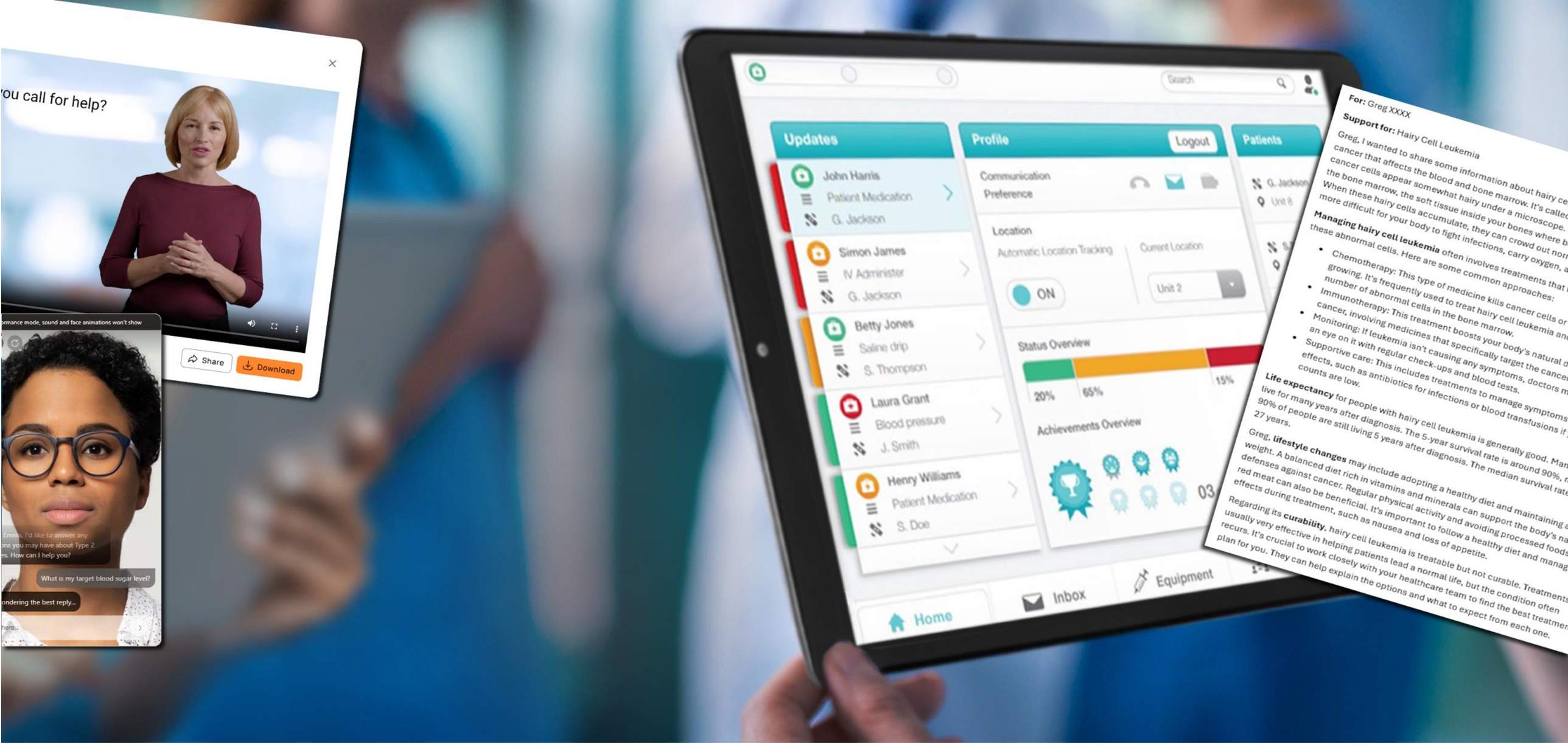

Nursing First GenAI & AI

PATIENT EDUCATION

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Contents

Other Nursing First Articles: Link

- Nursing First GenAI & AI: Foundation, Safety & Effectiveness
- Nursing First Outcomes – Revision 1
- Nursing First: MyAction Hub
- Introducing Nursing First
- Human Side of Virtual Nursing: Managing the Future
- Virtual Nursing: Shift & Augment Tasks
- Virtual Nursing: Inpatient Outcomes
- Virtual Nursing: Beyond Virtual Nursing 1.0
- Virtual Nursing: Early Wins
- Virtual Nursing Aligned to Command Centers
- Virtual Nursing: Lessons Learned

