended patient sedation level data, and AAOMS anesthesia guidelines. During the November 18-29, 2021 Board meeting, it was determined that due to the last-minute nature of the concerns raised by AAOMS, Board staff would review the concerns and potentially submit a Supplemental Report to the Legislature.

At the February 11-12, 2022 Board meeting, the Board discussed whether to include the AAOMS Parameters of Care and the AAOMS Office Anesthesia Evaluation guidelines in a Supplemental Report. After careful discussion, the Board voted not to include the AAOMS Parameters of Care and the AAOMS Office Anesthesia Evaluation guidelines in the Supplemental Report as the inclusion of the guidelines in the Report would not alter the information or produce a significant difference to the information already submitted.

To address AAOMS's request for provider specificity data and intended level of sedation, Board staff performed a comprehensive review of the death and hospitalization incident reports submitted to the Board to compile data on provider type for potential inclusion in a Supplemental Report. At the February 10-11, 2022 Board meeting, Board staff advised the Board that due to significant staffing issues due to the emergence of the COVID-19 Omicron variant, the comprehensive review had been delayed. Board staff anticipated completing the comprehensive review and potentially submitting a Supplemental Report for the Board's review and discussion at its May 12-13, 2022 meeting.

While reviewing the incident reports submitted to the Board, Board staff found the incident reports contained incomplete information on provider categories, which are specified in Business and Professions Code section 1680, subdivision (z)(3). It appeared the individuals who completed and submitted the incident reports may not have understood the provider categories. To clarify the provider types for individuals submitting the death and hospitalization incident reports, Board staff updated the Courtesy Form and posted it to the Board website on January 19, 2022.

The original Report submitted to the Legislature on December 22, 2021, included data of 210 hospitalization and death incident reports received by the Board between January 1, 2017, and June 30, 2021. Of those 210 incident reports, 88 hospitalization reports and 23 death reports were related to anesthesia and/or sedation.

For this Supplemental Report, the reporting period was updated to include all incident reports submitted to the Board from January 1, 2017, through December 31, 2021. During the six-month

period from July 1, 2021, to December 31, 2021, the Board received 16 hospitalization reports that were possibly anesthesia and/or sedation related, and one death report that was possibly anesthesia and/or sedation related.

In addition, during the comprehensive review of the incident reports submitted to the Board, Board staff became aware that not all reported incidents were captured in the original Report due to data entry errors and changes in internal report processing. Board staff have since updated business processes and the BreEZe system to include new codes to identify hospitalization and deaths reported to the Board. This will allow staff to extract and verify data on a regular basis.

Following the comprehensive incident reports review, Board staff found 372 incident reports were received instead of the previously reported 210. Of the 372 incident reports submitted to the Board, 324 were for hospitalizations of a patient either during or after a dental procedure, and 48 reports were for the death of a patient either during or after a dental procedure. However, 186 incident reports did not include the administration of anesthesia or sedation to the dental patient and have been excluded from this Supplemental Report. Of the remaining 186 incident reports that did include administration of anesthesia and/or sedation, 162 reports involved patient hospitalization, and 24 reports involved patient death during or shortly after the dental procedure.

STATISTICAL FINDINGS

The charts below have been updated to show the statistical findings related to adverse events after the administration of anesthesia and/or sedation before or during dental procedures. The data is based on incident reports submitted by dental licensees, physicians and surgeons, anesthesiologists, and other various sources from the period of January 1, 2017, to December 31, 2021.

The Board presents its findings and provides a breakdown of the incident reports, which include the number of patient deaths and hospitalizations that may have been a result of complications during the administration of anesthesia and/or sedation for a dental procedure. During the reporting period, 372 incident reports were received. Of the 372 incident reports submitted to the Board, 324 were for hospitalizations of a patient either during or after a dental procedure, and 48 reports were for the death of a patient either during or after a dental procedure. However, only 186 of those incident reports involved the administration of anesthesia or sedation to the dental patient. Of the 186 incident reports that included administration of anesthesia and/or sedation to dental patients, 162 reports involved patient hospitalization, and 24 reports involved patient death during or shortly after the dental procedure.

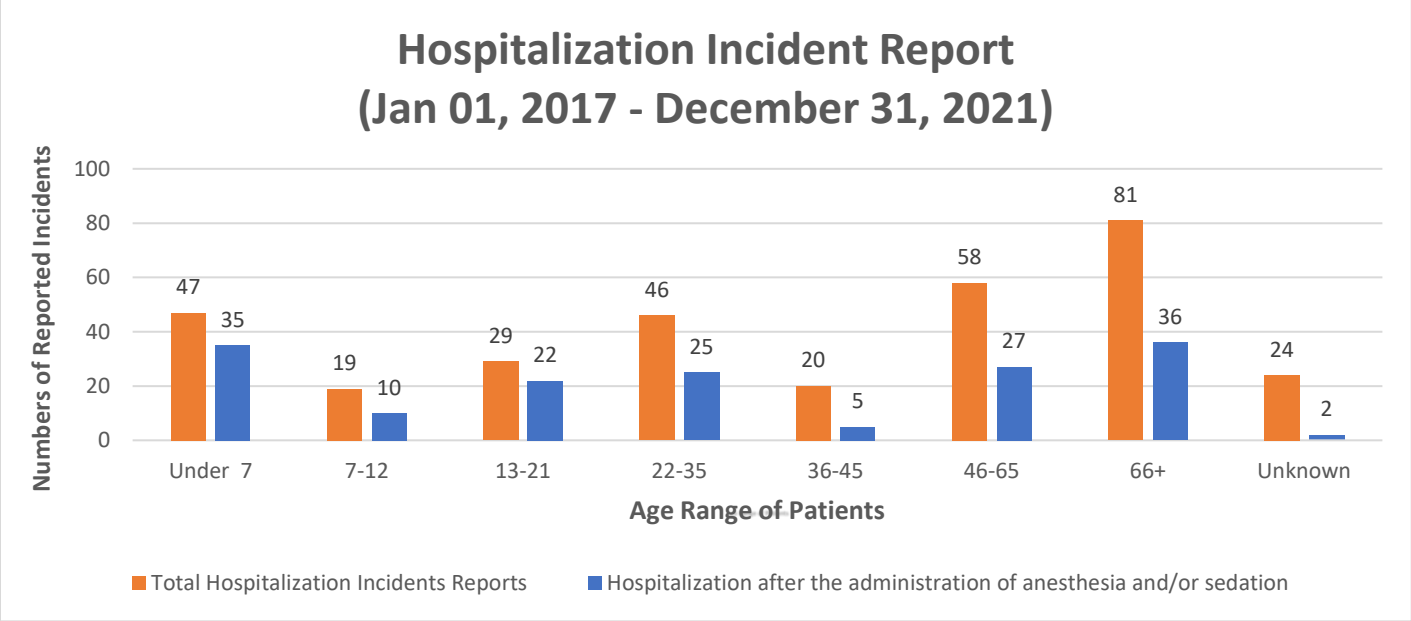
The data provided in this Supplemental Report has been categorized by age group with the assistance of the Board's subject matter experts. The different age groups are broken down as follows:

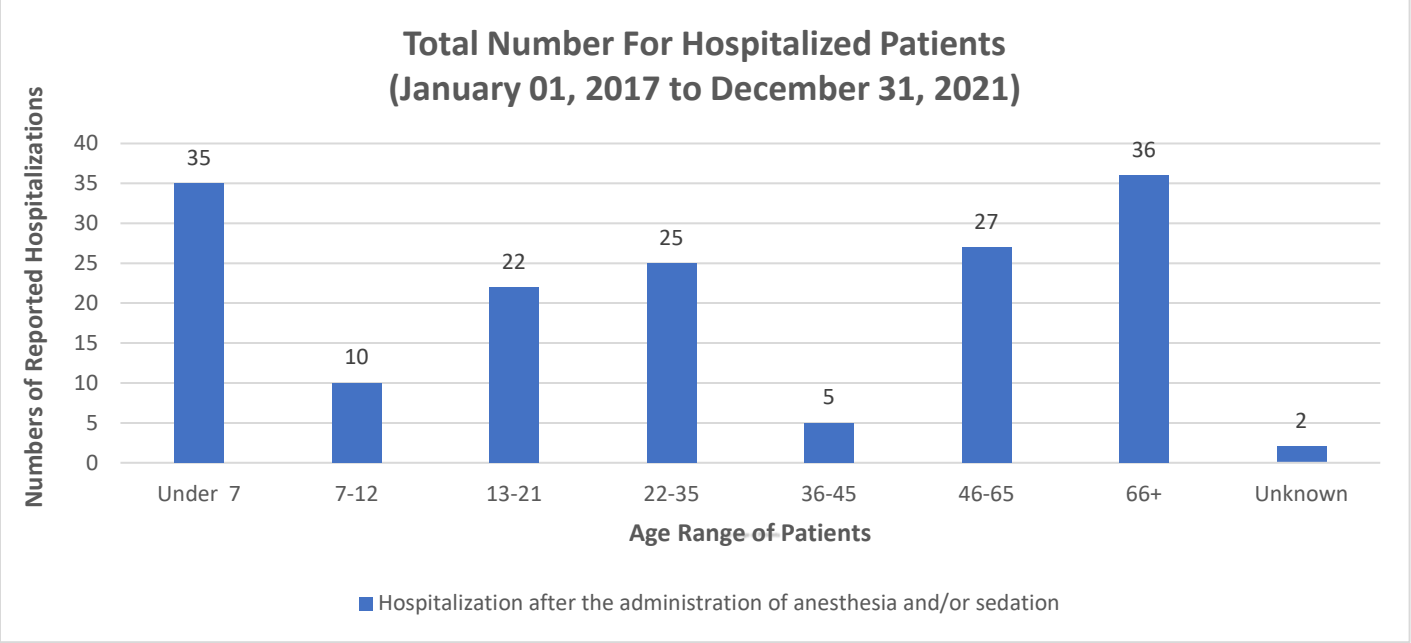
- Pediatric (Under 7 years)
- Older Pediatric (Ages 7-12)

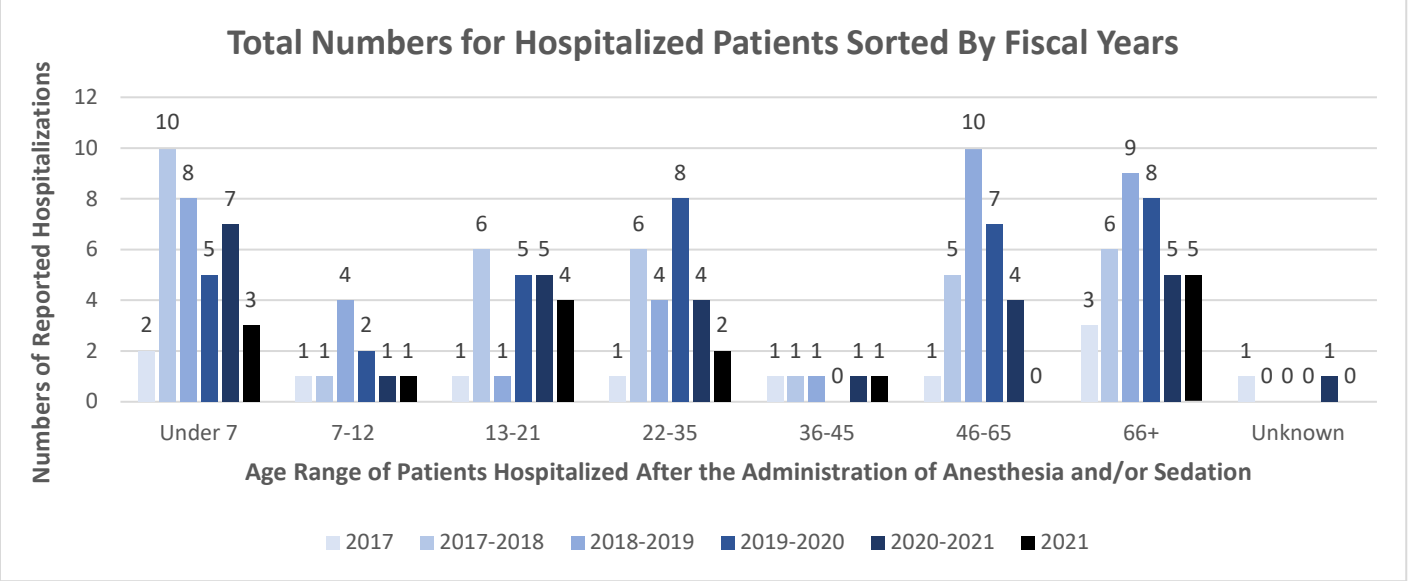
- Adolescents (Ages 13-21)
- Young Adults (Ages 22-35)
- Adults (Ages 36-45)
- Middle-Aged (Ages 46-65)
- Senior (Ages 66+)

The data is sorted by fiscal year and includes the patient's age, sex, ASA physical status, if the patient had any coexisting diagnoses, the setting where the sedation and dental procedure took place, the category of the provider responsible for sedation oversight, the category of the provider that delivered the sedation, the category of provider(s) monitoring the patient, the planned depth of sedation, and the investigative outcomes for the hospitalizations or deaths where anesthesia and/or sedation was administered.

Hospitalization Incident Reports by Age Group





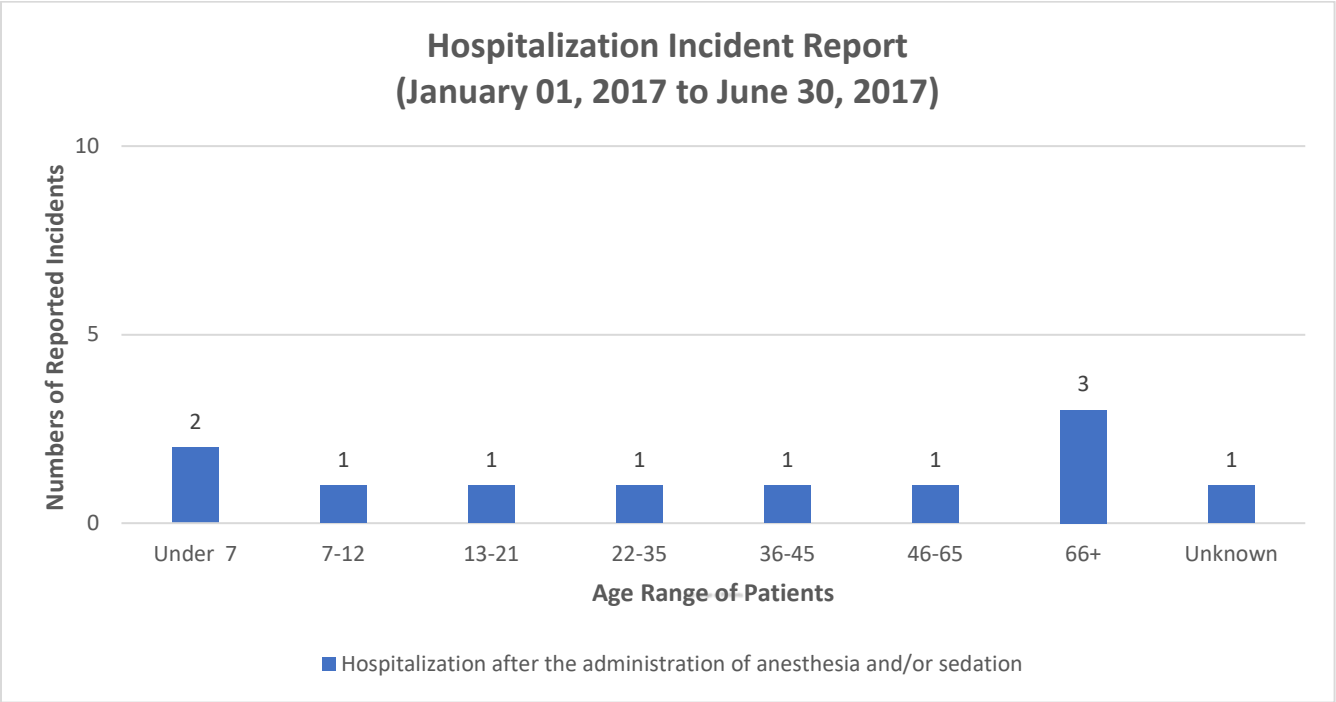


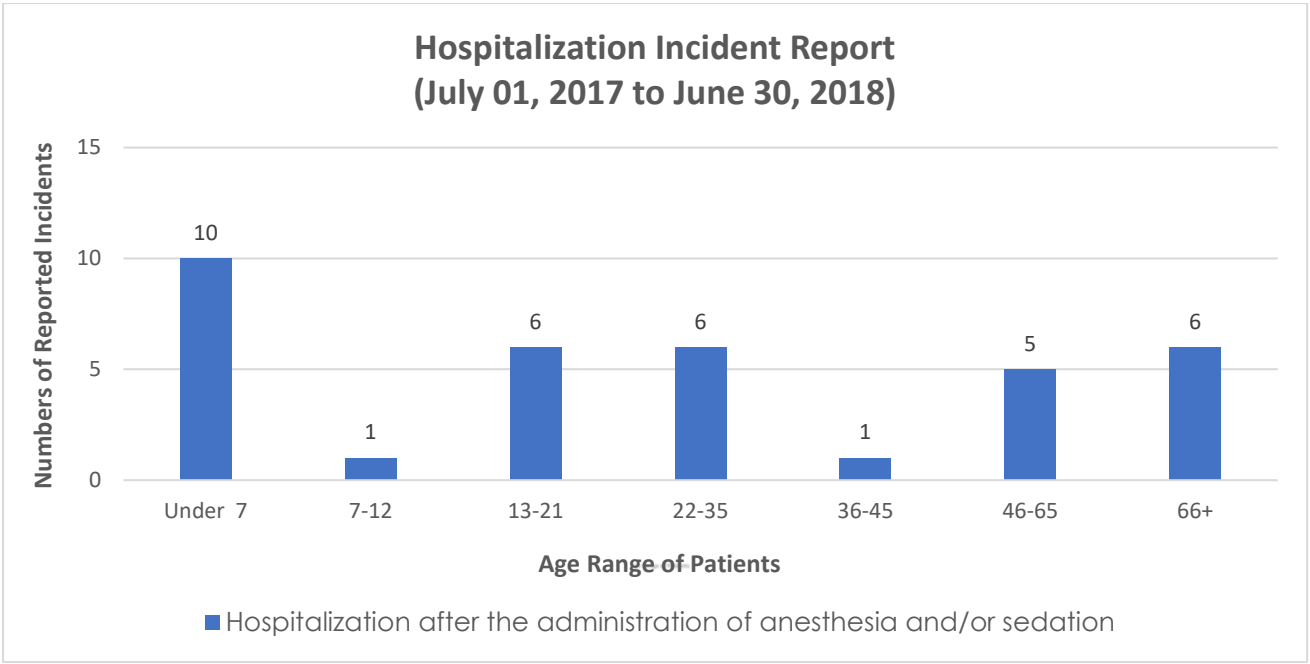
- The first chart reflects the total numbers of hospitalization incident reports, and of those reports, how many were hospitalizations after the administration of anesthesia and/or sedation during the reporting period. The second chart is a reiteration of the first chart but represents the total numbers of reported hospitalizations for that same time frame possibly related to the administration of anesthesia and/or sedation during dental treatments. The third chart represents the numbers of patients hospitalized throughout the various fiscal years by age groups possibly related to the administration of anesthesia and/or sedation during

