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The Society for Healthcare Epidemiology of America

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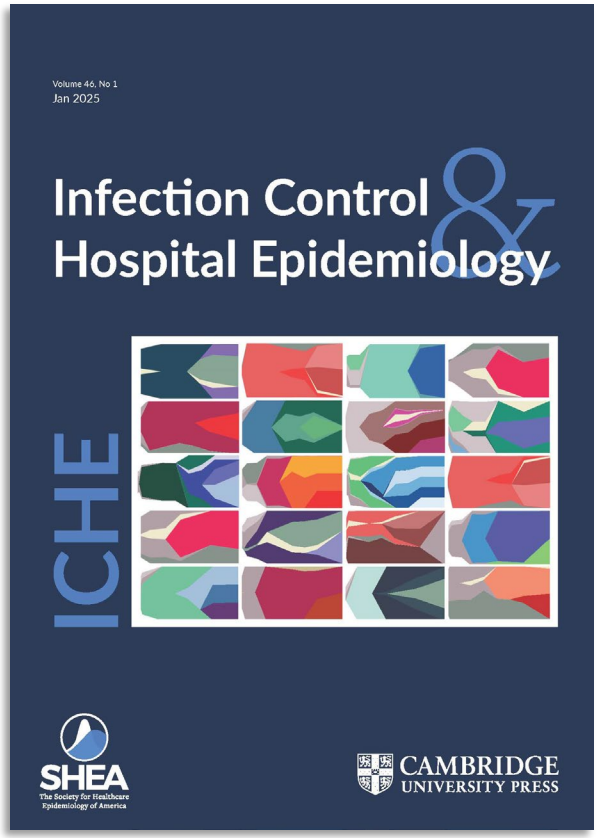

Infection Control & Hospital Epidemiology publishes scientifically authoritative, clinically applicable, peer-reviewed research on control and evaluation of the transmission of pathogens in healthcare institutions and on the use of epidemiological principles and methods to evaluate and improve the delivery of care. Major topics covered include infection control practices, surveillance, antimicrobial stewardship, cost-benefit analyses, resource use, occupational health, and regulatory issues.

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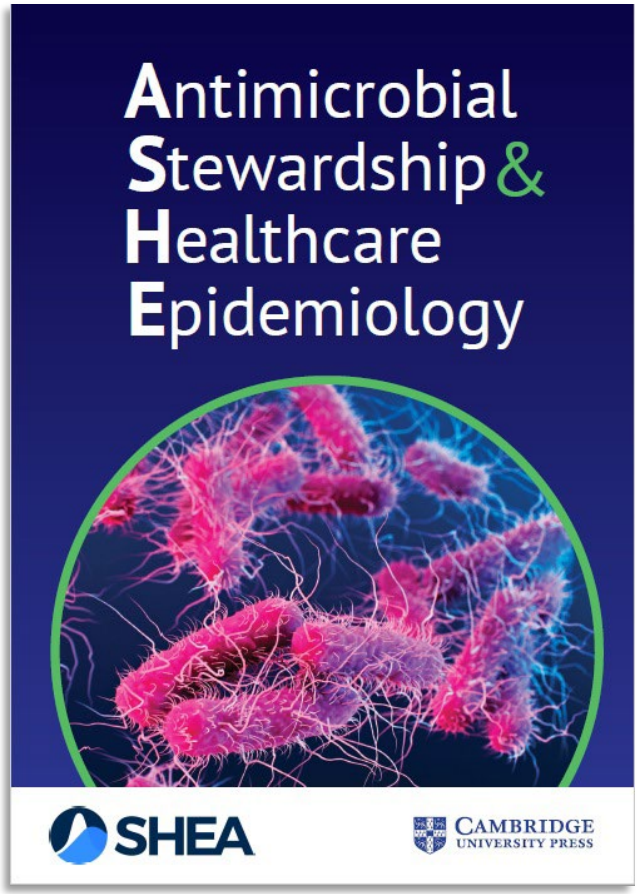

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Primer on Healthcare Epidemiology, Infection Control & Antimicrobial Stewardship

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UPCOMING PROGRAMS & ACTIVITIES

Courses/Webinar Series

Diagnostic Stewardship Programs: From Concept to Implementation
March 19, 2026 @ 3:00 – 4:00 pm ET

Town Hall

April 15 @ 4:00 pm ET
May 27 @ 4:00 pm ET
June 9 @ 4:00 pm ET

NEW!

SHEA Members Open Forum

Get ready for real discussion! This is a peer-driven, discussion-based program designed for SHEA members to connect, share experiences, and talk through real-world challenges.

March 25th at 4:00 – 5:00 pm ET

Topic: Approaches to Measles Exposures Across Care Settings

Moderator: April McDougal, DO

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You Can Help!

