Pediatric Anesthesiologist Workforce Analysis
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Introduction
A workforce analysis was conducted in order to predict whether the projected future supply of pediatric anesthesiologists is balanced with the requirements of the pediatric population. The specific aims of the analysis were to project:
1) pediatric anesthesiologist-to-pediatric population ratios (0-17 years); and
2) the annual number of inpatient pediatric procedures per pediatric anesthesiologist over a 20-year period from 2015-2035.

Methods
The future number of pediatric anesthesiologists is determined by the current supply, additions to the workforce, and departures from the workforce. We previously compiled a database of US pediatric anesthesiologists in the base year of 2015. The historical linear growth rate for pediatric anesthesiology fellowship positions was determined using the ACGME Data Resource Books from 2002 – 2015. Three scenarios were modeled in which:
1) pediatric anesthesiology fellowship positions continue to grow at the historical growth rate;
2) pediatric anesthesiology fellowship positions grow at one-half of the historical growth rate; and,
3) pediatric anesthesiology fellowship positions plateau at the 2015 level.
The anticipated number of annual retiring anesthesiologists, assuming a median retirement age of 64, was calculated (Fig. 1).
The projected ratio of pediatric anesthesiologists-to-pediatric population was determined using the 2014 US Census pediatric population projections. The projected number of inpatient pediatric procedures per pediatric anesthesiologist was determined using the Kids’ Inpatient Database historical data to project the future number of inpatient procedures (including out of OR cases).

Results
In 2015, there were 5.46 pediatric anesthesiologists per 100,000 pediatric population (4,020/73.6 mil). If historical trends in pediatric anesthesiology fellowship growth continue, there will be an estimated 9.53 pediatric anesthesiologists per 100,000 pediatric population by 2035, a 74.5% increase over 2015 levels. If pediatric anesthesiology fellowship positions plateau at 2015 levels, there will be an estimated 6.97 pediatric anesthesiologists per 100,000 pediatric population by 2035, a 27.7% increase over 2015 levels (Fig. 2).

If fellowship positions continue to grow at historical rates, the number of annual inpatient procedures per anesthesiologist is projected to decrease by 42.7% (255-146). If pediatric anesthesiology fellowship positions remain at 2015 levels, the number of inpatient procedures per pediatric anesthesiologist is projected to decrease by 22.0% (255-199) by 2035 (Fig. 3).

Conclusions
The growth in pediatric anesthesiologist supply is likely to exceed the growth in both the pediatric population and inpatient procedures in the 20-year period from 2015 to 2035.

Figure 1. Historical growth of pediatric anesthesiology fellowship positions, projected growth of anesthesiology fellowship positions, and projected annual retirements from workforce

Figure 2. Projected number of pediatric anesthesiologists per 100,000 pediatric population

Figure 3. Projected number of inpatient procedures per pediatric anesthesiologist