Michigan Acute Care Surgery Collaborative

Ypsilanti, MI November 29, 2023

Disclosures

- Mark Hemmila Grants
 - Blue Cross Blue Shield of Michigan
 - MTQIP
 - Michigan Department of Health and Human Services
 - MTQIP, MOPEN
 - Toyota North America, Insurance Institute for Highway Safety
 - VIPA Vulnerable Road Users Injury Prevention Alliance
 - Henry Jackson Foundation, DOD
 - Combat Wound Infection Study

No Photos Please



Agenda

- Welcome/Updates
- Mark Hemmila
 - Emergent Ex. Lap. data
 - Opioid data
- Brian Lane
 - MUSIC Videos
- Jill Jakubus
 - Practical applications of technology
- Lunch

Agenda

- Roy Golden
 - Fast Track Program
- Kim Kramer
 - Program manager updates
- Mark Hemmila > Postponed
 - Female/Male surgeons
 - SBO SCOAP and Gastrografin

Future Meetings

- Thursday April 18, 2024, Lansing
- Wednesday September 5, 2024, Ypsilanti
- Wednesday December 4, 2024, TBD
- Let us know if you see problems with dates
- In-person if possible
 - Virtual Weather, COVID

BCBSM

VBR

- Spring 2024 to submit
 - Data collection 7/1/2024 to 6/30/2025
 - Payout 2026
- MTQIP P4P > Composite, bonus ?
 - Spring 2024 to submit
 - Data collection 7/1/2024 to 6/30/2025
 - Payout 2026

Emergent Exploratory Laparotomy Data

Mark Hemmila, MD

	Aggregate		
Index Admission		N =	2403
<u>Variable</u>		<u>N</u>	<u>%</u>
Total Cases	Index Admissions Total Admissions (with Readmissions)	2403 3065	100.0 100.0
Point of Entry	ED Transfer from Outside Hospital ED Transfer from Outside Hospital Home/Direct Admit Other	1686 406 136 161 13	70.2 16.9 5.7 6.7 0.5

			Aggregate	
Index Admission		N =	2403	
<u>Variable</u>		<u>N</u>	<u>%</u>	
Diagnosis (ICD10-based*)	Perforation	893	37.2	
	Colon	573	23.8	
	Small bowel	25	1.0	
	Stomach/Duodenum	295	12.3	
	Obstruction	901	37.5	
	Hernia	334	13.9	
	Malignancy	63	2.6	
	Other (Volvulous, Intussusception)	504	21.0	
	Ischemia	230	9.6	
	Other	288	12.0	

		Aggrega		
Index Admission		N =	2403	
Variable		<u>N</u>	%	
Studies	Abdominal x-ray	733	30.5	
	CT scan performed	2286	95.1	
	CT scan findings: free air	799	35.0	
	CT scan findings: free fluid	1090	47.7	
	CT scan findings: fecalization	65	2.8	
	CT scan findings: pneumatosis	241	10.5	
	CT scan findings: swirl sign	128	5.6	
	CT scan findings: ischemic/dead			
	bowel	237	10.4	
	CT scan findings: obstruction	836	36.6	
	CT scan findings: other	1223	53.5	

NEWS2 Score – 12/2021

National Emergency Laparotomy Audit (NELA)

- Use NEWS2 for detection
- RR, O2, Temp, SBP, HR, Consciousness
- Score
 - Range 0-20
 - Clinical Risk for Deterioration
 - Low: 0-4 62.2%
 - Medium: 5-6 12.0%
 - High: ≥7 25.8%
 - Consistent

news2_clas			Discharge	e Status	
		s	Alive	Dead	Total
		High	162	73	235
			68.94	31.06	100.00
		Low	539	30	569
			94.73	5.27	100.00
		Med	87	23	110
			79.09	20.91	100.00
		Total	788	126	914
			86.21	13.79	100.00

NEWS2 Score

High				Medium				Low			
center	Discharge Alive	Status Dead	Total	center	Discharge Alive	e Status Dead	Total	center	Discharge Alive	e Status Dead	Total
9	2 66.67	1 33.33	3 100.00	13	2 66.67	1 33.33	3 100.00	9	1 100.00	0 0.00	1 100.00
1	0 0.00	1 100.00	1 100.00	35	5 83.33	1 16.67	6 100.00	1	4 100.00	0 0.00	4 100.00
13	7 63.64	4 36.36	11 100.00	16	3 75.00	1	4	13	14 93.33	1 6.67	15 100.00
35	7 100.00	0 0.00	7 100.00	21	42	6	48	35	32 96.97	1 3.03	33 100.00
16	5 83.33	1 16.67	6 100.00	7	87.50	12.50	100.00	16	6 85.71	1 14.29	7 100.00
21	66 68.75	30 31.25	96 100.00		75.00	25.00	100.00	21	224 94.92	12 5.08	236 100.00
7	8 72.73	3 27.27	11 100.00	19	76.47	23.53	100.00	7	30 96.77	1 3.23	31 100.00
19	27 75.00	9 25.00	36 100.00	27	16 66.67	8 33.33	24 100.00	19	103 94.50	6 5.50	109 100.00
27	40 62.50	24 37.50	64 100.00	Total	87 79.09	23 20.91	110 100.00	27	125 93.98	8 6.02	133 100.00
Total	162 68.94	73 31.06	235 100.00					Total	539 94.73	30 5.27	569 100.00

Index Admission	Agg N =	regate 2403	
Variable		N	<u>%</u>
NEWs 2 Score Interpretation	High risk (7-20)	726	30.2 1
	Moderate risk (5-6)	330	13.7
	Low risk (≤4)	1347	56.1 ↓
NEWs 2 Mortality	High risk and Dead	200	27.5
	Moderate risk and Dead	40	12.1 ↓
	Low risk and Dead	66	4.9

Overall Mortality = 12.9% > down from 16%

		Agg	regate
Index Admission		N =	2403
<u>Variable</u>		<u>N</u>	<u>%</u>
Bowel Anastomosis Tech	Stapled EEA (end-to-end)	63	2.6
	Stapled EEA (side-to-end)	16	0.7
	Stapled EEA (pouch or coloplasty)	1	0.0
	Stapled EEA and hand-sutured	11	0.5
	Stapled GIA (side-to-side)	478	19.9
	Stapled GIA (side-to-side) and hand-		
	sutured	158	6.6
	Hand-sutured (thru abdomen)	69	2.9
	Hand-sutured (thru anus)		0.0
	Combination stapled with hand-		
	sutured		
	(multiple anastomoses)	17	0.7
	No anastomosis performed	1588	66.1

Anastomotic leak

Bowel Anastomosis	anas	leak	
Technique	0	1	Total
Stapled with an EEA (108	2	110
end-to-end	98.18	1.82	100.00
Stapled with an EEA (23	1	24
side-to-end	95.83	4.17	100.00
Stapled with an EEA (3	0	3
Pouch or coloplasty	100.00	0.00	100.00
Stapled with a GIA st	522	28	550
side-to-side	94.91	5.09	100.00
Hand-sutured through	77	8	85
	90.59	9.41	100.00
No anastomosis was pe	1,822	13	1,835
	99.29	0.71	100.00
Stapled with an EEA (12	3	15
and hand sutured	80.00	20.00	100.00
Stapled with a GIA st	186	10	196
and hand sutured	94.90	5.10	100.00
Combination stapled w	19	4	23
multiple	82.61	17.39	100.00
Total	2,772	69	2,841
	97.57	2.43	100.00

Anastomotic Leak



List

- No one surgeon (1,2,3 cases)
- All techniques
- Leak in cases where no anastomotic technique recorded

