

A Comparison of the Efficiency and Effectiveness of Blank Versus Pre-populated Admission Medication Reconciliation Order (MRO) Forms

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Background

- Medication Reconciliation is a formal process in which accurate and complete medication information is transferred at interfaces of care.
- Prospective observational studies have shown that medication reconciliation reduces medication discrepancies by about 75%.
- In FH a blank Medication Reconciliation form (i.e. without patient's PharmaNet record) is used at admission.
- No published studies have compared blank Medication Reconciliation Order (MRO) form with one that is pre-populated with the patient's PharmaNet record.
- Purpose: To determine if pre-populated MRO form is more efficient and more effective than the blank MRO form.

Objectives

- **Primary Outcome:**
Effectiveness: Compare number of medication discrepancies per patient
- **Secondary Outcomes:**
Effectiveness: Percent of charts with a complete MRO form within 24 hours of admission
Efficiency: Healthcare workers' satisfaction

Methods

- **Study Design:** Longitudinal, non-random sampling, unblinded at a 160 bed acute care community hospital
At baseline and following Go Live date with the pre-populated forms, 20 patients were audited every 2 weeks for percent of MRO forms completed. These measurements continued until special cause variation identified on a Shewhart chart.
- **Process Measure:** MRO form in chart and completeness of the form (with respect to prescriber's orders and signature) measured at baseline and again when special cause variation identified.
- **Outcome Measure:** 20 patients audited to compare undocumented intentional and unintentional medication discrepancies at baseline with measurements taken after special cause variation identified.
- **Inclusion Criteria:**
Patients admitted for more than 24 hours
Patients admitted to medicine
- **Exclusion Criteria:**
Unable to communicate in English
Unconscious and without any family members or medication vials from home to verify medication history
Absence of PharmaNet record
- **Survey** sent out to health care professionals to determine satisfaction rate of pre-populated vs. blank form after data collection
- **Statistical Analysis:**
Tests used: Mann-Whitney U-test, Chi-Square test and Statistic Process Control (SPC)

