An Interdisciplinary Approach to Epic Dashboard Optimization

Methodist Health System
DFW Hospital Council IQSC Data & Analytics Summit
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Trust. Methodist.

Methodist Health System

- Private, Not for profit health system with over $1.7B in annual revenue
- 5 System Hospitals: Dallas, Charlton, Mansfield, Richardson Bush-Renner & Campbell (Methodist Midlothian to open in 2020)
  - Over 270,000 patient days
  - Over 260,000 Emergency Visits
  - Over 7000 employees
  - Over 1900 physicians on staff

Mission – To improve and save lives through compassionate quality healthcare.

Health Informatics & Clinical Data Management

- 43 informaticists and **growing!**
- Responsibilities:
  - All inpatient clinical applications for Epic, including ED, lab, radiology, and pharmacy, OR, and anesthesia
  - All clinical inpatient reporting and data analytics
- Reports up through CMIO and System Data Governance Committee
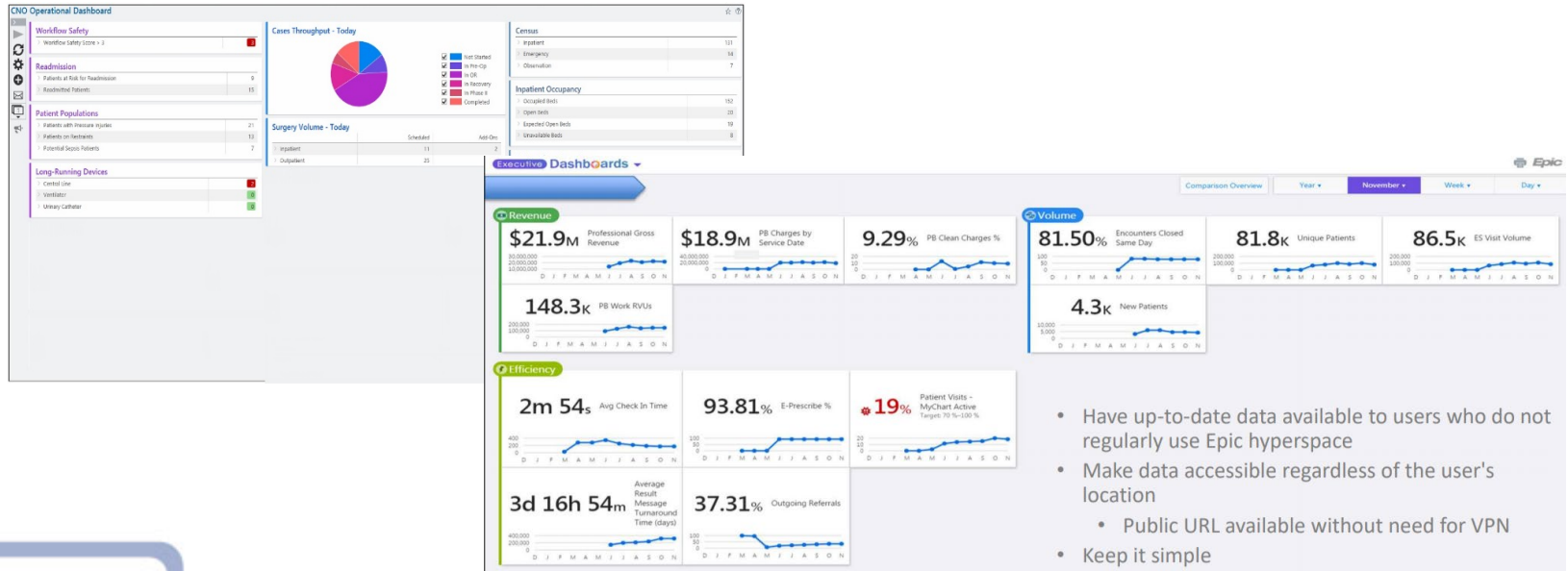- Collaborative approach between the HI and CDM teams

The Case for Epic Cogito Business Analysts (CBAs)

- Useful clinical data unreliable and disorganized
- Limited Epic application analyst ability to support reporting
- Management requests for enhanced reporting capabilities ever increasing
- Needed a role to bridge the gap between informaticists and end-users for impactful data

Identify and Engage Executives

Increase ability to communicate data needs, accurate expectations and higher organizational awareness of reporting capabilities

Initial approach has been to address the dashboards and reporting needs of C-Suite executives (CEO, CNO, CFO, CMO) to address high impact data.