. tab Q233

Bowel Anastomosis Technique	Freq.	Percent	Cum.
Stapled with an EEA (or circular) stapl	1	5.00	5.00
Stapled with a GIA stapler (side-to-sid	5	25.00	30.00
Hand-sutured through the abdomen	5	25.00	55.00
No anastomosis was performed	4	20.00	75.00
Stapled with a GIA stapler (side-to-sid	3	15.00	90.00
Combination stapled with hand-sutured (2	10.00	100.00
Total	20	100.00	

		Agg	regate
Index Admission		N =	2403
Variable		<u>N</u>	<u>%</u>
Ostomy	lleostomy Colostomy None	303 375 1723	12.6 15.6 71.7
Associated Hernia Repair	Yes No	342 2059	14.2 85.7

			Aggregate	
Index Admission			N =	2403
<u>Variable</u>			<u>N</u>	<u>%</u>
Time to Operation (hrs)	N		2400	
		Mean ± Standard deviation	49.8 :	±106.9
		Median (25th — 75th percentiles)	10.6	(5.6—41.7)
Time to Antibiotic (hrs)	Ν		1965	
		Mean ± Standard deviation	46.1 :	±294.4
		Median (25th — 75th percentiles)	5.8	(3.1—18.9)

Any Complications



Exploratory Laparotomy | Any Complication All Visits

Center XX



Exploratory Laparotomy | Any Complication Up to 30 Days Post-discharge

Center XX



C. difficile



ED Visit



Exploratory Laparotomy | ED Visit Up to 30 Days Post-discharge

Center XX



Readmission



Exploratory Laparotomy | Readmission Up to 30 Days Post-discharge

Center XX



Exploratory Laparotomy | Readmission All Visits

Center XX



Organ Space SSI



	Aggregate		
Index Admission		N =	2403
<u>Variable</u>		<u>N</u>	<u>%</u>
IR Procedure	Yes	509	21.2
(Index and Readmit)	Drain	273	53.6
	Aspiration	82	16.1
	Angiogram	24	4.7
	Embolization	48	9.4
	PTC tube	2	0.4
	Cholecystostomy tube - insertion	10	2.0
	TIPS		0.0
	Paracentesis	39	7.7
	Thoracentesis	67	13.2
	Biopsy	14	2.8
	IVC filter	4	0.8
	Cholecystostomy tube - exchange		0.0
	Cholecystostomy tube - removal		0.0
	Gallbladder ablation		0.0
	Gallstone extraction		0.0

Enterocutaneous Fistula



Wound Disruption



Mortality



Opioid Data

Mark Hemmila, MD

Appendectomy

- Michigan Open
- 5 mg Oxycodone pills
 - 1 mg oxycodone = 1.5 OME
 - 50th percentile (median) = 3 pills
 - 22.5 OME
 - 75th percentile = 7-8 pills
 - 52.5 OME
 - Maximum recommended = 10 pills
 - 75 OME






Operation: Appendectomy (Index only, operation=1, pre admission use of opioid medication=									
	Any Prescribed	Prescribed OME > 50th		Prescribe	ed OME >	Prescribed OME >			
	OME	percentile		75th pei	rcentile	Max			
Hospital	Ν	Ν	%	Ν	%	N	%		
9	131	123	94%	58	44%	5 1 4	11%		
1	36	35	97%	17	47%	5 4	11%		
13	95	92	97%	20	21%	5 7	7%		
35	260	249	96%	7	3%	6	2%		
16	180	165	92%	16	9%	5 7	4%		
37	159	151	95%	41	26%	5 18	11%		
21	206	187	91%	38	18%	5 18	9%		
7	358	356	99%	227	63%	5 17	5%		
19	294	282	96%	123	42%	5 21	7%		
27	161	155	96%	31	19%	5 9	6%		



Cholecystectomy

- Michigan Open
- 5 mg Oxycodone pills
 - 1 mg oxycodone = 1.5 OME
 - 50th percentile (median) = 3 pills (Lap), 4 pills (Open)
 - 22.5 OME, 30 OME
 - 75th percentile = 6 pills (Lap), 10 pills (Open)
 - 45 OME, 75 OME
 - Maximum recommended = 10 pills
 - 75 OME

Cholecystectomy - All



Cholecystectomy - All



Cholecystectomy - Lap

Operatior	n: Laparoscopic ch	olescystecomy	(Index on	ly, operatio	on=1, ty	'pe	operation	=lap, pre a
	Any Prescribed	Prescribed O	Prescribed OME >			Prescribed OME >		
	OME	percentile		75th percentile			Max	
Hospital	Ν	Ν	%	Ν	%		N	%
9	276	270	98%	123	4	5%	36	13%
1	79	76	96%	43	54	4%	14	18%
13	160	159	99%	56	3!	5%	21	13%
35	191	183	96%	11	(6%	4	2%
16	181	169	93%	30	17	7%	16	9%
37	280	268	96%	140	50	0%	77	28%
21	358	343	96%	130	30	6%	79	22%
7	346	344	99%	265	7	7%	35	10%
19	299	295	99%	173	58	8%	49	16%
27	251	241	96%	59	24	4%	15	6%

Cholecystectomy - All



SBO

- Michigan Open (Lysis of adhesions)
- 5 mg Oxycodone pills
 - 1 mg oxycodone = 1.5 OME
 - 50th percentile (median) = 2 pills
 - 15 OME
 - 75th percentile = 8 pills
 - 60 OME
 - Maximum recommended = 10 pills
 - 75 OME





Operation: SBO w operation (Index only, operation=1, pre admission use of opioid medication									
	Any Prescribed OME		Prescribed OME > 50th		Prescribed OME >		Prescribed OME >		
			percentile		75th percentile		Max		
Hospital	Ν	\bigcap	N	%	Ν	%	Ν	%	
9		19	18	95%	10	53%	5	26%	
1		49	46	94%	30	61%	10	20%	
13		17	17	100%	9	53%	5	29%	
35		24	23	96%	10	42%	5	21%	
16		11	11	100%	8	73%	3	27%	
37		36	36	100%	29	81%	20	56%	
21		53	53	100%	36	68%	26	49%	
7		36	35	97%	27	75%	12	33%	
19		41	41	100%	25	61%	11	27%	
27		34	33	97%	22	65%	14	41%	



Exploratory Laparotomy

- Michigan Open (Colectomy)
- 5 mg Oxycodone pills
 - 1 mg oxycodone = 1.5 OME
 - 50th percentile (median) = 3 pills
 - 22.5 OME
 - 75th percentile = 10 pills
 - 75 OME
 - Maximum recommended = 10 pills
 - 75 OME



Exploratory Laparotomy: Discharge Disposition

Disposition	%	
Deceased/expired	12.9	
Short-term general hospital	0.4	
Home health service	22.1	
Left against medical advice	0.6	
Home without services	40.8	
Skilled nursing facility	13.9	
Hospice care	2.5	
Inpatient rehab (acute)	3.4	
Long-term care hospital	3.2	
Other	0.3	

Exp. Laparotomy - Home







Operation: Exploratory laparotomy (Index only, pre admission use of opioid medication=0)										
	Any Prescribed		Prescribed OME > 50th		Prescribe	ed OME >	Prescribed OME >			
	OME		percentile		75th pe	rcentile	Max			
Hospital	Ν	$\langle \rangle$	Ν	%	Ν	%	Ν	%		
9		25	25	100%	16	64%	11	44%		
1		17	16	94%	12	71%	7	41%		
13		17	16	94%	5	29%	3	18%		
35		44	43	98%	29	66%	12	27%		
16		34	34	100%	17	50%	6	18%		
37		68	67	99%	54	79%	38	56%		
21		118	114	97%	86	73%	65	55%		
7		96	96	100%	82	85%	45	47%		
19		55	54	98%	32	58%	17	31%		
27		92	86	93%	68	74%	40	43%		
		\vee \vee								