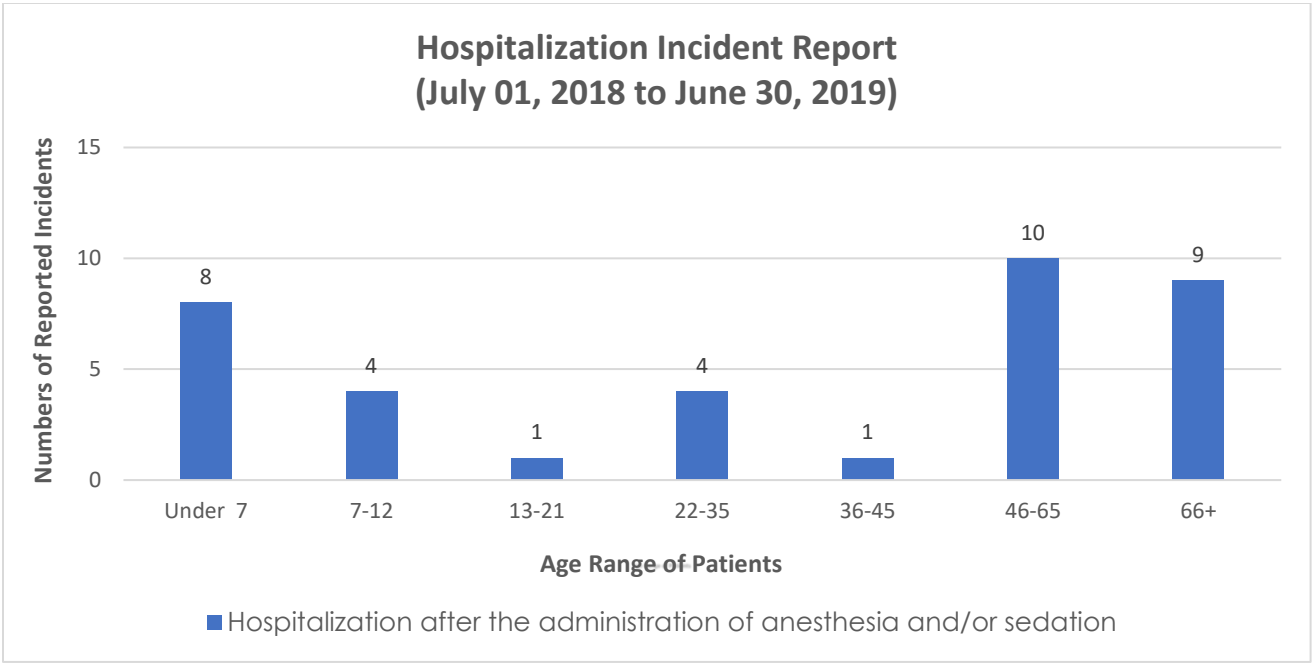
dental treatments. This chart is presented to provide a comparison of any possible trends during this period.

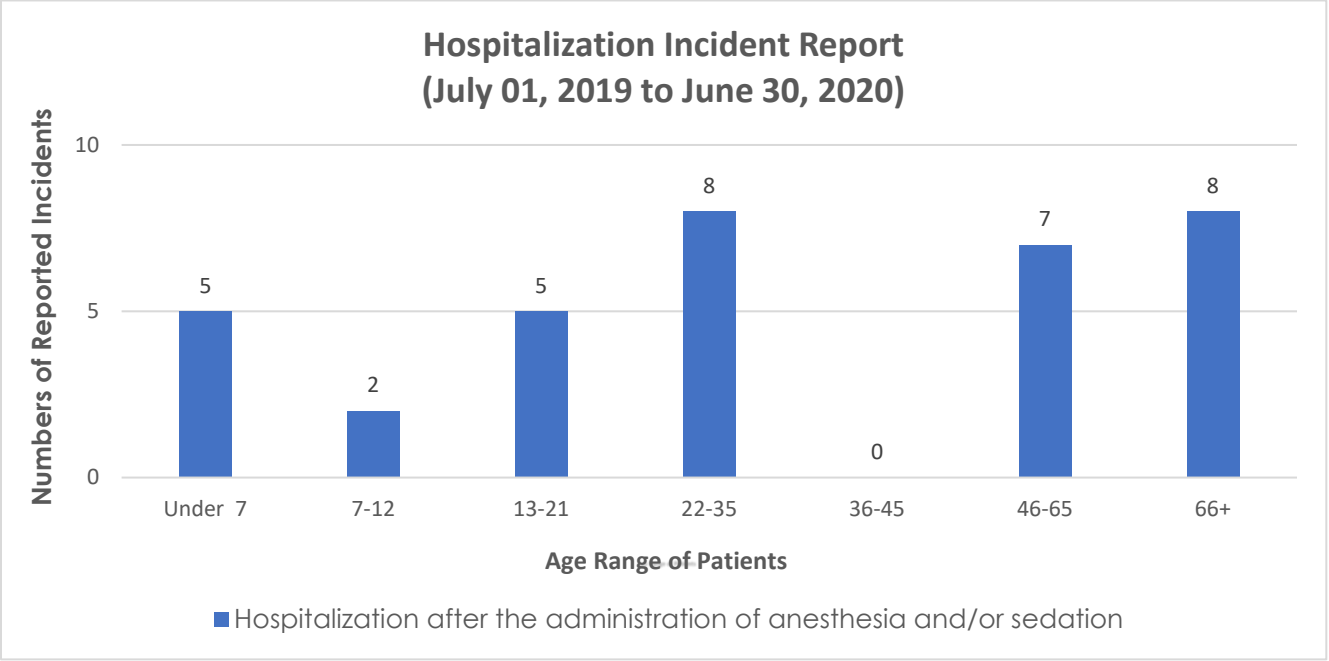
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, there were a total of 47 incident reports, and of those, 35 were hospitalized possibly due to anesthesia and/or sedation related treatment.
  - For older pediatric patients ages 7-12, there were a total of 19 incident reports, and of those, 10 were hospitalized possibly due to anesthesia and/or sedation related treatment.
  - For adolescent patients ages 13-21, there were a total of 29 incident reports, and of those, 22 were hospitalized possibly due to anesthesia and/or sedation related treatment.
  - For young adult patients ages 22-35, there were a total of 46 incident reports and of those, 25 were hospitalized possibly due to anesthesia and/or sedation related treatment.
  - For adult patients ages 36-45, there were a total of 20 incident reports, and of those, five were hospitalized possibly due to anesthesia and/or sedation related treatment.
  - For middle-aged patients ages 46-65, there were a total of 58 incident reports, and of those, 27 were hospitalized possibly to due anesthesia and/or sedation related treatment.
  - For senior patients ages 66 and up, there were a total of 81 incident reports, and of those, 36 were hospitalized possibly to due anesthesia and/or sedation related treatment.
  - For patients of unknown ages, there were a total of 24 incident reports, and of those, 2 were hospitalized possibly to due anesthesia and/or sedation related treatment.
- From the date of the initial mandate (January 01, 2017) through December 31, 2021, data provided is collected by the Board and recorded as hospitalizations due to possible complications from the administration of anesthesia and/or sedation before and during the patient's dental procedure. The specific reports indicate that anesthesia and/or sedation were given before or during the procedure prior to hospitalization. However, the reason for hospitalization may have been due to outside factors and not due to administration of anesthesia and/or sedation. Accordingly, the term "possibly" is used to accommodate for hospitalization that may or may not have been the result of anesthesia and/or sedation administered to the patient.

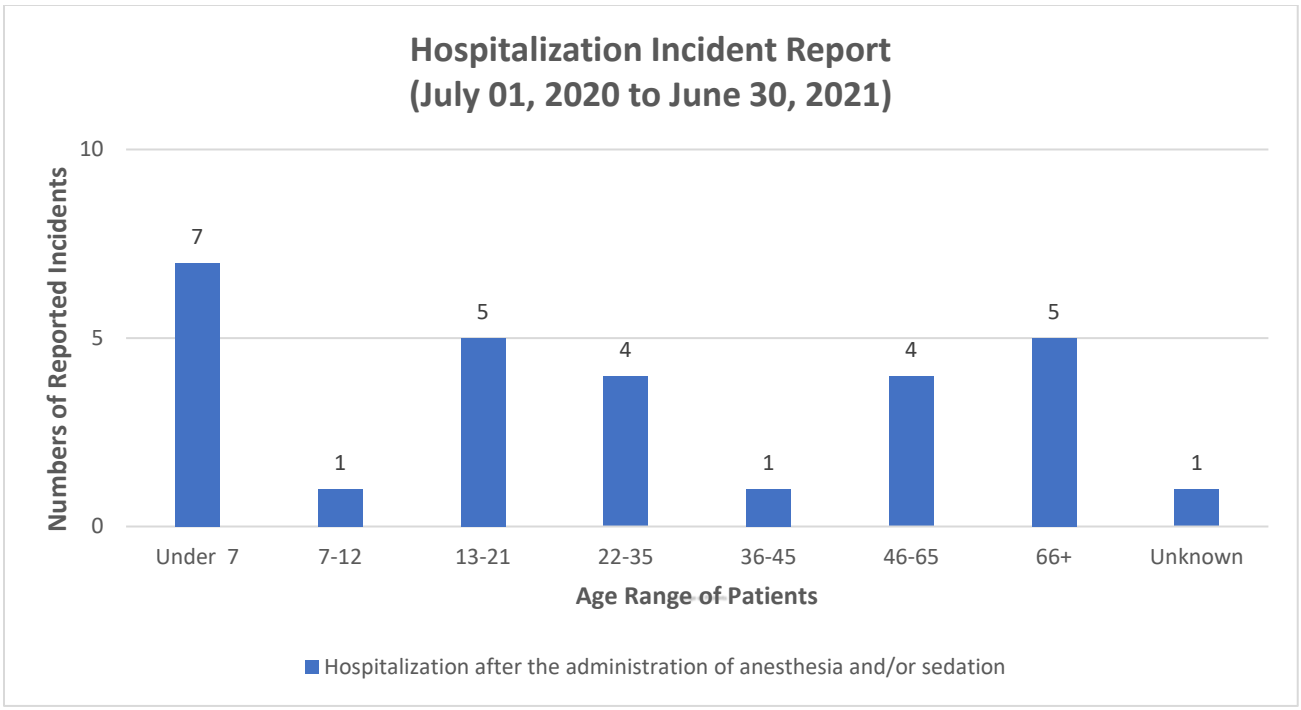
- The charts below show the numbers of hospitalizations during each fiscal period:

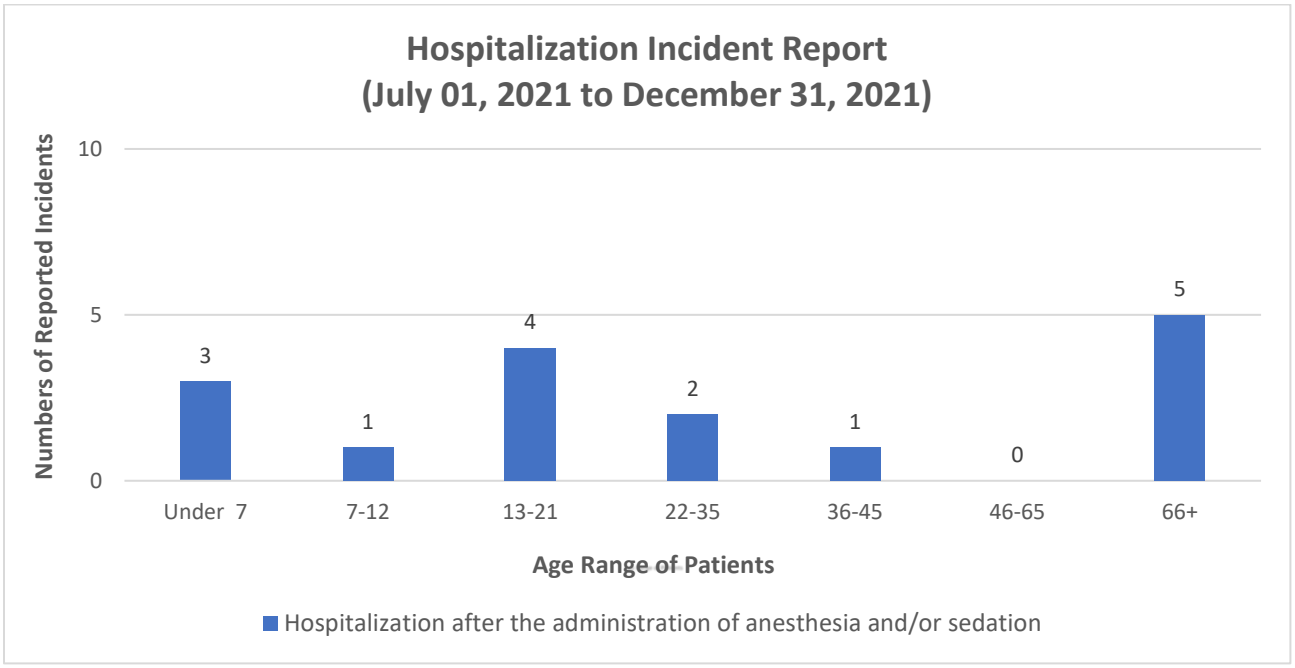




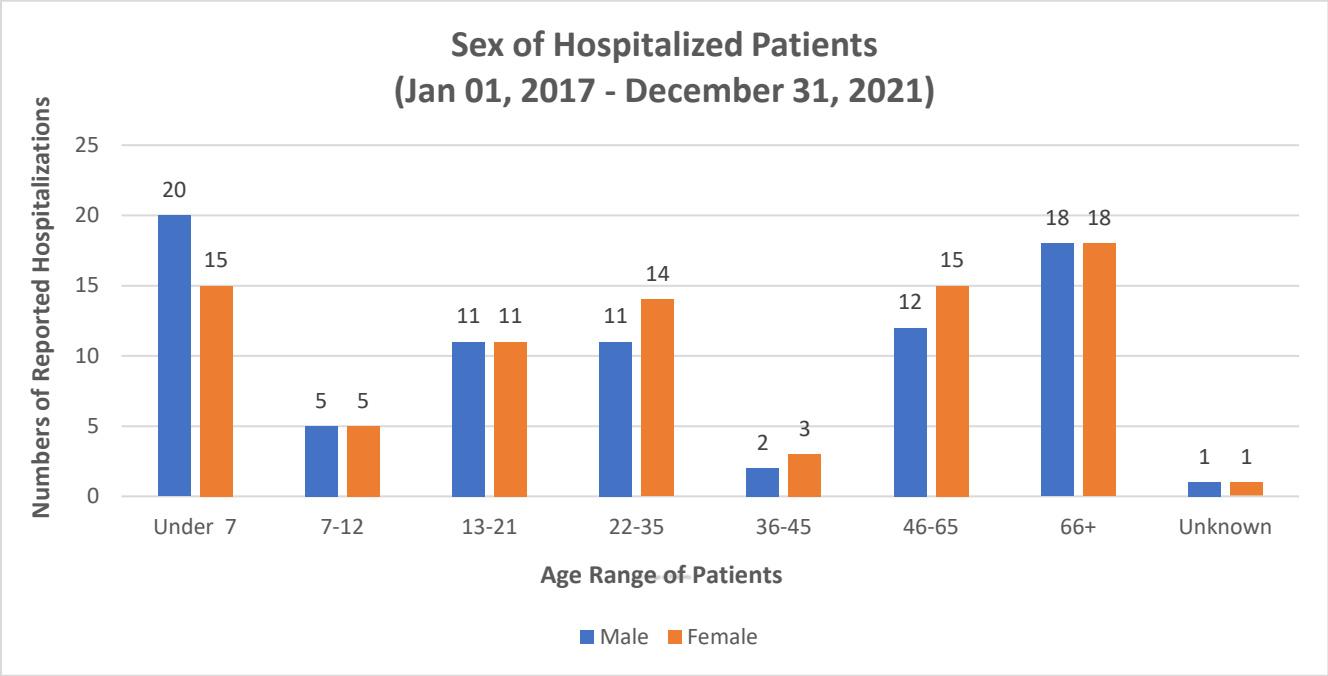

Hospitalization Incident Report
(July 01, 2018 to June 30, 2019)
Numbers of Reported Incidents
15
10
5
0
8
4
1
4
1
10
9
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Hospitalization after the administration of anesthesia and/or sedation

