Implementation of an AI-powered Virtual Nursing Program

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INTRODUCTION / CHALLENGE

The U.S. is facing a significant **nurse staffing crisis**, limiting hospital bed availability and service capacity, particularly in rural states like Mississippi, where 38% of hospitals are at **risk of closing**.

SOLUTION: Disrupting Nursing Shortage

Introducing the Virtual Nurse

Virtual Nursing Bunker
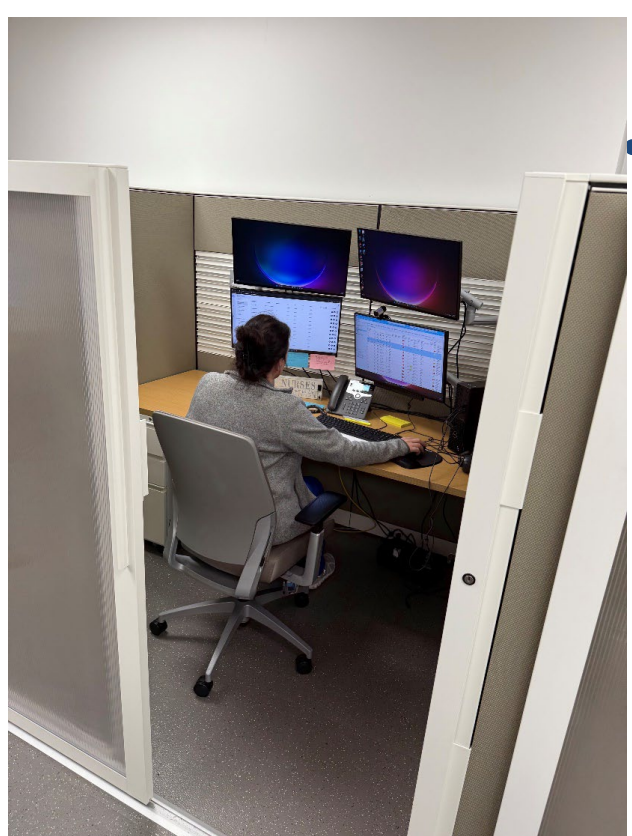
Bedside RN Team

Admission
- Review of patient data

Discharge
- Patient education
- Coordination of Care

Rounding
- Identification of need
  - Safety checks
