

Multiple Efforts to Improve Health Care Efficiency

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Abstract

This study reviewed a combination of health care programs in the metropolitan area of Syracuse, New York. They were designed to improve care, however a major purpose was to support efficiency. The study described a number of individual programs that were developed in order to improve the quality and the efficiency of care. These programs were implemented by a combination of local providers and payors. They included the development of outpatient services such as ambulatory surgery, as well as preventive care, case management, telemedicine, and mental health. The impact of these programs was a combination of these services, rather than individual efforts. The impact of these efforts was the product of a range of individual services, especially care management. Additional efforts should make it possible to extend these efforts among providers and payors in the Syracuse area. This approach should make it possible to extend the impact of health care efficiency further.

Keywords

Health Care Efficiency, Health Care Payors, Health Care Providers

1. Introduction

In recent years, health care utilization in the United States has grown. Similarities and differences have been developed among types and providers of care [1] [2].

These utilization issues reflect the evolution of health care in the United States at the community level associated with adult medicine and adult surgery. They also include the evolution of these services between the twentieth and twenty-first centuries.

A large amount of these health care issues relate to differences between inpatient and outpatient care. Historically, inpatient care has accounted for the largest health care utilization among providers and payors. These subjects involve a full

range of clinical issues. They include major services such as medicine and surgery, as well as other services such as obstetrics and mental health [3]-[5].

In the twentieth century, improvements in the efficiency of health care at the community level focused on the clinical efficiency of care, especially through reduction of the use of inpatient services. This process involved shifting the utilization of services through ambulatory care and outpatient services [3] [4].

These improvements also involved the efforts of both providers and payors. In recent years, the need to improve health care efficiency has supported specific projects as a follow up to efforts eliminating the coronavirus in the United States and elsewhere [6] [7].

In the twenty-first century, additional efforts have also been made to extend the availability of care further. These efforts are providing care on a twenty-four-hour seven-day basis through medical memberships for sinus infections, urinary tract infections and other non-emergency diagnoses.

It has also been suggested that nearly half of this care is provided outside hospitals. The care is provided through extensions of hospital primary care offices, over the counter pharmacies, and other mechanisms. It has been sponsored by a full range of providers and payors such as urgent care centers, large department stores, and online organizations.

The combination of these approaches to the delivery of health care appears to be continuing to grow in population. It appears to be reducing costs and improving efficiency.

2. Population

This study focused on changes in hospital utilization at the community level in the metropolitan area of Syracuse, New York. This area included three large acute care providers. These acute care providers included Crouse Hospital (17,309 inpatient discharges excluding well newborns, 2023), St. Joseph's Hospital Health Center (17,715 inpatient discharges excluding well newborns, 2023), and Upstate University Hospital, SUNY UMU (29,967 inpatient discharges excluding well newborns, 2023).

These hospitals provide primary and secondary inpatient acute care services to an immediate service area with a population of approximately 600,000. They also provide tertiary acute care services to the eleven-county Central New York Health Service Area with a population of approximately 1,400,000 [8].

3. Method

This study analyzed changes in numbers of discharges for adult medicine and adult surgery in the hospitals of Syracuse, New York between 2019 and 2024. These services produced the largest amounts of inpatient care in the combined hospitals. The study focused on specific mechanisms that generated these changes among the hospitals.

These changes were based on monthly data provided to the Syracuse hospitals

during a five year period. The purpose of this information was to improve the efficiency of care at the community level. This information focused on adult medicine and adult surgery, the types of care with the highest levels of inpatient utilization.

In the twenty first century, the improvements of efficiency among the hospitals were generated largely by a number of specific care management mechanisms. This process included the following mechanisms.

One of the most important mechanisms in this process was the reduction of inpatient surgery in the Syracuse hospitals. This process involved work by payors and providers to reduce the numbers of inpatient surgery. By limiting inpatient surgery, this activity improved the opportunities for high quality clinical care. It also reduced substantially the costs of care.

The health planning efforts to reduce inpatient surgery involved the use of Major Diagnostic Categories and Diagnosis Related Groups to monitor inpatient care and limit their use in the hospitals at the community level. They were implemented by the Hospital Executive Council based on review of monthly inpatient and outpatient data. The results of these activities are summarized in the utilization and outcomes data which follow.

Another important component of the improvement of efficiency was the use of preventive care in the hospitals through ambulatory services. This activity included the provision of free preventive care through a wide range of screenings and immunizations. These activities included routine checkups, physician visits, and immunizations.