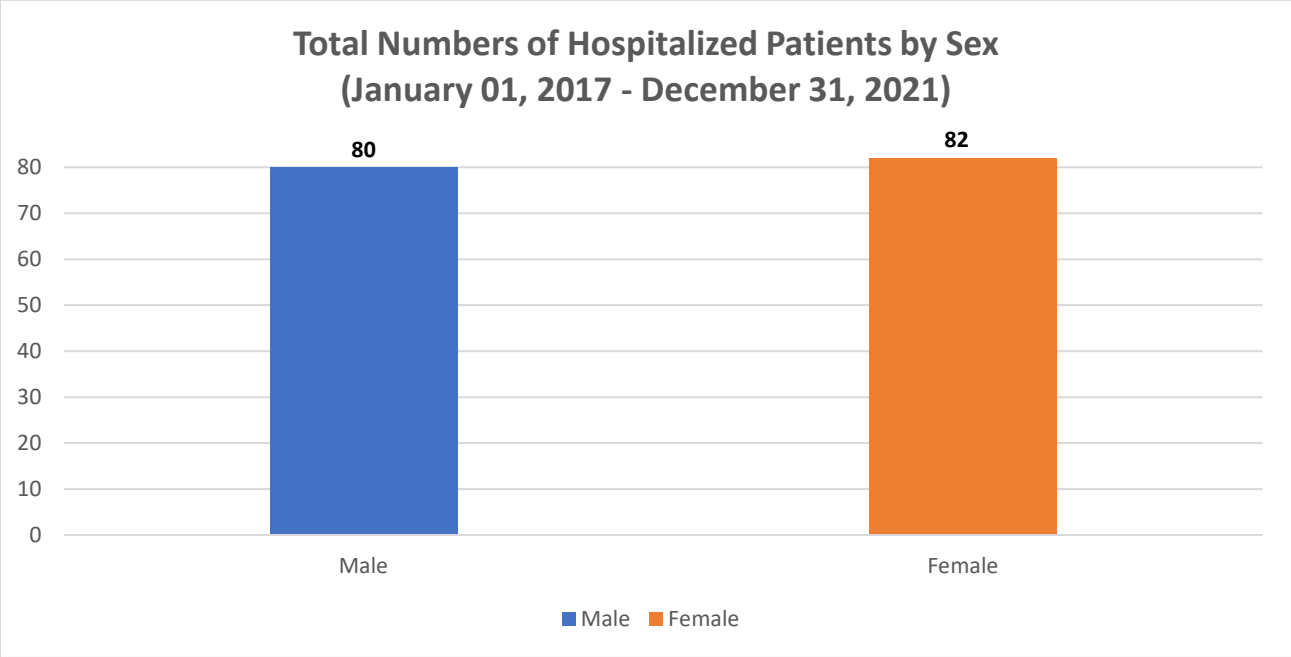

Hospitalization Incident Report
(July 01, 2019 to June 30, 2020)
Numbers of Reported Incidents
10
5
0
5
2
5
8
0
7
8
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Hospitalization after the administration of anesthesia and/or sedation


Hospitalization Incident Report
(July 01, 2020 to June 30, 2021)
Numbers of Reported Incidents
10
5
0
7
1
5
4
1
4
5
1
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Unknown
Age Range of Patients
Hospitalization after the administration of anesthesia and/or sedation


Hospitalization Incident Report
(July 01, 2021 to December 31, 2021)
Numbers of Reported Incidents
10
5
0
3
1
4
2
1
0
5
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Hospitalization after the administration of anesthesia and/or sedation

Sex of Hospitalized Patients by Age Group



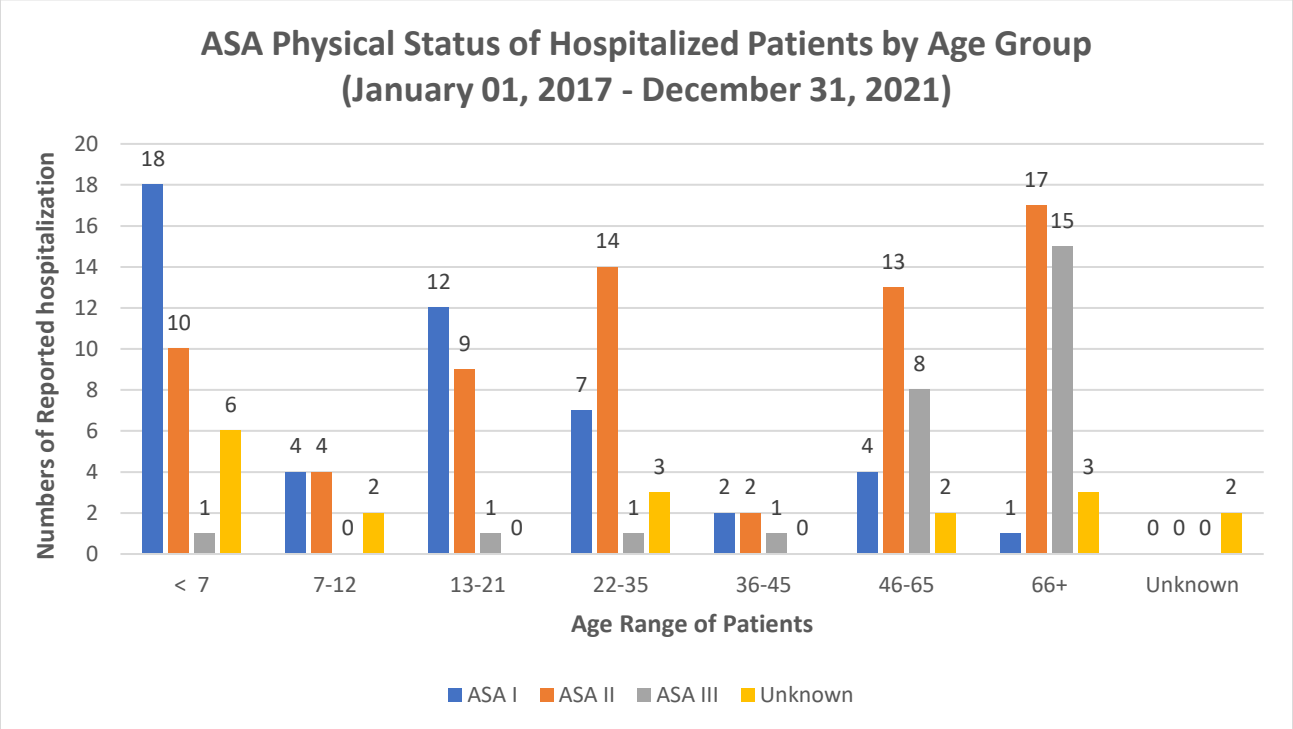


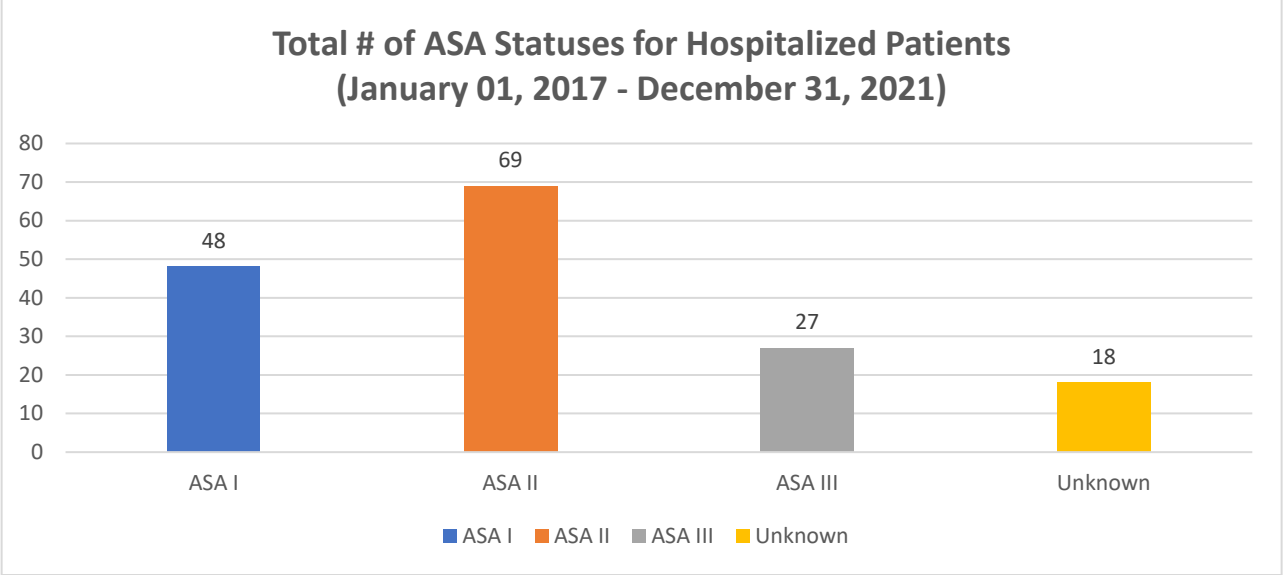
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, there were a total of 35 hospitalization reports (20 were males, and 15 were females).
  - For older pediatric patients ages 7-12, there were a total of 10 hospitalization reports (5 were males, and 5 were females).

- For adolescent patients ages 13-21, there were a total of 22 hospitalization reports (11 were males, and 11 were females).
- For young adult patients ages 22-35, there were a total of 25 hospitalization reports (11 were males, and 14 were females).
- For adult patients ages 36-45, there were a total of five hospitalization reports (2 were males, and 3 were females).
- For middle-aged patients ages 46-65, there were a total of 27 hospitalization reports (12 were males, and 15 were females).
- For senior patients ages 66 and up, there were a total of 36 hospitalization reports (18 were males, and 18 were females).
- For patients of unknown age, there were a total of 2 hospitalization reports (1 was male, and 1 was female).

- According to the data collected, the ratio of males to females was overall similar in number. Overall, there did not appear to be any significant discrepancy among the numbers to indicate that one sex is more prone than another when it comes to the number of those hospitalized due to possible anesthesia and or sedation related incidents.

ASA Physical Status of Hospitalized Patients by Age Group



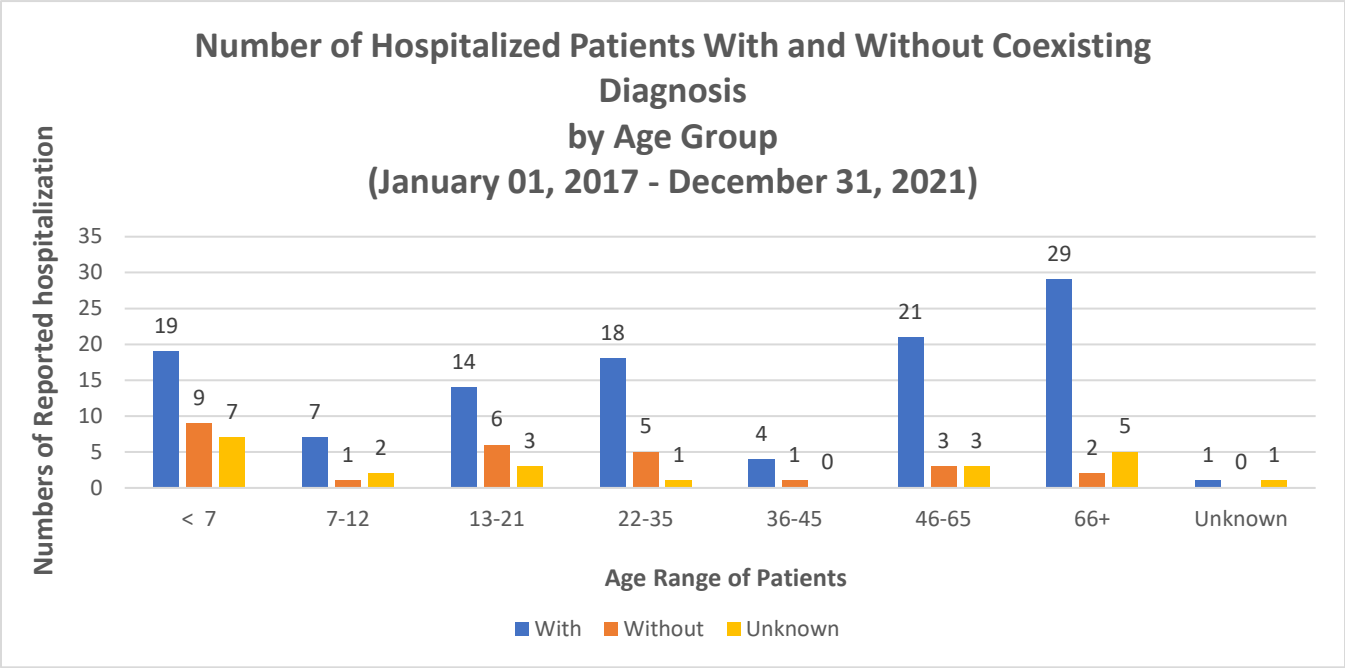


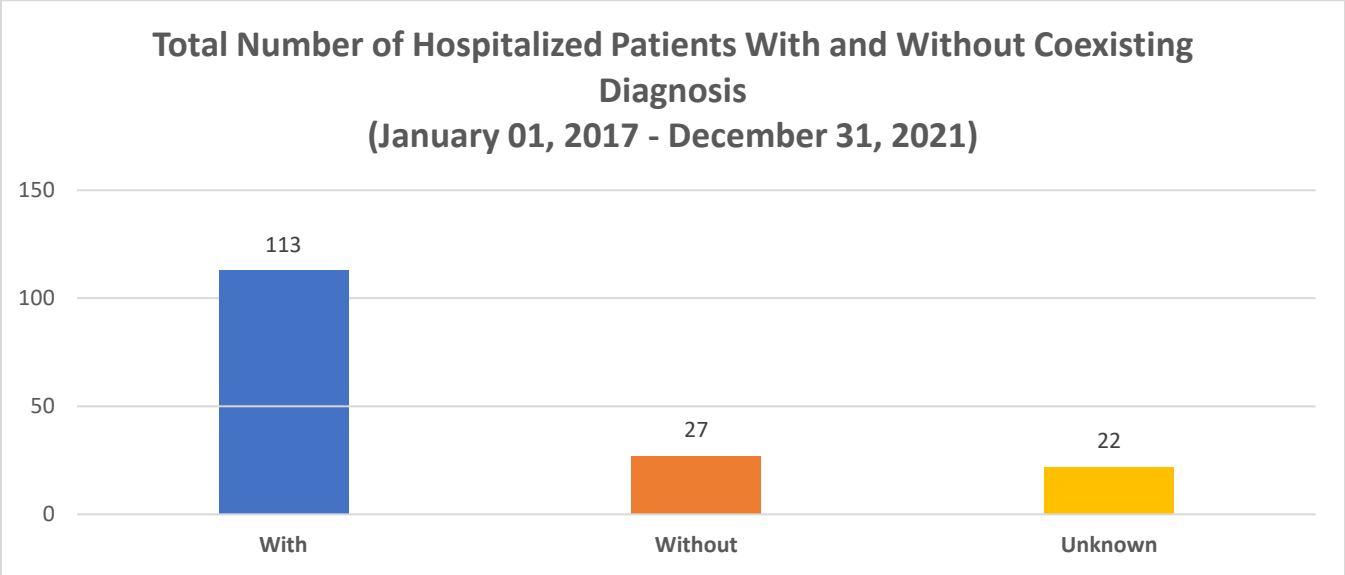
- According to the ASA, the ASA Physical Status Classification System has been in use for over 60 years. The purpose of the system is to assess and communicate a patient's pre-anesthesia medical co-morbidities. The classification does not predict the perioperative risks, but used with other factors (e.g., type of surgery, facility, level of deconditioning), it can be helpful in predicting perioperative risks.
- The general guidelines of the ASA Physical Status Classification System are outlined below:
  - ASA I: A normal healthy patient
  - ASA II: A patient with mild systemic disease
  - ASA III: A patient with severe systemic disease
  - ASA IV: A patient with severe systemic disease that is a constant threat to life (none reported)
  - ASA V: A moribund patient who is not expected to survive without the operation (none reported)
  - ASA VI: A declared brain-dead patient whose organs are being removed for donor purposes (none reported)
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age: 18 patients were considered healthy, 10 as having mild systemic disease, one with severe systemic disease, and six patients whose ASA statuses were unknown.

- For older pediatric patients ages 7-12: four patients were considered healthy, four as having mild systemic disease, none with severe systemic disease, and two were unknown.
- For adolescent patients ages 13-21: 12 patients were considered healthy, nine as having mild systemic disease, and one with severe systemic disease, and none were unknown.
- For young adult patients ages 22-35: seven patients were considered healthy, 14 as having mild systemic disease, and one with severe systemic disease, and three patients whose ASA statuses were unknown.
- For adult patients ages 36-45: two patients were considered healthy, two as having mild systemic disease, and one with severe systemic disease, and none were unknown.
- For middle-aged patients ages 46-65: four patients were considered healthy, 13 as having mild systemic disease, and eight with severe systemic disease, and two whose ASA statuses were unknown.
- For senior patients ages 66 and up: one patient was considered healthy, 17 as having mild systemic disease, and 15 with severe systemic disease, and three whose ASA statuses were unknown.
- For patients of unknown age, none were considered healthy, none as having mild systemic disease, none with severe systemic disease, and two whose ASA statuses were unknown.

- According to the data collected, the total number of patients in every age group combined that were considered “normal healthy patient” were 48, 69 were considered as those with mild systemic disease, 27 were considered as those with severe systemic disease, and 18 that were not disclosed by the licensees. Most younger patients hospitalized were normal healthy patients, but beginning with the middle-aged group, there are higher numbers of ASA statuses of II and III. It is known that health declines as one gets older. Although the ASA guidelines go up to level VI, there were no reports of any hospitalized patients who were considered greater than level III.