  - Pain reassessment

IMPLEMENTATION AT UMMC

Pilot Program

Implementation - March 20, 2023
- 6 West: 14 Bed Unit
- Adult Med-Surg

Staffing Structure
- Onsite - "Bunker"
- 9am-9pm, 7 days a week

Technology

Patient Room
- Pan/Tilt/Zoom Camera and Monitor, Speakers
- iPad with MyChart Bedside (education, satisfaction questionnaire)
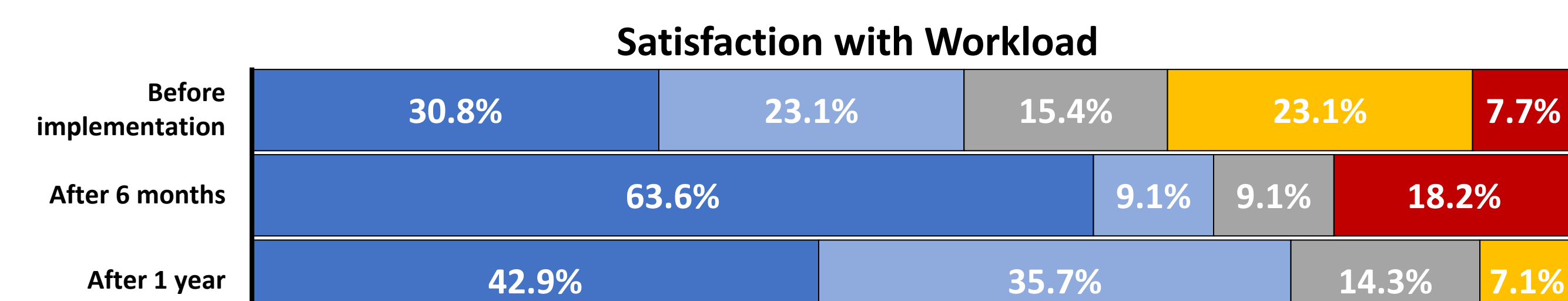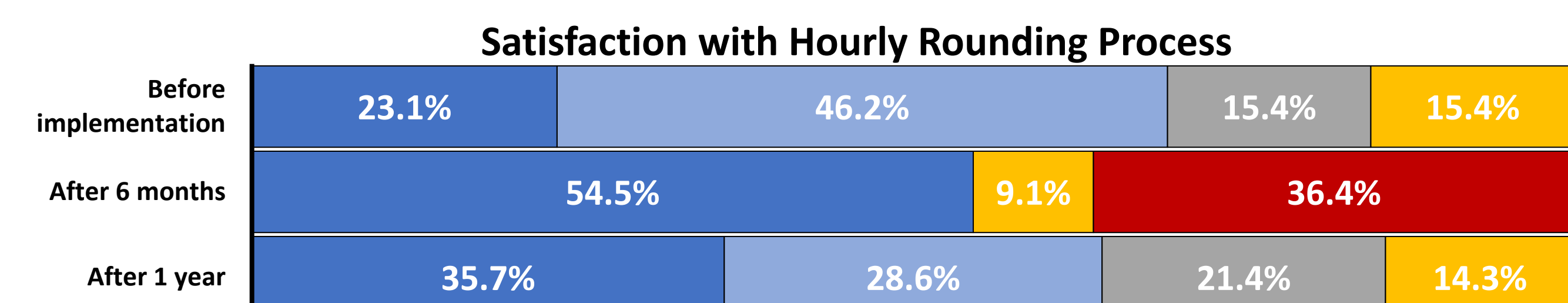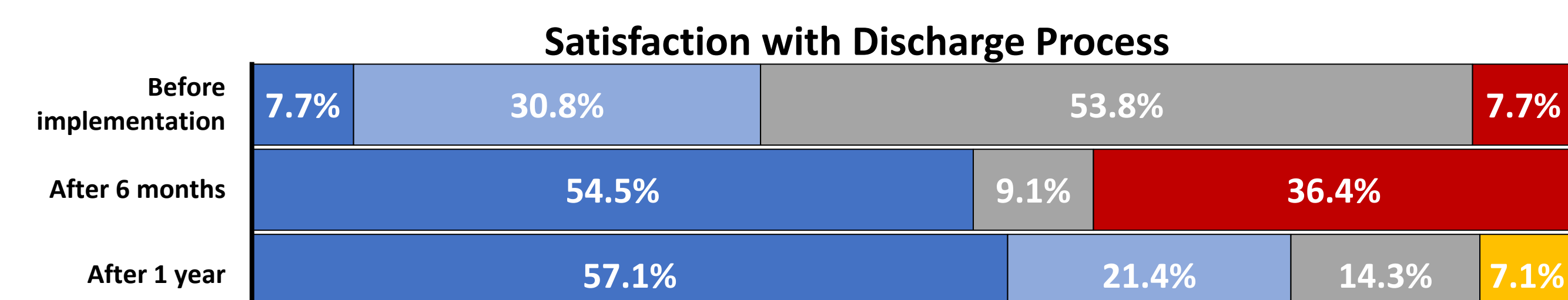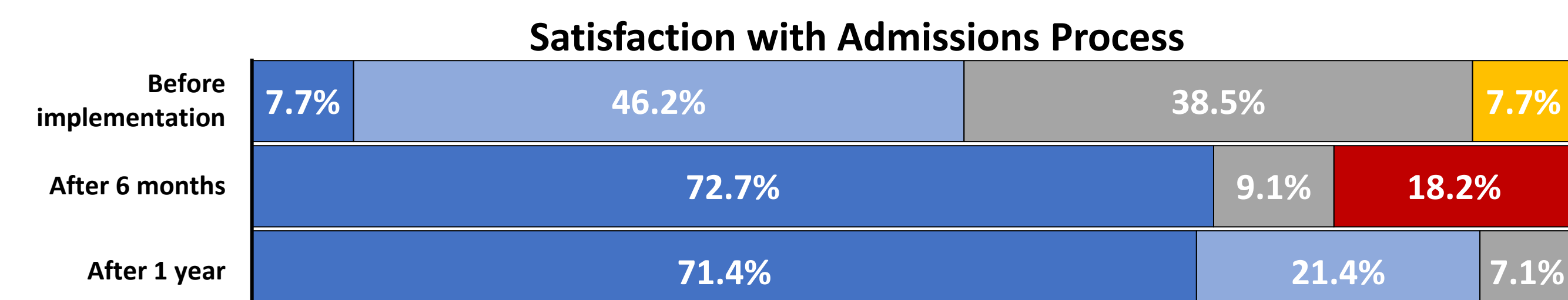
Virtual Nurse Bunker
- Secure Chat Integrated with EPIC Platform
- 4 Screens: Hyperspace, Focuses Patient, Video Call, EPIC Monitor