MUSIC Videos

Brian Lane, MD



MUSIC Video Review: Assessment of Surgeon Skill and Correlation with Outcomes



Nonprofit corporations and independent license of the Blue Cross and Blue Shield Association

Brian Lane, MD, PhD, FACS

Director, MUSIC-KIDNEY Research Director, Urologic Oncology, Spectrum Health Cancer Center Professor, Michigan State University

Top 10 Greatest Music Videos of All Time

- Bob Dylan "Subterranean Homesick Blues" (1967)
- Michael Jackson "Billie Jean" (1983) Michael Jackson "Thriller" (1983)
- a-ha "Take On Me" (1985)
- Peter Gabriel "Sledgehammer" (1986)
- Weird Al Yankovic "Fat" (1988)
- Janet Jackson "Rhythm Nation" (1989)
- Sinéad O'Connor "Nothing Compares 2 U" (1990)
- Madonna "Vogue" (1990)
- Nirvana "Smells Like Teen Spirit" (1991)















Michigan Urological Surgery Improvement Collaborative

A community that partners to improve patients' lives by inspiring high-quality care through datadriven best practices, education and innovation

Our Goal: Make Michigan #1 in Urologic Care

Funded by Blue Cross Blue Shield of Michigan

Collaborative Quality Initiatives

VALUE Partnerships ABOUT PROGRAMS RESOURCES NEWSROOM BLOG CONTACT

Value Partnerships is a collection of patient safety, clinical quality and care process efforts that makes health care work better in Michigan.

Learn More

OUTCOMES

Partnership between hospitals, physicians, coordinating center and BCBSM









John Birkmeyer

David Share

Darrell Campbell

Nancy Birkmeyer

Michigan Urelogical Surgery Microsoft

The History of MUSIC



- MUSIC was inspired by the other Collaborative Quality Improvement (CQI) programs in Michigan, the first of which was the Cardiology PCI CQI in 1997
- In 2010, David Miller and Jim Montie received a developmental grant from BCBSM Foundation
- In 2011 MUSIC was formed as a *practice-based* CQI with UM Urology as Coordinating Center



State of MUSIC



MUSIC participants

- 46 practices
- 260+ urologists (~90% of urologists in the state)
- 15 patient advocates

Data collection

- Prostate
 - >94,000 prostate biopsies
 - >17,000 radical prostatectomies
- >36,000 kidney stone surgery cases
- >4,700 patients with T1 renal masses





A nonprofit corporation and independent licensee of the Blue Cross and Blue Shield Association

How do we make MUSIC? -



- Collegial
- Non-competitive
- Actionable data Repeat
- Evidence-based
- Confidential
- No "billboards" or secrets
- QI, not research



Collect what you need, need what you collect

3. Collaboration

Collaborative-Wide meetings x 3/year



BCBSM provides the necessary infrastructure for data collection, coordinating center, and meetings







It Begins with High Quality Clinical Data



Trained data abstractors Web-based clinical registry *Employed at every practice* Simple user interface ٠ • In-person training prior to • Automated tasks to prompt case abstraction data updates and follow-up Manual data entry • Analytics and reporting Data

Data quality audits



- Annual audits to ensure integrity of data
- Comprehensive report provided to practices

Know Your Outcomes: Practice & Physician Reports



Comprehensive Performance Summary



Practice-level

MUSIC Fusion Biopsy Scorecard Practice XXX - Data from 8/1/2017 to XX/XX/XXXX									
Metric	Benchmark	Practice XXX	MUSIC						
Patient Level Cancer Detection Rates (CDR), N = 30									
Overall CDR	> 55% 67%		70%						
Standard Biopsy CDR	> 50%	54%	60%						
Targeted Biopsy CDR	> 45%	71%	56%						
Targeted Biopsy High Grade* CDR	> 35%	38%	37%						
Lesion Level High Grade Cancer	Detection Rates (CDR)							
PI-RADS 3 High Grade CDR (N=10)	10 – 25%	25%	15%						
PI-RADS 4 High Grade CDR (N=10)	25 - 60%	47%	30%						
PI-RADS 5 High Grade CDR (N=15)	60 - 85 %	57%	57%						
Patient Level Upgrading, N = 30									
Upgrading by Standard Biopsy	< 15%	20%	21%						
Upgrading by Targeted Biopsy	> 15%	25%	20%						
Upgrading to High Grade by Standard Biopsy	< 15%	9%	9%						
Upgrading to High Grade by Targeted Biopsy	> 20%	16% 😑	11% 😑						
*High Grade = Gleason ≥7									

Physician-level



How

Feedback

uture

Evaluation of Patient- and Surgeon-Specific Variations in Patient-Reported Urinary Outcomes 3 Months After Radical Prostatectomy From a Statewide Improvement Collaborative





Gregory B. Auffenberg, MD, MS¹; Ji Qi, MS²; Rodney L. Dunn, MS²; Susan Linsell, MHSA²; Tae Kim, MHSA³; David C. Miller, MD, MPH²; Jeffrey Tosoian, MD, MPH²; Richard Sarle, MD, MPH⁴; William K. Johnston III, MD⁵; Eduardo Kleer, MD⁶; Khurshid R. Ghani, MBChB, MS²; James Montie, MD²; James Peabody, MD⁷



MUSIC RP Surgeons with > 10 cases at 3 months with good baseline UIN and > 50% PRO enrollment

Surgical skill quality improvement





quality of surgery and improve outcomes?
Bariatric Surgery:



Video Based Evaluation of Surgical Skill

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Surgical Skill and Complication Rates after Bariatric Surgery

John D. Birkmeyer, M.D., Jonathan F. Finks, M.D., Amanda O'Reilly, R.N., M.S., Mary Oerline, M.S., Arthur M. Carlin, M.D., Andre R. Nunn, M.D., Justin Dimick, M.D., M.P.H., Mousumi Banerjee, Ph.D., and Nancy J.O. Birkmeyer, Ph.D., for the Michigan Bariatric Surgery Collaborative

ABSTRACT



Figure 1. Relationship between Summary Peer Rating of Technical Skill and Risk-Adjusted Complication Rates after Laparoscopic Gastric Bypass. Each diamond in the scatter plot represents 1 of 20 practicing bariatric surgeons.

Surgical skill and patient outcomes

RUSIC Michigan Urological Surger Improvement Collaborative

DOCTOR AND PATIENT

A Vital Measure: Your Surgeon's Skill

By PAULINE W. CHEN, M.D. OCTOBER 31, 2013 12:57 PM 25

New York Times reporting on MSQC Video Review work (Birkmeyer et al, NEJM 2013)

> Laparoscopic surgery: Surgeons with higher skill ratings on VIDEO –> Better patient outcomes



Prostatectomy Video Review Program in MUSIC

(i)



Development and Validation of an Objective Scoring Tool for Robot-Assisted Radical Prostatectomy: Prostatectomy Assessment and Competency Evaluation

Ahmed A. Hussein, Khurshid R. Ghani,* James Peabody, Ric Ronney Abaza,† Daniel Eun, Jim Hu,‡ Michael Fumo, Brian L Jeffrey S. Montgomery, Nobuyuki Hinata, Deborah Rooney, Hei Kit Chan, Sridhar S. Mane, James L. Mohler, Gregory Wi David Miller and Khurshid A. Guru§ for the Michigan Urolog Improvement Collaborative and Applied Technology Laborat Advanced Surgery Program