Number of Hospitalized Patients With and Without Coexisting Diagnosis by Age Group

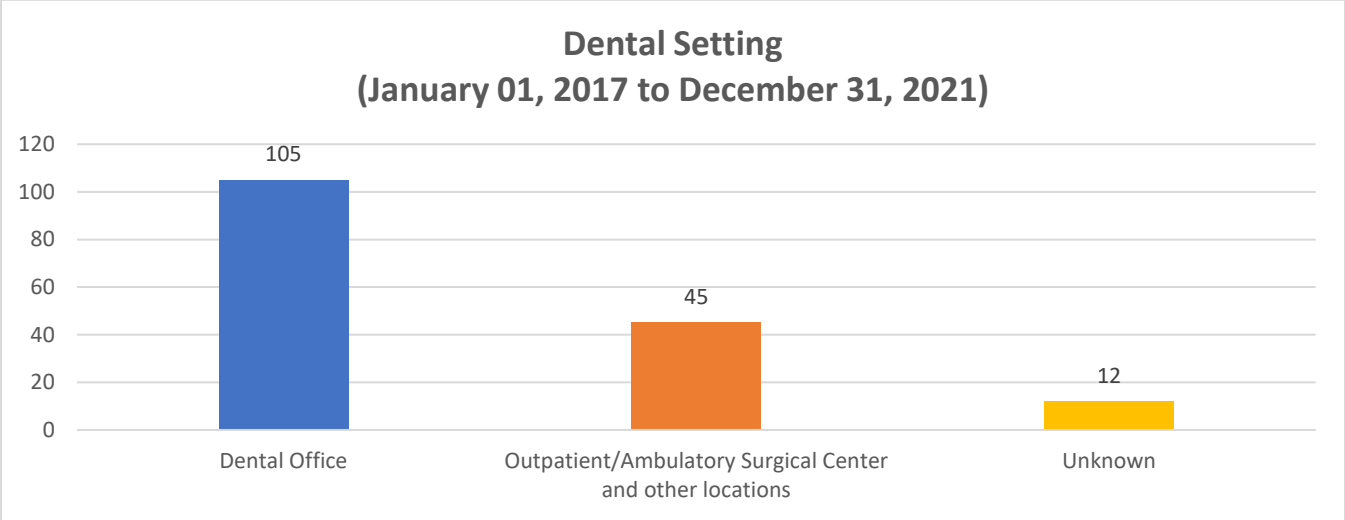




- These charts represent the coexisting diagnosis information reported to the Board for hospitalized patients as: had a coexisting diagnosis; did not have a coexisting diagnosis or the coexisting diagnostic section was left blank and, for purposes of this data, is unknown. A total of 113 hospitalized patients were found to have a coexisting diagnosis, 27 did not have a coexisting diagnosis, and 22 that were not disclosed by the licensees. Predictably, there were higher numbers of serious coexisting diagnoses, such as hypertension, diabetes, liver disease, and other serious conditions, from age 46 and older. These numbers are for hospitalizations

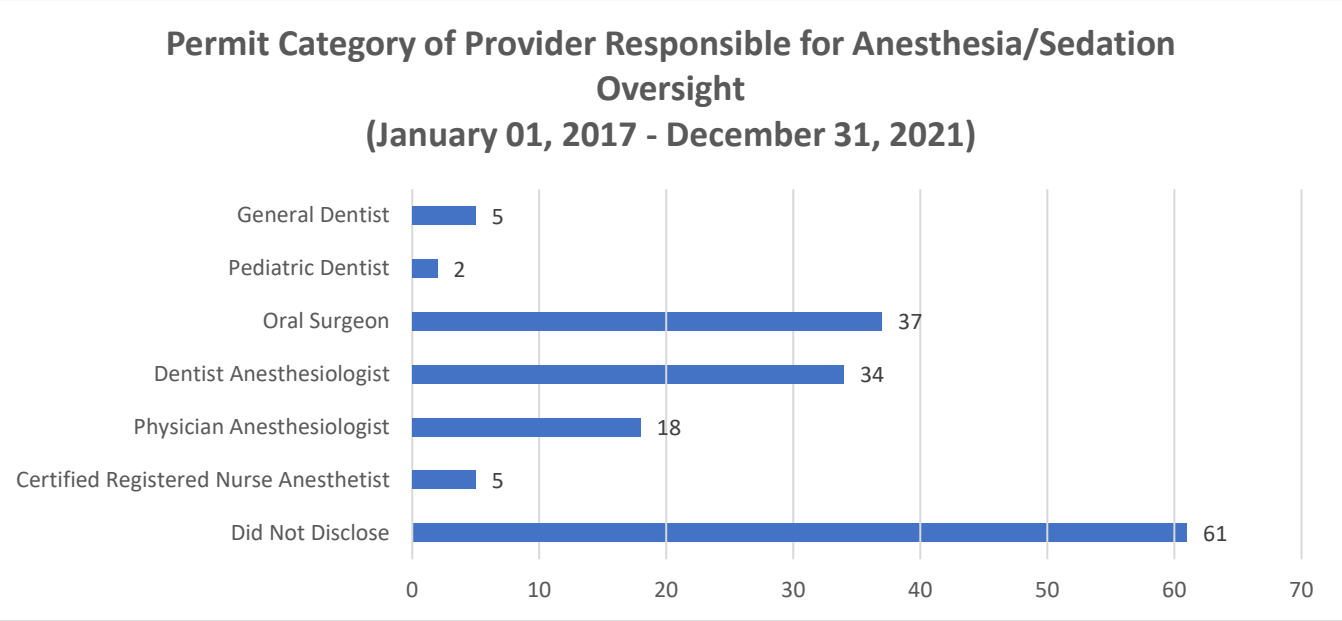
possibly due to the anesthesia and/or sedation administered, but the patients' coexisting diagnoses also could have played a role in their hospitalization, and this could hold truer for the older age groups.

Dental Setting of Those Who Were Hospitalized



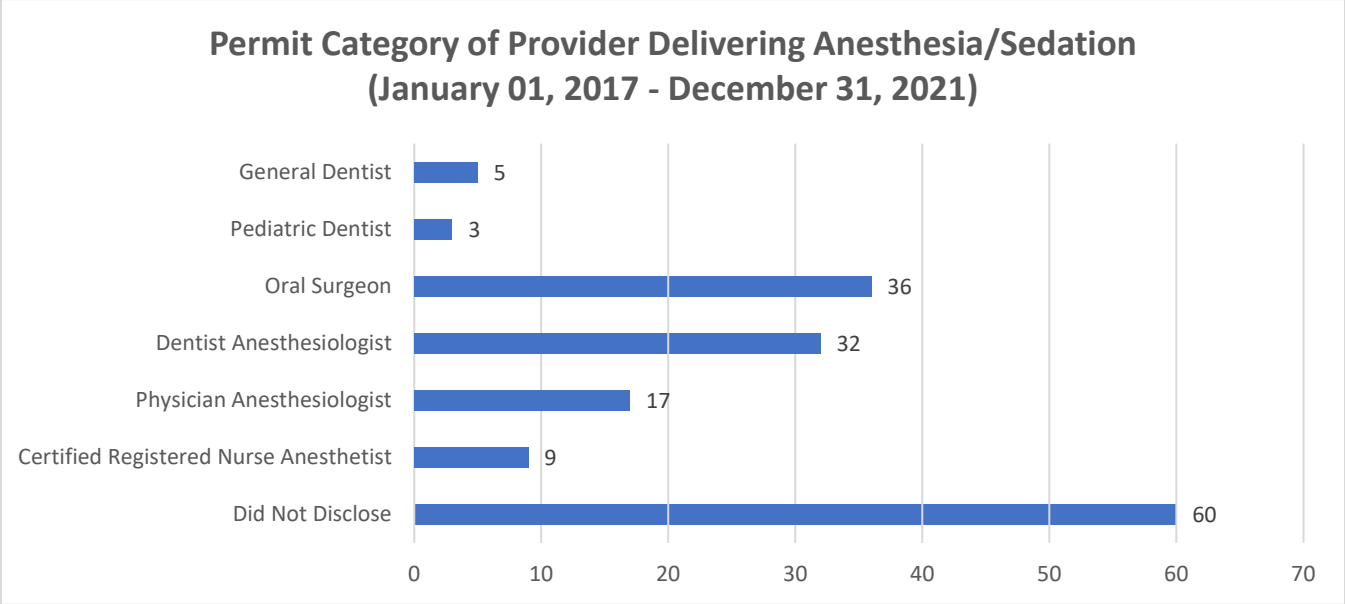
- This chart represents the setting of the dental procedures that resulted in hospitalization possibly due to the administration of anesthesia and/or sedation treatment. Out of the total 162 reports of dental treatment that resulted in hospitalization, 105 were conducted in a dental office; 45 were conducted in outpatient/ambulatory surgical centers and other locations that were not a dental office; and 12 with locations that were not disclosed by the licensees.

Category of Provider Responsible for Anesthesia or Sedation Oversight for Patients Who Were Hospitalized



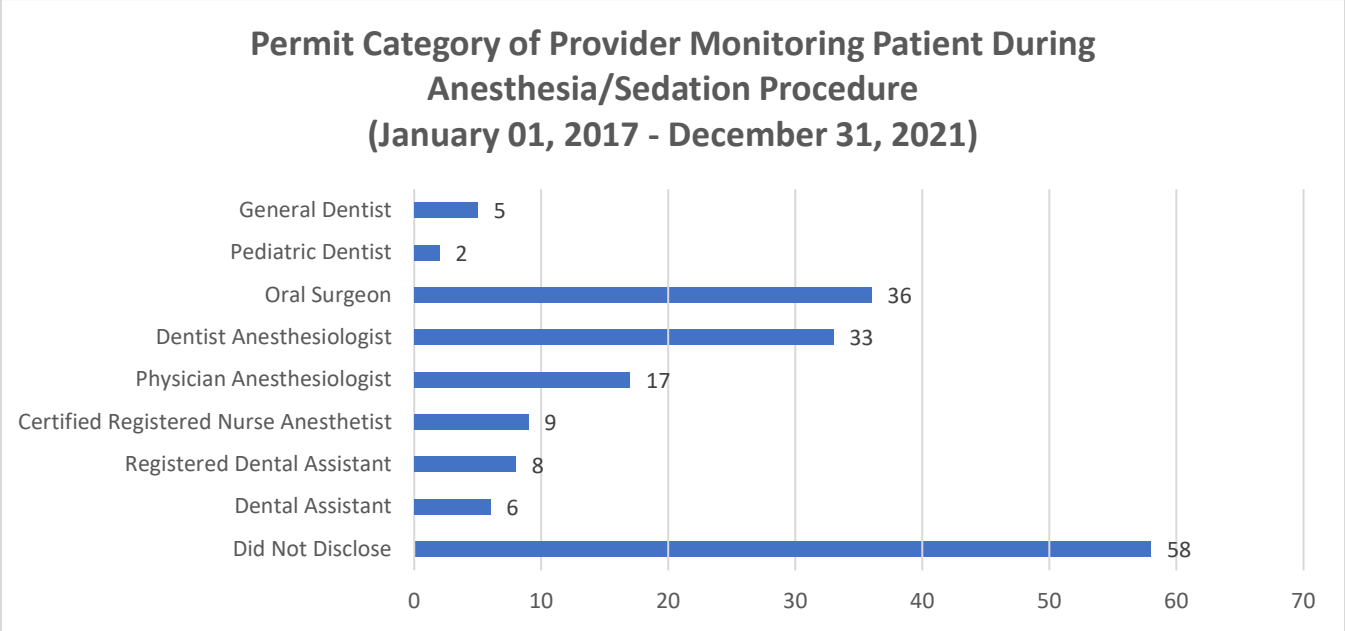
- This chart represents the category of the providers responsible for anesthesia or sedation oversight in cases where the patients were hospitalized possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises.
  - Of the 162 cases of reported hospitalizations, five of the care providers were identified as general dentists.
  - Two of the care providers were pediatric dentists.
  - Thirty-seven of the care providers were identified as oral surgeons.
  - Thirty-four of the care providers were identified as dentist anesthesiologists.
  - Eighteen of the care providers were identified as physician anesthesiologists.
  - Five of the care providers were identified as certified registered nurse anesthetists.
  - Sixty-one of the care providers had either left this section blank or incorrectly identified the category of the provider on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

Category of Provider Delivering Anesthesia or Sedation for Patients Who Were Hospitalized



- This chart represents the category of the providers who delivered the anesthesia or sedation to patients who were hospitalized possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises.
  - Of the 162 cases of reported hospitalizations, five of the care providers were identified as general dentists.
  - Three of the care providers were identified as pediatric dentists.
  - Thirty-six of the care providers were identified as oral surgeons.
  - Thirty-two of the care providers were identified as dentist anesthesiologists.
  - Seventeen of the care providers were identified as physician anesthesiologists.
  - Nine of the care providers were identified as certified registered nurse anesthetists.
  - Sixty of the care providers had either left this section blank or incorrectly identified the category of the provider on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

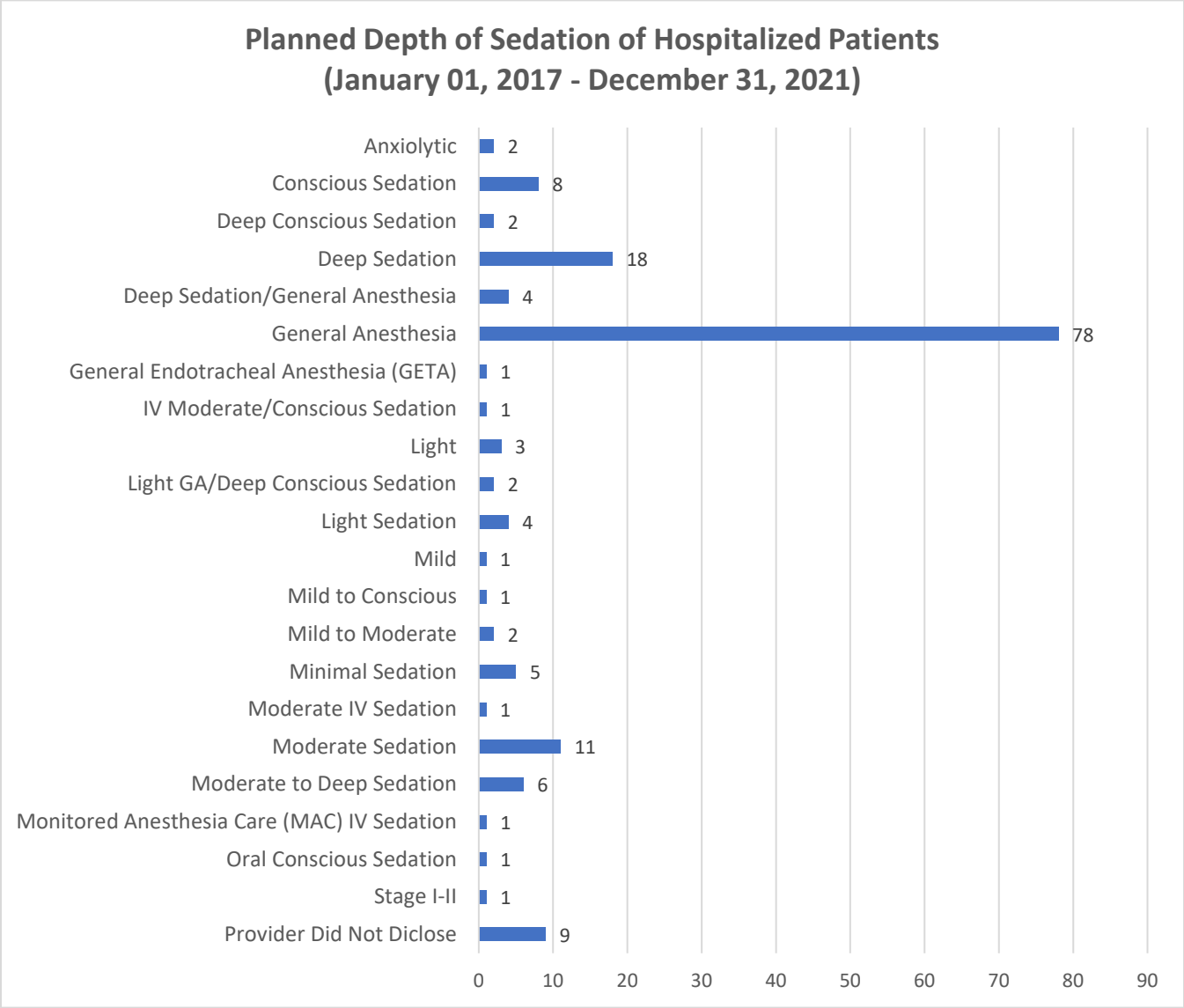
Category of Provider Monitoring During Anesthesia or Sedation for Patients Who Were Hospitalized



- This chart represents the category of the providers responsible for monitoring the patients during sedation who were hospitalized possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises. Please note that in some reported cases, there were multiple providers monitoring the patient during the procedure; therefore, 173 total care providers are reported in this category.
  - Of the 162 cases of reported hospitalizations, five of the care providers were identified as general dentists.
  - Two care providers were identified as pediatric dentists.
  - Thirty-six of the care providers were identified as oral surgeons.
  - Thirty-three of the care providers were identified as dentist anesthesiologists.
  - Seventeen of the care providers were identified as physician anesthesiologists.
  - Nine of the care providers were identified as certified registered nurse anesthetists.
  - Eight of the care providers were identified as registered dental assistants.
  - Six of the care providers were identified as dental assistants.

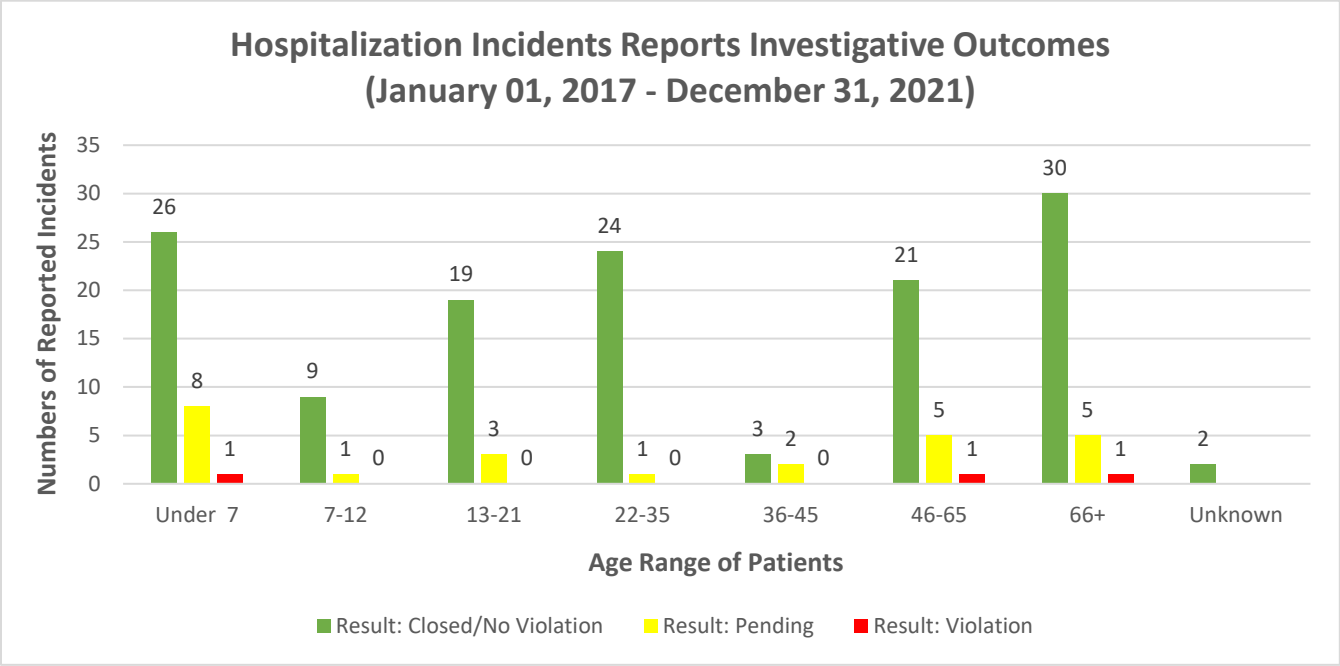
- Fifty-eight of the care providers had either left this section blank or incorrectly identified the category of the provider on the “Courtesy Form for Reporting of Anesthesia Death or Hospitalization.”