Improving Antibiotic Stewardship and Infection Prevention in Nursing Homes

eLearning Course


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ASIA PACIFIC SOCIETY OF INFECTION CONTROL
Kuala Lumpur Convention Centre, Malaysia
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APRIL 7 - APRIL 10
CHICAGO, IL

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SHEA Webinar

Town Hall 2026

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Housekeeping

- Technical difficulties? Visit: https://support.zoom.us
- Webinar recording, PowerPoint presentation, and references available on learningce.shea-online.org
- Streaming Live on SHEA's Facebook page
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March Town Hall Panelists:

Dr. Bernard Camins
Mount Sinai

Dr. Katie Passaretti
Advocate Health

Dr. Chris Nyquist
Children's Colorado

Dr. Tom Talbot
Vanderbilt University

Invited Panelist:

Dan Diekema, MD
University of Iowa Carver College of Medicine

Dan Morgan, MD, MS
University of Maryland School of Medicine

What is diagnostic stewardship? Why is it clinically important?

Dan Morgan MD, MS

Epidemiology & Public Health & Infectious Disease

Director, Center for Innovation in Diagnosis

University of Maryland School of Medicine

VA Maryland Healthcare System

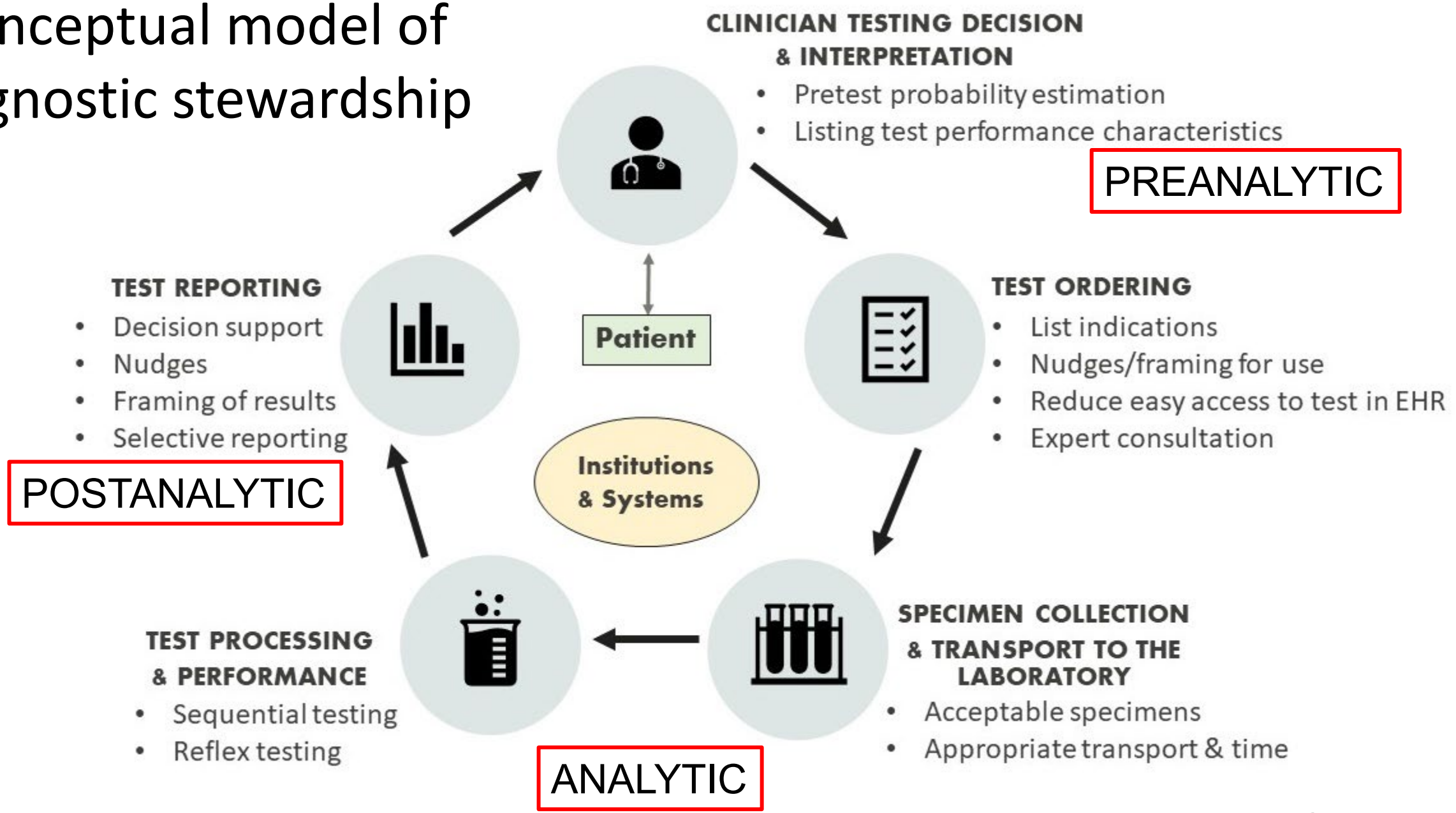
Diagnostic Stewardship

"Modifying the ordering, lab performance, and reporting of diagnostic tests to improve the treatment of infections and other conditions"

(Getting more from the tests we have and will have)

