THE EFFECT OF AN ESCAPE ROOM TEACHING INTERVENTION FOR NEW CLINICAL NURSES LEARNING ABOUT CLABSI, CAUTI, HAPI, AND FALLS IN AN ACUTE CARE FACILITY

By

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Abstract

Hospital acquired conditions such as central line associated bloodstream infection (CLABSI), catheter associated urinary tract infection (CAUTI), hospital acquired pressure injury (HAPI), and falls can be very costly to the hospital and detrimental to the patient. Collectively, these avoidable conditions have been shown to impact the facilities that fail to prevent them and the patients that experience them. This research focused on the questions: Does adding an escape room simulation that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, affect knowledge on prevention measures for new graduate nurses, and, what is the perception of new graduate nurses toward the escape room educational intervention? An escape room was created and participants completed a pretest, post-test and post activity survey. The study, showed that the nurses' knowledge did improve by completing the escape room activity and the participants would like to see more educational opportunities presented in this format. Further research could include reviewing a short power point that reviews the hospitals preventative measures they have in place to reduce CAUTI, CLABSI, HAPI and falls before completing the escape room activity with staff and taking the time to review the activities with the participants that they weren't able to complete in the allotted time.

Chapter 1

Introduction

Hospital acquired conditions such as central line associated bloodstream infection (CLABSI), catheter associated urinary tract infection (CAUTI), hospital acquired pressure injury (HAPI), and falls can be very costly to the hospital and detrimental to the patient. The research questions in this study were: Does adding an escape room simulation that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, affect knowledge on prevention measures for new graduate nurses, and, what is the perception of new graduate nurses toward the escape room educational intervention?

Background of the Problem

Hospital acquired conditions such as CLABSI, CAUTI, HAPI, and falls take staff collaboration, policies, and procedure founded on evidenced based practices to reduce their frequency of occurrence. Training can also be put in place to teach preventive measures to keep the above referenced conditions from happening. Research done by Plump and Meisel (2019), showed that games capture student attention, motivate them, and support learning when connected to specific outcomes. Escape rooms are becoming a popular way to provide educational opportunities in a variety of health fields. Escape room simulations used in nursing have been reported to contribute to learning, to team building, and to improving delegation skills (Brown, Darby, Coronel, 2019). Effective teamwork has been shown to positively impact patient safety and outcomes. Certainly, the need for effective teams is increasing due to growth in both co-morbidities and the complexity of care (Babiker et al, 2014).

Statement of the Problem

Hospital acquired conditions such as central line associated bloodstream infection (CLABSI), catheter associated urinary tract infection (CAUTI), hospital acquired pressure injury (HAPI), and falls can be very costly to the hospital and detrimental to the patient. Hundreds of millions of patients worldwide are affected by hospital acquired infections (HAI) each year and out of every 100 hospitalized patients, at any given time, seven in high-income countries and 10 in low- and middle-income countries will acquire one or more HAI (WHO, 2019). Collectively, these avoidable conditions have been shown to impact the facilities financially that fail to prevent them and are a detriment to the patients' health. Huixue et al. (2019) report HAIs not only threaten the patients' health and life but also bring additional economic burden to the patients and healthcare system including prolonged hospitalization and direct economic loss.

Research Questions

Does adding an escape room simulation that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, affect knowledge on prevention measures for new graduate nurses?

What is the perception of new graduate nurses toward the escape room educational intervention?

Definition of Terms

Braden Scale- An evidence-based pressure injury risk assessment scale that addresses the following risk factors: sensory perception, moisture, activity, mobility, nutrition, friction, and shear (AHN Pressure Injury Prevention and Treatment Guidelines Policy, 2019).

Catheter-associated UTI (CAUTI)- A UTI where an indwelling urinary catheter was in place for >2 calendar days on the date of the event, with the day of device placement being Day 1, AND an indwelling urinary catheter was in place on the date of event or the day before. If an

indwelling urinary catheter was in place >2 calendar days and then removed, the date of the event for the UTI must be the day of discontinuation or the next day for the UTI to be catheter-associated (AHN Indwelling Urinary Catheter Management Policy, 2019).

Central line associated bloodstream infection (CLABSI)- Primary bloodstream infection in a patient who had a central line within the 48-hour time frame before development (Bell & O'Grady, 2017).

Escape Room- Escape rooms are live-action team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time (Nicholson, 2015).

Fall- Defined in accordance with NDNQI (National Database of Nursing Quality Indicators) as any sudden, unintentional descent, with or without injury to the patient, that results in the patient coming to rest on the floor, on or against some other surface (e.g. counter), on another person or on an object (AHN Fall Prevention Policy, 2019).

Perception- The way that you think about it or the impression you have of it.

Risk Assessment- Assessment to determine which, if any, risk factors are present that might contribute to the development of skin injury. Risk assessment is a tool to guide the nurse to selection of an individualized plan of care based on the patient's level of risk (AHN Pressure Injury Prevention and Treatment Guidelines Policy, 2019).

Skin Assessment- Includes 5 parameters- temperature, turgor, texture, integrity, and moisture status (AHN Pressure Injury Prevention and Treatment Guidelines Policy, 2019).

Need for the Study

If the incidences of CLABSI, CAUTI, HAPI, and falls decrease at an acute care hospital in Northwest Pennsylvania, it may be a benefit for patient outcomes, staff morale, and the

financial security of the hospital. Incidences, of these preventable conditions, may be reduced through improved staff training of both onboarding and continuing education. The use of innovative instructional techniques such as simulation have the potential to decrease these avoidable negative patient outcomes while improving staff knowledge retention.

Significance of the Problem

To prevent hospital acquired conditions from happening, such as CLABSI, CAUTI, HAPI, and falls, it takes the collaboration of staff and, policies and procedures founded on evidenced based practices. CLABSI, CAUTI, and HAPI all occur under the hospital acquired condition (HAC) reduction program. According to the Advisory Board Website (2018), an acute care hospital in Northwest Pennsylvania was penalized $493,970.00 for FY 2017 for their HAC penalty. In FY 2016, this hospitals HAC penalty was $481,282.00. Each of these preventable conditions also has measurable impacts on their own.

It is critical that facilities put measures into place to control preventable conditions, like the ones referenced above, because they can have a devastating impact on patients. Something as simple as a urinary tract infection (UTI) can have huge ramifications, particularly with already immune compromised patients. CAUTIs can lead to complications such as endocarditis, septic arthritis, and meningitis. In addition, more than 13,000 deaths are estimated to be associated with UTIs yearly (CDC, 2019).

CLABSI data is even worse; there are an estimated quarter of a million infections and 31,000 deaths yearly from these preventable infections (Lippencott Solution, 2016). The Agency for Healthcare Research and Quality (2019) reported that 48% of intensive care unit (ICU) patients have indwelling central venous catheters, which accounts for 15 million central line days

per year in the United States. Moving the dial on these infections goes a long way toward improvement to both the bottom line and, more importantly, patient outcomes.

Pressure injuries/injury resulted in significant patient harm including expensive treatments, pain, increased length of stay, and in some cases premature death (Joint Commission Center, 2019). The Joint Commission Center for Transforming Healthcare (2019) estimated that more than 2.5 million patients, in acute care facilities in the United States, suffer from pressure injury/injuries and 60,000 die from their complications.

Patient falls can also be a costly and devastating complication in the hospital. Patient Safety Network (2019) estimates that more than one-third of in-hospital falls result in injury including serious injuries such as fractures and head trauma. The Sentinel Alert Event published by The Joint Commission (2015) estimated that the average cost of a fall with injury is about $14,000. Injured patients may require additional treatments and prolonged hospital stays.

