

# Recent Developments in Health Care Utilization at the Community Level

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## Abstract

Recent developments in health care have changed hospital utilization at the community level. This study provided examples of these changes in the metropolitan area of Syracuse, New York. The study demonstrated that percent differences in discharges between the two time periods for both services changed little. For adult medicine, percent differences ranged between 16.5 and 18.0 percent while percent differences in adult surgery ranged from 23.25 to 24.93 percent. This information suggested that reductions in discharges during the five year period had stabilized. Most of these changes were associated with the movement of patients from inpatient to ambulatory care services. The largest numbers of these patients were associated with orthopedic surgery. They resulted from the movement of these patients who were at low severity of illness to ambulatory care settings. The study also identified increases in hospital lengths of stay for adult medicine and adult surgery between January-September 2019 and 2023 in the Syracuse hospitals. Adult medicine stays increased by 23.6 percent, from 4.84 to 5.98 days. Adult surgery stays increased by 25.5 percent, from 5.41 to 6.79 days.

## Keywords

Hospitals, Hospital Utilization, Hospital Lengths of Stay

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## 1. Introduction

In the United States, health care has become a major component of society and the economy during the past several decades. This has been reflected in the process of providing care as well as the specifics of paying for it [1].

Health care is important, because it is an essential community service. At the same time, it is also significant, because it is a major component of the national

economy [2].

Probably the most visible component of health care in the United States is inpatient care. This care includes acute care and patients who require hospitalization. It also includes important clinical resources such as diagnoses involving the heart, respiratory, and digestive systems [3].

During the twentieth century, attention to health care in the United States focused on inpatient care, because it included the largest clinical components of the health care system, acute hospitals. These components were also the largest components of health care costs [3] [4].

In the twenty first century, increased attention has developed concerning outpatient care at the community level. This development has occurred because of interest in treating diagnoses in less intense settings and reducing costs without increasing adverse outcomes.

These approaches have suggested a need for increased emphasis on long term care, nursing homes and home health care. They also have included the need for additional case management to connect these services [5].

Increased interest in case management and ambulatory care has also been reflected in health care utilization data by severity of illness. Some of this information suggests that additional patients at lower severity of illness could be managed outside hospitals.

This study reviewed recent developments related to inpatient care in the context of other services, such as ambulatory care and long term care. It included utilization concerning these services at the community level [6].

## 2. Population

This study reviewed recent utilization for inpatient acute care and long term care services in the metropolitan area of Syracuse, New York. This area includes three inpatient acute care hospitals, Crouse Hospital (17,715 inpatient discharges excluding well newborns, 2022); St. Joseph's Hospital Health Center (18,277 inpatient discharges), and Upstate University Hospital (28,106 inpatient discharges).

These hospitals provide primary and secondary acute care services to a population of approximately 600,000. They also provide tertiary referral center services to the Central New York Health Service Area with a population of approximately 1,400,000.

The Syracuse hospitals have developed a number of programs to improve health care utilization in the community. A number of these have been carried out by the Hospital Executive Council, the planning organization for the hospitals. Most of them have involved acute care or long term care [7].

## 3. Method

This study evaluated hospital utilization in the metropolitan area of Syracuse, New York between January-September 2019 and January-September 2023. The study data included these time periods in order to provide the most current hos-

pital utilization. These data were based on the most current hospital utilization data developed by the Syracuse hospitals.

The study was based on the combined utilization of the hospitals in order to control for variations in services among the three hospitals. For the same reason, it was also based on uniform definitions of hospital services.

The study focused on adult medicine and adult surgery, the largest inpatient hospital services in the Syracuse hospitals and elsewhere. This information was based on the largest service that did not include surgery, adult medicine, and the largest service that did, adult surgery. The analysis focused on these services in order to identify changes in the use of hospital inpatient services at the community level.

This format for the analysis made it possible to identify changes in inpatient utilization for the largest inpatient services in the service area of the Syracuse hospitals. Data for outpatient services, such as physician offices and ambulatory surgery, were not available for all providers in the area.

The initial component of the study focused on numbers of inpatient discharges by severity of illness for the combined hospitals between January and September 2019 and 2023. These comparisons involved evaluation of numbers of discharges before and after the onset of the coronavirus. This component of the analysis involved changes in numbers adult medicine and adult surgery services during a five year period.