- Have up-to-date data available to users who do not regularly use Epic hyperspace
- Make data accessible regardless of the user's location
  - Public URL available without need for VPN
- Keep it simple

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Identify and Engage Subject Matter Experts
&
Provide Content-Specific Training to Power Users

- Increase ability to communicate data needs, accurate expectations for content and tool features, end-users get the content they expect
- Increase end-user understanding of available content, decreased report request backlog, decreased workload on the core reporting team

Currently working with hospital CNO's to identify SMEs in Radar to provide training and answer routine questions about reporting and have an on-site 'go to' person to train new employees on an as needed basis

Types of Users
- Executives
- Quality/Compliance
- Department Management
- Security and Privacy
- Performance Improvement

Training Content
- Accessing reports and dashboards
- Modifying reports, including private reports and summaries
- Report processes

Epic Recommended Best Practices

Build a Data Governance Committee

The responsibility of the Data Governance Committee is to push out policy and guidelines that will facilitate the achievement of organizational goals using analytics.
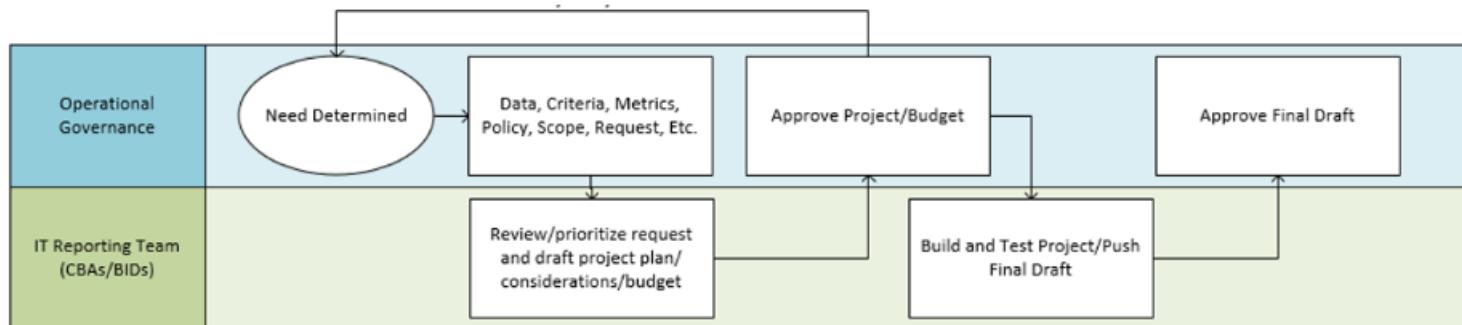
Building an Enterprise Data Governance Program

- **Foundation: Data Dictionary**

- **Building Blocks: Cogito Metric Glossary**

- **Online Shopping: Analytics Catalog (Available Epic 2018)**

Cogito for Data Governance

Catalog
Reports for Data Citizens

Glossary
Metrics for Data Stewards

Dictionary
Items for Data Architects

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Foundation: Data Dictionary

At the foundation of every data governance strategy is your enterprise data. Cogito uses the Caboodle Data Dictionary to provide a seamless way to create and update your Caboodle enterprise data, as well as record the associated metadata for things like data lineage, ontologies, and definitions. The Data Dictionary is intended for BI developers, ETL developers, and business analysts. It provides an easy one-stop-shop to both search and maintain your data definitions in a web-based console.

Caboodle Data Dictionary web console viewer showing allergy metadata

DATA DICTIONARY

Building Blocks: Cogito Metric Glossary (Available August 2018)

Epic maintains over 700 healthcare-focused metrics from across the continuum of care in a business glossary, which includes the ability for your organization to add your own new metrics. The Cogito Metric Glossary allows you to document the business logic (calculations) and the metric definition for the most important KPIs and metrics in your organization.

