Advancing High Reliability and Continuous Quality Improvement with an Innovative Digital Solution

William Osler Health System

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Background and Context for Change

- William Osler Health System (Osler) is embarking on a journey to become a High Reliability Organization (HRO), which is an organization that operates in complex high-risk environments but manages to avoid catastrophic failures by consistently prioritizing quality, safety, and efficiency. This involves applying the following principles: (1) sensitivity to operations, (2) reluctance to simplify, (3) preoccupation with failure, (4) deference to expertise, (5) and resilience (Veazie et al., 2019).
- Osler conducts tracers for quality improvement which involves asking questions to staff and patients, observing care processes, and reviewing documents.
- To strengthen organizational reliability and maintain continuous alignment with national and international standards of excellence, Osler developed a digitally integrated Continuous Quality Improvement (CQI) App and real-time dashboard. A first of its kind in Canada, this solution represents a strategic transition from manual processes to a fully automated system.
- The solution was designed to streamline tracer processes, enhance data quality, and support high-reliability practices across care settings. This is aligned with engaging IT partners to build and use data systems to measure progress, which is a key strategy to becoming an HRO (Veazie et al., 2019).

Aim Statement

- The initiative aimed to enhance adherence to standards of excellence by 20% over 5 years by embedding CQI principles, high-reliability strategies, and compliance management into daily operations and practices using an innovative digital platform.

Family of Measures

Outcome Measures
1. Increased compliance with standards of excellence
2. Increased user satisfaction with the tracer process and app functionality

Process Measures
1. Reduced time to collect and analyze compliance data
2. Decreased frequency of missing or incomplete entries to improve data quality
3. Increased number of tracers completed
4. Increased effectiveness of user training sessions

Balancing Measures
1. Reduced user workload and risk of burnout
2. Increased data accuracy versus timely data collection
3. Increased training and support required for tracer process and app
4. Impact on clinical workflows and patient safety
5. Costs and implications (e.g., IT support, overtime)

