

# Transforming Nursing and Workforce Education to Meet the Need for Highly Skilled Digital Health and Technology Competent, Satisfied Nursing Professionals.

Presented by:
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and 7 co-authors (next slide).

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# Questions for Participants

- Can you describe one way that competency-based informatics, digital health and healthcare technologies education will meet current and emerging needs in nursing practice?
- When are case studies and vignettes useful to depict the required core competencies listed in Domain 8: Informatics and Healthcare Technologies(American Associaton of Colleges of Nursing [AACN], 2021)?
- How can case study resources be used by faculty to transform nursing programs and nursing practice to foster nursing competency in informatics, digital health, and healthcare technologies?

# Introduction

- Nursing is undergoing transformation to competency-based education informed by the evolving requirements for nurses practicing in the United States.
- Recent re-envisioning of the competency requirements for baccalaureate, masters and Doctor of Nursing Practice (DNP) students in American educational settings was completed by the AACN, (2021) based on societal needs and evidence base.

# What We Did (The What?)
# Gap Identification

## What We Did (The What?)
## Gap Identification

- Informatics has been an acknowledged necessary nursing education core subject for over 30 years.
- Informatics, technology and digital health competencies are foundational and support all other domains
- Gap in nursing KSAs in informatics, digital health, and technologies is partly due to rapid adoption of evolving technologies in health care systems and the lag in nursing education of these competencies.
- Gap exists in KSAs of new graduate nurses and the existing nursing workforce.

# What We Did (The What?)
# Why Case Studies

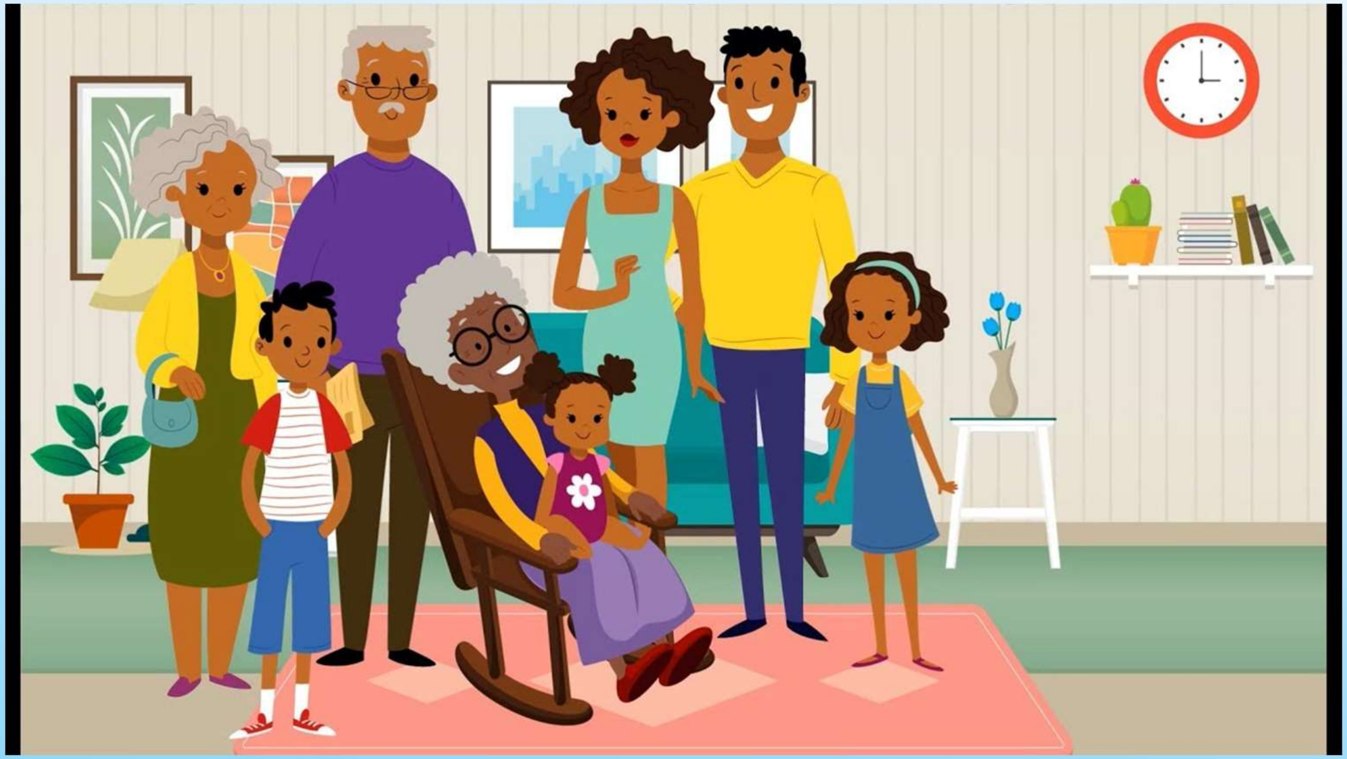
- Case studies are effective teaching tools because they use stories for real-life application of theory or concepts.
- Good case studies are those which are relevant, create dialogue, require learners to solve problems, and stimulate reflection
- Team driven case studies often results in an exchange of ideas, including discovery of new knowledge for learners
- Case studies can focus on  the AACN Domain 8 competencies and standards and other Domains at the same time.
- Concepts of health equity, social determinants, and informatics are encompassed within these case study learning activities.

