**Experiential Learning: Quality Improvement Assimilation Project**

**Purpose and Overview**: As nurses prepared at the graduate level, you are equipped to lead teams and promote evidence-based healthcare. The purpose of this simulation assignment is content application and ***assimilation*** *of numerous concepts* presented in this quality course. This is a gestalt type of project that requires application of several Quality Improvement (QI) principles. Students integrate concepts, tools, methods, and knowledge of quality-related regulatory organizations (i.e., random vs. special cause variation, Six Sigma, Lean, rapid-cycle testing, run charts, the Pareto principle, the National Quality Forum, Joint Commission, the Institute for Healthcare Improvement, etc.) to analyze a simulated dataset representing an improvement initiative. Each student engages with a unique dataset to assess quality-related metrics and performance over time. To gain experience in effective communication and scholarly dissemination of project outcomes, students create a teaching webcam presentation for their peers that demonstrates learning outcomes and applies dataset findings to national comparative benchmarking standards.

This assignment addresses the following **Course Objectives** and aligns with selected **Essentials Sub-competencies** (AACN, 2021):

| Course Objectives | AACN Essentials Sub-Competencies |
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| *1. Integrate* the application of major quality improvement models and tools (e.g., Six Sigma, Lean, Ishikawa diagram, run charts, the Pareto principle, etc.) to monitor and improve healthcare system performance. | Synthesize knowledge from nursing and other disciplines to inform education, practice, and research. (1.2f) |
| | Apply a systematic and defendable approach to nursing practice decisions. (1.2g) |
| | Discern appropriate applications of quality improvement, research, and evaluation methodologies. (4.1j) |
| | Advocate for structures, policies, and processes that promote a culture of safety and prevent workplace risks and injury. (5.3e) |
| | Evaluate the use of information and communication technology to address needs, gaps, and inefficiencies in care. (8.3g) |
| 2. Use national safety and quality resources, *apply* principles of improvement science, systems thinking, and evidence-based strategies to implement and sustain quality initiatives across a variety of healthcare environments. | Develop evidence-based interventions to improve outcomes and safety. (2.5j) |
| | Use national safety resources to lead team-based change initiatives. (5.1j) |
| | Analyze system-wide processes to optimize outcomes. (7.1g) |
| | Design system improvement strategies based on performance data and metrics. (7.3g) |
| | Evaluate the outcomes of intentional change. (10.3l) |

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| *3. Create* a teaching presentation that disseminates outcomes and demonstrates application of QI tools (flowcharts, rapid-cycle testing, Kaizen event, driver diagram, etc.) to identify and address safety and quality gaps. | Advance quality improvement practices through dissemination of outcomes. (5.1o) |
| | Demonstrate that one's practice is informed by a comprehensive assessment appropriate to the functional area of advanced nursing practice. (2.3h) |
| | Disseminate one's scholarship to diverse audiences using a variety of approaches or modalities. (4.1l) |
| *4. Interpret* healthcare quality metrics using data-driven methods to support performance improvement in alignment with national benchmarking standards. | Monitor aggregate metrics to assure accountability for care outcomes. (2.6f) |
| | Analyze data to identify gaps and inequities in care and monitor trends in outcomes. (2.7d) |
| | Synthesize outcome data to inform evidence-based practice, guidelines, and policy. (2.7F) |
| | Establish and incorporate data driven benchmarks to monitor system performance. (5.1i) |
| | Integrate outcome metrics to inform change and policy recommendations. (5.1k) |
| | Evaluate the alignment of system data and comparative patient safety benchmarks. (5.2g) |
| | Use standardized data to evaluate decision-making and outcomes across all systems levels. (8.2h) |
| | Assess the interaction between regulatory agency requirements and quality, fiscal, and value-based indicators. (9.4e) |

**Core Components of this Project:**

- **Models & Framework**: Apply appropriate principles and models, including the Institute for Healthcare Improvement's (IHI) Model for Improvement (see link: https://www.ihi.org/library/model-for-improvement), providing a structured approach to initiating systems-related improvement change and measuring progress over time.
- **Knowledge and Skill Development**: Gain practical understanding through application of tools such as the Ishikawa diagram, PDSA cycles, a Kaizen event, the Pareto chart, etc. as you explore a QI initiative, as well as technology and tools to aid in creating a Run Chart.
- **Practical Application**: Create a run chart from an authentic dataset to analyze results from a healthcare improvement project.