Nursing First: Empowering & Protecting Nurses

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Nursing First is the journey to new care models, achieving consistent excellence in care delivery while supporting and building trust and resilience among the nation's most prominent and most trusted professionals in healthcare -- Nurses. Earlier **Nursing First** articles describe the foundation on which AI and GenAI are helpful to achieving the **Nursing First** Mindset. First, **Nursing First** reinvents the care model to empower nurses to achieve better outcomes by leveraging virtual nursing, automation, and technology augmentation, as well as team-based staffing and provider consultations. Second, MyAction Hub is a capability that enables safety, coordination, and communication. Third, automation/augmentation continues to explore the use of AI and GenAI, particularly AI agents or digital humans responsible for aspects of nursing activities.

Nursing First's foundational capabilities:

1

Nursing First Mindset:

Nursing First aims to support nurses in practicing at the top of their license through a nurse-led care delivery model redesign, which fundamentally and sustainably addresses the challenges faced across the nursing profession[1,2,3,4] while embracing applicable technologies. This approach directly involves nurses in creating new ways of working, which ultimately empowers them to operate in a professionally safe and supportive environment, elevates the patient care experience, and drives the necessary policy and behavioral changes required for continuous improvements.

2

MyAction Hub: Safety & Effectiveness:

Nursing First's MyAction Hub enables safety, coordination, and communication among the care team. Team care is at the heart of most care models. AI agents should utilize the information known across the care team's use of MyAction Hub to ensure safety and adequate care. Specifically, an AI agent should be able to escalate care to a care team member who is available and within the patient's proximity. At times, an AI agent may divert responsibilities for a patient to a nurse in the care setting who is closer and available.

3

Understanding & Deconstructing:

At the core of **Nursing First** is empowering nurses through the recognition of the broad number of tasks that make up a routine day. Accenture has identified forty (40) activities that are common to nursing, with a particular focus on inpatient, acute nursing.

The goal of **Nursing First** is to deconstruct the job into tasks and subtasks within each of the 40 identified nursing activities. Then, utilize the four levers of virtual nursing — automation/AI/GenAI, team support, and remote consultations — to perform the task or subtask.

Nursing First:
GenAI for Patient Education

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Why GenAI in Patient Education

Patient education plays a crucial role in inpatient care by empowering patients to actively participate in their recovery and improve outcomes. It helps patients understand their condition, treatment plan, and potential complications, leading to better adherence to care plans and a higher chance of successful recovery. In an innovative team nursing model, AI Nurses or AI Agents collaborate and coordinate with experienced RNs to deliver patient education. The following describes how **Nursing First** utilizes GenAI and AI Agents to enhance patient education and reduce the time spent by nurses. The AI Agents were created using D-iD.[5]

Problem Solved

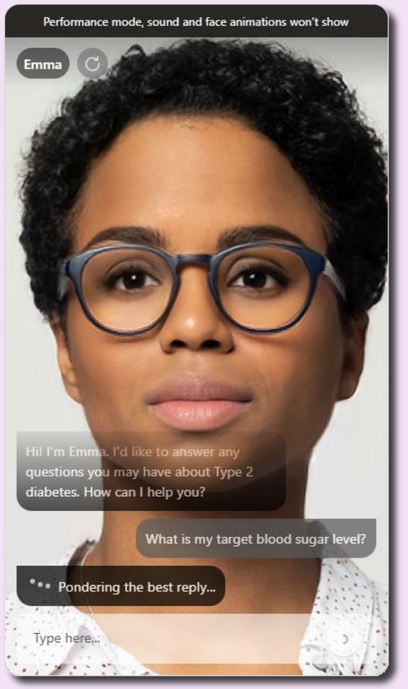
Time-intensive tasks (e.g., patient education) divert attention from complex patient care, creating inefficiencies and contributing to inconsistent care delivery.[6]

Additional Value Points

- Good patient education contributes to several clinical outcomes, including
  - Better compliance with the care plan
  - Reduced readmissions
  - Reduced recurrence of care episodes and better management of the condition
- Also, because patient education can be time-consuming and have unpredictable results with current approaches, there are opportunities to
  - Optimizes operational costs and resource allocation.
  - Manages higher patient volumes, turnover, and care requirements by optimizing skill mix.
  - Reduces dependence on in-person staff, allowing for better patient demand fulfillment.
  - Reduces nurse burnout

GenAI and AI Agent Use Cases

- ***Customize Education*** (included in the use case Support Clinical Patient/Family Communication & Education). Customize education content to the patient's condition, age, Education Level, ethnicity, language, etc.
- ***Deliver Education***. Deliver patient-specific patient education in an engaging manner that is available 24/7 at the patient's convenience
- ***Answer Questions***. Deliver a 24/7 capability to provide answers to questions consistent with Education provided
- ***Patient Education Verification Companion***. Support patient "teach-back" to validate understanding.



