**Keeping Improvement Work On Track Through Collaborative Data Validation**

**A Standardized Methodology for Improving Accuracy of Electronic Health Record Reporting**

**Background**

Reporting high-quality data from the electronic health record (EHR) is essential to quality improvement initiatives. Quality metrics help us identify areas for improvement, gauge the effectiveness of our interventions, are required for regulatory programs, and influence the decisions of government and commercial purchasers. Data are also becoming increasingly important in activating patients to be thoughtful healthcare consumers.

However, it can be difficult to capture these data due to complexities of clinical care, EHR functionality, and clinical workflows. Frequently, EHR-based data are bemoaned by clinicians for lack of clinical validity and improvement work is often derailed by data that don’t meet expectations. We created a data validation process to produce EHR-based data with acceptable observed error rates and accelerate the work of teams participating in quality improvement efforts.

**Project Aims**

- Efficiently reduce observable error rate in clinical quality reports to ≤ 3%
- Increase transparency around data inaccuracy
- Identify areas for process improvement through structured chart review

**The Process**

**Step 1** Analyst creates report based on specification provided by customer

**The Tools:** Metric Specification

- The validated process creates a metric specification.
- A specification is a clear, detailed description of a metric specification (including numeric denominators and exclusions).

**Step 2** Validator takes sample of at least 30 charts (15 metric met and 15 metric not met) and performs front end data validation (Table 1)

**Step 3** Validator communicates any potential report issues to the analyst and makes a note of any improvement opportunities

**Step 4** Analyst revises report

**Step 5** Repeat validation process until validator has reviewed at least 100 charts and the error rate in sampled charts is ≤ 3%

**Step 6** Completed report visualization along with improvement opportunities are provided to the customer

**Results**

By enabling us to be transparent about ways data don’t match clinical reality and provide insight into opportunities for improvement, the data validation process reduces the distraction of inaccurate data.

**Validation in Action:** Colorectal Cancer Screening Improvement

**Reducing Estimated Error Rate:** Medicare Shared Savings Program

- In 2016, the team validated a set of 20 clinical quality metrics for reporting through the Medicare Shared Savings Program (MSSP).

**Average Observed Error Rate:**

- First round: 21%
- Final round: < 1%

**Building Trust in Data:** Feedback from Key Stakeholders

- There is no doubt that data accuracy and reliability is much improved over the past few years – Primary Care Executive Medical Director
- “Overall I think that the [data] has greatly improved” – Primary Care Medical Director
- “The data is easy to understand and access now, and I trust the group that provides the data” – Primary Care Provider
- “Reports and the meaning behind those reports is what drives the success of many of my improvement activities” – Practice Coach

**Considerations**

Swedish Medical Group created this process in the absence of an industry standard for data validation. There are known limitations to our process, for example:

- In the absence of comparison data, our process doesn’t reliably identify errors of omission (e.g. a patient with diabetes wasn’t included but should have been)
- Current error rate detection isn’t necessarily statistically significant
- Human factors, while simulating the user experience with data, may result in variable validation results

Future work in this area should focus on creating a standardized data validation process rooted in data science that accomplishes the goal of producing more accurate clinical quality data and enabling more informed, activated improvement teams.