Limitations

There were a few identified limitations for this study. The first limitation is a time constraint related to the DNP program and the training schedule of the hospital. Due to the requirements of this DNP program, data must be collected prior to the start of the Fall 2020 semester or shortly after. In turn, the hospital had mandated that this training exercise occur and be completed in August and October 2020. There was also risk for missing data. The pretest, posttest and post activity was completed on paper so there was a chance that the participants would not fill out the forms fully. A longer trial and computerized testing could solve some of these limitations.

Summary of the Problem

If the incidence of CLABSI, CAUTI, HAPI, and falls decrease at the acute care hospital in Northwest Pennsylvania, it may be a benefit for patient outcomes, staff morale and financial security of the hospital. The escape room simulation will be completed with graduate nurses within the first 60 days of employment. If found to be beneficial, the simulation for the seasoned nurses, throughout the hospital, could be incorporated into staff training/continuing education and completed at a later time.

Chapter 2

Review of Related Literature

In this section, the researcher will synthesize relevant literature on the subject of escape room simulations and their effectiveness as a teaching intervention. The similarities and possibly differences in methodologies used in the studies cited in this review, the roles the teacher and the students play in the simulations, and the results will be identified.

Methodologies

Various forms of escape room simulations are now being implemented in health care facilities for multiple disciplines to create innovative learning experiences. Jambhekar, Pahis, & Deloney (2019) defined an escape room as being a competitive physical adventure game within a prescribed setting, constrained by rules and procedures, where a team of players must discover clues and solve a mystery to escape a "locked" room. Simulations are defined as activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision-making, and critical thinking through techniques such as role-playing and the use of devices such as interactive videos or mannequins (Jeffries, 2005). The methodologies used in these simulated learning experiences vary as greatly as the scenarios that are presented in them. Gorden et al. (2019) and Clausen et al. (2017) created escape room activities for pharmacy students focusing on team building and practice environments. Other studies focused their escape rooms based on themes. Eukel, Frenzel, & Cernusca (2017) created a diabetes escape room, Jambhekar et al. (2019) created a radiology escape room, and Zhang et al (2019) created a patient safety escape room. The number of rooms did vary by study. Kutzin (2019) chose to use one room similar to the commercial escape room setup whereas Clauson et al. (2019) had their participants' complete activities in three separate rooms. Sample size also varied significantly.

Two studies completed by Zhang et al. (2018) and Kutzin (2018), only had 10 participants. The largest study reviewed had 144 participants from more than 10 countries (Jambhekar et al., 2019).

In comparison, some of these studies took the minimalist approach to incorporating the concept of escape room simulation into their education curriculum. Brown, Darby and Coronel (2019) created breakout EDU locked boxes that they incorporated into a clinical simulation as part of the routine care of a patient for nursing students. Breakout EDU is a physical game kit and platform where students work together to solve various puzzles to open a locked box, similar to an escape room. Lock boxes are a common component of escape room scenarios, but they did not include an actual locked room from which to escape. Zhang et al. (2018) employed the use of a commercial escape room to not focus on specific set of knowledge but instead to bolster skills such as team building, critical thinking, and decision making under pressure.

Role Play

Escape room simulations take manpower on both ends to be successful. The setup and facilitation of the simulations takes a team of faculty and teachers. The completion of the escape room, itself, takes a team of students. All the individuals involved in this type of complex educational intervention have a role to play and that role varied based the methodology and design of the study.

The name of the person running the escape room varied throughout the studies. Gordon et al. (2019) chose the term, “researcher”, while Jambhekar (2019) and Zhang et al. (2018) used the official “game master” title. Most studies chose the terms facilitator or faculty and the role of this position did not vary despite the different verbiage. The facilitator’s role was to introduce players to the scenario, make sure physical puzzles worked as planned, observe, and to provide

hints or clues if allowed. In studies such as Gomez-Urquiza (2019) and Clausen et al. (2019), the facilitator stayed in the room to observe. Like traditional escape rooms, Eukel et al, (2017), Jambhekar et al. (2019), and Zhang et al. (2018), had the game master watch the progress of the simulation via cameras that were set up in the room. All the escape room simulations allowed the players to request a certain number of hints or clues though out the experience. One study was unique and used Quick Response (QR) codes to provide teams with instructions, clues, and prompts throughout the activity (Zhang et al., 2019). The teachers, educators, instructors, or even game masters played their role to guide, encourage, troubleshoot, and debrief but at the same time, the students were also playing their role in the escape room.

One might assume that the only roles being played by a person during an educational escape room would be student and player, but the roles go deeper. The collaborator, Clauson et al. (2019), showed increased strong collaboration between game participants. The delegator, Brown et al. (2019) and Gordon et al. (2019) spoke of how the escape room simulation helped with the practice of using delegation skills and all member had to participate in the activity. These are just a couple roles the participants took on during the simulations in these studies, but one common role stood out amongst all of them which was that the students were able to be active learners engaged in the material they were asked to learn.

Results

Although each study in this literature review had various methodologies, participants, interventions, and outcome measures, all of the results from the students had positive outcomes. Participants agreed that the escape room simulation increased their ability to think critically while caring for the patient with urosepsis, contributed to their learning, improved their quality to delegate tasks, and to work as a team (Brown, Darby & Coronel, 2019). Participants from other

studies also added that the escape room "helped them learn the subject" and "more games of this type should be included in their nursing studies" (Gomez-Urquiza et al. 2019).

One study consisted of an escape room activity that encompassed a pre-activity knowledge assessment, the live escape room activity, a post-activity knowledge assessment, and an activity debrief. The reason this particular study stood out was that the participants actually scored lower on their post assessments, which seemed to be an outlier amongst the studies. Even though the participants did score lower on the post-activity section, the majority of students felt that the escape room activity improved clinical skills and facilitated learning (Clausen et al. 2019). The researchers contributed several explanations for the decreased scores seen on the post-activity sections. The researchers recognized that not all participants participated to the same extent on solving each puzzle and that the timing of the activity, the day before finals, may have caused the participants to be distracted. Another explanation provided stated that the pre and post assessments were focused on specific clinical knowledge that was not adequately reinforced with the activity (Clausen et al. 2019). The only other study that completed a pre-test was done by Eukel, Frenzel & Cernusca (2017) and showed significantly higher mean scores on the post-knowledge assessment.

Participants in another study reported similarities between escape room and their emergency department in themes such as chaos, communication, strategic thinking, teamwork, task delegation, uncertainty, differential diagnosis, and time constraints (Zhang et al. 2018).

Conclusions

Findings support the positive impact of gamification on the teaching/learning process for millennial learners and its feasibility to create a portable, inexpensive escape room as an education platform (Jambhekar et al., 2019). Studies showed that the escape room simulation

could be done in the classroom or other designated space. Escape room scenarios are a novel way to teach inter-professional health students about teamwork and communication (Kutzin, 2019). This is important because team performance has been linked to patient outcomes. Data from Rahn (2016), suggested the presence of a clinical significance for the teams that performed well as a team demonstrated lower rates of falls and CAUTIs. Correlational analysis resulted in statistically significant relations so the study shows that improving teamwork in medical-surgical acute care units can transform care and impact the occurrences of preventable adverse outcomes (Rahn, 2016). If we can decrease the number of the preventable conditions of CLABSI, CAUTI, HAPI, and falls, it would be a huge benefit for patient outcomes, staff morale, and the financial security of the hospital.

Chapter 3

Methodology

This quality improvement study used a paired sample t test design. Paired samples *t* test compares the scores of one group tested two times (e.g., pre-test and post-test with an intervention administered between the two time points) (Perrin, 2015). The pre- and post-activity knowledge assessments were used to assess change in the participants' baseline knowledge. The post- activity survey assessed the participants' attitudes and perceptions regarding the experience using a quantitative survey instrument consisting of questions with a 5-point Likert-scale (strongly agree, agree, undecided, partially disagree, strongly disagree) responses. The activity debrief was done purely for the benefit of the participants to discuss how the activity went, challenges experienced, objectives of the activity, and an opportunity for questions (Clausen et al. (2019). This escape room simulation was completed with all new graduate nurses that started their nurse residency program in July 2020 and August 2020 to allow the escape room activity to be completed in the time frame allotted for our DNP project. The chosen methodology provided both quantifiable and qualitative data.

