

ORIGINAL RESEARCH

Innovation in clinical learning: The AM/PM model

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ABSTRACT

Objective: A primary goal in clinical learning is to apply nursing knowledge and skills learned in the classroom to clinical. While benefits to learning in clinical are evident, this experience is not without challenges, which often relate to coordination of the learning experience. The AM/PM model, an innovative clinical learning model, was developed in response to scheduling challenges that impacted learning.

Methods: A Bachelor of Science in Nursing program at a state university in the western region of the United States was using a 12-hour biweekly shift schedule for clinical rotations. This schedule negatively impacted learning. Thus, a 6-hour weekly (AM/PM) clinical learning model was developed and implemented to address barriers in clinical learning, using Lewin's Theory of Change as the theoretical framework and as a guide to achieving the desired change. Standardized examination performance was used as a measure of success to evaluate summative learning.

Results: Clinical learning was improved as a result of implementing the AM/PM model. Nursing students had more opportunity to develop critical thinking, clinical judgment, and communication skills. Learning outcomes measured by standardized exam scores increased for the AM/PM groups.

Discussion and conclusions: The AM/PM model, in comparison to other traditional clinical models, was successful in providing experiences to support critical thinking, clinical judgment, and improved learning outcomes. Using Lewin's Theory of Change as a theoretical framework to guide implementation of the AM/PM model supported all key stakeholders in adapting to the change, ultimately supporting nursing student learning.

Key Words: Clinical learning model, Nursing students, Lewin's Theory of Change, Critical thinking, Clinical judgment, AM/PM model

1. INTRODUCTION

Clinical learning experiences in nursing programs take on many forms. Applying nursing knowledge and skills learned in the classroom in the clinical setting is a primary goal in clinical learning. While benefits to learning in a clinical setting are evident, this learning environment is not without challenges. Challenges impacting learning in clinical often are related to how the experiences are coordinated.^[1]

A Bachelor of Science in Nursing program at a state university in the western region of the United States was using a clinical learning model that scheduled biweekly 12-hour

shifts for the adult medical-surgical clinical rotation. Concerns noted on weekly and end-of-semester evaluation forms completed by nursing students and nurse preceptors indicated that the 12-hour biweekly schedule negatively impacted learning.

Negative impacts included: (1) fatigue secondary to long shifts; (2) forgotten knowledge due to attending clinical on a biweekly basis; (3) less exposure and experience with varying patient care situations due to having fewer clinical days in a given semester; and (4) an increase in competing demands due to long shifts interfering with other school

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obligations on the days before and after clinical. Nursing program leadership and faculty recognized the potential academic impacts on the development of critical thinking and clinical judgment skills as an unintended consequence of the 12-hour biweekly scheduling model. Thus, the 6-hour weekly (AM/PM) clinical learning model was developed and implemented to address these barriers and increase opportunities to develop critical thinking and clinical judgment. Lewin’s Theory of Change was used as the theoretical framework to guide achievement of the desired change and learning outcomes were assessed in relation to the change.

2. METHODS

2.1 Defining a new clinical learning model: The AM/PM model

The AM/PM model was developed and implemented during the fall 2019 and spring 2020 semesters to address barriers in clinical learning, using Lewin’s Theory of Change as the theoretical framework as a guide to achieving the desired change.

A total of 123 nursing students were involved in the change. The spring 2019 and summer 2019 groups had a total of

60 students, who were in the 12-hour biweekly schedule. The fall 2019 and spring 2020 groups had a total of 63 students, who were in the AM/PM model schedule. Standardized examination performance was used to evaluate summative learning among nursing students participating in the biweekly model compared to the AM/PM model.

The AM/PM model is both a scheduling model and a learning model. This model deliberately integrated selected learning opportunities aimed at building critical thinking and clinical judgment in nursing students. Two groups, each with 8 students, were scheduled for clinical on one unit at one clinical facility on the same day, with the same clinical instructor (see Table 1). The AM group attended during the first 6-hours of a 12-hour shift, and the PM group attended during the last 6-hours of a 12-hour shift. A shift change occurred among peers, where the AM group provided bedside hand-off report to the PM group. Because there were different patient care experiences available at specific times in a day, at the midterm, the groups switched. The AM group attended the PM shift, and the PM group attended the AM shift to ensure an equitable learning experience among the groups. By the end of the semester, nursing students were able to experience the typical occurrences in an entire 12-hour shift.