# What We Did (The What?)
# Case Study Characters

- Created characters providing a large, multifaceted, interconnected family grouping including basic backgrounds and health issues for each individual.
- Informatics competencies could be applied across many settings and health systems with familiar characters across the lifespan.
- Consistent character usage allowed for the incorporation of social determinants of health and health equity content throughout each case study with opportunities for student development of KSAs to provide culturally diverse patient care.

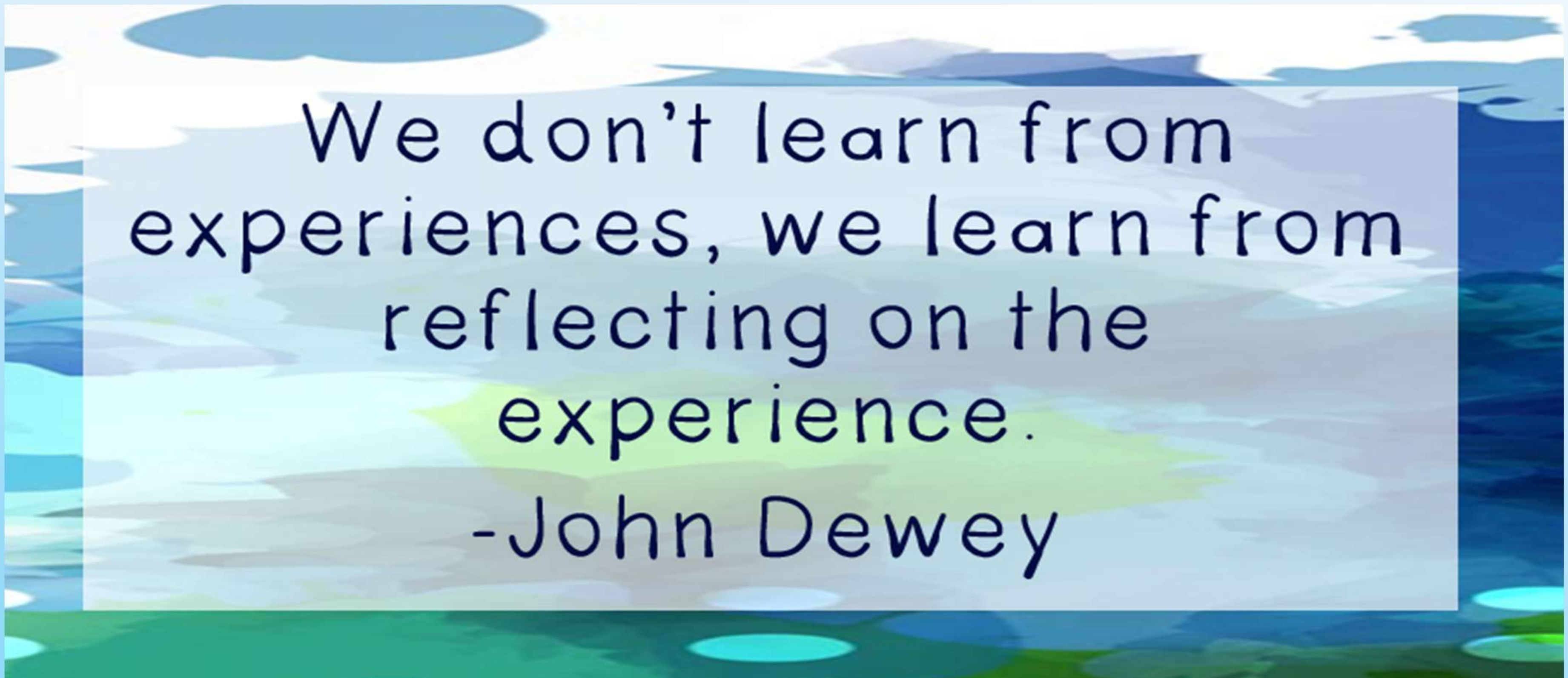
# What We Did (The What?)

