

# Digitizing Care: Enhancing Efficiency and Accuracy through a Mobile Electronic Observation Record on an Inpatient Behavioral Health Unit

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## INTRODUCTION AND PURPOSE

- Mental health staff observe patients every 15 minutes to ensure safety (Daniels, 2016; Janofsky, 2009; Jayaram et al., 2010)
- Observations are documented into an observation record
- Transition to a mobile electronic observation record (MEOR) could improve observation adherence and patient safety (Grundgeiger et al., 2016; Lehtovuori et al., 2020; McLoughlin, 2021)
- P:** Mental health staff on behavioral health unit
- I:** MEOR
- C:** Paper Observation Record
- O:** Observation compliance (<15 mins) and timeliness
- T:** 30 days for each intervention

## REVIEW OF LITERATURE

### Limitations of Paper-Based Observation Charting

- No digital timestamping: Allows backdating or falsification of documentation (Adaba & Kebebe, 2018; McLoughlin et al., 2021; Sefton et al., 2016)
- Lack of electronic alerts or reminders: Staff may miss or delay checks (Lehtovuori et al., 2020; Mikhael et al., 2019; You et al., 2021)
- Security risks of paper records: Higher risk of unauthorized access (Department of Health and Human Services, 2007a, 2007b, 2007c)

### Advantages of MEOR/EHR Systems

- Timestamping ensures accurate, immutable documentation (Adaba & Kebebe, 2018; McLoughlin et al., 2021)
- Electronic alerts improve compliance of interventions (Lehtovuori et al., 2020; Mikhael et al., 2019; You et al., 2021)
- Improved Auditing and Access Controls (Department of Health and Human Services, 2007a, 2007b, 2007c)