Problem Characterization

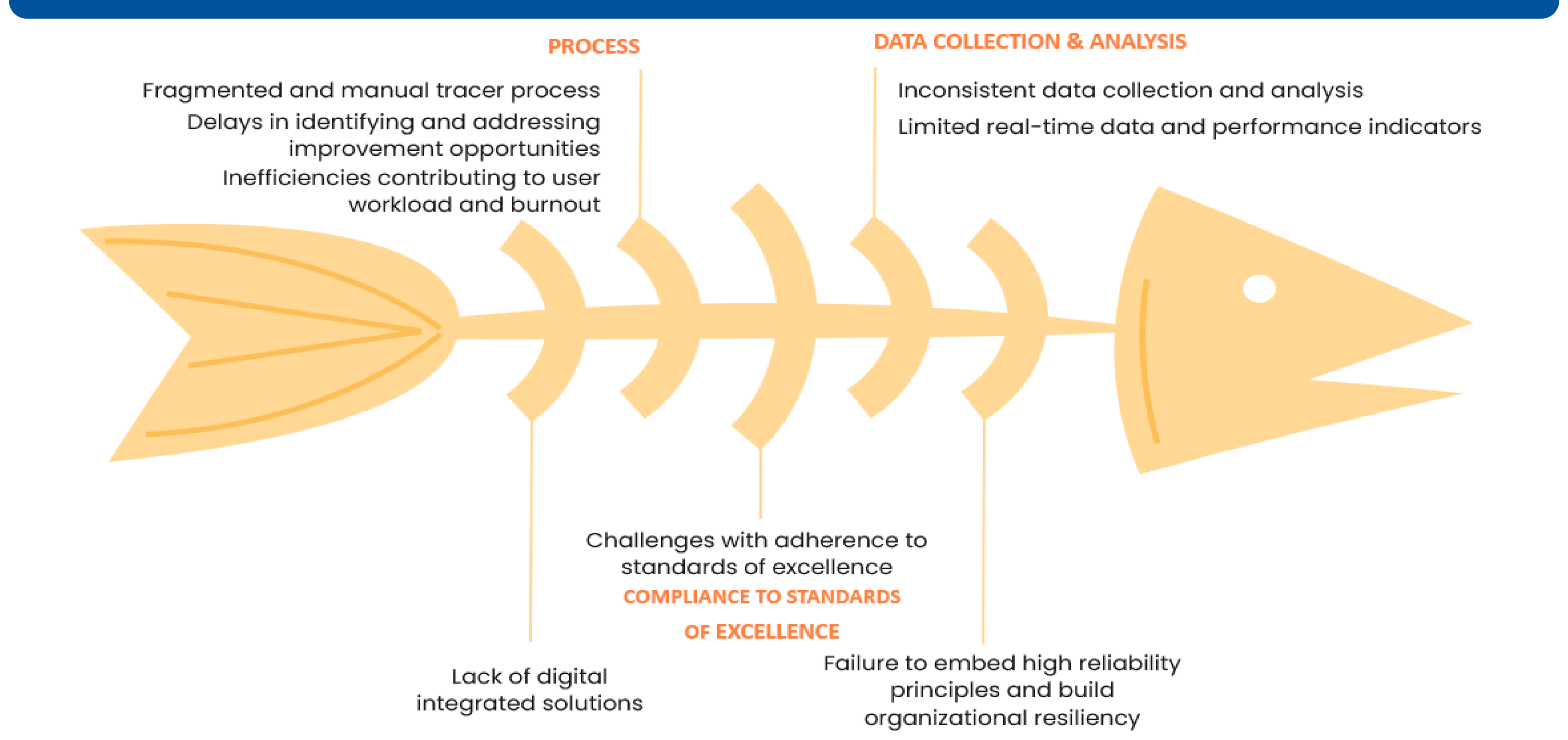

Figure 1. Fish Bone Root Cause Analysis

Intervention

Using CQI and change management methodologies, the initiative introduced a mobile-accessible digital compliance platform, automated real-time data insights, and a centralized dashboard for visibility across the organization. A phased rollout using Plan-Do-Study-Act (PDSA) cycles allowed for iterative improvement and wider adoption.