Table 1. Group schedule of the AM/PM clinical learning model

	Group 1	Group 2
	AM Clinical Week 1-7	PM Clinical Week 1-7
Time/activity	0600-0645 Patient review 0645-0700 Clinical group huddle 0700-0730 Bedside report with the RN 0730-1200 Patient care 1200-1230 SBAR* to the PM student 1230-1330 Post-conference	1145-1200 Clinical group huddle 1200-1230 SBAR* from the AM student 1230-1830 Patient care 1830-1930 Post-conference
	Group 1	Group 2
	PM Clinical Week 8-14	AM Clinical Week 8-14
Time/activity	1145-1200 Clinical group huddle 1200-1230 SBAR* from the AM student 1230-1830 Patient care 1830-1930 Post-conference	0600-0645 Patient review 0645-0700 Clinical group huddle 0700-0730 Bedside report with the RN 0730-1200 Patient care 1200-1230 SBAR* to the PM student 1230-1330 Post-conference

*SBAR, situation, background, assessment, recommendation

The AM/PM model also integrated specific patient care expectations focused on building critical thinking and clinical judgment skills. During the 0730-1230 and 1230-1830 hours, nursing students were immersed in patient care processes that required them to role model the job of the nurse. Table 2 provides an overview of the requirements during the patient care time, and how each activity is linked to the thinking

process that aids in building critical thinking and clinical judgment skills.

2.2 Lewin’s change theory overview

Lewin’s theory has been widely used in clinical nursing practice, nursing education, nursing administration, and other healthcare operations. This theory has been used as a strategic resource to help nurse leaders in advancing organizational

change and promoting sustainability.^[2] Lewin’s theory of change assists in avoiding the common difficulties that impede the attainment of change initiatives and offers guidance through the change process, including specific action plans and decision-making for change.^[2] Kurt Lewin is known for developing force field analysis as the framework for recognizing and analyzing the factors affecting a change. The force field analysis specifies forces as driving (helping forces) or restraining (hindering forces) movement toward achieving a goal. This force field analysis framework forms the ground-

work for Lewin’s three-stage change model. Lewin identified “unfreezing-change-refreezing” stages through which a change must proceed before it becomes a part of the system. Unfreezing is the first stage when change is needed, change is the second stage when change is initiated, and the last stage, refreezing, is when equilibrium is established.^[2,3] The following stages set forth by Lewin served as the groundwork during implementation of the AM/PM clinical model in efforts to achieve the desired change. Key stakeholders were involved in each step.

Table 2. Nursing student patient care activity schedule

Time	Activity	Thinking Process
0700-0730 AM Student	Bedside report with nurse preceptor	Recognizing and analyzing pertinent patient information needed to assume care
0730-0800 AM Student	Environmental assessment	Recognizing and addressing environmental safety concerns
0800-0900 AM Student	Patient monitoring (telemetry, vital signs, laboratory results, provider orders)	Analyzing clinical findings, directing further nursing care
0900-0930 AM Student	Patient assessment (head-to-toe) & medication administration	Connecting assessment findings with health problems, directing further nursing care
0930-1000 AM Student	Documenting assessment/nursing notes in electronic health record	Evaluating patient outcomes and responses to care interventions
1000-1100 AM Student	Personal care (bathing, ambulation, catheter management, range-of-motion exercises)	Implementing preventive measures important for recovery
1100-1200 AM Student	Reassess patient as needed, perform individual care e.g. wound care; review for updated orders and progress notes; determine coordination needs for care	Prepare for next shift, ensuring continuity of quality patient care
1200-1230 AM Student to PM Student	Bedside report to incoming nursing student	Synthesizing patient care activities and considerations, identifying patient care priorities, requires critical thinking and clinical judgment
1230-1300 PM Student	Environmental assessment	Recognizing and addressing environmental safety concerns
1300-1400 PM Student	Patient monitoring (telemetry, vital signs, laboratory results, provider orders)	Analyzing clinical findings, directing further nursing care
1400-1430 PM Student	Patient assessment (focused) & medication administration	Connecting assessment findings with health problems, directing further nursing care
1430-1500 PM Student	Documenting assessment/nursing notes in electronic health record	Evaluating patient outcomes and responses to care interventions
1500-1600 PM Student	Patient education & discharge planning (medications, incentive spirometry, wound care, etc.)	Implementing preventive measures important for recovery
1600-1700 PM Student	Patient monitoring (telemetry, vital signs, laboratory results, provider orders)	Analyzing clinical findings, directing further nursing care
1700-1800 PM Student	Reassess patient as needed, perform individual care e.g. wound care; review for updated orders and progress notes; determine coordination needs for care	Prepare for next shift, ensuring continuity of quality patient care
1800-1830 PM Student	Bedside report to nurse preceptor	Synthesis and communication of relevant information, identification of priorities and patient safety needs
1830-1930 PM Student	Bedside reports during clinical post-conference	Synthesis and communication of relevant information, identification of priorities and patient safety needs

