



# Using the Pareto Principle to Enhance System Compliance

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## INTRODUCTION

With the increasing use of technology in healthcare, there is greater availability of process data than ever before. It can be challenging to understand how to best utilize audit information and provide feedback to clinical users to drive improvements in patient care. Auditing is best defined as a summary of clinical performance over a defined period of time, while feedback is considered the provision of information to clinicians for the purposes of improving performance (Flottorp, Jamtvedt, Gibis, & McKee, 2010). It is common for facilities to provide system audit data in report format to users as feedback with the expectation that the communication will drive improvements in practice. The assumption of feedback catalyzing a change in practice is often unrealistic. Evidence suggests that auditing and feedback may be effective in improving clinical practice, but the effects are often small to moderate, and more likely to occur with intense feedback mechanisms (Flottorp et al., 2010). The reality is that despite the time and/or costs it takes to generate and provide summary data to clinicians, strong recommendations are lacking in regards to the best way to provide audit data and feedback that is capable of improving practice.

Mercy Medical Center, a 280-bed community teaching hospital in Baltimore, MD, began implementing Iatric's Mobilab specimen collection technology in November, 2014. The software functions via wireless portable digital assistants that are first used to scan the patient wristband, positively identifying the patient. Upon patient identification, the specimens ordered for the patient within the next four hours will appear on the device with the order of collection and specimen container type listed, and barcode specimen labels automatically print from a wireless printer at the bedside. At this point the specimens are obtained and labeled in the presence of the patient, and then scanned with the PDA as the final step in the collection process. The specimens are then sent to the laboratory where they are scanned into the lab system by a technician and correspondingly analyzed according to test type. Each step of the process involves collection of specific data that is time stamped and logged in the system.

Following the implementation of the Iatric's Mobilab system, the laboratory information systems analyst reviewed and reported back audit data to the nursing informatics team. System fall outs included lack of identifying the site of a blood culture at the time of collection, errors related to the blood bank specimen collection process (according to policy), and not scanning the specimen label on the container as the last step of the process. Despite communicating individualized weekly audit results directly to users with information on how to correct their performance, the number of system errors was not decreasing over time. During the analysis of system error data, it was recognized that the bulk of the errors were being caused by a relatively small group of users.

## PARETO PRINCIPLE

The Pareto principal, also commonly referred to as the 80/20 rule, implies that across a continuum, errors are not contributed to systems equally (Pinnacle Management, 2005). For the specimen collection project, this was translated to the idea that approximately 80% of the system errors were being caused by 20% of the clinical users. Nursing Informatics was curious if an intervention was focused for those users experiencing the largest amount of errors, would it cause a significant decrease in fall outs?

## PURPOSE

Identify and test a strategy capable of reducing system process errors by at least 80% that was capable of being sustained over time.

