Demonstrating the Value of the Laboratory Partnerships with Case Management

Andrew Fletcher, MD, MBA, CPE, CHCQM, FCAP

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Heart of America POC Network

Learning Objectives

- Identify and discuss potential laboratory strategies to address length of stay issues
- Describe how laboratory tests can impact transitions of care and readmissions
- Demonstrate how laboratory tests can influence denials in payment due to medical necessity
- Discuss how laboratory testing can improve hospital acquired conditions

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Definition of Case Management

Case management is a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to **promote patient safety, quality of care, and cost-effective outcomes**.

https://www.cmsa.org/who-we-are/what-is-a-case-manager/

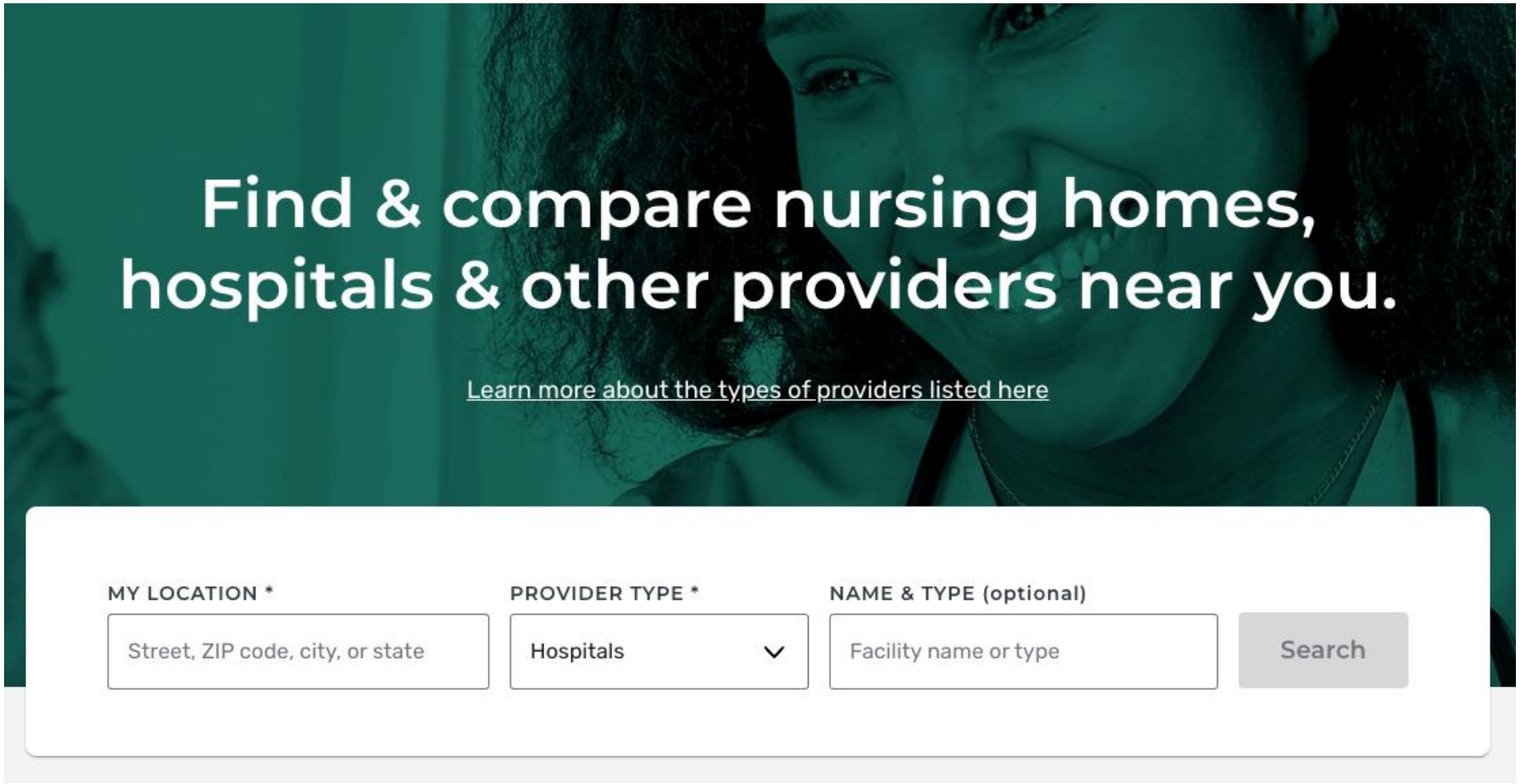
§ 482.30 Condition of participation: Utilization review.

- The hospital must have in effect a utilization review (UR) plan that provides for review of services furnished by the institution and by members of the medical staff to patients entitled to benefits under the Medicare and Medicaid programs.

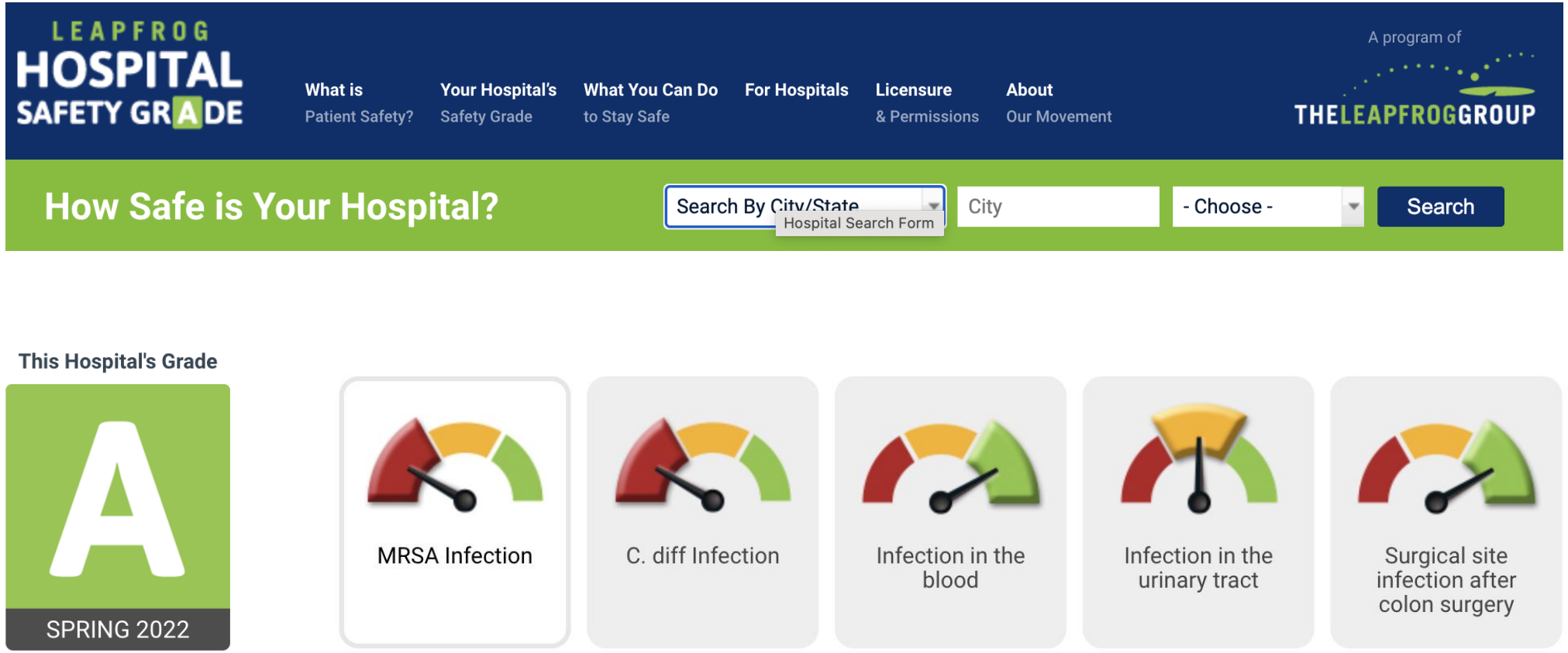
https://www.law.cornell.edu/cfr/text/42/482.30

