

**Innovative Teaching Strategy (ITS)
Public Health Nursing & Nursing Informatics: Interactive Case-based Scenarios**

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Association of Community Health Nursing Educators Teaching Strategy

1. **Title of Teaching Strategy:** Public Health Nursing & Nursing Informatics Interactive Case-based Scenarios

2. **Date of Submission:** September 3, 2019 updated versions April 21, 2022, March 17, 2023

3. **Topical Area:**

****Please note topical area varies based on the scenario, the Latent Tuberculosis Bacterial Infection Scenario will be used as an exemplar and covers the following:**

- a. Communicable Diseases
- b. Cultural/Human Diversity
- c. Epidemiology
- d. Information and Healthcare Technologies
- e. Interventions for Public Health Nurses
- f. Public Health Nursing
- g. Vulnerable Populations

4. **Public Health Nursing competencies and standards:**

- **ACHNE Public Health Nursing Core Knowledge and Basic Competencies**
(Callen, Block, Joyce, Lutz, Schott, & Smith, 2009)
 1. Epidemiology and biostatistics
 2. Health promotion and risk reduction
 3. Illness and disease management
 4. Information and health care technology
 5. Human diversity
- **ANA PHN Scope and Standards of Practice (2014)**
Standards of Practice:
 1. Assessment
 2. Population and Diagnosis
 3. Outcomes Identification
 4. Planning
 5. Implementation
 6. Evaluation

Standards of Professional Performance for PHN:

1. Ethics
2. Education
3. Evidence-based Practice and Research
4. Quality of Practice
5. Communication
6. Leadership
7. Collaboration
8. Professional Practice Evaluation
9. Resource Utilization

10. Environmental Health

11. Advocacy

• **QUAD Council Competencies for Public Health Nurses (Spring, 2018)**

The Quad Council of Public Health Nursing Organizations is comprised of:

- The Association of Community Health Nurse Educators (ACHNE)
- The Association of State and Territorial Directors of Nursing (ASTDN)
- The American Public Health Association - Public Health Nursing Section (APHA)
- The American Nurses Association's Congress on Nursing Practice and Economics (ANA)

1. Analytic and Assessment Skills
2. Communication Skills
3. Cultural Competency Skills
4. Community Dimensions of Practice Skills
5. Public Health Sciences Skills
6. Financial Planning and Management Skills
7. Leadership and Systems Thinking Skills

5. **Learner Level(s):** RN to BSN, Undergraduate, Graduate students, Staff development

6. **Learner Setting(s):** Online or web-based modules, classroom, or independent study.

7. **Strategy Type:** Interactive Case Study and Test/Evaluation/Assessment Strategy

8. **Learning Goals/Objectives:**

At the end of this assignment, students will be able to:

1. Identify the role of the public health nursing for client care as it relates to infectious/communicable disease and directly observed therapy.
2. Integrate health information technology for electronic health record charting and public health nursing process.
3. Examine the Omaha System for electronic health record charting and public health nursing process: assessment, interventions, and evaluation.

9. **Estimated time for the activity:** 2 hours: Pre-work for simulation 30 minutes; Omaha System Tutorial 30 minutes; Case Study 45 minutes; Post-test 15 minutes.

10. **Strategy Overview:** Students prepare by completing readings in textbook and online. After completing the preparation work, students will complete an interactive case study and a posttest.

11. **Detailed Strategy Directions:** Please see Appendix A for *Interactive Case Study assignment instructions(protocol)*.

a. **Strategy Materials/Resources:** Access to the internet.

b. **Website Links:** Complete the assigned readings:

- a. Martin, K., & Utterback, K. (2018). Chapter 9: Home health and community-based systems in R. Nelson & N. Stagers (Eds), *Health informatics an interprofessional approach* (2nd Eds.). St. Louis, MO: Elsevier.
- b. Schoon, P. M., Martin, K. S., Krumwiede, K., & Kleinhfehn-Wald, N. (2019). Chapter 3: Competency #1 Applies the public health nursing process to communities, systems, individuals, and families in P. M. Schoon, C. M. Porta, & M. A. Schaffer (Eds.), *Population-based public health clinical manual: The Henry Street Model for Nurses* (3rd ed.) (pp. 47-73). Indianapolis, IN: Sigma Theta Tau International.
- c. Resources for students to review as part of required readings/viewings
 - Go to the [Omaha System website](#) and click on the hyperlinks to review the Omaha System components: [Problem Classification Scheme \(Problem and signs/symptoms\)](#), [Intervention Scheme \(Categories and Targets\)](#) and [Problem Rating Scale for Outcomes](#) to measure baseline and post service event, Behavior, Status (based on the Problem's signs/symptoms)
 - Review the Minnesota Department of Health Disease Prevention & Control Unit's, Omaha System [LTBI Care Plan/Pathway](#) (study the codes and read definitions)
 - [Minnesota Department of Health Intervention Wheel](#): read red and green wedge interventions
 - [Centers for Disease Control & Prevention: LTBI Treatment Guidelines](#)
 - [Minnesota Department of Health Tuberculosis \(TB\) Prevention & Control Program](#)
 - [Minnesota Department of Health Infectious Disease Epidemiology, Prevention & Control \(IDEPC\) Division](#)

