



“People saw the discharge summary more as a requirement than a communication tool. We helped them see the value it had in improving patient care.”  
Ann Kurzel, director of case management

# Improving the Quality of Discharge Instructions for Obstetrics & Postpartum Patients leveraging the EMR

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## 1 Background

The postpartum unit at The Johns Hopkins Hospital was noted to still be dispensing handwritten discharge instructions to the discharged mothers meanwhile the infants discharge paperwork had already been converted to electronic data. The advent of sophisticated information technology has fueled the use of electronic discharge summaries (EDS). Tindale (2012) outlined some advantages of EDS as the ability to transmit real-time information electronically to other care providers, improve legibility, the ability to monitor completion rates and provide feedback to users. She also stated that a standardized format may prompt users to include important information and thus improve the content of the discharge summary. Additionally, Gandara et. al. (2008) suggested that “communication deficits regarding anticoagulation during transition in care [...] to adverse patient outcomes following hospital discharge, especially in vulnerable patient subgroups. Upon Core Measure Abstraction for Venous Thromboembolism (VTE), a Warfarin follow-up appointment date and time from the Physician Discharge Orders was not transcribed onto the Postpartum Discharge Instructions. This resulted in a VTE-5 core measure failure and upon further review of the discharge paperwork, there were multiple transcription mismatches. Zayed & West. The aim of this improvement project was to improve the quality of discharge instructions provided to postpartum mothers.

## 2 Objective

- To evaluate the effectiveness of implementing the QS electronic discharge system to improve the quality of discharge instructions received by postpartum mothers at discharge.

## 3 Method

- 25 observations of the discharge process were done on the unit including discharges of the postpartum mothers and their babies. A random sample of 95 paper charts were retrieved from Medical Records Department for the month of June 2013. Approval was obtained from the Gynecology & Obstetrics Department and from Medical Records.
- For each discharge, there were a total of 12 opportunities for errors including physician information, diagnoses, procedures, medication names, dosages, frequencies, and routes, follow-up appointments, activities, diets, personal care/ treatments, physician signatures.
- Retrieved charts were reviewed and compared based on inclusion of the critical parts of the orders on a crosswalk between the Physician Discharge orders and Postpartum Discharge Instructions. The findings were tabulated using operational definitions of correct, omission, and mismatch. For the purposes of this project, correct denoted that the Physician order was correctly transcribed onto the Postpartum Instructions. Omission denoted that information was missing on both the Physicians orders and the Discharge Instructions and mismatch denoted that Physician Orders were not matching the transcribed Discharge Instructions. One defect represented omission or mismatch of one or more entities within each opportunity. For example, if 2 medication names were mismatched between both documents, this would be counted as one defect.
- Oversight of this project was provided by Laura Winner, Lean Sigma Master Black Belt

## 4 Results

There were a total of 787 defects out of a possible 1140 opportunities prior to project initiation. (95 reviewed charts X 12 opportunities per discharge instruction). A total of 60 defects of 600 opportunities after intervention – see Figure 4 (50 reviewed charts x 12 opportunities).