Medicare Incentive Programs

3% Penalty	**Hospital Readmissions Reduction Program (HRRP)** https://qualitynet.cms.gov/files/5f294d57f75e42002168c687?filename=FY2021_HRRP_FAQs.pdf
2% Penalty (or Bonus)	**Hospital Value-Based Purchasing Program (VBP)** https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Hospital-Value-Based-Purchasing-
1% Penalty	**Hospital-acquired condition Reduction Program (HACRP)** https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HAC/Hospital-Acquired-Conditions
6% Penalty	



https://www.medicare.gov/care-compare/



https://www.hospitalsafetygrade.org/state-rankings

Topics Covered

- Length of Stay
- Transitions of Care
- Denial of Payment
- Readmissions
- Hospital-Acquired Conditions

Length of Stay

Patients with Chest Pain

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Timely & effective care

Average (median) time patients spent in the emergency department before leaving from the visit

A lower number of minutes is better

226 minutes

Other Very High volume hospitals:

Nation: 169 minutes 25,26

https://www.medicare.gov/care-compare/

CK-MB versus Troponin

- Choosing Wisely guidelines recommend against using CK-MB

1,713 CK-MB tests ordered	**17,878 troponin tests ordered**
3-4 serial tests q6 hours	3 serial tests q3 hours
18-hour CK-MB rule out	6-hour troponin rule out

https://www.choosingwisely.org/clinician-lists/american-society-clinical-pathology-myoglobin-to-diagnose-acute-myocardial-infarction/

AMERICAN COLLEGE of CARDIOLOGY

Journal of the American College of Cardiology

Fourth Universal Definition of Myocardial Infarction (2018)

Expert Consensus Document

Kristian Thygesen, Joseph S. Alpert, Allan S. Jaffe, Bernard R. Chaitman, Jeroen J. Bax, David A. Morrow, Harvey D. White, and ... SEE ALL AUTHORS

J Am Coll Cardiol. 2018 Oct, 72 (18) 2231–2264

https://www.jacc.org/doi/full/10.1016/j.jacc.2018.08.1038

AACC Better health through laboratory medicine.

Clinical Chemistry

Best Practices for Monitoring Cardiac Troponin in Detecting Myocardial Injury

Fred S Apple, Allan S Jaffe, Scott Sharkey, Peter Kavsak, Michael C Kontos, Amy K Saenger, Stephen Smith

Clinical Chemistry, Volume 63, Issue 1, 1 January 2017, Pages 37–44,
https://doi.org/10.1373/clinchem.2016.257428
Published: 01 January 2017 **Article history**

https://www.aacc.org/cln/articles/2014/may/cardiac-troponin

CLN

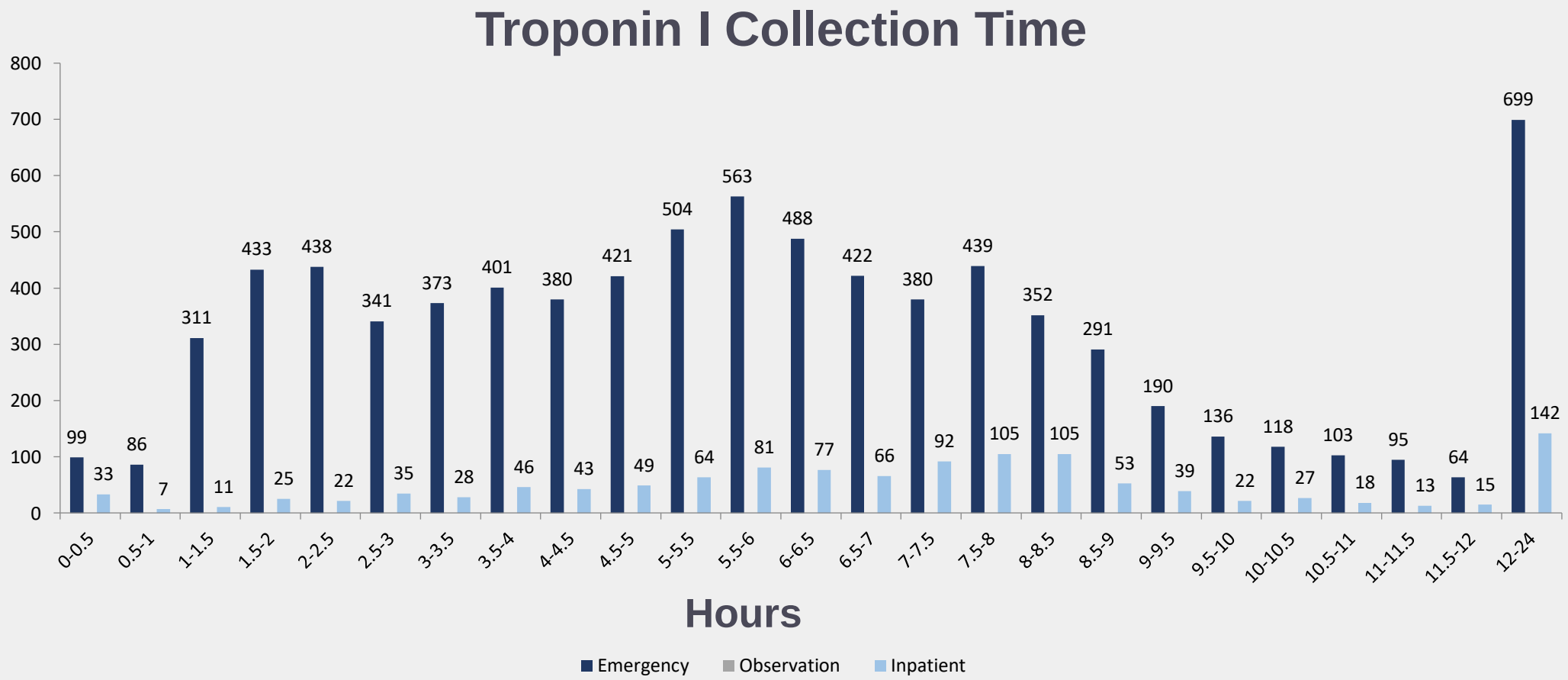
Cardiac Troponin

Serial Ordering Recommendations: For Today and Tomorrow

Author: Sara Love, PhD, and Fred Apple, PhD, DABCC // **Date:** MAY.1.2014 // **Source:** Clinical Laboratory News