## Family Across the Life Span



Amplifon Healing Health Care, Aug 12, 2019.

# What We Did (The What?)
# Importance of Reflection






source:https://thinkingpathwayz.weebly.com

# What We Did (The What?) Importance of Reflection

- Reflection has been considered a significant learning activity for nursing and health professional education for many years.
- Concept of reflection was first introduced by John Dewey in 1993 and was influential in education and social reform.
- Schon (1991) and Edwards (2017) added several dimensions including reflection in action, on action, and before and beyond action ( in Belchez, 2019).
- Reflection within the case study learning activities serves as a valuable activity that will assist the nurse educator to foster reasoning skills, facilitate critical thinking skills, develop competence, and synthesize classroom and clinical knowledge among students.

## Description of Case Study Design Process: Steps and Templates

- Gap analysis
- Literature was explored for trends in case studies used in nursing education
- Case study content originated from the textbook by McBride and Tietze, *Nursing Informatics for the Advanced Practice Nurse* (2019). *Permission to use was obtained from Springer Publishing Company.*
- Existing social determinants of health case studies on the AACN website were ideal in design and usability and selected as a model for our project.
- A Case Study Template was created in a Word document and shared with the team as a guide for all case studies.

# Description of Case Study Design Process: Steps and Templates

**Case studies based on AACN/CCNE format**

**Case Study: Title and authors**

1. **Case study topic**
2. **Case study description**
3. **Case study topic background**
4. **Case study objectives**

**Step 1: Introduction**

**Step 2: Process overview**

**Step 3: View videos or other materials**

**Step 4: Complete the reflection assignment**

1. **Additional resources (as applicable)**
   a. **Case study-specific description of other family members (as applicable)**
2. **References (as applicable)**

## Curricular Grid Mapping

- Learning Outcome/Assessment
- Bloom's Taxonomy (Learning Level) and KSA's
- Various AACN Domains (2021) addressed in the vignette
- Specific AACN Domain 8 Competency addressed in the case study.

# One Case Study to Support Unintended Consequences of Electronic Health Records Competencies

## Case Study Title: Unintended consequences of EHR, Nonfunctional Patient ID Band

1. ***Case Study Topic***: Unintended consequences of EHR unfavorable workflows

2. ***Case Study Background***: When workflows do not support end users, workarounds occur jeopardizing patient care/safety

3. ***Case Study Learning Outcomes***:

   a) Define workflow and workarounds

   b) Evaluate steps leading to workaround

4. **Case Study Reflections Strategy:** In a simulation of the workaround, review steps of patient identification/medication administration where workflow does not support the process.

**Table 1.** *Case Study on Unintended Consequences of Electronic Health Records: Learning Outcomes, Assessment, Bloom's Taxonomy Level, AACN Domains Involved and Domain 8 Competency.*

| Learning Outcomes/ Assessment | Bloom's Taxonomy | AACN Domains | AACN Domain 8 Specific Competency |
|---|---|---|---|
| **Knowledge:** Describe how large amounts of client data can create voluminous amounts of information. | Level 1 Remembering | 8 | 8.2 Use information and communication technology to gather data, create information, and generate knowledge |
| **Knowledge:** Discuss challenges of prioritizing multiple forms of data including clinical decision supports to make informed decisions about patient care. | Level 2 Understanding | 8 | 8.3 Use information and communication technology and informatics processes to deliver safe nursing care to diverse populations in a variety of settings. |
| **Skills:** Prioritize review of multiple sources of information to make timely decisions related to the acute problem in a client with multiple comorbidities. | Level 3 Applying | 2, 4, 6 | 8.4 Use information technology and communication technology to support documentation of care and communication among providers, patients, and all system levels |
| **Attitudes:** Reflect on strategy for prioritizing review of multiple sources of data and impact of this case study learning on your own future practice. | Level 4 Analyzing | 8 | 8.4 Use information technology and communication technology to support documentation of care and communication among providers, patients, and all system levels |