Complete Interactive Case Study, posttest, and satisfaction survey. Links to the LTBI case study:

- a. [Part 1: Omaha System Tutorial](#)
- b. [Part 2: LTBI Interactive Case Study](#)

c. **Methods for evaluating student learning:** Within the interactive case-based scenario there are content mastery questions that students progress through in order to complete the scenario. After completing the scenario, student learning is evaluated through an online posttest. The posttest questions are listed under Appendix B.

12. Comment on overall success of this teaching strategy

Each case study has been peer reviewed by public health nurses, community health nurse educators, and nurse informaticists prior to use. The strategy was implemented successfully as a pilot in an undergraduate and graduate Nursing Informatics courses and an undergraduate Public Health Nursing course in 2014-2015 and has since been revised to an interactive case-based scenario. A feasibility research study was completed using the Latent Tuberculosis Bacterial Infection case study, and an article was published in *Computer, Informatics, Nursing*:

Eardley, D. L., Krumwiede, K. A., Secginli, S., Garner, L., DeBlieck, C., Cosansu, G., & Nahnivan, N.O. (2018). The Omaha System as a structured instrument for bridging nursing informatics with public health nursing education: A feasibility study. *Computer Informatics Nursing*, 36(6), 275-283. doi:10.1097/CIN.0000000000000425

Also see:

Stalter, Ann, M., Harrington, S., Eardley, D. L., DeBlieck, C. J., Blanchette, L. P., & Whitten, L. (2019). A crosswalk between the Omaha System and guiding undergraduate public health nursing education documents. *Public Health Nursing*, 36(2), 215-225. doi: 10.1111/phn.12585

This strategy has consistently improved student content mastery as it relates to public health nursing, nursing informatics, and the Omaha System as evidenced by the post-test scores. Student comprehension increased regarding the use of holistic standardized terminology for charting in the electronic health record. Student feedback from the satisfaction survey has been consistently positive.

13. Additional Case-based Scenarios: The link to the library of case-based scenarios/case studies can be found on the Omaha System Community of Practice webpage under the tab Learning About the Omaha System, Education, Nursing Informatics Case Studies: <https://www.omahasystem.org/casestudies>

Appendix A

Interactive Case Study Protocol

Title of Assignment: Interactive Case Study: Latent Tuberculosis Bacterial Infection and Directly Observed Therapy

Learning Activity: Interactive case study (ICS), posttest

Objectives:

1. Identify the role of the public health nursing for client care as it relates to infectious/communicable disease and directly observed therapy.
2. Integrate health information technology for electronic health record charting and public health nursing process.
3. Examine the Omaha System for electronic health record charting and public health nursing process: assessment, interventions and evaluation.

Background: health information technology enhances client care through the electronic health record, standardized terminology and evidence-based practice. For this case study assignment, you will learn about the Omaha System, the most widely used standardized terminology in public health. It was designed by public health nursing working for Omaha Visiting Nurse Agency in 1975 (Martin, 2005). The Omaha System, as a technology-enabled tool, “guides and describes” what public health nurses do at the point of care and fully contributes to health care quality; care that is safe, efficient, effective, timely, patient centered and equitable ([Crossing the Quality Chasm](#), Institute of Medicine, 2001).