PACE tool

July 2014 - Collaborative Meeting First review with 12 surgeon videos

Bue Cross Bue Sheld Network of Morgan The Sheld Association	PATIENT Data Filters * Report Filters *
Video Review List // Video Review	
Review ID:152, Review Type:1, Procedure:2, Planned Nerve Sparing:4, Status:Open, Number of i	Reviews Performed:2 GEARS W/ PACE REVIEW - ANASTOMOSIS
	Please rate, where 1 is poor and 6 is good DEPTH PERCEPTION * 1 - Constantly overshoots target, wide swings, slow to correct 2 3 - Some overshooting or missing of target, but quick to correct 4 5 - Accurately directs instruments in the correct plane to target
	BIMANUAL DEXTERITY * 1 - Uses only one hand, ignores nondominant hand, poor coordination 2 3 - Uses both hands, but does not optimize interaction between hands 4 5 - Expertly uses both hands in a complementary way to provide best exposure

Top Surgeons as Assessed by Peer and Crowd-sourced Video Review of Skill





Expert peer review Surgeon Rank #1 Crowd-sourced review Surgeon Rank #1

Surgical Skill and Prostatectomy Outcomes



- When assessed by **peers and crowd**, surgeons in the highest quartile of **GEARS/ PACE skill** had significantly lower:
 - Catheter time >16 days
 - Readmission
- No correlation seen with:
 - Drain placement > 2 days
 - LOS > 2 days
 - Catheter replacement
 - EBL > 400 mL
 - Rectal injury
 - 30-day mortality

Robotic prostatectomy: VIDEO review in MUSIC





Improving outcomes through peer video workshops



Video Review Skill Outcomes Technique Coaching



Benefits of Video Review –





Peer to peer feedback



Opportunity for coaching



Seeing many ways to do the "same operation"

From June 2023 Collaborative-wide Meeting



Technical Review of Partial Nephrectomy: Results of Video Review

Brian Lane, MD, PhD; Craig Rogers, MD; Sami Wilder, MD



High Variability in PN Utilization for T1RM









Practice-Level PSM Rates in MUSIC —





Provider-Level PSM Rates in MUSIC





Opportunity to Evaluate Technical Skill of Surgeons Performing Robotic Partial Nephrectomy

PN Approach in MUSIC KIDNEY



September 2022 RPN Skills Workshop



- 8 surgeons presenting their RPN technique
- ~60 participants (urologists and trainees)
- All participants found the didactic and peer-to-peer review useful
- 24 participants recruited as reviewers for video review project







Goals of RPN Video Review Project









COLLECTIVELY GAIN KNOWLEDGE OF PN TECHNIQUE

INCREASE COMFORT AND SKILL IN PN THROUGH SYSTEMATIC PEER REVIEW DETERMINE CORRELATION BETWEEN TECHNICAL SKILLS AND OUTCOMES

MUSIC Robotic PN Video Review Project



- ~30 videos submitted from 15 MUSIC surgeons
 - 24 videos included in initial video review
- 25 reviewers provided objective (via SPaN score) and subjective (via free text) feedback
 - Over 380 reviews collected

Development and Validation of an Objective Scoring Tool for Robot-Assisted Partial Nephrectomy: Scoring for Partial Nephrectomy

Umar Iqbal, MD,¹ Zhe Jing, MS,¹ Youssef Ahmed, MD,¹ Ahmed S. Elsayed, MD,^{1,13} Craig Rogers, MD,^{2,1} Ronald Boris, MD,³ James Porter, MD,⁴ Mohammad Allaf, MD,⁵ Ketan Badani, MD,⁶ Michael Stifelman, MD,^{7,11} Jihad Kaouk, MD,⁸ Tomoaki Terakawa, MD,⁹ Nobuyuki Hinata, MD,¹⁰ Ahmed A. Aboumohamed, MD,¹¹ Eric Kauffman, MD,¹ Qiang Li, MD,¹ Ronney Abaza, MD,¹² Khurshid A. Guru, MD,¹ Ahmed A. Hussein, MD,^{1,13} and Daniel Eun, MD¹⁴



Goal: Provide specific feedback for improving technical skill in robotic partial nephrectomy

MUSIC Surgeons were rated using a



previously-described scoring system (SPaN) averaging

Average SPaN Score Per Step

2

between 3-5 Exposure of the kidney Identification of ureter/gonadals Hilar dissection **SPaN Step** Tumor identification Clamping and resection Renorrhaphy Total 1



*SPaN scores are scored on a 5 pt Likert Scale, with 5=high technical skill

High Technical Skill Score for Hilar dissection





Low Technical Skill Score for Hilar dissection –





Surgeon Reports

SPaN Step





Lessons Learned

• PSM



- Surgical skill can be described with SPaN
 - Surgeons with lower technical skill (SPaN) had higher rates of
 - Readmissions

• EBL> 500 mL



- Video review has multiple benefits for both learners and experienced surgeons
 - Learning from others techniques and feedback
 - Identify areas of improvement in own technical skill
 - Education for trainees



October 2023 Collaborative-wide Meeting

Cutting Down on Positive Surgical Margins

Brian Lane, MD, PhD; Craig Rogers, MD; Katherine Yang, MD



What Can I Do To Avoid PSM? -





Intra-op visualization:

- Ultrasound
- Recognize gross tumor intra-operatively (requires good hemostasis)

Clamping and resection techniques:

- Standard vs. selective clamping vs. off-clamp; Early unclamping
- Wide resection vs. Enucleoresection vs. Enucleation



Does the tumor have a pseudocapsule?

Consider using RMB during pre-op planning (to know the histology)

Collaborate with your pathologist!

Poor Hemostasis Increases Risk of PSM



Off Clamp

- No vascular clamping
- Potential concern for higher rates of PSM
 - More bleeding → poor visualization of gross negative margins
 - MUSIC data do not indicate a significant difference: 14% vs. 7.1%, p=0.065



Traditional Resection -





Adapt Resection Approach for Different Tumor Features

Abutting hilum

- Dissect distal vessels/sinus plane
- Intentional focal enucleoresection to preserve hilar structures







Key Takeaways regarding PSM -



Margins matter but hard to predict pre-operatively



Hemostasis matters: visibility is key so adjust clamping when needed



Consider RMB before PN to determine resection plan (and avoid surgery for benign lesions)

Communicate with your pathologist

YouTube Resource- Video Library





Videos Play all

Tumor resection (1)

1 view · 41 minutes ago





: Tumor exposure (1)

No views • 1 hour ago



: Hilar dissection (1)

1 view • 2 hours ago



Identification of the ureters Exposure of the Kidney (1) and gonadal vessels (1)

4 views • 3 hours ago

1 view • 3 hours ago



Video review: The patient's perspective



"A video is an excellent way for all to improve. An individual may be doing something a specific way and may not realize that a minor change could have a significant impact on the result. It becomes a coaching process with all benefiting."



Summary: MUSIC Video Review



- Surgeons are inherently interested in technique and 'doing things best'
- CQI's provide a format to not only examine technique, but more importantly, to work together to improve
- Variability is the window through which QI can occur
- It seems time to examine technique for robotic appy and chole
 - Who will be the next to hit it big?



Laparoscopic Appendectomy (surgery Squad)



I Am YOUR Gallbladder! | The Human Gallbladder Song | KLT Anatomy



Thank you!