## Unintended Consequences of EHR Case Study Discussion

- This case study addresses the essential core competencies in the four spheres of care: disease prevention/promotion of health and well-being, chronic disease care, regenerative or restorative care, and hospice/palliative/supportive care across the lifespan
- Encompasses several AACN Essential Domains as well as Domain 8

# One Case Study to Support Quality Improvement Informatics Competencies

**Case Study Title: Quality Improvement of Bar Code Medication Administration**

1. ***Case Study Topic:*** Quality Improvement of BCMA
2. ***Case Study Background:*** When technology inhibits efficient care, workarounds will be created
3. ***Case Study Outcomes:*** Develop skills to identify, address, and correct technology risks
4. ***Case Study Reflection Strategy:*** Leadership skills identifying, addressing, and correcting technology risks are transferable to other areas of risk identification.

**Table 2.** *Case Study on Quality Improvement (QI) of BCMA Process: Learning Outcomes, Assessment, Bloom's Taxonomy Level, AACN Domains Involved and Domain 8 Competency.*

| Learning Outcomes/ Assessment | Bloom's Taxonomy | AACN Domains | AACN Domain 8 Specific Competency |
|---|---|---|---|
| **Knowledge:** Identify an error in a process that has the potential to cause patient harm. | Level 1 Remembering | 5, 7, 8, 9 | 8.1 Describe the various information and communication technology tools used in the care of patients, communities, and populations. |
| **Knowledge:** Define the use of QI tools for correcting errors. | Level 1 Remembering | 2, 5, 7, 8 | 8.2 Use information and communication technology to gather data, create information, and generate knowledge. |
| **Knowledge:** Determine various QI tools that could be used for addressing potential patient harm situations. | Level 3 Applying | 5, 8, 9 | 8.3 Use information and communication technologies and informatics processes to deliver safe nursing care to diverse populations in a variety of settings. |
| **Skills:** Create a process for addressing an identified process error that has the potential to cause patient harm. | Level 6 Creating | 5, 8, 9 | 8.5 Use information and communication technologies in accordance with ethical, legal, professional, and regulatory standards, and workplace policies in the delivery of care. |

# QI of BCMA Case Study Discussion

- Incorporating the use of technology into processes introduces new areas of risk especially when users find it decreases the efficient provision of care.
- The ability to identify and predict risks within healthcare are necessary to prevent patient harm.
- Practice and reflecting on the use of tools to identify and address risks allows students to develop comfort and transfer the knowledge to other areas of risk.

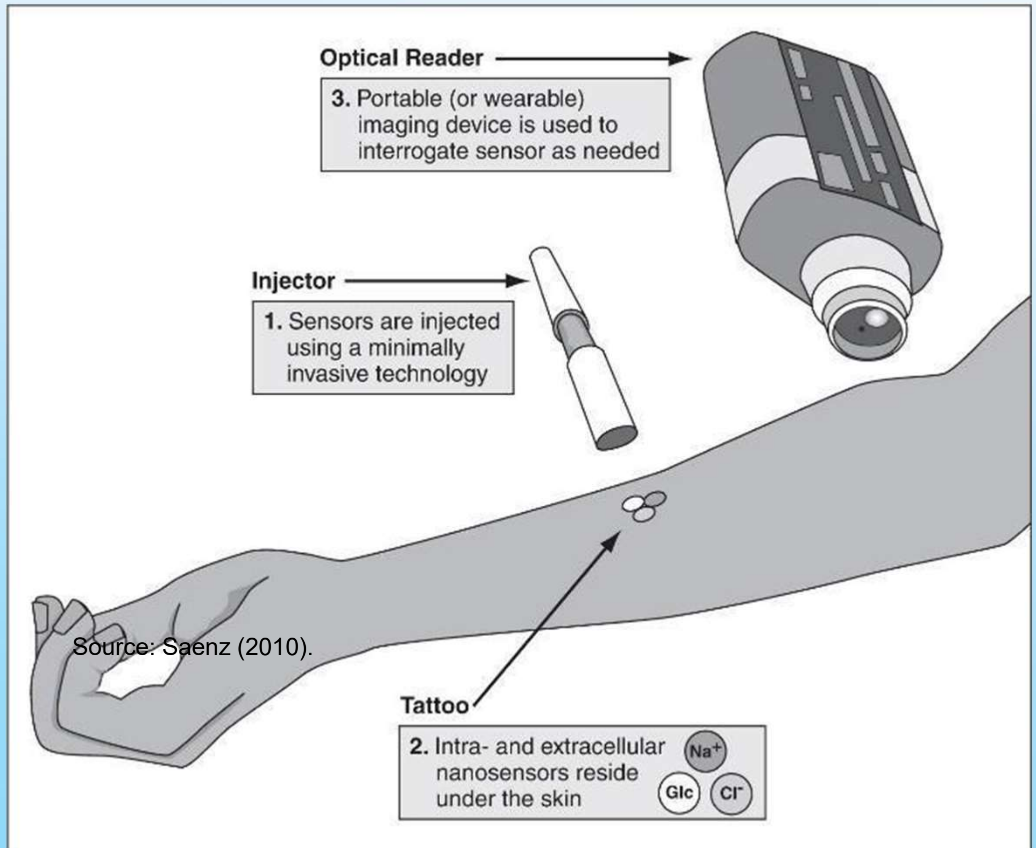
# One Case Study to Support Nanotechnology for Managing Diabetes Competencies

