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June 2, 2011

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HEALTH FACILITIES &  
SERVICES REVIEW BOARD

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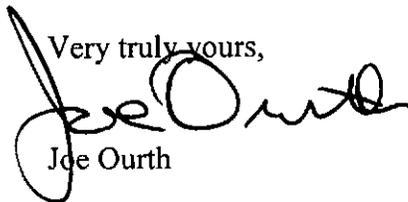
Mr. Dale Galassie  
Chair  
Illinois Health Facilities and Services  
Review Board  
525 W. Jefferson  
Springfield, IL 62761

Re: Market Assessment and Impact Study  
Centegra Hospital – Huntley  
Project No. 10-090

Dear Chairman Galassie:

Sherman Hospital, St. Alexius Medical Center, and Advocate Good Shepherd Hospital wish to submit the enclosed Market Assessment and Impact Study relative to the proposed Centegra Hospital - Huntley project. We believe the enclosed study provides detailed analytical information showing that the proposed new 128-bed hospital is not needed.

Very truly yours,



Joe Ourth

JRO:eka  
Enclosures

CHICAGO HOFFMAN ESTATES SPRINGFIELD MILWAUKEE  
FORT LAUDERDALE MIAMI TAMPA WEST PALM BEACH BOCA RATON CORAL GABLES

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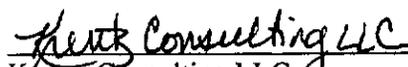
# **Market Assessment and Impact Study**

**Proposed Mercy-Crystal Lake Hospital (Project 10-089)**

**May 24, 2011**



Krentz Consulting LLC is pleased to provide this independent *Market Assessment and Impact Study* in response to Mercy Health System's request for Certificate of Need approval (Project 10-089) to build a new hospital in Crystal Lake in Illinois Health Planning Area A-10 (McHenry County).

  
Krentz Consulting LLC

24 May 2011  
Date



#### **About Krentz Consulting LLC**

Krentz Consulting LLC is a management consulting firm providing strategic planning services to the health care industry, including community hospitals, health systems, academic medical centers and medical schools, children's hospitals, and industry and professional associations. Krentz Consulting is nationally recognized for its strategic planning expertise, frequently serving as faculty at educational programs and writing articles for national publications.

**Susanna E. Krentz**, President of Krentz Consulting, has over twenty-nine years experience as a health care consultant and oversaw the process and reviewed all analyses for this project. As a recognized leader in strategy development for health care organizations, she has worked with numerous hospitals and health care systems across the country in the development of strategic plans, physician strategy, growth plans, resource allocation, and competitive strategy. She has a Master of Business Administration from the Booth School of Business, University of Chicago and a Bachelor of Arts from Yale University.

**Tracey L. Camp**, Senior Consultant, has 25 years of experience in health care planning and strategy and provided the analytical support for this project. Her areas of expertise include strategic planning, service line planning and demand modeling, medical staff development studies, and market research. She is expert at converting data into meaningful information to support decision making. She has a Bachelor of Arts from Northwestern University.

**Market Assessment and Impact Study**  
**Proposed Mercy-Crystal Lake Hospital (Project 10-089)**

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Attachment 1: Drive Times to Existing Hospitals

Attachment 2: Impact on Area Hospital Volume—Detail by Geography

# **I. Executive Summary**

## Executive Summary

### Background

Mercy Health System (MHS) has sought Certificate of Need approval to build a new hospital in Crystal Lake in Illinois Health Planning Area A-10 (McHenry County). Mercy is seeking approval to add 128 beds including 100 medical/surgical, 20 obstetric, and 8 intensive care beds, citing the shortage of beds identified by the Illinois Health Facilities and Services Review Board (HFSRB).

Krentz Consulting was retained by Advocate Good Shepherd Hospital, Sherman Health, and St. Alexius Medical Center (the "Concerned Hospitals") to develop an independent *Market Assessment and Impact Study* to assess the need for a new hospital in McHenry County by reviewing the geographic access for residents, current patient migration patterns, and existing hospital utilization and capacity. As part of this analysis, we have updated the State's projection of bed need for McHenry County using more recent use rates, patient migration information, and Census 2010-based population projections. In addition, we have assessed the utilization impact and expected volume loss that the addition of a new hospital would have on existing area hospitals.

### Key Findings

#### 1. Area residents already have timely geographic access to existing hospitals.

100 percent of the population in Mercy's overall service area is within 30 minutes driving time of an existing hospital and 81 percent of the population is within 15 minutes driving time. In ZIP codes where existing hospitals are greater than 15 minutes driving time away, the new Mercy-Crystal Lake facility would actually be farther than at least one, and sometimes as many as four, existing hospitals.

#### 2. Applicant overstates projected population growth and hospital bed demand.

Census figures for 2010 show that McHenry County's total population is approximately 28,000 people (or 8 percent) lower than the 2010 population estimated by the Department of Commerce and Economic Opportunity (DCEO). 2015 projected population for McHenry County, updated for the lower 2010 Census base population, is expected to be approximately 31,600 lower than the DCEO's original population projection for 2015, reducing projected demand for inpatient hospital beds.

## Key Findings (Continued)

- 3. There is existing hospital capacity to meet the current health care needs of McHenry County residents, only rare instances of emergency bypass, and numerous immediate care centers.**

There is capacity at several nearby hospitals with an average of 295 med/surg beds, 34 ICU beds, and 41 OB beds going unoccupied per day even while currently serving patients from Mercy-Crystal Lake's proposed service area. Five of seven area hospitals fall below targeted occupancy levels for med/surg beds.

Area hospitals were rarely on emergency department (ED) bypass in 2010, totaling fewer than 16 hours in aggregate for the entire year and with many hospitals having zero hours on bypass.

Aside from emergency department access, McHenry County has seven immediate care centers to treat urgent, but non-life threatening conditions; all of these seven centers are located in Mercy-Crystal Lake's proposed service area.

