Nearly all physicians in the United States, including many regarded as primary care practitioners, now obtain certification in at least one specialty or subspecialty. Examining the mix and distribution of board-certified physician specialties provides a useful lens for understanding the state’s physician workforce balance, and the primary care physician workforce in particular.

To become certified, a physician must not only possess a medical license (issued by the State of Minnesota), but he or she must also successfully pass one or more examinations that evaluate mastery of a specific medical or surgical field. Examining boards for each specialty field issue these certificates (thus the term “board-certified specialty”). This report uses data provided through the Minnesota Board of Medical Practice (BMP) by the two main certifying organizations – the American Board of Medical Specialties (ABMS) and the American Osteopathic Association (AOA) – to analyze Minnesota’s physician workforce.\(^1\)

The use of the term “specialist” in this report should not be confused with “specialty care” that is distinct from primary care. Rather, it refers to any physician who has obtained certification in a specialty, which today encompasses 80 percent of Minnesota physicians, including many in primary care. In Minnesota statute, “primary care” physicians include three medical specialties: family practitioners, general pediatrics and general internists.\(^2\) Board-certified specialties include both “general” certificates and “subspecialty” certificates. In this report, therefore, many physicians are classified as general family medicine specialists, even though historically they would not have been regarded as “specialists.”

---

\(^1\) The American Board of Medical Specialties encompasses twenty-four examining boards while the American Osteopathic Association encompasses eighteen.

\(^2\) 2011 Minnesota Statute 137.38, Subd 3. Primary care for this report is defined more specifically than the statute, and includes physicians board certified in general family medicine, general internal medicine or general pediatrics.
Physician Specialists, all types
As of March 2011, 20,042 physicians in Minnesota had active licenses to practice medicine in the state.3 Table 1 summarizes the number and type of board-certified licensed specialists.

Table 1 - Number of Licensed Physicians by Specialty, March 2011

<table>
<thead>
<tr>
<th>ABMS or AOA Specialty Board Certification Type</th>
<th>General*</th>
<th>Subspecialty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Licenses</td>
<td>Percent of Total</td>
<td>Number of Licenses</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>No Certification</td>
<td>4,053</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Family Medicine</td>
<td>2,874**</td>
<td>28%</td>
<td>152</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>2,040**</td>
<td>20%</td>
<td>1,916</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>873**</td>
<td>8%</td>
<td>335</td>
</tr>
<tr>
<td>OB/GYN</td>
<td>549</td>
<td>5%</td>
<td>49</td>
</tr>
<tr>
<td>Surgery</td>
<td>504</td>
<td>5%</td>
<td>1,803</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>464</td>
<td>4%</td>
<td>179</td>
</tr>
<tr>
<td>Facility-based</td>
<td>2,378</td>
<td>23%</td>
<td>445</td>
</tr>
<tr>
<td>Other</td>
<td>754</td>
<td>7%</td>
<td>148</td>
</tr>
<tr>
<td>Mixed Specialties</td>
<td></td>
<td></td>
<td>526</td>
</tr>
<tr>
<td>Total</td>
<td>10,436</td>
<td>100%</td>
<td>5,553</td>
</tr>
</tbody>
</table>

Notes: See Appendix A for category descriptions. Mixed Specialties, or physicians holding more than one general or subspecialty certificate in different specialties (for example family medicine and dermatology), were included in the Subspecialty count.4
*Includes only physicians with single board certifications.
**Denotes primary care physicians for purposes of this report.

Source: Minnesota Board of Medical Practice (BMP) & Minnesota Department of Health (MDH), 2011.

Among physicians with active licenses, 52 percent were board-certified generalists while 28 percent earned subspecialty certifications or were certified in two different specialties. Primary care specialties – family medicine, internal medicine and pediatric medicine – accounted for 29 percent of all state-issued active licenses. 20 percent of active physicians in Minnesota had no board certifications at the time of this analysis.