Morgan, Malani and Diekema JAMA 2017
Fabre et al. ICHE 2023

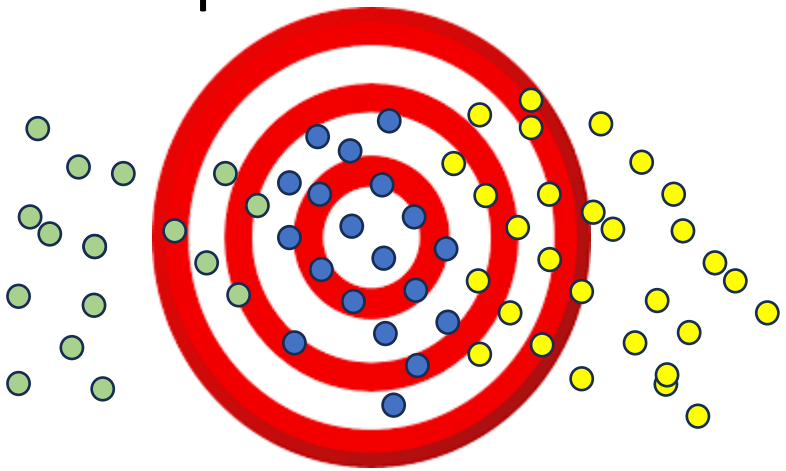
Conceptual model of diagnostic stewardship



Fabre et al. ICHE 2023

Goal of Dx Stewardship is **Optimizing** testing

- **Mostly decrease overuse**—wrong ordering of urine Cx
- **Assuring a test is used** when needed (more testing)—rapid blood ID on cultures, HIV testing
- **Sometimes using a new or more expensive test**—multiplex panel
- Goal is better patient outcomes



SHEA Task Force Papers—ICHE 2023/24

Infection Control & Hospital Epidemiology (2023), **44**, 178–185
doi:10.1017/ice.2023.5

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SHEA Position Paper

Principles of diagnostic stewardship: A practical guide from the Society for Healthcare Epidemiology of America Diagnostic Stewardship Task Force

Valeria Fabre MD[1], Angelina Davis PharmD[2], Daniel J. Diekema MD[3], Bruno Granwehr MD[4], Mary K. Hayden MD[5], Christopher F. Lowe MD[6], Christopher D. Pfeiffer MD[7], Anna C. Sick-Samuels MD[8], Kaede V. Sullivan MD[9], Trevor C. Van Schooneveld MD[10] and Daniel J. Morgan MD[11]

Infection Control & Hospital Epidemiology (2023), **44**, 1901–1908
doi:10.1017/ice.2023.156

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SHEA Position Paper

Improving antimicrobial use through better diagnosis: The relationship between diagnostic stewardship and antimicrobial stewardship

Tsun Sheng N. Ku MD[1,2], Mayar Al Mohajer MD[3,4,5], James A. Newton MD[6], Marie H. Wilson MSN, RN, CIC[7], Elizabeth Monsees PhD, MBA, RN, CIC[8,9], Mary K. Hayden MD[10], Kevin Messacar MD, PhD[11], Jamie J. Kisgen PharmD[12], Daniel J. Diekema MD[13,14], Daniel J. Morgan MD[15,16], Costi D. Sifri MD[17] and Valerie M. Vaughn MD, MSc[18]

Infection Control & Hospital Epidemiology (2024), **45**, 277–283
doi:10.1017/ice.2023.195

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SHEA Position Paper

Diagnostic stewardship and the coronavirus disease 2019 (COVID-19) pandemic: Lessons learned for prevention of emerging infectious diseases in acute-care settings

Lauren Epstein MD[1,2], Daniel J. Diekema MD[3], Daniel J. Morgan MD[4], Mohamad G. Fakih MD[5], Francesca Lee MD[6], Lindsey Gottlieb MD[1], Elizabeth Leung PharmD, MSCI[7], Christina Yen MD[6], Kaede V. Sullivan MD[8] and Mary K. Hayden MD[9]

Infection Control & Hospital Epidemiology (2024), **45**, 405–411
doi:10.1017/ice.2023.284

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SHEA Position Paper

Diagnostic stewardship to improve patient outcomes and healthcare-associated infection (HAI) metrics

Harjot K. Singh MD, ScM[1], Kimberly C. Claeys PharmD, PhD[2], Sonali D. Advani MBBS, MPH[3], Yolanda J. Ballam BS, CIC[4], Jessica Penney MD, MPHTM, MS[5], Kirsten M. Schutte MD[6], Christopher Baliga MD[7], Aaron M. Milstone MD, MHS[8], Mary K. Hayden MD[9], Daniel J. Morgan MD, MS[10,11] and Daniel J. Diekema MD, MS[12,13]

