

# Clinical Laboratory Integration into Healthcare Collaborative CLIHC™

**CLIAAC Meeting  
August 30, 2011**

**Julie R. Taylor, Ph.D.**

**Division of Laboratory Science and Standards**

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Office of Surveillance, Epidemiology, and Laboratory Services  
Laboratory Science, Policy, and Practice Program Office



# Overview

**Introduction to CLIHC™**

**CLIHC™ Strategic Planning**

**Clinician Test Selection and Result Interpretation**

**Survey of Clinician Practices**

**Diagnostic Algorithms**

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# CLIHCTM's Origins

- **Precursor to CLIHCTM: 7 Institutes held at CDC between 1984 and 2007**
  - DLSS and experts in the laboratory field (national and international)
  - Discussed the role of clinical laboratories in providing quality testing services for improved patient outcomes
  - Found gaps in the effective use of laboratory services
- **CLIHCTM = *Clinical Laboratory Integration into Healthcare Collaborative***
  - Founded in 2008
  - Organized as response to 2007 Institutes' findings

# **CLIHCTM's Goal**

**Optimize the utilization of  
laboratory services for better  
patient care**

## CLIHCTM Workgroup – Atlanta – April 2012



(Left to Right): Dr. John Hickner, Ms. Elissa Passiment, Dr. Jim Meisel, Mr. Paul Epner, Dr. Michael Laposata, and Dr. Marisa Marques (not pictured – Dr. Brian Smith)

# CLIHC™ Workgroup Support

## Altarum:

- Kim Bellis
- Brian Jackson (ARUP)
- Jim Lee
- Dana Loughrey
- Megan Shaheen
- Tom Wilkinson

## CDC:

- Julie Taylor (CLIHC™ Lead)
- Diane Bosse
- Nancy Cornish
- MariBeth Gagnon
- Anne Pollock
- Pam Thompson

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# CLIHCTM Strategy Meeting

## When:

- June 19 & 20, 2012

## Where:

- Atlanta, Georgia

## Goals for meeting:

- Generate ideas for new projects
- Provide input for CLIHCTM's  
3 - 5 year strategic plan