The second component of the analysis involved inpatient lengths of stay for the combined hospitals for the same time periods. These data involved changes in the efficiency of the hospital system between the time periods.

All of the study data were collected by the Hospital Executive Council, the planning organization for the Syracuse hospitals. This information was developed as part of the Council's health planning efforts.

Both components of the analysis were based on hospital utilization by severity of illness. The components were based on the degree of illness associated with numbers of discharges and inpatient lengths of stay. The severity of illness data were based on the principal diagnoses and the secondary diagnoses of individual patients.

## 4. Results

The first component of the analysis involved hospital discharges for adult medicine and adult surgery for the combined Syracuse hospitals. Relevant data are summarized in [Table 1](#).

This information demonstrated that total discharges for adult medicine and adult surgery declined between July-September 2019 and 2023. The reductions amounted to 16.50 percent, or 1557 patients for adult medicine and 23.25 percent, or 1252 patients for adult surgery.

It was notable that the percent differences between January-September 2019 and 2023 for both services in the hospitals changed comparatively little. For

**Table 1.** Inpatient hospital adult medicine and adult discharges, by Quarter, Syracuse Hospitals, January-September 2019, 2023.

	Adult Medicine				Adult Surgery			
	1Q	2Q	3Q	Total	1Q	2Q	3Q	Total
2019	9387	9544	9439	28,370	5266	5363	5386	16,015
2023	7732	7824	7882	23,438	3953	4078	4134	12,165
Percent Difference	-17.63	-18.02	-16.50	-17.38	-24.93	-23.96	-23.25	-24.04

Adult medicine data exclude Diagnosis Related Groups concerning surgery, obstetrics, psychiatry, alcohol/substance abuse treatment, rehabilitation, and all patients aged 0 - 17 years.

Adult surgery data exclude Diagnosis Related Groups concerning medicine, obstetrics, psychiatry, alcohol/substance treatment, and all patients aged 0 - 17 years.

Source: Hospital Executive Council.

adult medicine, the percent differences ranged from 16.50 percent in the third quarter to 18.02 percent in the second quarter. For adult surgery, the percent differences ranged from 23.25 percent in the third quarter to 24.93 percent in the first quarter.

This information demonstrated that the reductions in discharges between 2019 and 2023 were stable. These differences ranged between one to two percentage points.

The study data demonstrated that most of the reductions in discharges for both services involved patients with relatively low severity of illness. For adult medicine, those with Moderate severity of illness accounted for 844 patients or 54.2 percent of the total. For the same inpatient service, those with Minor severity of illness included 556 patients, or 35.7 percent of the total. Moderate and Minor severity of illness combined accounted for 89.9 percent of the total.

For adult surgery, those with Moderate severity of illness accounted for 532 patients or 42.4 percent of the total. For the same service, patients with Minor severity of illness comprised 728 patients or 58.1 percent of the total. These two levels of severity included 66.8 percent of the total for the combined hospitals.

The study data also demonstrated that a limited number of increases in discharges for both adult medicine and adult surgery involved patients with relatively high severity of illness. For adult medicine, those with Extreme severity of illness accounted for 237 patients or 15.2 percent of the total. For adult surgery, those with Extreme severity of illness accounted for 52 patients or 4.2 percent of the total.

The relatively large numbers of reductions in patients with Minor and Moderate severity of illness suggested that these patients declined in larger numbers between January-September 2019 and 2023. Additional information has suggested that this occurred because additional patients were moved from inpatient services to outpatient services. The diagnosis where this occurred in the largest

numbers was orthopedic surgery.

The second component of the analysis involved hospital lengths of stay for adult medicine and adult surgery for the combined Syracuse hospitals. Relevant data are summarized in **Table 2**.

The information in **Table 2** demonstrated that lengths of stay for the two largest inpatient services increased between January-September 2019 and 2023. Adult medicine stays increased by 23.6 percent, from 4.84 to 5.98 days. For the combined hospitals, this increase in lengths of stay generated an additional 13,868 patient days between the two nine month periods.