---

3 This count represents total active licenses issued by the Minnesota Board of Medical Practice (BMP) regardless of mailing address (Minnesota or elsewhere), whether they see patients or not, or whether working as a physician or not. It included both license renewals and new initial licenses. New licenses accounted for nearly 5 percent of the total number.

4 Some physicians were board certified in the same general specialty by both the American Osteopathic Association (AOA) and American Board of Medical Specialties (ABMS) and were included in the General counts. See Appendix A for other classification caveats and grouping rules, particularly within the facilities-related domain.
Physicians with General Certifications in a Specialty
Primary care physicians accounted for just over half (56 percent) of general certificate holders in Minnesota (Figure 1). Facility-based specialties (the combination of anesthesiology, emergency medicine, pathology, nuclear medicine and radiology) were the second-largest group, followed by general surgeons, OB/GYNs, general psychiatrists and other specialists. Three specialty domains – family medicine, internal medicine and the facility-based specialties – accounted for 71 percent of physicians with single general certifications.

Figure 1: Physicians with General Certification in a Specialty (N=10,436)

Source: BMP & MDH, 2011
Physicians with Subspecialty Certifications

Internal medicine and surgery subspecialists together accounted for 67 percent of all subspecialists in the state (Figure 2). A variety of other subspecialties made up the remaining third, including mixed/multiple specialties (such as dual or triple subspecialties), pediatrics and hospital-based specialties. Examples of mixed specialties include board certifications in both internal medicine and dermatology, internal medicine and pediatrics, family medicine and psychiatry, internal medicine and general surgery, and neurology and psychiatry.

Among surgeons, the largest percentages of specialty board certifications were held by orthopedic surgeons, ophthalmologists, otolaryngologists and urologists (break out not shown). It is important to note that the surgery subspecialist category contains all surgeons other than general surgeons, who appear in the General column of Table 1.

Figure 2: Physicians with Subspecialty Certification in a Specialty (N=5,553)
Urban-Rural Distribution of Specialties
The largest percentages of Minnesota-based board-certified generalists and subspecialists were concentrated within urban areas of the state (Figure 3). In other types of rural areas, there were more generalists present than specialists.

Figure 3 also shows that compared to physicians in the United States overall, Minnesota-based physicians are more likely to be located in rural areas (15 percent) of Minnesota physicians practice in rural areas compared to 11 percent nationally). This difference is reflected in the distribution of Minnesota’s population compared to that of the United States, as seen in Table B2 in Appendix B. Thirty-one percent of Minnesota residents live in rural areas compared to 20 percent in the nation overall.

Figure 3 - Urban-Rural Distribution of Minnesota Physicians

Source: BMP & MDH, 2011

---

5 Minnesota-based is defined by physician licenses with Minnesota mailing addresses. To understand how urban-rural geography is defined for this report, see the RUCA section of Appendix B.
Regional distribution of physician specialties

Figure 4 illustrates how board-certified general and subspecialty physicians (counted in Table 1) were distributed across Minnesota regionally. Nearly half of the state’s physicians were based in the Twin Cities region, and that region had proportionally more generalists than subspecialists. The next largest group had non-Minnesota addresses, followed by those in Southeast Minnesota, where the percentage of subspecialists was larger than the percentage of generalists in both regions, most likely due to the presence of the Mayo Clinic system. Other regions had far fewer physicians overall, and slightly more generalists than subspecialists.

Figure 4: Regional Distribution of General versus Subspecialty Physician Certifications

Source: BMP & MDH 2011

It is important to note that these are not static distributions. Minnesota physicians exercise considerable mobility as they rotate through multiple clinics and hospitals, often crossing county, region and state lines. Likewise, Minnesota residents travel to other counties, regions and states in order to access medical services. In addition, many Minnesota-trained and licensed physicians leave the state to practice or train elsewhere. Current counts do not reflect these health care market dynamics.