# CLIHCTM's Strategy Meeting Roster

**Rev. Eugene Augustine**  
*Patient Advocate*

**Dr. Mary Lou Gantzer**  
*BioCore Diagnostics, LLC*

**Dr. Connie Miller**  
*Centers for Disease Control and  
Prevention*

**Dr. Carol J. Bickford**  
*American Nurses Association*

**Dr. Kathleen Haddad**  
*American Institutes for Research*

**Dr. John Olsen**  
*College of American Pathologists*

**Dr. Philip Castle**  
*American Society for Clinical  
Pathology Institute*

**Dr. James Hernandez**  
*Mayo Clinic (Arizona)*

**Dr. Anton Piskac**  
*Nebraska Methodist Health  
System*

**Dr. Wendy Delaney**  
*Vickery Pediatrics (Georgia)*

**Dr. John Hickner**  
*Cleveland Clinic*

**Dr. Richard Rainey**  
*Blue Cross/Blue Shield Association*

**Dr. David Edwards**  
*Banner Healthcare*

**Dr. Lee Hilborne**  
*University of California, Los  
Angeles*

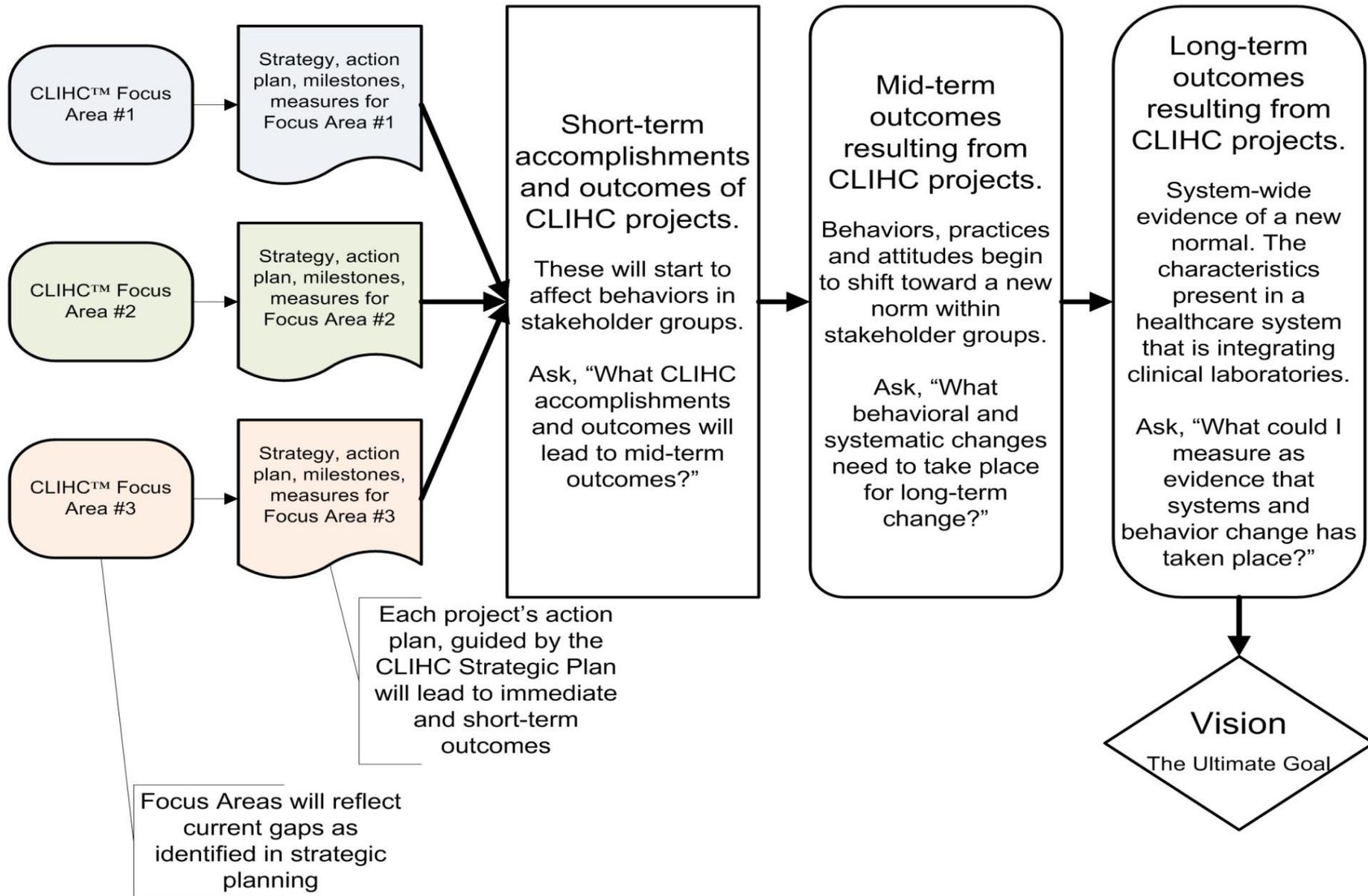
**Ms. Jennifer Rhamy**  
*The Joint Commission*

**Dr. John Fontanesi**  
*UCSD School of Medicine*

**Dr. Mike Laposata**  
*Vanderbilt University School of  
Medicine*

**Dr. Gordon Schiff**  
*Brigham and Women's Hospital*

# Conceptual Model of CLIHC™ Strategic Plan



# CLIHCTM Strategic Planning

## Challenges for optimal utilization of lab services

- Lack of valuable decision support tools
- Lack of clinician knowledge about appropriate test selection and test result interpretation
- Lack of organizational structures to support consultation between laboratory professionals and other healthcare professionals
- Lack of evidence for best practices and measures of errors in test selection and result interpretation
- Lack of integration of laboratory information into practice