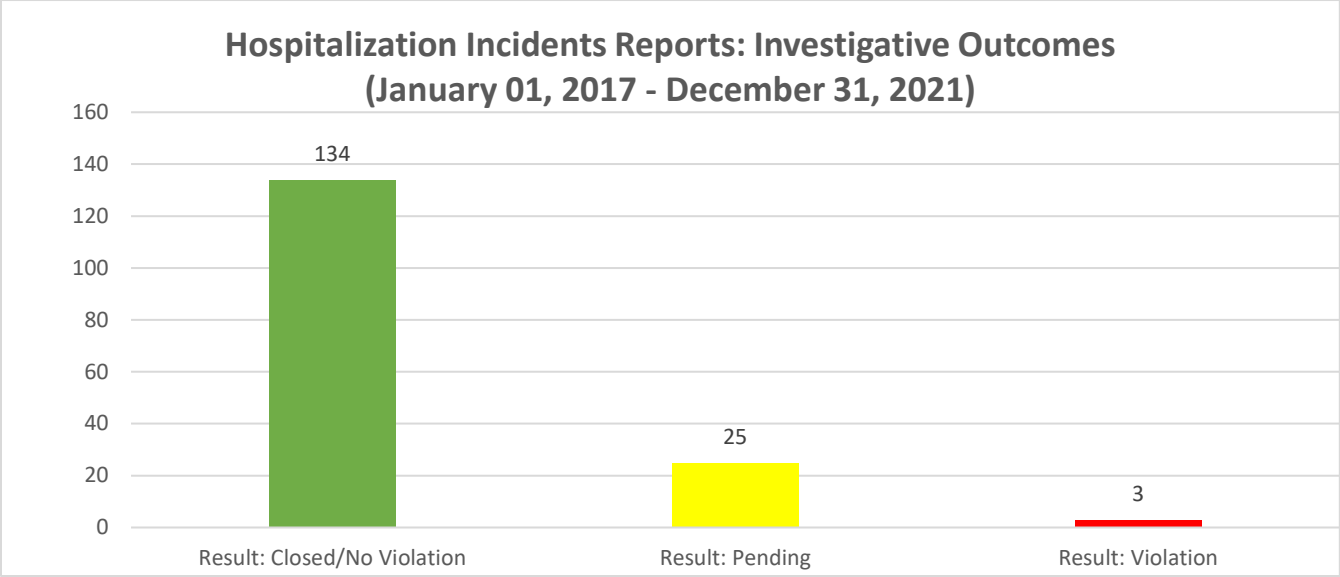
Planned Depth of Sedations of Hospitalized Patients



- This chart represents the planned depth of sedation for patients who were hospitalized possibly due to the administration of anesthesia and/or sedation under the dental provider’s care or after they had left the premises. Please note that the planned depth of sedation is not a set category and the information provided in the chart represents the provider’s response on the “Courtesy Form for Reporting of Anesthesia Death or Hospitalization.”

Hospitalization Incident Reports: Investigative Outcomes



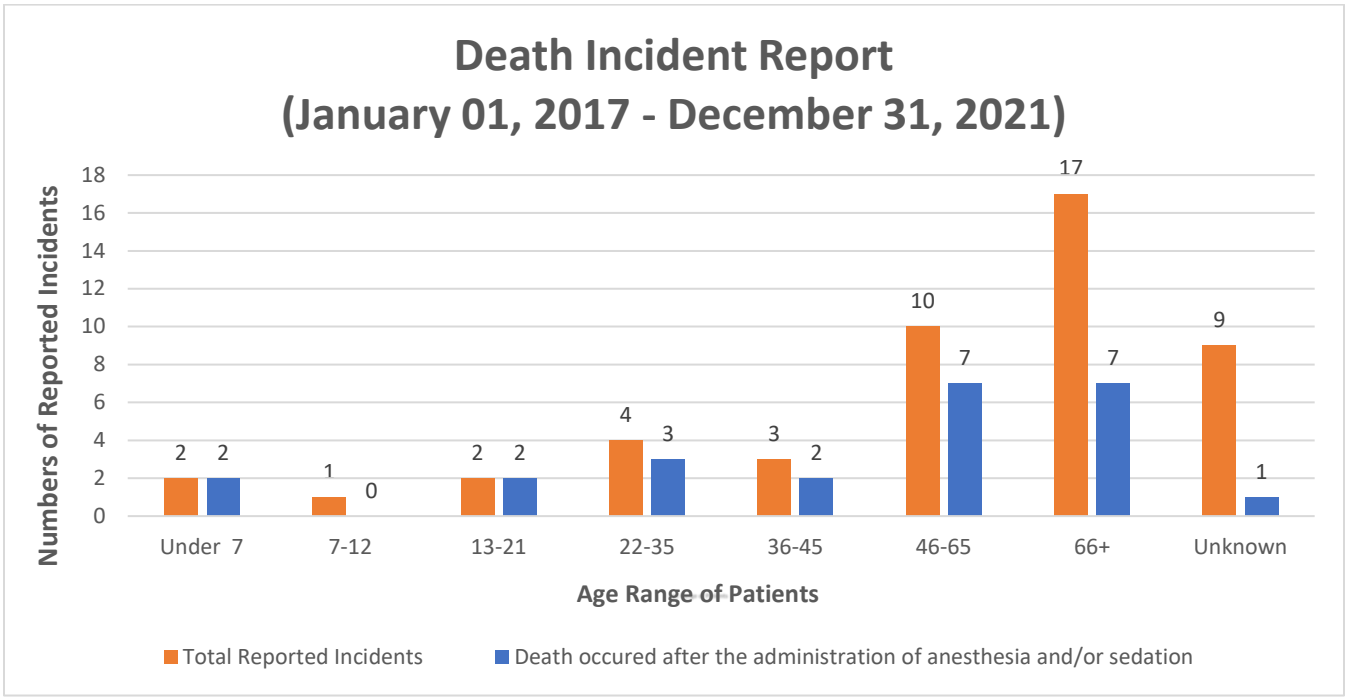


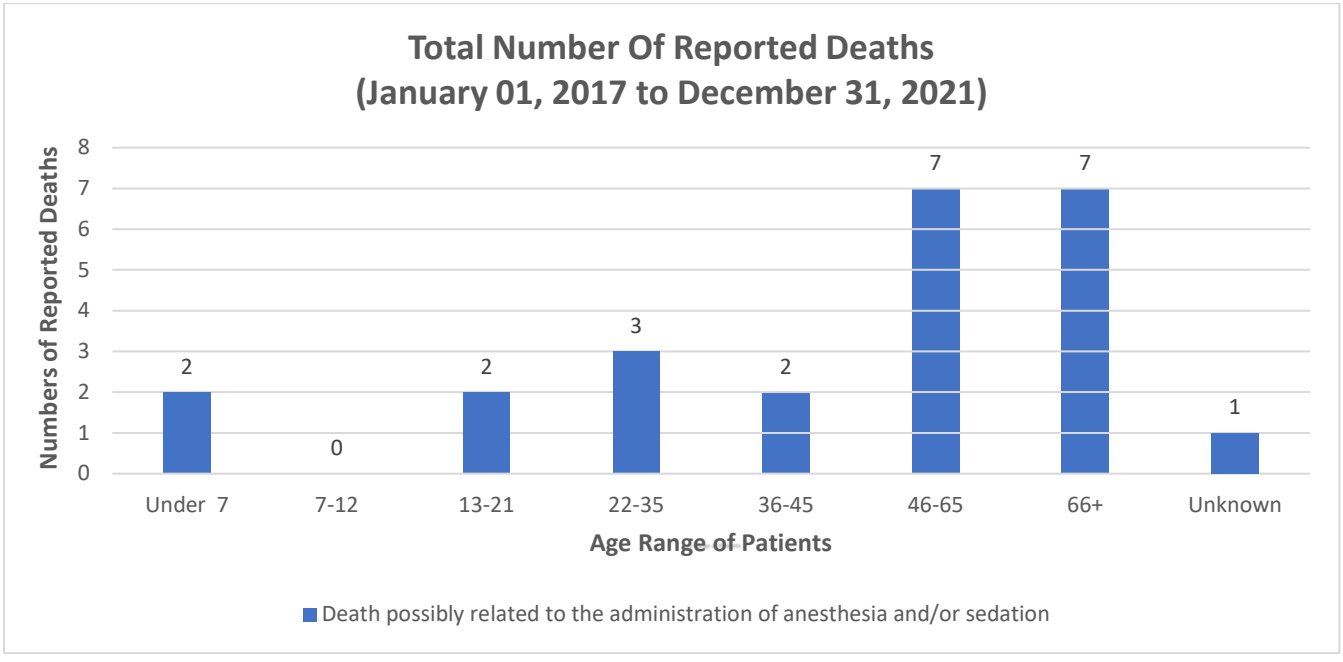
- These two charts represent the Board's investigative outcomes from January 1, 2017, to December 31, 2021, for all reported hospitalizations where anesthesia and/or sedation was administered.
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, a total of 35 incident reports of hospitalization were received. Of those, 26 cases resulted in no violations, one case resulted in a violation, and eight cases are currently pending.

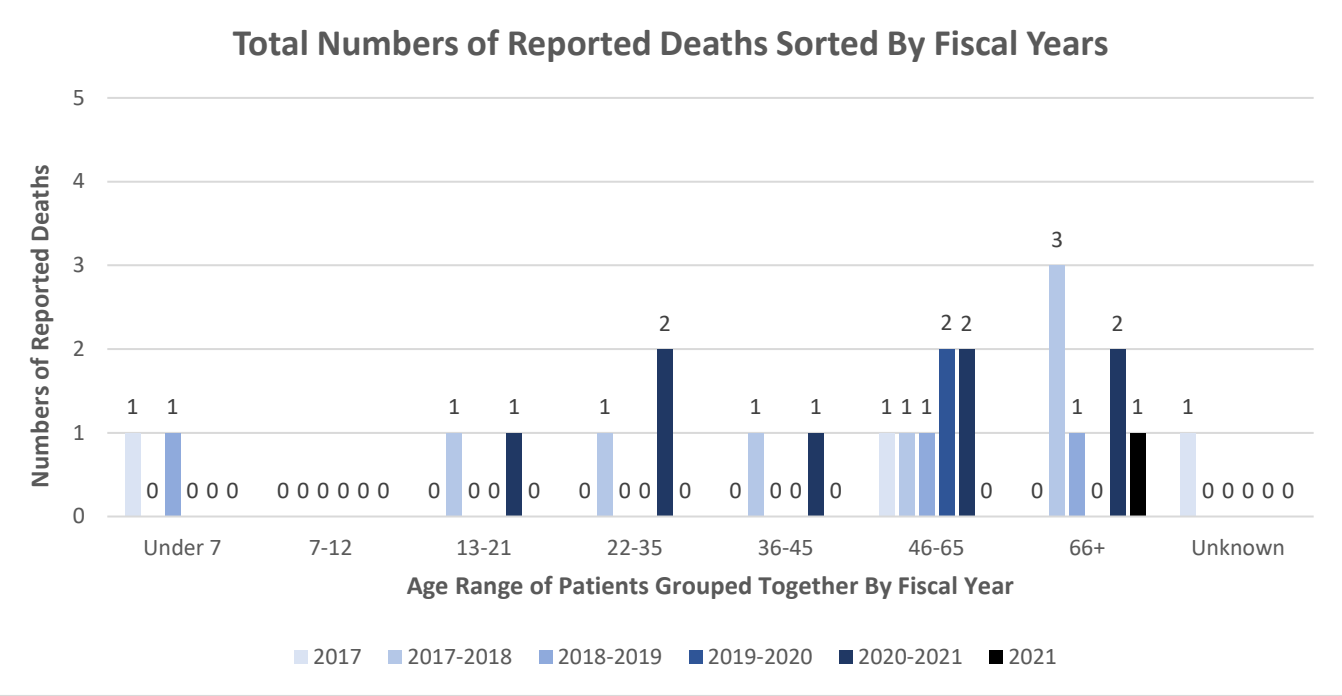
- For older pediatric patients ages 7-12, there were a total of 10 incident reports of hospitalization. Of those, nine cases resulted in no violations, and one case is currently pending
- For adolescent patients ages 13-21, there were a total of 22 incident reports of hospitalization; Of those, 19 cases resulted in no violations, and three cases are currently pending.
- For young adult patients ages 22-35, there were a total of 25 incident reports of hospitalization. Of those, 24 cases resulted in no violations, and one case is currently pending.
- For adult patients ages 36-45, there were a total of five incident reports of hospitalization. Of those, three cases resulted in no violations, and two cases are currently pending.
- For middle-aged patients ages 46-65, there were a total of 27 incident reports of hospitalization. Of those, 21 cases resulted in no violations, one case resulted in a violation, and five cases are currently pending.
- For senior patients ages 66 and up, there were a total of 36 incident reports of hospitalization. Of those, 30 cases resulted in no violations, one case resulted in a violation, and five cases are currently pending.
- For patients of unknown age, there were a total of two incident reports of hospitalization; both cases resulted in no violations occurring.

- Percentages of the case results are broken down as follows:
  - 82.72% of cases were “Closed – No Violation”
  - 15.43% of cases are in “Pending” status
  - 1.85% of cases were “Violation”