Results

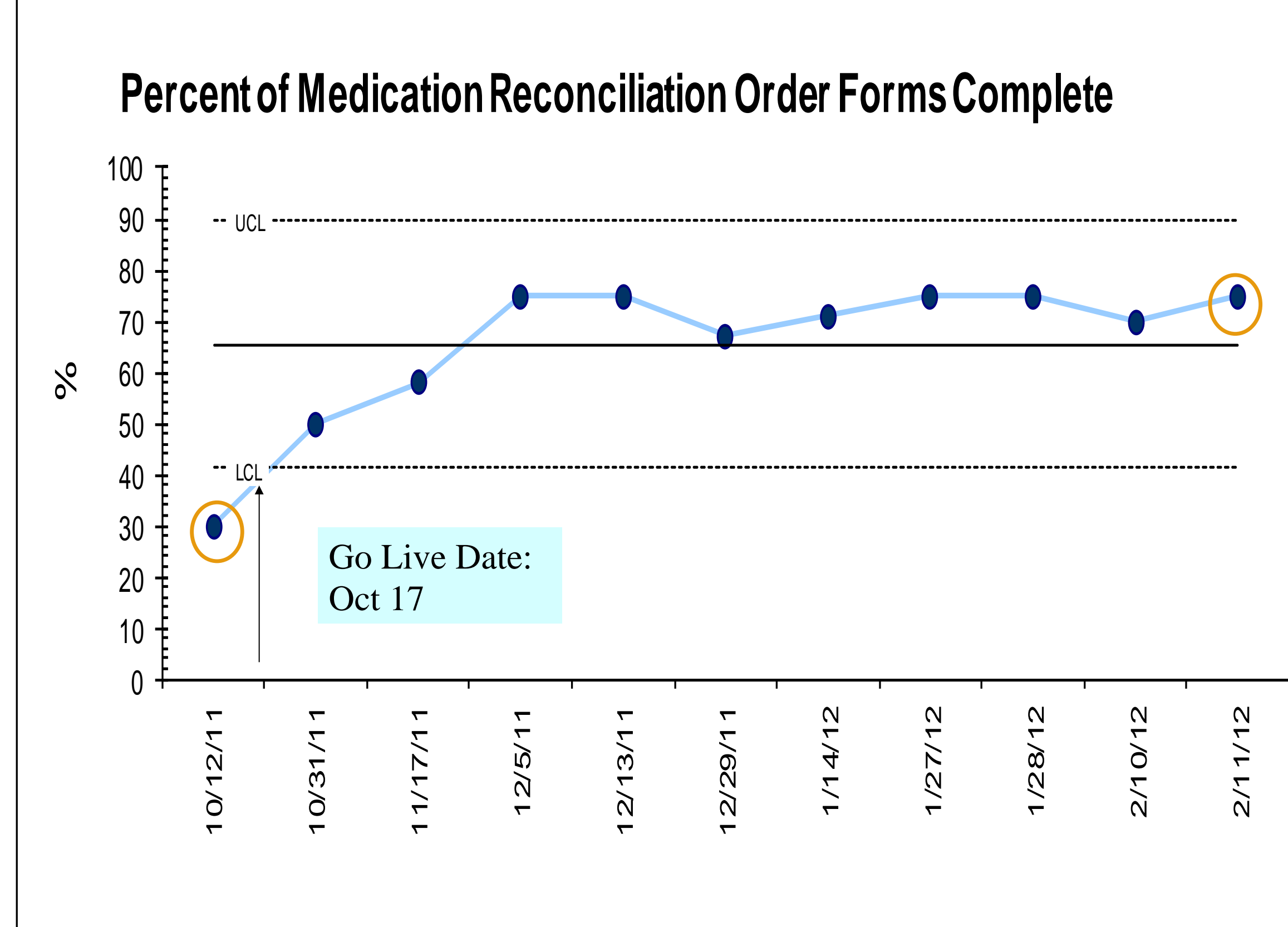


Figure 1: % of MRO forms complete

Blank Form vs. Pre-populated Med Rec Form

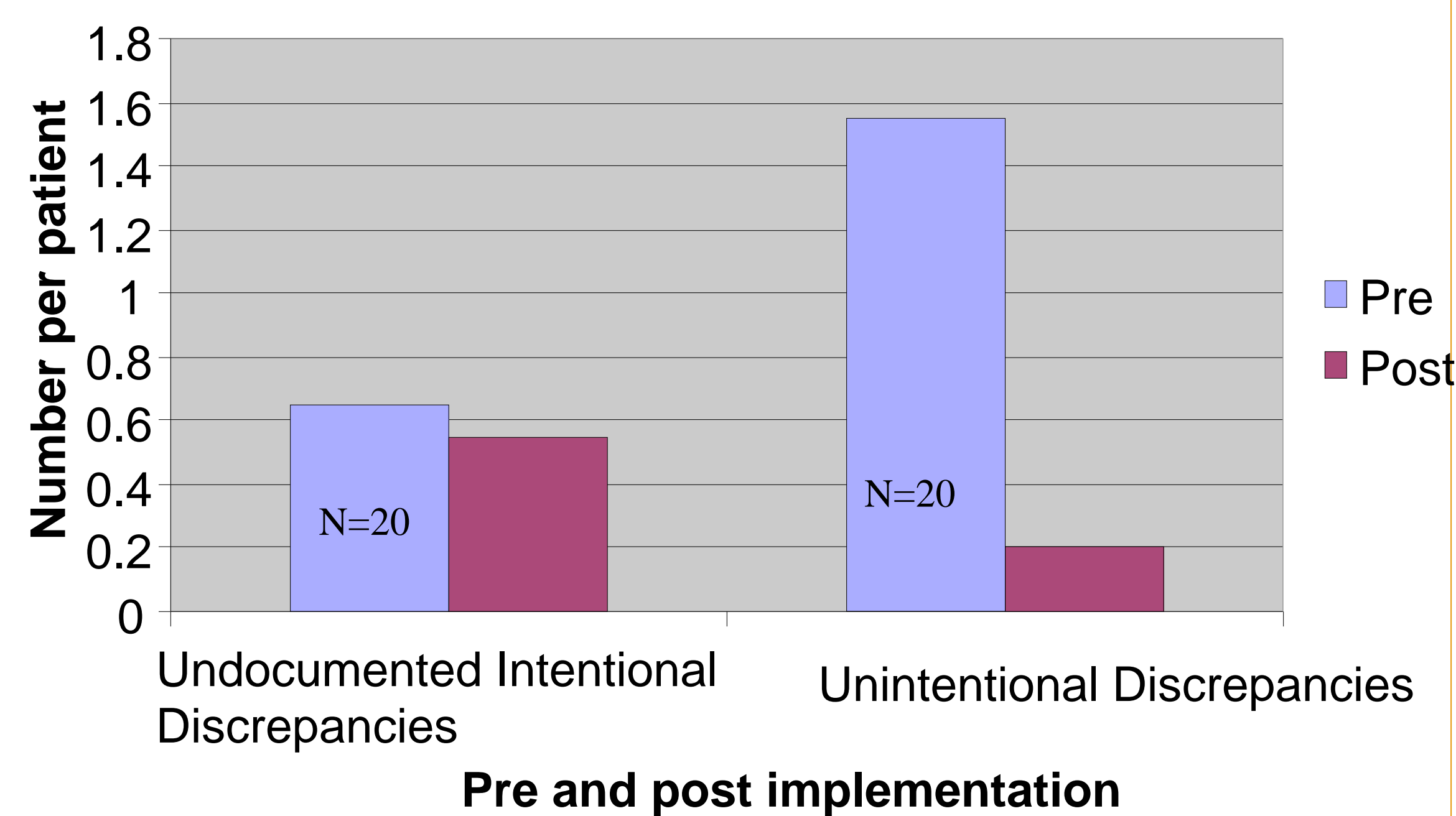


Figure 2: Number of undocumented and unintentional discrepancies pre and post implementation

Definitions

- **Intentional discrepancy:** Intentional choice made by the physician to add, change or discontinue a medication and a clear documentation of the choice.
- **Undocumented intentional discrepancy :** A physician choosing to add, change or discontinue a medication but not clearly documenting the choice.
- **Unintentional discrepancy:** A physician unintentionally changing, adding or omitting a medication the patient was taking prior to admission.

