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## Distribution of Minnesota Hospital Beds By Specialty

Recent concerns about demographic changes, shortages of hospital capacity for specific services (e.g. behavioral health) and significant expansion of capacity for certain specialized services (e.g. cardiac care) have increased the need for information on the availability of certain types of hospital capacity. While there is good information regarding overall hospital capacity in Minnesota, such as the total number of hospitals and hospital beds, to date there has been very little information about the capacity for specific services. Depending on demand, the service composition of available beds in a single hospital may vary over time. Despite this natural fluctuation, however, most hospitals are able to describe, on average, how many available beds are designated for specific medical services.

To evaluate hospital capacity in Minnesota by service type, the Health Economics Program conducted a survey of acute care hospitals. This issue brief summarizes Minnesota hospital capacity by service type and the occupancy rates associated with these services.<sup>1</sup>

### Licensed Versus Available Capacity

While hospitals are licensed to operate a specific number of beds, many hospitals operate well below their licensed capacity. In aggregate, the 136 acute care hospitals in Minnesota are licensed to operate 16,000 beds, but report less than 12,000 available beds (defined as the number of acute care beds that are immediately available for use or could be brought on line within a short period of time).<sup>2</sup> Staffing constraints, physical space constraints, and demand all affect the number of licensed beds a hospital chooses to make available. For this reason, this report focuses on the number of beds that hospitals reported as available at the time of the survey as opposed to the number of beds they are licensed to operate.

### Statewide Hospital Capacity

As shown in Table 1, there are currently 136 acute care hospitals in Minnesota, which operate slightly less than 12,000 beds. The Twin Cities Metropolitan region has the most hospitals, followed by the Southwest and Central regions. The number of available hospital beds per 1,000 people ranges from 1.6 in Central Minnesota to 3.5 in Northeast and Southeast Minnesota.

## Minnesota Hospital Capacity by Service Category

Table 1

Hospital Capacity in Minnesota, by Region

	Number of Hospitals	Licensed Beds	Available Beds*	Available Beds Per 1,000 Population
Central	20	1,377	1,111	1.6
Metropolitan	26	8,335	5,891	2.2
Northeast	17	1,465	1,122	3.5
Northwest	13	558	447	2.3
South Central	15	803	560	2.0
Southeast	12	2,613	1,688	3.5
Southwest	24	776	640	2.8
West Central	9	463	376	2.1
<b>Total</b>	<b>136</b>	<b>16,390</b>	<b>11,835</b>	<b>2.3</b>

\*As reported on the 2004 Minnesota Hospital Capacity Survey.  
Source: Health Economics Program, MDH

As shown in Table 2, roughly two-thirds of the hospitals in the state are small hospitals (about one-third have fewer than 25 available beds and one-third have between 25 and 49 beds). Only 16 hospitals have more than 200 available beds (this represents 12 percent of all hospitals). Most of the large hospitals are located in the Twin Cities Metropolitan region, while more than half of the hospitals in Northeast, Southwest, and West Central Minnesota have fewer than 25 available beds.

Table 2

Size Distribution of Minnesota's Hospitals, by Region\*

	Under 25 Beds	25-49 Beds	50-99 Beds	100-199 Beds	200 or More	Total
Central	4	13	1	1	1	20
Metropolitan	1	3	6	5	11	26
Northeast	9	3	2	1	2	17
Northwest	5	5	2	1	0	13
South Central	7	5	2	1	0	15
Southeast	2	3	5	0	2	12
Southwest	14	8	2	0	0	24
West Central	5	2	0	2	0	9
<b>Total</b>	<b>47</b>	<b>42</b>	<b>20</b>	<b>11</b>	<b>16</b>	<b>136</b>

\*Hospital size categories based on the total number of available beds reported on the 2004 MDH Hospital Capacity Survey.  
Source: Health Economics Program, MDH