Your metrics can appear in the glossary with a full human readable definition and owner.

Glossary viewer showing metric metadata

METRIC GLOSSARY

MHS Hospital Operations - Past Week by Dynamic Location
Workbench Report 157408

Description

This report contains operational data for the MHS Hospital. Data displays for admissions, discharges, average length of stay, occupancy percentage, and observation hours, as well as separate sections for inpatient days by unit, financial class, and service for each day from the past week.

Add a tag

Cogito - Tested ×

Build Team

Select a build team

Content Review

Overall Review Status

Set a review status

Last Reviewed On

Set the review date

Reviewer	Review Status

Administrator Information

Content Owner

JACKSON, CONNIE

Restore   Save   Cancel

MHS Hospital Operations - Past Week by Dynamic Location
Workbench Report 157408

Add a tag

Cogito - Tested ×

Build Team

Select a build team

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Overall Review Status

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JACKSON, CONNIE

Notes

Other notes intended for administrators

Restore   Save   Cancel

METADATA FOR DATA GOVERNANCE

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Online Shopping: Analytics Catalog (Available Epic 2018)

You've carefully defined your enterprise data in Caboodle, and you have codified your KPIs and metrics into the Cogito Metric Glossary. Now, you can reach the third layer of Cogito data governance: the Analytics Catalog. The Analytics Catalog gives a comprehensive browsing experience for content in Reporting Workbench, Crystal, and Radar. From a single user interface, you can browse, favorite, and search for governed analytics content.

The catalog is embedded directly into the home page of Cogito so users don't need to go to a separate portal. Using integrated security and role definitions, users see only the content that is available to them. To help clarify the intended use of the report, the catalog supports storing and searching on metadata descriptions, tags, business owners, and administrative comments.

Analytics Catalog

Business Services Provided By CDM

Federal Programs Management	Clinical Outcomes Data Management	Data Vendors Management
Inpatient Quality Reporting	Scheduled reports	Midas+
Outpatient Quality Reporting	Ad-hoc reports	PREMIER
Value-Based Purchasing	Data support for PI projects	NAVION HEALTHCARE SOLUTIONS — Personalized Service. Trusted Data. Exceptional Outcomes.
Hospital-Acquired Conditions Reduction	Data support for ad-hoc projects	CMS.gov | QualityNet
Readmissions Reduction Program		Epic

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Federal Programs Management

IQR	OQR	IPFQR	VBP	TJC

HAC Reduction	HRRP	NCDR

Core Measures	Hospital Compare	STS

eCQM	Leapfrog	National Healthcare Safety Network (NHSN)

US News and World Report	National Database of Nursing Quality Indicators

DFWHC	Texas Health Care Information Collection (THCIC)	Press Ganey

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Clinical Outcomes Data Management

Risk-Adjusted Outcomes Analysis + Opportunity Analysis

Resource Utilization

Risk-Adjusted Outcomes Analysis

- Mortality
- Readmissions
- Length Of Stay
- Complications
- Cost/Case

Opportunity Analysis

- Patient Safety Indicators (PSI)
- Hospital-Acquired Conditions (HAC)
- Infections

Resource Utilization

- Population Utilization
- Quantities Consumed
- Variation in practice
- Charge Data Master Level analysis
- Cost or charges benchmarks

Benchmark, trend and analyze clinical measures by

- Clinical population
- Service lines
- APR-DRG/MS-DRG

- Severity of Illness
- Risk of Mortality
- Payer

- Discharge Status
- Admit Source
- Patient Type

- Demographics
- Physician
- Location

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Physician Dashboard Process

- CBAs engage CMOs and Department Chairs to identify SMEs
- Epic released metrics considered first – for future benchmarking opportunities
- Initial meeting with all stakeholders to review project and metric definitions
- CBAs and SMEs work to develop and validate all metrics
- Final dashboard/scorecard reviewed by all stakeholders before publication