Research Design

The conceptual design for the educational intervention used in this study emerges from the popular commercial escape rooms where participants work collectively to solve puzzles and receive clues to ultimately escape before time runs out. In this case, the escape room activity was used with the aim to stimulate critical thinking and problem solving. An escape room simulation was created that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, along with policy and procedure review. The escape game activity consisted of a pre-activity knowledge assessment (pretest), the live escape room activity, an activity debriefing

period, a post-activity knowledge assessment (posttest), and a post-activity survey. The puzzles of the escape room were arranged in a sequence in such a way that each puzzle would unlock the next one and the students were required to solve the puzzles in a specific order. Using puzzles that follow a sequential path is a common schema for escape rooms, as it requires the whole team to engage in the puzzles simultaneously (López-Pernas, Gordillo, Barra & Quemada, 2019).

Escape Room Activities

The participants were introduced to the escape room scenario and the rules after they completed the pre-activity knowledge assessment (see Appendix A). The first challenge that the participants were given was the Crossword Activity (see Appendix B). For this activity, the participants had to answer the five questions that are in the crossword and match the appropriate letter with the coordinating color below in order to receive their first code to unlock a box. There were five tackle boxes lined up on a table in the room and the participants knew which box their code would unlock by looking at the colored tabs on each activity. The color-coding allowed the players to easily identify the next activity in the scenario.

The first box to be opened, with the code that they obtained from the crossword activity, contained an activity called, Cards 1-5 (see Appendix C). In order to open the next tackle box, the participants had to answer the questions in the order that they appear, and the code was a mix of numbers and letters. When they read the first question on the card, “The nurse observes that a patient’s urinary catheter has not drained in more than 4 hours. What should the nurse do first?” the participants had to go to the catheter attached to the manikin located in the bed. When they checked the tubing on the catheter, they found an attached sign that said, “you have checked the tubing and it was kinked- nice save! #1.” One will be the first digit that they needed to unlock

the next box. The rest of the questions required them to pick the right supply needed (see Appendix D) or to answer the questions correctly for the correct letters or numbers for the code.

The second box contained a Matching Activity (see Appendix E). The participants had to pick the correct cards (see Appendix F and G) that matched the question on the left side of the activity. Once the cards were properly matched with the questions, the numbers on the cards unlocked the next box.

The third box contained the Decoding Activity (see Appendix H), which was a multistep puzzle. The first things that the players needed to do was to find the hidden puzzle pieces by answering the riddles found on the activity sheet (see Appendix H). Once they put the puzzle pieces together (see Appendix I), the participants were able to decipher the code after answering questions for the second activity sheet contained within the box (see Appendix J).

The fourth box held the final challenge, the Cath Activity (see Appendix K). The activity focused on the nurse driven protocol for foley catheter removal. The participants had to pick the one incorrect reason for inserting or keeping a foley catheter in place. Once they picked the correct card and flip it over, the revealed code unlocked the final box (see Appendix L) informing them that they have “Escaped”. The final box congratulated them on escaping the room and taking great care of their patient to prevent CLABSI, CAUTI, HAPI or falls (see Appendix L).

Setting

The escape room was completed in the hospital library, which was converted to a learning center for staff education. The escape room scenario was designed to be mobile so that it can be easily taken to another room or facility in the network. The escape room activity was

completed with new graduate nurses, and if desired, managers can easily relocate the escape room materials to an area on their unit to complete with seasoned staff members. The only required materials for the scenario in addition to the supplies contained in the tackle boxes were the activity props, the manikin in a bed, and an IV pole with primary and secondary tubing. Participants were scheduled in groups of four to six for 20-minute time slots.

Sample

This escape room activity was completed with all new graduate nurse hires at an acute care hospital in Erie, PA during the designated time frame for this project. It was anticipated that the sample size would be approximately 54 individuals. The escape room activity was completed with 45 individuals. There was no exclusion criteria for this activity, it was required as part of nursing orientation.

Ethical Considerations

The Institutional Review Board from Clarion University and the Institutional Review Board for Allegheny Health Network classified this project as exempt . CITI program courses on research ethics, compliance, and professional development education were completed by both the researcher and chairperson for this project. The escape room simulation was part of the nursing orientation process. There were no risks, benefits, or monetary compensation for the participants to be involved in the study. The pre- and post- activity knowledge assessment was used solely by this researcher to gauge if the escape room simulation was an effective way to teach preventative measures for CLABSI, CAUTI, HAPI, and falls. No identifying data was collected for the study to preserve participant anonymity. All data was kept in a locked filing cabinet by the author and destroyed once the results were analyzed.

Instrumentation

General participant demographics included age, gender, type of program completed (diploma, ASN, BSN, etc.), and any previous health care experience. The participants that completed the pre-test and post-test remained anonymous. The pre-test and post-test was printed on different colored paper so that they were easily identifiable. The questions for the pre-test and post- test were taken from Elsevier Clinical Skills Tests, which the acute care hospital in Northwest Pennsylvania Hospital pays to have access to. Elsevier is a platform that combines evidence-based content, including over 1,300 skills, with robust competency management (Elsevier Clinical Skills). The Hospital administration have the ability to customize content, assign skills, and perform assessments. Content is available to staff 24/7 and is continuously reviewed and updated to reflect the latest in evidence-based practice (Elsevier Clinical Skills). If the tests would have been created by the researcher, they would have to be reviewed by content experts to assure content validity.

The post- activity survey assessed the participants attitudes and perceptions regarding the experience using a quantitative survey instrument consisting of questions with a 5-point Likert-scale (strongly agree, agree, undecided, partially disagree, strongly disagree) responses.

Data Collection

The pretest (see Appendix A) was administered to the participants during general orientation before they arrived for the escape room activity. The participants then participated in the escape room activity and then meet with the author for an activity debrief. The post-test (see appendix M) and then the post activity survey (see Appendix N) was then administered. The pre-test and post-test were comprised of the same 20 questions covering questions related to prevention measures for CLABSI, CAUTI, HAPI, and falls but were in a randomized order. The

participants were not given the correct answers for the pre-test until after the activity is completed and the post-test and post survey were completed.

The activity debrief was done purely for the benefit of the participants to discuss how the activity went, challenges experienced, objectives of the activity, and an opportunity for questions (Clausen et al. (2019).

Time Schedule

The escape room activity was completed with all new graduate nurse hires that started in July and August 2020. The activity took approximately one hour to complete and was scheduled as part of the orientation process.

Summary of Methodology

In conclusion, using a paired t test study for the escape room activity was the most feasible design to utilize for this project. By using a pretest and posttest design, I was able to see if the escape room was an effective way for the participants to learn about preventive measures for CLABSI, CAUTI, HAPI and falls. It is crucial to use the appropriate data analysis to ensure that the results are valid. The post activity survey will show me if the participants liked this style of learning and if it would be worthwhile to create more “escape room” type learning activities for the acute care hospital in Northwest Pennsylvania and/or other facilities.

Chapter 4

Results and Discussion

Two cohorts of new hire nurses participated in the escape room. The July nurse residency program cohort contained 31 participants that were divided into five groups. The groups ranged in size from five participants to eight participants. The August cohort was comprised of 14 nurses. This group of participants were divided into two groups of five nurses and one group of four. The groups were comprised of nurses that ranged from 21-43 years of age with different health care experience levels and varied educational programs. Of the participants, 19 had experience as a patient care technician or a patient care assistant prior to completing their program for nursing. Four of the participants also had experience as a practical nurse prior to completing their BSN, ASN or diploma program.