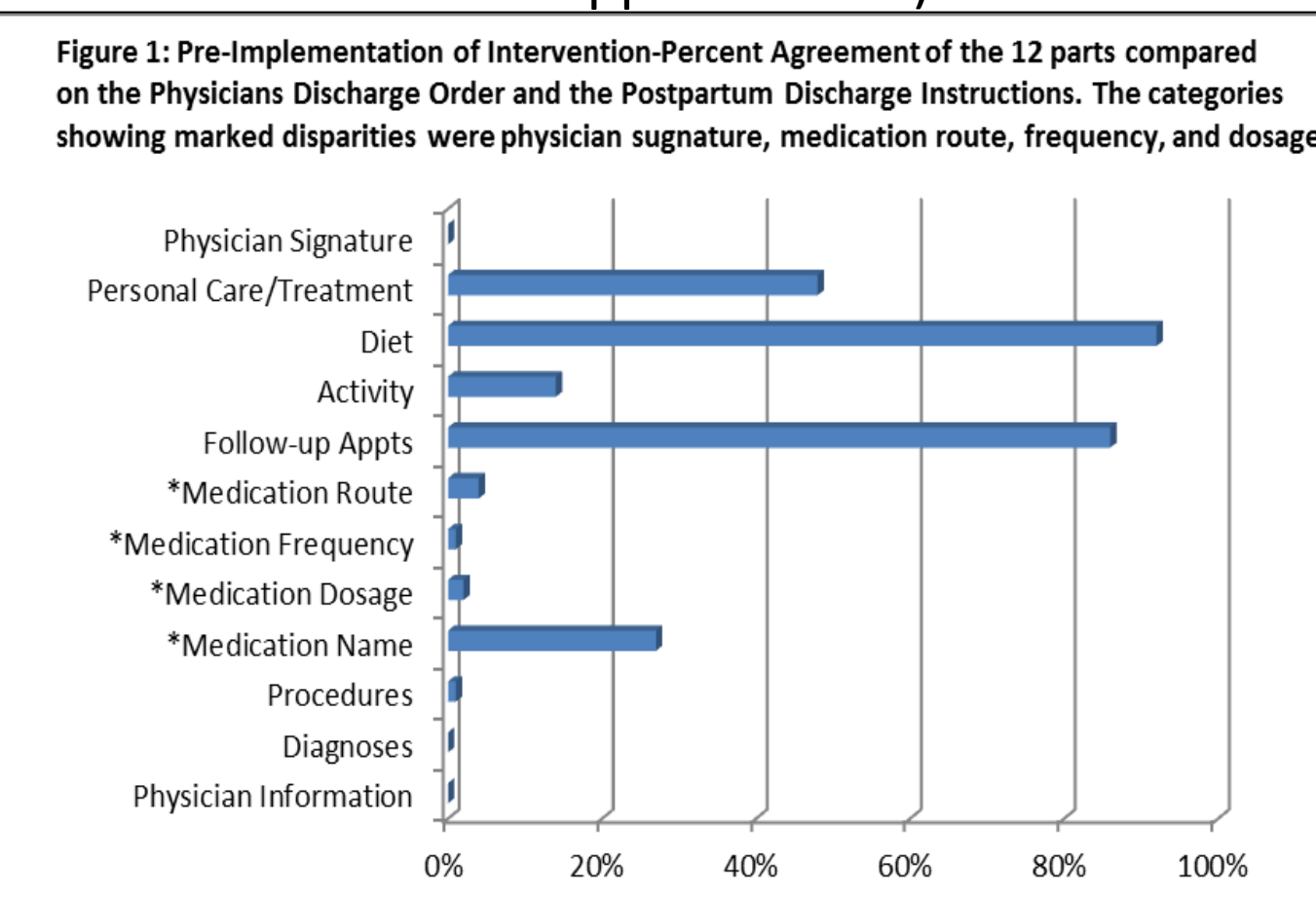


Figure 2: Sample Physician Discharge Orders. Close inspection reveals that medication route, frequency and doses were missing.



Figure 3: Sample Discharge Instructions that the patient received. Even though the medication dose, route and frequency was not specified on Physician Order, the transcribed Discharge Instructions included them.