Making Michigan #1 in urologic care





A nonprofit corporation and independent licensee of the Blue Cross and Blue Shield Association

Fast Track Program

Roy Golden, MD





Fast Track Program

Physician Champion: Roy Golden, MD, FACS Clinical Reviewers:

- Maria Huehn, BSN, RN
- Jeannette Barnhart, BSN, RN

Disclosure

Nothing to disclose


Discussion

- Critical bed shortage
- Fast Track Protocol
- Outcomes
- Pitfalls in program creation
- Future development



Critical Bed Shortage







Critical Bed Shortage

- Surgical Floor
- Surgical Intensive Care Unit
- Emergency Department
- Observation Unit



ED Bed Shortage

- National Emergency Department Overcrowding Score (NEDOCS)
- Estimate severity of overcrowding
- Calculated score based on
 - ED Patients
 - ED Beds
 - ED Admits pending
 - Hospital Beds

- Ventilated Patients
- Longest Length of Stay admit
- Last bed time

ED Bed Shortage







Fast Track

Fast Track Protocol





Fast Track Protocol





Fast Track Protocol

- Initiated while in ED
 - Patient informed of Fast Track plan
 - Discharge planning initiated
- Transport from ED directly to OR
 - No pending/observation unit.
- Discharge home directly from PACU
 - Evaluated and cleared by anesthesiologist



Inclusion/Exclusion Criteria

• ASA I or II

Minimally invasive approach

- Appendectomy
- Cholecystectomy
- Uneventful procedure
 - Appropriate blood loss
 - No conversion to open
 - Tolerated anesthesia

Inclusion/Exclusion Criteria

- Uncomplicated Pathology
 - No perforation
 - Simple disease process
- Stable in PACU
 - Hemodynamics and respiration
 - Voiding
 - Pain control
 - Cleared by anesthesia



Inclusion/Exclusion Criteria

- Safe disposition
 - Transportation
 - Assistance at home
 - Pharmacy availability



Program Outcomes



Benefits of PACU discharge



Hospital Benefits

- Staff Utilization
 - Physicians
 - Residents/APPs
 - Nurses
 - PCAs

- Pharmacy
- Transportation
- Environmental services
- Nutrition



Hospital Benefits

Resources

- Beds
- Medical equipment
- Medications
- Food



Patient Benefits

- Physical/emotional stress of hospital stay
 - Daily life responsibilities
 - Comfort
 - Dietary conflicts
 - Family restriction
- Earlier initiation of home healing process
- Minimize cost of hospital stay



Pitfalls



- Surgery
 - Surgeon availability
 - Trauma, SICU, administrative responsibilities
 - Residents
 - Time for staffing cases
 - Coordinate FT process
 - Education



- Emergency Department
 - Increasing patient load
 - Increased time for evaluation
 - Increased time for imaging
 - Holding patients in ED until surgery



- Operating room
 - Emergent cases
 - Staffing
 - Turnover



- Anesthesia
 - Staffing
 - Pre-operative evaluation
 - Requests for additional work-up



- Recovery Room
 - Staffing
 - Coordinating Fast Track plan
 - Comply with late discharges



Patient-related Factors

- Access to pharmacies
- Assistance at home
- Uncomfortable going home immediately post-op
- Transportation





Adjusting inclusion criteria

- Expand diversity of procedures
- Select ASA III
- Patient assistance with disposition
- Collaboration with other departments to streamline program
 - ED Anesthesia
 - Nursing administration

- PACU

- OR

ity Health

- Improve Return/Readmission Rate
 - Pain control
 - Constipation
 - Office reach-out
- Investigate difference in robotics vs laparoscopy



- Query patients of the FT program on pro's and con's
 - Time of discharge
 - Clinic follow-up







From Data to Decisions

Practical applications of technology for healthcare providers

Jill Jakubus Ann Arbor, MI M·ACS







M·ACS



Concern grows around US health-care workforce shortage: 'We don't have enough doctors'

By Jacqueline Howard, CNN ② 5 minute read · Published 11:00 AM EDT, Tue May 16, 2023

f 🐰 🗖 👁



Burnout, stress push nurses to leave workforce

🖵 Video Ad Feedback

07:34 - Source: CNN

(CNN) — There is mounting concern among some US lawmakers about the nation's ongoing shortage of health-care workers, and the leaders of historically Black medical schools are calling for more funding to train a more diverse workforce.

As of Monday, in areas where a <u>health workforce shortage</u> has been identified, the United States needs more than 17,000 additional primary care practitioners, 12,000 dental health practitioners and 8,200 mental health practitioners, according to <u>data</u> <u>from the Health Resources & Services Administration</u>. Those numbers are based on data that HRSA receives from state offices and health departments.

Who cares for the people who care?

Initial Design and Adaptation

Early machines were often first introduced into existing workshops and factory setups that were designed for hand labor and not optimized for machine use. This mismatch could lead to inefficiencies as the layout and workflow of these spaces were not initially conducive to the new technology.

R

PUN

Objectives

- 01 Tools 02 – Use cases 03 – Methodology 04 – Limitations
- 05 Safety
- 06 Closing remarks

Goal

Provide insights on practical applications of technology you can use today
Audience Collaboration



Use

• AI literature search

Oversight

Medical Advisory Board

Access

• Free w/NPI



Munzone et al. - JAMA Oncol (2023)





Views 1,489 | Citations 1 | Altmetric 34

Original Investigation

ONLINE FIRST

September 27, 2023

Primary Care Physician Follow-Up and 30-Day **Readmission After Emergency General Surgery Admissions**

Adora N. Moneme, BS^{1,2,3}; Christopher J. Wirtalla, MBMI^{1,2}; Sanford E. Roberts, MD^{1,2}; et al.

≫ Author Affiliations

JAMA Surg. Published online September 27, 2023. doi:10.1001/jamasurg.2023.4534

Editorial Commen

Full Text **Key Points**

Question Is there an association between primary care follow-up and 30-day readmission after hospitalization for an emergency general surgery (EGS) condition?

Findings In this cohort study of 345 360 Medicare beneficiaries who were admitted for an EGS condition from 2016 to 2018, primary care follow-up within 30 days after discharge was associated with a 67% adjusted reduced risk of 30-day readmission. A similar association was seen when data were stratified by receipt of operative vs nonoperative treatment during the index admission.

Meaning Results of this study suggest that primary care follow-up may reduce risk of readmission after an admission for an EGS condition in both operatively and nonoperatively treated patients.

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Key Points

Question Is there an association between primary care follow-up and 30-day readmission after hospitalization for an emergency general surgery (EGS) condition?

Findings In this cohort study of 345 360 Medicare beneficiaries who were admitted for an EGS condition from 2016 to 2018. primary care follow-up within 30 days after discharge was associated with a 67% adjusted reduced risk of 30-day readmission. A similar association was seen when data were stratified by receipt of operative vs nonoperative treatment during the index admission.

Meaning Results of this study suggest that primary care follow-up may reduce risk of readmission after an admission for an EGS condition in both operatively and nonoperatively treated patients.



Session IX: Papers 37-44 Paper 37: 7:30 AM - 7:50 AM PRIMARY CARE FOLLOW-UP IMPROVES OUTCOMES IN OLDER ADULTS FOLLOWING EMERGENCY GENERAL SURGERY ADMISSION

Matthew P. Guttman, MD, PhD; Bourke W. Tillmann, MD; Avery B. Nathens, MD, PhD; Susan E. Bronskill, PhD; Refik Saskin, MSc; Liisa Jaakkimainen, MD, MSc; Anjie Huang, MSc; Barbara Haas, MD, PhD Sunnybrook Health Sciences Center Invited Discussant: Marta McCrum, MD, MPH

Introduction: While pre-operative optimization improves outcomes for older adults undergoing major elective surgery, no such optimization is possible in the emergent setting. Surgeons must identify post-operative interventions to improve outcomes among older EGS (emergency general surgery) patients. Our objective was to examine the association between early follow-up with a primary care physician (PCP) and the risk of nursing home acceptance or death in the year following EGS admission among older adults.

Methods: Using population-based administrative health data in Ontario, Canada (2006-2016), we followed all older adults (≥65 years) for one year after hospital admission for EGS conditions. A multivariable Cox model was used to identify the association between early post-discharge follow-up with a patient's PCP and the time to nursing home acceptance or death while adjusting for confounders.

Results: Among 76,568 older EGS patients, 32,087 (41.9%) were seen by their usual PCP within 14 days of discharge and 9,571 (12.5%) were accepted to a nursing home or died within one year. PCP follow-up was associated with a lower risk of nursing home acceptance or death compared to no follow-up (HR 0.87, 95% CI 0.84–0.91). This effect was consistent across age and frailty strata, patients managed operatively and non-operatively, and patients who had both high and low baseline continuity of care with their PCP.