A total of 45 new graduate nurses completed the escape room learning activity. Each cohort was given an introduction as one large group and then allowed to complete the pre-test. Pre-testing encompassed approximately a 15-minute time frame. Each smaller group was taken, one at a time, to the library to complete the activity before going back to a separate room to complete the post activity survey and test. Groups were limited to 18 minutes to complete the escape room activity and then given an additional 15 minutes to complete the post-test and post activity survey. The data, from these groups, was analyzed through the Statistical Package for the Social Sciences (SPSS) and the results are presented and discussed in the following sections.

Results

The groups had varying success when it came to completing the five tasks contained within the escape room learning activity. Two of the eight groups completed the activity by making it through all five challenges in the allotted time. Four groups were on the fourth task

and two groups were working on the fifth when their time was up. Table 1 shows the demographics of the participants.

Table 1.

Demographics (n=45)

Age of Participant	
21 - 4 22 – 19 23 - 3 24 - 2 25 - 4 27 - 2 28 - 3 29 - 1 30 - 2 33 - 1 34 - 1 41 - 1 43 - 1 Other or not reported- 1	Mean Age- 24.86 SD- 4.96
Gender of Participant	
Female- 36 Male - 9 Other or not reported- 0	
Prior Experience as a PCA	
Yes- 19 No- 7 Other or not reported- 19	
Prior Experience as a PN	
Yes- 4 No- 8 Other or not reported- 33	

Type of Program Completed
BSN- 22
ASN- 22
Diploma-1
Other of not reported- 0

Knowledge Results

All participants did complete the pretest and post-test and fully answered all the questions. The average number of questions missed for the pretest and post-test were 7.22 and 3.56 respectively. The average improvement was 3.64 questions correct over the pretest scores.

The p value for the Paired t Test showed the results from the pretest and post-test were statistically significant (p = <.001). The t score of -12.575 is much higher than the critical t score of 2.015 which shows the difference between pre and post-test means was impacted by the learning intervention. Table 2 shows the raw testing scores for each individual participant and the gain pre to post testing. Tables 3 to 5 display the statistical analysis results of the testing data.

Table 2

Escape Room Activity Knowledge Results

Testing #	Pretest Score	Post-test Score	Gain
1	10	15	5
2	15	16	1
3	15	15	0
4	12	16	4
5	16	17	1
6	11	15	4
7	11	16	5

8	14	18	4
9	12	17	5
10	13	17	4
11	13	17	4
12	14	20	6
13	12	16	4
14	14	19	5
15	13	16	3
16	12	14	2
17	16	16	0
18	14	14	0
19	13	17	5
20	13	16	3
21	15	18	3
22	11	18	7
23	13	14	1
24	10	14	4
25	14	16	2
26	11	16	5
27	14	17	3
28	9	16	7
29	14	17	3
30	10	16	6
31	16	16	0
32	14	19	5
33	9	14	5
34	10	17	7
35	12	16	4
36	11	14	3
37	17	18	1
38	16	18	2
39	13	18	5
40	12	18	6
41	13	17	4
42	13	18	5
43	12	18	6
44	11	14	3
45	12	15	3

Table 3

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	12.7778	45	1.96433	.29282
	posttest	16.4222	45	1.52984	.22805

Table 4

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pretest & posttest	45	.403	.006

Table 5

Paired Samples Test

					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair 1	Pretest – Posttest	-3.644	1.944	.290	-4.229	-3.060	-12.575	44	.000

Post Activity Survey Results

The Escape Room Post Activity Survey results showed that a large percentage of the participants felt that they learned from the activity and enjoyed it. Only 41 participants filled out the front page of the post activity survey and only 31 participants turned the page over and completed the back side. Table 6 shows how the participants answered the survey.

Table 6

Escape Room Post Activity Survey

N=41	Strongly Disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly Agree (%)
I have more knowledge on preventative measures for CLABSI after completing this activity	4.87	2.43	2.43	34.14	56.09
I have more knowledge on preventative measures for CAUTI after completing this activity	4.87	2.43	4.87	34.14	53.65
I have more knowledge on preventative measures for HAPI after completing this activity	4.87	4.87	4.87	29.26	56.09
I have more knowledge on preventative measures for FALLS after completing this activity	4.87	2.43	2.43	34.14	56.09

N= 31	Strongly Disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly Agree (%)
I feel confident that I know the hospitals policy and procedures for prevention of CLABSI, CAUTI, HAPI and Falls	6.45	0	19.35	41.93	32.25
If I am unfamiliar with hospitals policies or procedures for prevention of CLABSI, CAUTI, HAPI and falls, I know where to find this information	6.45	3.22	3.22	45.16	41.93
I enjoyed the escape room activity	6.45	3.22	0	29.03	61.29
I would like to see more learning opportunities using escape rooms	6.45	3.22	0	29.03	61.29

Discussion

To answer the research question: Does adding an escape room simulation that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, affect knowledge on prevention measures for new graduate nurses?, the bivariate statistical test, paired t-test, was utilized for analysis of data. This method of analysis is used to test the difference between the means of a paired group (e.g., pre-test vs. post-test for the same people). The nominal data was entered into a statistics software package, Statistical Package for the Social Sciences (SPSS), for statistical analysis. Boswell and Cannon (2014), state that the researcher needs to present both the mean and the standard deviation to describe the data in terms of normal distribution so that the reader of the results will be able to see how the scores compare to the normal distribution.

The paired t-test showed that the mean score for the pretest was 12.77 and the post-test was 16.42, which shows a mean improvement of 3.64 after the intervention, with all standard deviations below 2 meaning the data points were distributed evenly.

With the p value showing that the effect on the paired results wasn't due to random chance, the analysis revealed that the escape room did have an impact on the post-test scores of the nurses that participated in the learning activity. Furthermore, the high t score shows that we can reject the idea that the escape room would have no effect and in turn we can accept that there was indeed the escape room influenced the mean results of the post-test amongst all participants. The mean change between the pretest and post-test shows that the effect was a positive one and that the escape room can be a valid tool for imparting knowledge in a nursing setting.

The post activity survey (see Appendix N) was comprised of eight questions that had no participant identifying information on it to answer the research question: What is the perception of new graduate nurses toward the escape room educational intervention? McLeod (2019) states that Likert Scales have the advantage that they do not expect a simple yes / no answer from the respondent, but rather allow for degrees of opinion or even no opinion at all. Therefore, quantitative data is obtained, which means that the data can be analyzed with relative ease. Offering anonymity on self-administered questionnaires should further reduce social pressure, and thus may likewise reduce social desirability bias (McLeod, 2019).

The results from the perception survey showed that 90% of the participants either agreed and strongly agreed that the had more knowledge on preventative measures for CLABSI and Falls. The number of participants that choose either choose agree or strongly agree for having more knowledge on preventative measures for CAUTI was 87% and 85% for HAPI. Only 74% of the participants felt confident that they knew the hospitals policy and procedures for

prevention of CLABSI, CAUTI, HAPI and falls after completing the escape room activity but 87% of the participants did say that if they were unfamiliar with the policies and procedures, they would know where to find this information. Overall, 90% of the participants said that the enjoyed the escape room activity and would like to see more learning opportunities using this platform.

Two participants did score strongly disagree for all the questions that were on the Escape Room Post Activity Survey. Interestingly though, both participants improved by 4 questions on the posttest. The assumption is that although they didn't enjoy this method of learning, their knowledge still improved after completing the activity. Another possibility could be that the participants that rated Strongly Disagree did so by mistake, thinking the Likert scale went from Strongly Agree to Strongly Disagree.