Impact of diagnostic stewardship

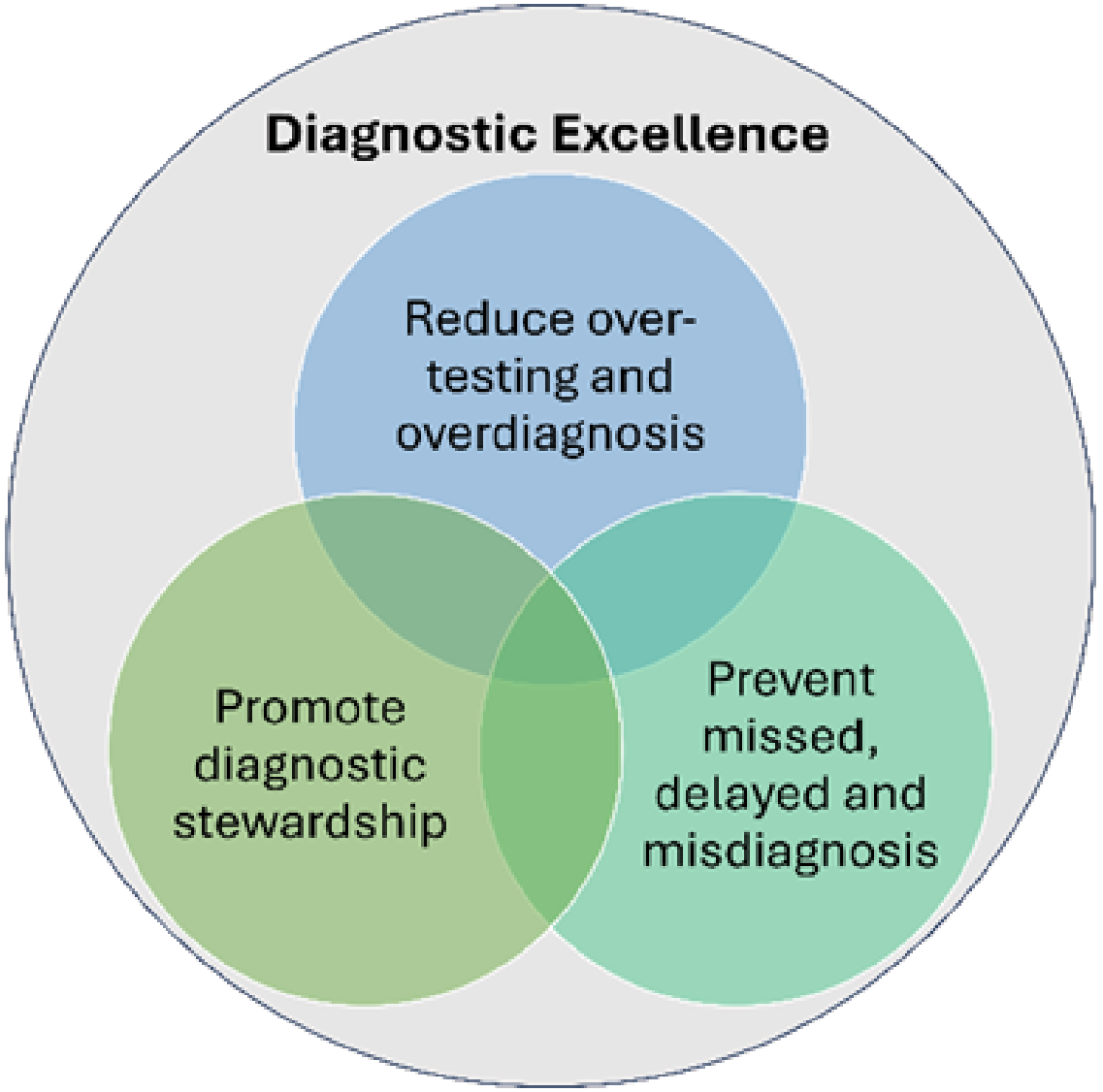
Infection	NHSN-reportable HAIs	Antibiotic use
CAUTI		
C difficile		
CLABSI		

Woods-Hill et al. JAMA Pediatrics 2022; Mullin KM et al. ICHE 2017
Trautner B et al. JAMA Intern Med 2015; Rock et al. Clin Infect Dis 2022
Vaughn et al. JAMA Intern Med 2023; Morgan et al. JAMA 2023

Diagnostic Excellence

CDC combined many efforts on diagnosis into a Core Elements of DxEx

- Support hospital programs



Morgan et al. Diagnosis 2024

https://www.cdc.gov/patient-safety/hcp/hospital-dx-excellence/index.html

Pioneering programs in diagnostic excellence

- New series developing for ASHE
- Need examples for other hospitals
- Exemplary programs in diagnostic stewardship or excellence
  - Multiple tests, ideally a committee or full program
- Description of:
  - tests addressed & Impact
  - how program developed
  - who is doing the work & how funded
- If you know of these programs, please email me!
  dmorgan@som.umaryland.edu