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Hospitalist Key Metrics

- CPOE
- Daily Labs
- Sepsis Mortality
- Length of Stay
- Discharge Throughput

Hospitalist Performance Scorecard

Reporting Period: 10/01/2018 – 05/31/2019

Methodist HEALTH SYSTEM — CLINICAL DATA MANAGEMENT

Fiscal Year: 2019		Prior FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	FYTD
Volume & Productivity															
Total Discharges (Inpatient & Observation)															
		1,076	853	828	930	914	875	1,041	1,023	1,053					1,053
Documentation/Efficiency/Throughput															
Discharges Ordered Before 9am															
	Denominator:	1,039	820	800	894	879	845	1,001	982	1,014					1,014
	Numerator:	146	107	98	103	105	100	122	131	185					185
	Rate (%):	15.11	13.05	12.25	11.52	11.95	11.83	12.19	13.34	18.24					18.24
Discharges Ordered by 11am															
	Denominator:	1,039	820	800	894	879	845	1,001	982	1,014					1,014
	Numerator:	570	471	460	452	325	277	334	304	445					471
	Rate (%):	64.12	57.44	57.50	50.56	36.97	32.78	33.37	30.96	43.89					57.50
Discharged within 2 hours of discharge order released															
	Denominator:	1,039	820	800	894	879	845	1,001	982	1,014					1,014
	Numerator:	326	209	235	278	281	267	331	322	311					331
	Rate (%):	31.38	25.49	29.38	31.10	31.97	31.60	33.07	32.79	30.67					33.07
Case Mix Index Overall															
		1.67	1.43	1.56	1.62	1.55	1.58	1.51	1.58	1.59					1.62
Case Mix Index Medicare															
		1.74	1.42	1.69	1.56	1.56	1.58	1.48	1.53	1.70					1.70
Patient Experience & Quality															
Length of Stay Overall															
		6.20	5.07	5.31	6.07	5.77	5.61	5.68	5.53	7.26					7.26

Grouped by Service Area, Location, Department
Not Filtering

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HOSPITALIST PERFORMANCE

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CLINICAL DATA MANAGEMENT

Fiscal Year: 2019	Prior FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	FYTD
Patient Experience & Quality														
Length of Stay Medicare														
	5.95	4.83	5.96	6.10	5.90	5.44	5.83	5.13	10.30					10.30
Inpatient Length of Stay Overall														
	5.79	4.61	4.84	5.58	5.34	5.13	5.25	5.05	6.83					6.83
Inpatient Length of Stay Medicare														
	5.50	4.36	5.58	5.60	5.46	5.02	5.49	4.66	9.91					9.91
30-day All-Cause Hospital Readmission														
Denominator:	758	527	533	601	612	617	707	693	711					711
Numerator:	126	76	73	87	106	95	95	103	63					106
Rate (%):	18.58	14.42	13.70	14.48	17.32	15.40	13.44	14.86	8.86					17.32
Mortality Overall														
Denominator:	1,054	833	813	913	896	858	1,017	995	1,027					1,027
Numerator:	43	13	13	19	17	13	16	13	13					19
Rate (%):	4.08	1.56	1.60	2.08	1.90	1.52	1.57	1.31	1.27					2.08
Mortality Sepsis														
Denominator:	1,076	853	828	930	914	875	1,041	1,023	1,053					1,053
Numerator:	173	81	112	116	116	97	102	112	118					118
Rate (%):	16.08	9.50	13.53	12.47	12.69	11.09	9.80	10.95	11.21					13.53

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HOSPITALIST PERFORMANCE

ED Metrics

- Arrival to Discharge
- Arrival to Admit
- Median ED Patient Boarding Hours
  - Psych Patient Boarding Hours
- NEDOCS Overcrowding Score
- Lab/Rad Turnaround Times

MHS ED Cabinet Key Metrics ▾

⋮

Summary Level: [Department 🔍] Department: [MDMC EMERGENCY 🔍]

MHS Top Metrics for Emergency Department Methodist Dallas Medical Center Emergency Department

