

Developing a Learner-Driven Culture of Improvement through an Interactive Web-Based Practice-Based Learning and Quality Improvement Management System (PBLI/QIMS):

A Four-Year Review of a Community Based Internal Medicine Residency's Outcomes

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Introduction & Background

The National Academy of Medicine defines Quality Improvement (QI) as “systemic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups.”¹ Our Graduate Medical Education Consortium continues to intentionally activate a learner-driven culture to improve resident/fellow training, and patient care delivery. The Wright Center (TWC) now require residents, fellows, faculty and staff to lead six short cycle Plan-Do-Study-Act (PDSA) quality improvement (QI) projects, training and inspiring them to become empowered, effective system improvers, in alignment with the Institute of Healthcare Improvement's national call.^{2,3} Medical home practice transformation and National Committee for Quality Assurance designation ignited our organizational PDSA QI activity.⁴ The Wright Center has an annual goal of 1500 PDSAs within our clinical training sites. PBLI/QIMS was implemented as a measurable framework of QI activities and to promote individual and collective accountability for PDSA engagement.⁵

Aim

Objectives of this effort were to (1) Develop concrete resident, faculty and staff skills to lead Plan-Do-Study-Act (PDSA) short cycle QI efforts (2) Promote an inclusive learner-driven, team-based culture of QI, and (3) Analyze, spread, and direct PDSA activity trends across clinical learning venues using a unique, home grown tracking system.

Methods

An existing Excel-based PDSA tracking system was upgraded to a web-based PBLI/QIMS tracker tool, programmed by an in-house Information Technology team. Beginning in 2014, residents, fellows, faculty, and staff were trained in basic QI Principles and to utilize the PBLI/QIMS to promote and engage in PDSAs. Tracking four-year outcomes of the PBLI/QIMS system has also allowed further analysis of annual PDSA-based efforts by venue and specific, defined domains of improvement activities.⁶

Conclusions

A PBLI/QIMS was developed and implemented on an institution-wide level to foster a high impact leadership and learning culture across various clinical learning environments.⁵ Increasing the number of short cycle, Plan-Do-Study-Act(PDSA) QI efforts led to clinical and educational system improvements.¹ Intentional and empowering workforce development within an accountable, catalyzing management framework can generate the necessary cultural change for learner driven PDSAs and team-based quality improvement in healthcare delivery and medical education environments. Early variability in adoption of short cycle PDSA QI activities and their further redistribution related to faculty movement, leadership, and variable engagement deserve further analysis to understand catalysts and barriers to systemic attempts to build a learning culture of improvement within delivery care and educational environments.

PBLI/QIMS Tracker Tool Copyright © 2018 The Wright Center

Results

PBLI/QIMS PDSA data including numbers and locations, from the academic years 2014-2017 was obtained and analyzed. Previously, Excel based PDSA tracker tool measured 15 activities in a single leading medical home venue.

- Progressive, significant spread into hospital-based learning environments occurred from 2014 to 2017 (Figure 1, $p < 0.05$), coincident with and possibly amplified by our organizational preparation for the ACGME's Clinical Learning Environment Review (CLER) process.⁷ From 2014 to 2017 there were significantly more PDSAs in Hospital 1 vs Hospital 3, Hospital 4, and Hospital 6 ($p < 0.05$).
- For Clinic-based PDSAs (Figure 2), there was no significant increase from 2014 to 2017 ($p = 0.18$). However, there were significantly more PDSAs completed between Clinic 5 vs all other outpatient clinical sites ($p < 0.05$). Clinic 1 had a significant increase in PDSAs vs all other outpatient clinical sites ($p < 0.05$), except Clinic 4 and Clinic 5.
- Post- PBLI/QIMS implementation, 1593 PDSAs were completed with 251, 511, 510, and 321 in years 2014, 2015, 2016, and 2017, respectively (Figure 3), with venue sites increasing from 2 to 12.