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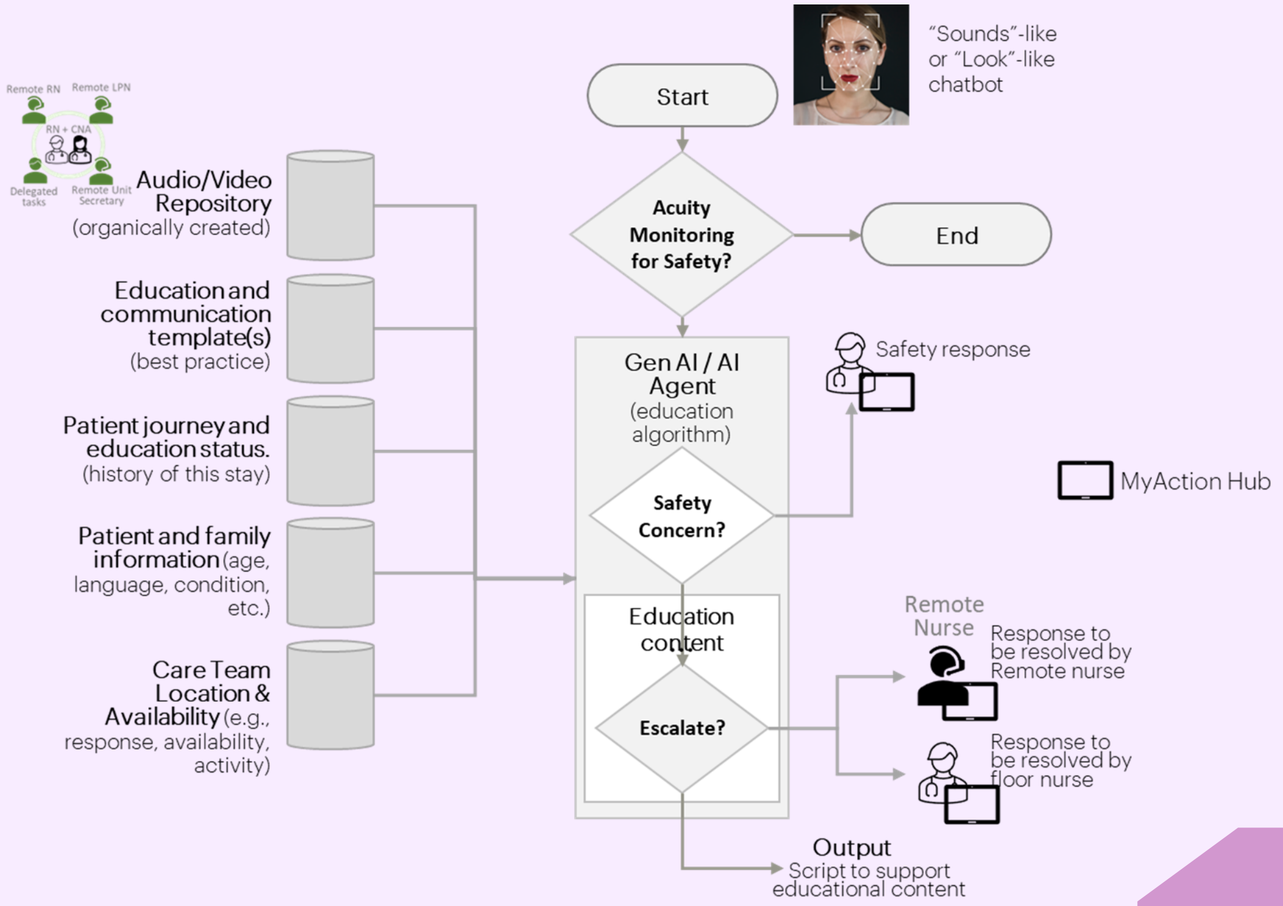
GenAI Architecture: Patient Education

The diagram below shows the high-level architecture for patient education GenAI and AI agents. The diagram begins when a patient, nurse, or system triggers that a patient's educational need has been requested or is ready for delivery.