* Patient, staff, and health care provider communication integrated into all activities

2.3 Using Lewin's change theory to guide implementation of the AM/PM model

2.3.1 Stage 1: Unfreezing

The first stage involved finding a method to make it possible for individuals or organizations to get ready for change. This stage may come with individual resistance and group conformity.^[2,3] Lewin suggested three methods that assist in the unfreezing process. The first method is to increase the driving forces that direct the existing situation to the desired change. This can be achieved by the change agent recognizing the gap, detecting the need for change, and activating others to acknowledge the need for change. Unfreezing may begin with the change agent recognizing a gap and demonstrating differences between the desired and current outcomes. Part of unfreezing is creating a sense of urgency. A solution can then be elected in planning to move away from the current state. Lewin suggested using force field analysis and identification of factors that hinder the change and factors conducive to change. In order to increase the chances of successful change, driving forces needed to be strengthened, and restraining forces need to be weakened.^[2,3]

2.3.2 Application of Lewin's change theory to the AM/PM Model: The unfreezing stage

In the unfreezing stage, the change agents identified the population, sponsors, and key stakeholders. The evidence was gathered and presented to the state university School of Nursing (SON), clinical facility leadership, and nursing students. The need for change was emphasized, and a sense of urgency was implied. There were three steps in the unfreezing stage before the AM/PM model could proceed to implementation.

First, the change agents met and discussed the need for change from a 12-hour biweekly model to the AM/PM model with SON faculty. Information gathered from weekly and end-of-semester evaluation forms indicated that the current 12-hour shift model was problematic for a variety of reasons, as discussed earlier. The change agents discussed with stakeholders expected improvements as a result of the proposed change. Additionally, the change agents shared evidence pertaining to nursing student experiences in longer versus shorter clinical shifts, and NCLEX outcomes related to clinical shift length. The evidence supports shorter and more frequent clinical hours to improve learning outcomes.^[1,4] After all points were presented, questions from the stakeholders were addressed, and the timeframe for change was agreed upon, the change agents and SON faculty champions agreed on implementation of the AM/PM model.

The second initiative in the unfreezing stage involved the clinical facility leadership. The clinical facility leadership acted as a sponsor of this change and their support was necessary

to implement the AM/PM model. To present this intended change, the change agents organized a meeting with the clinical facility leadership, including the chief nursing officer, the unit director, and the unit manager. During this meeting, the change agents shared the reasons for the change, such as findings from the literature review, nurse preceptor feedback, and nursing student performance measures based on the current biweekly 12-hour clinical rotations. The change agents highlighted that implementation of the AM/PM model did not require any major clinical facility organizational changes. The main goal of this meeting was to strengthen the clinical facility and SON clinical partnership to gain mutual agreement on implementing the change.