Table 3

Adult Acute Care Hospital Bed Capacity in Minnesota, by Region

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
<b>Hospitals that Reported Adult Acute Care Beds</b>	20	23	17	13	15	12	24	9	133
<b>Adult Acute Care Beds</b>									
Cardiac	60	606	72	0	1	0	6	2	747
Orthopedic	36	447	77	0	0	0	0	0	560
Obstetrics	106	472	53	22	57	95	45	29	879
Chemical Dependency	11	90	0	0	10	0	0	0	111
Mental (Psychiatric) Health	48	603	80	24	43	33	22	14	867
Rehabilitation	33	202	63	32	0	57	3	14	404
Neurology	22	176	36	0	0	0	0	0	234
General Medical/Surgical	637	1,931	512	331	410	1,190	534	285	5,830
<b>Total</b>	<b>953</b>	<b>4,527</b>	<b>893</b>	<b>409</b>	<b>521</b>	<b>1,375</b>	<b>610</b>	<b>344</b>	<b>9,632</b>
<b>Geographic Distribution of Acute Care Adult Beds</b>									
Cardiac	8%	81%	10%	0%	0%	0%	1%	0%	100%
Orthopedic	6%	80%	14%	0%	0%	0%	0%	0%	100%
Obstetrics	12%	54%	6%	3%	6%	11%	5%	3%	100%
Chemical Dependency	10%	81%	0%	0%	9%	0%	0%	0%	100%
Mental (Psychiatric) Health	6%	70%	9%	3%	5%	4%	3%	2%	100%
Rehabilitation	8%	50%	16%	8%	0%	14%	1%	3%	100%
Neurology	9%	75%	15%	0%	0%	0%	0%	0%	100%
General Medical/Surgical	11%	33%	9%	6%	7%	20%	9%	5%	100%
<b>Total</b>	<b>10%</b>	<b>47%</b>	<b>9%</b>	<b>4%</b>	<b>5%</b>	<b>14%</b>	<b>6%</b>	<b>4%</b>	<b>100%</b>

Source: Health Economics Program, MDH

## Adult Capacity by Service Category

Tables 3 and 4 show the breakdown of adult beds by service category (adult beds make up 90 percent of all hospital beds in the state). In all regions of the state, except the Twin Cities Metropolitan region, more than half of the acute adult beds are designated as general medical/surgical beds. In addition, in every region at least 5 percent of acute care adult beds are dedicated to obstetrics services. Beds designated for specialized services like orthopedics and neurology are concentrated in the Central, Metropolitan and Northeast regions of the state.

Table 4

### Adult Intensive Care Hospital Bed Capacity in Minnesota, by Region

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
<b>Hospitals that Reported Adult Intensive Care</b>	12	20	10	5	7	8	5	6	72
<b>Adult Intensive Care Beds</b>									
Cardiac	12	144	42	0	6	70	13	8	295
Neurology	0	28	0	0	0	20	0	0	48
General Medical/Surgical	85	367	94	28	26	104	9	14	727
<b>Total</b>	<b>97</b>	<b>539</b>	<b>136</b>	<b>28</b>	<b>32</b>	<b>194</b>	<b>22</b>	<b>22</b>	<b>1,070</b>
<b>Geographic Distribution of Adult Intensive Care Beds</b>									
Cardiac	4%	49%	14%	0%	2%	24%	4%	3%	100%
Neurology	0%	58%	0%	0%	0%	42%	0%	0%	100%
General Medical/Surgical	12%	50%	13%	4%	4%	14%	1%	2%	100%
<b>Total</b>	<b>9%</b>	<b>50%</b>	<b>13%</b>	<b>3%</b>	<b>3%</b>	<b>18%</b>	<b>2%</b>	<b>2%</b>	<b>100%</b>

Source: Health Economics Program, MDH

Intensive care beds are also concentrated in specific regions of the state (see Table 4). Almost 70 percent of the adult intensive care beds are located in two regions of the state (half are located in the Metropolitan region and almost 20 percent are in the Southeast). Hospitals in the three western regions of the state (Northwest, West Central and Southwest) and South Central Minnesota reported only 104 intensive care beds, or 10 percent of all adult intensive care beds.