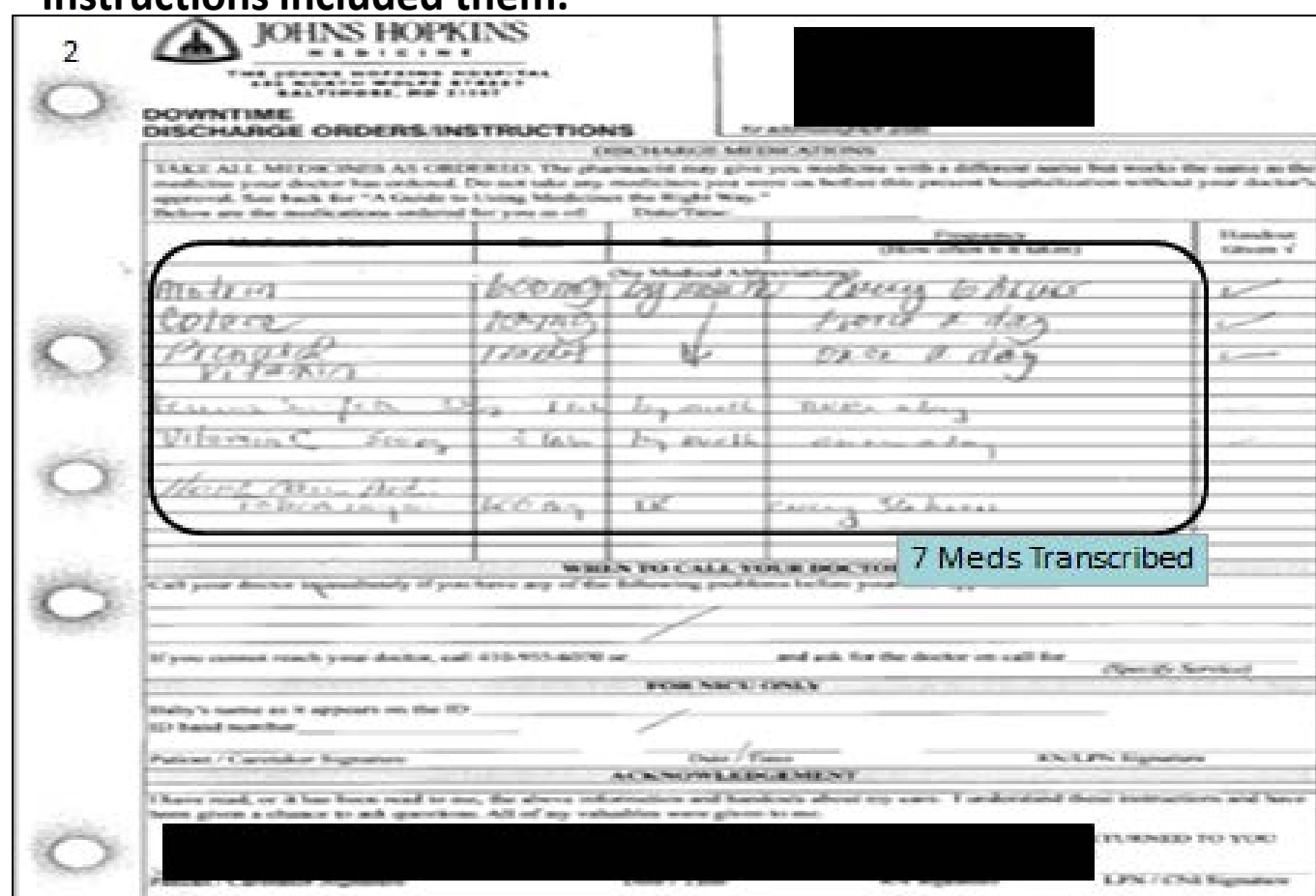
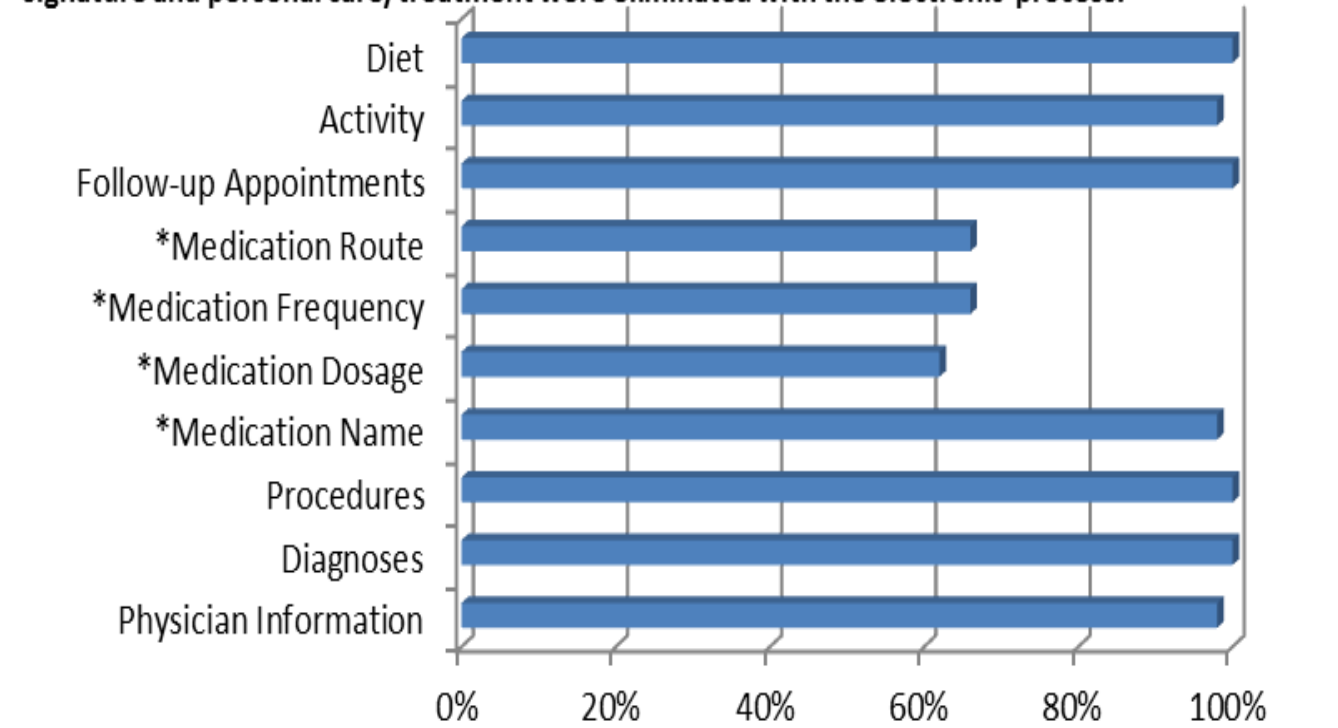