6 See Appendix B to understand how the Minnesota Planning Regions are defined.
Figure 5 shows the variation in regional physician mix across the state. It also illustrates how family medicine – the foundation of primary care – becomes increasingly predominant from the state’s more urban east to its more rural west.

**Figure 5: Regional Mix of Physicians with General Certification in a Specialty**

Overall, primary care specialties (family medicine, general internal medicine and general pediatric medicine) accounted for more than half of all general physicians in all regions of Minnesota. However, the mix of specialties that constituted primary care differed regionally. In all regions outside the Twin Cities and Southeast, family medicine constituted the base of primary care. In the Southeast, general internal medicine formed that base, most likely influenced by the presence of the Mayo Clinic system. And in the Twin Cities, over half of the primary care base was a combination of pediatrics and general internal medicine.

Figure 5 also reflects the high concentration of specialty-related health care resources along the eastern side of the state, including medical schools, medical research and tertiary care centers, which reflects the higher local population density in those areas. Subspecialty physicians were also highly concentrated in these three regions, as were facility-based physicians. Uniquely, the
Twin Cities region also contained a higher percentage of pediatricians than any other region (11 percent in Figure 5), primarily because Minneapolis and St. Paul are home to five children’s hospitals and have a larger population base under age 18 than any other region.

While the number of Minnesota-based general psychiatrists was small overall (5 percent in Figure 5), their distributional mix percentage was roughly similar across the regions, except in the Northeast and Northwest, where the percentage was smaller. General surgeons followed a reverse pattern, with the Twin Cities and Central regions having the lowest percentage in their regional mix (4 percent) and Northwest region the highest (7 percent).

Among non-Minnesota based physicians, facility-based physicians (36 percent) and primary care physicians (41 percent as a combination of family, internal and pediatric medicine) predominated. Over one third of out-of-state physicians had mailing addresses in Iowa, North Dakota, South Dakota and Wisconsin. Some of these physicians provide care to Minnesota patients who travel across state lines to receive care. Others commute to provide services or work as “locum tenens” (substituting while resident physicians take leaves or while a facility recruits to fill vacancies).

Regional distribution of subspecialists

Figure 6 illustrates the regional distribution of physicians holding even more specialized certifications, also known as subspecialists. Geographically, the Southeast region stood out for its large proportion of internal medicine subspecialists and the Twin Cities for its higher proportion of pediatric subspecialists compared to other regions. Among the regions with small numbers of subspecialists, surgical specialists dominated the mix. While the numbers of subspecialists in some regions was too small for further urban/rural comparisons, it is important to recognize that the regions in Figure 6 are arranged from the more urban on the left to the more rural on the right, excluding those out-of-state. Of those physicians not based in Minnesota, internal medicine subspecialties and surgical specialties accounted for more than two thirds of the mix.

---

8 There is a strong correlation between the mailing address listed on physician licenses and where they practice. However, many physicians, especially those with out-of-state licensees, list their home as their mailing address while practicing in multiple locations within a state or in other states. It is also important to note than an active license does not necessarily mean that the physician is actually practicing medicine. MDH workforce survey results show that a number of active license holders are retired; many serve in teaching or research roles only, or work in altogether other fields, like administration or medical management.
Figure 6: Regional Mix of Physicians with Subspecialty Certifications

Source: BMP & MDH 2011
APPENDIX A
Methodology for Classifying Physicians into Specialty Categories

Physician Specialty and Certification

Medical Practice – As a field, medical practice is typically broken down into categories of physician generalists and specialists that diagnose and treat specific diseases and disorders using medical interventions, surgical interventions, or combinations of the two. In contrast to generalist physicians, specialists focus primarily upon a medical and/or a surgical approach to healing patients with conditions afflicting specific body systems. For example, ophthalmology is a medical and surgical specialty focusing upon the eye; urology a medical and surgical specialty focusing upon the urinary tract and male reproductive system; and orthopedics is a surgical specialty focusing upon the bones, cartilage and connective tissue of the human body. There are two age-defined medical specialties, pediatrics (diseases in children) and geriatrics (diseases in senior adults). Obstetrics and gynecology, considered both a medical and surgical specialty, focuses exclusively upon the female reproductive system and child-bearing.