https://academic.oup.com/clinchem/article/63/1/37/5612807

Troponin Interval Example #1



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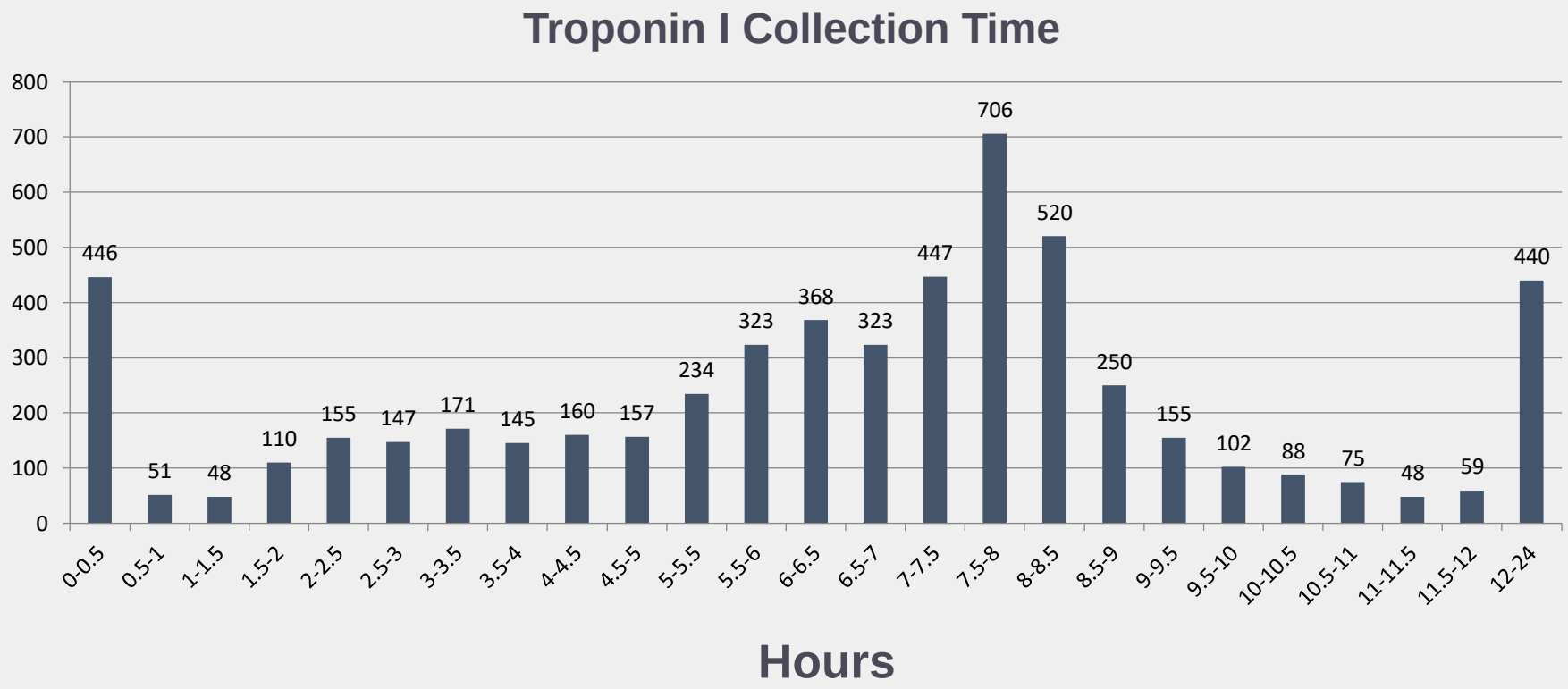
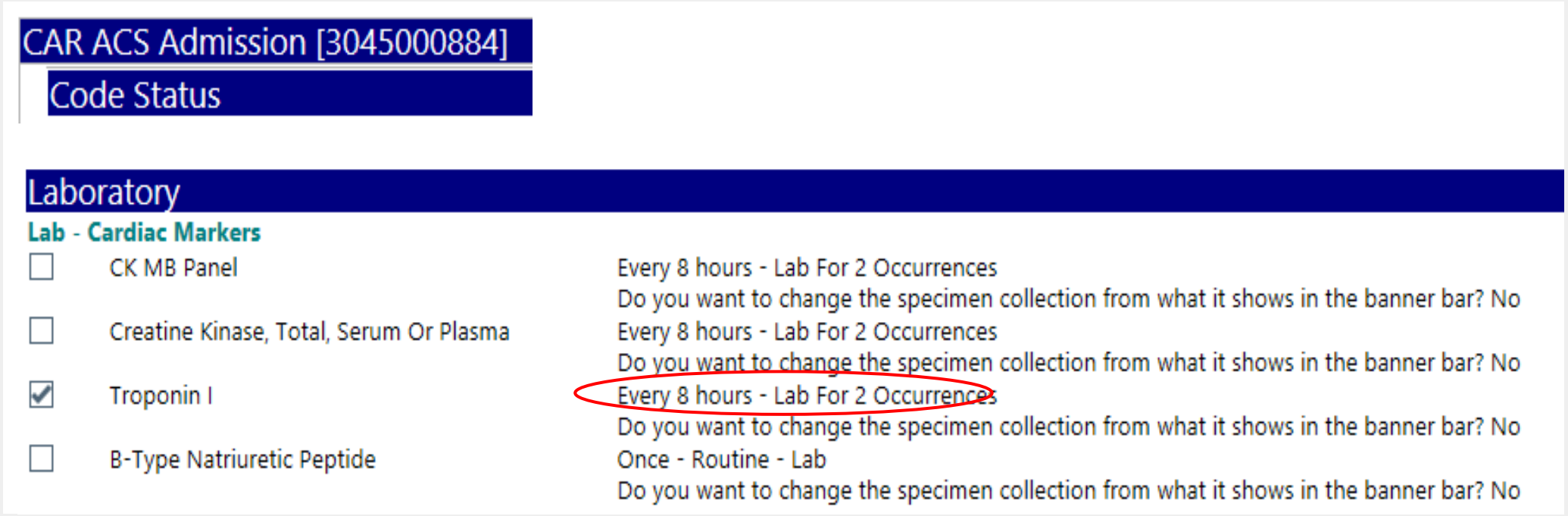
Troponin Interval Example #2