# CLIHCTM Strategic Planning

## Next steps for new projects:

- Design optimal laboratory utilization strategies
- Prioritize by benefits and feasibility
- Define intermediate and long-term measures of impact
- Strategic integration of resources:
  - CDC DLSS staff
  - CLIHCTM WG partners
  - Stakeholders

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# Clinicians' Challenges in Test Ordering and Interpretation of Test Results

Project Leads – John Hickner, MD, MSc & Paul Epner, MEd, MBA

## Goal:

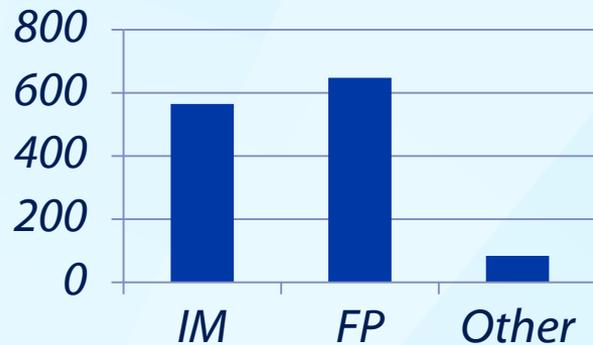
- Raise awareness of the challenges clinicians face in test ordering and result interpretation

## Methods:

- Phase 1 - Conduct focus groups targeting family physicians and internal medicine physicians
- Phase 2 - Using information from Phase 1, design a national survey of family physicians and internal medicine physicians

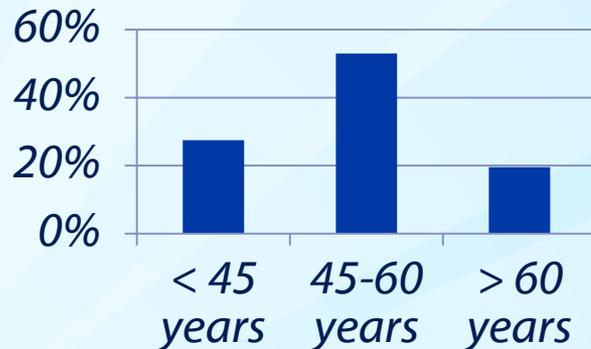
# Demographic Characteristics of Respondents\*

## Specialty

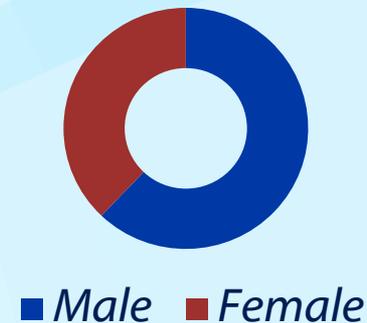


Median years in practice = 20

## Age



## Gender



\*N=1768, ~1250 fully complete

# Summary of Findings

- **Test Ordering**
  - Dealing with Uncertainty
  - Challenges in Test Ordering
- **Result Interpretation**
  - Dealing with Uncertainty
  - Challenges in Result Interpretation
- **Methods for Providing Assistance**
  - Communicate with Laboratory Professionals
  - Methods that Assist Physicians

# Dealing with Uncertainty in Test Ordering

Review e-references	
Review paper references	
Refer to specialist	
See how patient progresses	
Review practice guideline	
Ask a laboratory professional	

**\*Based on percent reporting that the activity occurred daily or at least once per week**

# Dealing with Uncertainty in Test Ordering

Review e-references	Utilized most often*
Review paper references	
Refer to specialist	
See how patient progresses	Utilized often
Review practice guideline	
Ask a laboratory professional	Utilized least often