Assignment Instructions:

2. Complete the assigned reading:
 - a. Martin, K., & Utterback, K. (2018). Chapter 9: Home health and community-based systems in R. Nelson & N. Staggers (Eds), *Health informatics an interprofessional approach* (2nd Eds.). St. Louis, MO: Elsevier.
 - b. Schoon, P. M., Martin, K. S., Krumwiede, K., & Klienfehn-Wald, N. (2019). Chapter 3: Competency #1 Applies the public health nursing process to communities, systems, individuals, and families in P. M. Schoon, C. M. Porta, & M. A. Schaffer (Eds.), *Population-based public health clinical manual: The Henry Street Model for nurses* (3rd ed.) (pp. 47-73). Indianapolis, IN: Sigma Theta Tau International.
3. Review the following resources
 - Go to the [Omaha System website](#) and click on the hyperlinks to review the Omaha System components [Problem Classification Scheme \(Problem and signs/symptoms\)](#), [Intervention Scheme \(Categories and Targets\)](#) and [Problem Rating Scale for Outcomes](#) to measure baseline and post service event, Behavior, Status (based on the Problem’s signs/symptoms)

- a. Review the Minnesota Department of Health Disease Prevention & Control Unit's, Omaha System [LTBI Care Plan/Pathway](#) (study the codes and read definitions)
 - b. [Minnesota Department of Health Intervention Wheel](#): read red and green wedge interventions
 - c. [Centers for Disease Control & Prevention: LTBI Treatment Guidelines](#)
 - d. [Minnesota Department of Health Tuberculosis \(TB\) Prevention & Control Program](#)
 - e. [Minnesota Department of Health Infectious Disease Epidemiology, Prevention & Control \(IDEPC\) Division](#)
 - f. [Minnesota Department of Health Infectious Disease Epidemiology, Prevention & Control \(IDEPC\) Division](#)
3. Complete Interactive Case Study, posttest and satisfaction survey. Links to the LTBI case study:
- a. [Part 1: Omaha System Tutorial](#)
 - b. [Part 2: LTBI Interactive Case Study](#)

References:

- Institute of Medicine. (2001). *Crossing the Quality Chasm*. Retrieved from [http://www.nationalacademies.org/hmd/~media/Files/ReportFiles/2001/Crossing-the-Quality-Chasm/Quality Chasm 2001 report brief.pdf](http://www.nationalacademies.org/hmd/~media/Files/ReportFiles/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20report%20brief.pdf)
- Martin, K. S. (2005). *The Omaha System: A key to practice, documentation, and information management* (Reprinted 2nd ed.). Omaha, NE: Health Connections Press.
- Nelson, R. & Staggers, N. (2018). *Health informatics an interprofessional approach* (2nd ed). St. Louis, MO: Elsevier.
- Schoon, P. M., Martin, K. S., Krumwiede, K., & Klienfehn-Wald, N. (2019). Chapter 3: Competency #1 Applies the public health nursing process to communities, systems, individuals, and families in P. M. Schoon, C. M. Porta, & M. A. Schaffer (Eds.), *Population-based public health clinical manual: The Henry Street Model for nurses* (3rd ed.) (pp. 47-73). Indianapolis, IN: Sigma Theta Tau International.

Appendix B

Interactive Case Study: Latent Tuberculosis Bacterial Infection Post-test

1. There are twelve standardized terminologies endorsed by the American Nursing Association. Select the terminology that is holistic, interoperable, and provides evidence-based practice at the point of care.

- North American Nursing Diagnosis Association International
 - Omaha System
 - Nursing Minimum Data Set
 - Clinical Care Classification
-

2. Select the best option which describes the benefits of using an electronic health record?

- Provides accurate and legible documentation; reduces medical errors; incorporates clinical decision support.
 - Provides accurate and legible documentation; decreases productivity; incorporates clinical decision support.
 - Allows transcription of hand written visit notes into the electronic health record at the end of the work day.
 - Technology-enabled tools do not include standardized terminologies which embed in the EHR.
-

3. Which of the following represents standardized terminology?

- Embeds in the EHR/EMR
 - Interface capable
 - Point of care access
 - All the above
-

4. Which Omaha System component is used for the PHN assessment?

- Problem Classification Scheme
 - Intervention Scheme
 - Problem Rating Scale for Outcomes
 - Problem Clarification
-

5. What are the hierarchy components of the Omaha System?

- Problem Classification Scheme, Intervention Scheme, and Problem Rating Scale for Outcomes
 - Problem Clarification, Intervention for Problems, and Evaluation for Outcomes
 - Problem Classification Scale, Intervention Scheme, and Problem Rating Scheme for Outcomes
 - Problem Assessment, Evidence-based Intervention, and Evaluation for Outcomes
-

6. The Omaha System Intervention Scheme includes “Categories”, such as TGC S, TP, and CM, that are the nurse interventions and are tied to: “Targets”, the nurse specific action or task.