Death Incident Reports by Age Group



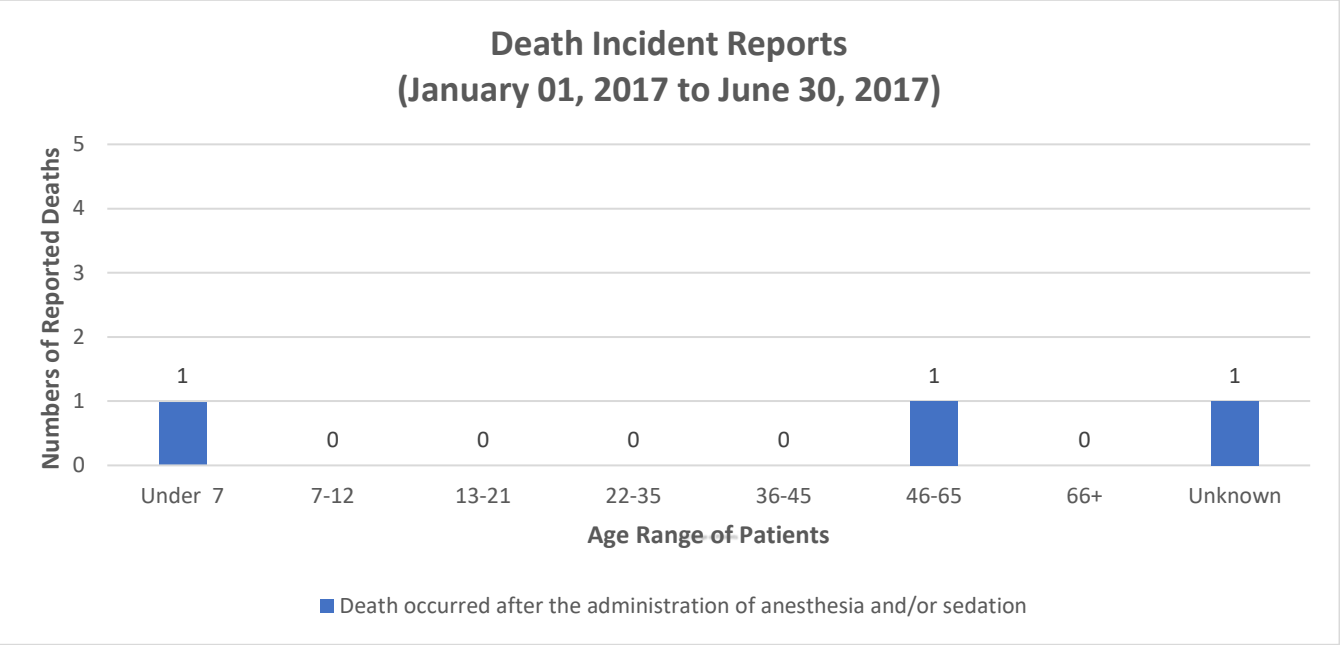


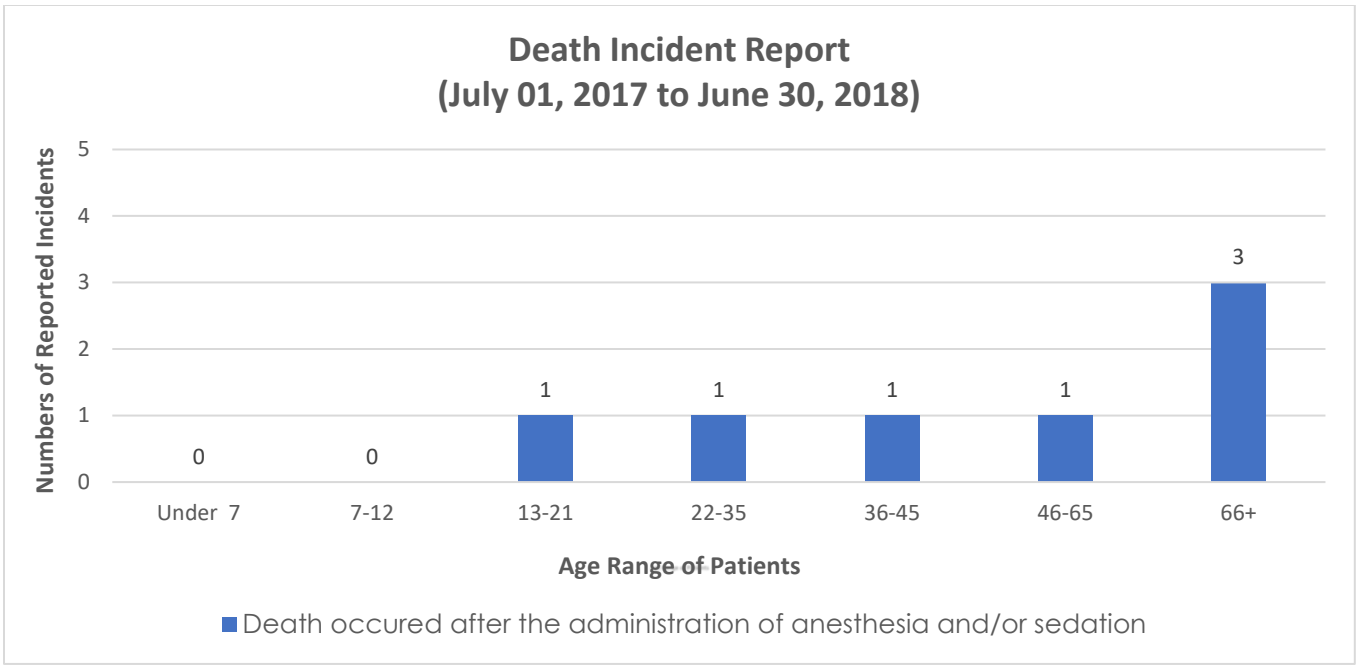


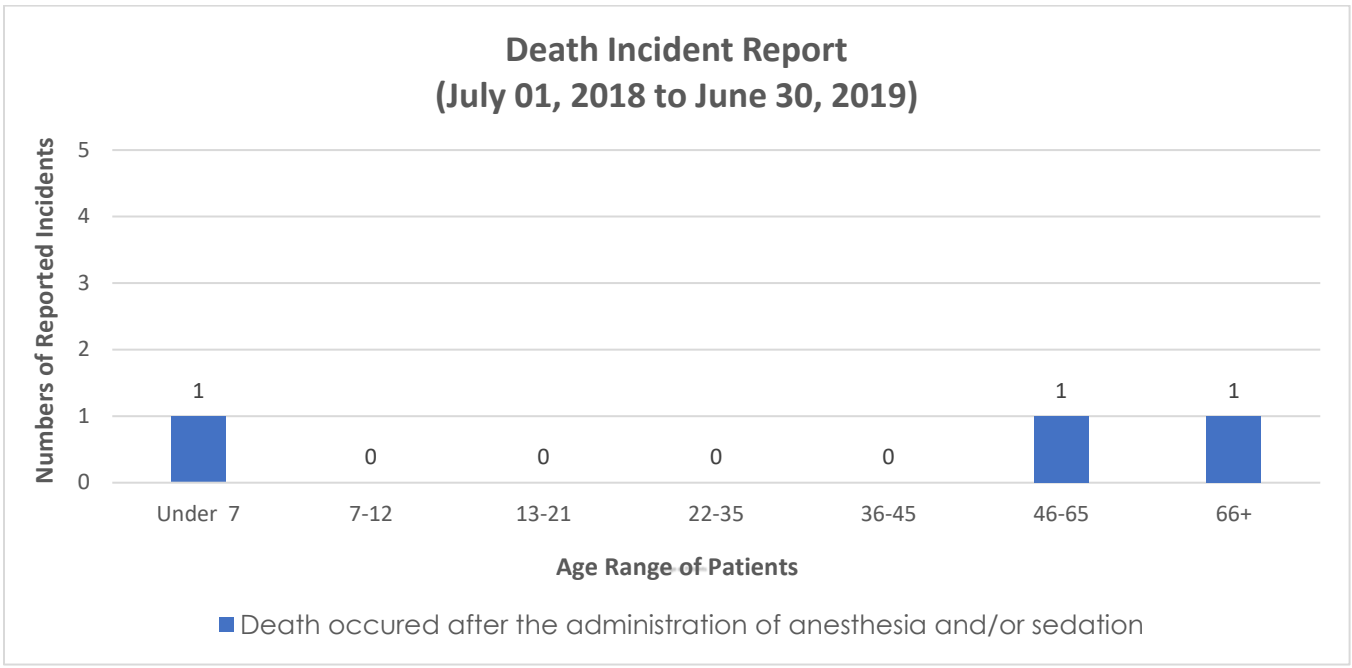
- The first chart reflects the total number of incidents reported and how many resulted in deaths possibly related to the administration of anesthesia and/or sedation during dental treatments during the reporting period. The second chart is a reiteration of the first chart but represents only the total numbers of reported deaths for that same time frame possibly related to the administration of anesthesia and/or sedation during dental treatments. The third chart represents the numbers of reported deaths throughout the various fiscal years via their age groups possibly related to the administration of anesthesia and/or sedation during dental treatments. This chart is presented to provide a comparison of any possible trends throughout this period of review.
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, there were a total of four incident reports, and of those, two resulted in death possibly due to anesthesia and/or sedation related treatment.
  - For older pediatric patients ages 7-12, there was a total of one incident report, which was not due to anesthesia and/or sedation related treatment.
  - For adolescent patients ages 13-21, there were a total of four incident reports, and of those, two resulted in death possibly due to anesthesia and/or sedation related treatment.
  - For young adult patients ages 22-35, there were a total of seven incident reports, and of those, three resulted in death that was possibly due to anesthesia and/or sedation related treatment.

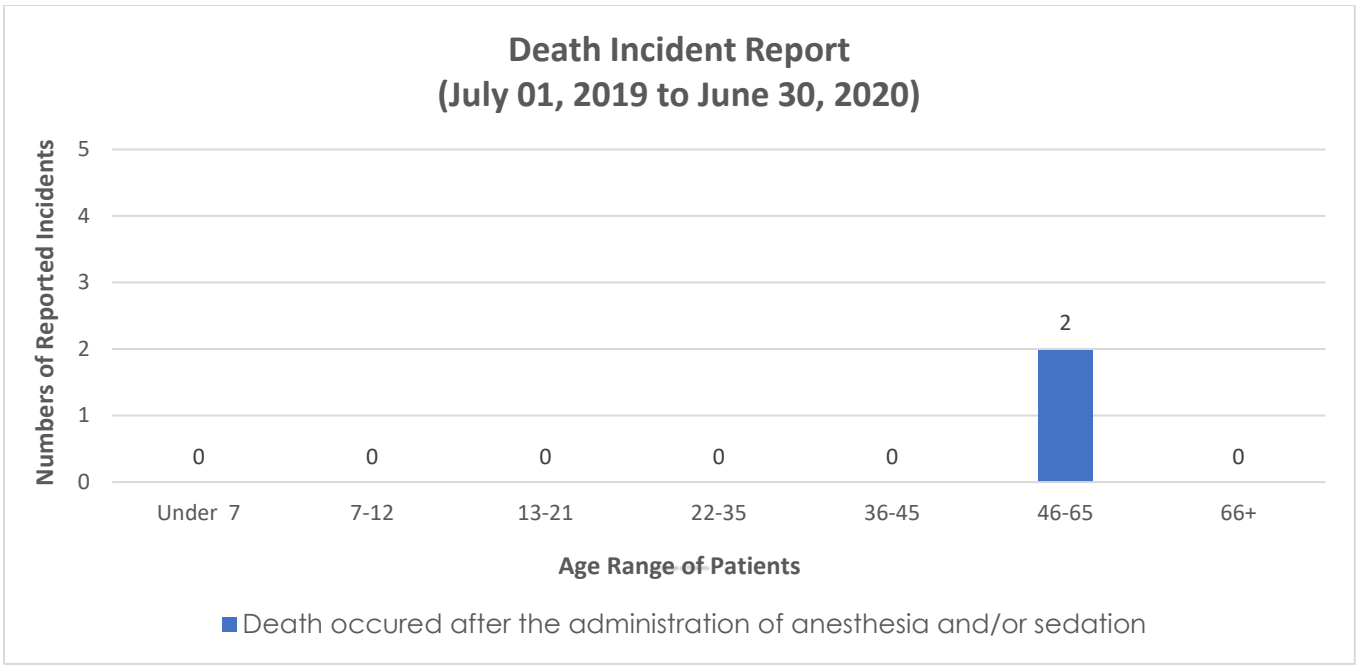
- For adult patients ages 36-45, there were a total of three incident reports, and of those, two resulted in death possibly due to anesthesia and/or sedation related treatment.
- For middle-aged patients ages 46-65, there were a total of 17 incident reports, and of those, seven resulted in death possibly to due anesthesia and/or sedation related treatment.
- For senior patients ages 66 and up, there were a total of 24 incident reports, and of those, seven resulted in death possibly due anesthesia and/or sedation related treatment.
- For patients of unknown age, there were a total of 10 incident reports, and of those, one resulted in death possibly due to anesthesia and/or sedation related treatment.

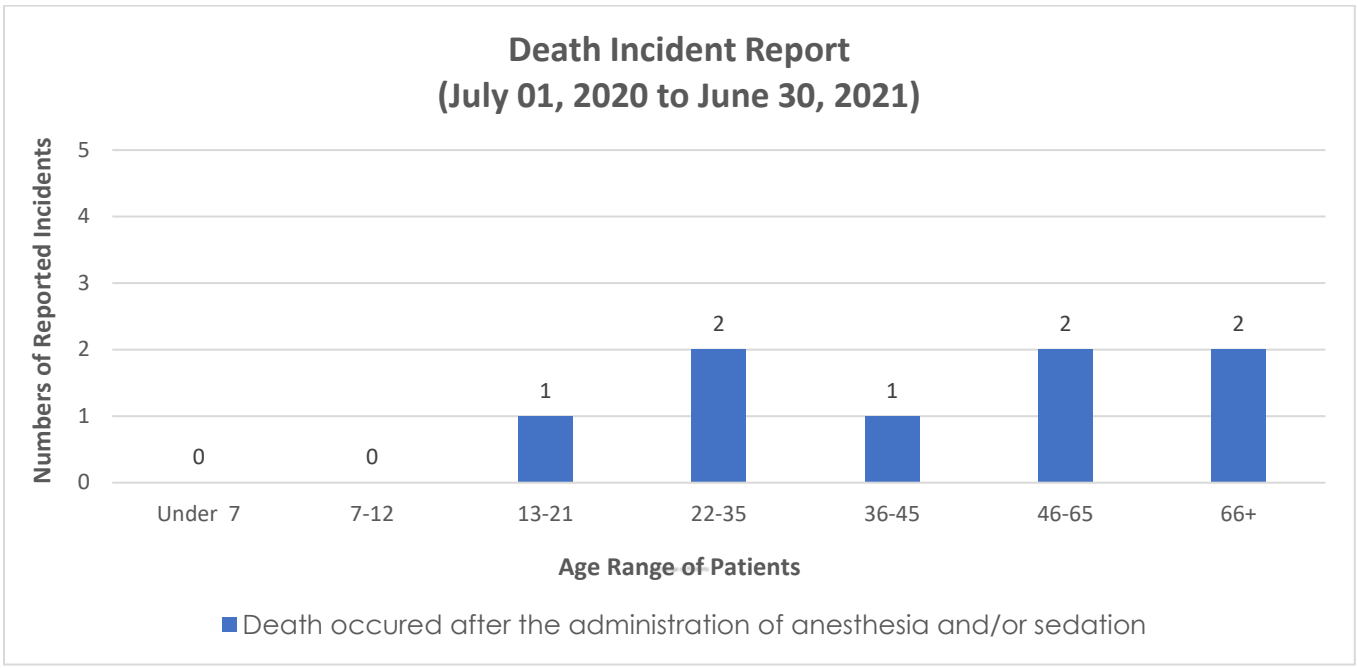
- Below is a breakdown of the numbers of deaths for each fiscal period:

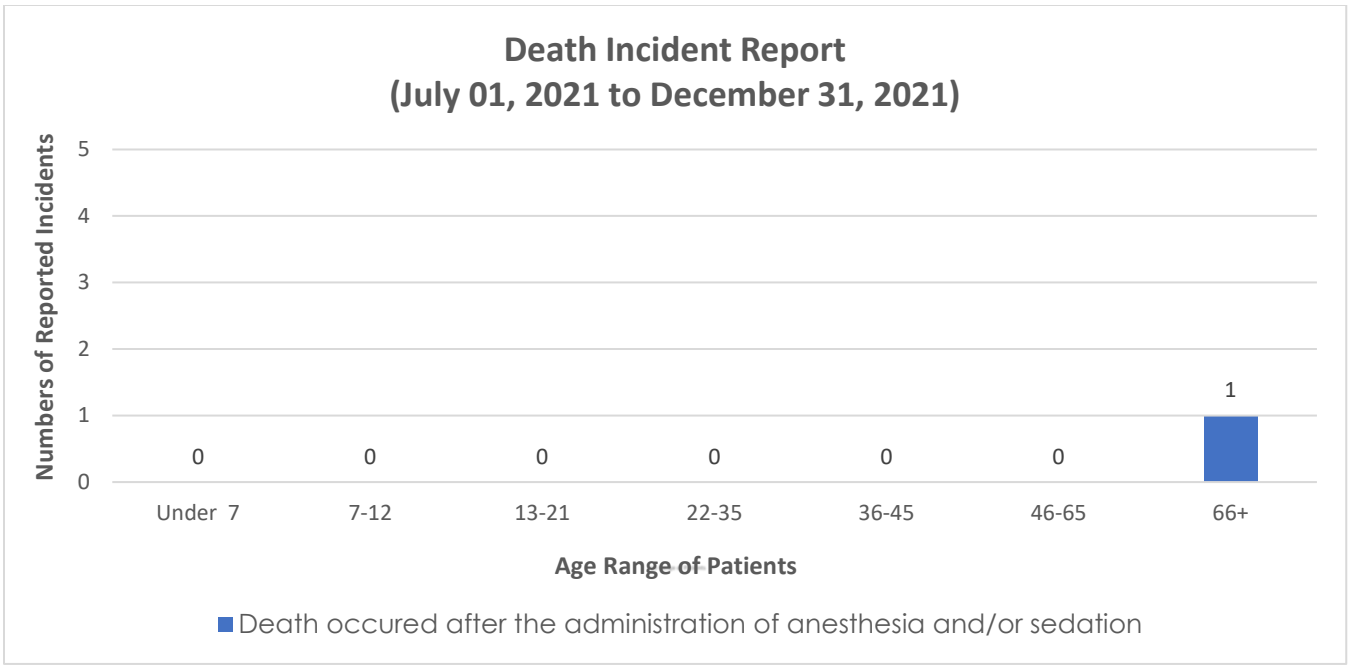



Death Incident Report
(July 01, 2017 to June 30, 2018)
Numbers of Reported Incidents
5
4
3
2
1
0
0
0
1
1
1
1
3
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Death occured after the administration of anesthesia and/or sedation

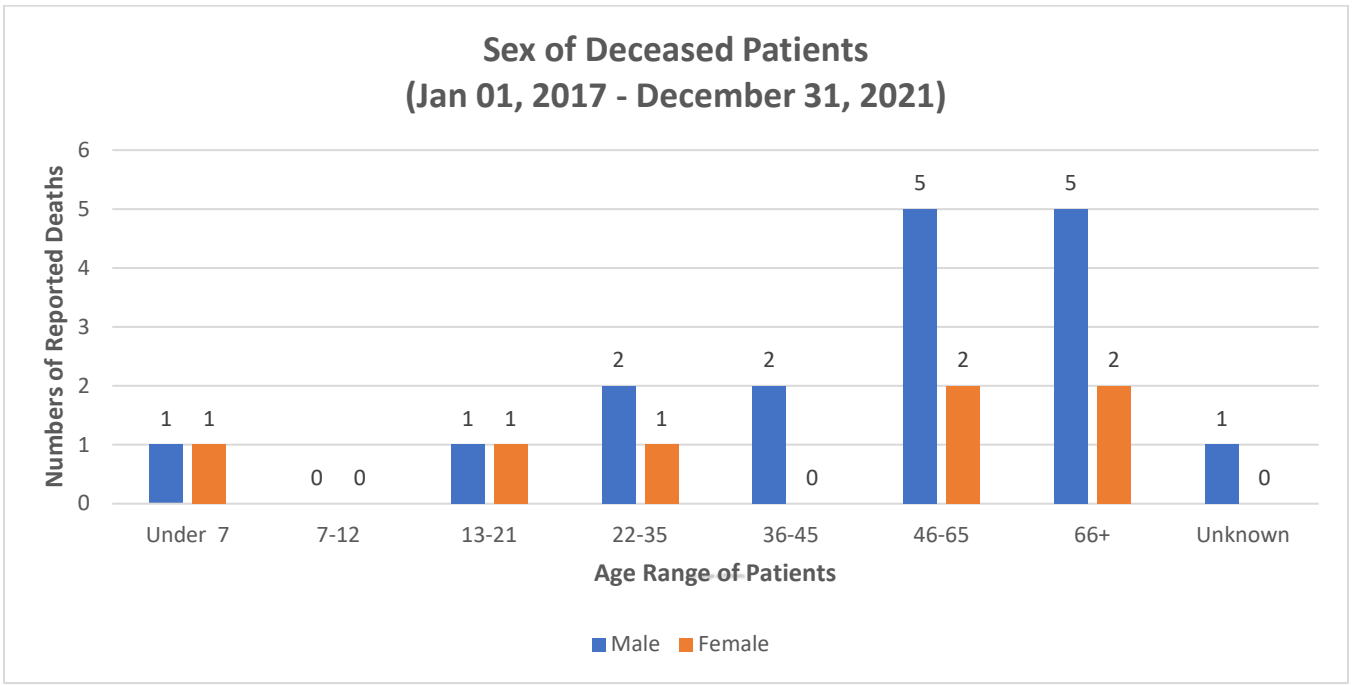

Death Incident Report
(July 01, 2018 to June 30, 2019)
Numbers of Reported Incidents
5
4
3
2
1
0
1
0
0
0
0
1
1
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Death occured after the administration of anesthesia and/or sedation


Death Incident Report
(July 01, 2019 to June 30, 2020)
Numbers of Reported Incidents
5
4
3
2
1
0
0
0
0
0
0
2
0
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Death occured after the administration of anesthesia and/or sedation


Death Incident Report
(July 01, 2020 to June 30, 2021)
Numbers of Reported Incidents
5
4
3
2
1
0
0
0
1
2
1
2
2
Under 7
7-12
13-21
22-35
36-45
46-65
66+
Age Range of Patients
Death occured after the administration of anesthesia and/or sedation