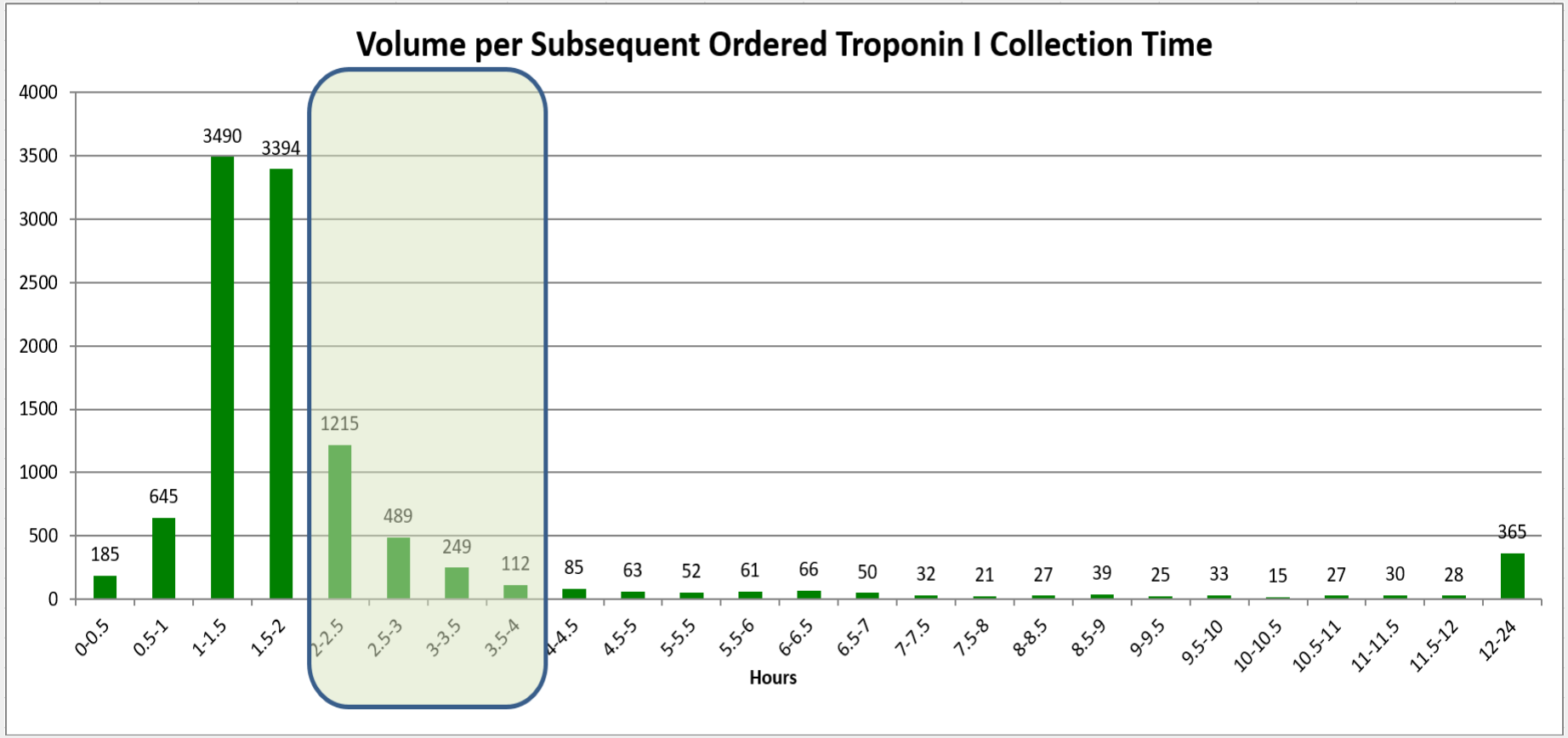


“Every system is perfectly designed to get the result that it does.”

—W. Edwards Deming



Troponin Interval Example #3



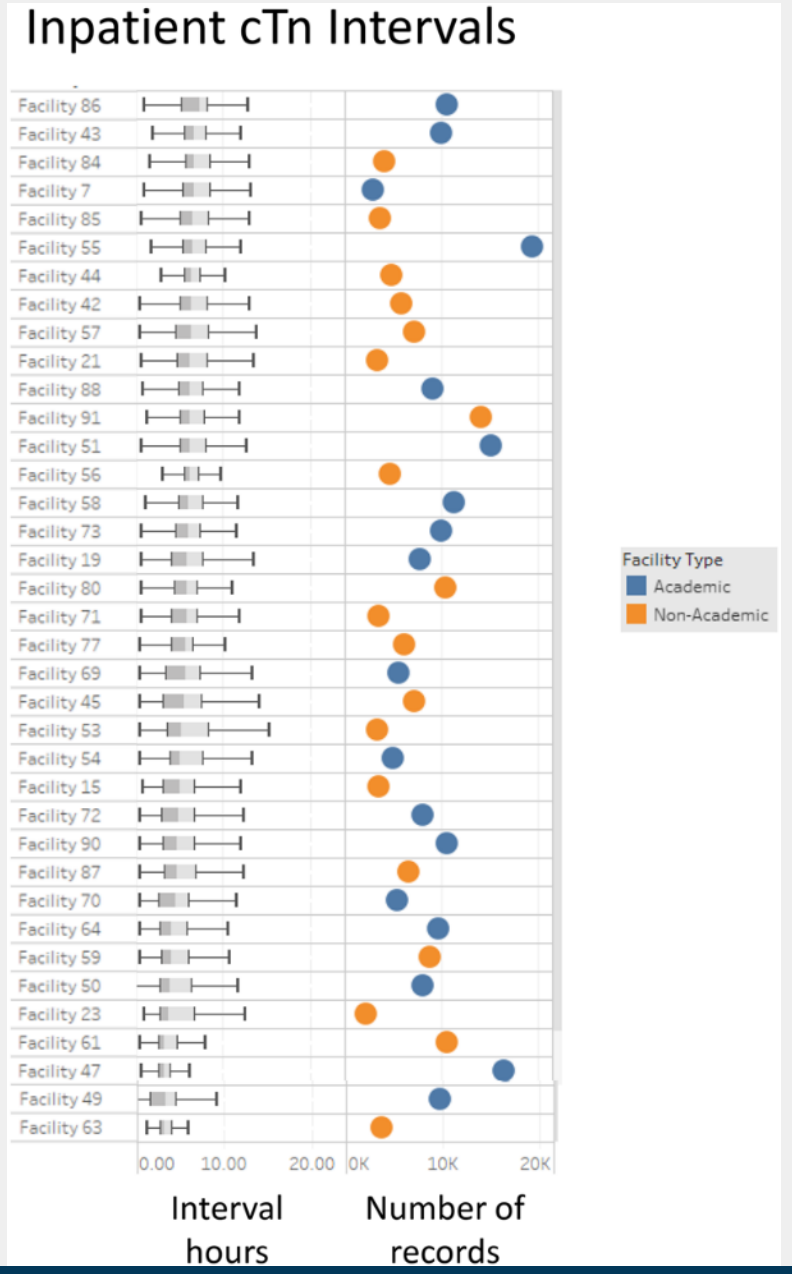
The Journal of
APPLIED LABORATORY MEDICINE

Analysis of Inpatient and Emergency Department Serial Troponin Testing Intervals in the United States

Andrew Fletcher ✉, Erik Forsman, Brian R Jackson

The Journal of Applied Laboratory Medicine, jfaa185,
https://doi.org/10.1093/jalm/jfaa185
Published: 09 November 2020 **Article history** ▾

https://pubmed.ncbi.nlm.nih.gov/33169147/



Recommendations

Discuss intervals

Review order sets

Standardize ordering protocol

Topics Covered

- Length of Stay
- Transitions of Care
- Denial of Payment
- Readmissions
- Hospital-Acquired Conditions

Transition of Care

Test Pending At Discharge (“TPADs”)

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Unplanned hospital visits

Overall

Rate of readmission after discharge from hospital (hospital-wide)

18%
Worse than the national rate

National result: 15.6%

Number of included patients: 2382

https://www.medicare.gov/care-compare/

Springer

Journal of General Internal Medicine
springer.com | This journal | Toc Alerts | Submit Online | Open Choice

J Gen Intern Med. 2018 May; 33(5): 750–758.
Published online 2018 Jan 19. doi: 10.1007/s11606-017-4290-9
PMCID: PMC5910344
PMID: 29352419

A Systematic Review of Interventions to Follow-Up Test Results Pending at Discharge

Patrick J. Darragh, MD, MSc,[1,2] T. Bodley, MD,[1] A. Orchanian-Cheff, BA, MISt,[3] K. G. Shojania, MD,[1] J. L. Kwan, MD, MPH,[1] and P. Cram, MD, MBA[1]