- 4. Area residents are already being served by existing hospitals and a new hospital in McHenry County will have a substantial adverse impact on existing hospitals' volume and payer mix.**

Virtually the entire proposed service area of the Mercy-Crystal Lake hospital is contained within the current service areas of existing hospitals. Any duplication of services by a new hospital would adversely impact the volumes and capacity of those existing hospitals. More than 85 percent of inpatient discharges at each area hospital (including Advocate Good Shepherd, Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph, Sherman Health, and St. Alexius) originate from Mercy's proposed service area.

In aggregate, area hospitals (including Advocate Good Shepherd, Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph, Sherman Health, and St. Alexius) are estimated to lose over 9,700 inpatient discharges from Mercy-Crystal Lake's defined service area.

Because Mercy-Crystal Lake will be geographically more proximate to the economically most attractive areas of the region, the volume that area hospitals are estimated to lose from those markets would have an adverse effect on their overall payer mix and compromise their ability to subsidize needed community and safety net services, meet debt obligations, or optimize quality. The loss of commercially-insured patients is particularly problematic for obstetric services, where the Concerned Hospitals' proportion of discharges that are Medicaid/self-pay would increase by eight percent.

## Key Findings (Continued)

**5. Even with population growth, there is not enough demand to support a new 128-bed hospital in McHenry County, and any new beds will largely shift discharges from hospitals already serving the residents of the Planning Area.**

The HFSRB's most recent calculation of bed need for Planning A-10 (McHenry County) was published on March 1, 2011. The HFSRB determined demand for hospital beds using 2003-2005 use rates and migration patterns. The HFSRB also used population projections for 2015 from the DCEO that were projected using 2000 Census information. Since the HFSRB developed their bed need calculations, new information suggests that the calculated need for 83 medical/surgical beds is overstated.

The bed need formula used by HFSRB also incorporates as a significant consideration the retention of patients who currently leave the Planning Area for care (outmigration), even if the travel times to the hospitals outside the Planning Area are within 15 or 30 minutes. It is not reasonable to assume that a patient traveling just beyond the border of the Planning Area to an adjacent community is undesirable outmigration that needs to be changed.

**6. The Applicant understates its impact on current Planning Area hospitals.**

On page 182 of Mercy's Certificate of Need (CON) application, the Applicant states that they are confident that their proposed hospital will not lower the utilization of other area providers below the State's occupancy standards. Yet, they provide no supporting analysis of current patient migration patterns or current utilization and capacity of Planning Area providers. They simply assert that they will shift referrals from its employed physicians who currently send patients to other hospitals, that the new facility will gain patients through the emergency department, and that health reform will increase admissions.

Mercy's CON application contains supporting letters from 42 of its employed physicians who, in aggregate, stipulate that they will redirect 3,809 cases to the new Mercy facility, 3,368 (or 88%) of which will be shifted from the two existing Centegra hospitals in the Planning Area. They do not intend to shift any of the current admissions presently at Mercy Harvard Hospital.

## Key Findings (Continued)

Of the 3,368 cases which would shift from Centegra hospitals to the new Mercy Hospital, 1,368 would be referrals from physicians other than OB/Gyn or pediatric physicians. Assuming an average length of stay of 4.3 days (the medical/surgical/ICU average length of stay of McHenry County residents in CY 2010), the shifting of 1,368 medical/surgical/ICU adult discharges would result in a loss of 16 occupied beds per day at those Centegra facilities. Centegra-Woodstock and Centegra-McHenry had a combined medical/surgical/ICU average daily census of 181.9 patients in CY 2009, or 83 percent occupancy. A reduction of 16 occupied beds would reduce their occupancy to 76 percent.

Mercy's impact on the Centegra hospitals would be even greater on obstetric services. Mercy's obstetric/gynecology physicians stipulate they will redirect 1,289 discharges from the existing Centegra hospitals to a new Mercy facility. Assuming an average length of stay of 2.5 days (the State's standard), these discharges would result in a loss of 9 occupied OB beds per day at those Centegra facilities. This reduction of 9 occupied beds would cut the Centegra facilities' average daily census in OB by half (from 16.7 to 7.9) and reduce their occupancy from 51 percent to 24 percent.

Mercy stipulates that health reform will increase admissions by 5 percent in year 1 of operations and 3 percent in year 2 of operations. They do not supply any analysis to support that assertion. Any expansion of coverage under health reform is also expected to be met with serious cost control initiatives that will create incentives for physicians and hospitals to reduce their admissions including, most notably, efforts to curtail unnecessary hospital readmissions. A conservative analysis of health reform at best would assume stable hospital admission rates.

### 7. Mercy's Assessment of Emergency Service Access is Outdated.

In Mercy's CON application, they refer to the emergency room bypass rates for Centegra-Woodstock and Centegra-McHenry for 2009 as indicators of a lack of available emergency services. The number of hours on ED bypass at Centegra-Woodstock and Centegra-McHenry went from a total of 65 hours (or a rate of 0.7%) in 2009 to zero hours in 2010. In addition, there are no less than seven immediate care centers in McHenry County, all within Mercy's service area.

### 8. Mercy's Argument for Excessive Travel Times is Not Pertinent.

Mercy's drive time study which measured round-trip driving times from its proposed new facility to the two existing Centegra hospitals in McHenry County is not particularly pertinent. The more relevant analysis is to measure travel times from existing hospitals with capacity to the ZIP codes where patients reside. As shown in *Exhibit 2* of this market assessment, 100 percent of the population is within 30 minutes driving time and 84 percent of the population in McHenry County is within 15 minutes driving time of an existing hospital with capacity (well below the State's threshold for ready access).



## **II. Geographic Access**

Area Residents Already Have Timely  
Geographic Access to Existing Hospitals

## **Area Residents Have Timely Geographic Access to Existing Hospitals**

### **Mercy-Crystal Lake Service Area**

Mercy defined a service area for the proposed Crystal Lake hospital that the Applicant states approximates a 30-minute drive time radius from the proposed project site. A map of the proposed service area is shown in *Exhibit 1*. Mercy indicates that the majority (83%) of inpatient services provided by MHS physicians are for residents of this service area. The proposed hospital's service area extends well beyond McHenry County to parts of Cook, Kane, and Lake Counties where five full-service hospitals are located including Sherman, Provena St. Joseph, Advocate Good Shepherd, St. Alexius, and Northwest Community. Two additional full-service hospitals, Alexian Brothers and Advocate Condell, are located just outside this service area.