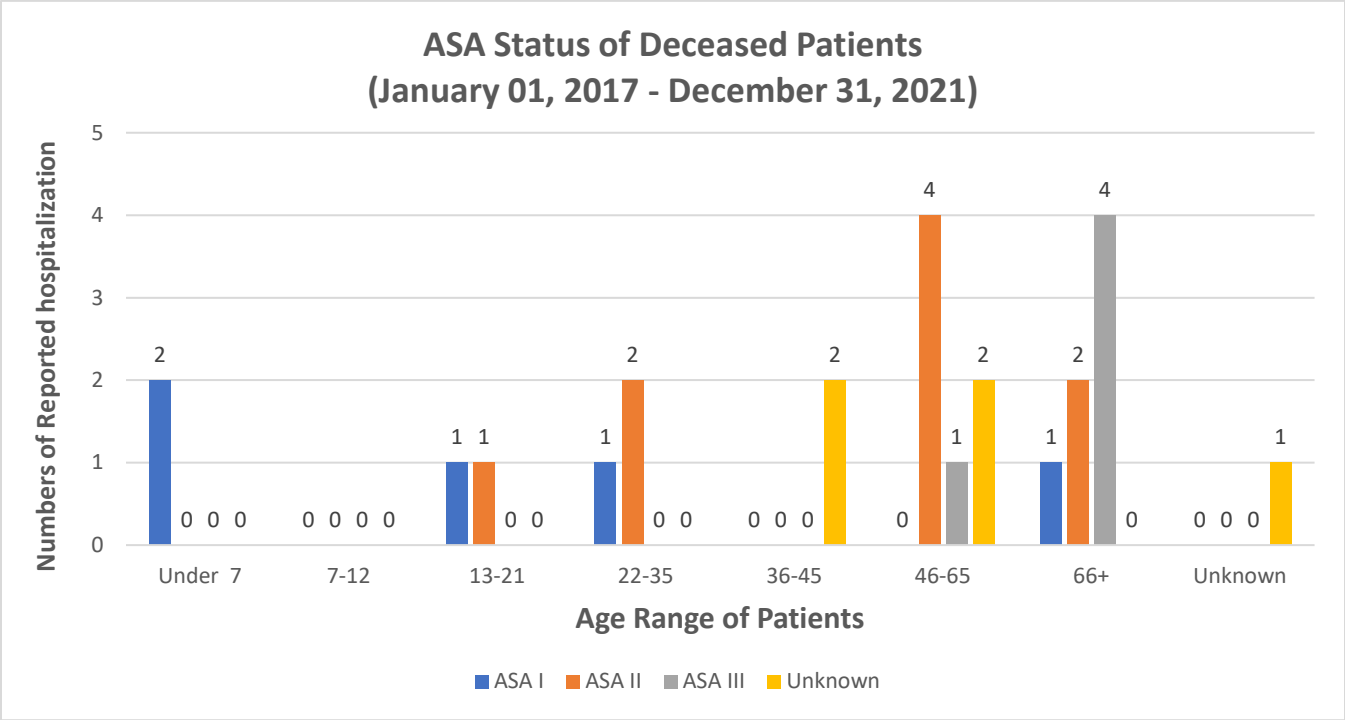
Sex of Deceased Patients by Age Group

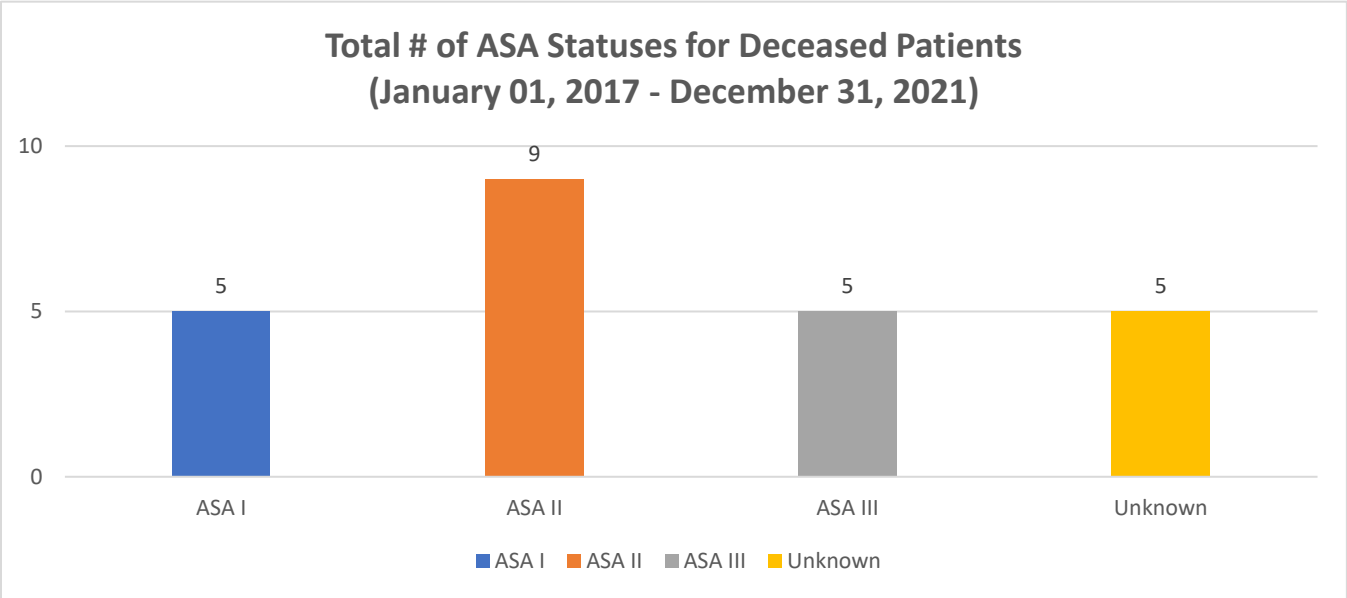


- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, there were a total of two death reports (1 male and 1 female).
  - For older pediatric patients ages 7-12, there were no reported deaths.

- For adolescent patients ages 13-21, there were a total of two death reports (1 male and 1 female).
- For young adult patients ages 22-35, there were a total of three death reports (2 males and 1 female).
- For adult patients ages 36-45, there were a total of two death reports (2 males).
- For middle-aged patients ages 46-65, there were a total of seven death reports (5 males and 2 females).
- For senior patients ages 66 and up, there were a total of seven death reports (5 males and 2 females).
- For patients of unknown age, there was a total of one death report (one male).

ASA Physical Status of Deceased Patients by Age Group



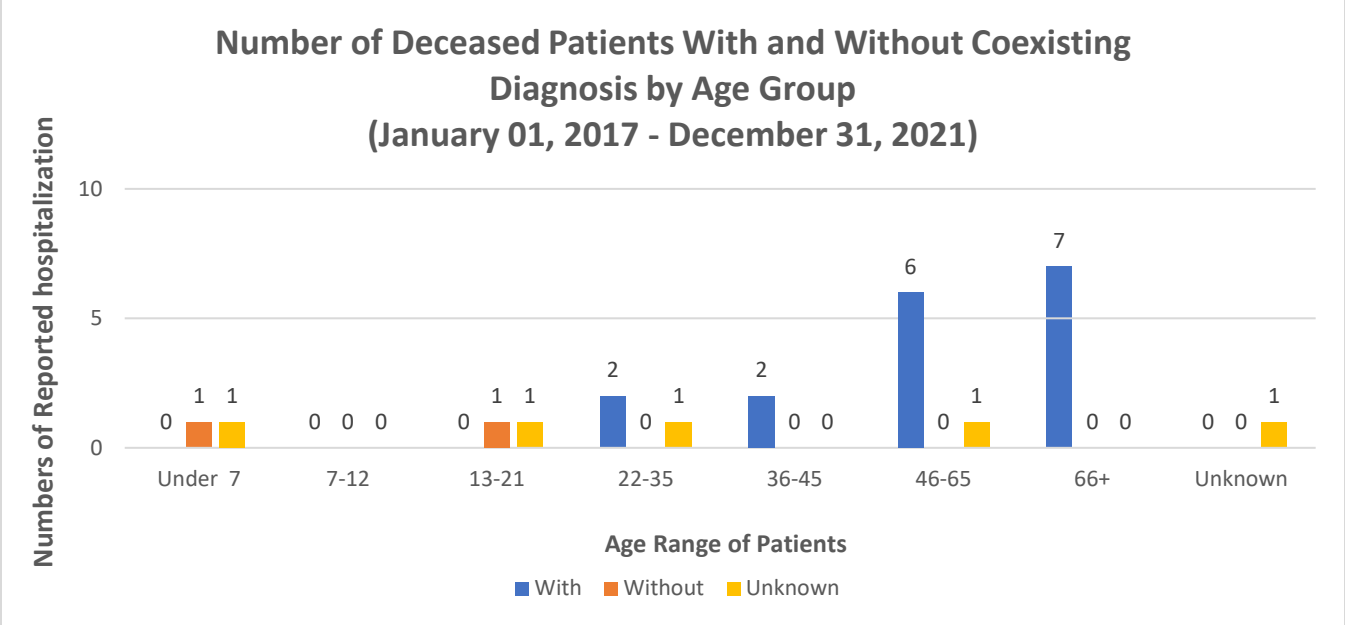


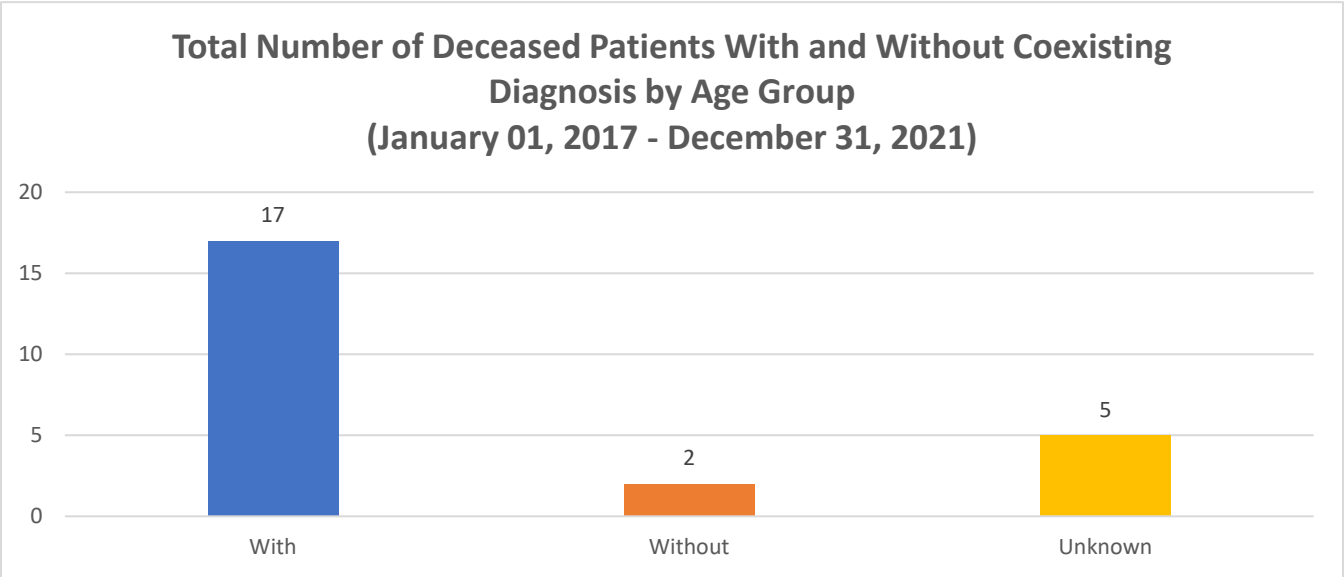
- The general guidelines of the ASA Physical Status Classification System are outlined below:
  - ASA I: A normal healthy patient
  - ASA II: A patient with mild systemic disease
  - ASA III: A patient with severe systemic disease
  - ASA IV: A patient with severe systemic disease that is a constant threat to life (none reported)
  - ASA V: A moribund patient who is not expected to survive without the operation (none reported)
  - ASA VI: A declared brain-dead patient whose organs are being removed for donor purposes (none reported)
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age: both patients were considered healthy.
  - For older pediatric patients ages 7-12: there were no reported deaths.
  - For adolescent patients ages 13-21: one patient was considered healthy, and one was considered as having mild systemic disease.
  - For young adult patients ages 22-35: one patient was considered healthy, and two patients were considered as having mild systemic disease.

- For adult patients ages 36-45: both patients whose ASA status were unknown.
- For middle-aged patients ages 46-65: four patients were considered as having mild systemic disease, one was considered as having severe systemic disease, and two patients whose ASA status were unknown.
- For senior patients ages 66 and up: one patient was considered healthy, two were considered as having mild systemic disease, and four patients were considered as having severe systemic disease.
- For patients whose age are unknown, one patient whose ASA status was unknown.

- In every age group combined, there were five patients considered “normal healthy patient,” nine were considered as those with mild systemic disease, five were considered as those with severe systemic disease, and four patients whose status were unknown. Both of the patients from the younger age group were considered healthy, but in the adult patients age group, there were higher numbers of ASA status of II and III similar to the hospitalization statistics. Although the ASA guidelines go up to level VI, there were no reports of any hospitalized patients who were considered a level IV, V, or VI.

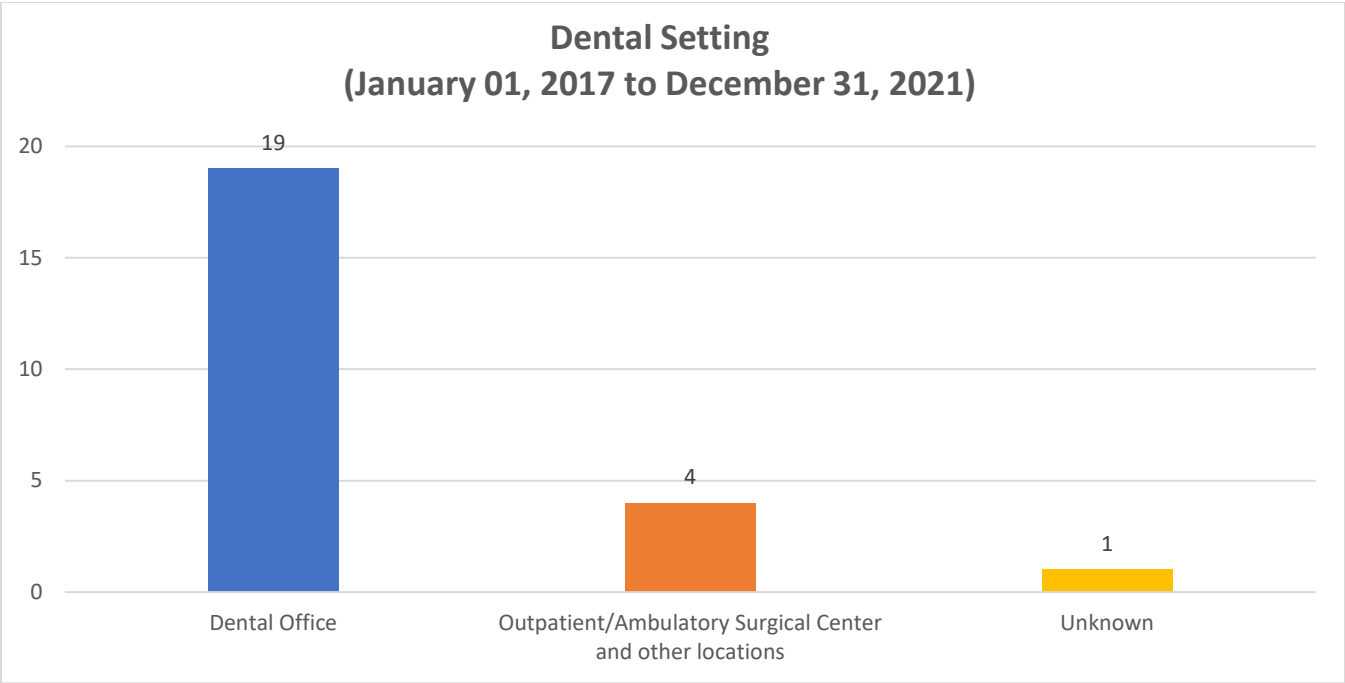
Number of Deceased Patients With and Without Coexisting Diagnosis by Age Group





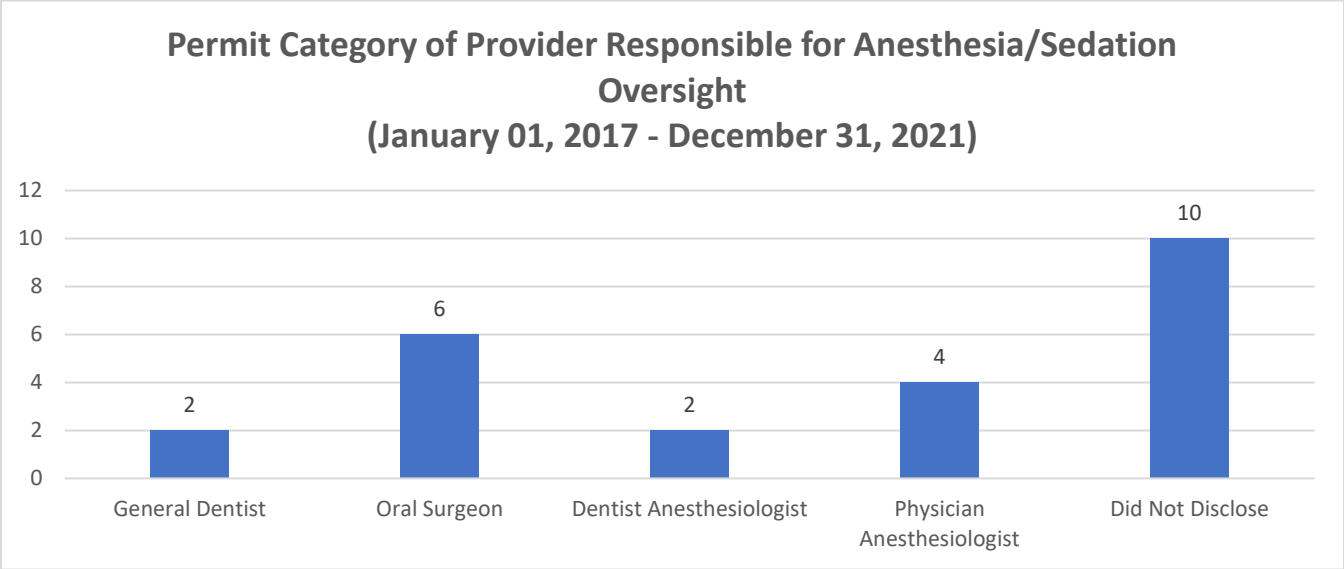
- These charts represent deceased patients who, before their dental procedure, either did or did not have a coexisting diagnosis. A total of 17 deceased patients were found to have a coexisting diagnosis, two patients did not have a coexisting diagnosis, and five patients were unknown. Predictably, there were higher numbers of serious coexisting diagnoses, such as hypertension, diabetes, liver disease, and other serious conditions, beginning at age 46 and older.