CAR SAFETY MOVEMENT

VEHICLE SAFETY INNOVATIONS:
Seatbelts, Blind Spots, Crash Tests

FROM RISKY TO RELIABLE: A SAFETY EVOLUTION

ENGINEERED FOR PROTECTION

DIAGNOSTIC STEWARDSHIP

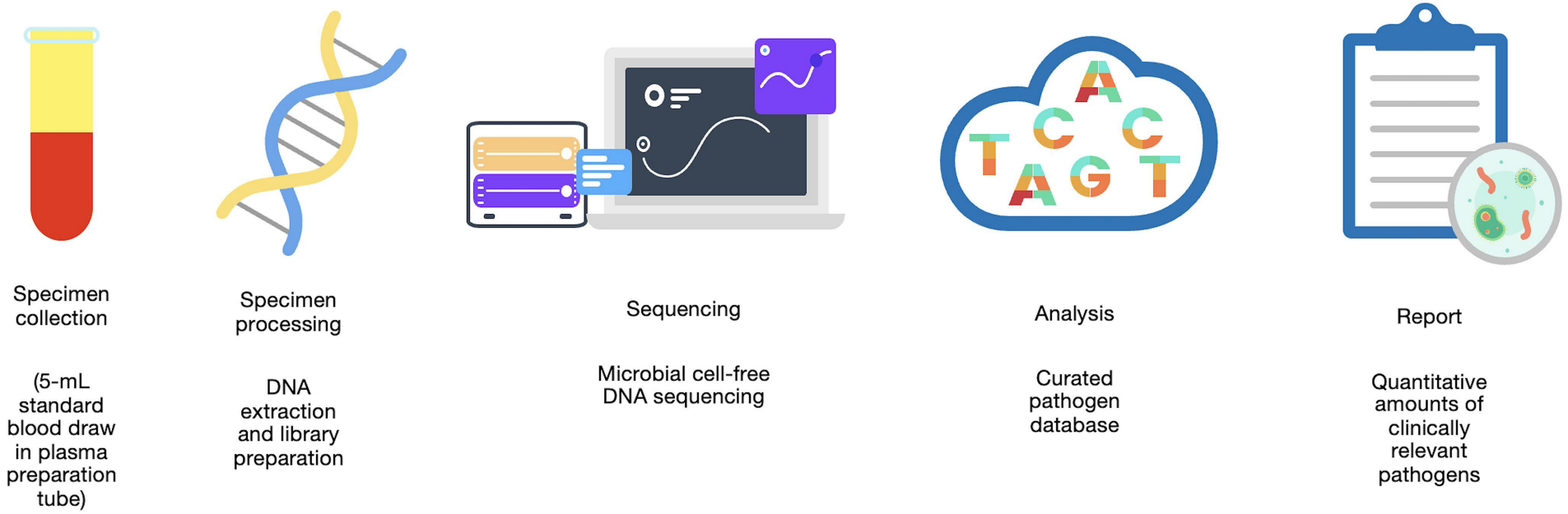
IMPROVED TESTING:
Right Test, Right Patient, Best Outcomes.

SAFER CHOICES, BEST OUTCOMES

Stewarding advanced molecular testing

Your lab director calls to inform you that the fastest growing send-out request is for plasma mNGS (Karius).

She is concerned both about the cost, which is mostly absorbed by the lab, but also (after reviewing a subset a cases) about results not changing therapy, or even being misleading or harmful.



https://doi.org/10.1093/cid/ciaf361

An unwelcome wrinkle…

- Your lead IP calls about 2 ICU patients who had Karius tests + (for *Enterococcus* and for *C glabrata*, respectively), while they had CVCs in place
- He wants to know if the two cases meet criteria for CLABSI. Both had multiple negative blood cultures, but none were drawn within a 2-day window.
- He also wonders about a look-back for missed cases

How do you proceed?

- Immediately restrict the test to ID approval only
- Immediately restrict the test to Lab Director approval only
- Review the literature on utility of mNGS, and meet with key stakeholders to develop approved use criteria that can be embedded in CDS
- Keep the test freely available until you have time to compile your own institutional data into another single center publication on the experience with plasma mNGS

Clinical impact: 1000 Karius tests at UCLA

Table 1. Summary of clinical impact of Karius results (total N = 1000)

Impact	Impact rationale	Cases, N
None (n=822)	Result not acted upon by clinical team	565
	Karius result confirmed a known diagnosis leading to no change in management	130
	Could not determine the clinical impact from chart review	64
	Karius missed the causative pathogen detected by standard microbiologic methods	63
Positive (n=162)	New diagnosis not confirmed by standard diagnostic methods	69
	New diagnosis made earlier by Karius result than standard microbiological methods	34
	Karius result led to additional diagnostic investigations that led to positive changes in management	12
	Karius test enabled avoidance of invasive tissue or surgical biopsy	0
	Karius result enabled de-escalation or discontinuation of therapy	47
Negative (n=16)	Karius result led to additional unnecessary diagnostic investigations	11
	Karius result led to unnecessary treatment per the infectious diseases team involved	4
	Karius result led to additional time spent in the emergency department or prolonged hospital length of stay	1

82% no impact

16% positive impact

2% negative impact

<u>Association with + impact:</u>

Fastidious/zoonotic/vector-borne

Culture negative endocarditis

Table 3. Results of multivariable analysis of specific diagnostic indications and comorbidities (selected based on results of pairwise univariable analysis or known significance in prior studies) to determine association with positive clinical impact of an adult patient cohort