- **Data Organization and Visualization**: Integrate QI-related tools such as a run chart – a line graph that displays data over time – to assess the impact of your intervention and assess changes over time.
- **Measurement and Analysis**: Using standardized rules, interpret the run chart to determine if the process improvement initiative led to enhanced quality (i.e., non-random vs. random variation).
- **Engagement with Quality and Safety Organizations and Benchmarking**: Apply applicable standards of quality metrics to a QI project, assessing the interaction between regulatory agency requirements and value-based indicators.
- **Dissemination of Results**: Provide a webcam teaching presentation that showcases a creative and professional demonstration of scholarship and learning outcomes.

**Assignment Overview:**

- Review the resources provided here: https://www.ihi.org/library/model-for-improvement, as well as the information in the Learning Management System's (LMS) course folder.
- Evaluate the unique dataset that is provided to you in the LMS course and envision a scenario of application for a PDSA project.
- After engaging with the resources and dataset, develop a webcam teaching presentation sharing the project's salient features with peers and addressing each component of the assignment requirements.

*Remember: The Plan-Do-Study-Act (PDSA) cycle provides a framework for testing a change on a small scale. Through this improvement project, let's walk through a simulated PDSA cycle.*

Your presentation should address the following concepts:

| **PDSA Cycle: Plan** |
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**Slide One: Introduction**

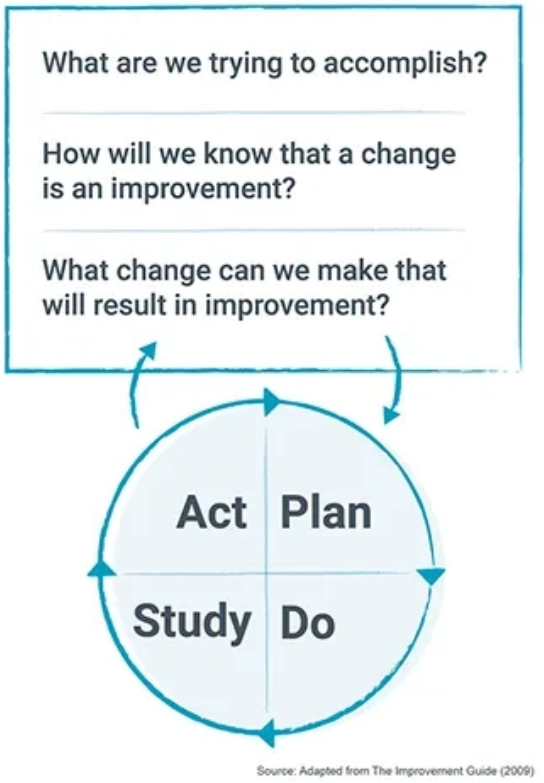
- Provide a creative and engaging introduction that provides an overview of the project's main themes while giving direction to the outline and progression of the remainder of the presentation.
- Share a compelling argument for pursuing this quality improvement initiative. What problem are you trying to solve? How will this change improve a quality outcome or process? Will it save money? Will it improve the patient experience?
- Identify which STEEEP aim this project addresses (see link: https://digitalassets.jointcommission.org/api/public/content/0f631addd218493684840f6dd43ffc54?v=a57fbac2

- Tell us where you're going and why it's important to go there.