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Processes & Use Cases

Roles and Responsibilities

Responsibility: Patient education is triggered in various ways, as directed by the care plan for a specific patient, their condition, and previous activities.

Throughout the process, patient education is delivered when it is safe and appropriate. During patient education, there is an opportunity to immediately escalate to the proper care team member if safety or condition warrants it. MyAction Hub can assist in both by ensuring other care team members are at a location and available, as well as being aware of care activities across multiple patients.

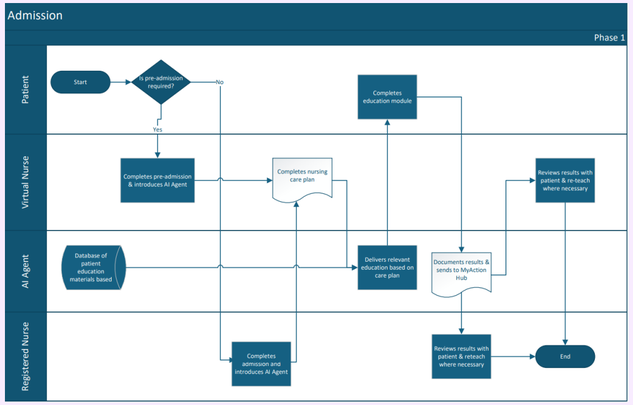
Roles:

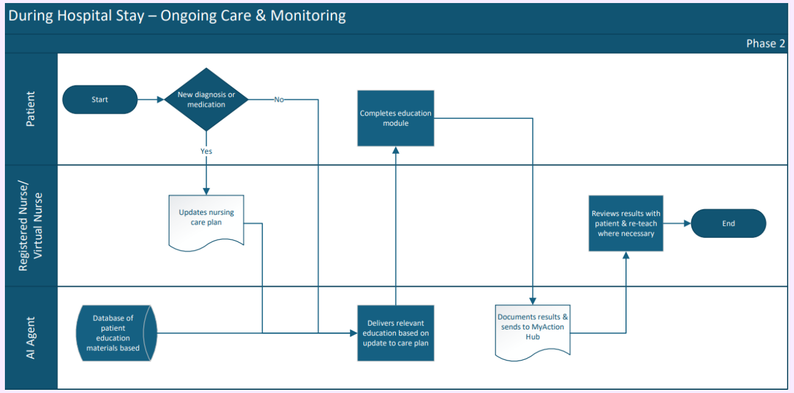
- **Nurses in the Care Setting.** Nurses assigned responsibility for a patient have the foundational responsibility to ensure patient education is completed effectively. They are responsible for determining the most effective way to provide education when it is most beneficial, as well as how it contributes to a patient's ability to be discharged, and for overseeing others involved in patient education. Care setting nurses would expect to deliver patient education that requires direct and physical interaction with the patient, especially demonstrating actions the patient may need to perform in the future to manage their condition. During the delivery of this patient education, a virtual nurse or even an AI Agent can provide support.
- **Virtual Nurse.** A virtual nurse who enters a care setting with the patient via technology, where they can be seen and heard, and in turn, can see and hear the patient, can perform various patient education activities. A virtual nurse can assist in providing education and observing how a patient understands the education they have been provided.
- **AI Agents.** Using SLMs (specialized language models), an AI Agent can provide education to patients through highly customized video and audio content. These videos can be tailored to match the patient's language and comprehension. Most importantly, AI Agents can be used to answer questions from patients, knowing they will respond based on the same SLMs. There is increasing demonstration that AI Agents are helpful in patient education teach-back sessions where the patient demonstrates the effectiveness of delivering the education.