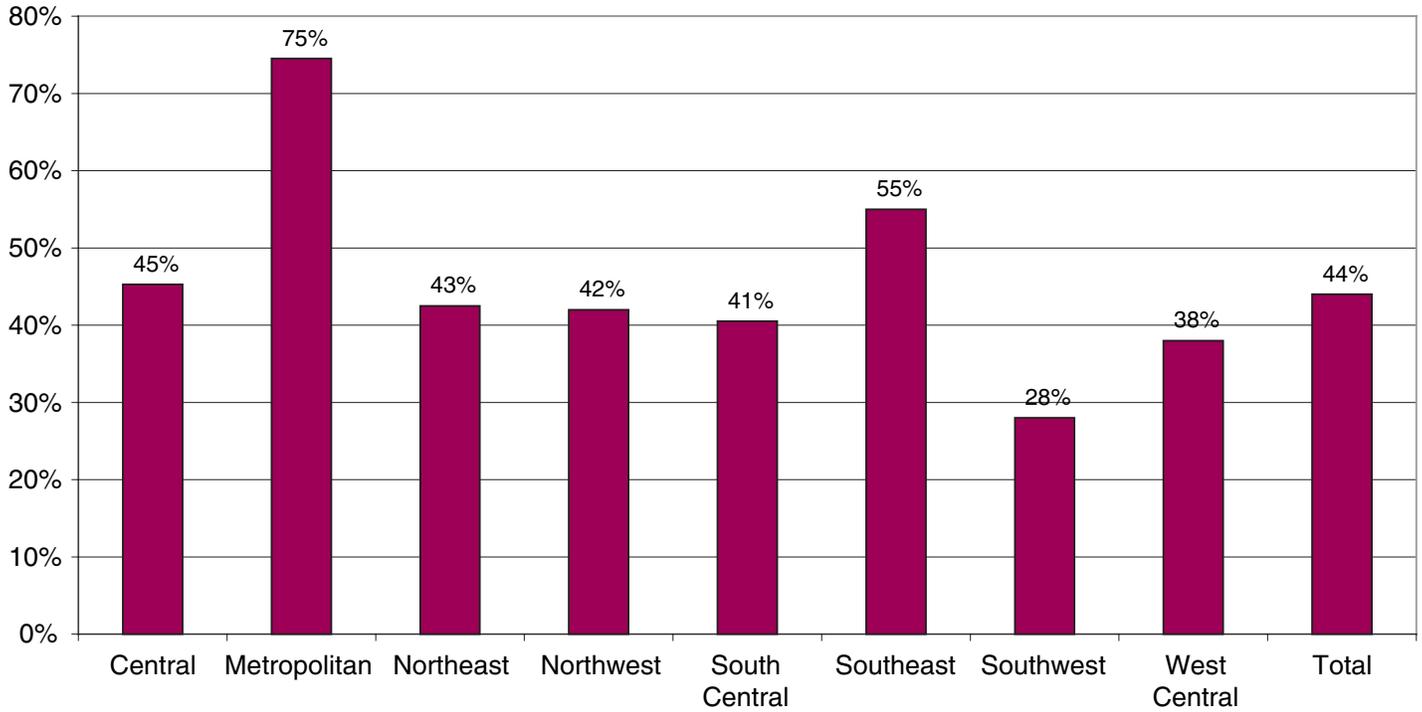
The occupancy rates reported for adult beds ranged from 24 percent to 100 percent.<sup>3</sup> The median occupancy rate was 44 percent. Across the different service categories, occupancy rates varied. With the exception of beds dedicated for obstetrics services (median occupancy of 50 percent), occupancy rates reported for specialized beds were higher than for general medical/surgical beds, which had a median occupancy of 50 percent. Orthopedic beds had a median occupancy of 80 percent, rehabilitation beds had a median occupancy of 60 percent and neurology beds had a median occupancy of 83 percent.

Within most of the service categories, the adult bed occupancies reported by large hospitals were higher. Figure 1 shows the median occupancies for all adult beds by region. As shown in the Figure, the occupancy rates for adult beds vary greatly by region. In addition, occupancy rates vary by hospital size (see Figure 2). Specifically, the occupancy rates increase as the size of the hospital increases. This is not surprising due to the distribution of large and small hospitals by region.

