

Centers for Medicare & Medicaid Services

Community Based Sepsis Initiative Special Innovation Project (SIP) New York

Insights Into Quality – What Does the Data Say?

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All-Sector Sepsis Summit
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Atlantic Quality Innovation Network (AQIN)

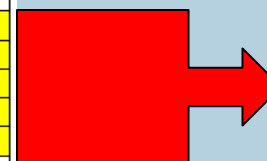
- The federally funded Medicare Quality Innovation Network – Quality Improvement Organization (QIN-QIO) for New York State, the District of Columbia, and South Carolina.
- Led by I PRO
- Partners include
 - Delmarva Foundation in the District of Columbia
 - The Carolinas Center for Medical Excellence in South Carolina
- One of 14 QIN-QIOs operating across the U.S.

NYS RESIDENT MEDICARE FEE FOR SERVICE WITH PRIMARY DX OF SEPSIS

IN-HOSPITAL DEATHS IN NY STATE ACUTE CARE FACILITIES

JULY 2013 THRU JUNE 2014

LENGTH OF STAY PRIOR TO DEATH (DAYS)	NUMBER OF PATIENTS	PERCENT OF ALL IN-HOSPITAL PRIMARY DIAGNOSIS SEPSIS DEATHS
0	578	7.8%
1	1,085	14.7%
2	723	9.8%
3	519	7.0%
4	478	6.5%
5	449	6.1%
6	386	5.2%
7	349	4.7%
8	258	3.5%
9	265	3.6%
10	219	3.0%
11	203	2.7%
12	144	2.0%
13	156	2.1%
14	160	2.2%
15	112	1.5%
16	110	1.5%
17	93	1.3%
18	95	1.3%
19	101	1.4%
20	73	1.0%
21	66	0.9%
22	57	0.8%
23	56	0.8%
24	38	0.5%
25	41	0.6%
26	44	0.6%
27	44	0.6%
28	29	0.4%
29	23	0.3%
30	27	0.4%
Gt 30	402	5.4%
Total	7,383	



Highest Mortality Rates

Sepsis strikes quickly, and earlier recognition and improved care management can reduce sepsis-related morbidity and mortalities.†

† *Castellanos-Ortega A et al, 2010*

Source: CMS Medicare FFS Paid Claims Data

NYS Medicare FFS All Cause 30-Day Readmission Primary Diagnosis - CY 2017

Most Common Primary Diagnosis For Less Than 30 Day Re-admissions

Disease Category*	Number
Septicemia (except in labor)	12,320
Hypertension with complications and secondary hypertension	7,771
Chronic obstructive pulmonary disease and bronchiectasis	3,665
Complications of surgical procedures or medical care	3,410
Complication of device; implant or graft	2,768
Acute and unspecified renal failure	2,742
Respiratory failure; insufficiency; arrest (adult)	2,545
Cardiac dysrhythmias	2,521
Diabetes mellitus with complications	2,515
Pneumonia except that caused by tuberculosis or sexually transmitted	2,504

* Diseases are categorized using 'Clinical Classification' software provided by CMS.

Source: CMS Medicare FFS Paid Claims Data

NYS Medicare FFS Sepsis Readmissions – CY 2017

Observations Drawn From The Numbers In The Re-admission Table

Overall 14 Day Re-admission Rate **14.6%**

Overall 30 Day Re-admission Rate **23.7%**

Percent Of Discharges With No After Care **27.8%**

14 Day Re-admission Rate For These Patients **12.1%**

30 Day Re-admission Rate For These Patients **19.1%**

Percent Of Discharges To SNF **36.4%**

14 Day Re-admission Rate For These Patients **17.1%**

30 Day Re-admission Rate For These Patients **27.9%**

Percent Of Discharges To Home Health **22.4%**

14 Day Re-admission Rate For These Patients **15.9%**

30 Day Re-admission Rate For These Patients **26.4%**

	Numerator	Denominator
Overall 14 Day Re-admission Rate	8,292	56,749
Overall 30 Day Re-admission Rate	13,432	56,749
Percent Of Discharges With No After Care	15,766	56,749
14 Day Re-admission Rate For These Patients	1,902	15,766
30 Day Re-admission Rate For These Patients	3,015	15,766
Percent Of Discharges To SNF	20,641	56,749
14 Day Re-admission Rate For These Patients	3,521	20,641
30 Day Re-admission Rate For These Patients	5,759	20,641
Percent Of Discharges To Home Health	12,704	56,749
14 Day Re-admission Rate For These Patients	2,026	12,704
30 Day Re-admission Rate For These Patients	3,355	12,704

Source: CMS Medicare FFS Paid Claims Data

NYS Medicare FFS Sepsis Hospital Admissions by Healthcare Community Setting – CY 2017

HOME HEALTH	
Total Number Admissions with Sepsis as Primary Diagnosis	8,650
Average Medicare Expenditure per Case	\$22,913
Total Medicare Expenditure	\$198 Million
In-Hospital Mortality	1,360
Days on Home Health Service Prior to Admission	
Less Than 7 Days	1,746 (20%)
8-30 Days	3,016 (35%)
More than 30 Days	3,888 (45%)