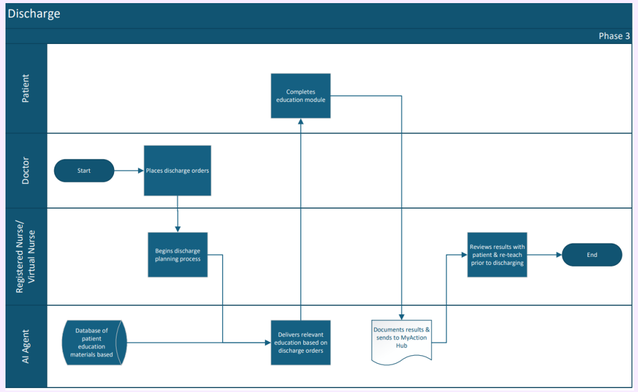
Based on Specialized Language Models

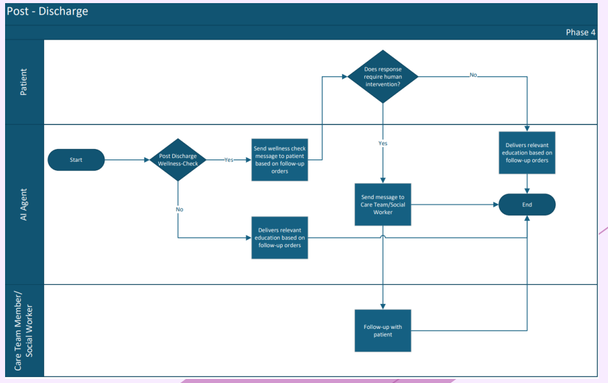
- **Patient Journey and Education Status**. According to the care plan, patient education is to be delivered at a specific point in time. Additionally, the context of education reflects both past and future education.
- **Education and Communication Template.** The baseline "script" and content that describes the provider and nurse-approved content regarding the patient's condition, e.g., Type 2 Diabetes. At any point in time, portions or the whole of this content should be the "specialized" information that the patient needs to know and understand.
- **Patient and Family Information.** Demographic, clinical, comprehension, language, care team relationships, and other patient-specific information that support the customization of patient education using GenAI.
- **Care Team Location & Availability.** The current care team has varying degrees of responsibility for the patient at the time patient education is to be provided. Additionally, what the care team members are doing at the time patient education is provided, as well as their location.
- **Audio/Video Repository.** A controversial SLM that would support the content that nurses have approved and contributed to, to be delivered in video and audio form not as a generic AI Agent but as a reflection of the appropriate member of the care team.

As is the case in many nursing care workflows, achieving outcomes is the result of the actions and coordination among the care team. As efforts continue to automate and augment tasks, having a clear picture of workflows, roles, and responsibilities is crucial. This clear picture enables the identification of data, conditions, and criteria to ensure tasks are safe and effective. The high-level workflows below illustrate the various points when patient education occurs, how the entirety of the care team might perform it (care setting nurses, virtual nurses, and AI Agents), and orchestration to reach outcomes.









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Process by Role

Nurses in the Care Setting.

- **Start here** when a more complex patient acuity or complex, hands-on education is required.
  - Consult the MyAction Hub to understand a patient's status and determine who is available to support them if needed.
  - If an AI agent or virtual nurse performed earlier education, the nurse can validate understanding.
  - During admission, reassessment, rounding, discharge, or post-discharge trigger pulling SLM data to support. Ready education using ***Customize Education***.
  - Deliver education or perform tech-back to gauge understanding and resolve where understanding must be enhanced.
  - Promote access to reinforcement using ***Deliver Education*** and ***Answer Question*** agents.

Virtual Nursing.

- **Start here** when patient acuity is appropriate for virtual nurses and the type of education matches the virtual nurse modality.
  - Consult the MyAction Hub to understand a patient's status and determine who is available to support them if needed.
  - Start the process when patient safety is appropriate, and a backup is available and located nearby.
  - If the AI agent has performed earlier education, the virtual nurse can validate understanding by leveraging the ***Patient Education Verification Companion*** *agent*.
  - Ready delivery of education using ***Customize Education***.
  - Deliver education or use a virtual nurse after the time elapses to check understanding through teach-back, leveraging the ***Patient Education Verification Companion***.
  - Promote access to reinforcement using ***Deliver Education*** and ***Answer Question*** agents.

Automation & GenAI / AI Agents.

- **Start here** when patient acuity or complexity of education allows for technology delivery of education.
  - An AI agent is available for education if MyAction Hub indicates that the patient's status is appropriate and someone is available to support if conditions arise during the education.
  - Trigger education. For example, an AI agent is available from call light selection to answer patient education questions.
  - At appropriate workflow intervals, validate patient education to ensure accuracy.
    - ***Patient Education Verification Companion***
  - Use ***Customize Education*** to
    - ***Deliver Education***
    - ***Answer Questions***

Patient.