As shown in *Exhibit 2*, 100 percent of the population in Mercy's overall service area is within 30 minutes driving time of an existing hospital and 81 percent of the population is within 15 minutes driving time. *In ZIP codes where existing hospitals are greater than 15 minutes driving time away, the new Mercy-Crystal Lake facility would actually be farther than at least one, and sometimes as many as four, existing hospitals.*

A drive time analysis for each ZIP code in Mercy-Crystal Lake's proposed service area is presented in *Attachment 1* and shows that all ZIP codes of the proposed service area already have access within the State's standard of 30 minutes driving time to existing hospitals.



**Exhibit 2**  
**2010 Estimated Population by Drive Time**  
**Proposed Mercy-Crystal Lake Service Area**

For ZIP Codes in Mercy's Proposed Service Area	2010 Estimated Population		
	Drive Time within 30 Mins of Existing Hospitals	Drive Time within 15 Mins of Existing Hospitals	Total Population in Geography
McHenry County ZIP Codes	318,264	267,655	318,264
Kane County ZIP Codes	219,585	219,585	219,585
Cook County ZIP Codes	418,328	337,633	418,328
Lake County ZIP Codes	<u>336,064</u>	<u>216,556</u>	<u>336,064</u>
<b>TOTAL SERVICE AREA</b>	<b>1,292,241</b>	<b>1,041,429</b>	<b>1,292,241</b>
McHenry County ZIP Codes	100%	84%	
Kane County ZIP Codes	100%	100%	
Cook County ZIP Codes	100%	81%	
Lake County ZIP Codes	100%	64%	
<b>TOTAL SERVICE AREA</b>	<b>100%</b>	<b>81%</b>	

Source: Nielsen Claritas. Estimate for 2010 population. Does not reflect the most recent Census 2010 population because Census population by ZIP code is not yet available.

**III. Population Projections**  
Applicant Overstates Projected Population  
Growth and Hospital Bed Demand

## **Applicant Overstates Projected Population Growth and Hospital Bed Demand**

Population projections for 2010 to 2015 are shown in *Exhibit 3* for McHenry County. The 2010 total population for McHenry is based on actual 2010 Census information. Census 2010 data are not yet available by gender and age cohort. The total Census 2010 population for McHenry County (308,760) was distributed by gender and age cohort using the gender and age distributions estimated for 2010 by the DCEO, the HFSRB's preferred source for population estimates and projections. 2015 projections were made by applying DCEO's average annual growth rates for 2010-2015 by age cohort and gender to actual 2010 Census population for McHenry County.

- ▶ Census figures for 2010 show that McHenry County's total population is approximately 28,000 people (or 8 percent) lower than the 2010 population estimated by the DCEO. 2015 projected population for McHenry County, updated for the lower 2010 Census base population, is expected to be approximately 31,600 lower than the DCEO's original population projection for 2015, reducing projected demand for inpatient hospital beds.
- ▶ Since Census population was not yet available at the time of Mercy's CON filing, the Applicant overstates projected hospital demand.

**Exhibit 3  
Updated Population Projections for McHenry County, 2010-2015**

	DCEO Population Projections - Existing			DCEO Population Projections - Updated with 2010 Census		
	DCEO Estimated 2010	DCEO 2015 Projection	Avg Annual Growth Rate: 2010-2015	2010 Updated Census <sup>1</sup>	2015 Projection Updated <sup>2</sup>	Change: 2010-2015
<b>TOTAL POPULATION</b>	<b>337,034</b>	<b>377,315</b>	<b>2.3%</b>	<b>308,760</b>	<b>345,662</b>	<b>36,902</b>
<b>Distribution by Age Cohort:</b>						
0-14	22.7%	21.4%	1.1%	70,031	73,991	3,960
15-44	42.2%	41.7%	2.1%	130,219	144,144	13,925
45-64	26.1%	26.3%	2.4%	80,649	90,953	10,304
65-74	5.4%	6.7%	6.7%	16,778	23,214	6,437
75+	<u>3.6%</u>	<u>3.9%</u>	3.8%	<u>11,083</u>	<u>13,359</u>	<u>2,276</u>
TOTAL	100.0%	100.0%	2.3%	308,760	345,662	36,902
% 65+	9.0%	10.6%				
<b>FEMALE POPULATION</b>	<b>167,812</b>	<b>188,161</b>	<b>2.3%</b>	<b>153,734</b>	<b>172,376</b>	<b>18,642</b>
<b>Distribution by Age Cohort:</b>						
0-14	22.0%	20.8%	1.1%	33,884	35,829	1,945
15-44	41.6%	41.0%	2.0%	63,945	70,607	6,662
45-64	25.9%	26.0%	2.4%	39,794	44,889	5,095
65-74	5.9%	7.2%	6.7%	9,015	12,491	3,477
75+	<u>4.6%</u>	<u>5.0%</u>	3.8%	<u>7,096</u>	<u>8,559</u>	<u>1,463</u>
TOTAL	100.0%	100.0%	2.3%	153,734	172,376	18,642
% Females 15-44	41.6%	41.0%		41.6%	41.0%	

<sup>1</sup> Census 2010 data are not yet available by gender and age cohort. The total Census 2010 population for McHenry County (308,760) was distributed by gender and age cohort using the gender and age distributions estimated for 2010 by the Department of Commerce and Economic Opportunity (DCEO).  
<sup>2</sup> 2015 projections were made by applying DCEO's average annual growth rates for 2010-2015 by age cohort and gender to 2010 Census county total population. Sources: Department of Commerce and Economic Opportunity population projections for 2010 and 2015, downloaded March 2011, [http://www.commerce.state.il.us/dceo/Bureaus/Facts\\_Figures/Population\\_Projections](http://www.commerce.state.il.us/dceo/Bureaus/Facts_Figures/Population_Projections). US Census Bureau website for Census 2010 total population.



