

Laboratory-Nursing team: How to work successfully with nursing

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Disclosure

- None

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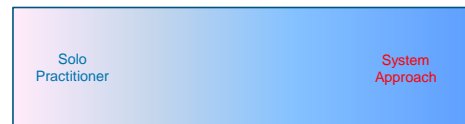
Objectives

- Elaborate on the importance of teamwork in healthcare
- Explain how to successfully create a Laboratory/Nursing teamwork
- Show examples of Laboratory/Nursing projects and their impacts

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Healthcare Is Being Transformed



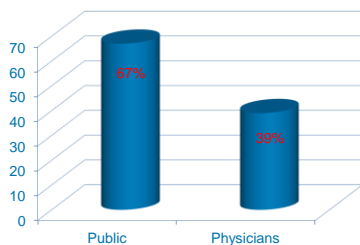
One of the major themes is the importance of teams delivering care to patients and populations

Committee on Quality of Health Care in America. Crossing the Quality Chasm: A New Health System for the 21st Century. *Institute of Medicine*, 2001.

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Lack of Communication and/or Teamwork as Preventable Cause of Error



* R.J. Blendo. Views of Practicing Physician and the Public on Medical Errors. *N Engl J Med* 2002; 347:1933.

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Institute of Medicine

Improving Diagnosis in Health Care

Quality Chasm Series



Getting the right diagnosis is a key aspect of health care: It provides an explanation of a patient's health problem and informs subsequent health care decisions. For decades, diagnostic errors— inaccurate or delayed diagnoses—have represented a blind spot in the delivery of quality health care. Diagnostic errors persist throughout all settings of care and continue to harm an unacceptable number of patients.

Committee on Diagnostic Error in Health Care, National Academies of Science, Engineering, and Medicine. Washington, DC: National Academies Press; 2015. Paperback ISBN: 978-0-309-37789-0

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From DNE: <https://www.ohiohealth.com/ohiohealth/committees/diagnostic-error-in-health-care/>

EN2

Goals for Improving Diagnosis and Reducing Diagnostic Error

1. Facilitate more effective teamwork in the diagnostic process among health care professionals, patients, and their families
2. Enhance health care professional education and training in the diagnostic process
3. Ensure that health information technologies support patients and health care professionals in the diagnostic process
4. Develop and deploy approaches to identify, learn from, and reduce diagnostic errors and near misses in clinical practice
5. Establish a work system and culture that supports the diagnostic process and improvements in diagnostic performance
6. Develop a reporting environment and medical liability system that facilitates improved diagnosis by learning from diagnostic errors and near misses
7. Design a payment and care delivery environment that supports the diagnostic process
8. Provide dedicated funding for research on the diagnostic process and diagnostic errors

Committee on Diagnostic Error in Health Care, National Academies of Science, Engineering, and Medicine, Washington, DC: National Academies Press; 2015. Paperback ISBN: 978-0-309-37769-0.

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Goals for Improving Diagnosis and Reducing Diagnostic Error

RECOMMENDATION 7A

1. As long as fee schedules remain a predominant mechanism for determining clinician payment, the Centers for Medicare & Medicaid Services (CMS) and other payers should:
 - Create current procedural terminology (CPT) codes and provide coverage for additional evaluation and management activities not currently coded or covered, including time spent by pathologists, radiologists, and other clinicians in advising ordering clinicians on the selection, use, and interpretation of diagnostic testing for specific patients.
 - Reorient relative value fees to more appropriately value the time spent with patients in evaluation and management activities.
 - Modify documentation guidelines for evaluation and management services to improve the accuracy of information in the EHR and to support decision making in the diagnostic process.
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Communication

Significant percentages of the clinical decision are based or influenced by laboratory results alone*.

*The Lewin Group. The Value of Diagnostics Innovation, Adoption and Diffusion into Health Care. Report prepared for The Advanced Medical Technology Association. Available at: <http://www.ama-assn.org>

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Laboratory and the Patient's Healthcare Continuum

George Lundberg (JAMA 1981;245:1762-1763) The brain-to-brain turnaround time loop

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In order to be effective and efficient, the key word for healthcare should be communication

- Nurse → Direct Patient Contact
- Laboratory → Clinical Data Producer

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We are Different

Nursing	Laboratory
<ul style="list-style-type: none"> • Policies • State Laws • Most trusted profession* 	<ul style="list-style-type: none"> • SOPs • Federal Law (CLIA) • <i>What happens in the lab stays in the lab</i>

But Complementary

* Gallup's annual most trusted profession survey (Nurses have topped the list every year but one since Gallup first asked about them in 1999)

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How to Work Successfully With Nursing