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5910344/

41%–100%
of discharges have at least 1 TPAD

30%-40%
are likely to change management

45%
of patients with TPADs are readmitted

66%
of outpatient physicians reported preventable errors

NATIONAL QUALITY FORUM
Driving measurable health improvements together

Serious Reportable Event, a.k.a. "Never Event"

Patient death or serious injury resulting from failure to follow up or communicate laboratory, pathology, or radiology test results (new)

Applicable in: hospitals, outpatient/office-based surgery centers, ambulatory practice settings/office-based practices, long-term care/skilled nursing facilities

http://www.qualityforum.org/Topics/SREs/List_of_SREs.aspx#sre4

Transition of Care TPADs

28,776
Tests resulted post-discharge

→

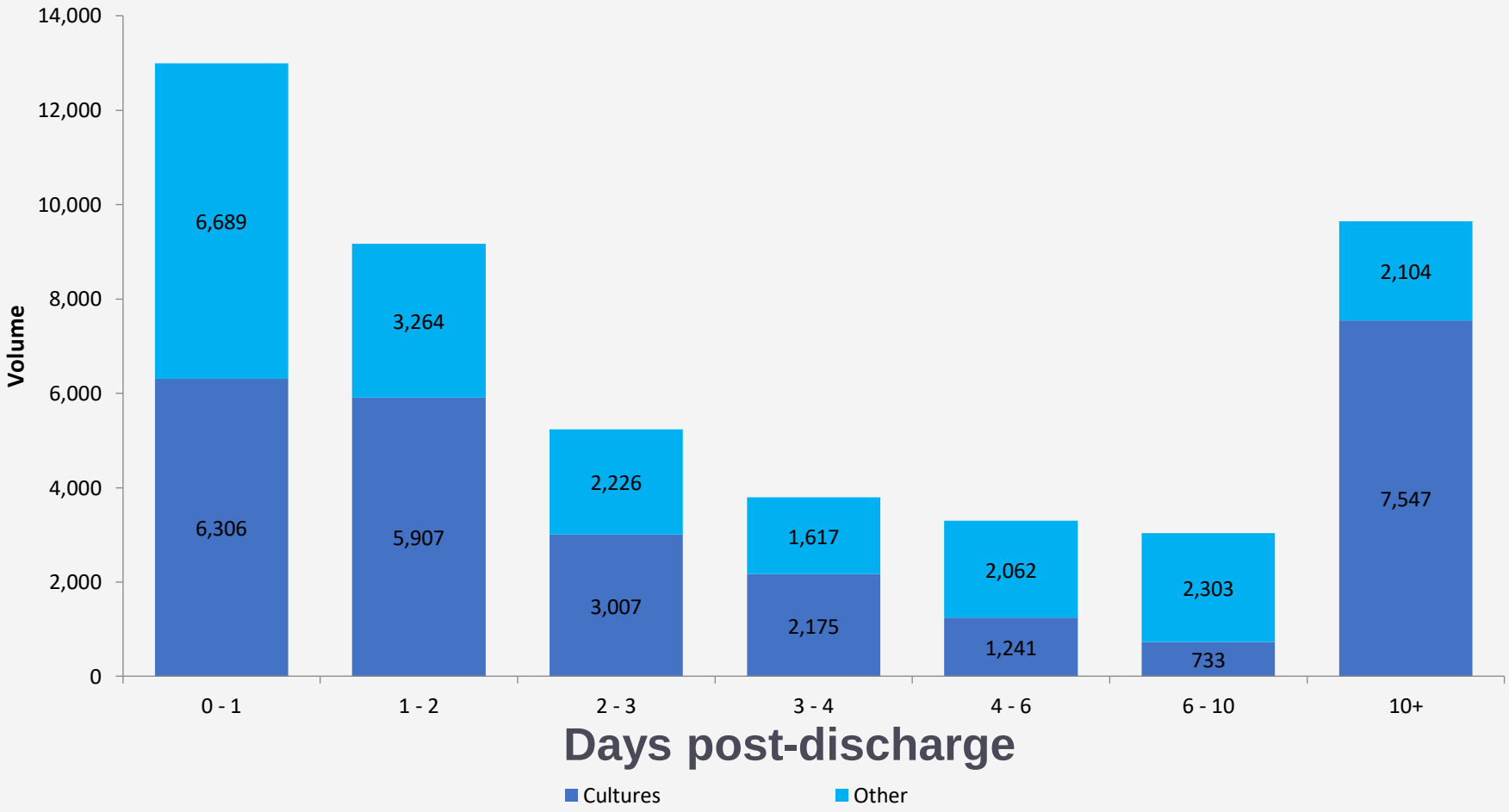
7,728
Excluding cultures

$702,624
total lab cost

→

$290,234
Excluding cultures

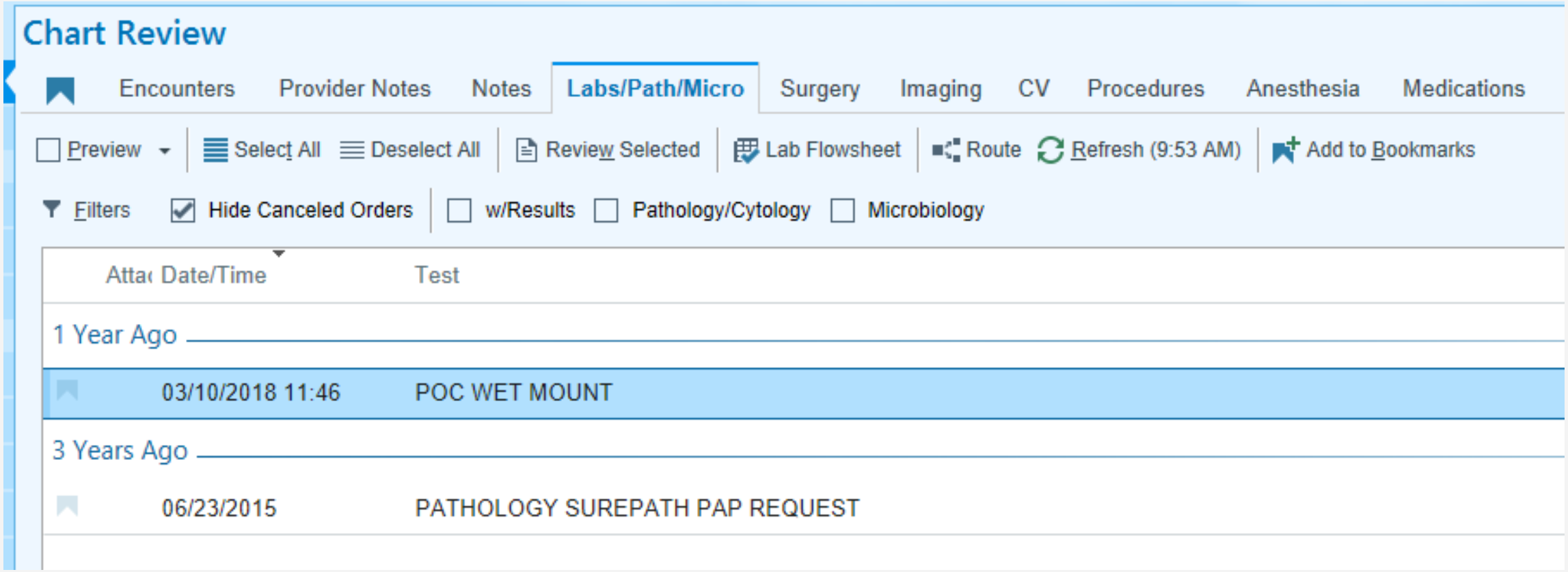
Results after Discharge



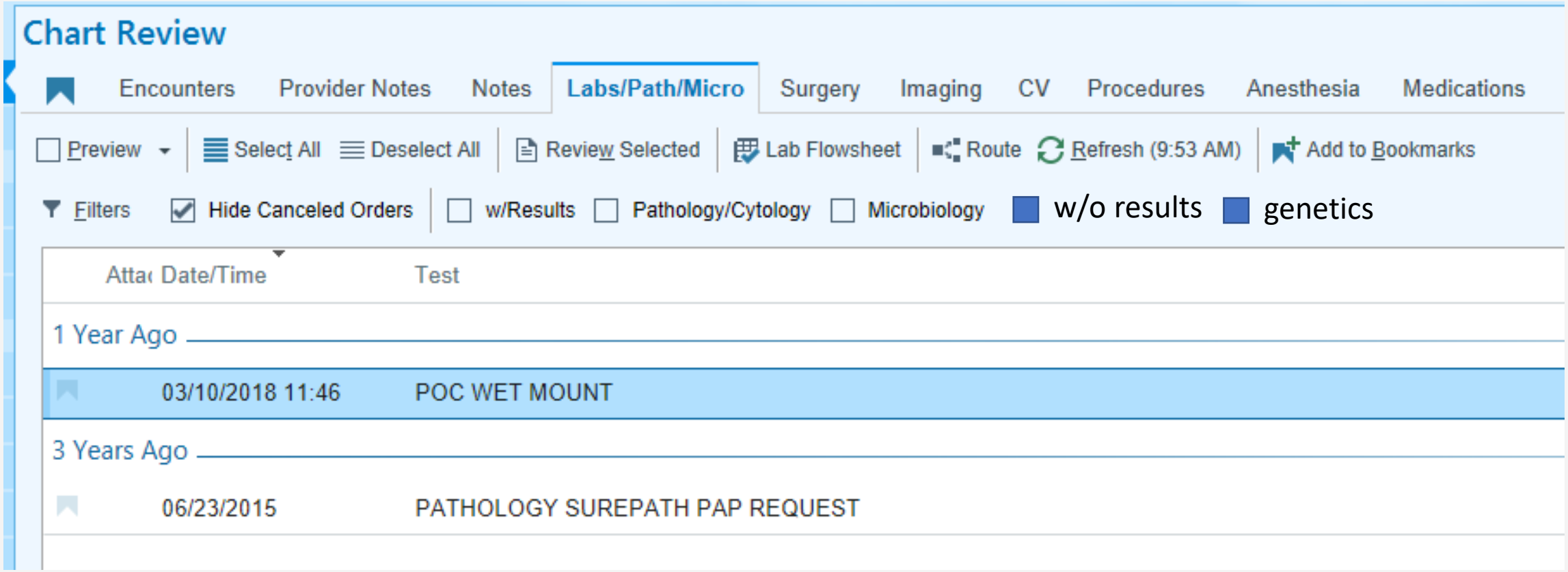
Top Tests Resulted Post discharge

Test Name	Volume	% Postdischarge
Cytology, Nongynecologic	314	28.6%
Hemoglobin A1c	307	5.4%
CBC with Plt Count and Auto Diff	148	0.2%
Ferritin	121	5.0%
Vitamin B1 (Thiamine), Whole Blood	107	43.1%
Cytomegalovirus DNA Quantitation by PCR	102	10.1%
Tacrolimus by HPLC-MS/MS	101	2.4%
Leuk/Lymph Phenotyping, Flow Cytometry	91	10.2%
Hepatitis B Surface Ag w/ Reflex to Conf	90	6.3%
Serum Protein Electrophoresis Reflex	80	26.7%
Vitamin D, 25-Hydroxy	78	4.1%
ANCA Vasculitis Profile w/Rflx to Titer	76	21.2%
ANA by IFA, IgG	75	22.4%
Drug Screen (Nonforensic), Urine	75	42.1%

Recommendations – EMR TPAD Filter



Recommendations – EMR TPAD Filter



EMR Optimization

- [ ] CELIAC SEROLOGY (REF,$$,3d)
- [ ] IMMUNOGLOBULIN E (IGE) (REF,$$,5d)
- [ ] LEVETIRACETAM LEVEL (REF,$$,2d)
- [ ] PROTEIN C/S PANEL, FUNCTIONAL (REF,$$,3d)
- [ ] RENIN (REF,$$,2d)
- [ ] THYROID Abs (REF,$$,2d)
- [ ] ALPHA-FETOPROTEIN (AFP) (REF,$$,3d)
- [ ] B2 GLYCOPROTEIN I ABS IGG IGM (REF,$$,3d)
- [ ] BUPRENORPHINE and METABOLITES, URINE (REF,$$,5d)
- [ ] CARDIOLIPIN Abs (IgG, IgM, IgA) (REF,$$,2d)