	Feb	Mar	Apr	May	Jun	Jul	MTD	FYTD
Arrival to ED Discharge	218m	212m	208m	207m	208m	202m	198m	209m
Arrival to Admit	333m	361m	321m	328m	344m	324m	322m	338m
Door to Provider	54m	49m	44m	42m	42m	40m	39m	44m
Roomed to Provider	18m	14m	14m	14m	11m	12m	11m	13m
LBTC	2.01 %	3.66 %	2.85 %	3.50 %	3.34 %	4.27 %	3.14 %	3.43 %
Total ED Boarding Hours	-	-	-	-	-	-	-	-
Median ED Boarding Hours	-	-	-	-	-	-	-	-
ED Psych Patient Visits	155	163	161	148	151	166	103	1,642
Total ED Psych Boarding Hours	920	1,400	1,352	1,001	1,387	1,104	585	12,687
Median ED Psych Boarding Hours	3	3	3	2	3	3	2	3

MHS ED Volume and Average Acuity Methodist Dallas Medical Center Emergency Department

	Feb	Mar	Apr	May	Jun	Jul	MTD	FYTD
Number of ED Visits	5,971	6,257	5,992	6,308	6,024	6,349	3,943	64,722
Average Acuity	3.09	3.05	3.05	3.07	3.03	3.05	3.04	3.06

MHS NEDOCS Overcrowding Score Methodist Dallas Medical Center Emergency Department

	Feb	Mar	Apr	May	Jun	Jul	MTD	FYTD
Disaster (>180)	0.52 %	2.05 %	0.07 %	0.00 %	0.07 %	0.24 %	0.00 %	0.42 %
Dangerous (141-180)	6.55 %	11.41 %	5.90 %	6.69 %	4.72 %	3.83 %	2.09 %	6.50 %
Overcrowded (101-140)	27.12 %	25.64 %	25.14 %	22.24 %	26.94 %	23.45 %	20.06 %	25.58 %
Busy (51-100)	46.13 %	41.82 %	40.14 %	47.35 %	48.72 %	46.84 %	52.87 %	45.52 %
Normal (<=50)	19.68 %	19.08 %	28.75 %	23.72 %	19.55 %	25.64 %	24.97 %	21.98 %

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MHS ED Turn Around Times - Lab Methodist Dallas Medical Center Emergency Department

	Feb	Mar	Apr	May	Jun	Jul	MTD	FYTD
Median CBC Ordered to Specimen Collected	12m	11m	10m	9m	10m	8m	9m	11m
Median CBC Ordered to Specimen Received	24m	22m	21m	22m	22m	20m	21m	23m
Median CBC Ordered to Specimen Resulted	29m	28m	26m	27m	27m	25m	26m	28m
Median UA Ordered to Specimen Collected	42m	39m	37m	37m	41m	35m	38m	39m
Median UA Ordered to Specimen Received	57m	53m	50m	52m	57m	49m	53m	53m
Median UA Ordered to Specimen Resulted	1h 20m	1h 04m	1h 00m	1h 03m	1h 07m	1h 01m	1h 02m	1h 09m
Median Chemistry Panel Ordered to Specimen Collected	12m	10m	10m	9m	10m	8m	9m	11m
Median Chemistry Panel Ordered to Specimen Received	24m	23m	21m	22m	22m	20m	21m	23m
Median Chemistry Panel Ordered to Specimen Resulted	42m	40m	38m	39m	40m	38m	39m	40m
Median Cardiac Lab Ordered to Specimen Collected	10m	7m	7m	6m	6m	4m	5m	8m
Median Cardiac Lab Ordered to Specimen Received	23m	19m	17m	18m	17m	15m	16m	20m
Median Cardiac Lab Ordered to Specimen Resulted	48m	45m	42m	43m	41m	41m	42m	44m

