Abington Jefferson Health

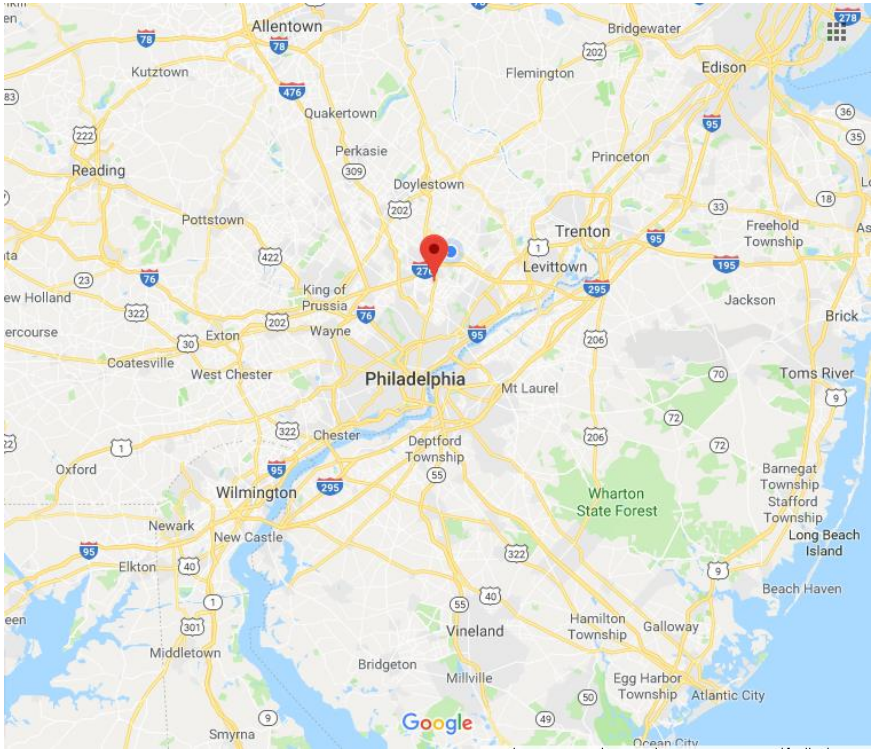
Stepping Up to the Plate with a Bottle:
Best Practices and Multidisciplinary Care for Timely Blood Cultures

Kristin M. Noonan, MD, FACS, FASMBS
Gina Stone, RN-BC, BSN
Abington Hospital Jefferson Health
2 Lenfest Med-Surg

Learning Objectives

- 1) Appreciate the insight of front line providers in identifying potential opportunities for improvement
- 2) Understand how work-arounds develop and hinder quality care
- 3) Utilize multidisciplinary approaches, existing resources and intrinsic motivation to rapidly change practice to enhance quality and improve diagnosis

Abington Hospital Jefferson Health



2 Lenfest Pavilion- “2L”

Bacteremia / Blood Cultures

- ~**700 blood cultures** per year ordered on 2L
- Most related to sepsis, fever or leukocytosis- postop
- Nursing policy for >10y: non-ICU nurses cannot draw BC due to concern for contamination
- Important for diagnosis of bacteremia/fungemia in known or suspected sepsis, meningitis, osteomyelitis, arthritis, endocarditis, peritonitis, pneumonia, and fever of unknown origin.
- Bacteremia/fungemia may progress to sepsis/septic shock/MSOF with high morbidity/mortality if undetected.
- Timing of blood cx after fever does not impact likelihood of positivity, but delay does increase time to diagnosis of blood stream infection and blood cx should be drawn before antibiotic administration.

And so…… the WORK AROUND

- Surgery residents are not trained or skilled in phlebotomy.
- Surgery residents are not trained to draw sterile blood cultures.
- Nurses are not trained or permitted to draw blood cultures.
- Residents and nurses both want cx drawn quickly for diagnosis……

Nurse sticking vein

Resident pushing bottle on vacutainer

Bacteremia / Blood Culture SBAR

- Situation: There is a significant delay in 2L patients having blood cultures drawn after physician order for fever workup.

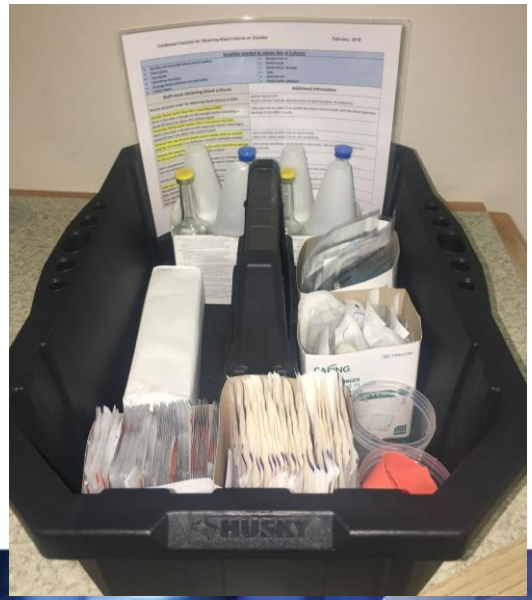
- Background: Nurses are not allowed to draw blood cultures. Septic and postoperative patients >48h postop with high fevers (>101.5F) are often ordered by physicians for blood cultures. Given limited resources, lengthy delays can occur prior to phlebotomy obtaining ordered blood cultures and unreliable work-arounds are employed.

