MAYO CLINIC

Advancing Nursing Practice with Generative AI

Northeast Nursing Informatics Consortium

May 17, 2024

Learning Objectives

- Introductions
- Mayo Clinic Strategy for Implementing AI in Nursing Practice
- Outcomes from Generative AI Adoption
  - Case Study: In Basket Augmented Reply Technology
- The Future of AI for Nursing at Mayo Clinic
  - Case Study: Nursing Virtual Assistant
- Summary & Close

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Our Team

Cheristi Cognetta-Rieke, DNP, RN

Chief Nursing Officer – Enterprise Transformation

Dr. Cognetta-Rieke is an Assistant Professor of Nursing at the Mayo Clinic College of Medicine and Science and serves as the chief nursing officer for Mayo Clinic leading the enterprise Department of Nursing transformation work.

Angie Griffin

Director – Clinical Systems Strategy and Innovation

Angie has a rich background in EHR implementation and optimization, specifically in achieving EHR success in outpatient specialties. Currently, Angie supports Clinical Systems by articulating strategy, championing innovation – including Generative AI, automation, and ambient documentation – and demonstrating value to support Mayo Clinic's mission to Cure, Connect, and Transform.

Mayo Clinic Multidisciplinary Academic, Practice, Education & Research Center – AZ, FL, MN, WI, IA, International

Epic version – November 2023

Rochester
Minnesota

Jacksonville
Florida

Phoenix & Scottsdale
Arizona

Health System
Minnesota • Iowa • Wisconsin

Primary Value

The needs of the patient come first

Mission

Inspiring hope and promoting health through integrated clinical practice, education, and research.

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Epic version – November 2023

Hospitals
20

Surgeries
141,000

Organ transplants
1,858

Outpatient visits
14 mil

Virtual visits
15-20%

Staff
76,000

Disclosure of relevant financial relationship(s) with industry

- Nothing to disclose

References to off-label usage(s) of pharmaceuticals or instruments

- Nothing to disclose

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Strategy for Implementing AI in Nursing Practice

Advancing Nursing Practice with AI

- Front-line nursing engagement in initial feedback/development and rollout strategy
- Nursing leadership engaged in project approval and oversight
- Deliver tools that allow nursing staff to focus on patient care
- Human in the loop: Gen AI can summarize, write drafts, and/or suggest care, but nurses determine what to use and what goes in the record
- Leverage teamwork from multiple teams across Mayo Clinic working to transform clinical practice

Mayo Clinic Nursing

The definitive source of unparalleled nursing knowledge, trusted expertise and innovative patient care.

24,000 Nursing staff

Generative AI at Mayo Clinic

Vision

A reimagined healthcare system where clinicians, researchers, educators, administrators and allied health professionals all practice at the top of their license, ensuring the most optimal care for patients.

Purpose

To seek out, develop and integrate into Mayo Clinic the most impactful generative AI solutions to reduce administrative burden, improve the clinical practice and transform healthcare.

Workstreams Supporting Generative AI

Supporting Staff-Generated Innovation

Helping progress novel ideas from mayo clinic employees

Foundation Model

‘Mayo AI doc’ for the world

Reduce Admin Burden

Implement solutions to generate optimal workflows

Skunkworks

Leverage infrastructure for LLM development to foster collaboration and innovation

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Plummer Chart (Epic) Subcommittee

Ease. Elevate. Evolve.

Mayo Clinic is exploring generative AI use cases that can help our clinicians and staff. As an early adoption partner with Epic, we will provide ongoing rapid feedback to speed the delivery of use cases from concept to release and maturation.

The goal is to **leverage the technology side of healthcare** in innovative ways that increase productivity and efficiency, reduce administrative burden, and allow our clinicians to **focus more on the human side of healthcare: our patients**.

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Outcomes from Generative AI Adoption

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Case Study: In Basket Augmented Reply Technology

- High-quality, empathetic messages to patients
- Reported reduced cognitive burden & time savings
- Metrics
  - Adoption
  - Appropriate Use
  - ROI

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In Basket Augmented Response Technology

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What is it? Generative AI drafts replies to patient portal messages, which staff review and edit, if necessary, before sending.