MHS ED Turn Around Times - Radiology Methodist Dallas Medical Center Emergency Department

|	Feb	Mar	Apr	May	Jun	Jul	MTD	FYTD
Median First X-Ray Ordered to End	53m	59m	1h 03m	1h 00m	1h 03m	55m	52m	56m
Median First X-Ray Ordered to Result	-	-	-	1h 08m	1h 03m	55m	52m	58m
Median First CT Ordered to End	1h 11m	1h 14m	1h 14m	1h 08m	1h 15m	1h 06m	1h 06m	1h 11m
Median First CT Ordered to Result	-	-	-	1h 11m	1h 15m	1h 06m	1h 06m	1h 10m
Median First Ultrasound Ordered to End	1h 47m	1h 46m	1h 55m	1h 42m	1h 40m	1h 40m	1h 44m	1h 47m
Median First Ultrasound Ordered to Result	-	-	-	1h 46m	1h 41m	1h 40m	1h 39m	1h 41m

Anesthesia Metrics

- Currently in process
- Determining:
  - Overall Definition
  - Denominator
  - Numerator
  - Exclusions
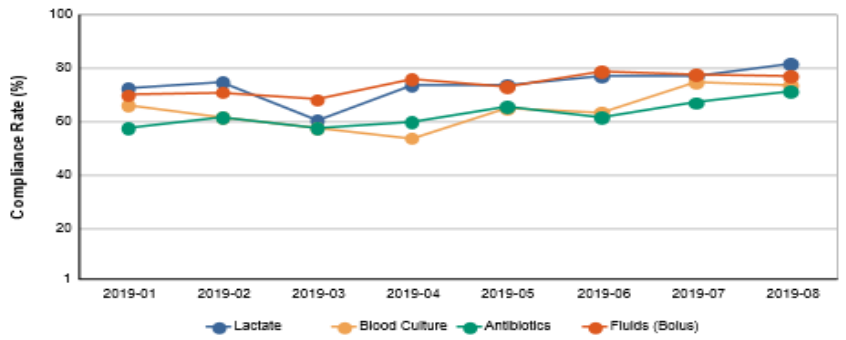- Using Epic definitions for metrics

Sepsis <=1 Hr Bundle Compliance
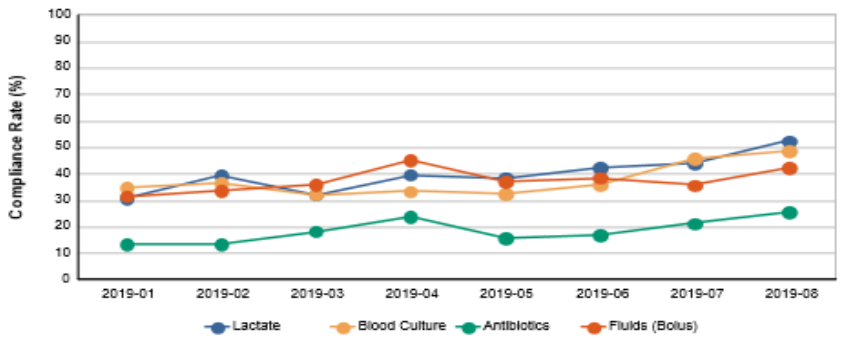
Sepsis <=3 Hr Bundle Compliance

		2019-01	2019-02	2019-03	2019-04	2019-05	2019-06	2019-07	2019-08
Sepsis ED		161	139	130	146	150	163	159	137
Lactate	<= 1Hr	50 31.06%	55 39.57%	42 32.31%	58 39.73%	58 38.67%	69 42.33%	70 44.03%	72 52.55%
	<= 3Hr	117 72.67%	104 74.82%	79 60.77%	108 73.97%	111 74.00%	126 77.30%	123 77.36%	112 81.75%
Blood Culture	<= 1Hr	56 34.78%	51 36.69%	42 32.31%	49 33.56%	49 32.67%	59 36.20%	73 45.91%	67 48.91%
	<= 3Hr	107 66.46%	86 61.87%	75 57.69%	79 54.11%	98 65.33%	104 63.80%	119 74.84%	101 73.72%
Antibiotics	<= 1Hr	22 13.66%	19 13.67%	24 18.46%	35 23.97%	24 16.00%	28 17.18%	34 21.38%	35 25.55%
	<= 3Hr	93 57.76%	86 61.87%	75 57.69%	88 60.27%	99 66.00%	101 61.96%	107 67.30%	98 71.53%
Fluids (Bolus)	<= 1Hr	51 31.68%	47 33.81%	47 36.15%	66 45.21%	56 37.33%	63 38.65%	57 35.85%	58 42.34%
	<= 3Hr	113 70.19%	99 71.22%	89 68.46%	111 76.03%	110 73.33%	129 79.14%	124 77.99%	106 77.37%