Figure 4: Post-implementation of Intervention- Percent Agreement. Electronic software was designed and implemented in the existing Postpartum EMR, QS. Overall percent agreement improved, with the lowest parameters being medication dosage, route and frequency. The categories physician signature and personal care/treatment were eliminated with the electronic process.



A test of two proportions was conducted with a p value of 0.000 indicating that the intervention is statistically significant. There were 69% defects prior to the intervention and 10% defects after the intervention. The difference from baseline to post-Intervention was 59%. Therefore, the percent defect reduction was calculated to be 86%.

## 5 Conclusions

Post-implementation observations and interviews revealed the following:

- There was a 59% reduction in overall defects.
- The new electronic discharge process was found to provide more effective and timely discharge summaries that simplified work practices.
- Hospital clinicians found it easier to prepare the discharge summaries using the new discharge process. Electronic discharges improve work practices of both the physicians and nurses due to the implementation of electronic systems.
- In addition, electronic summaries improve legibility, thus eliminating the need to decipher illegible handwriting.
- The discharge application is a central software that both physicians and nurses both access and revise. Any updates to any part of the summary is facilitated in real time. The nurses can access the summary anytime after the provider makes changes.

## 6 Future Directions

- While there was dramatic improvement overall there were still a large number of medication dose, route and frequency defects. The launch of Epic in 2016 will afford the opportunity to leverage “hard stops” to require these fields as the already existing QS charting system used at Zayed 8 does not allow hard stops.
- The application is undergoing further adjustments and will be adapted for antepartum discharges too.
- The EDS is expected to play a major role in ongoing efforts to integrate computerized tools for patient care and enhance the quality of patient discharge.
- Secondary Gain was implementing this EDS at Bayview Medical Center as they too use the same computer system (QS) and were still utilizing the paper-based discharge process.

## 7 References

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