# Minnesota Hospital Capacity by Service Category

Figure 1

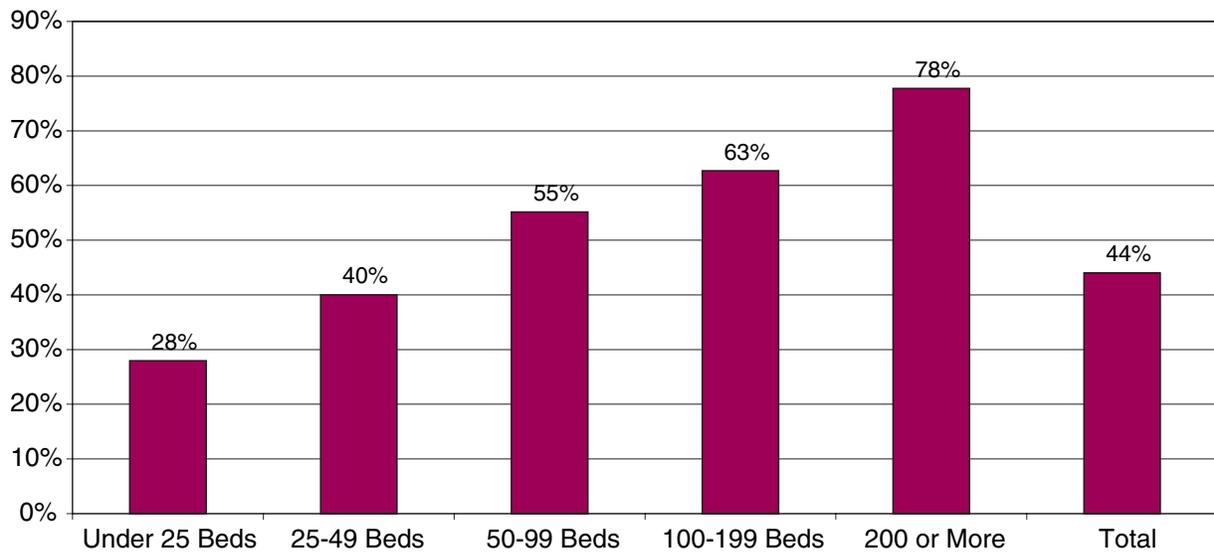
Median Occupancy Rate for Adult Beds, By Region



Source: Health Economics Program, MDH

Figure 2

Median Occupancy Rates for Adult Beds, by Hospital Size



Source: Health Economics Program, MDH

## Pediatric and Newborn Capacity by Service Category

Table 5 shows the breakdown of pediatric beds by service category (pediatric beds make up 6 percent of all hospital beds in the state). Pediatric beds require specially trained staff and equipment and are located in a small number of midsized to large hospitals across Minnesota (of the 24 hospitals that reported beds designated for pediatric cases, all have more than 50 beds and almost half have more than 200 beds).<sup>4</sup> As shown in the table, pediatric beds are regionally concentrated. Hospitals located in the Northwest and West Central regions did not report any beds designated for pediatric cases. In addition, most of the pediatric beds are concentrated among a small number of hospitals. Of the hospitals that reported specific pediatric beds, only 8 operate more than 25 pediatric beds. Almost 60 percent of the pediatric beds listed in Table 5 were reported by four hospitals—University of Minnesota Medical Center, Fairview (163 pediatric beds), Children’s Hospitals and Clinics, Minneapolis (135 pediatric beds), Children’s Hospitals and Clinics, St. Paul (76 pediatric beds) and Saint Marys Hospital in Rochester (60 pediatric beds). These hospitals also reported more than 80 percent of the pediatric intensive care beds (aside from the four hospitals listed above, only Hennepin County Medical Center reported pediatric intensive care beds).