Overall Satisfaction Rate: Blank Form vs. Pre-populated Form

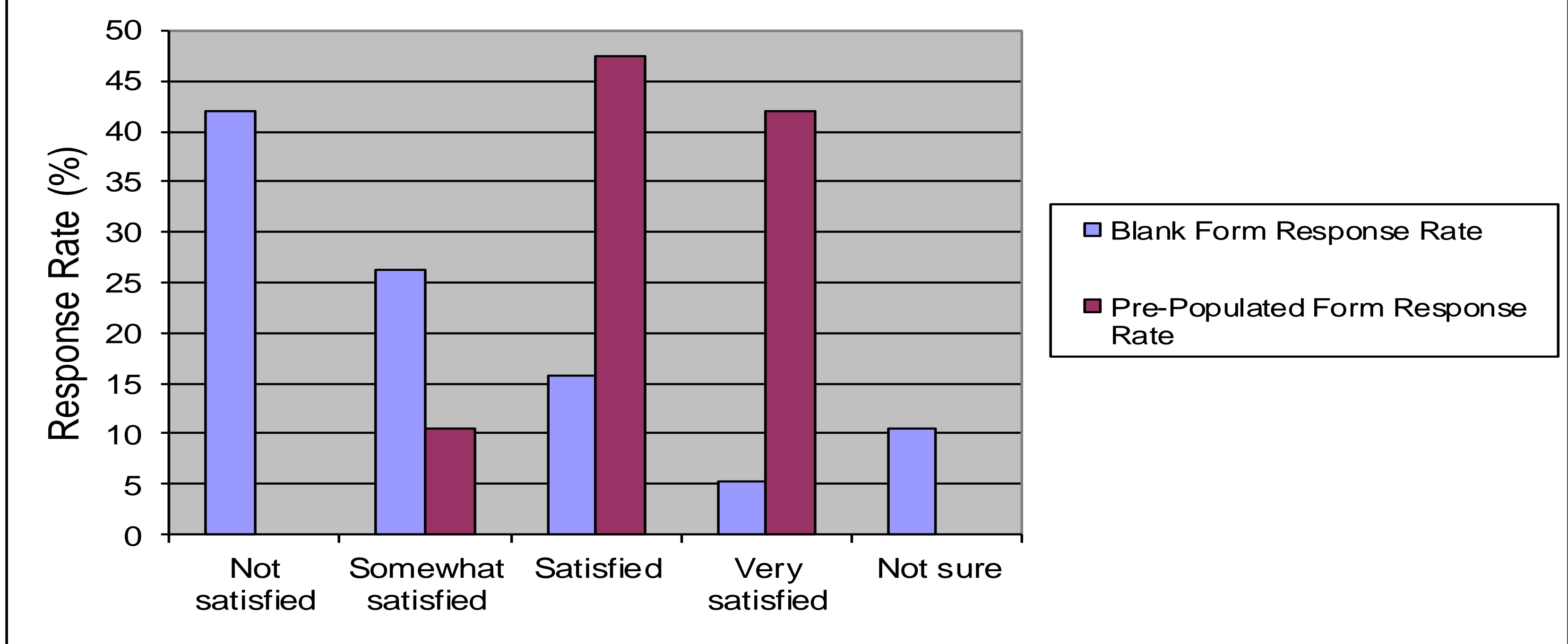


Figure 3: Satisfaction rate for Blank Form vs. Pre-populated Form

Discussion

- On Feb 11th, special cause variation was identified based on a sustained change in percent forms completed. Primary outcome measure was assessed from Jun 28-Jul 5, 2011 and Mar 12-20, 2012. Secondary outcome measures were assessed on Oct 12, 2011 and Feb 11, 2012.
- Post-analysis indicates no change in % of charts with forms (15/20 75% vs. 16/20 80% P=0.705); however there was a significant increase in number of forms completed post-implementation (Figure 1: 4/20 20% vs. 15/20 75% P <0.001) suggesting that pre-populated form is better accepted by medical staff.
- While there was no difference in undocumented intentional discrepancies, there was a significant decrease in number of unintentional medication discrepancies (Figure 2: 1.55 ± 1.905 pre vs. 0.20 ± 0.523 post P = 0.013); therefore suggesting that introduction of the pre-populated form reduced the incidence of medication errors.
- Pre-populated forms were found to be more efficient based on the higher degree of satisfaction compared to blank forms; 90% of health care providers surveyed were satisfied or very satisfied with the pre-populated form (Figure 3). The survey also found that 90% would use the pre-populated form in the future, none preferred the blank form and 10% were unsure.

Limitations

- Non-random selection of patients and wards
- Unblinded study
- Restricted to a single site
- Longitudinal study design

Conclusions

- A pre-populated Medication Reconciliation Admission form is more effective and efficient than a blank form as demonstrated by:
 - Higher completion rates
 - Fewer medication errors
 - Greater user satisfaction