## Case Study Title: Nanotechnology in Diabetes Care

1. ***Case Study Topic:*** Nanotechnology in Diabetes Management
2. ***Case Study Background:*** Trends in the Field of Nanotechnology
3. ***Case Study Outcomes:*** Nursing care skills development for optimal education and management of patients using nanotechnology for diabetes
4. ***Case Study Reflection Strategy:*** Consider Nano Tattoo in Diabetes Management and implications for the patient and family

# Nanotechnology Case Study (Figure 1)

*Nano Tattoo Mechanism*




Source: Saenz (2010).

Tietze (2019)

**Table 3.** *Case Study on Nanotechnology in Diabetes Management: Learning Outcomes, Assessment, Bloom's Taxonomy Level, AACN Domains Involved and Domain 8 Competency.*

| Learning Outcomes/ Assessment | Bloom's Taxonomy | AACN Domains | AACN Domain 8 Specific Competency |
|---|---|---|---|
| **Knowledge:** Define nanotechnology as it applies to healthcare delivery | Level 1<br><br>Remembering | 8 | 8.1. Describe the various information and communication technology tools used in the care of patients, communities, and populations. |
| **Knowledge:** Discuss the challenges patients may experience in using nanotechnology for diabetes management. | Level 2<br><br>Understanding | 8 | 8.3. Use information and communication technologies and informatics processes to deliver safe nursing care to diverse populations in a variety of settings |
| **Skills:** Demonstrate how nanotechnology can be applied in diabetes management. | Level 3<br>Applying | 8 | 8.3a. Demonstrate appropriate use of information and communication technologies. |

# Nanotechnology Case Study Discussion

- Clear information and knowledge transfer as a means to understand this innovative technology is an important part of education on nanotechnology
- Reflection, guided by instructors, will help create comfort for students who are learning about the application of this innovative technology for patient care
- Content the student learns from nanotechnology as an innovative practice option for diabetes, can be extended to other conditions such as cancer

# Why We Did it (The So What?)

The Education Workgroup  aims to improve informatics and digital health competencies amongst nursing faculty, health system educators, and clinical workforce developers at institutions and health systems as part of the overarching goal to improve health and healthcare and assure the public's health (University of Minnesota, n.d.).

## Conclusions: How Can This Be Used (The Now What?)

- Nursing programs must assure that new graduate nurses entering the workforce are provided opportunities for development of the informatics, digital health, and healthcare technologies competencies that are needed by health systems. Health systems may also need to upskill the existing nursing workforce.
- Many nursing faculty need resources to support their own competency development and to teach and integrate informatics, digital health, and healthcare technologies that meet accreditation requirements across curricula.
- Three case studies have been developed by the Education Workgroup to show **"how to"** and to assist competency development of faculty and students through some examples for the required core competencies listed in the new Domain 8: Informatics and Healthcare Technologies (AACN, 2021)

# Questions for Participants

- Can you describe one way that competency-based informatics, digital health and healthcare technologies education will meet current and emerging needs in nursing practice?
- When are case studies and vignettes useful to depict the required core competencies listed in Domain 8: Informatics and Healthcare Technologies (AACN, 2021)?
- What are some ways that case study resources can be used by faculty to transform nursing programs and nursing practice to foster nursing competency in informatics, digital health, and healthcare technologies?

# References and Resources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