Conclusions: Timely follow-up with a familiar PCP was associated with a reduced risk of nursing home acceptance or death among older adults following EGS admission. Creating structures and processes of care to ensure that such follow-up is routinely arranged during discharge planning represents a potential key intervention as part of ongoing efforts to provide senior-friendly EGS care.

OpenEvidence

Limitations

Explore OpenEvidence AI

	OpenEvidence.com	ClinicalKey®AI
State-of-the-art medical AI technology		۷
Licensed for clinical use	×	V
AI Engine	OpenEvidence Al 1.0	OpenEvidence Al 2.0
Use case	Limited availability trial to explore the possibilities of physician grade conversational AI.	Clinical decision support at the point of care. Responses are concise and actionable, with additional detail provided as needed.
Content Scope	Abstracts Treatment guidelines FDA	Full text journal publications Full text medical textbooks ClinicalKey drug monographs ClinicalKey drug class overviews ClinicalKey clinical overviews MedLine background articles Full text treatment guidelines FDA
Professional features	×	Question history, in-page citation snippets, precise links to supporting evidence from long documents
Usage limit	10 questions per week	Unlimited, Other
		Join The Waitlist

Use

• Natural language text

Oversight

OpenAI board

Access

- Free
- Paid subscription \$20/mo

Others

- Bard from Google
- Bing Chat from Microsoft



RESEARCH ARTICLE

Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models

Tiffany H. Kung^{1,2}, Morgan Cheatham³, Arielle Medenilla¹, Czarina Sillos¹, Lorie De Leon¹, Camille Elepaño¹, Maria Madriaga¹, Rimel Aggabao¹, Giezel Diaz-Candido¹, James Maningo¹, Victor Tseng^{1,4}*

1 AnsibleHealth, Inc Mountain View, California, United States of America, 2 Department of Anesthesiology, Massachusetts General Hospital, Harvard School of Medicine Boston, Massachusetts, United States of America, 3 Warren Alpert Medical School; Brown University Providence, Rhode Island, United States of America, 4 Department of Medical Education, UWorld, LLC Dallas, Texas, United States of America

* victor@ansiblehealth.com

Abstract

G OPEN ACCESS

Check for updates

Citation: Kung TH, Cheatham M, Medenilla A, Sillos C, De Leon L, Elepaño C, et al. (2023) Performance of ChatGPT on USMLE: Potential for Al-assisted medical education using large language models. PLOS Digit Health 2(2): e0000198. https:// doi.org/10.1371/journal.pdig.0000198

Editor: Alon Dagan, Beth Israel Deaconess Medical Center, UNITED STATES

Received: December 19, 2022

Accepted: January 23, 2023

Published: February 9, 2023

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Data Availability Statement: The data analyzed in this study were obtained from USMLE sample questions sets which are publicly available. We have made the question indices, raw inputs, and raw Al outputs, and special annotations available in <u>S1 Data</u>.

Funding: The authors received no specific funding for this work.

Competing interests: The authors have declared that no competing interests exist.

We evaluated the performance of a large language model called ChatGPT on the United States Medical Licensing Exam (USMLE), which consists of three exams: Step 1, Step 2CK, and Step 3. ChatGPT performed at or near the passing threshold for all three exams without any specialized training or reinforcement. Additionally, ChatGPT demonstrated a high level of concordance and insight in its explanations. These results suggest that large language models may have the potential to assist with medical education, and potentially, clinical decision-making.

Author summary

Artificial intelligence (AI) systems hold great promise to improve medical care and health outcomes. As such, it is crucial to ensure that the development of clinical AI is guided by the principles of trust and explainability. Measuring AI medical knowledge in comparison to that of expert human clinicians is a critical first step in evaluating these qualities. To accomplish this, we evaluated the performance of ChatGPT, a language-based AI, on the United States Medical Licensing Exam (USMLE). The USMLE is a set of three standardized tests of expert-level knowledge, which are required for medical licensure in the United States. We found that ChatGPT performed at or near the passing threshold of 60% accuracy. Being the first to achieve this benchmark, this marks a notable milestone in AI maturation. Impressively, ChatGPT was able to achieve this result without specialized input from human trainers. Furthermore, ChatGPT displayed comprehensible reasoning and valid clinical insights, lending increased confidence to trust and explainability. Our study suggests that large language models such as ChatGPT may potentially assist human learners in a medical education setting, as a prelude to future integration into clinical decision-making.

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ChatGPT passed the USMLE. What does it mean for med ed?

MAR 3, 2023 • 4 MIN READ By Jennifer Lubell, Contributing News Writer

The medical field is keeping a close eye on <u>ChatGPT</u> (Generative Pretrained Transformer), a large language model developed by <u>OpenAI</u> that leverages huge amounts of data to mimic human conversation and assess language patterns.

ChatGPT could <u>potentially be used</u> as a physician's digital assistant or to enhance clinical decision support systems. A recently published study has spotlighted its ability to pass well-known licensing exams, suggesting a useful role in medical education.

Kimberly Lomis, MD, the AMA's vice president for medical education innovation, is hoping the attention around ChatGPT will elevate the broader issue of AI, not just how it applies to health care delivery but to education of all health professionals across disciplines.

"We have a group of innovators across health professions that's associated with the National Academy of Medicine. We've been trying to encourage the medical education community to get more broadly up to speed on AI," said Dr. Lomis, <u>co-author of a National Academy of Medicine discussion paper</u> that addresses AI's potential to supplement health professions education.

"There's honestly been some hesitance to engage with it," she added.

Abstractor Resource Use

Uses

- Agenda creation
- Article summary
- Email response
- Grammar check
- How to tech support
- Letters of recommendation
- Medical reference
- Outline creation
- Presentations
- Writing assistant



Use

• Creative image generation

Oversight

• OpenAI board

Access

• Paid subscription \$20/mo



Use Case

- Staffing shortages
- Patient contact

Use

• Automated SMS/calling

Oversight

• BAA

Access

• Enterprise



Use Case

Missed Teams meetings •

Use

Meeting notes/recap

Oversight

• Microsoft BAA

Access

- Windows 10/11
- Enable transcription

)) ms	Shared content	◆ Notes @ Mentions
dar	Proseware Proposal.pptx	Core accounts.loop
>		Quarterly results and forecasts for Core Accounts
ls		Summary
Ć		۱) Based on what attendees said in the meeting
•	Control Contro Control Control Control Control Control Control Control Control Co	 \$230K revenue shortfall in this quarter Inventory 15% surplus (renewable products and recycled materials) Account leads to propose discounting scenarios to lower inventory s Proseware was discussed as a leading opportunity
ps	Speakers # lopics	Notes
	Proseware negotiation strategy	 Beth emphasized importance of Proseware negotiation strategy and with offers - this is a must win deal.
	• Core accounts round table	• The team identified a new opportunity with Proseware that could er
	Inventory surplus	quota for the quarter - need to prioritize ASAP.
	Contract renewals	+ Add note
	 Upsell opportunities 	
	Offers and approvals	lasks
		Follow up with finance today to discuss Proseware @Samar

E

-



My favorite pastime _____

 is curling up with a good book and getting lost in different worlds and stories."
 is hiking through nature trails, enjoying the peace and beauty of the outdoors."
 is experimenting with new recipes and flavors in the kitchen, especially baking desserts."
 is playing guitar and composing music, it's a great way to express creativity and unwind."
 is playing board games with friends and family, as it's always filled with laughter and friendly competition."