RESULTS

Bedside Nurse Satisfaction

Legend: ■ Extremely satisfied ■ Somewhat Satisfied ■ Neither satisfied nor dissatisfied ■ Somewhat dissatisfied ■ Extremely Dissatisfied

Satisfaction with Admissions Process

	Extremely satisfied	Somewhat Satisfied	Neither	Somewhat dissatisfied	Extremely Dissatisfied
Before implementation	7.7%	46.2%	38.5%		7.7%
After 6 months	72.7%		9.1%		18.2%
After 1 year	71.4%		21.4%		7.1%

Satisfaction with Discharge Process

Before implementation	7.7%	30.8%	53.8%		7.7%
After 6 months	54.5%		9.1%		36.4%
After 1 year	57.1%		21.4%	14.3%	7.1%

Satisfaction with Hourly Rounding Process

Before implementation	23.1%	46.2%	15.4%	15.4%	
After 6 months	54.5%		9.1%		36.4%
After 1 year	35.7%	28.6%	21.4%	14.3%	

Satisfaction with Workload

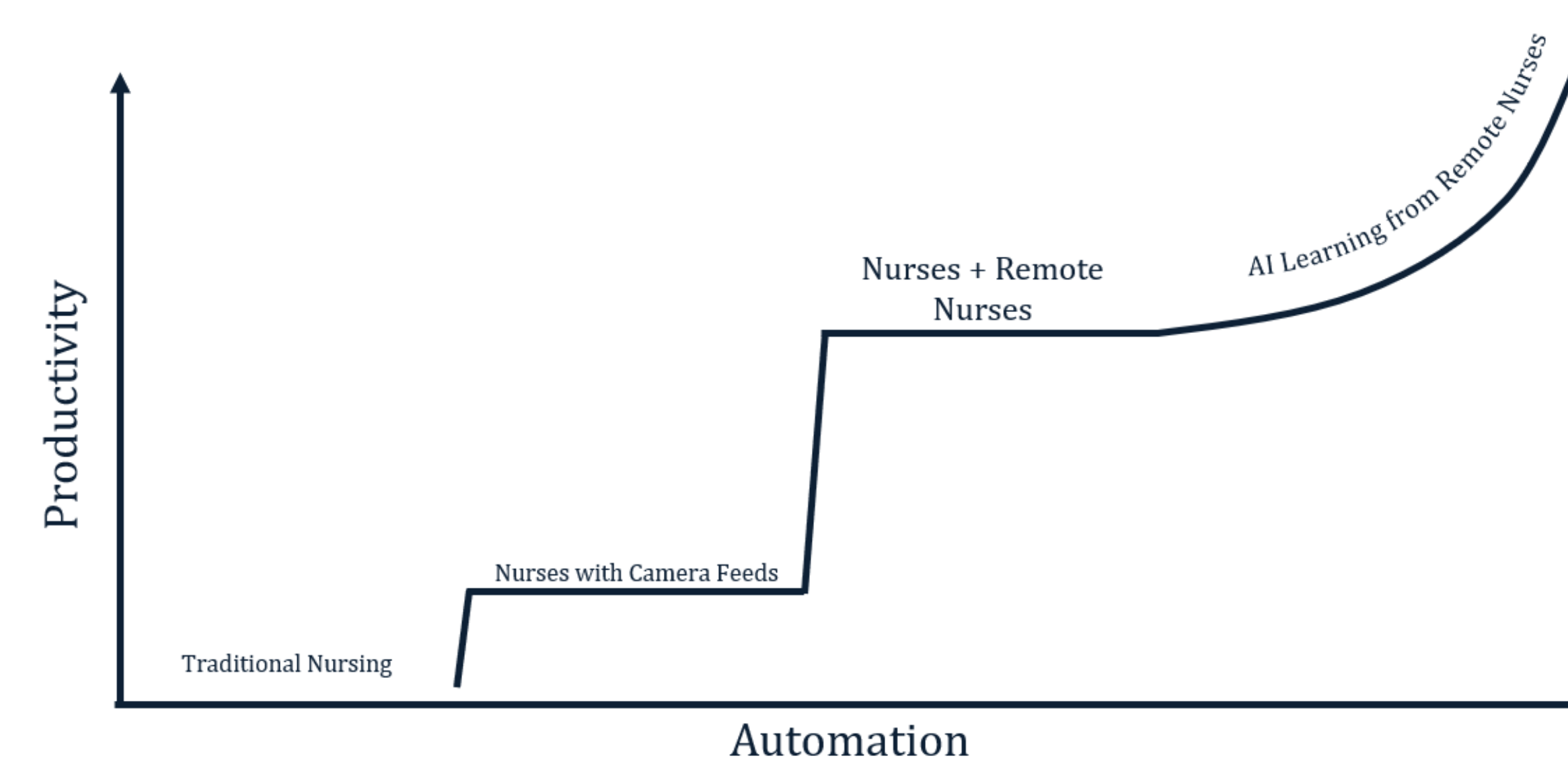|					
Before implementation	30.8%	23.1%	15.4%	23.1%	7.7%
After 6 months	63.6%		9.1%	9.1%	18.2%
After 1 year	42.9%	35.7%	14.3%	7.1%	