Table 5

Pediatric Hospital Bed Capacity in Minnesota, by Region

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
<b>Hospitals that Reported Pediatric Beds</b>	2	14	5	0	1	1	1	0	24
<b>Pediatric Acute Care Beds</b>									
Cardiac	0	0	0	0	0	0	0	0	0
Orthopedic	0	18	0	0	0	0	0	0	18
Chemical Dependency	0	27	0	0	0	0	0	0	27
Mental (Psychiatric) Health	8	90	16	0	0	0	0	0	114
Rehabilitation/Neurology	0	18	0	0	0	0	0	0	18
Intensive Care	6	103	6	0	0	16	0	0	131
General Medical/Surgical	25	317	46	0	7	44	8	0	447
<b>Total</b>	<b>39</b>	<b>573</b>	<b>68</b>	<b>0</b>	<b>7</b>	<b>60</b>	<b>8</b>	<b>0</b>	<b>755</b>
<b>Geographic Distribution of Pediatric Acute Care Beds</b>									
Cardiac	na	na	na	na	na	na	na	na	na
Orthopedic	0%	100%	0%	0%	0%	0%	0%	0%	100%
Chemical Dependency	0%	100%	0%	0%	0%	0%	0%	0%	100%
Mental (Psychiatric) Health	7%	79%	14%	0%	0%	0%	0%	0%	100%
Rehabilitation/Neurology	0%	100%	0%	0%	0%	0%	0%	0%	100%
Intensive Care	5%	79%	5%	0%	0%	12%	0%	0%	100%
General Medical/Surgical	6%	71%	10%	0%	2%	10%	2%	0%	100%
<b>Total</b>	<b>5%</b>	<b>76%</b>	<b>9%</b>	<b>0%</b>	<b>1%</b>	<b>8%</b>	<b>1%</b>	<b>0%</b>	<b>100%</b>

Source: Health Economics Program, MDH

Most of the dedicated pediatric beds were described as general medical/surgical beds. Only eight of the 24 hospitals that reported dedicated pediatric beds reported having specialized pediatric beds. Gillette Children’s Hospital reported specialized pediatric orthopedic beds and beds for neurology and rehabilitation services. The remaining hospitals reported pediatric mental health and chemical dependency beds.

The median occupancy rate for general pediatric medical/surgical beds was 44 percent, but was much higher for specialty services (specifically, mental health and chemical dependency services, which will be discussed in more detail below).<sup>5</sup> The median occupancy rate reported for all pediatric beds was 50 percent.

## Minnesota Hospital Capacity by Service Category

Specialized newborn beds are also concentrated among very few hospitals (see Table 6).<sup>6</sup> Only 16 hospitals in the state reported operating dedicated newborn beds. These hospitals range in size from 35 beds to 828 beds but the majority have more than 200 beds. As with dedicated pediatric beds, the majority of the newborn beds are located in the Metropolitan region of the state (67 percent). The other area of concentration is in the Southeast. The median occupancy rate reported for newborn beds was 62 percent.

Table 6

### Newborn Hospital Beds, by Region\*

	Hospitals that Reported Newborn Beds	Newborn Beds	Distribution of Newborn Beds
Central	2	22	6%
Metropolitan	7	252	67%
Northeast	1	25	7%
Northwest	1	10	3%
South Central	0	0	0%
Southeast	4	59	16%
Southwest	0	0	0%
West Central	1	10	3%
Total	16	378	100%

\*Newborn beds refer to level II and III nurseries and other specialty services. It does not include bassinets.

Source: Health Economics Program, MDH

## Inpatient Chemical Dependency and Mental Health Capacity

In recent years, there has been increasing concern about the availability of mental health and chemical dependency beds. Anecdotal evidence and media reports have suggested high occupancy rates and long waiting periods for inpatient mental health and chemical dependency beds, especially in the Twin Cities. To date, however, systematic information on capacity and occupancy rates for inpatient chemical dependency and mental health services has not been available.