## METHODS

### Setting

- 5-bed inpatient behavioral health unit
- Avg. census: 2.1 patients/day

### Sample

- Staff: 7 RNs, 3 LPNs, 2 EMTs, 8 MHTs
- Routine 15-minute observations by staff

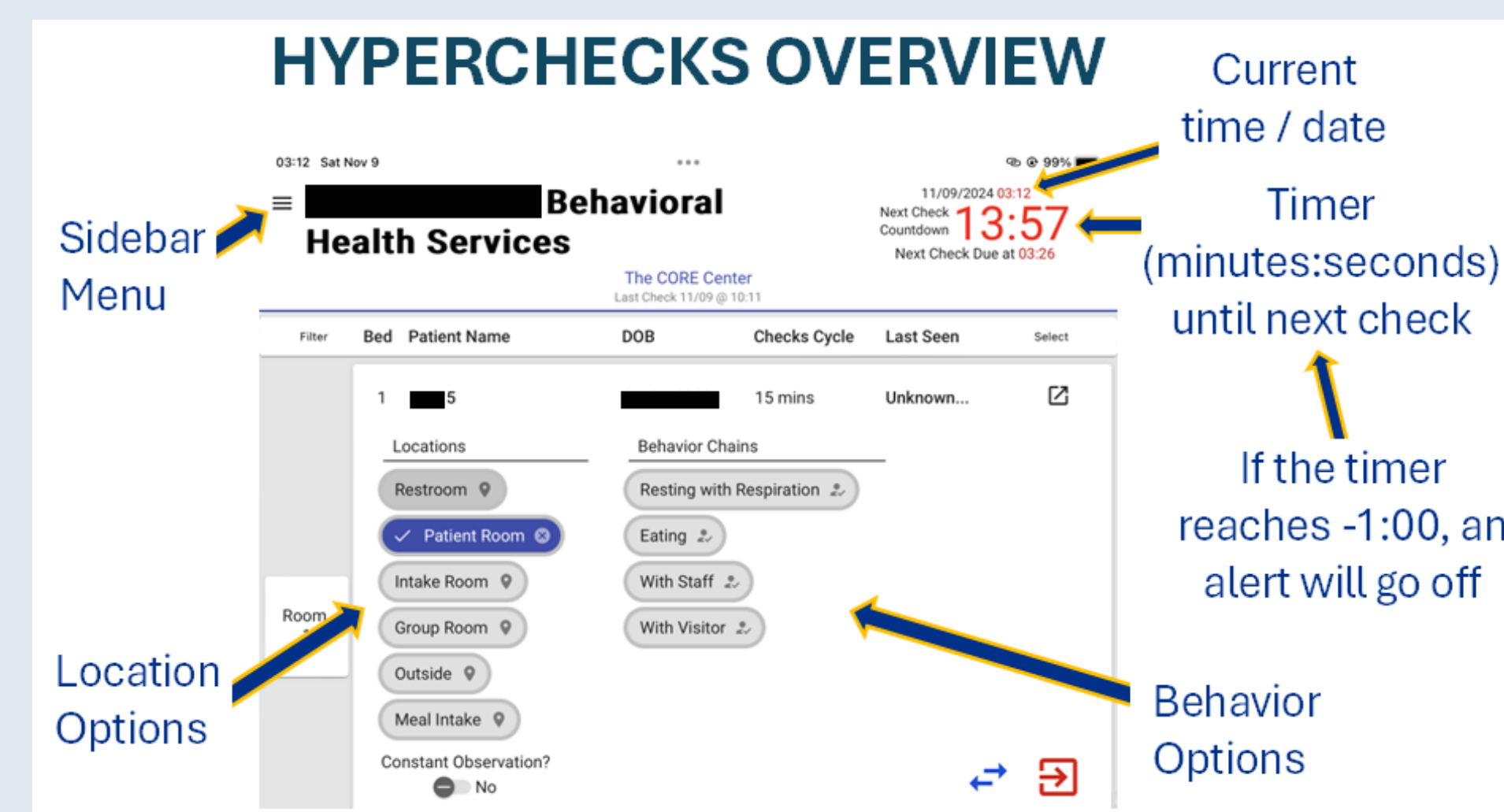


Figure 1: Hyperchecks Overview

### Intervention: MEOR (Hyperchecks)

- Tablet-based application developed for real-time documentation
- Study of the Intervention**
  - Paper Observation Period (30 days):*
    - Standard practice; times manually recorded
    - Compliance and timeliness manually calculated
  - MEOR Observation Period (30 days)*
    - Real-time documentation
    - Automatic compliance tracking
    - Data collected from SQL server

### Measures

- Compliance rate (compliant ÷ total observations)
- Observation Intervals

## RESULTS

PAPER OBSERVATION RECORD (30 Days)	
# of Compliant Observations	1157
Total Observations	2305
Compliance Rate	0.5020
Mean Time Since Last Observation	0:15:05
Std Dev	0:02:48
5 observations excluded (0:01:00<x<01:00:00)	
MOBILE ELECTRONIC OBSERVATION RECORD (30 Days)	
# of Compliant Observations	1606
Total Observations	2799
Compliance Rate	0.5738
Mean Time Since Last Observation	0:14:34
Std Dev	0:03:25
66 observations excluded (0:01:00<x<01:00:00)	