Lastly, the third step of Lewin's unfreezing stage was to gain the nurse preceptors' buy-in as they were valuable stakeholders and work directly with the nursing student, which ultimately affects their learning outcomes. As with the clinical facility leadership, the change agents presented evidence and the need for a change. However, because the nurse preceptors shared the same concerns as the nursing students about biweekly 12-hour clinical rotations, they served as driving forces and helped in the initial stages of unfreezing. Yet, the change agents facilitated an open communication line with each nurse preceptor and ensured that every nurse was on board with implementing the AM/PM model. The change agents collaborated with nurse preceptors and listened to their thoughts and concerns regarding the change and acted as a support and resource.

2.3.3 Stage 2: Change

Lewin's second stage, change, is also known as "moving to the next level" or "transitioning." This stage involved a process of change that is more productive and a new way of working. It entailed analyzing change as a process and required an inner movement that individuals and organizations made in reaction to change. During this stage, it was necessary to create a detailed plan of action and engage the stakeholders to see the proposed change from a new perspective. The change agent realized that this might be the most difficult stage because of uncertainty and fear associated with the new change. To acknowledge and move past these fears, the change agent utilized coaching to overcome any reservations and understand how this change will benefit those involved. Potential drawbacks, such as lack of buy-in from any stakeholder, resistance to the change, and staffing limitations were planned for and addressed while effective strategies were put in place to manage these situations.^[2,3]

2.3.4 Application of Lewin's change theory to the AM/PM Model: The change stage

After the change agents obtained buy-in from the SON leadership, clinical facility leadership, and nurse preceptors, the

AM/PM model was implemented. During this stage, the change agents allowed time for the initial change process to settle, communicated clearly and frequently, answered questions honestly and openly, and involved every stakeholder in the change process. The change agents met with the clinical facility unit director and collaborated when planning clinical schedules for nursing students and matching them with the nurse preceptors. To ensure nurse preceptors availability on a weekly basis, the change agents discussed nurse preceptors' schedules, including their vacation times and other possible changes. Additionally, starting and ending times on the unit were discussed and possible modifications to the AM/PM model were reviewed and carefully considered. For example, training for nurses who wanted to become new nurse preceptors was provided to support the model.

Furthermore, during the second stage, when the AM/PM model was implemented, the change agents stayed closely involved with the nurse preceptors. Every clinical rotation, the change agents rounded on the nurse preceptors and nursing students and continuously monitored their learning and teaching experiences. The change agents assessed the nurse preceptors' reaction to change, answered questions, responded to any concerns if they arose. One reaction was not readily accepting the change, especially when there was a new group of nursing students coming to clinical in the afternoon. To navigate this, change agents listened to the specific challenges associated with having a new group. The main concern was having to repeat physical assessments with the same patient. To address this, the AM shift focused on specific patient care activities, and the PM shift focused on different patient care activities (see Table 2). Also, in this stage, the change agents identified a nurse preceptor who would act as ambassador for the change in specific activities, including problem solving, organizing, delivering communication messages, generating short-term wins, and creating support during times of uncertainty. No other barriers during the change stage occurred, other than scheduling issues of nurse preceptors and their absences due to sick days, maternity leave, leave of absence, and other unexpected events.

2.3.5 Stage 3: Refreezing

Once the change was in full effect and the individuals and organizations embraced the change, the refreezing stage has been achieved. The third stage of Lewin's theory called for stabilizing the change as it became implanted into the existing system, and the organization internalized and institutionalized the changes. The key was to create a new sense of stability where the individuals and organizations felt confident and comfortable with the new ways of working. Additionally, in the refreezing stage, the change agent needed to consider Lewin's force field analysis and strengthen the driv-

ing forces facilitating the change and offset the restraining forces impeding the change. With refreezing the new change, the balance of driving and restraining forces produced new homeostasis, which generated a new norm. The third stage was significant because institutionalizing the change would be critical to its sustainability over time. In this final stage, the change agent remained available for advice and reinforcement since past ways of doing could have re-emerge and prohibit the sustainability of the new change. Finally, the change needed to be evaluated to determine if the expected outcomes were achieved or if movement back to the previous stage was necessary. If so, additional changes would have to be developed.^[2,3]