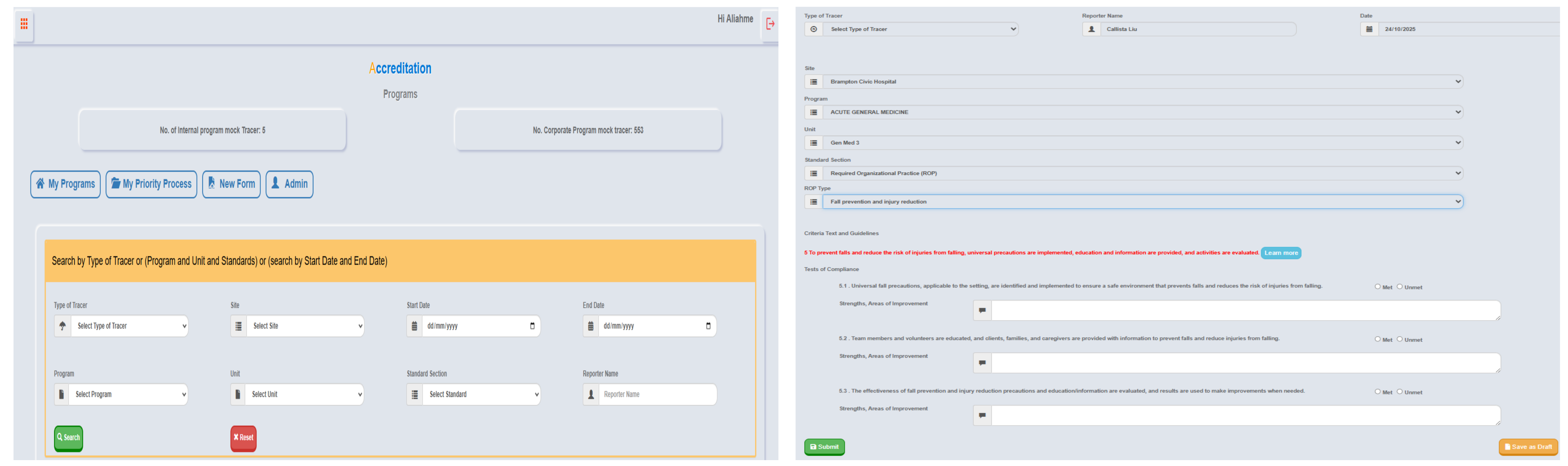

Figure 2. CQI App

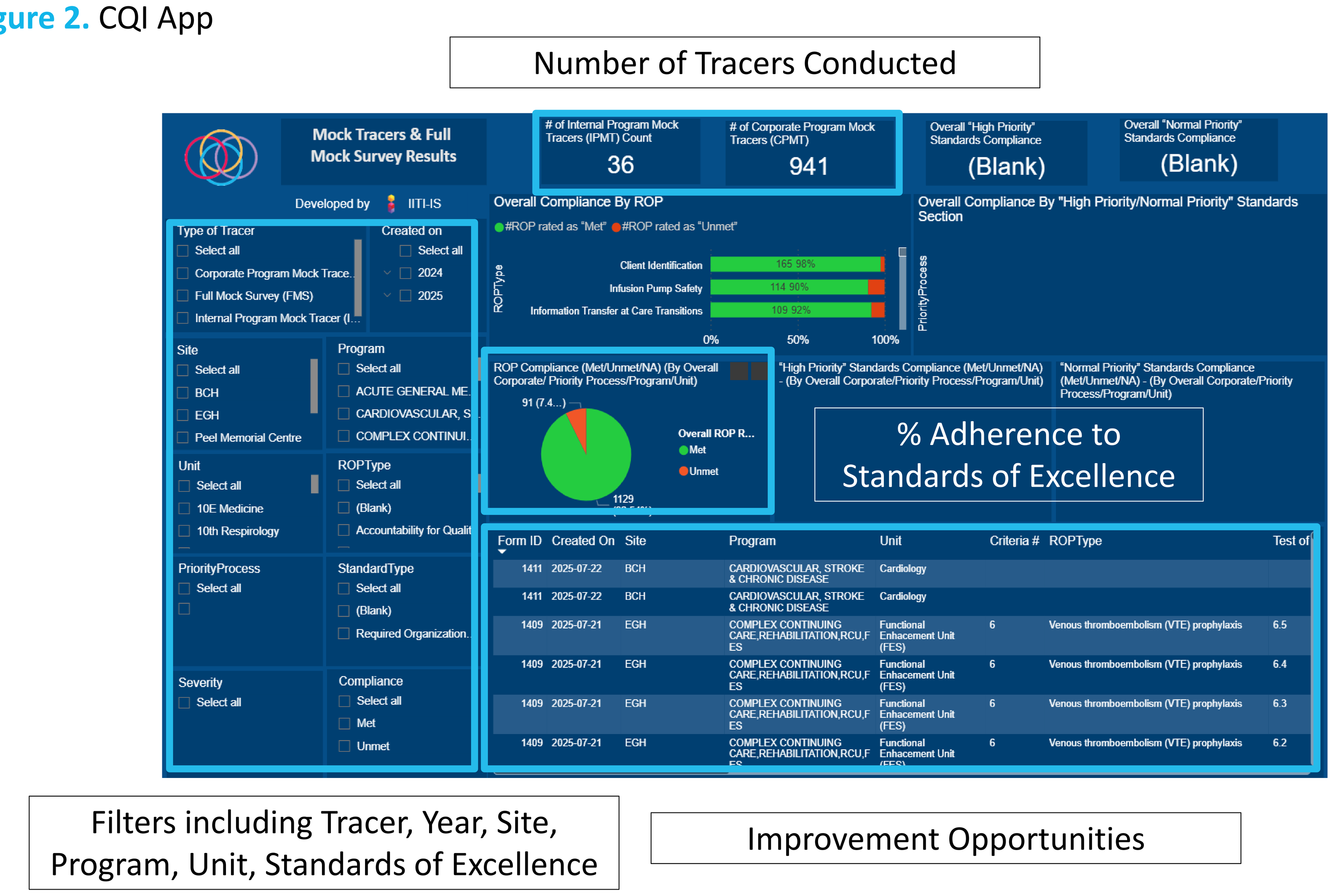

Figure 3. CQI Dashboard

Project Results

- Over 400 tracers conducted following launch of app and dashboard
- 80% reduction in missing or incomplete tracer entries, improving data quality
- Real-time data turnaround was decreased from an average of 7-10 days to < 1 day, supporting informed decision-making and timely interventions
- User satisfaction was increased from 3.2 to 4.5/5.0