Dental Setting Where Anesthesia and/or Sedation May Have Resulted in Patient's Death



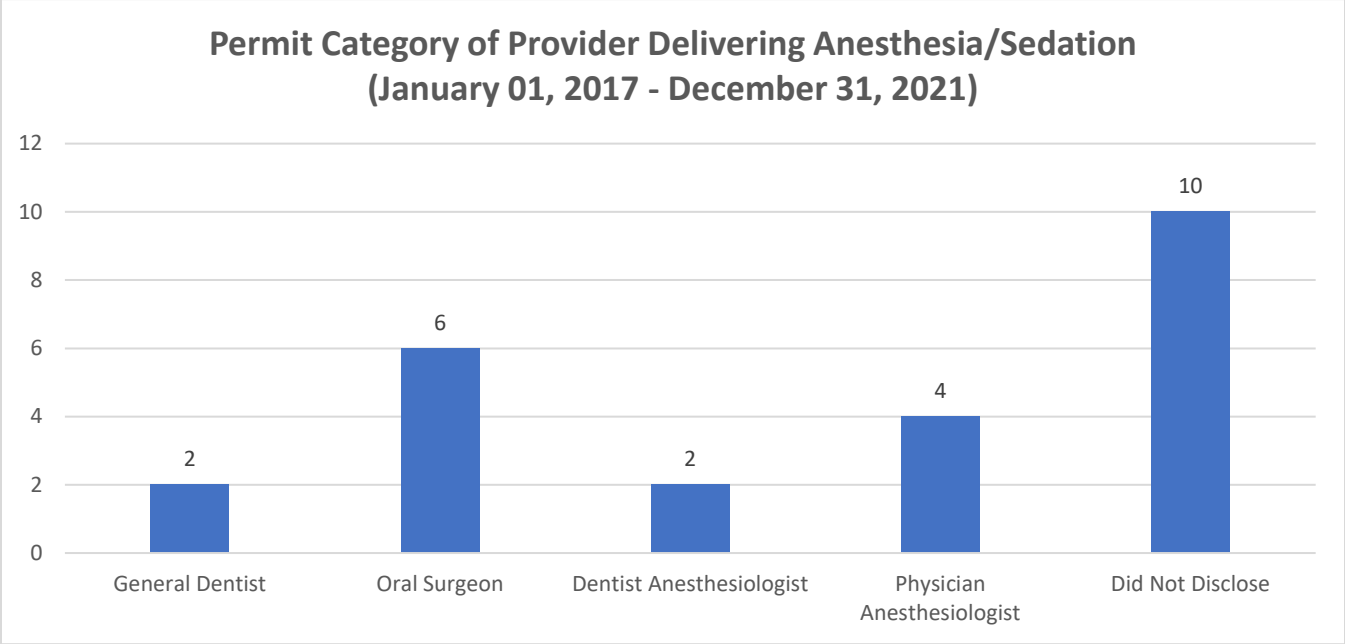
- This chart represents the setting of the dental procedures that resulted in the death of patients possibly due to the administration of anesthesia and/or sedation. Out of the total 24 dental treatments that resulted in death, 19 were conducted in a dental office, seven were conducted in outpatient/ambulatory surgical centers and other locations that were not a dental office, and one location that was not disclosed by the licensee.

Permit Category of Provider Responsible for Anesthesia or Sedation Oversight for Procedure of Deceased Patient



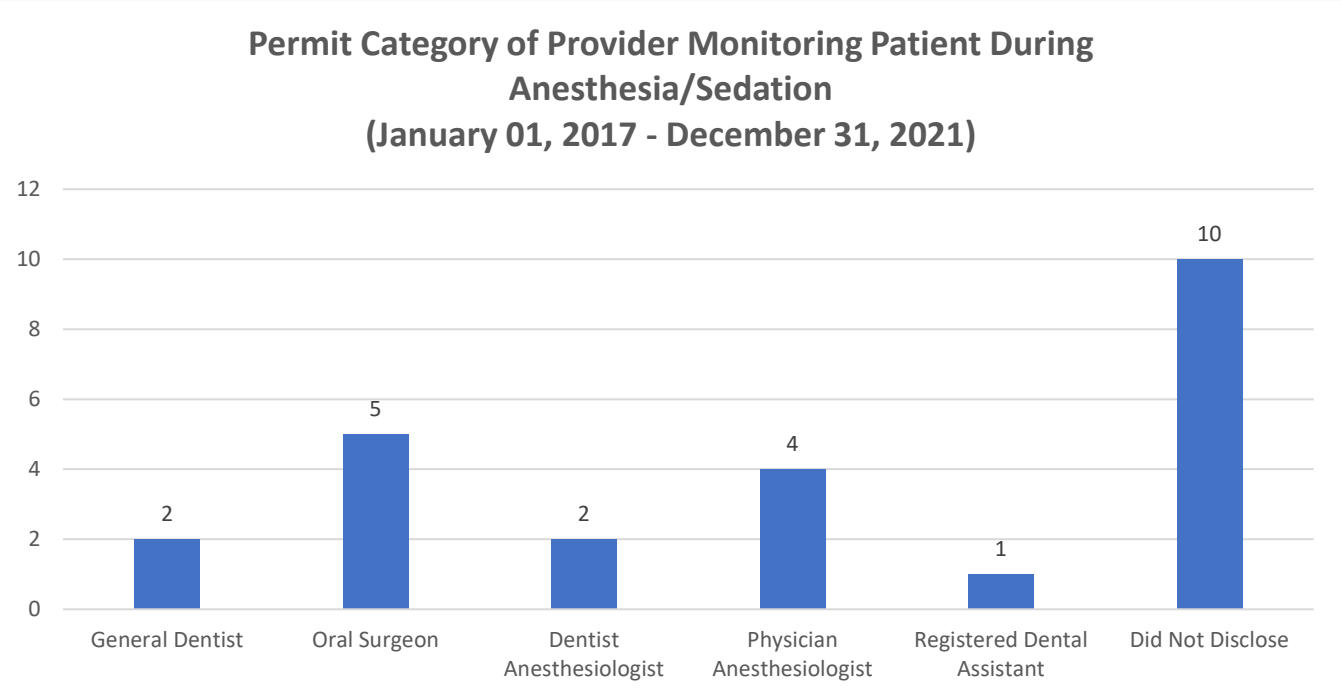
- This chart represents the category of the provider responsible for anesthesia or sedation oversight in cases where the patient had passed away possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises.
  - Of the 24 cases of reported deaths, two of the care providers were identified as general dentists.
  - Six of the care providers were identified as oral surgeons.
  - Two of the care providers were identified as dentist anesthesiologists.
  - Four of the care providers were identified as physician anesthesiologists.
  - Ten of the care providers had either left this section blank or incorrectly identified the category of the provider on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

Permit Category of Provider Delivering Anesthesia or Sedation for Procedure of Deceased Patient



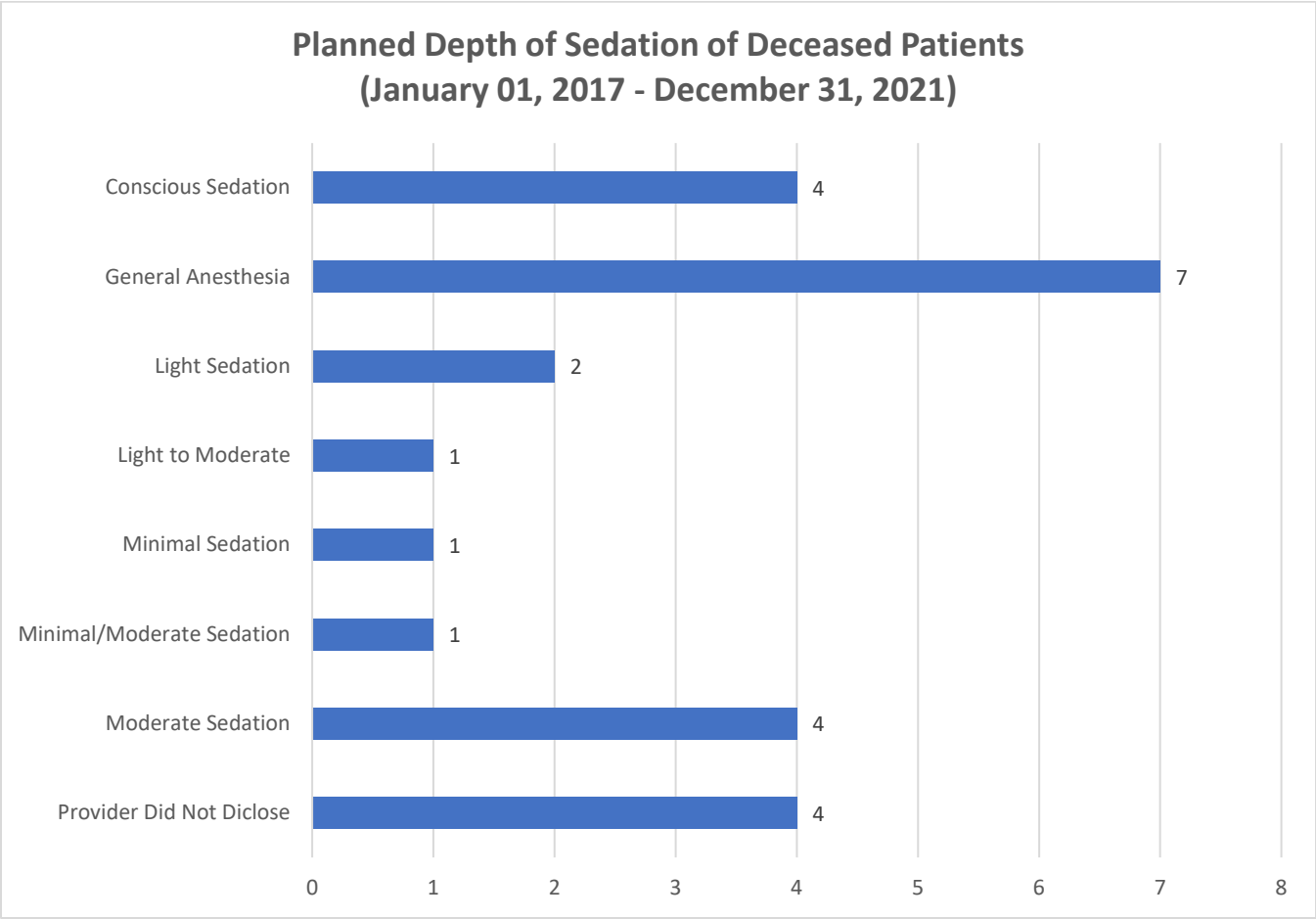
- This chart represents the category of the provider responsible for delivering anesthesia or sedation to patients who passed away possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises.
  - Of the 24 cases of reported deaths, two of the care providers were identified as general dentists.
  - Six of the care providers were identified as oral surgeons.
  - Two of the care providers were identified as dentist anesthesiologists.
  - Four of the care providers were identified as physician anesthesiologists.
  - Ten of the care providers had either left this section blank or incorrectly identified the category of the provider on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

Permit Category of Provider Monitoring During Anesthesia or Sedation Procedure of Deceased Patient



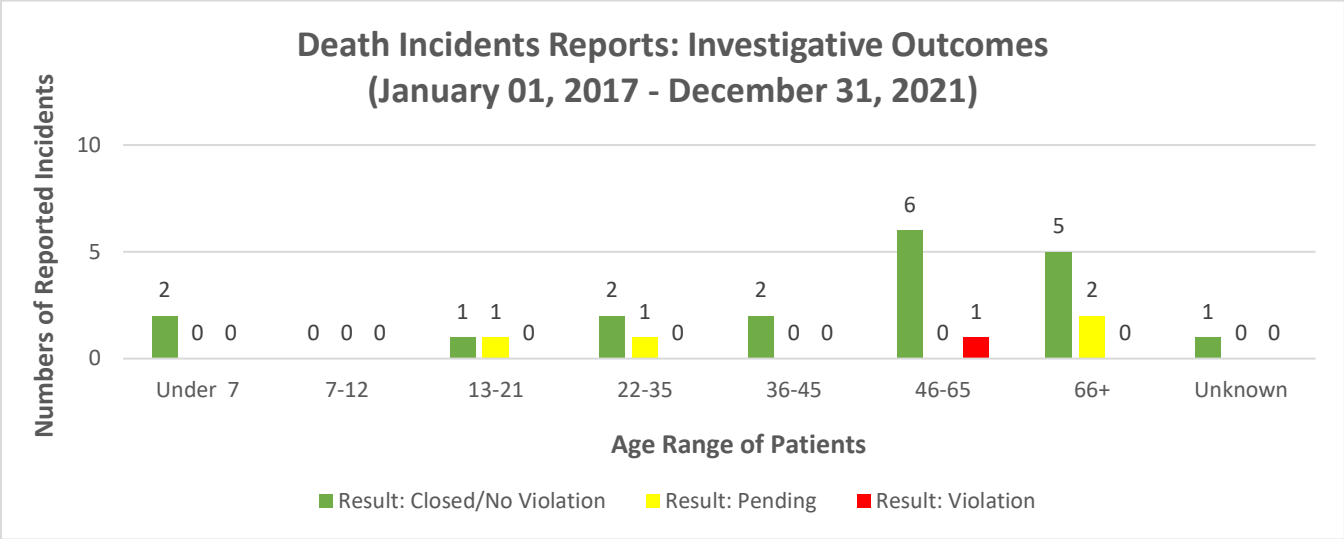
- This chart represents the category of the provider responsible for monitoring the patient who passed away possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises.
  - Of the 24 cases of reported deaths, two of the care providers were identified as general dentists.
  - Five of the care providers were identified as oral surgeons
  - Two of the care providers were identified as dentist anesthesiologists.
  - Four of the care providers were identified as physician anesthesiologists.
  - One care provider was identified as a registered dental assistant.
  - Ten of the care providers had either left this section blank incorrectly identified the category of the provider on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

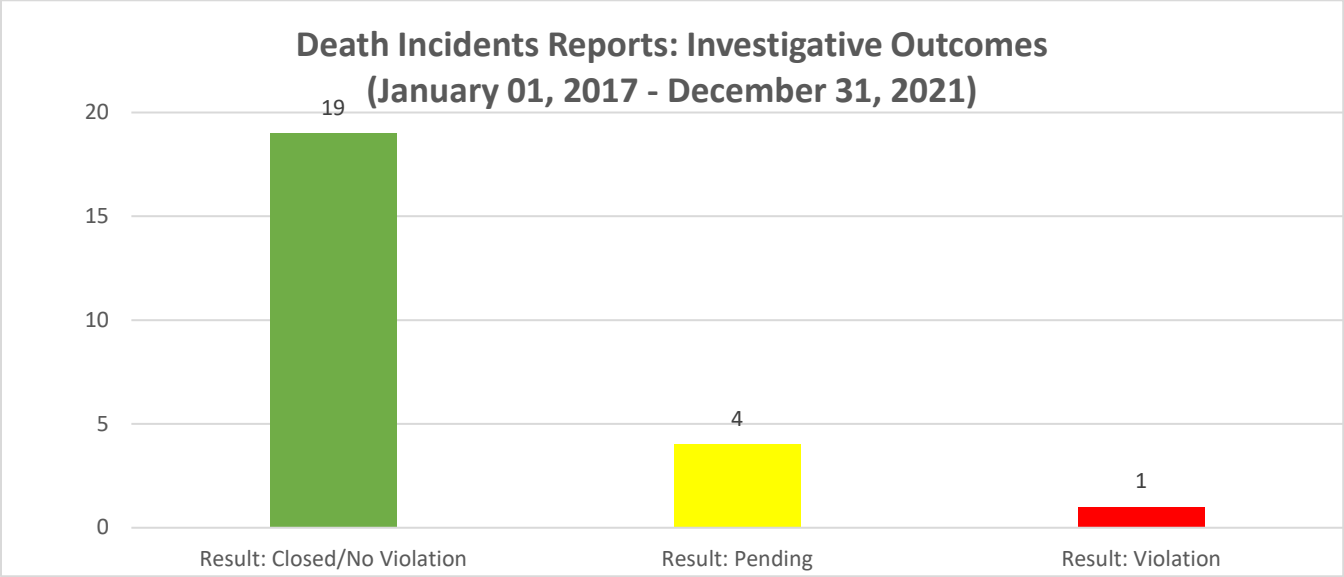
Planned Depth of Sedation of Deceased Patients



- This chart represents the planned depth of sedation for patients who had passed away possibly due to the administration of anesthesia and/or sedation under the dental provider's care or after they had left the premises. Please note that the planned depth of sedation is not a set category, and the information provided in the chart represents the provider's response on the "Courtesy Form for Reporting of Anesthesia Death or Hospitalization."

Death Incident Reports: Investigative Outcomes





- These two charts represent the Board's investigative outcomes from January 1, 2017, to December 31, 2021, for all reported deaths where anesthesia and/or sedation was administered.
- The Board has compiled and presents the following data:
  - For pediatric patients under 7 years of age, there were two incident reports of death, and both of those cases resulted in no violations.
  - For older pediatric patients ages 7-12, there were no reported cases of death.

- For adolescent patients ages 13-21, there were two incident reports of death. One case resulted in no violations, and the other is pending further investigation.
- For young adult patients ages 22-35, there were three incident reports of death. Two cases resulted in no violations, and one case is pending further investigation.
- For adult patients ages 36-45, there were a total of two incident reports of death, and both of those cases resulted in no violations.
- For middle-aged patients ages 46-65, there were seven incident reports of death. Of those seven, six cases resulted in no violations, and one case resulted in a violation.
- For senior patients ages 66 and up, there were a total of seven incident reports of death. Of those, five cases resulted in no violations, and two cases are pending further investigation.
- For patients of unknown age, there was one incident report of death, which resulted in no violation.

- Percentages of the case results are broken down as follows:
  - 79.17% of cases were “Closed – No Violation”
  - 16.67% of cases are in “Pending” status
  - 4.16% of cases were “Violation”