Limitations

There were a few identified limitations for this study. The first limitation was the need to move through the project to meet curricular requirements of the DNP Program the Principal Investigator was enrolled in. An additional limitation was time constraints related to the need to work around the training schedule of the hospital. Due to the requirements of this DNP program, data had to be collected prior to the start of the Fall 2020 semester or shortly after. In turn, the hospital mandated that this training exercise occur and be completed in August and October 2020 to align with the nurses that started the nurse residency program in July and August. The restriction to only two new nurse cohorts during a limited timeframe also reduced the sample size of the research project to 45 compared to the potential hundreds of nurses that are employed by the hospital where the research was conducted. The activity was intended to be completed over a 4-hour time period, which would allow each group to have 45 to 60 minutes to complete

the activity. The researcher was limited to 120 minutes to complete the escape room activity so that allowed each group only 20 minutes to get through all five activities. Another limitation was the risk for missing data. The pretest, posttest and post activity were completed on paper, so some participants failed to fill out the forms fully.

Summary

The escape room was completed on two different occasions with a total of 45 participants. Although only two out of the 8 groups were successful for completing all the activities in the escape room, research shows that the intervention was successful in providing the participants with knowledge of preventative measures for CLABSI, CAUTI, HAPI and falls. The knowledge and perception survey also indicates that the participants enjoyed the activity and would like to see more learning opportunities presented as an escape room format.

Chapter 5

Summary, Conclusions, and Recommendations

Hospital acquired conditions such as central line associated bloodstream infection (CLABSI), catheter associated urinary tract infection (CAUTI), hospital acquired pressure injury (HAPI), and falls can be very costly to the hospital and detrimental to the patient. This research focused on the questions: Does adding an escape room simulation that covers the four quality initiative measures: CLABSI, CAUTI, HAPI, and falls, affect knowledge on prevention measures for new graduate nurses, and, what is the perception of new graduate nurses toward the escape room educational intervention? An escape room activity was completed with 45 participants that was based on the preventative measures for CLABSI, CAUTI, HAPI and falls. The participants completed a pretest, posttest and a post activity survey. Research showed that the participants average improved by 3.64 on the posttest and 90% of the participants enjoyed this platform for learning.

Implications for Nursing

By having nursing staff that is new to Saint Vincent's complete this escape room activity, their knowledge increased for preventive measures that they should utilize for CLABSI, CAUTI, HAPI and falls. When staff utilize the appropriate preventive measures for HAI, it decreases the likelihood of these occurrences. Over 90% of the participants in this study indicated that they would like to see more learning opportunities using escape rooms. Additional escape rooms could be created to cover a variety of topics to help educate staff.

Recommendations for Further Research

Further research could include reviewing a short power point that reviews the hospitals preventative measures they have in place to reduce CAUTI, CLABSI, HAPI and falls before

completing the escape room activity with staff. The escape room activity would be a nice way for the participants to take what they have reviewed and put it into practice by completing the activities. Another recommendation would be to include information for any products that were included in the simulation as a mini in-service for the staff. For example, the researcher could take the opportunity to review all the different types of cleansing agents that the hospital has available that the participants would have seen when they completed the Cards 1-5 Activity (Appendix C).

Other methods to improve this escape room would be lengthening the time for the participants to complete the activity or having the time available to review the activities with the participants that they weren't able to complete in the allotted time. That way, the participant would be able to test their knowledge with hands on experience for all the activities. With the current set up, if the participants ran out of time before completing all the activities, there was not enough time built in to review those station with them.

Additional research could be completed by seeing if the rates for CLABSI, CAUTI, HAPI and falls decreased that this activity was completed with all the units. Escape Room activities could also be created for other topics such as reviewing the protocol for sepsis or reviewing scenarios for Advanced Cardiovascular Life Support (ACLS).

The aim for this research was to determine if using an escape room activity would be an effective platform for learning preventative measure for new nursing staff. A total of 45 new graduate nurses completed the escape room learning activity and research shows that the intervention was successful in providing the participants with knowledge of preventative measures for CLABSI, CAUTI, HAPI and falls. The knowledge and perception survey also indicates that the participants enjoyed the activity and would like to see more learning

opportunities presented as an escape room format. Healthcare is rapidly changing, and escape rooms could be a great additional tool for staff educators to utilize to help ensure staff are competent.

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Appendix A

Pretest for Escape Room Activity

Date_____

Demographics:

Age_____ Sex_____ Prior experience as a PCA or PN _____ y/n

Type of program completed (ex: diploma, ASN, BSN etc.) _____

Choose the BEST answer for the questions below.

1) A patient who is paraplegic has been admitted with a diagnosis of uncontrolled diabetes mellitus. The patient is able to move from the bed to the wheelchair with minimal assistance but always asks for assistance. The patient has an indwelling urinary drainage catheter in place draining clear yellow urine and requires manual decompaction every other day. Even though the patient is alert and cooperative, which complication is still a high risk for the patient?
   a) Pressure injuries
   b) Urinary tract infection
   c) Bladder stasis
   d) Falls

2) The nurse notices an area of redness on the patient's hip. The nurse presses the area and finds that it is an area of nonblanchable erythema. What condition does this indicate?
   a) Stage 2 pressure injury
   b) Blanchable erythema
   c) Stage 1 pressure injury
   d) Deep tissue pressure injury

3) The nurse observes an area of nonblanchable erythema on the patient's back. The nurse realizes that this is caused by a decrease in circulation. What action should the nurse take to relieve the erythema?
   a) Cover the area with a transparent dressing
   b) Arrange for more frequent position changes
   c) Apply a dry sterile dressing
   d) Provide a 5-minute massage

4) If not contraindicated, when positioning the patient in bed, the head of the bed should be in which position?

a) A 30-degree angle or less
b) A 45-degree angle or less
c) A 90-degree angle
d) The high fowler position

5) Pressure injury prevention measures should be implemented for a patient with which Braden score?
   a) Less than or equal to 16
   b) Less than or equal to 18
   c) Less than or equal to 20
   d) Less than or equal to 24

6) Proper care of central venous catheter (CVC) includes which nursing action?
   a) Cleansing the catheter exit site with antiseptic solution every shift
   b) Replacing the dressing when it is damp, loose or soiled
   c) Changing the dressing no more frequently than every 96 hours
   d) Applying antimicrobial ointment to the catheter exit site

7) A patient has redness, drainage, and pain at the central venous catheter (CVC) exit site as well as a fever. Which nursing intervention is the most appropriate?
   a) Obtain a specimen from the catheter site for culture and sensitivity testing
   b) Notify the practitioner and discuss further interventions to confirm CLABSI
   c) Decrease all intravenous fluids running through the CVC to a minimal rate
   d) Cleanse the catheter with antiseptic solution and apply povidone-iodine ointment

8) A patient with a right upper extremity central venous catheter (CVC) reports pain, swelling, and tenderness of the extremity. No fluids are infusing through the catheter. The nurse knows that these signs and symptoms may indicate which CVC- associated complication?
   a) CLABSI
   b) Catheter occlusion
   c) Thrombophlebitis
   d) Extravasation

9) Which patient activity has the highest risk for falling?
   a) Patient toileting
   b) Walking in the hallway
   c) Moving from bed to chair
   d) Sitting on the side of the bed

10) Which procedure should be used to cleanse the catheter exit site of a patient who is allergic to chlorhexidine?

    a) Cleanse the site with 30% alcohol solution using a back and forth motion for at least 30 seconds
    b) Dilute the chlorhexidine 1:1 with 0.9% sodium chloride solution, apply it gently to the exit site, then remove it with sterile 0.9% sodium chloride solution wipes
    c) Use swabs to apply a povidone-iodine solution in a circular motion, moving outward from the exit site in concentric circles
    d) Generously scrub the exit site with sterile 0.9% sodium chloride solution; then allow the site to air dry completely

11) A central venous catheter (CVC) exit site dressing is moist, but it is not due to get changed for another 3 days. Which is the appropriate action?
    a) Reinforce the dressing with gauze and tape
    b) Wait to change the dressing when it is due
    c) Change the dressing immediately
    d) Continue to monitor the dressing