**Slide Two: Establish Your Project**

- With a high-level brief overview, establish your project using the IHI's Model for Improvement (see link: https://www.ihi.org/library/model-for-improvement). The IHI's Model for improvement is guided by three fundamental questions:

1. ***AIM: "What are we trying to accomplish?"*** Clearly state the specific, measurable, achievable, relevant, and time-bound (SMART) goal for this project.
2. ***MEASURES: "How will we know that a change is an improvement?"*** Identify the key data you are tracking over time. Does this data represent outcome measures, process measures, or balancing measures?
3. ***CHANGES: "What changes can we make that will result in improvement?"*** What's the (potential) intervention that you tested?

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**Slide Three: QI Methodology or Tool**

- Review course content from Weeks Two and Three. To integrate previous learning, select a QI methodology or tool (i.e., Lean Six Sigma, RCA2, TQM, Kaizen event, etc.) that applies to this process improvement project.

- *Embellish your assigned dataset with appropriate details.* Select a QI methodology or tool that may have been used to isolate a problem or concern with a quality-related metric related to your dataset. For example, was an RCA conducted which resulted in an Ishikawa diagram that identified a process defect? Maybe you used a Pareto chart to isolate the 20% of the process that was causing 80% of the concern. Did a Kaizen Event suggest a needed change in a care process? Perhaps your organization recently incorporated Lean Six Sigma and through the DMAIC process a quality concern was identified that you've selected to improve.

**Slide Four: AIM (SMART Goals)**

- Address the aim of your project.
- Answer the question, *"What are we trying to accomplish?"*
- Clearly state goals for this project that are ***S**pecific, **M**easurable, **A**chievable, **R**elevant, and **T**ime-Bound* (goals are presented with the SMART format).

**Slide Five: MEASURES**

- Identify the key data you are tracking over time (i.e., reflect on the dataset that was provided to you).
- Answer the question, *"How will we know that a change is an improvement?"*
- Classify the data in its appropriate category of 'family of measures,' i.e., does the data represent process, outcome, or balancing measures? See link: https://www.ihi.org/library/model-for-improvement/establishing-measures
- Provide some detail. For example, what are typical concerns with this category of measure?

**Slide Six: Data-Driven Benchmarks & Quality Organizations (local, state, national)**

- Establish and incorporate **data-driven benchmarks** to monitor and serve as a point of reference for metric performance and systems effectiveness.
- For your selected quality measure, what is a desired (or acceptable) metric, per appropriate benchmarking standards?
- For example, if you were conducting a PDSA to improve patient satisfaction scores, typical benchmark standards would include the HCAHPS survey, Press Ganey scores, NDNQI, AHRQ's PSI, etc.
- Discuss a quality organization that supports this metric and reports on the data associated with your project. For example, if you assessed patient satisfaction, what is the HCAHPS "top box" scores/percentage that your organization desires to achieve, etc.?
- Remember that some regulatory agencies reward higher performance regarding value-based indicators. Share this type of information in your presentation.

**Slide Seven: Intervention Overview**

- As you advocate for structures, policies, and processes that promote a quality culture, describe the specific intervention that was tested (in alignment with your quality dataset).
- Answer the question, *"What changes can we make that will result in an improvement?"*

**Slide Eight: Detailed EBP Plan**

- Develop a detailed plan for your suggested intervention that best aligns with the unique dataset that you've been assigned.
- How does this suggested intervention represent **EBP**? What are the national guidelines or standards that align with this project?
- Remember important quality goals of **interdisciplinary collaboration** when engaging in process improvement initiatives. How does your plan engage the interdisciplinary team?
- Address how and when the intervention's effectiveness is measured (the 'plan' portion of the PDSA cycle).
- Clearly specify important details of the project, including what data needs to be collected, when, and by whom, etc.

## PDSA Cycle: DO

- This step involves carrying out the change/intervention according to your plan.
- During this phase, you would engage in the change/intervention process and collect the data points in their natural time sequence (e.g., daily, weekly, monthly, etc.).
- *This step has been done for you.* Each of you is provided with a unique dataset that simulates your change project with the appropriate metrics.
- You will share the findings from your dataset in subsequent slides through creation and analysis of run chart data.