Background

Pilot Details: The feature was rolled out to 30 nurses and 10 providers July – Dec 2023

Pilot Observations

- No observed hallucinations
- More valuable for nursing than providers as the prompt explicitly avoids medical decision making
- Nursing feedback shows value in the tool; drafts prevent “writer’s block” and improve empathy
- Overall, high draft usage (30-50% of messages started from draft); utility varies by individual and specialty; need more data to fully understand this

Pilot Outcomes

Limited timing studies (n=25) indicate that on average, nursing users spent 30 seconds less per message when using the AI-generated draft, showing potential for time savings with a larger roll-out

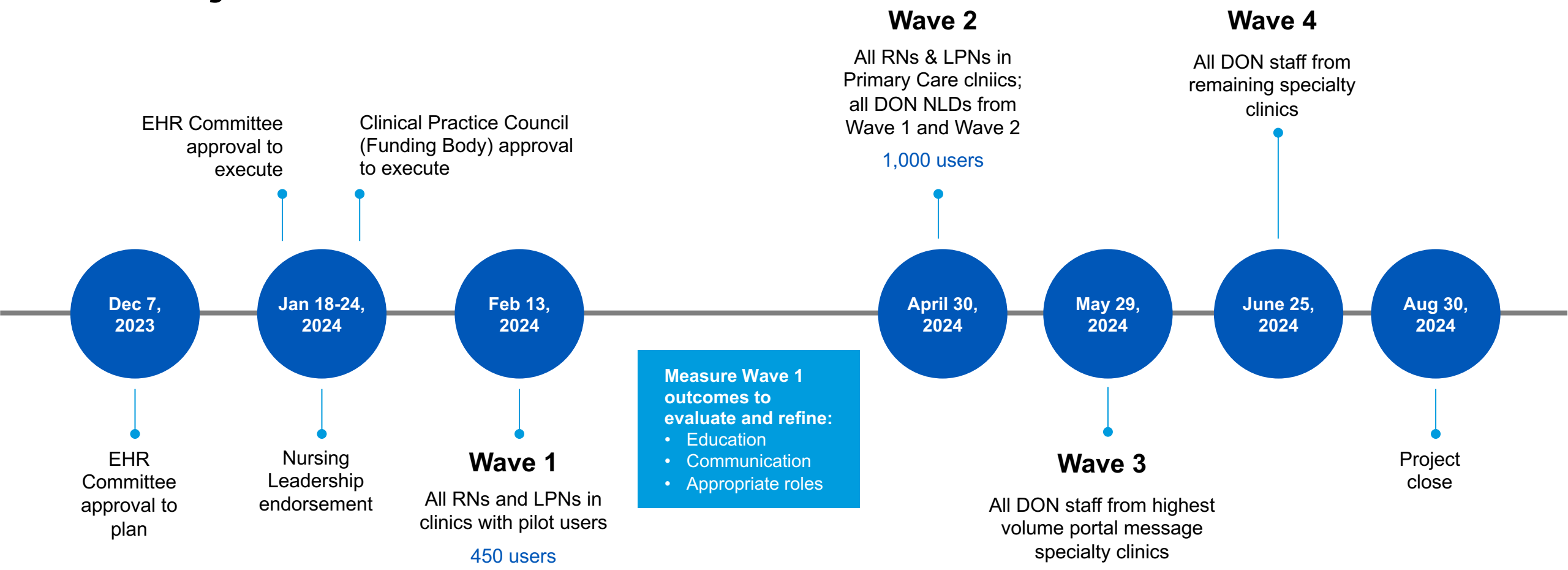
Rollout Project

Approval to Execute secured on Feb 1

Rollout Plan

- Focus on nurses (RN, LPN); limited value for providers
- Prioritize specialties with the highest volumes of Patient Advice Portal Messages
    1. Primary Care
    2. Med Specialities, OBGYN, Oncology
    3. Remaining specialties and Peds
- Following Wave 1, expanded to include non-licensed delegates under the Department of Nursing
- Exploring expansion to administrative non-licensed delegate (administrative assistants, scheduling staff)

Project Timeline



Training Strategy

Wave 1

Materials: Providing online training modules (4 mins) and Quick Reference Guides managers to distribute to their staff

Strategy: Distribute to managers, managers share with staff

Outcome:

Wave 1 – Week 1 Opt-In: 53%

Wave 1 – Week 1 Draft Usage: 40%

Wave 2

Materials: No change

Strategy: Offer “Go-Live Open House” sessions for Nurse Mangers, Supervisors, and NES

Ask nurse leaders to share training materials with staff

Outcome:

Wave 2 – Week 1 Opt-In: 53%

Wave 2 – Week 1 Draft Usage: 51%

Implications for Nursing Practice

The generative draft reply:

- Will enhance the nurse's workflow
- Will reduce cognitive burden
- Will provide a starting point for replies to patient messages
- Will allow for easy edits including discarding the generated draft
- Will include empathetic and professional text
- Will **NOT** replace clinical judgement
- Will **NOT** change scope of practice
- Will **NOT** remove nurses' responsibility for message content

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Outcomes

Current Usage Data

April 28th – May 5th, 2024

Draft Usage Data		
Viewed drafts used	**42%** 1,728 of 4,153	

User Adoption Data		
Eligible users who have opted In	**60%** 914 of 1,536	
Opted in users who used a draft	**46%** 425 out of 914	

ROI Data		
Total minutes saved	tbd	
Avg % of sent messages written by AI	**87%**	⬆

Appropriate Use Data		
Unchanged drafts	**29.6%** 506 out of 1,708	⬆
Avg % of draft used per message	**89%**	⬆

*In a blinded qualitative assessment, our team has shown that messages started with the AI draft are empathetic, address the patient need, and are appropriate length and reading level.