Process of Certification – To become “certified” in a specialty, physicians must successfully pass an examination process that evaluates their mastery of the minimum knowledge and skills specified in the core competency document for the field. Prior to taking the certifying examination, a physician must graduate with an appropriate medical degree, complete a practice residency, and then meet all other prerequisites to certification as set out by the certifying agency or "board."

Role of Certifying Associations - Board certification is a voluntary process overseen by different agencies and associations throughout the world, but for physicians seeking a license in Minnesota, only certifications awarded by the American Board of Medical Specialties (ABMS) or the American Osteopathic Association (AOA) are recognized by the Minnesota Board of Medical Practice. The American Board of Medical Specialties represents the largest of these organizations, with over 750,000 US physicians having received certification from one or more of its 24 member Boards. The boards oversee a rigorous process of testing and peer evaluation by specialists in each specific area of medicine, with the aim of ensuring that candidates for certification are knowledgeable about current evidence-based guidelines, national standards of care, and the best practices in their chosen area practice. In Minnesota, specialty board certificates awarded by the ABMS and the AOA were reported to the Board of Medical Practice for each licensed physician earning them.
Physician Specialty Certifications in Minnesota

Table 1 reflects that 80% of physicians licensed by the State of Minnesota had at least one specialty board certification while 20% had no certifications at the time of the analysis for this report. Table 1 also reveals that some physicians have multiple specialty board certifications. The majority, nearly 62%, reported one specialty board certification, while 15% had two, and nearly 3% had three or more certifications. Some physicians have similar certifications from different certifying boards. For example, a number of Minnesota physicians have both a general certification in family medicine from ABMS, and primary certification in family medicine from AOA.

No Certifications - Physicians with active licenses to practice medicine in Minnesota, but without board certifications at the time of this analysis, constituted 20% of licensees at the end of March 2011. There were several potential explanations regarding the size of this group. First, it was likely that a large proportion of new licensees without board certification were medical residents finishing their graduate training in Minnesota and receiving a Minnesota license upon passing Step 3 of the United States Medical License Examination (USMLE). Second, some of the last-year residents may have passed their specialty board certification exams by the time they completed their residency, but the certification data were yet to be updated in the BMP database. For example, some family medicine residents expected to complete three years of training by June 30th may have been eligible to take the April family medicine board certification examination. Third, others may have been physicians just beginning practice following completion of their residency, but who had yet to sit for specialty board certification examinations or, after passing the exams, were waiting for results to be reported to the BMP license database by ABMS and AOA. A fourth possibility includes a lag in certificate data updates from ABMS.

Minnesota Health Care Workforce Analysis Program Physician Specialty Categories

While it is often convenient to think of physicians as specialists in only one medical domain, many of Minnesota’s licensed physicians have earned various combinations and permutations of general and subspecialty board certifications, from the same boards, from different boards, and even from different board associations. For example, some physicians have earned certifications by both an ABMS board and an AOA board. MDH, guided by federal and state physician workforce policy considerations, created the specialty typology represented in Table 1 to be the foundation for this analysis. The following discussion describes how the typology was developed.

---

9 While the University of Minnesota and Mayo medical schools graduate approximately 275 new physicians each year, residency training slots in Minnesota are accepted by medical students from across the US and around the world. In March 2011, Minnesota had 494 residency slots. Residency length varies by specialty which means the number or residents eligible to take the USMLE Step 3 exam will vary from year to year. As of March 2011, the Board of Medical Practice had approved 1,290 medical resident applications.
The five named specialty board domains included in the typology were: *Family Medicine, Internal Medicine, Pediatrics, Obstetrics & Gynecology,* and *Psychiatry.* The four grouped specialty board domains were: *Surgery, Facility-based, Other,* and *Mixed Specialties.* These domains were further disaggregated into *General* or *Subspecialty* designations, generally consistent with the ABMS certification classification schema. Every physician licensed by the State of Minnesota was assigned to one, and only one category, meeting the conceptual standard that an effective typology must be mutually exclusive and exhaustive. Decision rules for each inclusion in cell of the Table 1 typology were as follows.