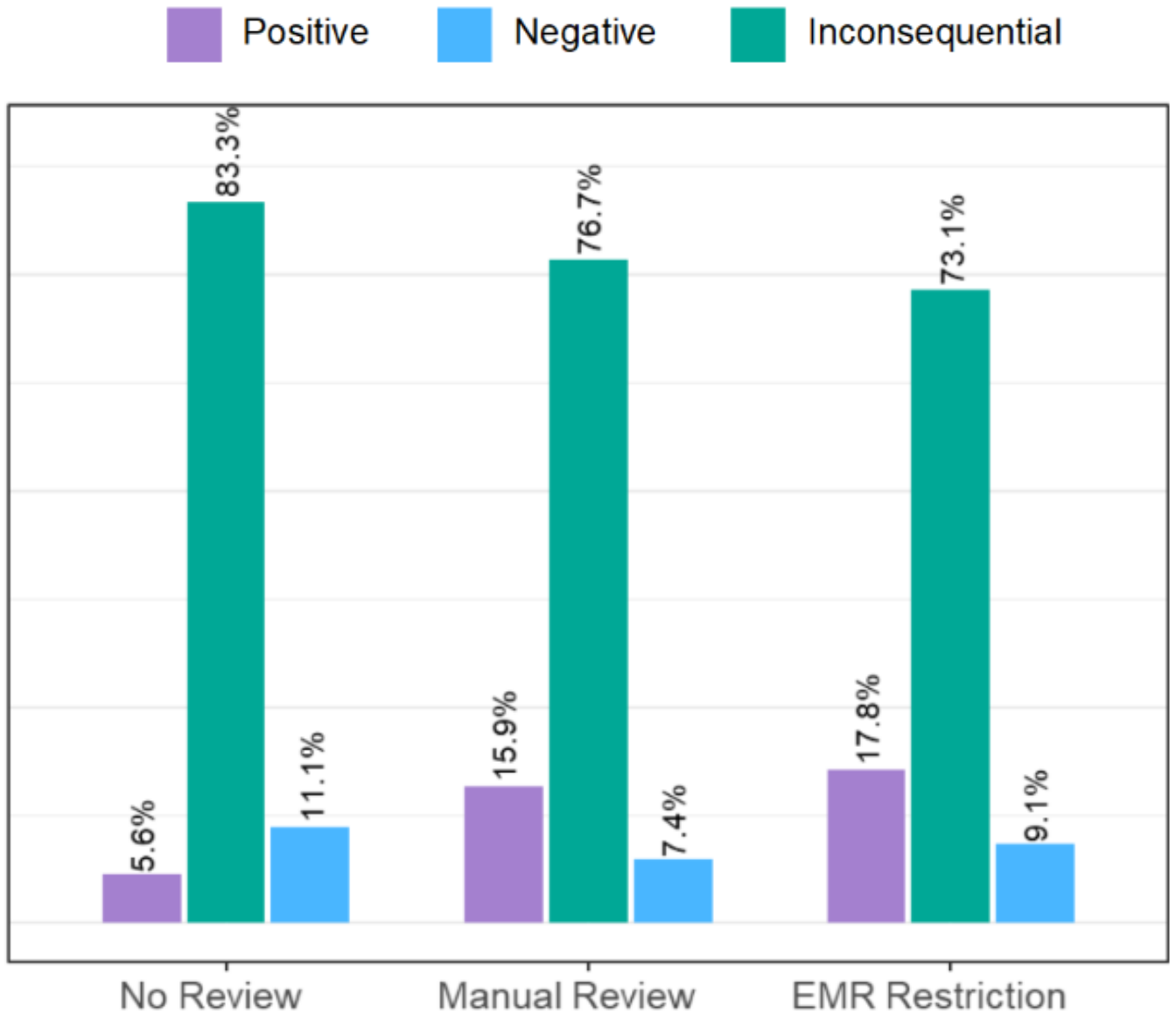
Parameter	Significance level (*P*-value)	Odds ratio (95% confidence interval)
Concern for fastidious/zoonotic/vector-borne pathogens	.0187[a]	2.07 (1.11–3.76)
Culture-negative endocarditis	.0218[a]	2.27 (1.11–4.53)
Deep-seated infection	.0648	1.18 (0.98–1.40)
CNS infection (lesion or meningoencephalitis)	.0690	0.71 (0.44–0.97)
Pneumonia	.1072	1.22 (0.95–1.56)
Invasive fungal infection	.2167	0.59 (0.23–1.28)
Host immunocompromised status	.7806	1.03 (0.83–1.29)
Unexplained fevers	.8202	0.96 (0.52–1.64)

Note. CNS, central nervous system.
[a]*P*-value < .05.