## **IV. Existing Hospital Capacity and Access**

There is Existing Hospital Capacity to Meet the Current Health Care Needs of McHenry County Residents, Only Rare Instances of Emergency Bypass, and Numerous Immediate Care Centers

## There is Existing Hospital Capacity to Meet the Current Health Care Needs of McHenry County Residents

Exhibit 4 shows that there is capacity at several nearby hospitals with an average of 295 med/surg beds, 34 ICU beds, and 41 OB beds going unoccupied per day even while currently serving patients from Mercy's-Crystal Lake's proposed service area. Five of seven area hospitals fall below targeted occupancy levels for med/surg beds.

**Exhibit 4**  
**Capacity of Nearest Hospitals**  
**Serving Mercy-Crystal Lake's Proposed Service Area**

Falls below targeted  
occupancy level

Nearest Hospitals	Adjusted Authorized CON Beds 12/31/09*	Target Occupancy Based on Bed Size 77 Ill. Adm Code 1100	2009 Occupancy	Unoccupied Beds (on average per day)
<b>Med/Surg (adult and pediatrics)</b>				
Centegra-McHenry	129	85%	78.6%	28
Centegra-Woodstock	60	80%	89.9%	6
Mercy-Harvard	17	80%	26.8%	12
<b>Planning Area A-10</b>	<b>206</b>		<b>77.6%</b>	<b>46</b>
Sherman Health	197	85%	47.9%	103
Advocate Good Shepherd	127	85%	80.3%	25
St. Alexius	274	90%	60.1%	109
Provena St. Joseph	99	80%	87.6%	12
<b>TOTAL Med/Surg</b>	<b>903</b>		<b>67.3%</b>	<b>295</b>
<b>ICU</b>				
Centegra-McHenry	18	60%	95.1%	1
Centegra-Woodstock	12	60%	79.3%	2
Mercy-Harvard	3	60%	10.5%	3
<b>Planning Area A-10</b>	<b>33</b>		<b>81.7%</b>	<b>6</b>
Sherman Health	30	60%	44.3%	17
Advocate Good Shepherd	18	60%	101.1%	0
St. Alexius	29	60%	72.0%	8
Provena St. Joseph	15	60%	76.9%	3
<b>TOTAL ICU</b>	<b>125</b>		<b>72.7%</b>	<b>34</b>
<b>OB</b>				
Centegra-McHenry	19	75%	42.7%	11
Centegra-Woodstock	14	75%	61.3%	5
Mercy-Harvard	0	-	-	-
<b>Planning Area A-10</b>	<b>33</b>		<b>50.6%</b>	<b>16</b>
Sherman Health	28	78%	56.4%	12
Advocate Good Shepherd	24	75%	52.2%	11
St. Alexius	28	78%	91.4%	2
Provena St. Joseph	0	-	-	-
<b>TOTAL OB</b>	<b>113</b>		<b>63.9%</b>	<b>41</b>

\*Adjusted beds at Centegra-Woodstock to reflect the abandonment of their CON project which reduces their med/surg bed count by 14 and their OB bed count by 6. Source: 2009 Annual Hospital Questionnaires, IDPH.

## There Are Only Rare Instances of Emergency Bypass

*Exhibit 5* shows that area hospitals were rarely on ED bypass in 2010, totaling fewer than 16 hours in aggregate for the entire year and with many hospitals having zero hours on bypass. This low ED bypass rate is an indicator that there are sufficient available beds to meet current health care needs. It is important to note that when hospitals go on bypass, it is only for non life-threatening conditions; trauma patients will always be treated. In addition, a hospital may go on bypass not because an inpatient bed is unavailable, but simply because certain diagnostic equipment is temporarily inoperable in the emergency department.

### Exhibit 5 Hours on ED Bypass in 2010 – Nearby Hospitals

Nearby Hospitals	Hours on ED Bypass in 2010
Advocate Good Shepherd	1.98
Centegra-McHenry	0.00
Centegra-Woodstock	0.00
Northwest Community Hospital	0.00
Provena St. Joseph	0.00
Sherman	5.67
St. Alexius	<u>8.07</u>
<b>Total</b>	<b>15.72</b>
Average per hospital	2.25

Source: IDPH Hospital Health Alert Network.

## There Are Numerous Immediate Care Centers

Aside from emergency department access, McHenry County has a substantial number of immediate care centers to treat urgent, but non-life threatening conditions. The immediate care centers located in McHenry County are shown in *Exhibit 6*. All of these seven centers are located in Mercy-Crystal Lake's proposed service area.

### Exhibit 6 Immediate Care Centers Located in McHenry County

- Advocate Good Shepherd Outpatient Center – Crystal Lake\*
- Centegra Immediate Care – Crystal Lake\*
- Centegra Immediate Care – Huntley\*
- Mercy McHenry Medical Center – McHenry\*
- Mercy Woodstock Medical Center – Woodstock\*
- Provena Acute Care – Lake in the Hills\*
- Sherman Immediate Care – Algonquin\*

\*Located in Mercy-Crystal Lake's proposed service area.

## **V. Current Patient Migration Patterns and Impact on Existing Hospitals**

Area Residents Already are Being Served by Existing Hospitals, and A New Hospital in McHenry County Will Have a Substantial Adverse Impact on Existing Hospitals' Volume and Payer Mix

## Area Residents Are Already Being Served by Existing Hospitals

*Exhibit 7* shows the number of inpatients currently being treated at existing area hospitals and the portion of these patients who reside in Mercy-Crystal Lake's proposed service area. More than 85 percent of each area hospital's patients originate from Mercy's proposed service area.