Results

0%

RN Turnover
In the first 18 months

Patient Satisfaction

- 76% **UNDERSTOOD THE ROLE OF THE VIRTUAL NURSE**
- 78% **WOULD LIKE TO RECIEVE CARE FROM A VIRTUAL NURSE DURING FUTURE VISITS**
- 81% **COMMUNICATION WITH THE VIRTUAL NURSE WAS EASY**

NEXT STEP: INTEGRATION OF AI TECHNOLOGY

Productivity vs Automation: Traditional Nursing → Nurses with Camera Feeds → Nurses + Remote Nurses → AI Learning from Remote Nurses
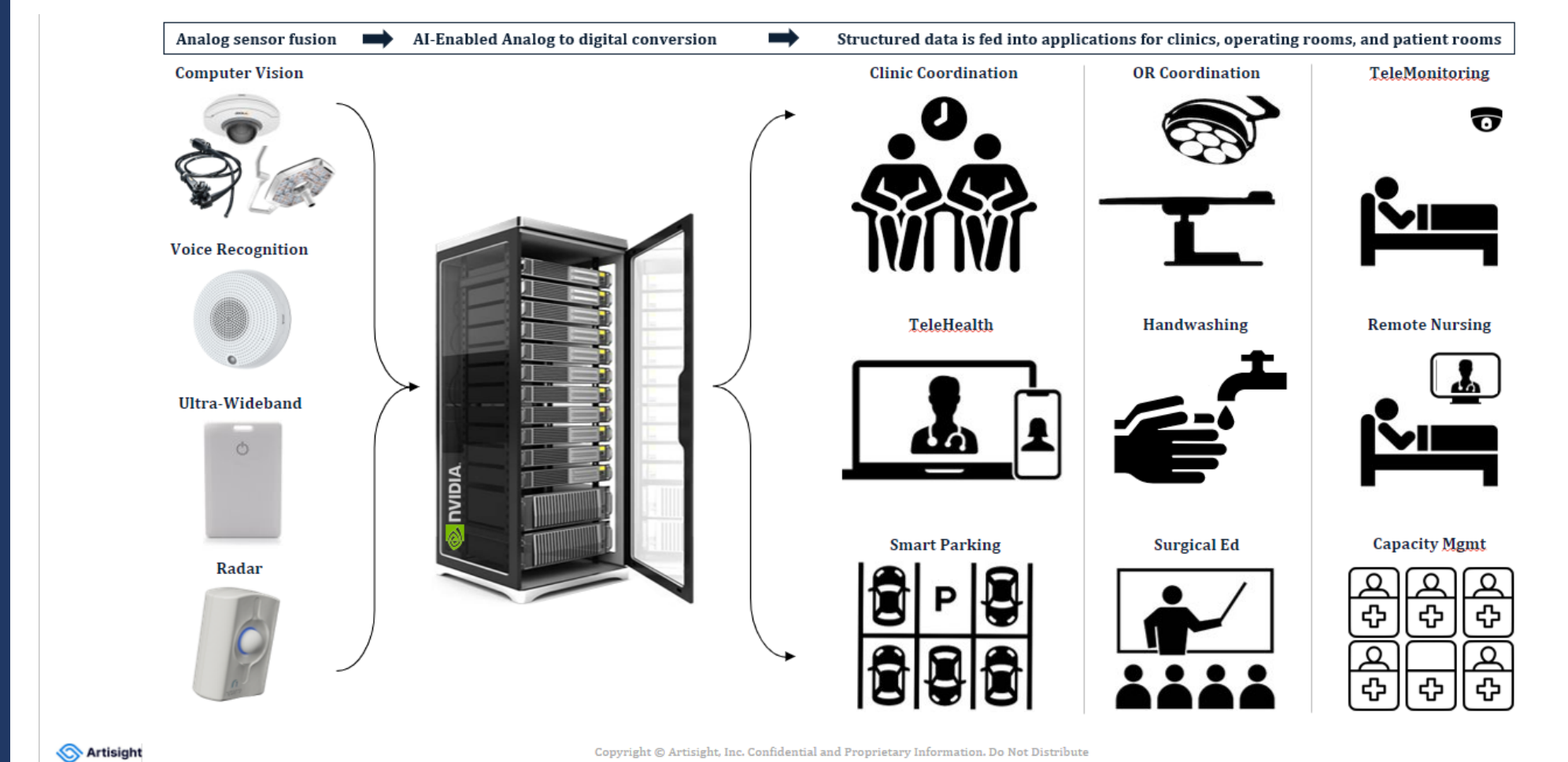
Virtual Nursing + AI-powered Virtual Observation