Limitations

- Prompt quality
- Structured data
- Token limits

Challenges

- Bias
- Hallucinations
- Precise math

The ChatGPT Meta's A.I. Characters ChatGPT's Image Generator Google's Bard Extensions The ChatGPT Lawyer Explains Himself In a gringer inducing count begring a lawyer who relied on A.I. to

In a cringe-inducing court hearing, a lawyer who relied on A.I. to craft a motion full of made-up case law said he "did not comprehend" that the chat bot could lead him astray.





https://www.nytimes.com/2023/06/08/nyregion/lawyer-chatgpt-sanctions.html

Safety

Information types to avoid

- Protected Health Information
- Personal Identifiable Information
- Financial Information
- Passwords and Login Credentials
- Confidential Information
- Intellectual Property

Closing Remarks

- Artificial General Intelligence
- Binary thinking
- Augmented intelligence

The Washington Post Democracy Dies in Darkness

Opinion | Can AI solve medical mysteries? It's worth finding out.



Updated November 15, 2023 at 8:30 a.m. EST | Published November 15, 2023 at 6:15 a.m. EST



M·ACS

Thank You

Program Manager Updates

Kim Kramer, PA

M-ACS Collaborative Meeting

November 29, 2023

Kim Kramer PA-C

Topics

- Key Data Definition Updates
- Data Validation Results
- Rubric Results
- Drill-Down List
- Readmission Reporting Revision

Definition Changes





Sepsis

Appendicitis Antibiotic Capture



At least **TWO** of the following *Systemic Signs/Symptoms*:

- Heart Rate (HR) > 90 beats per minute
- Respiratory Rate (RR) > 20 breaths per minute
- Temperature > 38° C or < 36° C
- White blood cell count > 12,000/cu mm or < 4,000/cu mm or immature (band) forms > 10%

At least **ONE** of the following signs of **Organ Dysfunction**:

- Systolic Blood Pressure (SBP) < 90 mmHg
- Mean Arterial Pressure (MAP) < 65 mmHg
- Systolic Blood Pressure (SBP) decrease > 40 mmHg from baseline
- Lactate > 2 mmol/L
- INR > 1.5 or aPTT > 60 seconds
- Platelet count < 100,000 μL
- Bilirubin > 2mg/dL
- Creatinine > 2 mg/dL
- Urine output < 0.5 mL/kg/hour x 2
- Hypotension requiring vasopressor therapy to maintain or elevate MAP > 65 mmHg

Sepsis Definition

Current MACS definition

- Sepsis = infection + 2 SIRS criteria
- Severe Sepsis = infection + 2 SIRS criteria + organ dysfunction

1992 Sepsis-1 2001 Sepsis-2

2016 Sepsis-3

Clinical Review & Education

Special Communication | CARING FOR THE CRITICALLY ILL PATIENT The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Christopher Warren Seymour, MD, MSc; Manu Shankar-Hari, MSc, MD, FFICM; Djillali Annane, MD, PhD; Michael Bauer, MD; Rinaldo Bellomo, MD; Gordon R. Bernard, MD; Jean-Daniel Chiche, MD, PhD; Craig M. Coopersmith, MD; Richard S. Hotchkiss, MD; Mitchell M. Levy, MD; John C. Marshall, MD; Greg S. Martin, MD, MSc; Steven M. Opal, MD; Gordon D. Rubenfeld, MD, MS; Tom van der Poll, MD, PhD; Jean-Louis Vincent, MD, PhD; Derek C. Angus, MD, MPH

jama.com

Task Force

- Society of Critical Care
 Medicine
- European Society of Intensive Care Medicine
- Better understanding of pathobiology when looking at changes in organ function, morphology, cell biology, biochemistry, immunology, and circulation

Key Findings:

- Sepsis-1 and Sepsis-2 included an excessive focus on inflammation, causing limitations
- Sepsis involves early activation of both pro- and anti-inflammatory responses
- Sepsis involves major modifications in nonimmunologic pathways such as cardiovascular, neuronal, autonomic, hormonal, bioenergetic, metabolic, and coagulation

2016 Sepsis-3

Research

Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Assessment of Clinical Criteria for Sepsis For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Christopher W. Seymour, MD, MSc; Vincent X. Liu, MD, MSc; Theodore J. Iwashyna, MD, PhD; Frank M. Brunkhorst, MD; Thomas D. Rea, MD, MPH André Scherag, PhD; Gordon Rubenfeld, MD, MSc; Jeremy M. Kahn, MD, MSc; Manu Shankar-Hari, MD, MSc; Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Gabriel J. Escobar, MD; Derek C. Angus, MD, MPH

jama.com

Sepsis should be defined as "life-threatening organ dysfunction due to a **dysregulated** host response to infection".

2016 Sepsis-3

- SIRS criteria can be reflective of a normal response to infection, NOT a "dysregulated/injurious" response to infection as seen in sepsis
- SIRS criteria are no longer required as part of the Sepsis-3 definition







U.S. Department of Health and Human Services Centers for Disease Control and Prevention



BCBSM CQIsepsis experts within the CQI portfolio

Hallie Prescott, M.D., M.Sc.

Enhancing recovery from sepsis; hospital performance measurement

Home Hallie Prescott, M.D., M.Sc.

Dr. Prescott is a pulmonary and critical care medicine physician-scientist, an internationally recognized expert in sepsis outcomes, and a practicing intensivist at the Ann Arbor VA and U-M hospitals. The overarching goal of her research program has been to improve the management and outcomes of sepsis survivors across the continuum of care, by optimizing early hospital care and identifying and mitigating survivors' risk for preventable medical deterioration. Her research has identified novel patterns of medical vulnerability after sepsis and its potentially mechanistic role in subsequent recovery.

- M.D., Ohio State University
- M.Sc., Health and Health Care Research, University of Michigan
- B.A., Molecular Biology & Biochemistry, Middlebury College









Sepsis in surgical patients is excluded from HMS data, providing us an opportunity to collaborate



Revise sepsis/severe sepsis to be one entity defined by

1. Suspected/confirmed infection source 2. Acute organ dysfunction



Window Period

Figure 1a: Window period for suspected/confirmed infection and acute organ dysfunction

Hospital Day No.	1	2	3	4	5	6	7	8	9
Suspected/Confirmed Infection				X					
Window Period for Organ Dysfunction			Wir	idow Pe	riod				

New Sepsis Definition

- Go live date: January 2024
- Pre-operative/admission and occurrence

Appendicitis Antibiotic Captured By Drug Class

Variable Options:

- a. Aminoglycoside (e.g., Gentamicin, Tobramycin, Neomycin)
- b. Carbapenem (e.g., Imipenem, Meropenem)
- c. Cephalosporin Generation 1 (e.g., cefazolin, cephalexin)
- d. Cephalosporin Generation 2 (e.g., cefotetan, cefoxitin, cefuroxime)
- e. Cephalosporin Generation 3 (e.g., cefixime, cefotaxime, ceftriaxone)
- f. Cephalosporin Generation 4 (e.g., cefepime)
- g. Lincosamide
- h. Macrolide
- i. Monobactam
- j. Penicillin (e.g., <mark>Zosyn</mark>, <mark>Unasyn</mark>, Augmentin)
- k. Quinolone (e.g., ciprofloxacin, levofloxacin)
- I. Sulfonamide
- m. Tetracycline
- n. Other (e.g., Vancomycin, Vancocin, metronidazole (Flagyl)

Appendicitis Antibiotic Capture – How do we make it better?