- True
 - False
-

7. At the first visit with Hermina, the PHN reviewed the provider orders for her *new diagnosis* of Communicable/infectious condition: LTBI, got a weight and provided

education. For the Omaha System *Intervention (EBP)* in this case scenario which of the following apply?

- Teaching Guidance and Counseling (TGC) - LTBI
 - Treatment and Procedures – directly observed therapy (DOT)
 - Surveillance – signs/symptoms – physical: evidence of disease/infection and monitor weight
 - Case Management – reviewing provider medical summary with client
-

8. Hermina's signs/symptoms include infection, positive screening/culture/laboratory results. Which Omaha System Problem does this align with?

- Communicable/Infectious Condition
 - Respiration
 - Medication Regimen
 - Communication with community resources
-

9. For the second Omaha System Problem, consider that Hermina reported she doesn't like taking pills. Which Omaha System Problem does this align with?

- Communicable/Infectious Condition
 - Respiration
 - Medication Regimen
 - Communication with community resources
-

10. Which Omaha System component is used for the PHN outcomes evaluation?

- Outcomes ratings
 - Problem Rating Scale for Outcomes
 - Evaluation outcomes
 - PHN outcomes
-

11. Which Omaha System component is used for the PHN evidence-based practice interventions?

- Intervention Scheme
 - Problem Intervention Scheme
 - Intervention for Problems
 - Intervention Classification Scale
-

12. The PHN enrolled Hermina in DOT and educated her about monitoring for drug therapy side effects. Of the following, which Omaha System Intervention (EBP) supports this action?

- Surveillance: Directly observed therapy – 12 week regimen (weekly visits)
 - Surveillance: medication action /side effect: takes as prescribed
 - Teaching, guidance and counseling: medication action/side effects, important to take as prescribed, purposes/benefits, changes to note and report in a timely manner, need for timely laboratory tests
 - Case management – coordinate medical appointments
-

13. Hermina is willing to learn about her new diagnosis of LTBI and treatment with constant coaching from her PHN at weekly visits. What level of baseline *knowledge* did Hermina demonstrate?

- 1 - No knowledge
 - 2 - Minimal knowledge
 - 3 - Basic knowledge
 - 4 - Adequate knowledge
 - 5 - Superior knowledge
-

14. For LTBI treatment, Hermina was engaged in directly observed therapy. What level of *baseline* behavior did she demonstrate?

- 1 - Not appropriate behavior
 - 2 - Rarely appropriate behavior
 - 3 - Inconsistently appropriate behavior
 - 4- Usually appropriate behavior
 - 5- Consistently appropriate behavior
-

15. Hermina completed 4 weeks of DOT and then went to her primary clinic for follow-up lab work to check for side effects and/or undesirable symptoms. The lab results indicated there were no concerning side effects from the medication regimen and the

provider was very pleased that Hermina was adhering to DOT. For the Problem Rating Scale for Outcomes, which level of status would you rate Hermina?

- 1 - Extreme signs/symptoms
 - 2 - Severe signs/symptoms
 - 3 - Moderate signs/symptoms
 - 4 - Minimal signs/symptoms
 - 5 - No signs/symptoms
-

16. The Omaha System has 4 *Problem* domains: Environmental, Psycho-social, Physiological, and Health Related Behaviors.

- True
 - False
-

17. Where is the Omaha System used?

- In all care environments including, education and research
- Hospitals, clinics, community centers
- In care settings
- In education and research

Student Satisfaction Questions

18. Prior to the case study, what is your knowledge level of the Omaha system?

- No knowledge
 - Minimal knowledge: have heard of standardized terminologies, but not the Omaha System
 - Basic knowledge: have heard of the Omaha System
 - Adequate knowledge: have used the Omaha System routinely in clinical practice
 - Superior knowledge: expert user; educates others on how to use the Omaha System
-

19. Do you have any recommendations for the case study? How would you rate your overall satisfaction with the interactive case study?

- Extremely satisfied
 - Somewhat satisfied
 - Neither satisfied nor dissatisfied
 - Somewhat dissatisfied
 - Extremely dissatisfied
-

20. In your own words, describe 3 things that you learned from the case-study.

21. What did you like the most about the case study?

22. What did you like least about the case study?

23. Do you have any recommendations for the case study?
