Abstract IHI ID 02 Figure 6 Average length of time from homeless identification to housing placement

IHI ID 03 EQUIP, AN EVIDENCE-BASED QUALITY IMPROVEMENT PROCESS: IMPROVING THE SPEED TO INSIGHT

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Background Despite the recognition that data can create value for healthcare organizations, only a few have adopted rigorous analytic approaches to support their data exploration efforts. With new sources and increasing amounts of data available to guide quality improvement work, having an evidence-based approach for directing data analytics is essential.

EQulP, An Evidence-based Quality Improvement Process: Improving the Speed to Insight

KAISER PERMANENTE
Center for Health Research

Literature monitoring in target clinical areas of importance for new comparative effectiveness evidence

- Comparative Effectiveness Studies
- Systematic Reviews
- Other Filtered Scientific Evidence

Horizon scanning: structured approach that provides a systematic process for exploring data

Provide parameters for guiding data exploration. Use prior available knowledge to define the scope and to add specificity to the data exploration.

Set the data exploration goals and build a logic model to describe the inputs and the outputs.

Assembling the needed data from various sources to examine local practices

- EHR Data
- Clinical Databases
- Digital Data
- Claims Data
- Geospatial Data
- Patient-Reported Outcome Measures

Build a robust dataset by combining relevant data sources

Extract only the data relevant for the data exploration.

Spend time cleaning, merging, defining, and validating the data. This should be a combined effort of the data scientist and business or clinical expert.

Try to fit the logic model with the data.

Data analytics

- Traditional Descriptive Statistics
- Traditional QI Tools
 - Root Cause Analysis
 - Pareto Chart
 - SPC Charts
 - Process Map
- Advanced Analytics
- Geospatial Analysis

Combine different tools to draw insight from your data

Identify patterns, anomalies, and opportunities. Seek to answer the following questions: Who?, When?, Where?, What?, How?, and Why?

Begin with broad descriptions and then focus on areas of value, such as unwarranted variation or worse than expected clinical outcomes. Risk adjust and use benchmarks for meaningful comparisons.

Data visualization for business value

- Insight-Rich Illustrations
- Value-Rich Findings
- Annotated Charts
- Actionable Targets
- Measurable Impact

Specify improvement opportunities in the context of business value.

Clearly represent key points, tell a story with your data. Help stakeholders interpret your results, explain what they mean.

Present data only if it can lead to: safer care, better care, reduced costs, less waste, less unnecessary care, or innovation.

Abstract IHI ID 03 Figure 1

Abstract IHI ID 03 Figure 2

Objectives To propose an evidence-guided systematic approach for exploring data to identify QI opportunities.

Methods We developed a linear framework that begins with monitoring the literature in target clinical areas of importance. This review of existing knowledge by a multidisciplinary team provides parameters that guide data exploration and facilitates the selection of benchmarks and potential balance measures. Then, a robust dataset is built by combining relevant data sources. Next, data are analyzed using a combination of traditional statistical and quality improvement techniques. Lastly, key points are summarized and presented to stake holders as specific improvement opportunities in the context of business value; listing actionable targets with estimated impact.

Results The proposed methodology was tested on one of Kaisers target clinical areas of importance, interventional cardiology. Three potential improvement opportunities were identified:

1. network leakage;
2. avoidable hospital days; and
3. preventable 30 day hospital readmission.

Preliminary estimates suggested that our data could lead to approximately 1 million dollars in savings and up to 250 avoided hospital days while improving the quality and safety of care to our members.

Conclusions Systematic use of a framework for data exploration may create operational and strategic business value by increasing the speed at which data are transformed into actionable knowledge.

IHI ID 04

APPLICATION OF ELECTRONIC TRIGGER TOOL METHODS TO IDENTIFY TARGETS FOR IMPROVING DIAGNOSTIC SAFETY

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Background Failure to follow-up abnormal test results can lead to patient harm.

Objectives We created and validated electronic trigger algorithms that analyzed electronic health record (EHR) data from a large Veterans Affairs (VA) network to identify patients with potential delays in diagnostic evaluation for multiple cancers.

Abstract IHI ID 04 Table 1

Cancer Trigger	Unique Patients with Trigger Positives	Unique Patients Seen	Timeframe	PPV %(95% CI)	NPV %(95% CI)	Extrapolated Sensitivity % (95% CI)	Extrapolated Specificity % (95% CI)	Estimated Number of Diagnostic Delays Found per Year
Bladder	495	310,331	Jan 2012–Dec 2014	58.0 (53.0–62.9)	97.0 (90.8–99.2)	64.1 (59.4–68.5)	96.2 (95.6–96.6)	95.7
Breast	552	365,686	Jan 2010–May 2015	70.8 (66.0–75.1)	93.0 (85.6–96.9)	76.8 (72.7–80.4)	90.8 (89.2–92.1)	72.2
Colorectal	1,073	245,158	Jan 2013–Dec 2013	56.0 (51.0–61.0)	88.0 (79.6–93.4)	68.6 (65.4–71.6)	81.1 (79.5–82.6)	600.9
Hepatocellular	130	333,828	Jan 2011–Dec 2014	82.3 (74.4–88.2)	98.0 (92.3–99.7)	89.1 (81.8–93.8)	96.5 (94.8–97.7)	26.7
Lung	655	208,633	Jan 2012–Dec 2012	60.5 (55.5–65.3)	97.0 (90.8–99.2)	91.7 (88.6–94.1)	81.7 (79.6–83.7)	396.3
								1191.8

*CI=Confidence Interval