Adult surgery stays increased by 25.5 percent, from 5.41 to 6.79 days. For the combined hospitals, the increase in lengths of stay generated an additional 16,787 patient days between the two nine month periods.

The increases in hospital lengths of stay for these combined services between January-September 2019 and 2023 were reflected in the inpatient utilization by severity of illness. Lengths of stay for patients at Minor severity of illness increased by 0.18 days or 7.6 percent. Stays for patients at Moderate severity of illness increased by 0.47 days or 13.4 percent. Stays for patients at Major severity of illness increased by 0.62 days, or 10.5 percent and stays for patients at Extreme severity of illness increased by 1.12 days or 9.6 percent.

**Table 2.** Inpatient adult medicine and adult surgery mean lengths of stay by severity of illness, Syracuse Hospitals, January-September 2019, 2023.

	Mean Lengths of Stay (Days)				
	Minor	Moderate	Major	Extreme	Total
<b>Adult Medicine</b>					
2019	2.56	3.42	5.23	9.27	4.84
2023	2.83	3.99	6.01	10.28	5.98
Difference	0.27	0.57	0.78	1.01	1.14
Percent Difference	10.55	16.67	14.91	10.90	23.55
<b>Adult Surgery</b>					
2019	2.24	3.67	8.31	18.01	5.41
2023	2.34	3.97	8.18	19.55	6.79
Difference	0.10	0.30	-0.13	1.54	1.38
Percent Difference	4.46	8.17	-1.56	8.55	25.51

Adult medicine data exclude Diagnosis Related Groups concerning surgery, obstetrics, psychiatry, alcohol/substance abuse treatment, rehabilitation, and all patients aged 0 - 17 years.

Adult surgery data exclude Diagnosis Related Groups concerning medicine, obstetrics, psychiatry, alcohol/substance treatment, and all patients aged 0 - 17 years.

Source: Hospital executive council.

This information indicated that the largest increases in lengths of stay between January-September 2019 and 2023 involved patients with Extreme severity of illness. These differences were generated by variations in inpatient utilization among the Syracuse hospitals.

It appears that the changes in lengths of stay were related to increases in inpatient utilization among the hospitals. One important factor associated with the increased stays was the impact of the Coronavirus between 2019 and 2023. Another factor was probably the movement of patients to ambulatory care services which accounted for longer stays for the remaining inpatient utilization.

## 5. Discussions

Recent developments in health care have changed hospital utilization at the community level. This study provided examples of these changes in the metropolitan area of Syracuse, New York.

The study focused on total discharges for adult medicine and adult surgery between January-September 2019 and 2023. It identified reductions of 16.50 percent, or 1557 patients for adult medicine and 23.25 percent or 1252 patients for adult surgery.

The study demonstrated that percent differences in discharges between the two time periods for both services changed little. For adult medicine, percent differences ranged between 16.5 and 18.0 percent while percent differences in adult surgery ranged from 23.25 to 24.93 percent. This information suggested that reductions in discharges during the five year period had stabilized.

In this context, the study demonstrated that most of the changes in discharges involved patients at low severity of illness. For adult medicine, those with Minor or Moderate severity of illness accounted for 89.9 percent of the total. For adult surgery, those with Minor or Moderate severity of illness accounted for 66.8 percent of the total.

Most of these changes were associated with the movement of patients from inpatient to ambulatory care services. The largest numbers of these patients were associated with orthopedic surgery. They resulted from the movement of these patients who were at low severity of illness to ambulatory care settings.

The study also identified increases in hospital lengths of stay for adult medicine and adult surgery between January-September 2019 and 2023 in the Syracuse hospitals. Adult medicine stays increased by 23.6 percent, from 4.84 to 5.98 days. Adult surgery stays increased by 25.5 percent, from 5.41 to 6.79 days.

Most of these changes appear to be related to the movement of patients to ambulatory care services, which resulted in longer stays for those that remained. It is possible that some of the changes were also associated with the development and decline of the Coronavirus.

All of these developments demonstrated that health care utilization at the community level continues to be subject to change. These developments may result in declines in revenue or utilization for individual providers.

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## Conflicts of Interest

The authors declare there are no conflicts of interest regarding publication of this manuscript.

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