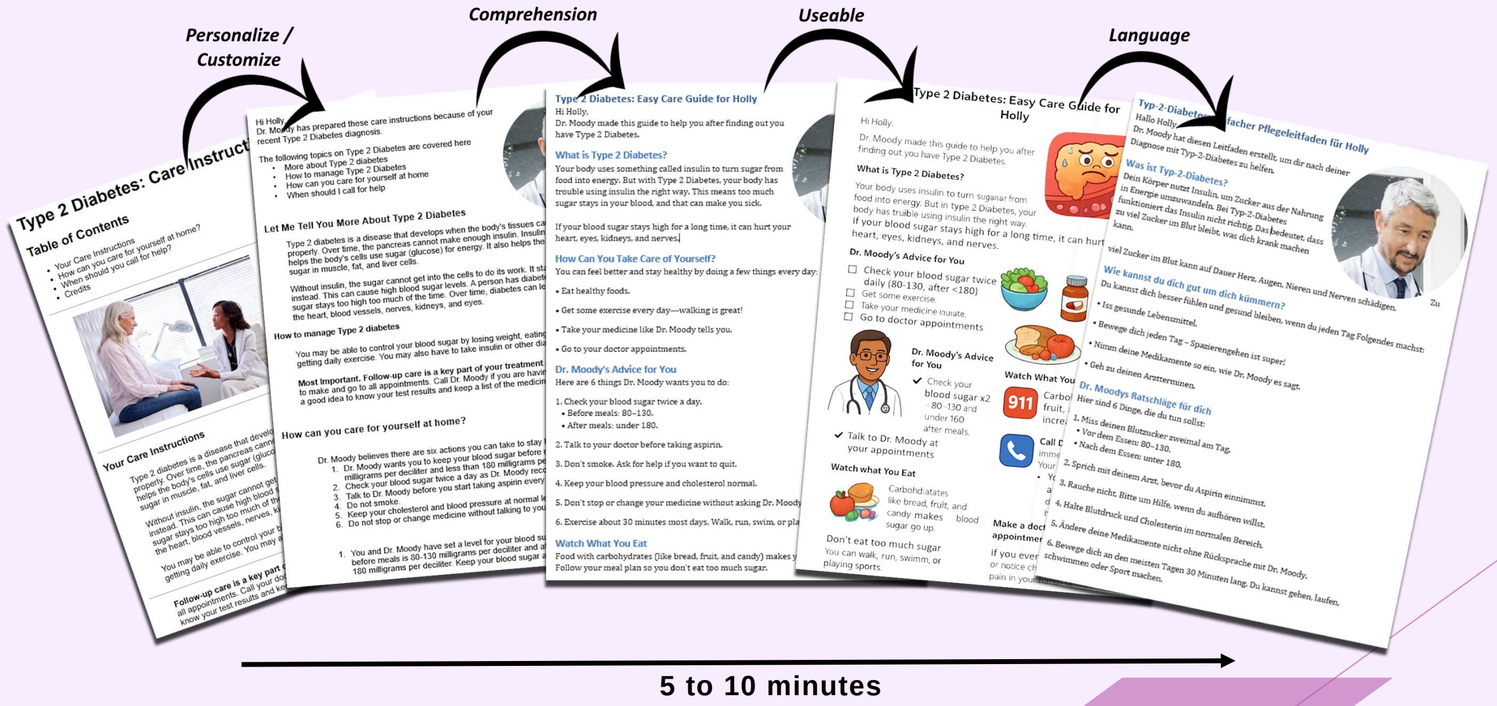
- **Start here** if available, the patient can select to use the AI Agent to
  - Complete education using ***Delivery Education***
  - Ask a question using ***Answer Questions***

MyAction Hub

- Ensure safety and coordination by identifying the care setting's responsible party. If the care setting nurse is not within proximity and available, do not use an AI agent.
- Show the status of activities on the dashboard.
- Use behavior gamification to assign resolutions to available care team members.
- Reflect the impact of "availability," and patient requests in the behavior modification portion of the dashboard.

Customize Education

As illustrated below, GenAI should be used to enhance the content shared with patients and their families, ensuring it is customized, comprehensible, and in the appropriate language. To the left is standard Type 2 diabetes care instructions. While those instructions are generally available, in this case, it began with instructions adopted by clinical leadership. Those instructions are then personalized – the patient's name, medication, and specific instructions, as well as the doctor's information. The remainder use GenAI to improve the content to make it understandable, useful, and in the patient's language.