https://doi.org/10.1017/ice.2024.242

Clinical impact and diagnostic stewardship

Clinical impact of mNGS increased with move from no review to manual review for ID approval, to EMR restriction



https://doi.org/10.1017/ice.2024.242

University of Utah example

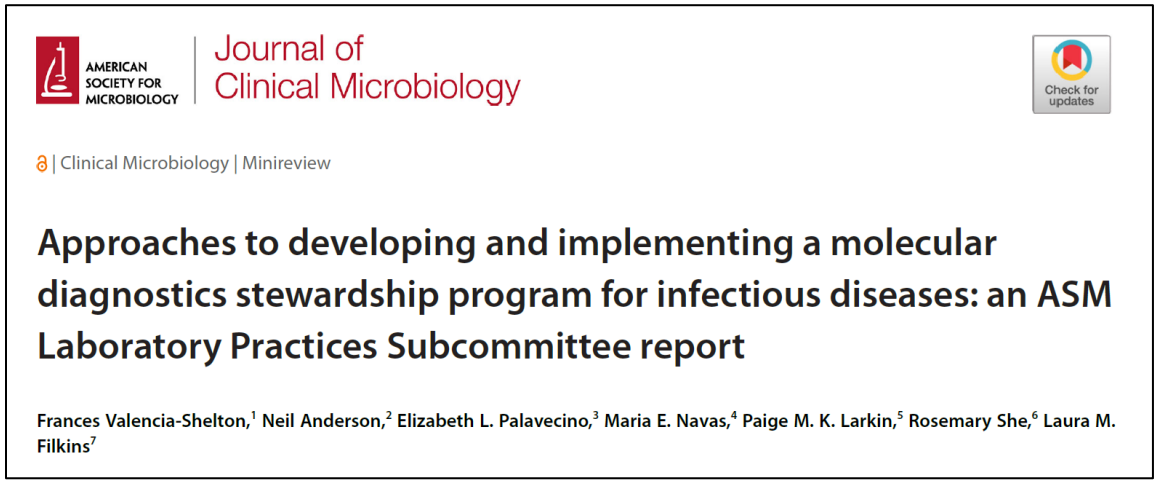
- ID consult required, incorporated in CDS:
  - Deep-seated infection or opportunistic pneumonia & invasive sampling not possible
  - Culture-negative endocarditis
  - Suspicion for fastidious or zoonotic infection
- Order set to ‘collect and hold’ for mNGS

Increased rate of positive clinical impact to ~33%

Kim Hanson, MD, MHS

Multiple stewardship opportunities for AMT

- Pre-analytic
  - Education, CDS, order restriction
- Analytic
  - Lab technique, alternative methods
  - Panels with fewer/custom targets
- Post-analytic
  - Target suppression, interpretive comments, nudges
  - Clinical correlation, result review



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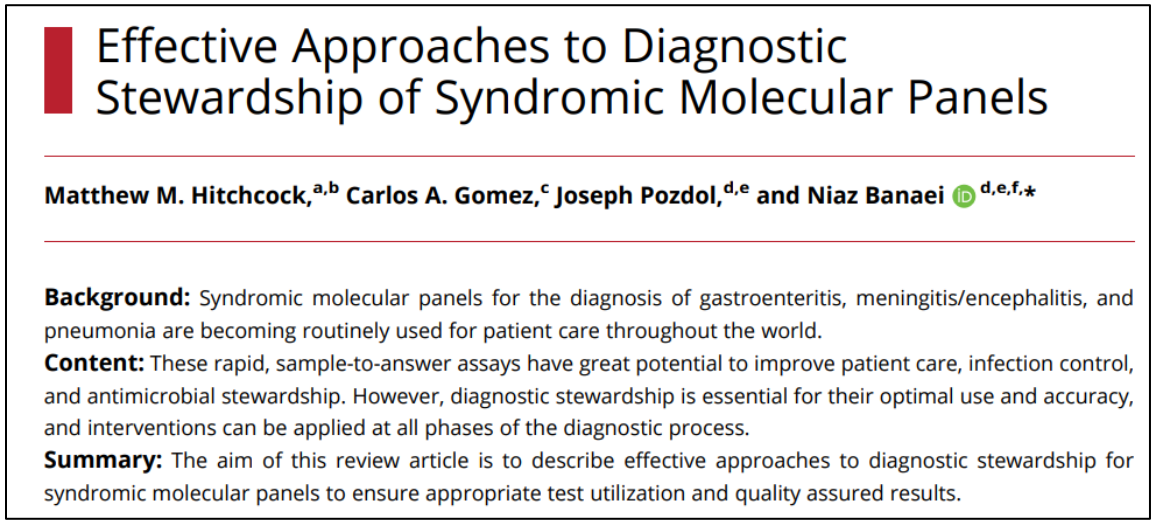
Check for updates

| Clinical Microbiology | Minireview

Approaches to developing and implementing a molecular diagnostics stewardship program for infectious diseases: an ASM Laboratory Practices Subcommittee report

Frances Valencia-Shelton,[1] Neil Anderson,[2] Elizabeth L. Palavecino,[3] Maria E. Navas,[4] Paige M. K. Larkin,[5] Rosemary She,[6] Laura M. Filkins[7]