- Assessment: Delay in blood culture draws may lead to substantial delays in diagnosis of bacteremia and appropriate treatment in vulnerable septic and postoperative patients.

- Resolution: The 2L working group will develop a program to facilitate nursing draws of blood cultures.

Plan-Do-Study-Act

- Plan:
  - Stakeholders: nurses, residents, nursing leadership, epidemiology, nurse educators, phlebotomy, micro laboratory
  - Resources: blood culture box, training modules/time, stockroom
  - Barriers: nursing workflow, new/float nurses, variety of service lines
  - Competency: expectations, training, documentation, maintaining
  - Attitudes: resident / epi /nursing buy in



Plan-Do-Study-Act

- Do:
  - Jan 2018-10 nurses were trained across all shifts
  - 10 more nurses were trained each quarter of 2018
  - Surgery and Medical Residents were informed of expectations
  - Nursing advocacy to draw
  - Educator Support

Obtaining Blood Cultures

2Lenfest Competency

Maryann J. Pagano, MSN, RN CMSRN

Nurse Educator

Aseptic Technique

Plan-Do-Study-Act

- Study:
  - Quarter 1 of CY 2017: 154 non-surveillance blood cx drawn on 2L
    - 30% were “nursing draw/work arounds” (avg time to draw ~2h)
    - 70% were phleb draw (avg time to draw ~4.5h)
    - Excluding routine follow up cx, average time from order to draw was ~3.5h
  - Quarter 4 of CY 2018: 110 non-surveillance blood cx drawn on 2L
    - 49% were trained nursing draw (avg time to draw ~2h)
    - 51% were phleb draw (avg time to draw ~5.75h)
    - Excluding routine follow up cx, average time from order to draw was ~4h

- **No increase in blood cx bottle contamination: 1 contaminant each from CY 2017 and CY 2018
- 83% of workarounds were facilitated by surgery residents, and now 83% of nurse draws were ordered by surgical residents

Plan-Do-Study-Act

- Act:
  - Growing
    - Now ~50% of nurses on 2L are competent to draw, goal 100%
    - Universal training will decrease nurse draw times and % nurse draws
    - Annual competency update due to low volume per nurse
  - Education
    - Persistent phleb draws in surgical subspeciality patients
    - Persistent phleb draws in medical patients
    - Medical consultants (particularly Infectious Disease) are unaware of 2L ablity to nurse draw and often order phleb draw
  - Spreading practice
    - Preop holding area, ER and other med surg floors are following suit.
    - Discussed at March 2019 Infection Control Committee meeting

Where are the EYES and EARS??

- Culture of Safety / Just Culture
- Front Line Staff- engage and listen
- High Reliability Organization expectations

Hindering Diagnosis:

- Delays to radiological imaging…
- Delays in draws/results for morning labs….
- Delays in being able to reach doctors / APPs with data…
- Delays in access to outpatient clinics…
- Delays in ancillary services- sleep studies, PT, etc
- Inaccessible diagnostic tests
- Lack of appropriate staff
- ???

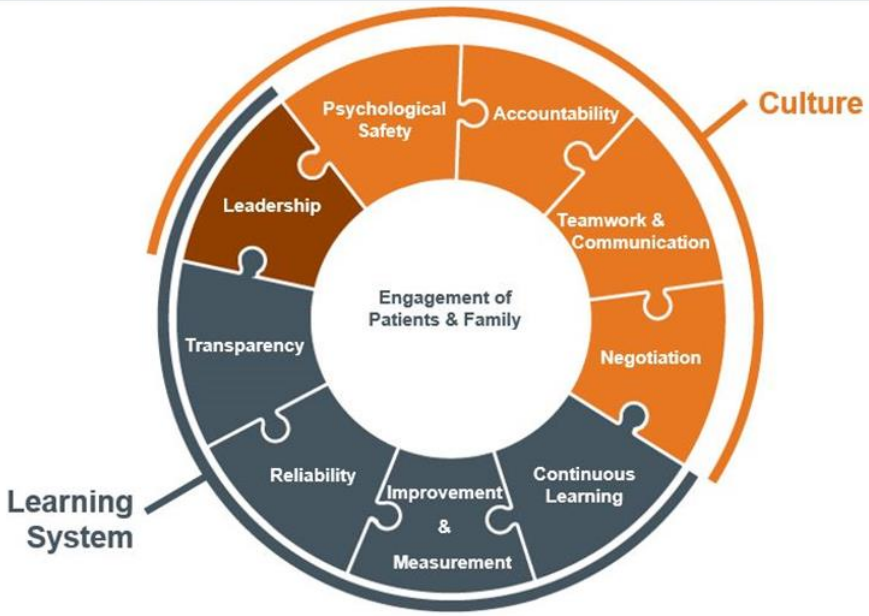
Small group work

- ~10 min to work in small groups
- Select an original hindrance to diagnosis
- Plan an intervention, identify resources, barriers, stakeholders, who needs to buy in
- Determine what you are going to measure and how (must be sustainable….)
- How you would measure success and how you would expand?

Reconvene

- Discuss small group work
- Themes, resources, barriers
- HRO, culture of safety, engaging the front line staff

Framework for Safe, Reliable, and Effective Care



Source: Frankel A, Haraden C, Federico F, Lenoci-Edwards J. *A Framework for Safe, Reliable, and Effective Care*. White Paper. Cambridge, MA: Institute for Healthcare Improvement and Safe & Reliable Healthcare; 2017. (Available on ihi.org)