Figure 1: PDSAs completed in Hospital Venues from 2014 to 2017

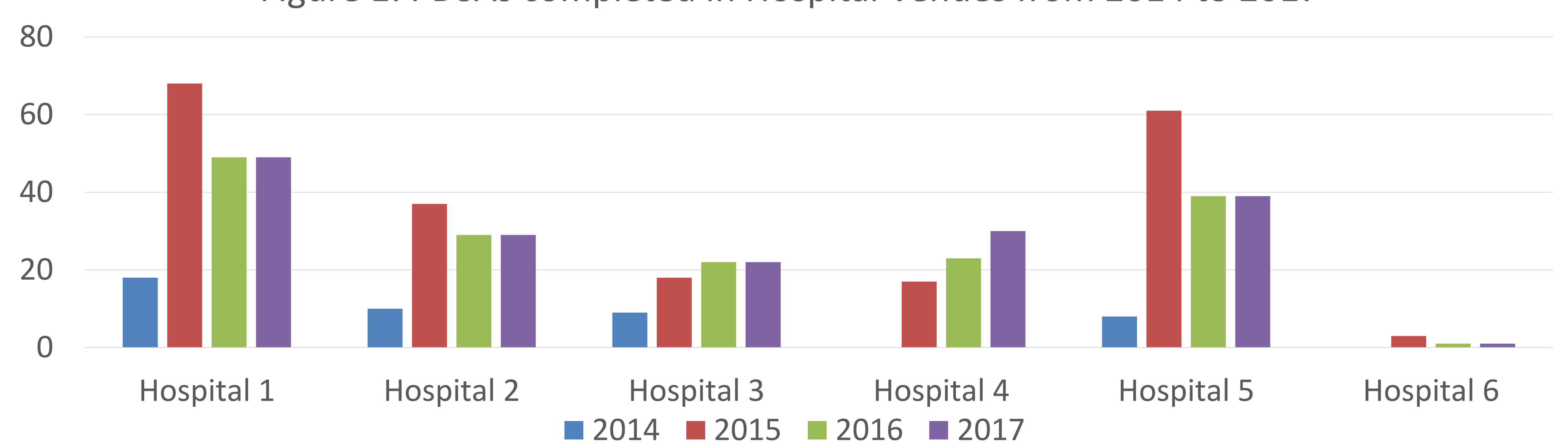


Figure 2: PDSAs completed in Outpatient Clinics Venues from 2014 to 2017

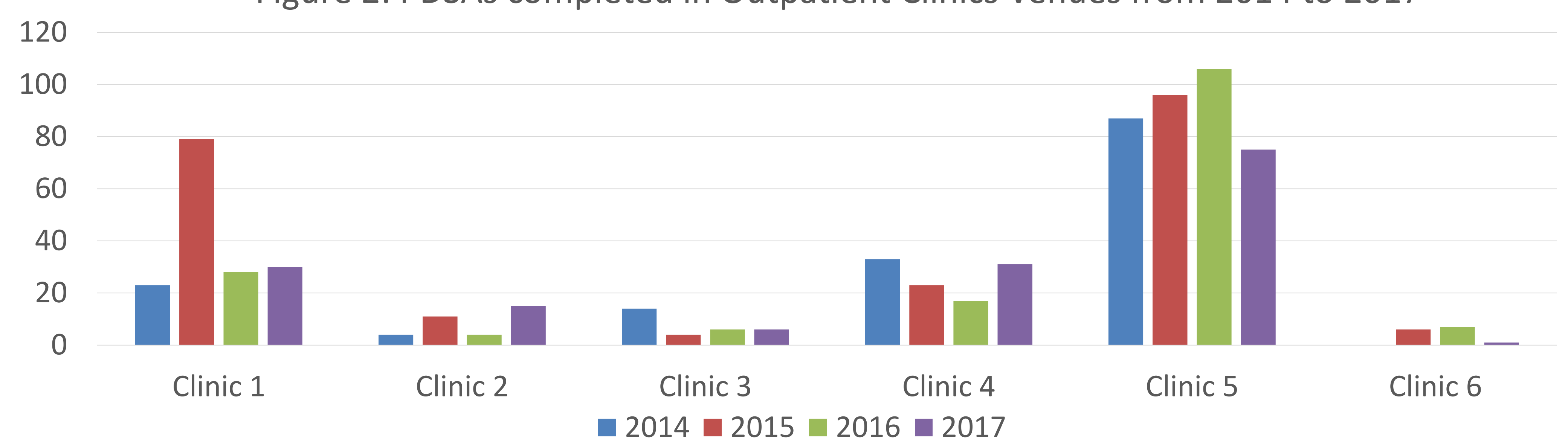
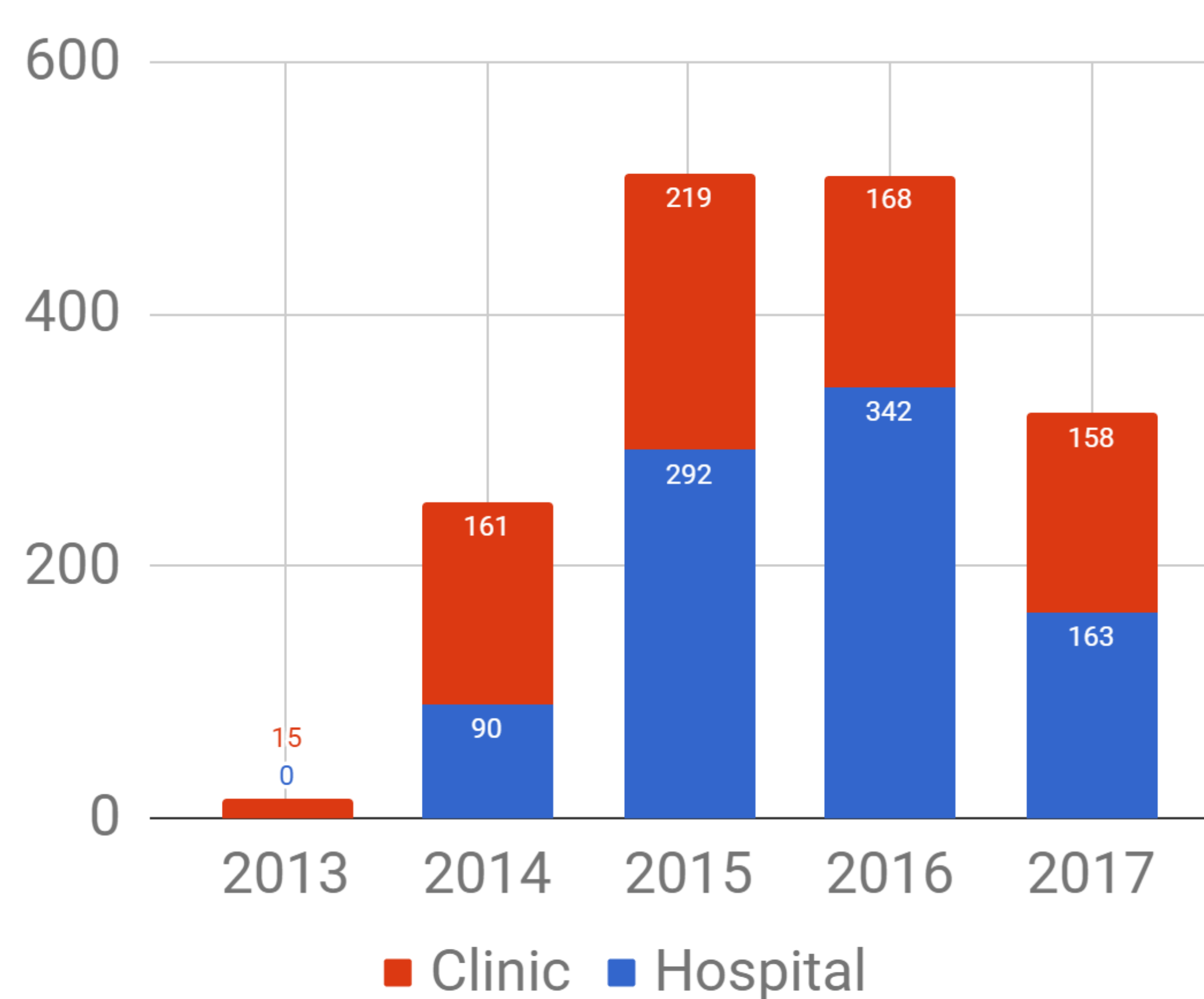


Figure 3: Total PDSA Completed by Year



Lessons Learned

This unique PBLI/QIMS system has effectively supported development of a learner-driven culture of improvement with significant increase in QI activities, especially within hospital venues. However, impact was variable across learning venues with QI activities increasing significantly more in hospital vs clinic venues. This variability deserves further analysis to understand barriers to systematic attempts to promote learner driven improvements in care delivery and educational processes, especially in light of their value driven impact potential.

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