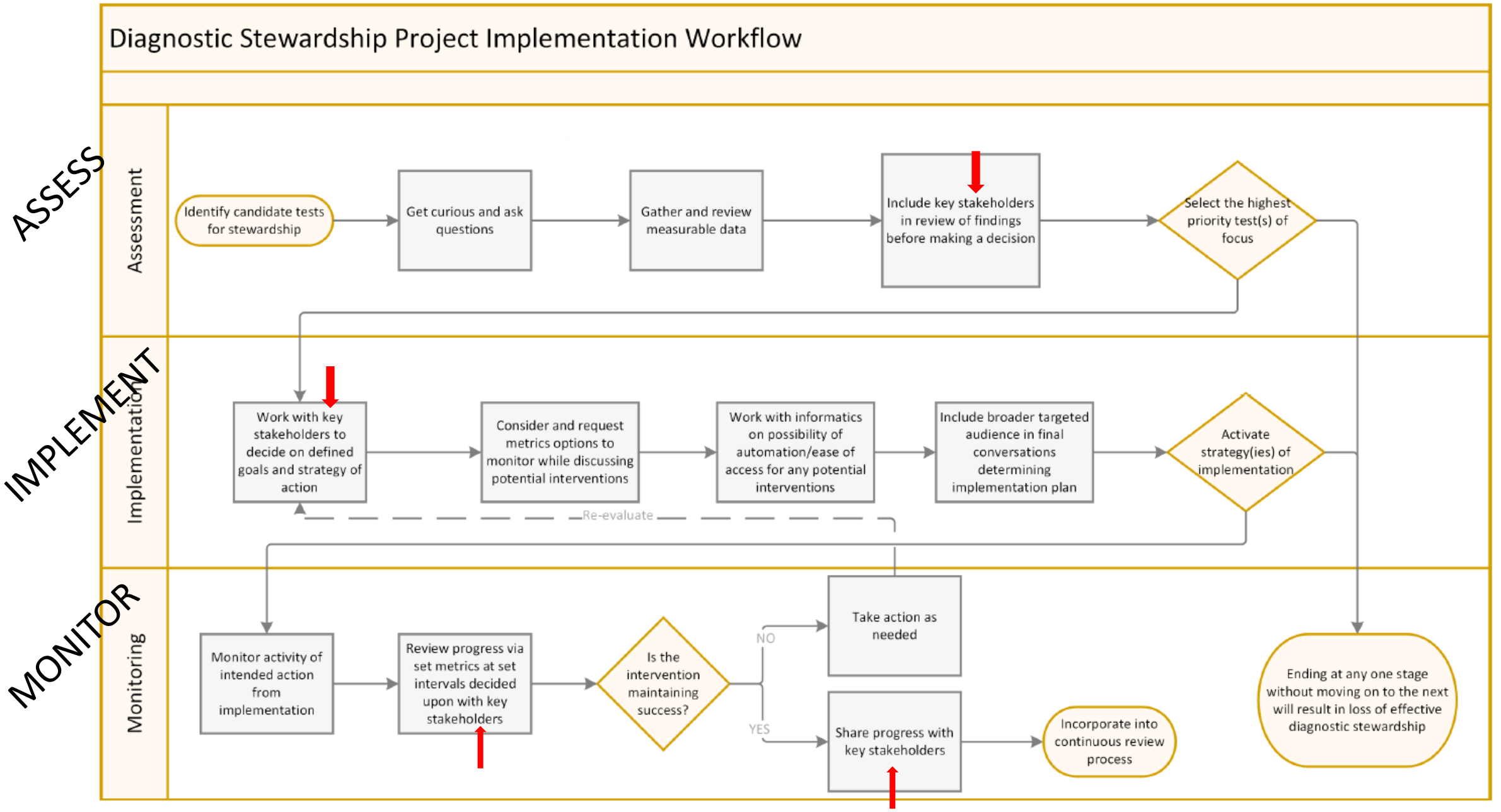


Effective Approaches to Diagnostic Stewardship of Syndromic Molecular Panels

Matthew M. Hitchcock,[a,b] Carlos A. Gomez,[c] Joseph Pozdol,[d,e] and Niaz Banaei [d,e,f,*]

Background: Syndromic molecular panels for the diagnosis of gastroenteritis, meningitis/encephalitis, and pneumonia are becoming routinely used for patient care throughout the world.
Content: These rapid, sample-to-answer assays have great potential to improve patient care, infection control, and antimicrobial stewardship. However, diagnostic stewardship is essential for their optimal use and accuracy, and interventions can be applied at all phases of the diagnostic process.
Summary: The aim of this review article is to describe effective approaches to diagnostic stewardship for syndromic molecular panels to ensure appropriate test utilization and quality assured results.

Hitchcock, et al. J Appl Lab Med 2024;9.
Valencia-Shelton, et al. JCM 2024;11.



Valencia-Shelton, et al. J Clin Microbiol 2024;11

Who are these key stakeholders?

- Antimicrobial stewardship
- Infection prevention
- Information technology
- Laboratory
- Clinical teams
- Leadership
- Patients

Approaches to advancing diagnostic stewardship will vary, sharing successful models is important!

Future priorities for DS of ID tests

- Establish and expand DS programs!
- Better stewardship of advanced molecular dx
- Move stewardship outside of acute care
  - Clinic, LTC, home health, direct to consumer
- Effectively incorporate host response assays

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Course/Webinar Series

Diagnostic Stewardship Programs: From Concept to Implementation | Models for Diagnostic Stewardship Programs

Date & Time: March 19, 2026 @ 3:00 – 4:00 pm ET

Speakers: Harjot K. Singh, MD, ScM, FIDSA; Sarah Turbett, MD; Charlotte Woods-Hill, MD, MSHP