Abstract 4 Figure 2

problem solve a patient's plan of care as a team, and maintain high reliability. Communication and coordination amongst care teams and complex discharge planning has improved. Team members have demonstrated workflow efficiencies by being proximate to patients and each other.

5 RECOVERING FROM COVID – IMPROVING OPERATING ROOM CAPACITY USING ADAPTIVE CLINICAL MANAGEMENT

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Background U.S. hospitals will lose more than \$53B revenue due to COVID-19 in 2021. The operating room (OR) is the revenue engine of the hospital, 60% of their operating margin comes from perioperative services. Optimizing capacity is essential to financial recovery.

Objectives The aim of this project was to use Adaptive Clinical Management to increase operating room (OR) capacity by improving efficiency (figure 1).

Methods The distinct phases of OR care were mapped. Surgery Prep Time was defined as the interval between anesthesia readiness and surgical procedure start time. Tasks include moving the patient to the OR table, positioning, prepping the

surgical field, and performing safety time-outs. Electronic health records (EHRs) routinely record anesthesia readiness and procedure start time stamps. EHR data was extracted and analyzed by SPC charts using AdaptX (Seattle, WA). Inter-surgeon performance variation was quantified using funnel plots. Interviews with the best performing surgeons informed standard work protocols which were implemented by a clinical champion, then by the wider group. Daily clinical performance data updates enabled surgeons to rapidly adapt their workflows to improve efficiency.

Results Baseline surgical prep time was 13.7 minutes (figure 2). Surgeons' variation in prep times were quantified using a funnel plot (figure 3), two surgeons identified with shorter prep times, one outside the 3-sigma lower control limit (special cause variation). Commonalities in their practices were

Abstract 5 Figure 1 Adaptive clinical management. A framework for clinicians to dynamically use real-world data to drive improvement in both clinical and operational processes

Abstract 5 Figure 2 Surgical prep time – historical baseline system performance (above). Funnel plot -Stratifies individual surgeon's performance and identifies best practice (below)

Abstract 5 Figure 5 Team increases monthly volume by 25% – Improvement demonstrated by centerline shift from 70 to 88 cases a month

Abstract 5 Figure 3 Team leader adapts personal workflow – improvement demonstrated by special cause variation (highlighted)

Abstract 5 Figure 4 Team adapts workflow – improvement demonstrated by centerline shift from 13.8 to 11.9 minutes

identified, including specific tasks performed during the surgical prep time, solutions used for prepping, task sequencing, and interdisciplinary collaboration. The team leader adapted their personal workflow in September 2021 and demonstrated a reduction in surgical prep times (figure 4). Team performance also improved (figure 5), surgical prep times reduced to 11.9 minutes. The team performed at least one additional surgery per day, resulting in a 25% increase in case volume (figure 5), from 70 cases per month to 88 cases per month

Conclusions Resource-neutral, data driven small system improvements, resulted in a 25% increase in case volumes post intervention, creating >\$2.5M additional revenue.

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TRANSFORMING A NATIONAL LABORATORY NETWORK TO MEET COVID-19 TESTING DEMAND

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Background Public Health Wales NHS Trust (PHW) is responsible for Microbiology laboratory services that support NHS Wales. The testing capacity within the laboratories was increased rapidly. There was a requirement to improve laboratory turnaround time for samples to enable results to be provided to individuals as quickly as possible.

As laboratory capacity increased, turnaround times did not improve. The following issues were identified:

- Variation in turnaround times for different populations.

- A lack of understanding of daily demand for tests
- Lack of standard processes for handling samples upon arrival in the laboratories

Objectives The aim was that within 3 months, 80% of all samples would be turned around within 12 hours of receipt in the laboratory. A stretch goal of achieving 95% by the summer. The work consisted of:

- Engagement with all laboratories
- Mapping sample flows
- Development of dashboards to understand flow, demand and activity
- Mapping of in-laboratory processes
- Modelling sample flows

Methods Using a Lean methodology, the following were implemented:

Abstract 6 Figure 1

Abstract 6 Figure 2