Another important contribution to the improvement of health care efficiency in the community involved the use of care management between inpatient and outpatient services. These efforts involved the use of nursing care managers to monitor care in the hospitals and outpatient services. It included the use of health insurance team members to monitor and avoid excessive numbers of inpatient and outpatient procedures. It was suggested that the use of care managers improved these specific care resources.

Some of these activities involved the development of outpatient services in the community such as ambulatory surgery in order to limit numbers of clinical staff, pharmaceuticals, and testing. These specific inpatient services were responsible for large amounts of inpatient care.

The study data suggested that additional resources could limit non-emergency medical care in the Syracuse hospitals through telemedicine. This approach was cost effective because it limited emergency department and urgent care visits.

Another contribution to the improvement of health care outcomes and efficiency was the use of mental health community services as part of care management activities. The experience of the Syracuse hospitals also suggested that some inpatient care could be reduced through referral of mental health care management.

The use of a wide range of these health planning activities supported the

improvement of care and efficiency in the Syracuse hospitals between 2019 and 2024. They made it possible for the Syracuse hospitals to limit expensive resources such as inpatient acute care in each of the hospitals rather than spend additional for inpatient and outpatient services.

The impact of these programs was identified in the study data collected by the Hospital Executive Council. It demonstrated that these services were effective alternatives to inpatient care.

4. Results

The results of the study focused on changes in numbers of inpatient discharges for adult medicine and adult surgery in the Syracuse hospitals between 2019 and 2024. These efforts involved specific mechanisms that supported reductions in resources among the hospitals.

The purpose of the study was to improve the efficiency of care at the community level. This information involved adult medicine and adult surgery, the services with the highest levels of utilization. The initial component of the results of the study concerned adult surgery discharges by Major Diagnostic Category by year. It included January-September for 2019-2024. This information is summarized in

Table 1.

Table 1. Inpatient hospital adult surgery discharges by major diagnostic category by year, Syracuse hospitals, January-September 2019-2024.

Major Diagnostic Category		Number of Discharges				Difference
		2019	2021	2022	2024	2024 vs 2019
1	Nervous System	932	966	941	907	-25
2	Eye	13	18	16	13	0
3	ENT, Mouth & Craniofacial	151	128	127	193	42
4	Respiratory System	343	292	284	272	-71
5	Circulatory System	3613	3559	3294	3326	-287
6	Digestive System	1519	1357	1220	1246	-273
7	Hepatobiliary System & Pancreas	435	356	258	308	-127
8	Musculoskeletal System & Connective Tissue	5854	3663	3220	3393	-2461
9	Skin, Subcutaneous Tissue & Breast	208	175	133	171	-37
10	Endocrine, Nutritional & Metabolic	809	574	704	477	-332
11	Kidney & Urinary Tract	597	560	508	434	-163
12	Male Reproductive System	245	163	60	73	-172
13	Female Reproductive System	235	263	210	186	-49
16	Blood & Immunologic Disorders	29	31	19	28	-1
17	Lymphatic & Other Malignancies	75	92	90	80	5
18	Infectious & Parasitic Diseases	523	611	569	632	109

Continued

21	Poison, Toxic Effect & Other Injury	129	124	99	125	-4
22	Burns	63	60	51	79	16
23	Rehab, Aftercare, Other Health Status	73	55	40	57	-16
24	HIV Infections	0	0	0	0	0
25	Multiple Significant Trauma	169	186	172	178	9
	Total	16,015	13,233	12,015	12,178	-3,837

Data exclude Diagnosis Related Groups concerning medicine, obstetrics, psychiatry, alcohol/substance abuse treatment, and all patients aged 0 - 17 years. Source: Hospital Executive Council.

The data indicated that total discharges for adult surgery declined by 3837 between January-September 2019 and 2024. Of this total, the largest reduction was in the orthopedic surgery Major Diagnostic Category which declined by 2461.

In addition, the number of discharges in the endocrine, nutritional & metabolic disorder Major Diagnostic Category declined by 332, the number of discharges in the circulatory Major Diagnostic Category declined by 287, and the digestive Major Diagnostic Category declined by 273.

The study data suggested that reductions in numbers of these patients were generated by a number of specific initiatives. The most important of these was probably the implementation of additional ambulatory care programs in the community. These changes shifted a large number of hospital inpatients to outpatient care in the community.