**Exhibit 7**  
**Inpatient Patient Origin for Existing Area Hospitals, Annualized 9 Months CY 2010**  
**Mercy-Crystal Lake Proposed Service Area**

Discharges by Where Patients Reside			
Existing Hospital	Total Mercy Service Area	All Other Areas	FACILITY TOTAL
St. Alexius	15,609	2,727	18,337
Sherman	13,842	1,142	14,984
Advocate Good Shepherd	10,593	743	11,336
Centegra-McHenry	8,936	1,136	10,073
Centegra-Woodstock	5,653	979	6,632
Provena St. Joseph	<u>4,582</u>	<u>483</u>	<u>5,065</u>
<b>TOTAL</b>	<b>59,216</b>	<b>7,210</b>	<b>66,426</b>

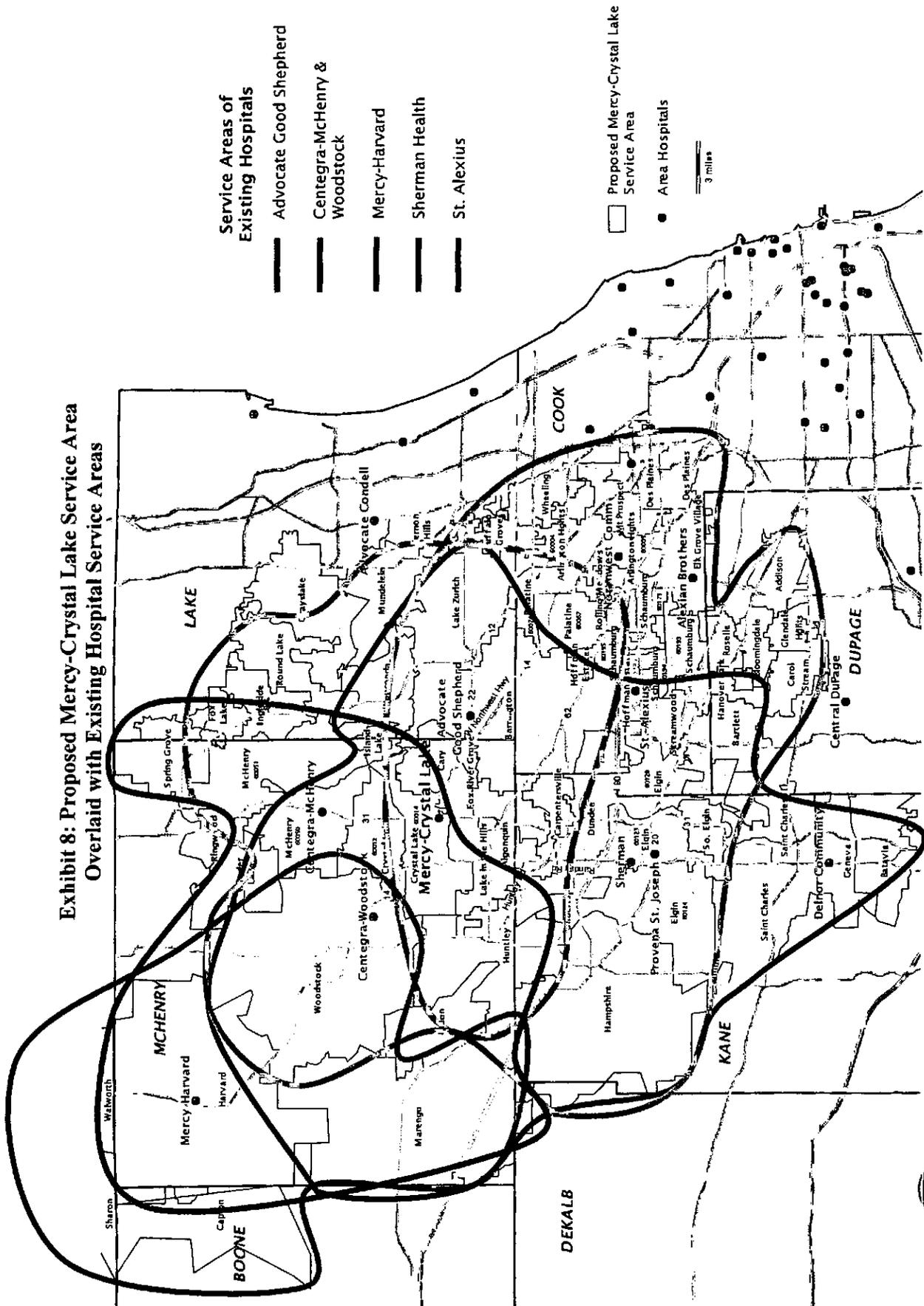
Percentage of Discharges by Where Patients Reside			
Existing Hospital	Total Mercy Service Area	All Other Areas	FACILITY TOTAL
St. Alexius	85.1%	14.9%	100.0%
Sherman	92.4%	7.6%	100.0%
Advocate Good Shepherd	93.4%	6.6%	100.0%
Centegra-McHenry	88.7%	11.3%	100.0%
Centegra-Woodstock	85.2%	14.8%	100.0%
Provena St. Joseph	90.5%	9.5%	100.0%
<b>TOTAL</b>	<b>89.1%</b>	<b>10.9%</b>	<b>100.0%</b>

Source: Illinois COMPdata. Data represent a simple annualization of 9 months CY 2010 data. Discharges exclude normal newborns in MS-DRG 795, psychiatry, substance abuse, and rehabilitation (psychiatry, substance abuse, and rehabilitation are not included in Applicant's proposed bed complement).

## **Service Areas of Existing Hospitals**

As shown in the map in *Exhibit 8*, virtually the entire proposed service area of the Mercy-Crystal Lake hospital is contained within the current service areas of the existing hospitals. Any duplication of services by a new hospital would adversely impact the volumes and capacity of those existing hospitals.

**Exhibit 8: Proposed Mercy-Crystal Lake Service Area  
Overlaid with Existing Hospital Service Areas**



Service area definitions for Advocate Good Shepherd, Sherman Health, and St. Alexius were provided by those hospitals; service area definitions for Centegra-McHenry & Woodstock and Mercy Harvard were inputted from COMPdata by Krentz Consulting to comprise 75% of their inpatient origin (ex. normal newborns) during the first 9 mos of 2010.

## **A New Hospital in McHenry County Will Have a Substantial Adverse Impact on Existing Hospitals' Volume**

Krentz Consulting modeled the impact that the proposed Mercy-Crystal Lake hospital would have on the utilization of existing hospitals. We completed a detailed impact analysis for Advocate Good Shepherd Hospital, Sherman Health, and St. Alexius Medical Center (the "Concerned Hospitals") by service line and level of acuity. The methodology and assumptions used in the impact analysis are described below. The utilization impact was also modeled for "Other Area Hospitals" (Centegra-Woodstock, Centegra-McHenry, and Provena St. Joseph) by applying overall assumptions of volume loss by sub-geography for medical, surgical, OB, and neonatal services, but not for detailed service lines and acuity levels.