*No Certification* - Indicates that no ABMS or AOA specialty board certifications were attached to the BMP physician record at the end of March 2011 at the time of analysis.

*Family Medicine/General* – Physicians counted in this category were those with only a valid single general certificate in family medicine or family practice from the American Board of Family Medicine (ABFM) or the Family Physicians board of the AOA. There are a few exceptions to the single certification requirement. A number of family physicians are board certified by both the ABMS and AOA. These physicians are still counted as family medicine generalists. Other physicians have duplicate certifications in the same specialty by the same board. This is partly explained by overlapping certification dates, in other words, recertifying before the old certification period ends.

*Family Medicine/Subspecialty* – Counted only physicians with a subspecialty certificate in family medicine from ABFM or AOA. Physicians with only a subspecialty certificate, or those with both a general and one or more subspecialty certificates from these boards, were assigned to this category.

*Internal Medicine/General* – Counted only physicians with a single valid general certificate issued by the American Board of Internal Medicine or the Internal Medicine board of AOA. There are a few exceptions to the single certification requirement. A number of internists are board certified by both the ABMS and AOA. These physicians are still counted as internal medicine generalists. Other physicians have duplicate certifications in the same specialty by the same board. This is partly explained by overlapping certification dates, in other words, recertifying before the old certification period ends.

*Internal Medicine/Subspecialty* – Included only physicians with a subspecialty certificate from the American Board of Internal Medicine or the Internal Medicine board of AOA. Physicians with only a subspecialty certificate, or those with both a general and one or more subspecialty certificates from these boards, were assigned to this category. Physicians with general certificates from the American Board of Allergy and Immunology were included in this category because the Internal Medicine board of AOA includes allergy/immunology among their subspecialty certificates.
Pediatrics/General – Counted only physicians with a single valid general certificate from the American Board of Pediatrics or Pediatrics board of AOA.

Pediatrics/Subspecialty – Included only physicians with a subspecialty certificate from the American Board of Pediatrics or the companion board within AOA. Physicians with only a subspecialty certificate, or those with both a general and one or more subspecialty certificates from these boards, were assigned to this category.

OB/GYN/General - Counted only physicians with a single valid general certificate from the American Board of Obstetrics and Gynecology or the Obstetrics & Gynecology board of AOA.

OB/GYN/Subspecialty - Included only physicians with a subspecialty certificate from the American Board of Obstetrics and Gynecology or AOA. Physicians with only a subspecialty certificate, or those with both a general and one or more subspecialty certificates from these boards, were assigned to this category.

Surgery/General – This category counted only general surgeons, meaning surgeons with one general certificate in surgery from the American Board of Surgery or the Surgery board of AOA. Vascular surgeons and pediatric surgeons were classified as subspecialists for this typology.

Surgery/Subspecialty – This broad mixed category included surgeons with general certificates in vascular surgery and subspecialty certificates from the American Board of Surgery and the Surgery board of AOA; general certificates in colon and rectal surgery from the American Board of Colon and Rectal Surgery or Proctology board of AOA; general certificates in neurological surgery from the American Board of Neurological Surgery or the Surgery board of AOA; general certificates in ophthalmology from the American Board of Ophthalmology or the Ophthalmology and Otolaryngology board of AOA; general and subspecialty certificates in orthopaedic surgery from the American Board of Orthopaedic Surgery or the Orthopedic Surgery board of AOA; general and subspecialty certificates in otolaryngology from the American Board of Otolaryngology or the Ophthalmology and Otolaryngology board of AOA; general and subspecialty certificates in plastic surgery from the American Board of Plastic Surgery, or the Surgery board of AOA, or the Ophthalmology and Otolaryngology board of AOA; general certificates in thoracic and cardiac surgery from the American Board of Thoracic Surgery or the Surgery board of AOA; general and subspecialty certificates in urology from the American Board of Urology or the Surgery board of AOA.