SKILLED NURSING FACILITY (SNF)	
Total Number Admissions with Sepsis as Primary Diagnosis	7,974
Average Medicare Expenditure per Case	\$26,130
Total Medicare Expenditure	\$242 Million
In-Hospital Mortality	2,536
Days in SNF Prior to Admission	
Less Than 7 Days	2,427 (26%)
8-30 Days	4,274 (46%)
More than 30 Days	2,563 (28%)

Source: CMS Medicare FFS Paid Claims Data

AQIN Community Based Sepsis Initiative Hypothesis

A comprehensive approach for delivery of information, education, and resources to the public and cross-setting healthcare providers, in concert with implementation of interventions and systems to ensure knowledge and understanding about the risks and symptoms of sepsis is critical to earlier recognition and prompt treatment to reduce morbidities and mortalities of sepsis, severe sepsis and septic shock.

Methodology

- **Analyze Medicare FFS paid claims data to inform root cause analysis, selection of interventions, and trending of individual SNF, HHC, and physician practice performance**
- **Assess the current state of the community and healthcare providers' understanding of sepsis to:**
 - **Determine the level of technical assistance, intervention and training required**
 - **Facilitate provider adoption of evidence-based interventions to proactively identify the signs and symptoms of sepsis**
 - **Facilitate training at the community level on the signs and symptoms of sepsis**

Performance Outcome Measurement

AQIN Community Based Sepsis Initiative	
Outcome Measure	Target Goal
Stages: Sepsis, Severe Sepsis and Septic Shock	
Number of Medicare FFS inpatient admissions by stage of sepsis	2% Relative Improvement Rate
Percent inpatient mortalities for Medicare FFS patients by stage of sepsis	2% Relative Improvement Rate
Average length of stay with mortality by stage of sepsis	2% Relative Improvement Rate
Average length of stay without mortality by stage of sepsis	2% Relative Improvement Rate
Percent 30, 60 and 180 day readmissions for Medicare FFS patients with a principal diagnosis of sepsis stages	2% Relative Improvement Rate
<p>Source: CMS Medicare FFS Paid Claims Data Baseline Period: 09/18/14 - 03/17/15 Re-measurement Period: 10/01/17 - 03/30/18</p>	

AQIN Six Month Aggregate Outcome Measure Progress

New York SIP 2 Six Month Aggregate Community Based Sepsis Performance Measure IQC								
Measure	Six Month Baseline (09/18/14-03/17/15)	Quarters 1 & 2 (10/1/15-03/31/16)	Quarters 3 & 4 (04/1/16-09/30/16)	Quarters 5 & 6 (10/1/16-03/31/17)	Quarter 7 & 8 (04/1/17-9/30/17)	Quarter 9 & 10 (10/1/17-03/31/18)	*Target Goal	Comments
Number of inpatient admissions of Medicare FFS patients by stage of sepsis: 1) Sepsis; 2) Severe sepsis; 3) Septic shock								
Sepsis Only	3,258	3,392	3,137	3,080	2,997	2,989 ↓	3,193 Achieved	*Awaiting MFFS claims data for this time period.
Severe Sepsis	696	793	620	829	775	908	682	
Septic Shock	919	957	901	986	955	1,021	901	
Percent inpatient mortalities for Medicare FFS patients by stage of sepsis: 1) Sepsis; 2) Severe sepsis; 3) Septic shock								
Sepsis Only	8.4%	8.6%	7.4%	7.3%	5.7%	7.6% ↓	8.3% Achieved	*Awaiting MFFS claims data for this time period.
Severe Sepsis	21.0%	16.4%	13.1%	15.6%	11.5%	13.2% ↓	20.6% Achieved	
Septic Shock	41.1%	43.9%	40.8%	36.3%	39.9%	36.5% ↓	40.3% Achieved	
Average Acute Length of Stay with mortality by stage of sepsis: 1) Sepsis; 2) Severe sepsis; 3) Septic shock								
Sepsis Only	9.5	10.3	8.9	9.3	8.9	8.1 ↓	9.3 Achieved	*Awaiting MFFS claims data for this time period.
Severe Sepsis	10.1	7.5	8.5	7.8	7.3	6.9 ↓	9.9 Achieved	
Septic Shock	10.0	9.5	9.4	10.0	8.8	9.1 ↓	9.8 Achieved	
Average Acute Length of Stay without mortality by stage of sepsis: 1) Sepsis; 2) Severe sepsis; 3) Septic shock								
Sepsis Only	8.8	8.4	8.1	7.7	7.2	7.3 ↓	8.6 Achieved	*Awaiting MFFS claims data for this time period.
Severe Sepsis	10.8	9.6	9.0	8.7	8.0	7.8 ↓	10.6 Achieved	
Septic Shock	16.1	16.0	15.1	14.1	14.0	13.6 ↓	15.8 Achieved	
Percent 30, 60 and 180 day readmissions for Medicare FFS patients with a principal diagnosis of sepsis								
Sepsis Only	30 – 22.5%	30 – 22.1%	30–21.2%	30–21.6%	30–20.2%	30-21.0% ↓	30 – 22.0% A	*Awaiting MFFS claims data for this time period as data is not complete for 60 & 180 day readmissions during the re-measurement period.
	60 – 31.3%	60- 32.8%	60-29.9%	60-29.2%	60-29.3%	60-29.3% ↓	60 – 30.7% A	
	180 -41.4%	180-48.8%	180-46.4%	180-37.0%	180-38.2%	180-38.6% ↓	180 -40.5% A	
Severe Sepsis	30 –20.2%	30 – 22.9%	30-20.2%	30–18.9%	30–22.3%	30-21.3%	30 – 19.8%	
	60 – 29.3%	60 - 32.0%	60-28.6%	60-27.7%	60-28.2%	60-29.7%	60 – 28.7% A	
	180 – 40.2%	180-47.1%	180-41.6%	180-35.7%	180-36.1%	180-37.8% ↓	180 -39.4% A	
Septic Shock	30 – 27.5%	30 – 25.1%	30 –28.9%	30–27.1%	30–29.4%	30-26.4% ↓	30 – 27.0% A	
	60 – 37.0%	60- 35.8%	60-38.6%	60-35.4%	60-35.7%	60-35.3% ↓	60 – 36.2% A	
	180 – 45.5%	180-49.0%	180-51.8%	180-43.3%	180-43.8%	180-42.0% ↓	180 -44.6% A	

