Sutter Roseville Medical Center
Roseville, CA
Improved Lactate Turnaround Time in Suspected Sepsis

Problem – Serum lactate processing times delay identification and management of severe sepsis.

Aim – Replace serum lactate with VBG lactates receive lactate results <15 minutes from draw.

Intervention(s)

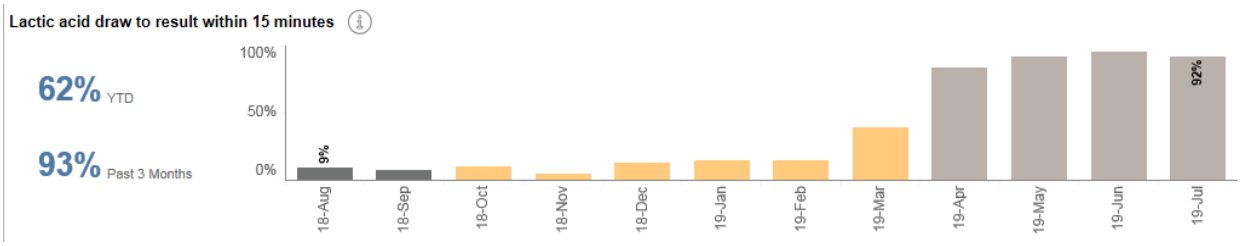
- Modify provider order sets and nursing standardized procedures to replace serum lactate with VBG lactate.
- Designate "Sepsis RT" to respond to calls to receive and process VBG lactates.
- Train ED phlebotomists to collect VBG specimens so that lobby draws can occur.
- Create EHR task that is generated when VBG ordered to prompt RNs to collect specimen when necessary.

Measures/Indicators

- Lactic acid draw to result within 15 min
- ED Arrival to lactic acid result within 60 min
- Lactic acid result to antibiotic administration within 60 min

Results –

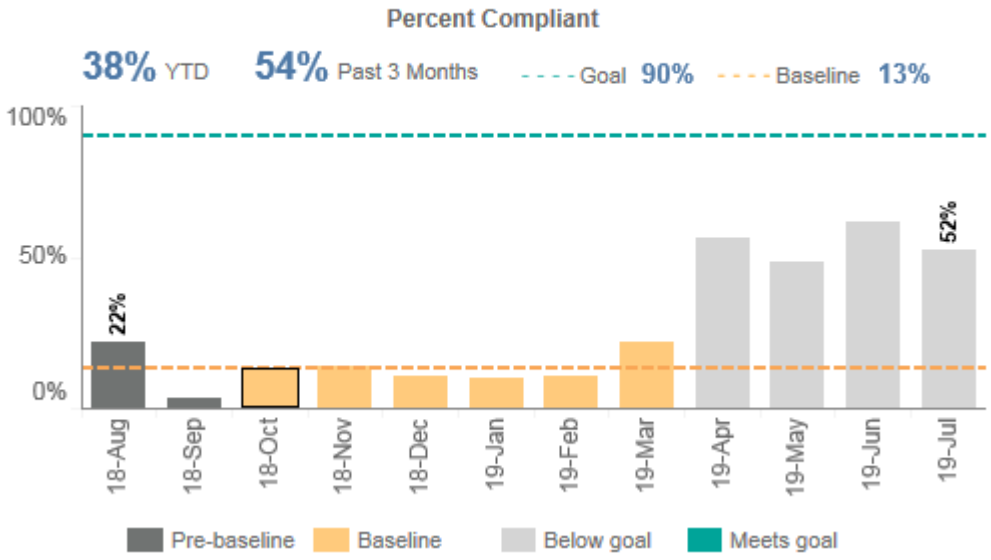
- Result within 15 min improved from 23% pre intervention to 90.5% post intervention
- ED arrival to result within 60 min improved from 11.1% pre intervention to 54.8% post intervention
- Result to antibiotic administration within 60 min with small improvement, 45.4% to 51.7%