12) When removing the old dressing from the patient's central venous catheter (CVC) site, the nurse should include which step?
    a) Remove the catheter stabilization device
    b) Place a dry cotton towel under the patient's arm
    c) Don clean gloves and a mask before beginning the dressing change
    d) Gently lift and pull the old dressing off, starting at the exit site

13) An older adult female patient is admitted from home. The health care team member observes a small stage II pressure ulcer on the lower aspect of the patient's right buttock. When asked, the patient states that she has limited herself to sitting all day. She is afraid to walk since she fell last month. After arranging a physical therapy consult, what should the health care team member tell the patient?
    a) She did the right thing because she might have fractured her hip
    b) She should move around from side to side when sitting
    c) She needs regular exercise, including walking
    d) She need not to worry because physical therapy can get her back in shape

14) Which evidence-based intervention is most effective in reducing falls in a nursing unit?
    a) Purposeful rounds by health care team members
    b) Reduction of noise
    c) Place patient at risk for falls closer to nursing station
    d) Use of raised side rails

15) Which intervention will reduce the risk of falling in a patient who needs to go to the bathroom at night?
    a) Place all four side rails up
    b) Place the bed alarm on
    c) Place a commode at the bedside
    d) Round on the patient every 4 hours

16) The nurse observes that a patient's urinary catheter has not drained in more than 4 hours. What should the nurse do first?
    a) Encourage the patient to increase fluid intake
    b) Flush the catheter with sterile normal saline
    c) Check the tubing to see if it is kinked
    d) Notify the practitioner

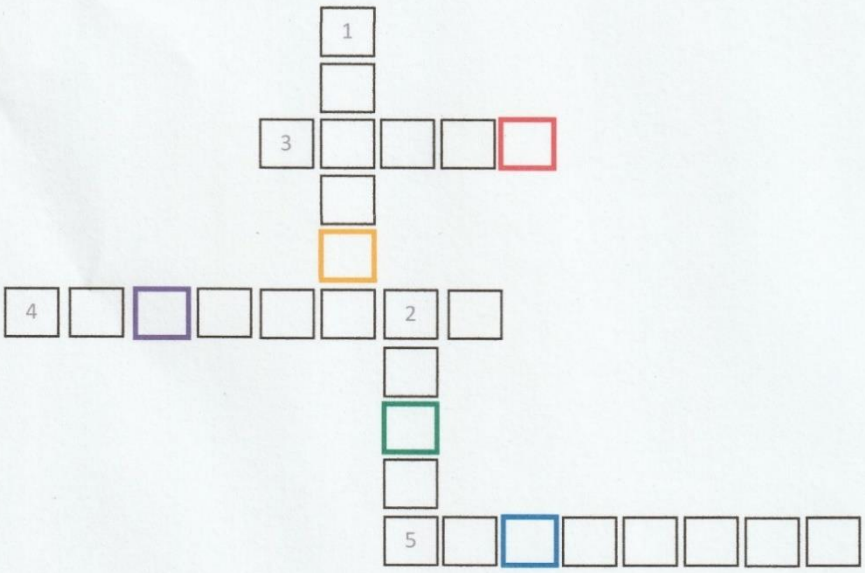
17) The nurse observes that the urinary catheter tubing and collection bag are leaking. What is the next course of action for the nurse?
    a) Change the urinary catheter bag
    b) Change the entire catheter system
    c) Tape the leaking areas to keep the system closed
    d) Irrigate the system to assess it for blockage

18) When providing catheter care, the nurse observes encrustations at the catheter insertion site. What should the nurse do?
    a) Cleanse the encrustations and apply powder to prevent further moisture buildup
    b) Apply antibiotic cream at the insertion site
    c) Leave the encrustations intact to prevent irritation at the catheter insertion site
    d) Cleanse the encrustations on and around the area of the perineum or meatus

19) When providing routine urinary catheter care, the nurse should use which product to help reduce bacterial flora?
    a) Adhesive tape
    b) Powder
    c) Soap and water
    d) Antimicrobial agents

20) Which type of catheter is the best to place in a patient requiring long-term catheterization?
    a) Hydrophilic coated catheter
    b) Silicone catheter
    c) Coude catheter
    d) Red rubber catheter

Appendix B
Crossword Puzzle Activity



Down

1) A patient with a right upper extremity Central Venous Catheter (CVC) reports pain, swelling, and tenderness of the extremity. No fluids are infusing through the catheter. The nurse knows that these signs and symptoms may indicate which CVC- associated complication?

2) Where might a patient with an NG tube in place experience a skin breakdown?

Across

3) If your patient is slightly unsteady on their feet and on daily furosemide and metoprolol tartrate what are they at risk for?

4) Which evidence-based intervention is effective in reducing falls on a nursing unit?

5) Which type of catheter is the best to place in a patient requiring long-term catheterization?

Appendix C
Cards 1-5 Activity Card

1) The nurse observes that a patient's urinary catheter has not drained in more than 4 hours. What should the nurse do first?

2) The nurse observes that the urinary catheter tubing and collection bag are leaking. What is the next course of action for the nurse?

A) Change the urinary catheter bag
B) Change the entire catheter system
C) Tape the leaking areas to keep the system closed
D) Irrigate the system to assess it for blockage

3) When providing routine urinary catheter care, the nurse should use which product to help reduce bacterial flora? Grab the correct option

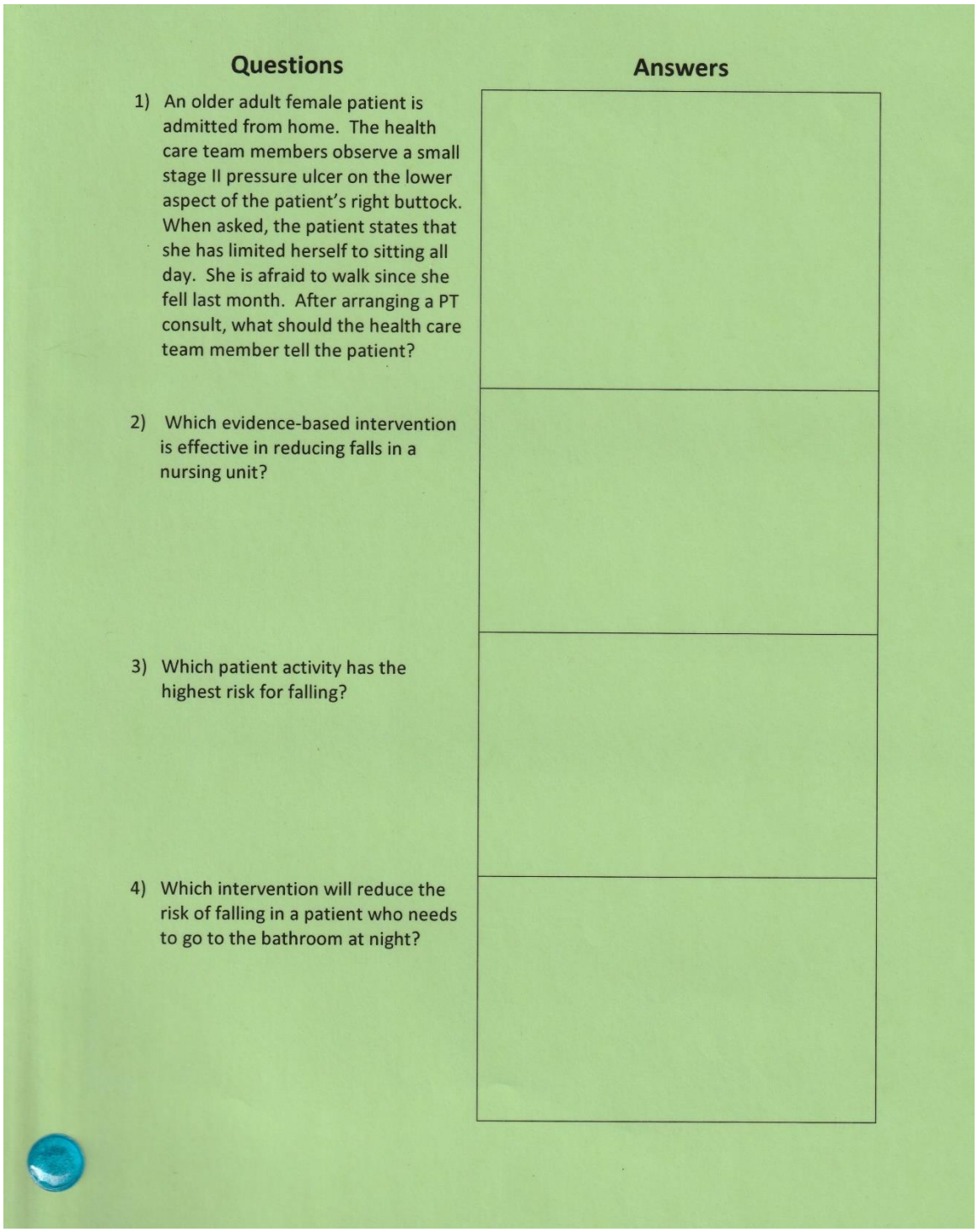
4) Proper care of CVCs includes which nursing action?