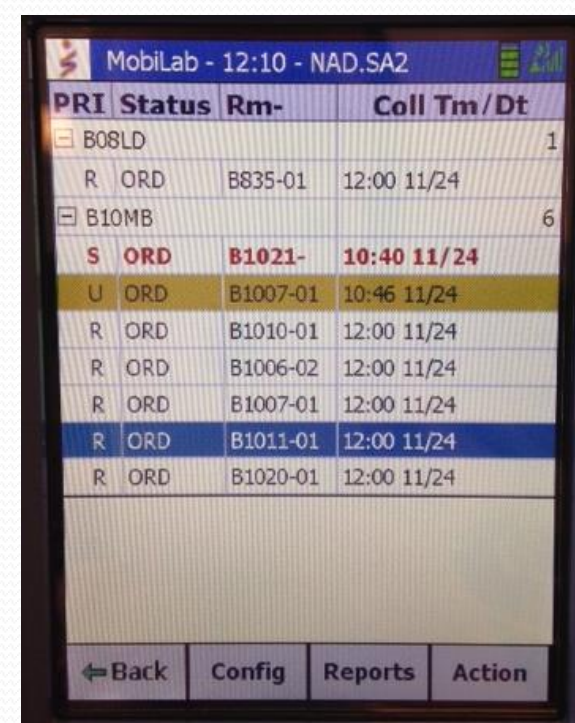
## HARDWARE/SOFTWARE



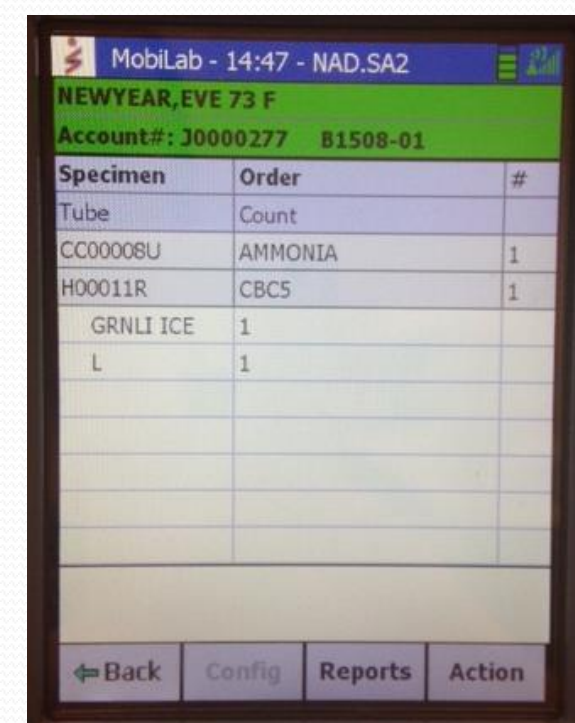
Motorola MC55A0 Scanner



Zebra Wireless Label Printer



Iatric's Mobilab Specimen Collection Application



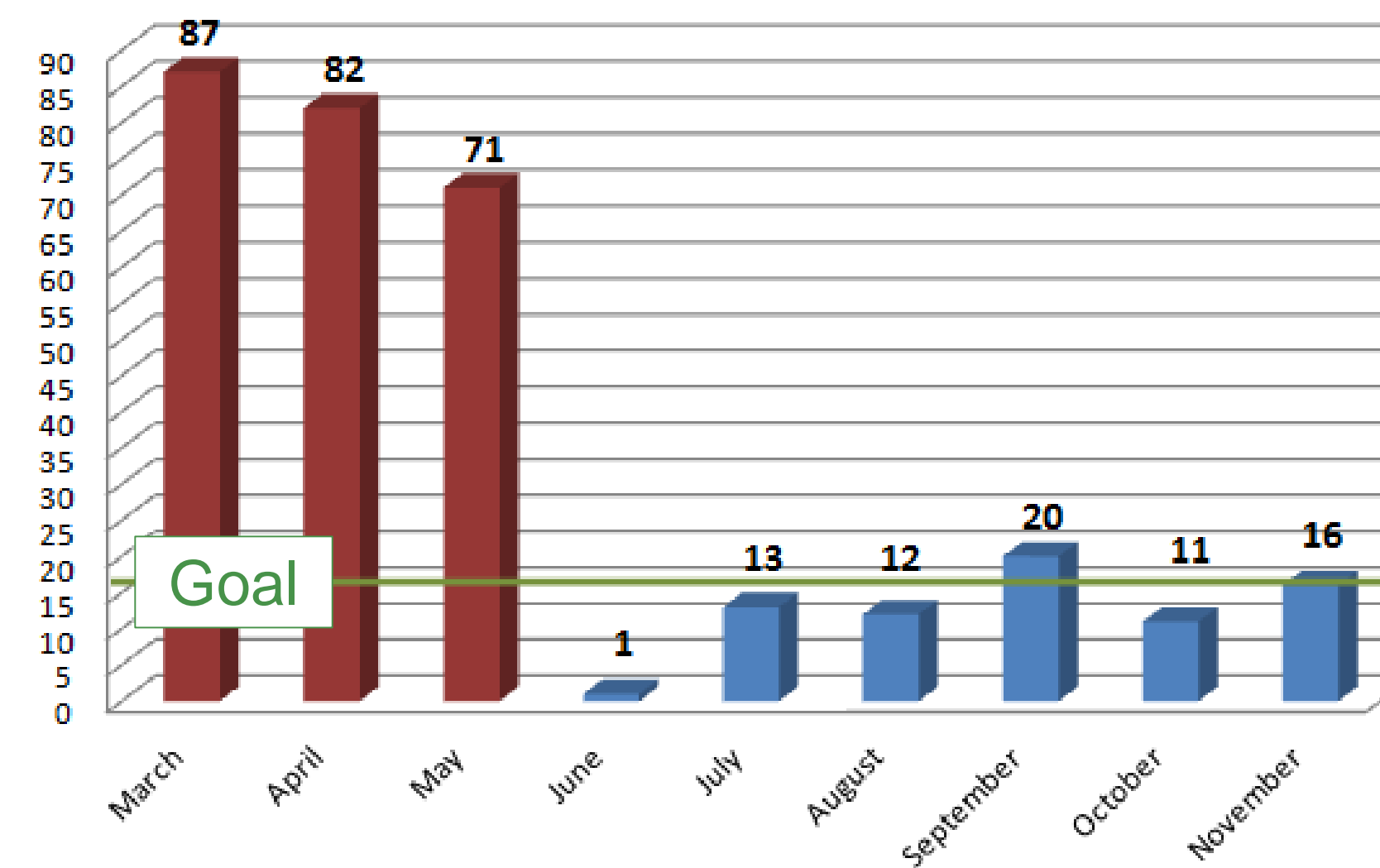
## INTERVENTION STRATEGY

Following collaboration with the nursing leadership team, an intervention strategy was developed:

- Users that had more than three system errors within a three month time span were required to attend a mandatory Mobilab refresher training class.
- The one hour refresher training classes included review of why the specific data being audited was of importance to patient care, and common system errors / how to avoid them.
- At the end of the class, users were required to successfully complete an independent testing scenario to demonstrate system competency.
- Data was tracked pre and post implementation via monthly laboratory system audits provided by the laboratory information systems analyst.
- After the employee took the refresher class, the user's count of system fall outs was reset to zero. If three additional fall outs were to occur, the user would need to retake the refresher class again.

## OUTCOMES MEASUREMENT

### Mobilab Fall Outs Pre/Post Mandatory Refresher Training



The mandatory refresher training strategy resulted in an average 85% drop in system errors which was immediate and was sustained for over six months.

## DISCUSSION

System administrators cannot rely on simply reporting data to users and expecting practice to change. Informatics nurses and clinical educators are often tasked with obtaining, sharing, and interpreting various performance data with the goal of translating the feedback into actionable outcomes. In an attempt to close the margin between evidence-based care and the care actually provided in the clinical setting, it can be helpful to combine methods of utilizing audit and feedback with an intervention strategy involving re-education and demonstration of competency.

Auditing system performance data and providing tailored user feedback can be a labor intense process, so it makes sense to focus auditing efforts on those systems able to provide the greatest quality improvement and cost reduction gains to the organization. Holding mandatory refresher training introduces an accountability process that is less negatively perceived than direct manager involvement and provides for timely re-education and a review of the auditing process. Verbal reports of users who were initially resistant to attending refresher training said there was value in the process, as they learned something new during the class. In order for training efforts to be successful across areas, it is important to accommodate all possible department work schedules.

Future opportunities exist to apply use of the Pareto principle with focused retraining efforts across a variety of implementation types to ascertain if the effect is similar across technologies. Additional work could also be done to identify those who are consistently using the system correctly and provide reward/recognition for positive usage behaviors.

## REFERENCES

- Flottorp, S. A., Jamtvedt, G., Gibis, B., & McKee, M. (2010). *Using audit and feedback to health professionals to improve the quality and safety of health care*. Copenhagen: World Health Organization.
- Pinnacle Management. (2005). *How to 80/20 rule helps us be more effective*. Retrieved from [http://www.pinnacle.com/Articles/Pareto\\_Principle/pareto\\_principle.html](http://www.pinnacle.com/Articles/Pareto_Principle/pareto_principle.html)

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