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SEPSIS PERFORMANCE

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CLINICAL DATA MANAGEMENT

Median Minutes from ED Arrival to:
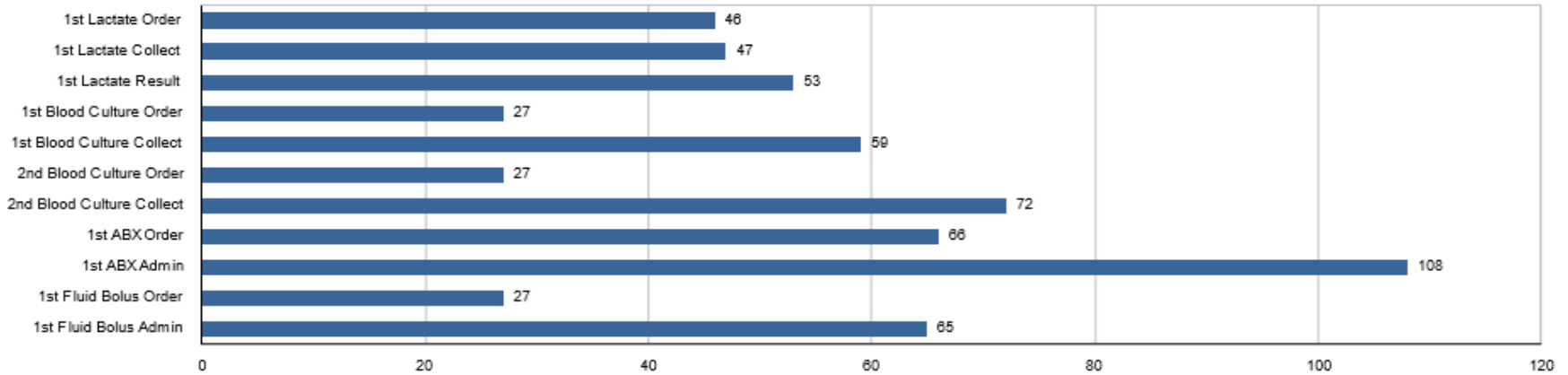
	2019-01	2019-02	2019-03	2019-04	2019-05	2019-06	2019-07	2019-08
1st Lactate Order	68	57	67	59	58	56	59	46
1st Lactate Collect	74	65	71	65	59	62	58	47
1st Lactate Result	102	87	88	73	70	67	65	53
1st Blood Culture Order	39	30	40	33	37	32	32	27
1st Blood Culture Collect	81	71	77	84	80	80	64	59
2nd Blood Culture Order	37	31	41	33	36	32	32	27
2nd Blood Culture Collect	89	72	79	84	89	88	74	72
1st ABX Order	100	111	79	73	75	84	79	66
1st ABX Admin	135	137	153	127	124	137	128	108
1st Fluid Bolus Order	46	40	38	27	25	30	30	27
1st Fluid Bolus Admin	78	72	77	59	70	69	75	65

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SEPSIS PERFORMANCE

Future Dashboard Development

- Anesthesia – January 2020
- OB – Spring 2020
- OR – Spring 2020
- Radiology – Summer 2020
- Surgeon Scorecard – Summer 2020

*All dashboards contain actionable data for quality improvement and operational excellence.

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Long Term Objectives

- **Baseline Data Literacy Training for all Leaders in FY2020**

- **Data Integration Plan – implementing Epic Caboodle and Slicer Dicer**

- **Centralized data reporting**

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