Figure 2: Descriptive Statistics Pre- and Post- Intervention

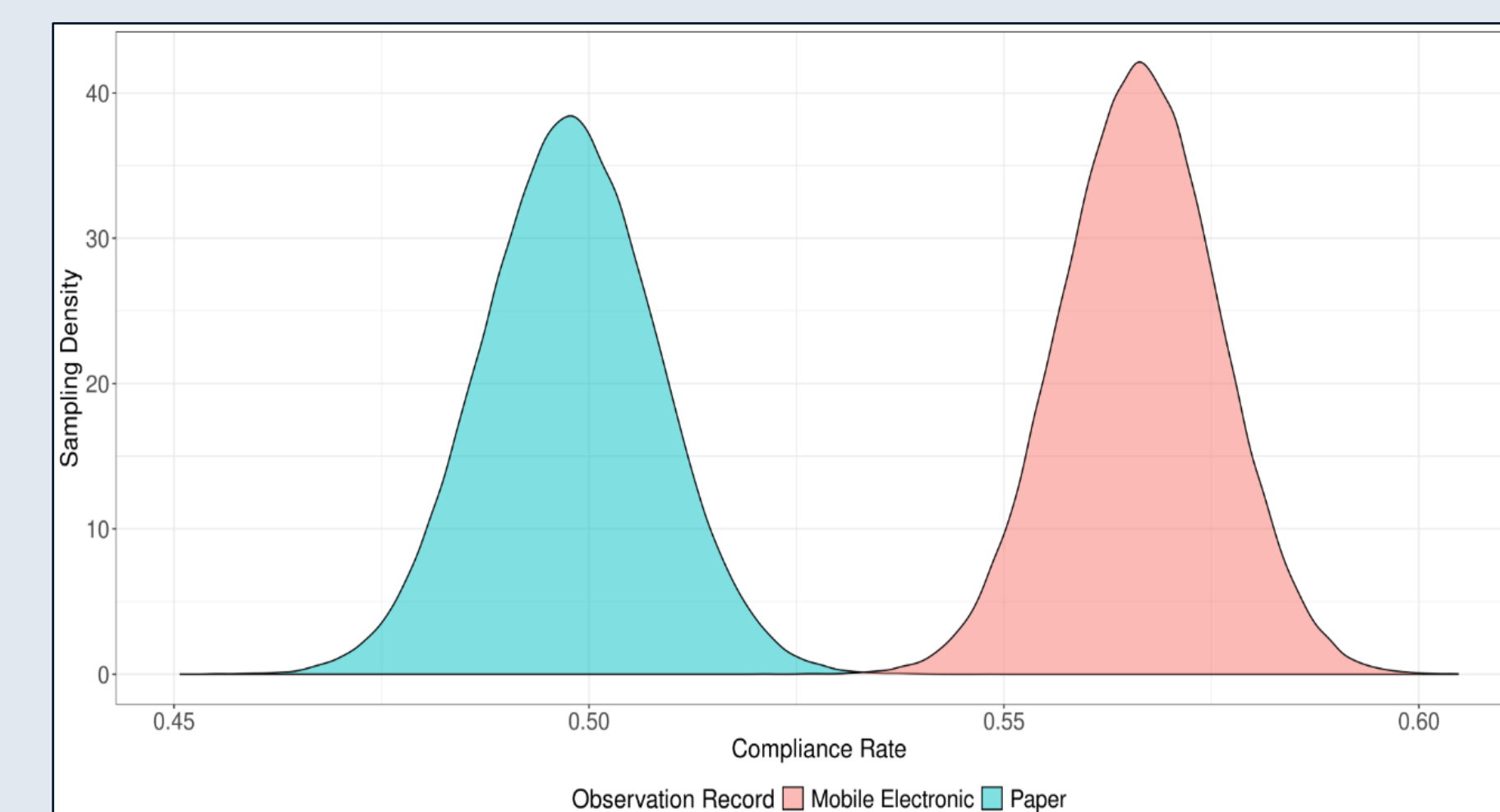


Figure 4: Probability Scale from Logistic Regression Indicates Improvement in Compliance Rate with MEOR

Paper Observation Record					
1%	25%	50%	75%	99%	
7.720	13.900	15.000	16.033	23.980	
Mobile Electronic Observation Record					
1%	25%	50%	75%	99%	
3.785	13.533	14.750	15.867	26.294	
Quantile Regression of All Observations (Pre- & Post- Intervention)					
tau	Intercept	Value	Std. Error	t value	Pr(> t )
0.01	7.720	-3.950	0.667	-5.926	0.000
0.25	13.900	-0.367	0.083	-4.415	0.000
0.50	15.000	-0.250	0.046	-5.475	0.000
0.75	16.033	-0.167	0.081	-2.061	0.039
0.99	23.980	2.350	1.703	1.380	0.168
Logistic Regression of Compliance Rate					
Value	Std. Error	z value	Pr(> z )		
0.277	0.057	4.865	0.000		

Figure 3: Quantile Regression Indicates Decreased Observation Time Intervals with MEOR

- MEOR increased staff compliance of 15-minute safety observations from 50.2% to 56.7% (OR = 1.32,  $p < 0.001$ )
- MEOR reduced median observation intervals by 15 seconds ( $p < 0.001$ ).

## DISCUSSION

### Discussion

- MEOR improved compliance and timeliness
- Findings align with literature supporting electronic alerts & timestamping
- Staff feedback recommends MEOR includes mood/activity fields and offline usability

### Facility Impact

- Improved compliance, surveillance, and safety culture
- Reduced paper use and physical storage
- Streamlined auditing and survey readiness
- Enhanced accountability and operational efficiency

### Limitations

- Single small unit, rural setting: Limited generalizability
- No patient-level outcomes measured

## CONCLUSION

- MEOR improved observation compliance and timeliness
- Reduced falsified entries
- Supported safety initiatives and efficiency

## REFERENCES