Pilot Program

- AI technology implemented on 6 West and 4 North (46 beds)
- Initial focus on Fall Prevention
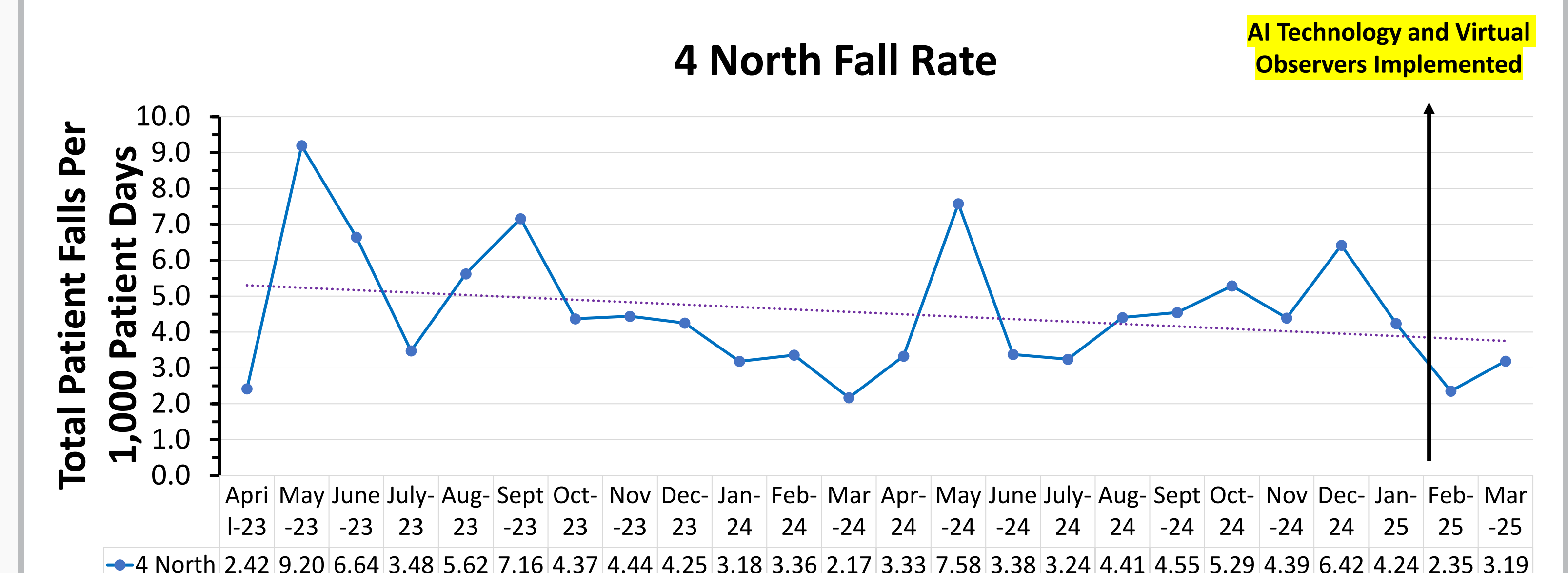
Staffing
- Tele Sitters 24/7
- VRN 9am-9pm, 7days

AI-Powered Platform Built By Clinicians

FALL PREVENTION ALGORITHM

SAFE — CAUTION — ALERT

PRELIMINARY RESULTS

4 North Fall Rate

AI Technology and Virtual Observers Implemented

Total Patient Falls Per 1,000 Patient Days

	April-23	May-23	June-23	July-23	Aug-23	Sept-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	June-24	July-24	Aug-24	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
4 North	2.42	9.20	6.64	3.48	5.62	7.16	4.44	4.25	3.18	3.36	2.17	3.33	7.58	3.38	3.24	4.41	4.55	5.29	4.39	6.42	4.24	2.35	3.19	

We expect that AI-powered virtual observation will augment ongoing efforts to prevent falls in hospital nursing units.

CONCLUSION

The Virtual Nursing program has the potential to provide multi-faceted benefits in multiple hospital settings.