2.3.6 Application of Lewin's change theory to the AM/PM Model: The refreezing stage

In the refreezing stage, the change agents maintained ongoing communication with key stakeholders. An important message in the refreezing stage was to emphasize the evidence that shows shorter clinical rotations reduce fatigue without compromising the achievement of learning outcomes.^[5] To increase the potential for sustainability of this new change, the change agents developed strategies such as ensuring that a continuous support exists for all stakeholders. The change agents established a feedback system, open communication, and training on a frequent basis for continuous improvement. Feedback from stakeholders was reviewed and considered during and after every clinical rotation. However, the change agents acknowledged that additional changes may be required if there was a movement to previous stages.

3. RESULTS

3.1 Benefits of the AM/PM model

Benefits of adopting the AM/PM model center on clinical learning, clinical partnerships, and nursing programs. Clinical learning was improved as a result of implementing this new model. Nursing students: (1) required less guidance in performing patient care procedures because of more frequent exposure to patient care situations; (2) were able to care for twice the number of patients with varying needs, increasing opportunities for students to apply nursing knowledge and skills in the clinical learning environment; (3) had increased opportunities to develop critical thinking and clinical judgment skills in their post-clinical requirements (reflection, post-conferences, written assignments); (4) were able to more effectively balance managing their requirements for the nursing program; and (5) had increased communication opportunities.

These improvements were further explored by assessing learning outcomes using standardized examination scores. Using an independent (Student's) t-test, the groups were

compared on the basis of clinical shift length of the 12-hour biweekly schedule ($n = 60$) to the AM/PM model schedule ($n = 63$). For the 60 nursing students with the 12-hour biweekly schedule, standardized examination raw scores ($M = 854.52$, $SD = 136.267$) did not significantly differ from the 63 participants in the AM/PM model schedule ($M = 884.52$, $SD = 135.339$), $t(121) = -0.5$, $p = .22$. Although the results showed no significant difference, a 30 point increase was noted in the 63 nursing students' mean scores ($M=884.52$) who participated in the AM/PM model compared to the 60 nursing students' scores ($M = 854.52$) who had the 12-hour biweekly schedule.

3.2 Sustaining the change

As part of the refreezing stage, a critical aspect of sustaining the change was to appoint a change agent in both the clinical facility and the SON. The change agents assisted in recognizing the gap, detecting the need for change, and activating others to acknowledge the need for change. The change agents served as facilitators between nursing students, nurse preceptors, and SON faculty and leadership. Regular meetings remained important to understand the ongoing day-to-day triumphs and challenges of the AM/PM model. Determining necessary adjustments during and after each clinical rotation have proven to be important in making data-driven decisions to improve clinical learning in this model. Since its inception, the AM/PM has been widely accepted by SON faculty and other clinical facilities. This model has since been successfully employed in five other clinical rotations and has led to collaboration with other nurse educators from programs in different states.

4. DISCUSSION

With a heightened emphasis on developing critical thinking and clinical judgment skills in nursing students^[1,4] among constraints in clinical site placements and nursing faculty, innovation to support clinical learning is necessary. The AM/PM clinical model, in comparison to other traditional clinical models, was successful in providing more experiences that are required to develop these skills. Standardized examination scores and NCLEX performance is a widely agreed upon measure of success in nursing programs.^[4] Although there is evidence to suggest that clinical shift length does not significantly affect NCLEX performance,^[4] it is noteworthy that standardized examination scores improved for nursing students in the AM/PM groups. Although it is not the only consideration, the improved scores as a measure of summative learning provide justification for continuing the AM/PM model.

In addition to benefits for clinical learning, there are notable

benefits for nursing programs. Having the option of both models for nursing students to choose from may support student-centered learning initiatives. Both models (12-hour biweekly and AM/PM) are rigorous models, but one may be better suited to schedules. This may improve management of student school-life balance. Faculty may also benefit from the added options based on their personal preferences for longer or shorter clinical shifts and clinical site availability. In addition, nursing programs have to compete with other schools for clinical placements. With increasing enrollment in nursing programs and the need to leverage available clinical opportunities, integrating the AM/PM model may be another viable scheduling option while maintaining the quality of learning opportunities.^[5]

Furthermore, having the option of two separate groups of nursing students to experience 6-hour clinical rotations in one day may provide added efficiency in educating two groups of nursing students at one clinical site. The AM/PM model is efficient from the perspective of clinical partners, in that having twice the number of nursing students on one unit in one day has the potential to increase safety by having more staff available to care for patients. Additionally, there is the potential for improved retention of new graduate nurses who experienced the AM/PM model if they choose to work at the same facility where their clinical learning occurred, thereby aiding in addressing the national nursing shortage.