### **Volume Impact Methodology for Concerned Hospitals**

1. Mercy-Crystal Lake's overall proposed service area was segmented into meaningful sub-geographies with which to judge current and expected patient migration patterns (see *Exhibit 9* for map of sub-geographies).
2. Discharges for inpatients residing in the sub-geographies were grouped into service lines and levels of acuity. The source of the discharge information was obtained by COMPdata for discharges occurring in the first nine months of calendar year 2010 and annualized using a simple annualization method.
3. Service line definitions and levels of acuity were defined by Krentz Consulting using the Centers for Medicare and Medicaid Services' MS-DRGs.
4. For each sub-geography, assumptions of volume loss were made by service line and level of acuity for each of the Concerned Hospitals.
  - It was assumed that the Concerned Hospitals would lose a higher proportion of their lower acuity cases, but a lower proportion of their highest acuity cases.
  - Mercy-Crystal Lake will not offer cardiac angioplasty/stent or open heart surgery services; it was assumed that none of the existing hospitals would lose that volume.

The utilization impact was also modeled for "Other Area Hospitals" (Centegra-Woodstock, Centegra-McHenry, and Provena St. Joseph) by applying overall assumptions of volume loss by sub-geography for medical, surgical, OB, and neonatal services.



## Estimated Volume Impact on Area Hospitals

*Exhibit 10* shows the estimated volume impact of a new Mercy-Crystal Lake hospital on the area hospitals' current discharges from Mercy-Crystal Lake's defined service area.<sup>1</sup> In aggregate, area hospitals are estimated to lose over 9,700 inpatient discharges from Mercy's defined service area.

- ▶ Among Concerned Hospitals, Advocate Good Shepherd and Sherman Health are estimated to each lose over 2,100 discharges or between 16 and 22 percent of their volume originating from Mercy's defined service area. St. Alexius is estimated to lose over 800 discharges or 5% of its volume from this market.
- ▶ Other Area Hospitals (Centegra-Woodstock, Centegra-McHenry, and Provena St. Joseph) are estimated to lose over 4,400 discharges or 23 percent of their volume originating from Mercy's defined service area.

**Exhibit 10**  
**Impact of Mercy-Crystal Lake Hospital on Area Hospital Volume**

	Total Current Area Hospital Discharges (2010 annualized)						Potential Loss of Area Hospital Discharges (2010)				
	Advocate Good Shepherd			Total Current Concerned Hospital Discharges	Other Area Hospitals (Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph)	Advocate Good Shepherd			Total Current Concerned Hospital Discharges	Other Area Hospitals (Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph)	
	Sherman Health	St. Alexius	Good Shepherd			Sherman Health	St. Alexius				
<i>Mercy Total Service Area</i>											
Medical/Surgical	96,709	8,578	9,811	12,288	30,677	17,225	1,600	1,663	593	3,856	3,858
OB	17,413	1,693	2,979	2,658	7,329	1,711	586	363	164	1,113	482
Neonatal	<u>5,456</u>	<u>358</u>	<u>1,147</u>	<u>667</u>	<u>2,173</u>	<u>424</u>	<u>121</u>	<u>143</u>	<u>46</u>	<u>310</u>	<u>122</u>
<b>TOTAL</b>	<b>119,578</b>	<b>10,629</b>	<b>13,937</b>	<b>15,613</b>	<b>40,179</b>	<b>19,360</b>	<b>2,307</b>	<b>2,169</b>	<b>803</b>	<b>5,279</b>	<b>4,462</b>
Overall % Loss							22%	16%	5%	13%	23%

Notes: Medical/surgical volume would include care delivered in the ICU. Volume excludes normal newborns in MS-DRG 795.

Additional detail by sub-geography is presented in *Attachment 2*.

<sup>1</sup> Source of volume from COMPdata for discharges and patient days occurring in the first nine months of calendar year 2010 and annualized using a simple annualization method.

## A New Hospital in McHenry County Will Have a Substantial Adverse Impact on Existing Hospitals' Payer Mix

Because Mercy-Crystal Lake will be geographically more proximate to the economically most attractive areas of the region, the volume that the Concerned Hospitals are estimated to lose from those markets would have an adverse effect on their overall payer mix and compromise their ability to subsidize needed community services. *Exhibit 11* shows that a new Mercy-Crystal Lake facility would capture a high percentage of commercial patients, reducing the Concerned Hospitals' percentage of volume that is commercially insured and increasing their proportion of Medicaid/self-pay patients. This loss of commercially-insured patients is particularly problematic for obstetric services, where the Concerned Hospitals' proportion of discharges that are Medicaid/self-pay would increase by eight percent.

**Exhibit 11**  
**Impact of Losing Volume to Mercy-Crystal Lake on Payer Mix of Concerned Hospitals**

<u>Payer</u>	<u>Concerned Hospitals 2010 Total Actual Payer Mix of Discharges</u>	<u>Mercy-Crystal Lake's Payer Mix of Estimated Volume Shifted from Concerned Hospitals</u>
<b>Medical/Surgical Discharges</b>		
Commercial/HMO	38.6%	46.8%
Medicare	47.8%	43.0%
Medicaid/Self-Pay/Other	<u>13.6%</u>	<u>10.2%</u>
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>
 <b>Obstetric Discharges</b>		
Commercial/HMO	57.5%	80.6%
Medicare	0.3%	0.3%
Medicaid/Self-Pay/Other	<u>42.2%</u>	<u>19.1%</u>
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>

Source: COMPdata, 9 months calendar year 2010 data for all inpatient discharges excluding all neonatal, psychiatry/substance abuse, and rehabilitation patients.

## **VI. Updated Bed Need in Planning Area**

Even with Population Growth, there is Not Enough Demand to Support a New 128-Bed Hospital in McHenry County, and Any New Beds will Largely Shift Discharges from Hospitals Already Serving the Residents of the Planning Area

## **Even with Population Growth, there is Not Enough Demand to Support a New 128-Bed Hospital in McHenry County**

The HFSRB's most recent calculation of bed need for Planning A-10 (McHenry County) was published on March 1, 2011. The HFSRB determined demand for hospital beds using 2003-2005 use rates and migration patterns. The HFSRB also used population projections for 2015 from the DCEO that were projected using 2000 Census information.