Slightly less than 25 percent of Minnesota hospitals maintain inpatient adult chemical dependency and mental health beds (see Table 7). Beds dedicated for these services make up only 9 percent of all adult beds. As with many other specialty services, chemical dependency and mental health services are concentrated in the Metropolitan region. While mental health beds are spread across the state more evenly than chemical dependency beds, more than two-thirds of the beds for both services are located in the Metropolitan area. The occupancy rates reported for mental health beds ranged from 0 to 100 percent, with more than half of the hospitals reporting occupancy rates of 75 percent or higher. Only 7 hospitals reported dedicated inpatient chemical dependency beds. All of these hospitals are affiliated with a large hospital system. Chemical dependency occupancy rates ranged from 65 percent to 100 percent and more than half of the hospitals reported occupancy rates of 90 percent or higher.

# Minnesota Hospital Capacity by Service Category

Table 7

## Adult Inpatient Mental Health Capacity in Minnesota

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
Hospitals that Reported Adult Mental Health and/or Chemical Dependency Beds	3	14	3	2	4	3	2	1	32

### Available Hospital Beds that are Designated for Adult Mental Health Services

Chemical Dependency	11	90	0	0	10	0	0	0	111
Mental (Psychiatric) Health	48	603	80	24	43	33	22	14	867
All Adult Beds	1,050	5,066	1,029	437	553	1,569	632	366	10,726

### Geographic Distribution of Available Hospital Beds that are Designated for Adult Mental Health Services

Chemical Dependency	10%	81%	0%	0%	9%	0%	0%	0%	100%
Mental (Psychiatric) Health	6%	70%	9%	3%	5%	4%	3%	2%	100%

### Proportion of Available Hospital Beds that are Designated for Adult Mental Health Services

Chemical Dependency	1%	2%	0%	0%	2%	0%	0%	0%	1%
Mental (Psychiatric) Health	5%	12%	8%	5%	8%	2%	3%	4%	8%

Source: Health Economics Program, MDH

Pediatric mental health and chemical dependency beds are also concentrated in the Metropolitan region and in large hospitals associated with hospital systems (all of the hospitals that reported having dedicated pediatric mental health beds have more than 150 available beds, as shown in Table 8). The occupancy rates reported for pediatric mental health beds ranged from 63 percent to 100 percent with a median of 91 percent.<sup>7</sup> Only University of Minnesota Medical Center, Fairview reported operating dedicated chemical dependency beds for pediatrics.

Table 8

## Pediatric Inpatient Mental Health Capacity in Minnesota

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
Hospitals that Reported Pediatric Mental Health and/or Chemical Dependency	1	3	1	0	0	0	0	0	5

### Available Hospital Beds that are Designated for Pediatric Mental Health Services

Chemical Dependency	0	27	0	0	0	0	0	0	27
Mental (Psychiatric) Health	8	90	16	0	0	0	0	0	114
All Beds	39	573	68	0	7	60	8	0	755

### Geographic Distribution of Available Hospital Beds that are Designated for Pediatric Mental Health Services

Chemical Dependency	0%	100%	0%	0%	0%	0%	0%	0%	100%
Mental (Psychiatric) Health	7%	79%	14%	0%	0%	0%	0%	0%	100%

### Proportion of Available Hospital Beds that are Designated for Pediatric Mental Health Services

Chemical Dependency	0%	5%	0%	na	0%	0%	0%	na	4%
Mental (Psychiatric) Health	21%	16%	24%	na	0%	0%	0%	na	15%

Source: Health Economics Program, MDH

## Minnesota Hospital Capacity by Service Category

In total, Minnesota hospitals reported operating more than 1,100 chemical dependency and mental health beds (accounting for 9 percent of all available beds). In 2003, hospitalizations attributed to mental health and chemical dependency services accounted for 7 percent of all discharges. However, mental health and chemical dependency patients have a relatively long average length of stay and therefore account for 13 percent of inpatient days.<sup>8</sup>

### Inpatient Cardiac Capacity

As shown in Table 9, designated cardiac beds are available in all regions of the state except the Northwest. The vast majority of acute care cardiac beds are located in the Metropolitan region (81 percent) and almost half of the intensive care cardiac beds (49 percent) are also located in the Metropolitan region. Hospitals of all sizes reported having dedicated cardiac beds. The occupancy rates reported for cardiac beds ranged from 25 percent to 100 percent and more than half reported occupancy rates of 72 percent or greater.<sup>9</sup>