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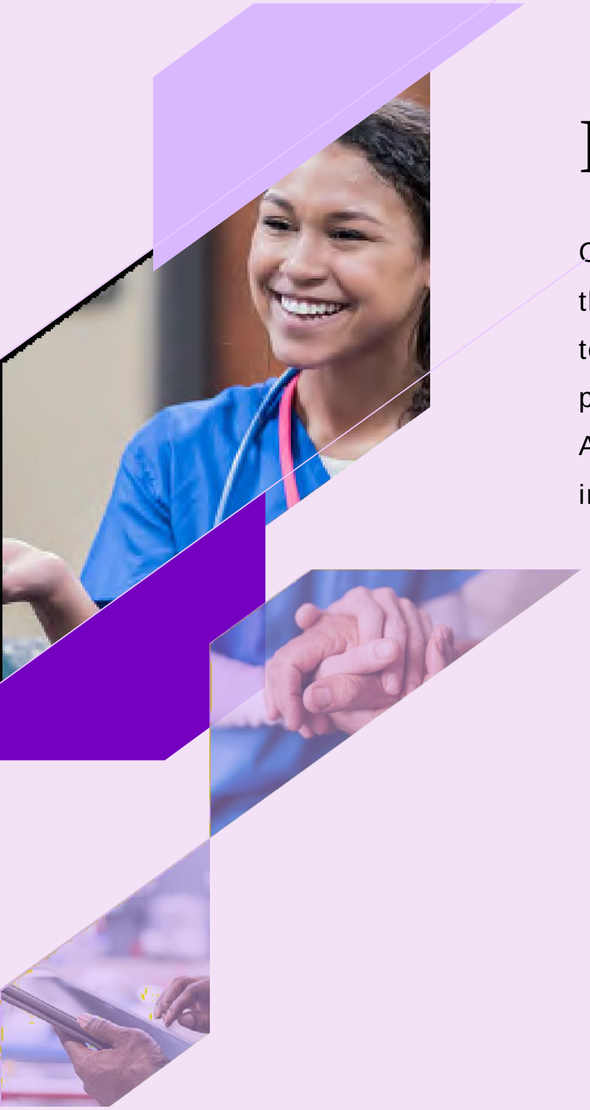

Deliver Education

Customizing educational content increases the likelihood that a patient's condition will be better understood and managed. Similarly, this content can be helpful in how the education is delivered. As shown earlier, education is provided by several members of the care team, including nurses in the care setting, virtual nurses, and AI Agents. During nurse and virtual nurse delivery, education becomes primarily a conversation. We can use AI Agents to back up that delivery or, for some patients, have the AI Agent deliver the education. As shown below, along with the provided links, the AI Agent delivers education using an avatar that matches the patient's preferences in the patient's native language and in easily created sections to facilitate easy consumption.

[Type 2 Diabetes Overview]

[Learn More About Type 2 Diabetes]

[How to Manage Your Type 2 Diabetes]

[Caring for Yourself (short version)]

[Caring for Yourself (long version)]

[When and How to Get Help for Type 2 Diabetes]

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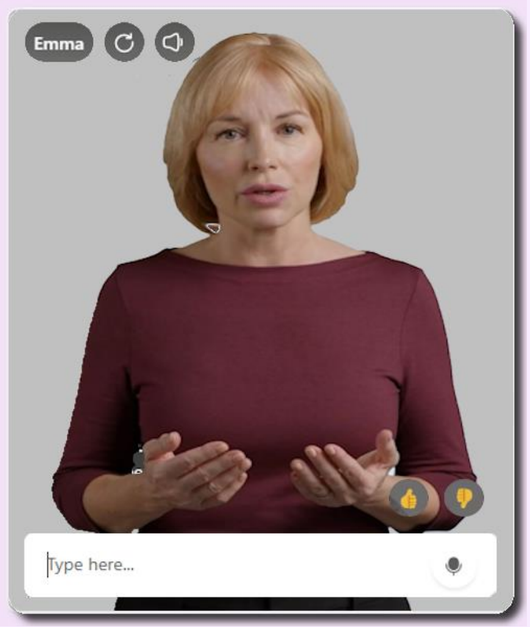
Answer Questions

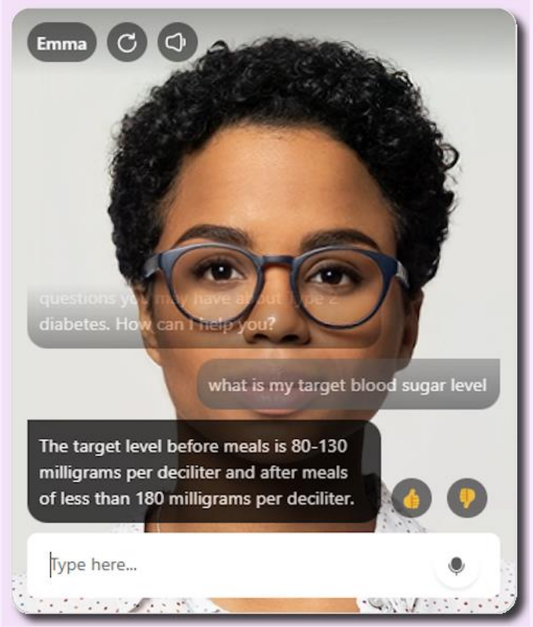
AI Agents also play a role in answering patient questions when the patient's acuity and status are appropriate under supervision or when "tethered" to a nurse or virtual nurse. Below are two AI Agents designed to answer questions. Both can respond to information that is specific to the patient (e.g., patient name, condition, medications, prescriptions, doctor's name, etc.). The AI Agent on the left further confines answers to the customized content. On the right, more "general" condition-specific questions rely on access to an LLM.