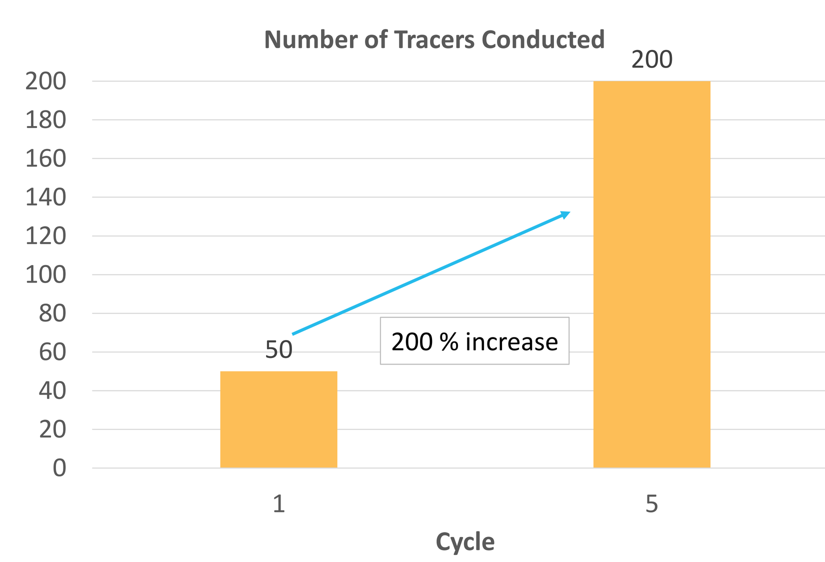

Figure 4. Number of Tracers Conducted

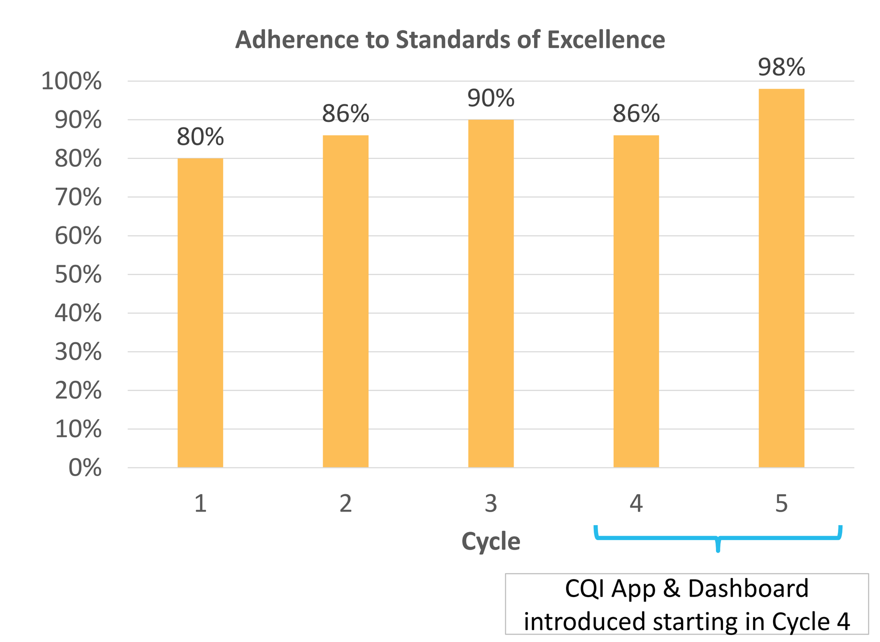

Figure 5. Adherence to Standards of Excellence

PDSA Cycles

Plan	• Tracer processes were inconsistent and led to inaccurate data, high turnaround for reporting and addressing improvement opportunities, and poor user satisfaction • Receive leadership support to ensure buy-in and demonstrate value of the initiative to key partners across Osler including clinical programs, users, and IT department • Stakeholder consultations and user testing helped identify needs and guide the design process of the app to improve data collection and analysis
Do	• Conducted user training for app including demonstration and resources such as manual, FAQs, and Q&A sessions • Implemented app for tracers across organization • Collected and analyzed data including tracers conducted, data quality, and user feedback • Shared real-time insights with organizational and program leaders via dashboard
Study	• Over 400 tracers conducted following launch of app and dashboard • 80% reduction in missing or incomplete tracer entries, improving data quality • Real-time data turnaround was decreased from an average of 7-10 days to < 1 day, supporting informed decision-making and timely interventions • User satisfaction was increased from 3.2 to 4.5/5.0
Act	• Engaged and collaborated with IT department to incorporate user feedback into refreshed app version prior to the next tracer cycle • Expanded the use of app and dashboard to additional tracers across organization

Conclusions

Current Status
- App and dashboard have been fully integrated and embedded in daily operations and practices to enhance quality, safety, and efficiency
- Over 400 tracers have been conducted following launch of app and dashboard, providing an innovative digital solution that enhances adherence to standards of excellence focused on key safety practices

Key Lessons
- Real-time insights support informed decision-making and timely interventions
- Active user engagement and collaboration with partners is key for successful implementation
- Early resistance is mitigated by providing hands-on training and user support
- Sustained improvement relies on consistent application of tracer methodologies

Next Steps
- Ensure sustainability from ongoing training and continuous quality improvement
- Evaluate impact on clinical workflows and patient safety culture
- Update app functionality to map additional standards of excellence

Reflections
- Incorporating user feedback drives sustained engagement and continuous improvement
- Osler's investment into the app and dashboard supports ongoing adherence to standards of excellence and progress toward becoming an HRO

Acknowledgments

We acknowledge the use of Accreditation Canada's standards in the CQI app and dashboard along with the valuable contributions and support of Osler's Information, Intelligence & Technical Innovation (IITI) team in the development of the CQI app and dashboard.

References:

Veazie, S., Peterson, K., & Bourne, D. (2019). *Evidence Brief: Implementation of High Reliability Organization Principles*. Department of Veterans Affairs (US). https://www.ncbi.nlm.nih.gov/books/NBK542883/