Psychiatry/General – Counted psychiatrists with general certificates from the American Board of Psychiatry and Neurology or the Neurology & Psychiatry board of AOA.

Psychiatry/Subspecialty – Counted psychiatrists with general certificates in psychiatry and one or more subspecialty certificates, or subspecialty certificates alone, from the American Board of Neurology and Psychiatry or the Neurology & Psychiatry board of AOA. Psychiatrists with additional certificates from other boards, for example the American Board of Internal Medicine,
were grouped into the *Mixed Specialties* category. Psychiatrists with board certifications in both neurology and psychiatry were included in the *Mixed Specialties* category.

*Facility-based/General* – This category grouped physicians with a single general certification from the American Board of Anesthesiology, or the American Board of Emergency Medicine, or the American Board of Nuclear Medicine, or the American Board of Pathology, or the American Board of Radiology, or the AOA boards of Anesthesiology, Emergency Medicine, Nuclear Medicine, Pathology, or Radiology.

*Facility-based/Subspecialty* – Grouped physicians with a general certificate plus subspecialty certificates, or subspecialty certificates alone, from the American Board of Anesthesiology, or the American Board of Emergency Medicine, or the American Board of Nuclear Medicine, or the American Board of Pathology, or the American Board of Radiology, or the AOA boards of Anesthesiology, Emergency Medicine, Nuclear Medicine, Pathology, or Radiology. Physicians with certificates from two or more of these boards were grouped into the *Mixed Specialties* category.

*Other/General* – This category included physicians with single general certificates from all other boards not listed above, these include the American Board of Dermatology, the American Board of Physical Medicine and Rehabilitation, or the American Board of Preventive Medicine, or the American Board of Medical Genetics, or the AOA board counterparts. Neurologists were also grouped into this category with general certificates from the American Board of Psychiatry and Neurology or the Neurology & Psychiatry board of AOA. General certificates from the AOA board of Neuromusculoskeletal Medicine were included here.

*Other/Subspecialty* – Physicians with subspecialty certificates alone, or those with general and subspecialty certificates, from the American Board of Dermatology, the American Board of Physical Medicine and Rehabilitation, or the American Board of Preventive Medicine, or the American Board of Medical Genetics, or the AOA board counterparts were grouped into this category. Neurologists with subspecialty certificates, or general and subspecialty certificates from the American Board of Psychiatry and Neurology, or the Neurology & Psychiatry board of AOA were included here. This category also includes AOA board certified physicians with subspecialty certificates from the board of Neuromusculoskeletal Medicine.

*Mixed Specialties* – Any physician with two or more general or subspecialty certificates from different boards, or two or more general certificates from the same board were assigned to this category. Physicians with general certificates from one board and subspecialty certificates from another board were included here.

It is important to note that the MDH version of the Minnesota Board of Medical Practice licensing database included up to five specialty certifications for this analysis. Physician records with more than five board certifications were truncated and assigned to the MDH typology based
upon the five certifications of record. Only three physicians in the MDH version of the database had five board certifications.
To provide a more local perspective of the physician specialty workforce in Minnesota, this report presents summary results for each of the Minnesota Department of Employment and Economic Development (DEED) planning areas as defined below. Each region was defined to include a subset of Minnesota’s 87 counties.

**Minneapolis/St. Paul Region** – Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties.

**Central Region** – Benton, Chisago, Isanti, Kanabec, Kandiyohi, McLeod, Meeker, Mille Lacs, Pine, Renville, Sherburne, Stearns and Wright counties.