Specialized (Grounded) Language Model [SLM)



Answers patient questions based on patient specific data and customized content

Hybrid Language Model



Answers patient questions based on patient specific data but LLM about the condition

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Patient Education Verification Companion

Dr. Moody's Diabetes Understanding Checklist

Use this checklist to assess Holly's understanding of her Type 2 Diabetes care plan.

1. **Can you tell me in your own words what Type 2 Diabetes is?**
   - Why ask this: To check if Holly understands the basic concept of her condition.
   - Expected answer: Diabetes means my body has trouble using insulin, so sugar stays in my blood instead of going into my cells.

2. **What are some things you plan to do every day to take care of your diabetes?**
   - Why ask this: To test understanding of daily habits for managing diabetes.
   - Expected answer: I will eat healthy food, take my medicine, exercise, and check my blood sugar.

3. **When do you check your blood sugar, and what numbers are you aiming for?**
   - Why ask this: To ensure she knows how often to check and her target ranges.
   - Expected answer: Before meals: 80–130. After meals: under 180. I'll check twice a day.

4. **What would you do if your blood sugar was really high or really low?**
   - Why ask this: To see if she knows the signs and how to respond in urgent cases.
   - Expected answer: If it's high, I'll call Dr. Moody. If low, I'll eat or drink something with sugar and rest.

5. **Can you name some foods that might make your blood sugar go up?**
   - Why ask this: To check understanding of carbohydrates and food choices.
   - Expected answer: Candy, cake, bread, rice, juice, and soda can raise my blood sugar.

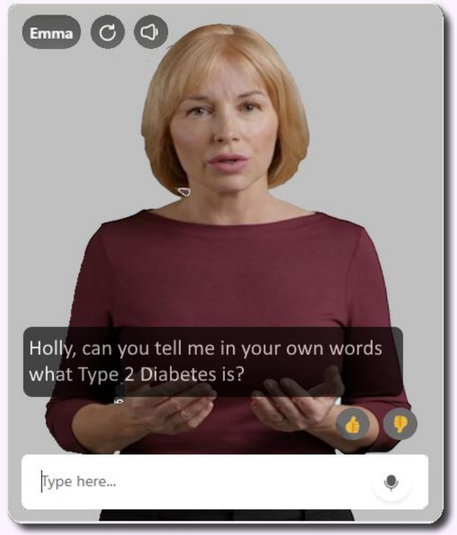
6. **Do you know when you should call me or go to the emergency room?**
   - Why ask this: To confirm she knows when symptoms are dangerous.
   - Expected answer: Call if blood sugar is over 300 or if I feel very sleepy, confused, or dizzy. Call 911 if I pass out.

7. **What will help you remember to take your medicine and check your blood sugar?**
   - Why ask this: To identify challenges and support for treatment adherence.
   - Expected answer: I can use a reminder alarm or a chart at home to help me remember.

8. **What questions do you still have about managing your diabetes?**
   - Why ask this: To encourage her to share any confusion or concerns.
   - Expected answer: Answers will vary. Look for honest concerns or confusion about diet, medicine, or symptoms.

Using the Patient Education Verification Companion in teach-back scenarios when the goal is to understand how well the patient understood patient education. The Patient Education Verification Companion similarly consists of two foundation capabilities. First, based on the custom content, there are teach-back questions that are helpful in gauging understanding. As shown below, GenAI was used to help identify the question, explain the rationale for the question, what answer would be expected from the patient, and ensure the content is at the right comprehension level and in the correct language. Second, when the patient's acuity and status are appropriate, an AI Agent can interact with the patient to support teach-back.

SLM Teach Back Agent



Uses the GenAI generated content to ask questions, explain why it's important, and validate with the provided correct answer.

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