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Future AI for Nursing at Mayo Clinic

Advancing Nursing Practice with AI

- Nursing Virtual Assistant (case study)
- Epic Draft Shift Summary Note
- Ambient nursing documentation
- Generative AI Patient Summaries

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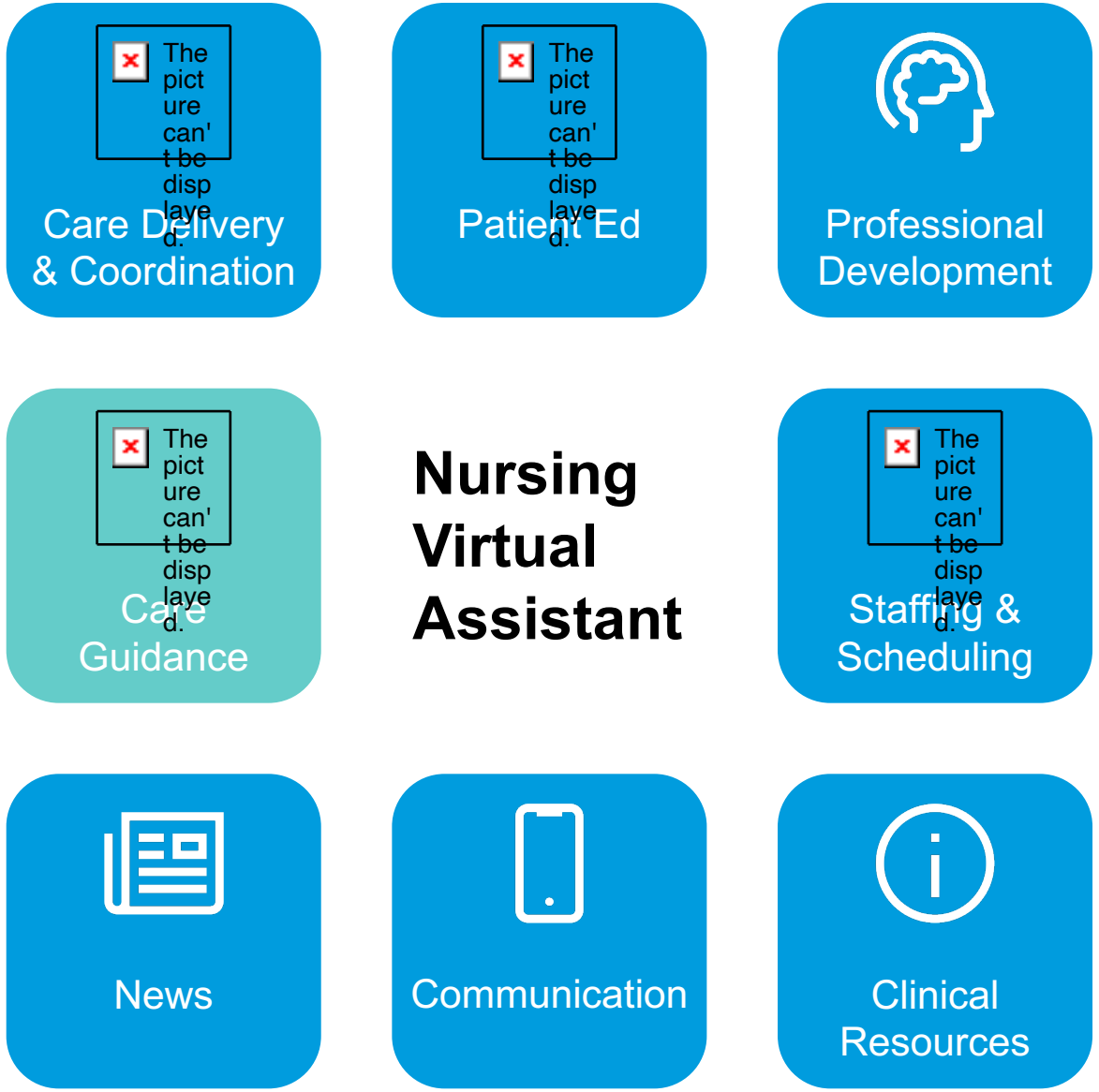
Nursing Virtual Assistant