**Northeast Region** – Aitkin, Carlton, Cook, Itasca, Koochiching, Lake and St. Louis counties.

**Northwest Region** – Becker, Beltrami, Cass, Clay, Clearwater, Crow Wing, Douglas, Grant, Hubbard, Kittson, Lake of the Woods, Mahnomen, Marshall, Morrison, Norman, Otter Tail, Pennington, Polk, Pope, Red Lake, Roseau, Stevens, Todd, Traverse, Wadena and Wilkin counties.

**Southeast Region** – Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha and Winona counties.

**Southwest Region** – Big Stone, Blue Earth, Brown, Chippewa, Cottonwood, Faribault, Jackson, Lac Qui Parle, Le Sueur, Lincoln, Lyon, Martin, Murray, Nicollet, Nobles, Pipestone, Redwood, Rock, Sibley, Swift, Waseca, Watonwan and Yellow Medicine counties.

<table>
<thead>
<tr>
<th>Minnesota Region</th>
<th>Census 2010 Population</th>
<th>% of MN Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>684,001</td>
<td>13%</td>
</tr>
<tr>
<td>Northeast</td>
<td>326,225</td>
<td>6%</td>
</tr>
<tr>
<td>Northwest</td>
<td>553,805</td>
<td>10%</td>
</tr>
<tr>
<td>Southeast</td>
<td>494,684</td>
<td>9%</td>
</tr>
<tr>
<td>Southwest</td>
<td>395,643</td>
<td>8%</td>
</tr>
<tr>
<td>Twin Cities</td>
<td>2,849,567</td>
<td>54%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>5,303,925</td>
<td>100%</td>
</tr>
</tbody>
</table>
Figure B1: Minnesota Planning Regions

Source: Minnesota Department of Employment & Economic Development
Rural Urban Commuting Areas (RUCAs)

Rural-Urban Commuting areas (RUCAs) are a Census tract-based classification that utilizes the standard Census Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation’s Census tracts regarding their rural and urban status and relationships. A Zip Code based RUCA approximation was also developed and used in this analysis. Both versions of RUCAs were developed in partnership among the US Health Resources and Services Administration, Office of Rural Health Policy, the US Agriculture Department’s Economic Research Service, and the WWAMI Rural Health Research Center at the University of Washington.

RUCAs measure the *rurality* of a location based upon community population size, commuting distance, and driving time to larger population centers. RUCAs are maintained at the University of Washington’s WWAMI Center for Workforce Studies. Following standard practice, this report groups the RUCA codes into four broad categories, urban, large rural, small rural, and isolated rural areas. See the following websites for more details and references:

[http://depts.washington.edu/uwruca/](http://depts.washington.edu/uwruca/)

The following map presents a visual representation of the RUCAs as defined by the Zip Code approximation method. While the boundaries appear crisp in the figure, Zip Codes often overlap county lines and to some extent, regional lines. MDH and the BMP, however required that each physician record be assigned to a county based upon their mailing address rather than Zip Code, therefore the data used in the analysis respected county lines and thus regional boundaries. MDH has subsequently acquired computer software that geocodes the mailing address associated with each physician record into a Census tract, thus eliminating Zip Code overlaps in future analyses.
Figure B2

Rural-Urban Commuting Areas Zip Code Approximation - Minnesota

Source: University of Washington, WWAM Rural Health Research Center
Figure B3: Urban-Rural Distribution of 2000 Census Population with Regions

Source: 2000 US Census; University of Washington, WWAMI Rural Health Research Center; Minnesota Department of Health.

Note: Rebasing of the Rural Urban Commuting Areas using the 2010 Census counts was not complete at the time of this report.

Table B2 – Rural-Urban Commuting Areas, Population Distribution

<table>
<thead>
<tr>
<th>Geography</th>
<th>Minnesota 2000</th>
<th>U.S. 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>68.9%</td>
<td>80.0%</td>
</tr>
<tr>
<td>Large Rural</td>
<td>13.3%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Small Rural</td>
<td>7.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Isolated Rural</td>
<td>10.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: US Census, AHRQ & MDH