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Examples of Laboratory/Nursing projects and their impacts

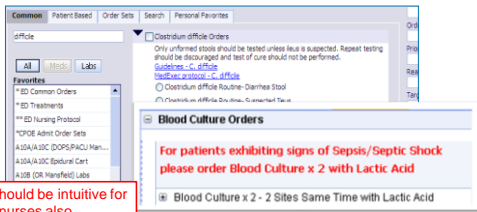
1. Support
 - Orders
 - Issue/problems
2. Education
3. Patient Advocacy
4. Interpretation
5. Infection Control Initiatives

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1-Orders Support

- Consult
- Computerized Physician Order Entry (CPOE)
 - Evidence Based Order-Sets (with Laboratory input)



Orders should be intuitive for nurses also

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1-Issue/problems Support

- Questionable results
- Discrepancy between analytical value and the patient's clinical picture

Sometimes nurses will question lab results before the doctor even see them

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2-Education (For Nurses Exclusively)

- To address Issues
 - "Understanding Critical Result Values"
- To create Lab/Nursing Teamwork
 - "Clinical Laboratory Tests for Nurses" Series (since 2007)
- To launch Hospital's Improvement Projects
 - "First Increased Troponin-I Alert Project"
 - "New Method of Clostridium difficile Testing"

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Clinical Laboratory Tests for Nurses

Eugenio H. Zabeleta, Ph.D.

Lab Test Performance

- Analytical Performance
 - Accuracy, reproducibility and precision
 - MLT/MT (Clinical Chemist &/or Pathologist)
- Clinical Performance
 - Sensitivity and specificity
 - Physician (Clinical Chemist &/or Pathologist)

CLIA

- Clinical
- Laboratory
- Improvement
- Amendments

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Case #1 (Disagreement between Analytical and Clinical Performance of a lab test)

- A fifty year-old-male is diagnosed with Chronic Lymphocytic Leukemia
- Plasma K⁺ was critical high
- The nephrologists and Lab decided to evaluate the patient's K⁺ level with different techniques (communication)
- Final Diagnosis (related to the K⁺ issue): pseudohyperkalemia with Leukocytosis, due to volume depletion

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2-Education (Feedback)

Hi Dr. Eugenio,

Thank you so much for your clinical lab presentation with the nurses here last week at Ohio Eastern Star. You did a fantastic job. Your humor, enthusiasm, and associations turned a very boring topic into a successful, teaching power-point and a great reference tool. The feedback that I received from the nurses was nothing but positive. Please keep me in the loop when you are teaching other topics that might benefit our staff. I look forward to seeing you again. I can't thank you enough!!!!

Sincerely,
Heather Swihart LPN
Staff Development Coordinator
Ohio Eastern Star

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2-Education (Feedback)

How do you plan to use the information provided in your current practice? (Hospital's Nurses)

- "I follow pt.'s lab values closely" **Reason**
- "Recognize false readings." **Problems/Limitations**
- "To better interpret values and how they are specific to that pt's disease/disorder process" **Personalized**
- "Help to correlate S/S with lab values" **Time**
- "If I have questions or concerns regarding lab results I will speak with the lab department to help solve the problem" **Teamwork**

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3-Patient Advocacy (Clostridium difficile Project)

- Over utilization of *C. difficile* Testing
- Confusing contingency orders
- Change in evidence
 - Toxin A/B EIA is insensitive (false negative) and no longer recommended as a stand alone test
 - Diarrheal Stool
 - No repeat testing or test of cure

Common Patient Based Order Sets Search Personal Favorites

of/cdifficile

Clostridium difficile Orders

Only unformed stools should be tested unless Iru is suspected. Repeat testing should be discouraged and test of cure should not be performed.

[Guidelines - C. difficile](#)

[Tested Contingency - C. difficile](#)

Clostridium difficile Routine- Diarrhea Stool

Clostridium difficile Routine- Suspected Iru

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Clostridium difficile Project Utilization Impact (90 days)

	Both	Inpatients	Outpatients
Pre-Algorithm	910	472	438
1- Sample Collection (CPOE physicians/Nursing)			
Post-Algorithm	640	238	402
Reduction (sample collection)	270	234 (49.6%)	36 (8.2%)
2- Specimen Processing (Lab personnel/IT)			
Received (lab)	640	238	402
Formed Stools	157	29 (12.2%)	128 (31.8%)
Previous Result	58	22 (9.2%)	36 (9.0%)
Testing Performed (post)	423	187 (78.6%)	236 (58.7%)

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Clostridium difficile Project Clinical Impact (Patients diagnosed with CDI)

Inpatients with "+ C. Diff. results	LOS (days)
Pre-Algorithm	12.9
Post-Algorithm	8.4
Reduction	4.5

The laboratory cost for *C. difficile* testing decreased 23% (from \$5468.17 to \$3972.66 per month)

Analytical Performance Nursing/Lab

Test of Cure Social Workers

Patient Advocacy (To Home ASAP)

Resulting in an average total hospital cost savings per patient of \$9,849.50; this translates into a total annual savings of approximately \$1.1 million per year.