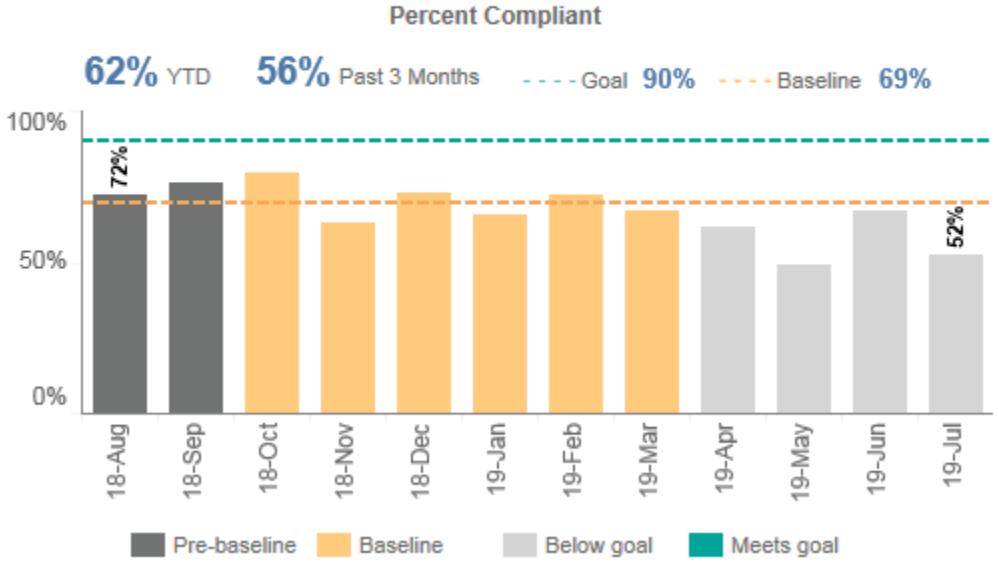
EMERGENCY NURSING2019

Education and Networking

ED arrival to lactic acid result within 60 minutes



Lactic acid result to antibiotic administration within 60 minutes



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Lessons Learned –

- Interdisciplinary process improvement projects must include representation from all departments during development in order to accurately anticipate and identify barriers and opportunities for improvement.
    - Ancillary service lines (lab and RT) worked out process for VBG draws and determined a start date without involvement of ED leadership. This led to workflows based on a 3 year old standard work document which was no longer relevant.
        - Lab thought an overhead page would be called on all positive sepsis screens thus alerting them that a VBG was ordered. However, sepsis alerts are rarely called in the ED, and never announced in the ED lobby.
        - Once the plan was shared, ED Leadership called an urgent meeting with stakeholders to debrief and come up with an alternate plan. Because VBGs are technically an "RT" order, no task was generated to notify lab that one was ordered. Also, while RNs could see the order initially, it would disappear once acknowledged and didn't populate with other lab values, leading to frequent misses. While more permanent EHR solutions were pursued, a temporary fix was put in place where lab and nursing would watch for blood culture orders and draw a VBG whenever they were seen. Through strong advocacy we were able to fast track the EHR solutions, causing lab requisitions to auto print in the lobby for lab draws occurring out there, and nursing collection tasks to populate so that RNs would have a similar trigger.
- The team should make every effort to address process concerns prior to implementation to mitigate as many barriers as possible.
    - As shared above, the new workflows were developed without ED leadership involvement. This led to the team not considering certain issues (such as physician and nursing barriers to orders, EHR triggers, and concerns regarding prioritization of waiting patients). The ED team asked to delay roll out until those concerns could be addressed but leadership did not believe the issues were large enough to delay.
        - ED leadership did independent close monitoring after go live to monitor performance and identified several issues—missed draws, duplicate draws, RNs and phlebotomists acting out of scope, and increased fallouts from sepsis bundle.
        - This information was distributed to the team and escalated to high level leaders. We were able to use our data to fast track EHR enhancements for our site, and mandate that they were in place for other affiliates prior to implementation there.

Next Steps

- Worked with EHR team to generate nursing and phlebotomy tasks to improve awareness of VBG order and reduce incidences of duplicate draws
- Worked with RT to reduce unnecessary critical value reporting (such as PO2 on a VBG)
- Current workgroups to design experiments to improve times from result to antibiotic order entry and administration

Contact Information

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