- Vancomycin, Flagyl, and Linezolid grouped into "Other" Class
- Zosyn and Unasyn grouped into "Penicillin" Class







Improving Appendicitis Antibiotic Capture

Add following classes-

- <u>Glycopeptide</u>: vancomycin (Vancocin)
- <u>Nitroimidazole</u>: metronidazole (Flagyl)
- <u>Oxazolidinone</u>: linezolid (Zyvox)



Reference to be linked to dictionary

Improving Appendicitis Antibiotic Capture

Separate penicillin into subclasses-

- Natural Penicillin: Pen G, Pen V
- <u>Aminopenicillin</u>: ampicillin, <u>Unasyn</u>, amoxicillin, Augmentin
- <u>Antistaphylococcal Penicillin</u>: nafcillin, oxacillin, dicloxacillin, cloxacillin
- <u>Extended-Spectrum Penicillin</u>: piperacillin, Zosyn, ticarcillin

Reference to be linked to dictionary

NH

New Antibiotic Classes Definition

- Go live date: January 2024
- Antibiotic reference linked in dictionary

Arrival: Point of Entry 2023

23) Point of Entry

Intent: To capture the patient's location before being admitted to your hospital if needed for case-mix adjustment.

Definition: To capture the patient's location before being admitted to your hospital.

Variable Options:

- a. Home/Direct Admit (e.g., home, assisted living facility, group home, jail/prison).
 - Include patients directly admitted from a physician's office or urgent care.
- Direct from Skilled Care (e.g., skilled nursing home, transitional care unit, sub-acute hospital, ventilator bed, long-term acute care facility)
 - · Patients directly admitted from a skilled nursing facility.
- c. ED
- · Patient presents from home to your ED.
- If the patient presents to an outside ED and then presents to your ED by private car without transfer paperwork/orders.
- Patients who present from a skilled nursing facility to the ED.
- d. Transfer from Outside Hospital ED
 - If the patient presents to an outside ED and then presents to your ED or hospital by private car with transfer paperwork/orders.
- e. Transfer from Outside Hospital (e.g., inpatient at transferring hospital to inpatient at your hospital)
- f. Transfer Other (e.g., a psychiatric unit, hospice unit, ambulatory surgery center directly to an inpatient bed)
- g. Emergency Department Only/Not Admitted
 - A patient who is never admitted and never has surgery.
- h. Other (e.g., Admit via OB/women's triage, admit from inpatient rehab)
- Include: All

Notes:

 If the patient transfers from a "free-standing ED" and is directly admitted to your OR or inpatient unit, select "Home/Direct Admit".

2024

23) Point of Entry

Intent: To capture the patient's location before being admitted to your hospital if needed for case-mix adjustment.

Definition: To capture the patient's location before being admitted to your hospital.

Variable Options:

- a. Direct Admit
 - Include admissions from home, assisted living facility, group home, jail/prison, skilled care facility, nursing home, long term acute care.
 - Include patients directly admitted from a physician's office or urgent care.
- b. ED
- Patient presents from home to your ED.
- If the patient presents to an outside ED and then presents to your ED by private car without transfer paperwork/orders.
- Patients who present from a skilled nursing facility to the ED.
- c. Transfer from Outside Hospital ED
 - Patient is transferred ED to ED.
 - ED to ED by ambulance or private car with transfer paperwork/orders.
 - Include patient transferred from "free standing ED" to your ED.
- d. Transfer from Outside Hospital Inpatient
 - Patient is transferred inpatient to inpatient.
- e. Transfer from Outside Hospital ED to Inpatient Unit
 - Patient is transferred from outside hospital ED to inpatient unit.
 - Include patient transferred from "free standing ED" to inpatient unit.
- f. Emergency Department Only/Not Admitted
 - A patient who is never admitted and never has surgery.
- g. Other
- · Admit via OB/women's triage, admit from inpatient rehab
- Transfer from psychiatric unit, hospice unit, ambulatory surgery center directly to an inpatient bed.

Include: All

Exclude: N/A

Notes:

Exclude: N/A

Arrival: Surgery Consult Time

<mark>NEW</mark> 2024

26) Surgery Consult Time (Military Time 00:00)

Intent: To allow the hospital/service to track timeframes from visit start to the time the patient is seen by the general surgery service.

Definition: Indicate the time that the first general surgery consult order was placed.

Variable Options: Time in hh:mm format

Include: All

Exclude: N/A

Notes:

- Initial general surgery consult or admit H&P notes are acceptable sources.
- The time of the first note should be used if there is more than one general surgeon who sees the patient (e.g., a consult and then an inpatient H&P, use the consult time).
- Use the general surgery consult time if there is a general surgery consult and a surgical critical care consult.
- If the patient is a direct admit to the operating room or a consult in the operating room, enter the in-room time from the Anesthesia record.

We will pilot this variable for a couple of months. If the abstractors cannot find it, we can get rid of it.
Discharge: PCP Clinic Follow Up Date 2024 NEW Variable

246) PCP Clinic Follow Up Date (mm/dd/yyyy)

Intent: To identify if a PCP saw the patient for follow up in clinic within 30 days following hospital discharge.

Definition: Capture the date of PCP clinic follow up within 30 days of hospital discharge.

Variable Options: Date in mm/dd/yyyy format

Include: All

Exclude: N/A

Notes:

- If the patient does not have a PCP clinic follow-up within 30 days of discharge, then leave this blank.
- PCP clinic visits conducted virtually or by telephone may count as a clinic visit.
- PCP clinic visits with a resident or advanced practice provider (NP/PA) may count as a clinic visit.
- Telephone calls to the PCP clinic nurse that are not scheduled clinic visits do not count.

Discharge: PCP Clinic Follow Up Date

JAMA Surgery | Original Investigation Primary Care Physician Follow-Up and 30-Day Readmission After Emergency General Surgery Admissions

Adora N. Moneme, BS; Christopher J. Wirtalla, MBMI; Sanford E. Roberts, MD; Luke J. Keele, PhD; Rachel R. Kelz, MD, MSCE, MBA

CONCLUSIONS AND RELEVANCE In this cohort study, follow-up with a PCP within 30 days after discharge for an EGS condition was associated with a significant reduction in the adjusted odds of 30-day readmission. This association was similar for patients who received operative care or nonoperative care during their index admission. In patients aged 66 years or older with an EGS condition, primary care coordination after discharge may be an important tool to reduce readmissions.

JAMA Surg. doi:10.1001/jamasurg.2023.4534 Published online September 27, 2023.

Questions

Data Validation Results





2022 Inaugural Data Validation



9 CENTER VALIDATIONS COMPLETED (SH/SB COMBINED AS ONE IN 2022) SCORECARD = 20 POINTS FOR EVERYONE

AVERAGE CONSISTENCY RATE = 96% AFTER APPEALS

*Extra Leniency

2022 Discrepancy Rates



Survey tab

Average — Min — Max



Survey Tab

Percent Error Rate

2023 Data Validation



10 CENTER VALIDATIONS COMPLETED (SH/SB VALIDATED SEPARATELY) SCORECARD = 20 POINTS FOR EVERYONE AVERAGE CONSISTENCY RATE = 96.7% AFTER APPEALS

> *No extra leniency *Pending 1 center's result, pending appeal

Validation Results by Center

Validation % Discrepancy - 2022 vs 2023



Validation Results by Survey Tab

2023 Percent Discrepancy By Survey Tab



Working to Maximize Value

Impact-Effort Matrix & Rubric for Selection of Performance Metrics

Kim Kramer PA-C



Michigan Acute Care Surgery Collaborative

15 Total Respondents





Michigan Acute Care Surgery Collaborative

Impact-Effort Matrix

Uncomplicated appendicitis: If fecalith present > operative intervention



Michigan Acute Care Surgery Collaborative

Impact-Effort MatrixZ-Score Acute Appendicitis Readmissions &
ED Visits



Michigan Acute Care Surgery Collaborative



Add a LOS report out or as a metric/benchmark. It would be beneficial to see where everyone stands on this.

Drill-Down List -Analytics Addition

- Drill-down list
 - Entire data set
 - Uploaded to Dropbox after every data download
- New calculated inpatient LOS column (excluding time in ED)
- NEWS2 score calculation available on January drill-down.



Readmission Reporting Revision - Tables



as needed

Questions

Thank you