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4-Interpretation EHR screenshot

No Organisms Detected
This is not a Critical Result

Microbiology

Rapid DNA Id of Micro-organisms

Interpretation (PCR)

1. *Escherichia coli* K1 PCR
2. *Haemophilus influenzae* PCR
3. *Listeria monocytogenes* PCR
4. *Neisseria meningitidis* PCR
5. *Streptococcus agalactiae* PCR
6. *Streptococcus pneumoniae* PCR
7. *Cytophaga* PCR
8. *Enterovirus* PCR
9. *Human Herpesvirus 8* PCR
10. *Herpes simplexvirus 1* PCR
11. *Herpes simplexvirus 2* PCR
12. *Human parvovirus* PCR
13. *Varicella zoster virus* PCR
14. *Cytosococcus neoformans* (gII) PCR

Sample of micro results and the Rapid DNA ID results

If you click the report, you will be able to see the complete interpretation

None of the Organisms below were detected by the Rapid DNA ID ; Bacterial Culture In Progress

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4-Interpretation EHR screenshot

One Organism Detected
This is a Critical Result

The interpretation number corresponds to the numerical list of organisms

Human parvovirus detected by the Rapid DNA ID

Critical Result

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4-Interpretation (Troponin) EHR screenshot

First Clinical Significant change -requires urgent notification-

The medical technologist will be alerted in the LIS to call the floor

At this moment, we are interpreting ctn's in a 12-hour window, further discussion to follow

36 hours 8 hours 4 hours Time 0

Troponin-I (< 0.040)

Troponin-I Alert

Troponin-I Comment

27.656 ± 4 H

99.408 ± 4 H

2.563 ± 1 H

0.010 ± 1 H

Normal No phone call

The cTn is still rising, but the clinicians are aware, no further call is required as designed per cardiology/lab

If the clinician click on the report icon they will see the full interpretation

Consistent with acute myocardial injury

26 2014 Clinical Practice Guidelines (CPGs) from AHA/ACC for the Management of Non-STEMI ACS

5-Infection Prevention and Control Initiatives

Carbapenem-Resistant Enterobacteriaceae (CRE)

Detect and Protect

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Liz DeHaan, R.N.

Following the CLSI and CDC guidelines CRE classification is based on the new (lower) breakpoints of the antimicrobial sensitivity alone.

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CRE are epidemiologically important for several reasons:

- CRE have been associated with high mortality rates (up to 40to 50% in some studies).
- In addition to β -lactam/carbapenem resistance, CRE often carry genes that confer high levels of resistance to many other antimicrobials, often leaving very limited therapeutic options. "Pan-resistant" KPC-producing strains have been reported.
- CRE have spread throughout many parts of the United States and have the potential to spread more widely.

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CRE-Implementation Highlights

- When an organism is found to be CRE, the report will include the following comment:
 - "This organism is CRE as defined by Clinical and Laboratory Standards Institute (CLSI M100-S23) and endorsed by the CDC."
- ESBL and modified Hodge testing will not be performed.
- When a CRE organism is isolated from a patient's specimen, the result is automatically made into a notification by the Rules and Workflow Engine Alerts engine in the EMR.

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Automatic notification of positive results

- Automatic notification of positive results to Nursing and Infection Prevention and Control personnel:
 - CREs
 - MRSAs
 - VREs
 - Flu A&B
 - C. difficile

The automatic notification improve Nursing, Infection Prevention and Control and Lab departments workflow and decrease cost of the three departments.

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How to Work Successfully With Nursing

- Establish a Strong Lab-Nursing team (pillars)
 - Respect
 - Equality
 - Understand each others strength, weakness, workflow, regulations
- Analysis of current process and a commitment to allow change
- Clear project's goals and objectives
 - Including education when necessary (for lab and nursing)
- Lab and nursing administration commitment (VPN support/lab champion?)
- Analysis of pre- and post-implementation metrics
- Close the loop (clear and frequent communication among the team members)
 - Monitor: progress, set backs, new problems
 - Learn from your mistakes

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Conclusion

Teamwork clearly strengthens the ability of nurses, laboratorians, physicians and other health care providers to provide higher quality, more efficient care, and increase patient safety, while containing cost!

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Questions?

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