Once the change with the AM/PM model was solidified, additional improvements focusing on learning and collaboration were integrated. Post-conference, as a method of debriefing clinical learning experiences, needed to be carefully timed and planned. Post-conferences in the AM/PM model occurred immediately after the clinical shift (see Table 1); whereas, in the 12-hour biweekly mode, post-conference occurred on a different day because of the long shift. Clinical skills instruction was another important aspect of clinical learning. A skills refresher has been added in the first week of the clinical rotation, allowing nursing students and nurse preceptors to focus more on the critical thinking and clinical judgment aspects of patient care rather than learning and practicing skills. Having two groups in clinical on the same day also allowed for integration of other learning activities because it opened up an entire day. For scheduling purposes, the AM/PM model was helpful in planning skills activities in the skills lab because two groups were able to attend one skills session since they were not in clinical. Team-based learning is also an output of this model, whereby nursing students are presenting bedside report to their peers during post-conference.

Limitations

Lewin's theory has been criticized for being too simple, linear, and framed from a static perspective. Additionally, due to the unpredictable and complex nature of change, it is not always possible to frame the change from an unfreezing, moving, and refreezing perspective.^[2]

A limitation was a delay in administering the examination to the nursing students in the AM/PM group in spring 2020 due to the COVID-19 pandemic. The scores were not counted as part of their final grade, and nursing students may have prepared less than they would have otherwise. In addition, because of the pandemic, the clinical shifts were reduced from fourteen clinical shifts to only eight clinical shifts for the spring 2020 group, leaving these nursing students with less clinical experiences, potentially affecting learning outcomes.

5. CONCLUSION

Implementing change is challenging; however, proactive utilization of a theoretical framework may reduce or remove potential issues. Since every planned change may be vulnerable to a failure at any point, choosing an appropriate theory can streamline the process for the change agent and assist the stakeholders affected by the change in becoming more responsive to the change. The three distinct stages of Lewin's theory allowed the change agents to plan and implement the needed change. In the first stage, unfreezing, the change agents shared the reasons for the change and identified key stakeholders. The unfreezing stage proceeded through three steps: (1) meeting with the nursing program leadership and sharing the current issues with 12-hour shift biweekly clinical rotations and discussing expected improvements with the new change; (2) meeting with the clinical facility leadership with the goal to gain their buy-in for implementing the AM/PM clinical learning model; and (3) meeting with all nurse preceptors to present evidence for the need for change and how the new change may improve nursing student clinical experiences. In the next stage, change, the

AM/PM clinical learning model was implemented, and the change agents assessed nurse preceptors' reaction to change, promoted effective communication, and empowered nurse preceptors to embrace the AM/PM clinical learning model. Additionally, the change agents collaborated with nurse preceptors and continuously monitored learning experiences. In the last stage, unfreezing, the change agents anchored this new change and continue to reassess if a new change is needed. Using Lewin's Theory of Change as a theoretical framework to guide implementation of the AM/PM model supported all key stakeholders in adapting to the change, ultimately supporting learning.

Clinical learning was improved using the AM/PM model. Nursing students required less guidance in performing patient care procedures because of more frequent exposure to patient care situations. Students cared for twice the number of patients with varying needs, increasing opportunities to apply nursing knowledge and skills in the clinical learning environment. There were added opportunities for nursing students to develop critical thinking and clinical judgment. Standardized examination scores provided a measure of success. In conclusion, the AM/PM model, in comparison to other traditional clinical models, was successful in providing experiences to support critical thinking, clinical judgment, and improved learning outcomes.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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