Table 9

#### Inpatient Cardiac Capacity in Minnesota\*

	Central	Metropolitan	Northeast	Northwest	South Central	Southeast	Southwest	West Central	All Hospitals
Hospitals that Reported Cardiac Beds	4	16	4	0	2	4	5	2	37

#### Available Hospital Beds that are Designated for Cardiac Services

Acute Care Cardiac Beds	60	606	72	0	1	0	6	2	747
Intensive Care Cardiac Beds	12	144	42	0	6	70	13	8	295
All Beds	1,111	5,891	1,122	447	560	1,688	640	376	11,835

#### Geographic Distribution of Available Hospital Beds that are Designated for Cardiac Services

Acute Care Cardiac Beds	8%	81%	10%	0%	0%	0%	1%	0%	100%
Intensive Care Cardiac Beds	4%	49%	14%	0%	2%	24%	4%	3%	100%

#### Proportion of Available Hospital Beds that are Designated for Cardiac Services

Acute Care Cardiac Beds	5%	10%	6%	0%	0%	0%	1%	1%	6%
Intensive Care Cardiac Beds	1%	2%	4%	0%	1%	4%	2%	2%	2%

\* While no hospitals reported pediatric cardiac beds, 13 hospitals indicated that some of their cardiac beds could be used for pediatric cases.  
Source: Health Economics Program, MDH

In total, Minnesota hospitals reported more than 1,000 cardiac beds, which represents 9 percent of all available hospital beds. In 2003, discharges associated with cardiac services represented 15 percent of all discharges, and hospital days associated with cardiac services represented 12 percent of all inpatient hospital days.

### Conclusion

Policy makers are increasingly being called upon to make decisions that affect capacity and use of health care services. To do this, they need baseline information about the location and use of current hospital capacity by service type. This issue brief provides the first comprehensive source of information on hospital capacity and occupancy for specific types of services.

## Endnotes

- <sup>1</sup> All 136 acute care hospitals in Minnesota were included in the survey. All 136 responded to the survey and all are represented in this analysis (this survey does not include VA hospitals). The survey asked hospital administrators to report the number and type (by service) of available beds maintained by their hospital on a regular basis. In addition, they were asked to report the occupancy rate of these beds on a specific date- Wednesday, September 17, 2004. Occupancy rates were not provided by hospitals for all service categories.
- <sup>2</sup> This figure represents the number of available beds reported on the 2004 Capacity Survey and not the number of available beds reported to the Health Care Cost Information System.
- <sup>3</sup> Ten of the 133 hospitals that reported dedicated adult beds did not report occupancy rates for these beds. 8 of these hospitals had fewer than 35 beds.
- <sup>4</sup> Some hospitals that did not report dedicated pediatric beds indicated that adult beds could be used for pediatric admissions.
- <sup>5</sup> One of the 24 hospitals that reported dedicated pediatric beds did not report occupancy rates for these beds.
- <sup>6</sup> Newborn beds refer to level II and III nurseries and other specialty services. It does not include bassinets.
- <sup>7</sup> One of the 37 hospitals that reported dedicated mental health or chemical dependency beds did not report the occupancy rate for these beds.
- <sup>8</sup> In 2003, the average lengths of stay for rehabilitation services and neonatal services in Minnesota were 12.1 days and 6.4 days, respectively, and the average length of stay for chemical dependency and mental health services were 5.9 and 7.7 days respectively. Service categories are based on DRG groupings. Source: Minnesota Hospital Discharge Data, 2003.
- <sup>9</sup> Six of the 36 hospitals that reported having dedicated cardiac beds did not report occupancy rates for these beds. Five of these hospitals have fewer than 25 available beds and reported fewer than 4 cardiac beds.



The Health Economics Program conducts research and applied policy analysis to monitor changes in the health care marketplace; to understand factors influencing health care cost, quality and access; and to provide technical assistance in the development of state health care policy.

For more information, contact the Health Economics Program at (651) 282-6367. This issue brief, as well as other Health Economics Program publications, can be found on our website at: <http://www.health.state.mn.us/divs/hpsc/hep/index.htm>

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