## PDSA Cycle: STUDY

**Slides Nine and Ten: Run Chart Creation and Analysis**

- Using the dataset that you were provided, create a run chart as visual evidence representing the process improvement over time.
- Analyze your dataset as you reflect on the findings from the run chart.
- Describe what the chart shows, highlighting any observed shifts, trends, or other signals of non-random variation (suggesting a potential process improvement).

- Explain whether the data indicates a true improvement based on the run chart rules (i.e., random variation vs non-random variation).
- Be sure to note important observations or unexpected events by providing appropriate **annotations** in your run chart, i.e., noting when the intervention began, unique circumstances that may have impacted the data (collection or results) that occurred during the testing cycle, etc. For example, if you find astronomical data points, the annotations may help explain reasons for data variability.

**More on Run Chart Requirements.** You may use a spreadsheet program like Microsoft Excel or a specific IHI template to create your run chart (also note – this is simple enough that you could use paper and pencil and construct the run chart by hand – sometimes simple really is best! However, it is great practice to use Microsoft Excel for this assignment as well).

1. **Set up the Axes**. Plot the time sequence on the horizontal (X) axis and the key measure on the vertical (Y) axis. Clearly label both.
2. **Plot the Data**: Enter your data points (Y axis) in the chronological order (X axis) as they were collected and connect them with a line.
3. **Calculate and Add the Median**. Calculate the median (middle value) and draw a horizontal line across the chart at that value. This centerline will help you identify shifts or trends.
4. **Annotate the Chart**: Clearly label the point in time when your intervention (the 'change') was implemented. Include any other significant events that may have affected the data.

**Interpret the run chart.** Analyze your run chart to differentiate between random variation (suggesting common cause variation or lack of a change impact) and non-random variation (suggesting special cause variation and a possible indicator of process improvement). Understanding that run charts do not definitively prove the cause of a change, discuss any potential confounding factors or limitations with your intervention, data collection, analysis, interpretation, etc.

Apply the following rules from IHI to interpret your findings:

1. **Rule of a Shift**: Look for six or more consecutive data points that are either all above or below the median. Points on the median do not count. A shift indicates that the process has a new, stable mean.
2. **Rule of a Trend**: Look for five or more consecutive data points all going up or all going down. If two or more consecutive points have the same value, count them as a single point in the trend. A trend shows a process is consistently moving in one direction.

3. **Rule of Too Many/Too Few Runs**: Count the number of runs (a sequence of one or more consecutive points on the same side of the median. Compare this to a table of expected runs for your number of data points. A non-random pattern is signaled by too few or too many runs.
4. **Rule of Astronomical Data Point**: Look for any data point that is obviously different from the rest. You may need to investigate this to determine if a data-entry error was made, etc.

**PDSA Cycle: ACT**

**What's Next?**

- Based on your analysis of the data, consider what to do next.
- In the next few slides, summarize the findings.
- Pull everything together and share your concluding suggestions for practice improvement.

**Slide Eleven: Implications for Practice & Summary**

- Based on your findings, your team may elect to adopt the intervention, modify it, implement the intervention on a larger scale, or abandon it and test a new idea.
- Discuss the quality-related implications of your findings for healthcare improvement.
- How does your intervention assure accountability for care outcomes?
- How might your intervention be used to inform practice change and suggest policy recommendations?
- Explain how your project helped improve quality outcomes for your target population, referencing an appropriate quality framework as appropriate.

**Slide Twelve: Reflection/Conclusion**

- **Reflection:** Spend some time in critical reflection regarding this project.
- What stands out as most influential to your learning as you completed this assignment? Why was it helpful?
- What was most challenging? Why?
- What additional information would have been more helpful to your learning experience?