A) Cleansing the catheter site with antiseptic solution every shift
B) Replacing the dressing when it is damp, loose, or soiled
C) Changing the dressing no more frequently than every 96 hours
D) Applying antimicrobial ointment to the catheter exit site

5) Which product should be used to cleanse the catheter exit site moving outward in concentric circles of a patient who is allergic to chlorhexidine?

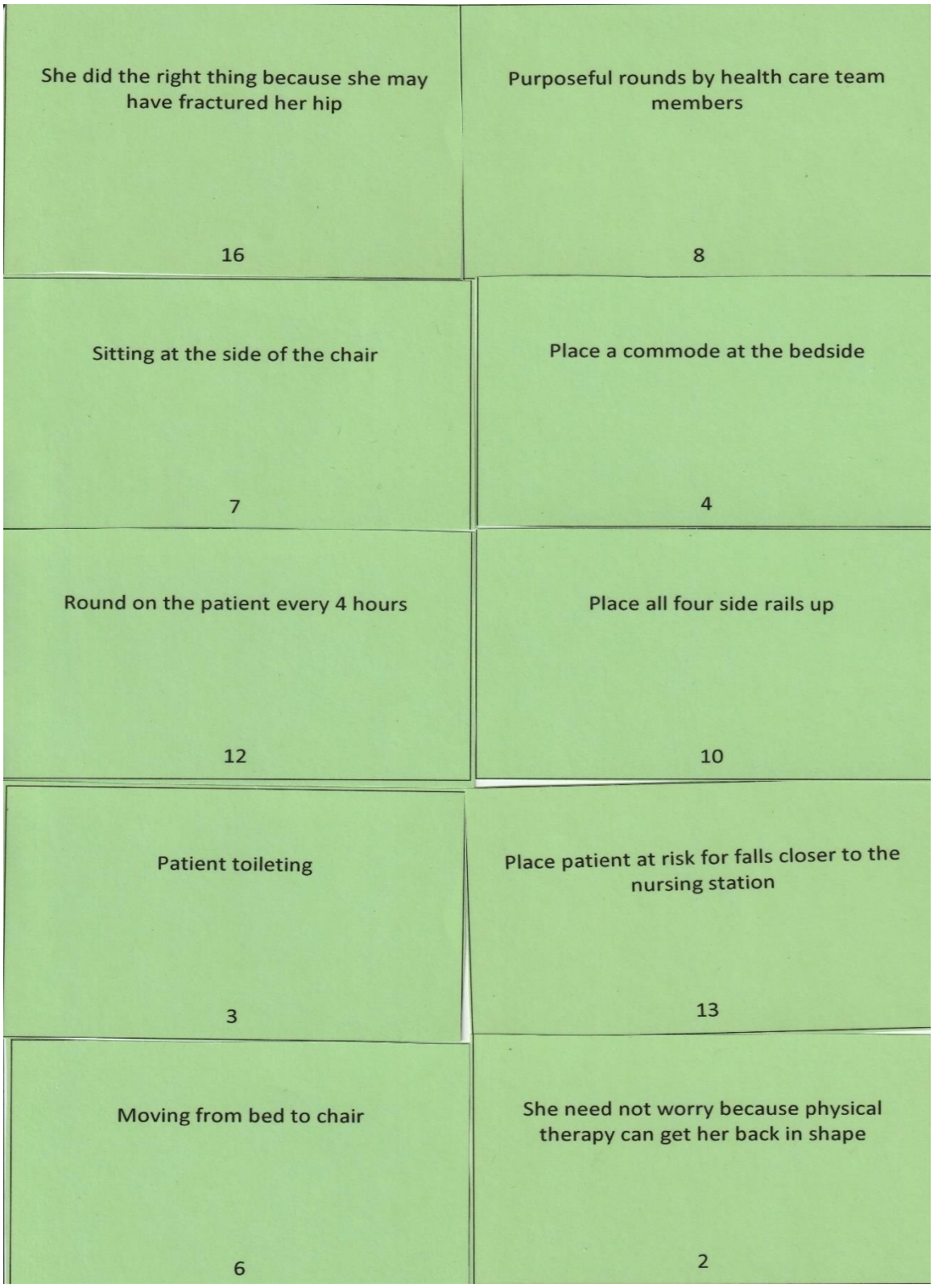
Appendix D
Cards 1-5 Activity Supplies

Appendix E
Matching Activity



Questions	Answers
1) An older adult female patient is admitted from home. The health care team members observe a small stage II pressure ulcer on the lower aspect of the patient's right buttock. When asked, the patient states that she has limited herself to sitting all day. She is afraid to walk since she fell last month. After arranging a PT consult, what should the health care team member tell the patient?	
2) Which evidence-based intervention is effective in reducing falls in a nursing unit?	
3) Which patient activity has the highest risk for falling?	
4) Which intervention will reduce the risk of falling in a patient who needs to go to the bathroom at night?	