Nursing Virtual Assistant



Purpose and Problems

We aim to develop a **Nursing Virtual Assistant (NVA)** that will **guide individualized nursing care,** including identification of missed care

Regulatory

Care planning is not personalized which is out of alignment with Joint Commission requirements

Support

We have many new, float, and traveling nurses who need support with planning care

Usability

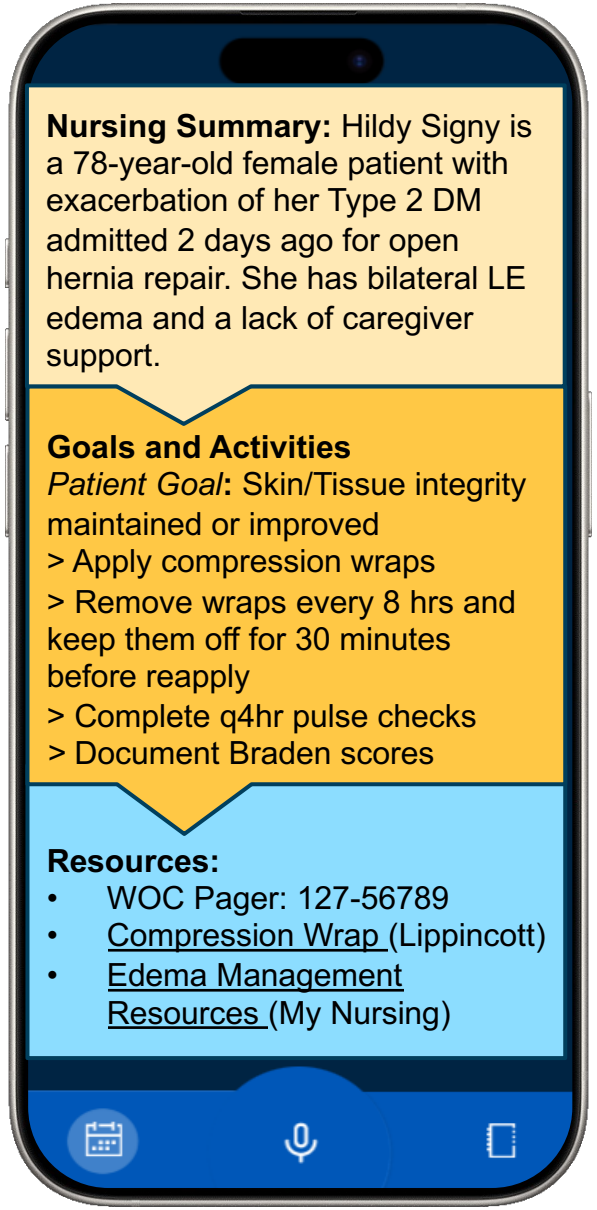
Care planning documentation lacks ease of use and direct value to patients and nursing workflow

Resources

Nurses may not have time or know how to quickly find relevant care guidance resources

Target MVP

Platform: Mayo Clinic Chatbot
Patient Summary: nursing-centric patient summary designed for start of shift or transfer of care
Goals and Activities: Patient & care goals with supporting interventions. Amplification of “care signals” that may indicate risk, missed care, or priority activities which impact patient outcomes.
Resources: Source of recommendations and options for getting more information



Workflow

START

Nurse is assigned to patients in Epic

Nurse enters patient's chart and selects NVA icon in Storyboard or Rover

Nurse selects patient within NVA

Assigned patients auto-populate to NVA dropdown list

Nurse reviews auto-populated output

Patient data and internal resources are consumed and incorporated into output

Nurse views unit specific algorithms and resources

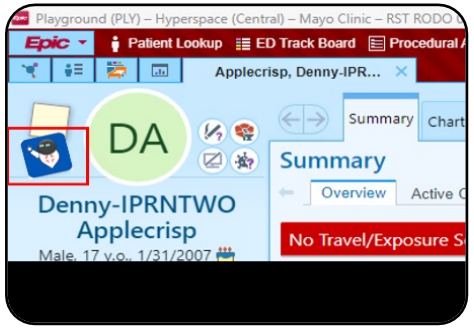
Nurse uses clinical judgement to identify appropriate care inventions

Nurse returns to patient's chart and facilities tasks, orders, and documentation as appropriate

Nurse personalizes Care Plan details and adds patient specific interventions

Nurse continues with cares and accesses NVA as needed throughout shift

END



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