- [ ] GLUTAMIC ACID DECARBOXYLASE AB (REF,$$,4d)
- [ ] ISLET CELL (REF,$$,4d)
- [ ] LAMOTRIGINE LEVEL (REF,$$,2d)
- [ ] OXCARBAZEPINE (TRILEPTAL) (REF,$$,3d)
- [ ] THYROID STIMULATING IMMUNOGLOB (REF,$$,3d)
- [ ] THYROXINE BINDING GLOBULIN (REF,$$,3d)
- [ ] TISSUE TRANSGLUTAMINASE IGA AB (REF,$$,3d)
- [ ] TOPIRAMATE (TOPRAMAX) LEVEL (REF,$$,3d)
- [ ] TPMT ENZYME (REF,$$,2d)
- [ ] VON WILLEBRAND MULTIMERIC PANEL (REF,$$,4d)
- [ ] ACTIVATED PROTEIN C RESISTANCE (REF,$$,5d)

Recommendations: Test Formulary

Review

all sendout testing performed in 1 year

Eliminate

test listing in menu if ordered <4 times in 1 year

Review

remaining tests on menu to see if reasonable

Topics Covered

- Length of Stay
- Transitions of Care
- Denial of Payment
- Readmissions
- Hospital-Acquired Conditions

Denial of Payment

Sepsis DRG

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Sepsis care

Sepsis is a complication that occurs when your body has an extreme response to an infection. It causes damage to organs in the body and can... Read more

Percentage of patients who received appropriate care for severe sepsis and septic shock

Higher percentages are better

48% 2
of 75 patients

National average: 60%

https://www.medicare.gov/care-compare/

Centers for Medicare & Medicaid Services
CMS Measures Inventory Tool

Severe Sepsis and Septic Shock: Management Bundle (Composite Measure)

NQF ENDORSEMENT STATUS: Endorsed | **NQF ID:** 0500 | **MEASURE TYPE:** Process | **INFO AS OF:** Not available | **CMIT ID:** 1017 | **REVISION:** 1

This measure focuses on adults 18 years and older with a diagnosis of severe sepsis or septic shock. Consistent with Surviving Sepsis Campaign guidelines, **the measure contains several elements, including measurement of lactate**, obtaining blood cultures, administering broad spectrum antibiotics, fluid resuscitation, vasopressor administration, reassessment of volume status and tissue perfusion, **and repeat lactate measurement.** As reflected in the data elements and their definitions, these elements should be performed in the early management of severe sepsis and septic shock.

