

HyperK at HCA: A stepwise investigation into potential contributing factors

Kayla DeVincentis, Matt Germak MD, Whitney Griesbach, Gila Kriegel MD, Gina McCormack, Heather Wathey

Beth Israel Deaconess Medical Center

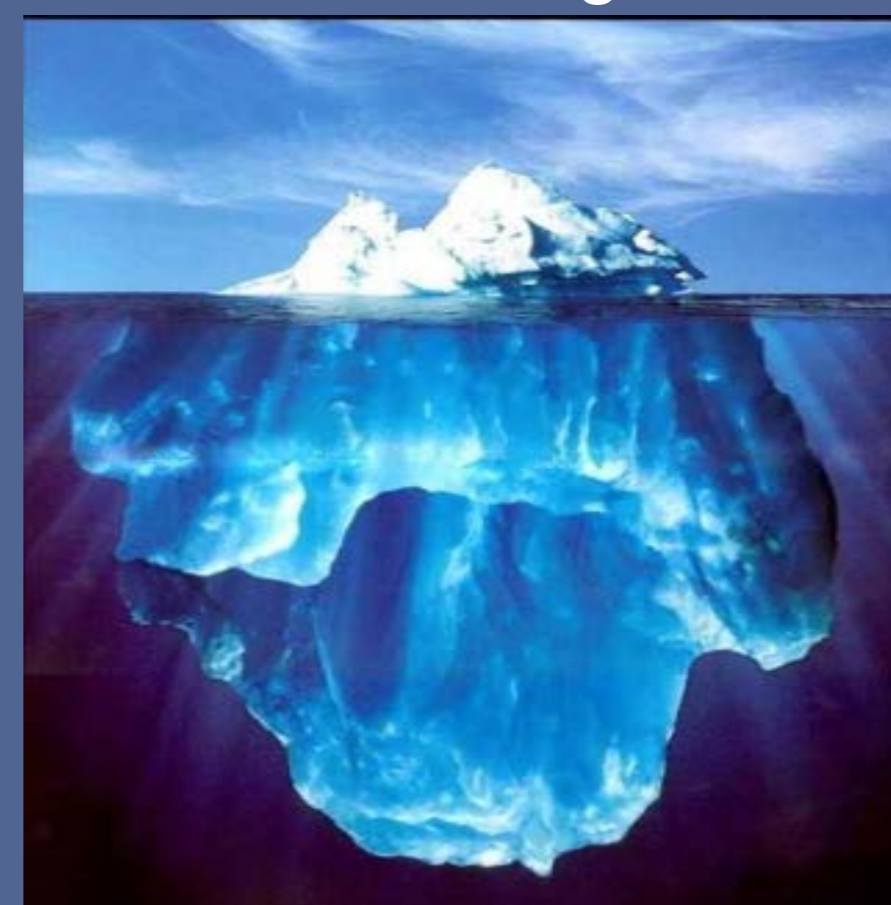
Introduction/Problem/Risk

Spurious potassium elevation (pseudohyperkalemia) has many potential etiologies and significantly impacts quality and patient safety.

Since May 2017 at Healthcare Associates (HCA), over 20 providers have reported approximately 70 cases of potential pseudohyperkalemia to the HCA QI team. Initial potassium levels have ranged from 5.1-9.3 mEq/L. In most cases, repeat potassium testing was in the normal range.

What are the risks involved?

- Suboptimal quality – safe, timely, effective, efficient, patient-centered
- Unnecessary concern and frustration for patients, providers and staff
- Increased utilization and expense (repeat lab tests, parking, ED visits)
- Do the reported cases represent only the tip of the iceberg?
 - e.g., masked hypokalemia
- Might this be a problem outside of HCA? What's the organizational impact?