Since the HFSRB developed their bed need calculations, new information suggests that the calculated need for 83 medical/surgical beds is overstated:

- The actual 2010 census for McHenry County is 8% lower than the estimate for 2010 in the bed need calculations. Since the 2010 population is lower than expected, it is reasonable to assume that the projections for 2015 are overstated by at least a similar amount.

## **Any New Beds will Largely Shift Discharges from Hospitals Already Serving the Residents of the Service Area**

The bed need formula used by HFSRB also incorporates as a significant consideration the retention of patients who current leave the Planning Area for care (outmigration), even if the travel times to the hospitals outside the Planning Area are within 15 or 30 minutes. It is not reasonable to assume that a patient traveling just beyond the border of the Planning Area to an adjacent community is undesirable outmigration that needs to be changed.

**Attachments**

## Attachment 1

### Driving Times (Minutes) Proposed Mercy-Crystal Lake Service Area

Drive Time ≤ 15 Mins

Drive Time 15-30 Mins

	2010 Estimated Population	Sherman Hospital	Centegra- McHenry	Centegra- Woodstock	Provena St. Joseph	Advocate Good Shepherd	St. Alexius
<b>McHenry County ZIP Codes in Proposed Service Area</b>							
60014 Crystal Lake	51,100	19.6	17.3	11.5	26.5	18.4	32.2
60102 Algonquin	34,875	15.0	25.3	26.5	20.7	24.2	27.6
60098 Woodstock	33,657	31.1	18.4	6.9	38.0	35.7	47.2
60050 McHenry	32,142	34.5	4.6	19.6	40.3	27.6	42.6
60013 Cary	30,084	26.5	18.4	23.0	32.2	10.4	29.9
60156 Lake in the Hills	30,066	15.0	20.7	20.7	21.9	21.9	32.2
60142 Huntley	25,824	17.3	32.2	19.6	23.0	33.4	32.2
60051 McHenry	25,525	39.1	9.2	25.3	46.0	27.6	46.0
60152 Marengo	13,072	31.1	40.3	25.3	38.0	46.0	46.0
60097 Wonder Lake	11,814	47.2	15.0	23.0	52.9	39.1	55.2
60012 Crystal Lake	11,265	27.6	17.3	11.5	34.5	23.0	38.0
60081 Spring Grove	10,228	52.9	23.0	36.8	59.8	32.2	49.5
60021 Fox River Grove	6,274	29.9	21.9	26.5	36.8	4.6	25.3
60180 Union	1,485	27.6	36.8	21.9	33.4	43.7	42.6
60072 Ringwood	853	43.7	13.8	27.6	49.5	36.8	51.8
<b>Kane County ZIP Codes in Proposed Service Area</b>							
60120 Elgin	49,715	15.0	44.9	46.0	15.0	31.1	12.7
60123 Elgin	49,579	8.1	39.1	40.3	4.6	39.1	21.9
60110 Carpentersville	40,768	15.0	28.8	32.2	21.9	23.0	18.4
60177 South Elgin	22,068	13.8	44.9	46.0	11.5	44.9	26.5
60118 Dundee	18,930	6.9	29.9	31.1	13.8	27.6	16.1
60124 Elgin	17,629	8.1	39.1	38.0	4.6	40.3	24.2
60140 Hampshire	14,226	16.1	41.4	28.8	15.0	42.6	32.2
60136 Gilberts	6,670	6.9	32.2	32.2	13.8	33.4	24.2

Source of 2010 population: Nielsen Claritas, does not reflect recent Census 2010 data. Source of drive times: MapQuest. Per HFSRB rules, travel time from each hospital location to the geographic center of each ZIP code has been calculated using MapQuest's drive time multiplied by 1.15. Ambulance transport times would be faster.

Continued on next page

## Attachment 1 (Continued)

### Driving Times (Minutes) Proposed Mercy-Crystal Lake Service Area

Drive Time ≤ 15 Mins

Drive Time 15-30 Mins

	2010 Estimated Population	Northwest Community	St. Alexius	Advocate Condell	Advocate Good Shepherd	Centegra McHenry	Sherman Hospital
<b>Cook County ZIP Codes in Proposed Service Area</b>							
60004 Arlington Hghts	48,990	11.5	20.7	28.8	23.0	43.7	33.4
60103 Bartlett	42,163	34.5	16.1	56.4	34.5	49.5	21.9
60193 Schaumburg	40,269	21.9	13.8	50.6	35.7	52.9	31.1
60074 Palatine	38,532	18.4	20.7	27.6	18.4	39.1	35.7
60067 Palatine	38,393	15.0	16.1	34.5	20.7	41.4	32.2
60133 Hanover Park	36,961	26.5	11.5	52.9	34.5	51.8	24.2
60107 Streamwood	35,116	27.6	8.1	51.8	28.8	44.9	20.7
60169 Hoffman Estates	33,768	17.3	3.5	46.0	26.5	42.6	21.9
60005 Arlington Hghts	28,135	1.2	20.7	40.3	31.1	51.8	34.5
60008 Rolling Meadows	22,428	6.9	16.1	35.7	27.6	48.3	28.8
60194 Schaumburg	20,816	21.9	9.2	50.6	31.1	48.3	26.5
60192 Hoffman Estates	15,606	23.0	5.8	42.6	21.9	39.1	19.6
60173 Schaumburg	12,574	10.4	11.5	39.1	28.8	47.2	27.6
60195 Schaumburg	4,577	16.1	9.2	41.4	26.5	44.9	27.6
<b>Lake County ZIP Codes in Proposed Service Area</b>							
60073 Round Lake	55,624	49.5	46.0	28.8	27.6	25.3	54.1
60089 Buffalo Grove	46,234	21.9	27.6	19.6	21.9	40.3	41.4
60010 Barrington	44,088	27.6	16.1	36.8	8.1	29.9	28.8
60047 Lake Zurich	43,733	26.5	25.3	23.0	12.7	32.2	40.3
60030 Grayslake	40,182	46.0	47.2	15.0	29.9	28.8	57.5
60060 Mundelein	37,701	34.5	35.7	13.8	21.9	29.9	49.5
60061 Vernon Hills	25,370	33.4	38.0	9.2	27.6	40.3	52.9
60084 Wauconda	15,424	36.8	31.1	26.5	13.8	21.9	42.6
60042 Island Lake	10,058	40.3	36.8	34.5	16.1	13.8	33.4
60020 Fox Lake	8,885	48.3	44.9	34.5	26.5	21.9	51.8
60041 Ingleside	8,765	48.3	44.9	29.9	27.6	21.9	51.8

Source of 2010 population: Nielsen Claritas, does not reflect recent Census 2010 data. Source of driving times: MapQuest. Per HFSRB rules, travel time from each hospital location to the geographic center of each ZIP code has been calculated using MapQuest's drive time multiplied by 1.15. Ambulance transport times would be faster.