The impact of these changes was largest for patients at relatively low severity of illness. Insurance companies such as Excellus BlueCross Blue Shield and other payors have stimulated a shift of these patients to outpatient care including physician offices. Care management programs also stimulated the movement of these orthopedic and digestive patients to care outside inpatient hospitals.

The study data also indicated that large numbers of adult medicine patients were shifted from inpatient to outpatient care in the service area of the Syracuse hospitals. These patients were identified by Major Diagnostic Category by year. This information is summarized in **Table 2**.

Table 2. Inpatient hospital adult medicine discharges by major diagnostic category by year, Syracuse hospitals, January-September 2019-2024.

Major Diagnostic Category	Number of Discharges				Difference
	2019	2021	2022	2024	2024 vs 2019
1 Nervous System	3222	2803	2491	2486	-736
2 Eye	100	69	76	85	-15
3 ENT, Mouth & Craniofacial	435	266	208	295	-140
4 Respiratory System	4369	4774	3957	3492	-877
5 Circulatory System	4475	4254	3566	3557	-918

Continued

6	Digestive System	3169	2879	2151	2578	-591
7	Hepatobiliary System & Pancreas	1215	1290	882	947	-268
8	Musculoskeletal System & Conn Tissue	1120	1070	1043	1164	44
9	Skin, Subcutaneous Tissue & Breast	1031	948	687	832	-199
10	Endocrine, Nutritional & Metabolic	1459	1376	1244	1337	-122
11	Kidney & Urinary Tract	2154	2054	1759	2176	22
12	Male Reproductive System	61	49	46	53	-8
13	Female Reproductive System	88	100	65	66	-22
16	Blood & Immunologic Disorders	622	555	478	495	-127
17	Lymphatic & Other Malignancies	431	431	392	498	67
18	Infectious & Parasitic Diseases	3216	3634	3075	3935	719
21	Poison, Toxic Effect & Other Injury	708	566	495	454	-254
22	Burns	54	52	35	34	-20
23	Rehab, Aftercare, Other Health Status	302	339	337	281	-21
24	HIV Infections	54	53	45	39	-15
25	Multiple Significant Trauma	83	123	90	83	0
	Total	28,368	27,685	23,122	24,887	-3,481

Data exclude Diagnosis Related Groups concerning surgery, obstetrics, psychiatry, alcohol/substance abuse treatment, rehabilitation, and all patients aged 0 - 17 years. Source: Hospital Executive Council.

The data indicated that total discharges for adult medicine declined by 3,481 between January-September 2019 and 2024. These data demonstrated that the largest reductions in discharges were for the circulatory system (918 discharges), respiratory system (877 discharges), nervous system (736 discharges), and the digestive system (591 discharges).

The movement of these discharges from inpatient to outpatient care was stimulated by a number of specific initiatives. They included care management, preventive care, and telemedicine efforts stimulated by providers and payors. Both providers and payors supported the development and implementation of these specific initiatives in the communities of the Syracuse hospitals.

The study data demonstrated that the movement of these patients from inpatient to outpatient care required a combination of efforts in the community. The highest levels of effort included the development of outpatient programs, as well as care management, preventive care, and telemedicine services.

The study demonstrated that these initiatives comprised a combination of resources ranging from preventive care, to acute inpatient care, to care within hospitals and emergency departments, to care management. Each of these approaches was developed to contribute to improvement of clinical efficiency while limiting the use of resources.

5. Discussion

During the twentieth century, efforts to improve health care in the United States have included the expansion of utilization at the community level. These efforts have included additional programs, however, some of the additions have limited efficiency [1].

This small study reviewed a combination of health care programs in the metropolitan area of Syracuse, New York. It was designed to improve care, however a major purpose was to support efficiency.

Historically, support for health care utilization has been a popular undertaking. It has improved care and sometimes fueled local economies. This study suggested that there are limits to these benefits.

The information described in this study suggested the need for improving efficiency. It also reviewed the need for limiting care as well as a number of programs that have been developed at the community level.

The study described a number of individual programs that were developed in order to improve the quality and the efficiency of care. These programs were implemented by a combination of local providers and payors. They included the development of outpatient services such as ambulatory surgery, as well as preventive care, case management, telemedicine, and mental health.

The impact of these programs was a combination of these services, rather than individual efforts. It reflected the work of a combination of participants on health care. The impact of these efforts was the product of a range of individual services, especially care management.

Additional efforts should make it possible to extend these efforts among providers and payors in the Syracuse area. This approach should make it possible to extend the impact of health care efficiency further.

Conflicts of Interest

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

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