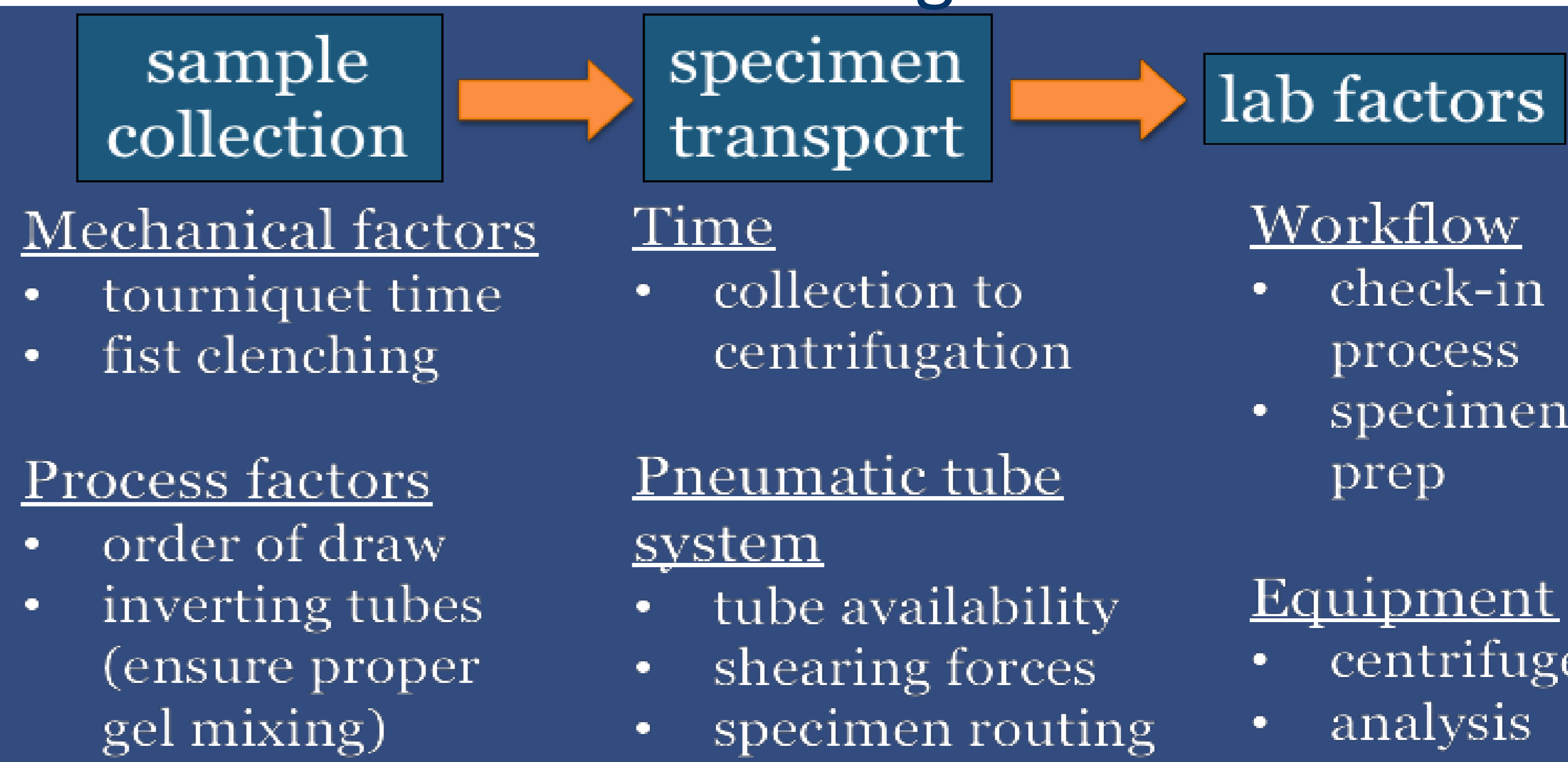
Objective

Our objective is to systematically investigate potential root causes and contributing factors in order to mitigate future risks related to this issue. In addition, we continue to provide appropriate service recovery for affected patients.

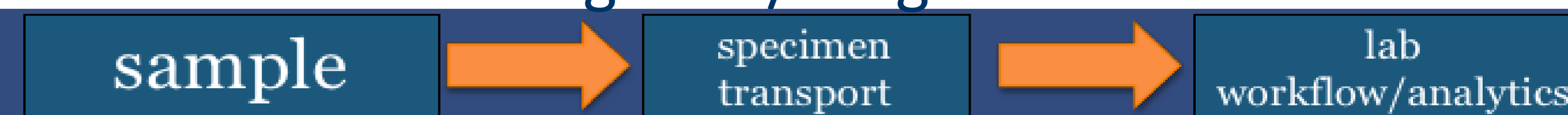
The Team

- Kayla DeVincentis – Project Manager, Healthcare Associates
- Whitney Griesbach – Practice Manager, Healthcare Associates
- Matt Germak MD – QI/PS Fellow, Healthcare Associates/Division of General Medicine
- Gila Kriegel MD – QI Director, Healthcare Associates/Division of General Medicine
- Gina McCormack – Director of Operations, Pathology
- Heather Wathey – Practice Administrator, Healthcare Associates

The Paradigm

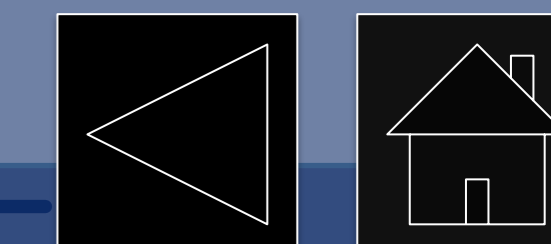


The Investigation/Progress to Date



- **Improvement opportunities:**
 - collection techniques
 - phlebotomy resource alignment
 - equipment (e.g., SST tubes)