**\*Based on percent reporting that the activity occurred daily or at least once per week**

# Challenges in Test Ordering

Patient costs	
Lack of comparative cost info	Problematic most often*
Insurance mandates (lab, limits)	
Different test in panel	
Different test names	Problematic often
Test not available	
Differing recommendations	
Communicating with the lab**	Problematic least often

**\*Problematic at least once per week**

**\*\*"Ask a laboratory professional" utilized least often**

# Dealing with Uncertainty in Result Interpretation

Review patient history Follow-up with patient	Utilized most often*
Review e-references	
Order more tests	Utilized often
Refer to a specialist	
Ask PCP or specialist Review practice guideline or paper references Repeat the test	Utilized less often
Ask a laboratory professional	Utilized least often

**\*Based on percent reporting that the activity occurred daily or at least once per week**

# Challenges in Result Interpretation

Not receiving results quickly	Responded as problematic most often*
Previous results unavailable	
Suspected errors in results	
Results inconsistent with symptoms	Responded as problematic
Lab to lab variation in normal values	often
Report format (lab to lab variation, hard to understand)	
Not enough info in lab report	
Difficulty communicating with labs**	Responded as problematic
Too much info in lab report	least often

**\*Based on percent reporting it was extremely or very problematic**

**\*\*"Ask a laboratory professional" utilized least often**

# Summary of Findings

- **Test Ordering**
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# Reasons Physicians Communicate with Laboratory Professionals

Status of missing results	
Preliminary result information	Communicate most often*
Seeking technical assistance regarding sample collection	
Location of test in menu	Communicate less often
Assistance with appropriate test ordering	
Assistance with follow-up testing	
Medical opinion of results	Communicate least often

**\*Based on percent reporting the activity occurred at least once per month**

# Methods that Assist Physicians

<u>METHOD</u>	<u>USEFULNESS*</u>	<u>AVAILABILITY**</u>
Reflex Testing	High	High
Result Trending	High	High
Interpretive Comments	High	High
CPOE with electronic suggestions	Moderately high	Lowest
Test characteristics	Moderately high	Low
Dedicated lab line	Moderately high	Low
Algorithms	Moderately high	Low

\* Based on percent reporting it was very to extremely useful

\*\*Based on percent reporting it was available

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# Diagnostic Algorithms

Project Leads – Michael Laposata, MD, PhD and  
Marisa B. Marques, MD

## Goals:

1. Develop diagnostic algorithms for selected scenarios showing appropriate laboratory test to guide diagnosis and patient care
2. Develop information technology tools to guide appropriate laboratory test selection

# Goal 1: Develop Algorithms

## Method:

Three clinical pathologists with expertise in coagulation created algorithms for evaluating patients:

- Prolonged Partial Thromboplastin Time (PTT)
- Normal Prothrombin Time (PT)

## Article:

*The isolated prolonged PTT*; Oxana Tcherniantchouk, Michael Laposata, and Marisa B. Marques; American Journal of Hematology, 2012