## Attachment 2

### Impact of Mercy-Crystal Lake Hospital on Area Hospital Volume

	Total Current Area Hospital Discharges (2010 annualized)					Potential Loss of Area Hospital Discharges (2010)					
	Total Market Discharges (2010 annualized)	Advocate Good Shepherd	Sherman Health	St. Alexius	Total Current Concerned Hospital Discharges	Other Area Hospitals (Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph)	Advocate Good Shepherd	Sherman Health	St. Alexius	Total Current Concerned Hospital Discharges	Other Area Hospitals (Centegra-Woodstock, Centegra-McHenry, Provena St. Joseph)
<b>Mercy McHenry ZIPs (Cary/Fox River Grove)</b>											
Medical/Surgical	1,997	1,242	37	40	1,320	277	261	19	22	302	138
OB	360	194	15	15	223	90	58	9	9	76	45
Neonatal	94	43	5	4	52	25	13	3	3	18	13
<b>TOTAL</b>	<b>2,451</b>	<b>1,479</b>	<b>57</b>	<b>59</b>	<b>1,595</b>	<b>392</b>	<b>22%</b>	<b>54%</b>	<b>56%</b>	<b>25%</b>	<b>50%</b>
<b>Mercy McHenry ZIPs (Other)</b>											
Medical/Surgical	22,356	2,364	2,834	730	5,928	11,759	1,100	1,302	349	2,751	3,118
OB	3,213	757	377	136	1,270	1,447	454	226	82	762	362
Neonatal	910	154	143	41	338	357	92	86	25	203	89
<b>TOTAL</b>	<b>26,479</b>	<b>3,274</b>	<b>3,355</b>	<b>908</b>	<b>7,537</b>	<b>13,562</b>	<b>50%</b>	<b>48%</b>	<b>50%</b>	<b>49%</b>	<b>26%</b>
<b>Mercy Kane ZIPs (Elgin/So. Elgin)</b>											
Medical/Surgical	10,744	62	4,117	900	5,078	3,134	9	0	0	9	32
OB	2,504	23	1,598	372	1,992	20	6	0	0	6	4
Neonatal	877	4	595	83	682	3	1	0	0	1	1
<b>TOTAL</b>	<b>14,125</b>	<b>88</b>	<b>6,309</b>	<b>1,354</b>	<b>7,752</b>	<b>3,157</b>	<b>18%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>
<b>Mercy Kane ZIPs (Other)</b>											
Medical/Surgical	4,732	147	2,313	568	3,028	650	68	304	128	500	198
OB	1,373	99	814	202	1,115	25	49	122	50	221	25
Neonatal	519	21	346	45	413	5	11	52	12	75	5
<b>TOTAL</b>	<b>6,623</b>	<b>267</b>	<b>3,474</b>	<b>816</b>	<b>4,556</b>	<b>681</b>	<b>48%</b>	<b>14%</b>	<b>23%</b>	<b>17%</b>	<b>34%</b>
<b>Mercy Lake ZIPs (Barrington/Island Lake)</b>											
Medical/Surgical	3,860	2,062	49	354	2,465	144	162	24	66	252	79
OB	394	194	5	24	223	33	19	3	6	28	19
Neonatal	107	40	1	12	53	11	4	1	3	8	6
<b>TOTAL</b>	<b>4,361</b>	<b>2,296</b>	<b>56</b>	<b>390</b>	<b>2,742</b>	<b>189</b>	<b>8%</b>	<b>50%</b>	<b>19%</b>	<b>11%</b>	<b>55%</b>
<b>Mercy Lake ZIPs (Other)</b>											
Medical/Surgical	19,136	2,298	33	152	2,484	1,062	0	14	28	42	255
OB	3,622	314	5	68	388	92	0	3	17	20	24
Neonatal	1,068	74	3	15	91	20	0	1	4	5	5
<b>TOTAL</b>	<b>23,827</b>	<b>2,686</b>	<b>41</b>	<b>235</b>	<b>2,963</b>	<b>1,174</b>	<b>0%</b>	<b>43%</b>	<b>21%</b>	<b>2%</b>	<b>24%</b>
<b>Mercy Cook ZIPs</b>											
Medical/Surgical	33,883	404	427	9,543	10,374	199	0	0	0	0	37
OB	5,947	112	164	1,841	2,118	4	0	0	0	0	4
Neonatal	1,881	23	53	467	543	3	0	0	0	0	3
<b>TOTAL</b>	<b>41,712</b>	<b>539</b>	<b>644</b>	<b>11,851</b>	<b>13,034</b>	<b>206</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>21%</b>
<b>Mercy Total Service Area</b>											
Medical/Surgical	96,709	8,578	9,811	12,288	30,677	17,225	1,600	1,663	593	3,856	3,858
OB	17,413	1,693	2,979	2,658	7,329	1,711	586	363	164	1,113	482
Neonatal	5,456	358	1,147	667	2,173	424	121	143	46	310	122
<b>TOTAL</b>	<b>119,578</b>	<b>10,629</b>	<b>13,937</b>	<b>15,613</b>	<b>40,179</b>	<b>19,360</b>	<b>22%</b>	<b>16%</b>	<b>5%</b>	<b>13%</b>	<b>23%</b>

Notes: Medical/surgical volume would include care delivered in the ICU. Volume excludes normal newborns in MS-DRG 795.