https://cmit.cms.gov/CMIT_public/ViewMeasure?MeasureId=1017

DRG: 871, $10,621.61

A41.9 *Sepsis, unspecified organism*

J11.08

J45.901CC

E87.2CC

J15.1

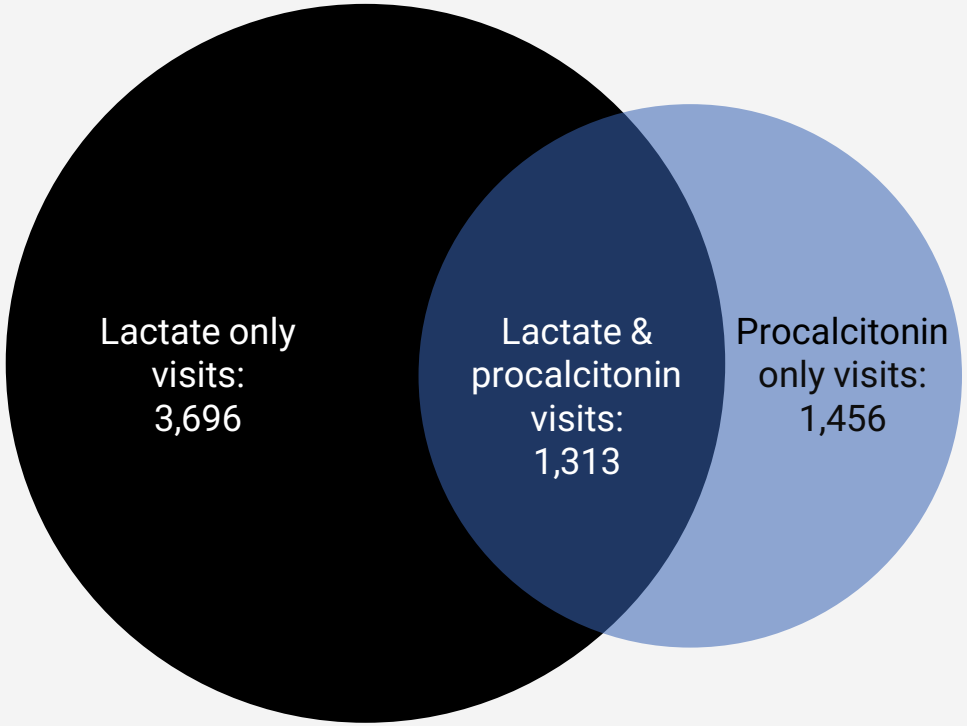
R09.02

J42

https://www.aapc.com/blog/31689-sepsis-and-sirs-in-icd-10-cm/

DRG: 871, $10,621.61
A41.9 *Sepsis, unspecified organism*

$15,465,000



https://www.aapc.com/blog/31689-sepsis-and-sirs-in-icd-10-cm/

Recommendations

LIS/data warehouse reports

Audit sepsis denials

Physician queries/clinical documentation integrity (CDI)

Topics Covered

- Length of Stay
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Readmissions

Pharmacogenetics

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Unplanned hospital visits

Heart attack

Rate of readmission for heart attack patients

17.2%
No different than the national rate

National result: 16.1%

Number of included patients: 128

https://www.medicare.gov/care-compare/

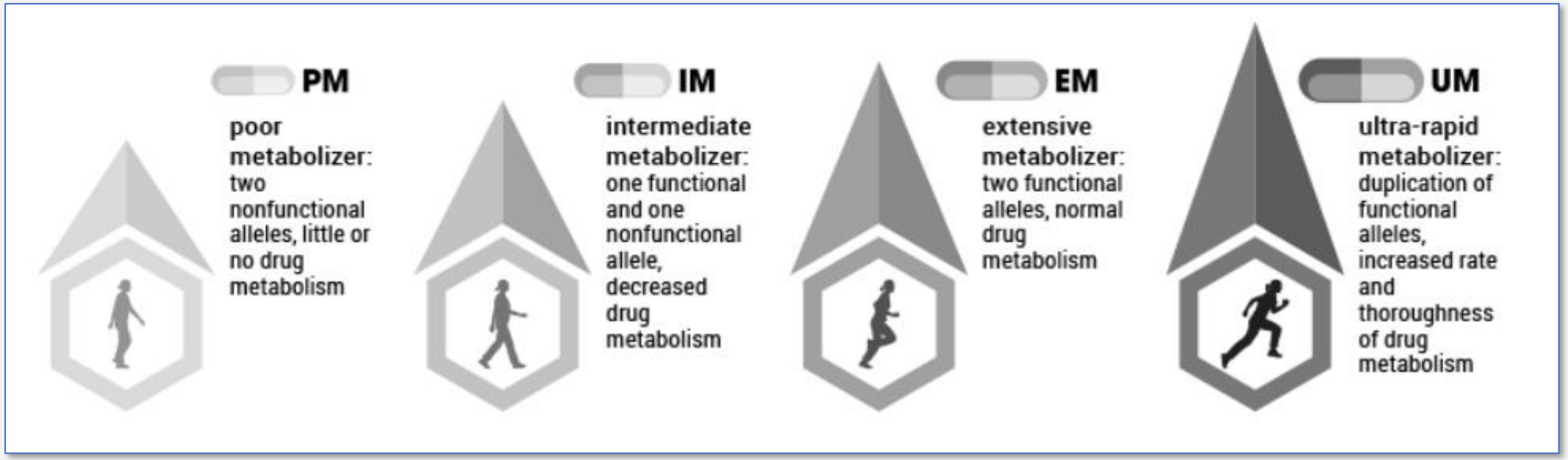
Pharmacogenomics: the study of how genes affect a person's response to drugs

- More than 85% of patients have significant genetic variation in the cytochrome P450 (CYP450) genes that metabolize the majority of the most commonly prescribed medications.

https://www.sciencedirect.com/science/article/pii/S0163725813000065?via%3Dihub

Coagulation

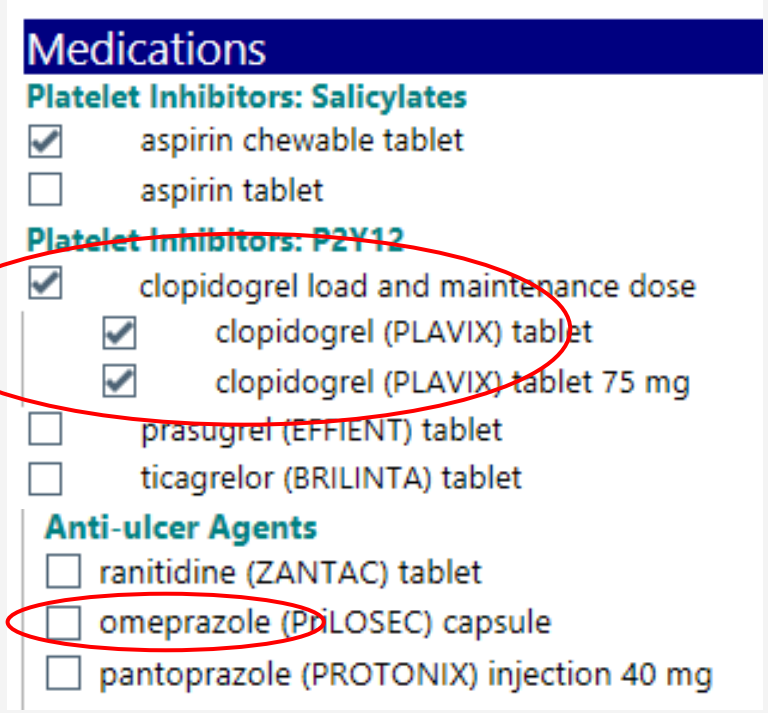
- Clopidogrel (Plavix)
- CYP2C19



CYP2C19

- Example: 5,000 patients discharged on Plavix without *CYP2C19* testing
  - 30% no *CYP2C19* expression
  - 10% weak *CYP2C19* expression
  - 40% of total patients on ineffective antiplatelet agent
  - 5,000 x 0.4 = 2,000 patients at risk