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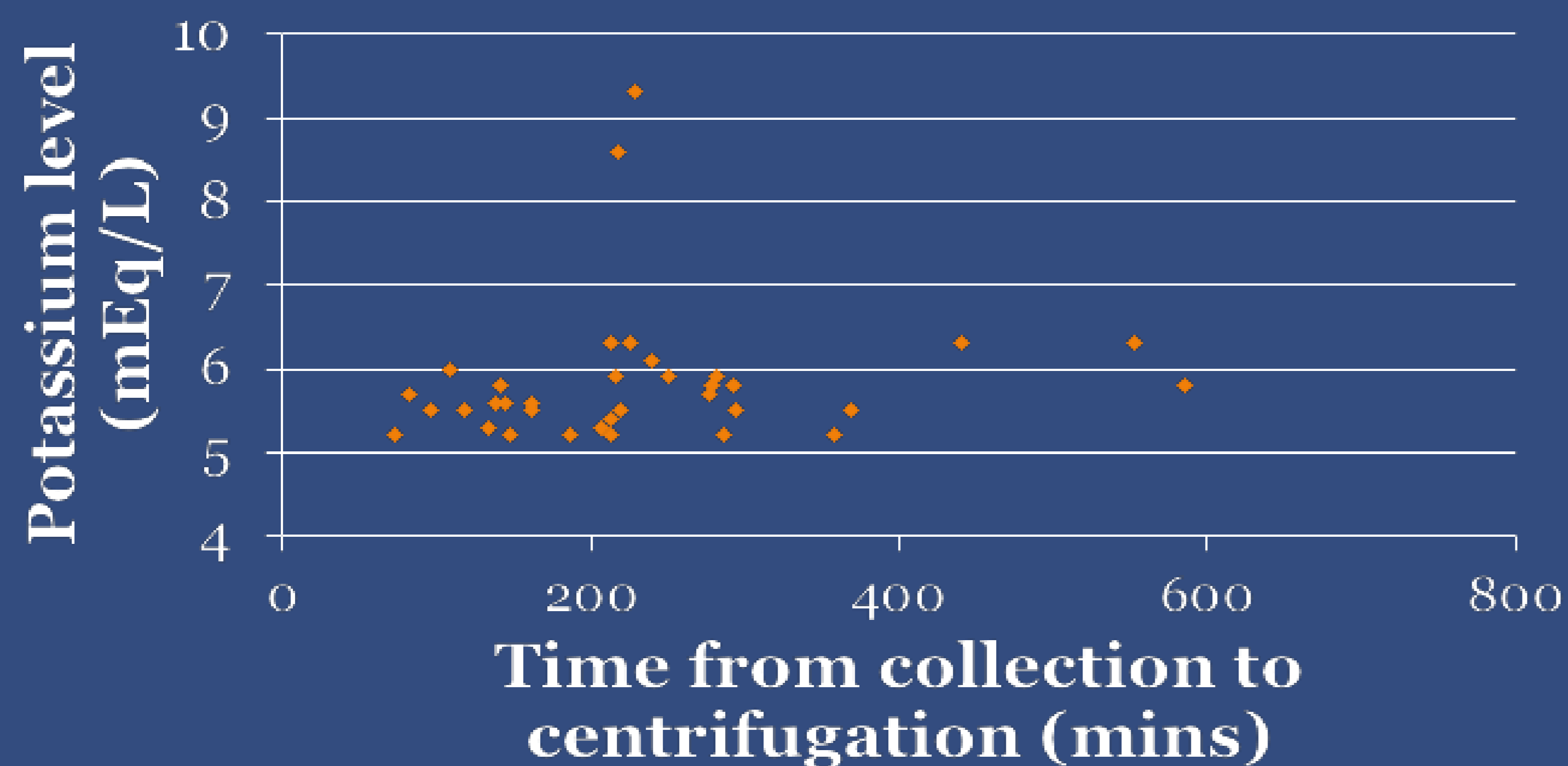
The Investigation/Progress to Date



Initial hypothesis: duration of time between specimen collection and lab processing is too long

- Avg time between collection and centrifugation: ~4 hours
- ~90% of specimens above 2 hour threshold (literature supports 2 hour maximum as best practice)

However, there was no clear correlation between duration of time and potassium level...



- Improvement opportunities:**
- optimize workflow
 - centrifugation and analysis
 - verification of analytic accuracy
 - reference range adjustment after new calibrators

Lessons Learned

- Perhaps would have been helpful to perform more extensive data analysis upfront to inform problem definition and help guide interventions designed to mitigate the issue
- A key component of this type of project is frequent dissemination of findings and next steps to all stakeholders involved (HCA providers and staff, HCA QI Committee, project team)
- Effective inter-disciplinary/departamental collaboration enhances improvement efforts

Next Steps

- Consider pilot tests of change to assess whether pneumatic tube system is contributing factor
- Provide education to phlebotomists about best practices with regard to specimen collection
- Conduct further data analysis to better understand this problem's context, both within HCA and across the institution

For more information, contact:

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