<http://onlinelibrary.wiley.com/doi/10.1002/ajh.23285/full>

# Goal 2: Develop IT Tools

## Method:

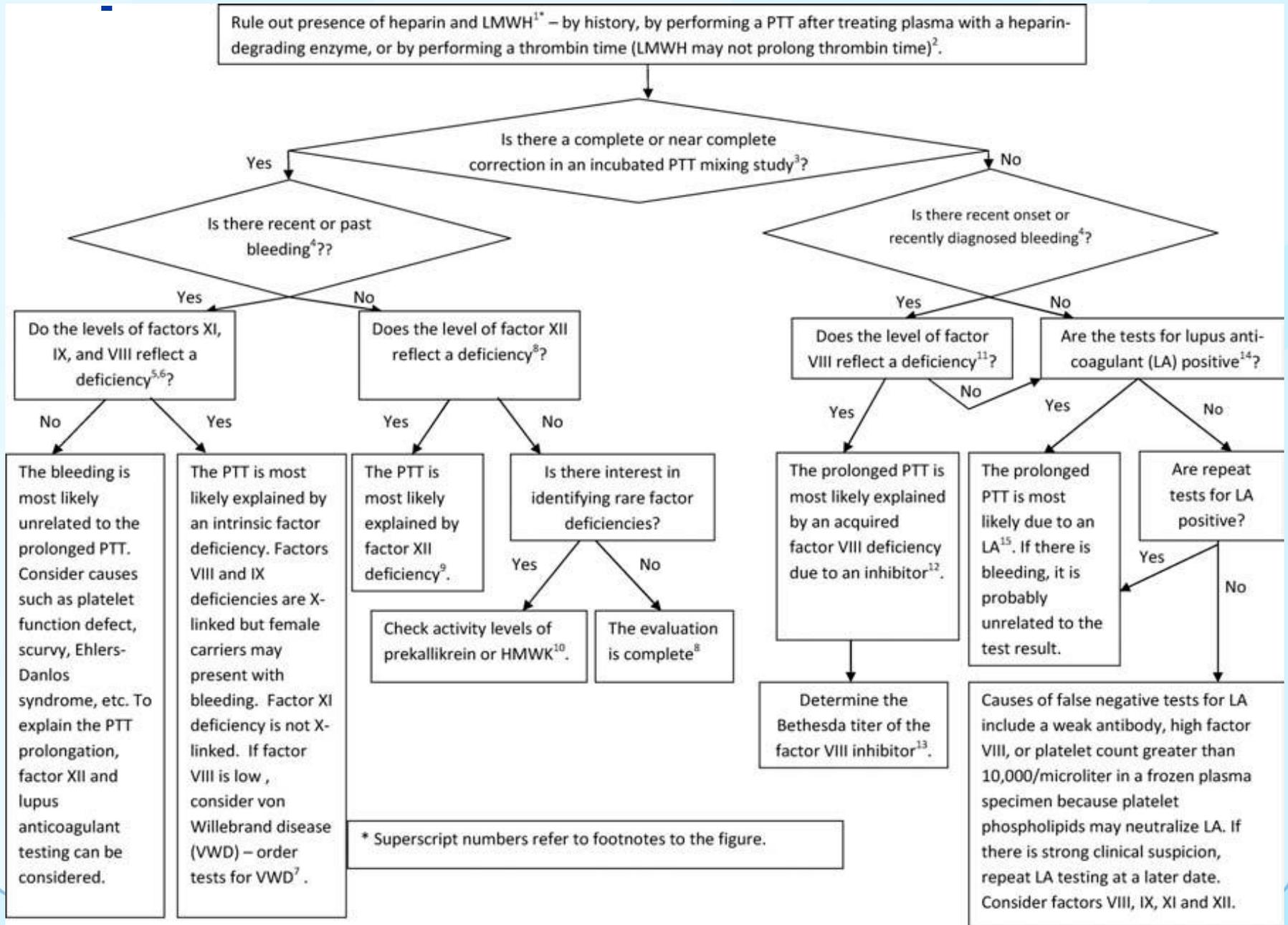
### CDC Innovations Award Partnership:

- CLIHC™ Algorithm Subgroup
- CDC Division of Laboratory Science and Standards
- CDC Public Health Surveillance & Informatics Program Office (Proposed)

## IT Tool:

- PTT Advisor App with algorithms for the isolated PTT

# The mobile app takes what is below and turns it into ----



  **PTT Advisor** [Footnotes](#)



To Begin,  
Describe Your Patient

Does the patient have prolonged  
PTT and normal PT?

**Yes**

**No**

Step 1



For More Information Please Contact:

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## **Questions for CLIAC During CLIAC Discussion**

- ❑ What has CLIHC™ neglected to consider for laboratory integration?**
- ❑ What clinical decision support tools would be most effective for laboratory test selection and result interpretation?**
- ❑ Who else would be effective partners for CLIHC™ projects?**