Acute Coronary Syndrome Order Set



No orders for CYP2C19

Download this table (CSV) - Last modified: Jun 12, 2020

# (N=377)	GENE (UNIQUE = 127)	DRUG (UNIQUE = 240)	GUIDELINE	CPIC LEVEL	PHARMGKB LEVEL OF EVIDENCE	PGX ON FDA LABEL	CPIC PUBLICATIONS (PMID)
1	HLA-B	abacavir	Guideline	A	1A	Testing required	• 24561393 • 22378157
2	HLA-B	allopurinol	Guideline	A	1A		• 23232549 • 26094938
3	CYP2D6	amitriptyline	Guideline	A	1A	Actionable PGx	• 23486447 • 27997040
4	CYP2C19	amitriptyline	Guideline	A	1A		• 23486447 • 27997040
5	UGT1A1	atazanavir	Guideline	A	1A		• 26417955
6	CYP2D6	atomoxetine	Guideline	A	1A	Actionable PGx	• 30801677
7	TPMT	azathioprine	Guideline	A	1A	Testing recommended	• 21270794 • 23422873 • 30447069

CPIC®
Clinical Pharmacogenetics Implementation Consortium

https://cpicpgx.org/genes-drugs/

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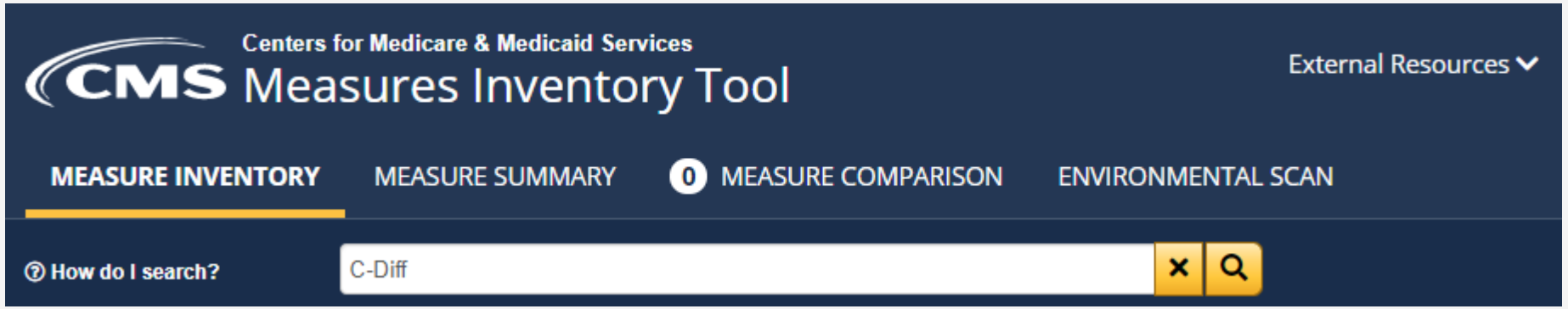
Hospital-Acquired Conditions

C-Diff, CAUTIs, MRSA



Total number of observed hospital-onset CDI LabID events among all inpatients in the facility, excluding well-baby nurseries and NICUs

https://cmit.cms.gov/CMIT_public/ViewMeasure?MeasureId=831

Complications & deaths

Infections

Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards

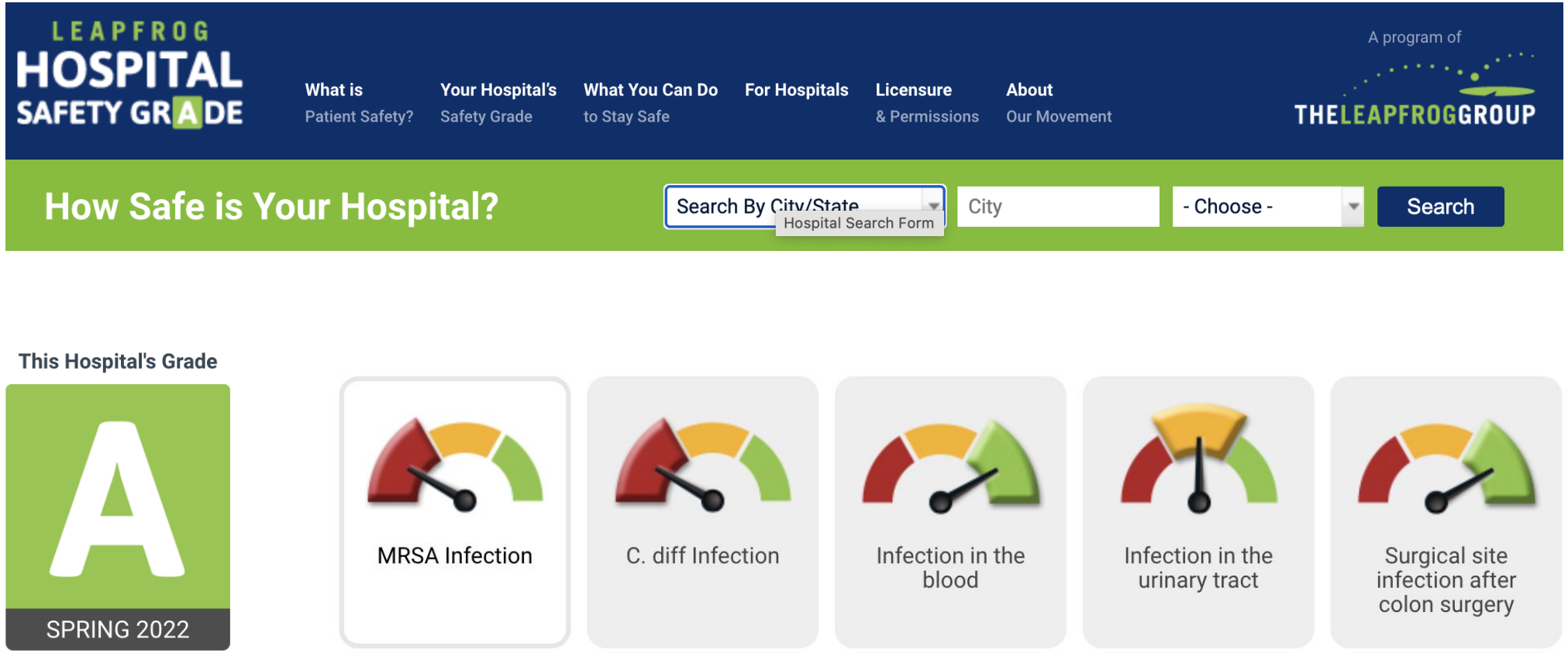
Lower numbers are better

2.417

Worse than the national benchmark

National benchmark: 1.000

https://www.medicare.gov/care-compare/



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