Over the last three decades, the pediatric surgical workforce has expanded steadily with a pronounced increase in the number of subspecialists. Still, many children across large geographic areas lacked access to any pediatric surgeons in 2006, and the nearly flat recent growth in pediatric generalist surgeons raises concern about future access.

**Generalist Growth Slows**

In 2006, there was one pediatric generalist surgeon for every 108,305 children up to the age of 19 in the United States. This ratio represents a slight improvement from 25 years ago, but still signals a possible imbalance between the pediatric population and surgeons who are trained to treat them. Growth in the numbers of pediatric generalists reached a plateau by 2006 while pediatric surgical specialists expanded by nearly 24% in the last decade.

Pediatric surgical subspecialists have only been identifiable in the AMA Physician Masterfile data since the early 1990s; many of these surgeons served the pediatric population prior to the addition of those specialty codes to the AMA Physician Masterfile survey. For this reason it is difficult to assess change in this segment of the pediatric surgical workforce during the full 25-year study period; however, recent trends of strong growth in pediatric surgical subspecialties are evident (Figure 1). In all likelihood, these data underestimate the number of providers serving the pediatric population in all years. By 2006, there were 2.27 pediatric surgical specialists for every pediatric generalist surgeon.

**Quick Facts**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Pediatric Surgeons</th>
<th>Number of Children (ages 0–19) per Pediatric Generalist Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>464</td>
<td>154,728</td>
</tr>
<tr>
<td>2006</td>
<td>2,474</td>
<td>108,305</td>
</tr>
</tbody>
</table>

In 2006, only 399 (12.8%) of the 3,107 US counties had a pediatric surgeon.

By 2006, there were 2.27 pediatric surgical specialists for every one pediatric generalist surgeon.

**Mission Statement**

The mission of the ACS Health Policy Research Institute is to improve our understanding of surgical patient care from a policy perspective in order to educate the public, federal and state governments, health care consumers, and the policy community to enable advocacy for superior, efficient, and compassionate surgical patient care. The goal of the Institute is to create a data driven, knowledge based program for examining issues related to surgical services, the surgical workforce, and public policies affecting surgery.

![Figure 1. Pediatric Surgical Supply, 1981 - 2006](image-url)
pediatric generalist surgeon in the U.S. and pediatric orthopedic surgeons and ophthalmologists accounted for more
55% of all pediatric surgical subspecialists in 2006.

**Pediatric Surgeons Cluster in Urban Areas, Some Diffuse into Rural Counties**

Overall, only 399 of the country’s 3,107 counties had any pediatric surgeons in 2006, and 28,774,439 children under
the age of 19 lived in those counties. Just over half of the counties with pediatric surgeons (n=216) had a pediatric
generalist surgeon, while pediatric specialist surgeons were located in 371 counties.

The distribution of pediatric surgeons is denser in more urbanized areas of the country; however, the magnitude
of this varies from place to place and the difference in distribution between rural and urban areas is striking.
Ninety-seven percent of rural counties lacked any pediatric surgeons in 2006, a small improvement from 1981 when
99.3% had none ([Figure 2](#)). While it is clear that some previously underserved areas gained pediatric surgeons and
that the average ratio of pediatric surgeons to children improved in both rural and urban areas between 1981-2006,
geographic maldistribution of the pediatric surgical workforce remains a significant issue in many parts of the
country, particularly for rural areas ([Figure 3](#)).

- **Large areas of the country, particularly in the Midwestern and Southern regions of the country have no pediatric
surgeons, and many states have only a few counties with any pediatric surgeons ([Figure 3](#)). Three states, Montana,
North Dakota and Wyoming, have no pediatric generalist surgeons and Hawaii has one to serve all of the islands.**

**Data and Methodology**

AMA Physician Masterfile data representing all licensed physicians were analyzed in six consecutive periods
separated by five years each. Census Bureau population data for corresponding years was used to calculate
provider to population ratios at the county, state and regional levels of analysis. Pediatric population
was defined as the civilian population ages 0–19 years old. Providers with a self-reported primary or secondary specialty of one of seven pediatric surgical specialties including pediatric surgery (PDS), pediatric orthopedics (OP), pediatric ophthalmology (PO), pediatric urology (UP), pediatric neurological surgery (NSP), pediatric otolaryngology (PDO), and pediatric cardiothoracic surgery (PCS) were included in the analysis ([Figure 4](#)). When referring to pediatric
surgical generalists, we are discussing providers with a primary or secondary specialty of pediatric surgery (PDS) only. Only providers who identified their practice type as direct patient care, were 69 years old or younger and who reported a practice location within a U.S. county or county-equivalent (e.g. Federal Information Processing Standard (FIPS) codes) were included in the analysis. Physicians were excluded from the analysis in a given year if they reported being in residency training, semi-retired, or if they reported their primary present employer was the U.S. Government, Locum Tenens, Medical School, or Other Non-Patient Care Employment. For the purpose of this analysis, counties were defined by FIPS codes, regions by the U.S. Census Bureau, and rural – urban was defined using the U.S. Office of Management and Budget’s core based statistical area definitions for metropolitan and micropolitan areas.

Data include non-federal, non-resident, clinically active physicians less than 70 years old reporting a primary or secondary specialty classified by the ACS HPRI as pediatric surgery.
Produced By: American College of Surgeons Health Policy Research Institute, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Figure 3. Number of Pediatric Generalist and Specialist Surgeons by County, 2006

Data include non-federal, non-resident, clinically active physicians less than 70 years old reporting a primary or secondary specialty classified by the ACS HPRI as pediatric surgery.
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Advancing Health Policy Information for Surgery in the United States

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