AQIN Community Based Sepsis Outcome Highlights

AQIN COMMUNITY BASED SEPSIS INITIATIVE OUTCOME HIGHLIGHTS

OUTCOME MEASURE	ALBANY AND SYRACUSE HRR HOSPITALS				OTHER NYS HOSPITALS			
	BASELINE	REMEASUREMENT	CHANGE (R-B)	RELATIVE IMPROVEMENT	BASELINE	REMEASUREMENT	CHANGE (R-B)	RELATIVE IMPROVEMENT
NUMBER OF ADMISSIONS:								
SEPSIS	3,258	2,989	-274	8%	16,347	16,142	-205	1.3%
IN-HOSPITAL DEATH RATE:				Relative Improvement (C/B)				Relative Improvement (C/B)
SEPSIS	8.4%	7.6%	-0.8%	9.5%	8.8%	8.4%	-0.4%	4.5%
SEVERE SEPSIS	21.0%	13.2%	-7.4%	35.2%	19.7%	13.4%	-6.3%	32.0%
SEPTIC SHOCK	41.1%	36.5%	-4.3%	10.5%	43.0%	42.0%	-1.0%	2.3%
AVERAGE STAY FOR LIVE DISCHARGES (DAYS):								
SEPSIS	8.8	7.3	-1.5	17.0%	10.1	9.1	-1.0	9.9%
SEVERE SEPSIS	10.8	7.8	-2.9	26.9%	12.4	9.9	-2.5	20.2%
SEPTIC SHOCK	16.1	13.6	-2.4	14.9%	17.3	16.0	-1.3	7.5%

SOURCE: CMS MEDICARE FFS PAID CLAIMS DATA
 BASELINE PERIOD: 09/18/14 - 03/17/15
 RE-MEASUREMENT PERIOD: 10/01/17 - 03/30/18

Estimated Medicare FFS Cost Savings: \$8,064,475



Community Based Sepsis Initiative Process & Proximal Measure Progress

- **AQIN Public Outreach Sessions**
 - 23 sessions / 575 members of general public trained
 - 100% absolute improvement in knowledge of identification of sepsis
 - Sepsis BINGO
- **AQIN Healthcare Provider Train-the-Trainer Sessions**
 - 64 training sessions
 - 50% absolute improvement in knowledge of identification of sepsis
- **Clinical & non-clinical staff trained - 10,342**
- **Media (TV & radio) & Social Media Outreach - 68**



Sepsis Alliance Survey Results

Question: Have you heard of the term sepsis?

	Baseline Yes (09/2015)	Remeasurement Yes (06/2017)	Baseline No (09/2015)	Remeasurement No (06/2017)	Baseline Not Sure (09/2015)	Baseline Not Sure (06/2017)
New York (Albany/Syracuse HRR)	63%	73%* 	29%	16%* 	9%	11%
National	44%	55%	44%	34%	12%	11%
* Significant Improvement						

NY Results Better Than National on Remeasurement

Data Collection - Nielsen

Call to Action

- Sepsis is one of the most under recognized and misunderstood conditions by healthcare providers and the public
- Ideal outcomes require team-based tactics with pre-hospital providers (home health, skilled nursing facilities, physician practices, and EMS) and acute care hospitals
- It is imperative to inform the public at large on the signs and symptoms of sepsis through education and awareness



For More Information...

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IPRO Sepsis Initiative
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