Appendix F
Matching Activity Cards Page 1



Appendix G
Matching Activity Cards Page 2

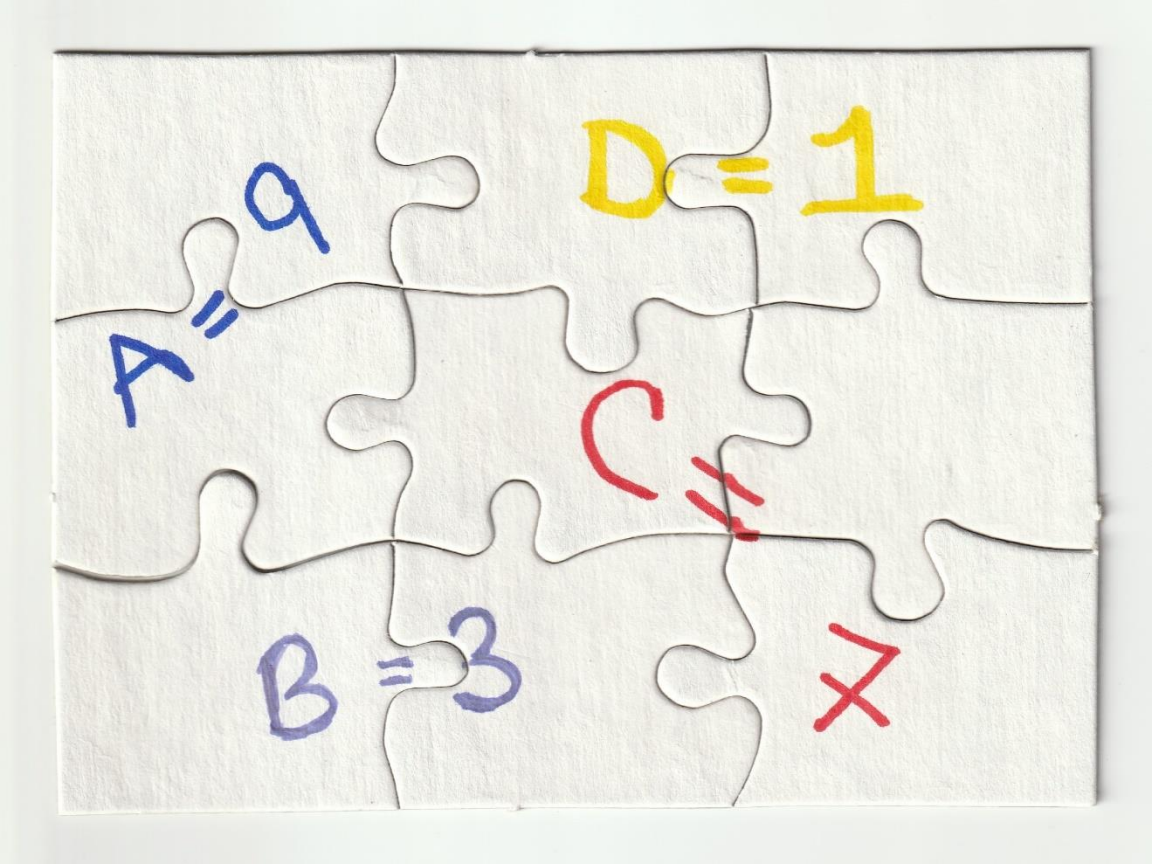
Walking in the hallway 5	She should move around from side to side 15
Use of raised side rails 1	Reduction of noise 14
Place the bed alarm on 11	She needs regular exercise, including walking 9

Appendix H
Decoding Activity Part 1

There are 9 Puzzle pieces. You must find all 9 pieces to be able to decipher the code for this activity in order to open the lock. Here are your clues……

1) This shouldn't be left up, otherwise it might be considered a restraint
2) This is supposed to be changed every night at midnight
3) Every patient should have a pair of these on although they might be a different color. Practical and stylish ☺
4) This should never be laying on the floor
5) This needs scrubbed with alcohol for 15-30 second before anything is connected to it
6) This area is often suspicious for Stage 1 Pressure areas. EARLY detection can save us from a HAPU
7) This should always be used to store expensive items such as dentures and hearing aids your patient would hate to lose (items patient can't send home)
8) This should be used before going into a patient room and exiting the room
9) Oh no, your patient has a tube feed going and keeps laying the bed down flat, what can you do?

Appendix H
Decoding Activity Part 2



Appendix I
Decoding Activity Part 3

1) A patient has redness, drainage, and pain at the CVC exit site as well as a fever. Which nursing intervention is the most appropriate?

A) Obtain a specimen from the catheter site for culture and sensitivity testing
B) Notify the practitioner and discuss further investigation to confirm CLABSI
C) Decrease all intravenous fluids running through the CVC to a minimal rate
D) Cleanse the catheter with antiseptic solution and apply povidine-iodine ointment

2) When providing catheter care, the nurse observes encrustations at the catheter site, what should the nurse do?

A) Cleanse the encrustations and apply powder to prevent further moisture buildup
B) Apply antibiotic cream at the insertion site
C) Leave the encrustations intact to prevent irritation at the catheter insertion site
D) Cleanse the encrustations on and around the area of the perineum or meatus.

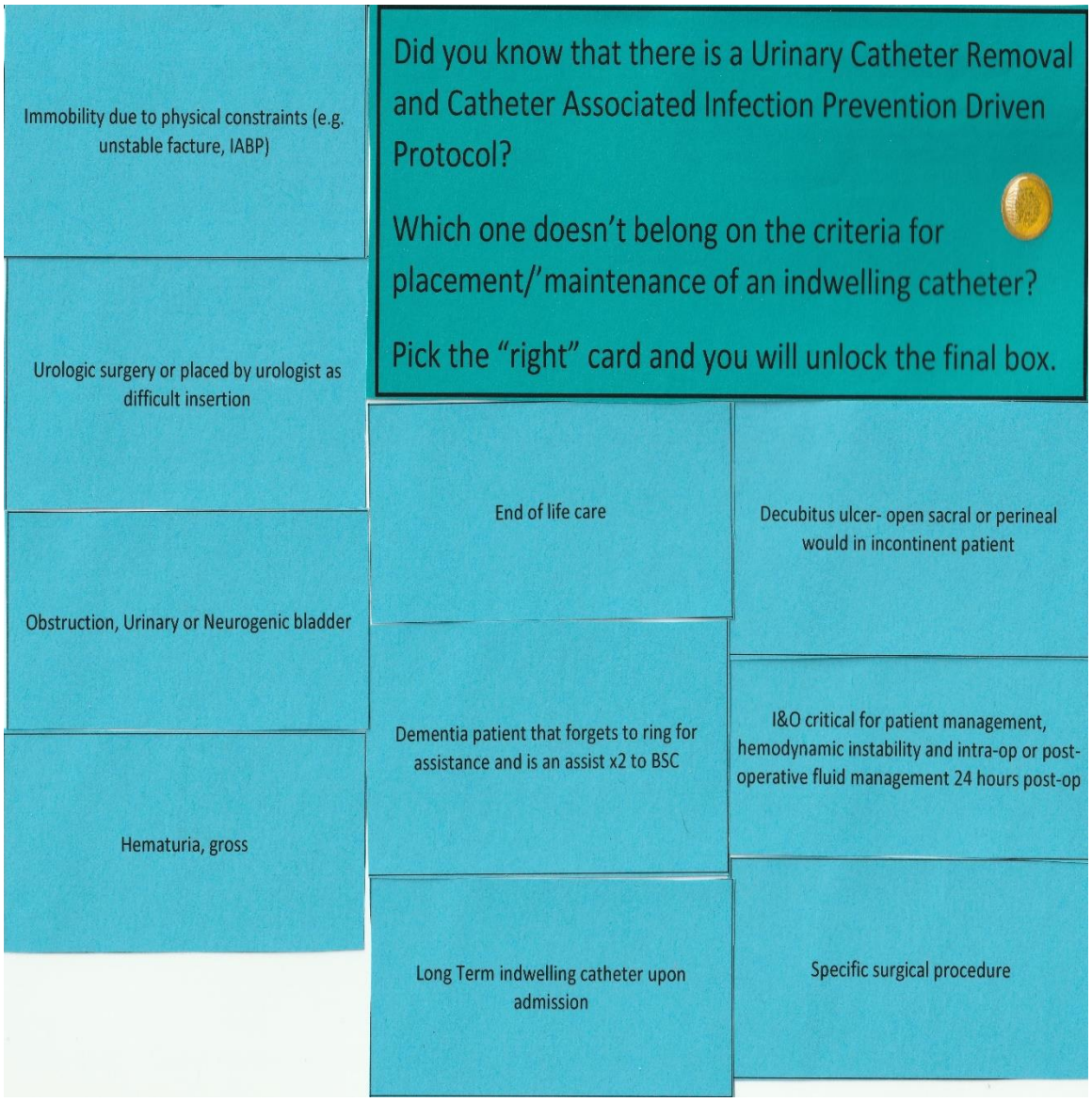
3) A CVC exit site dressing is moist, but it is not due to get changed for another 3 days. Which is the appropriate action?

A) Reinforce the dressing with gauze and tape
B) Wait to change the dressing when it is due
C) Change the dressing immediately
D) Continue to monitor the dressing

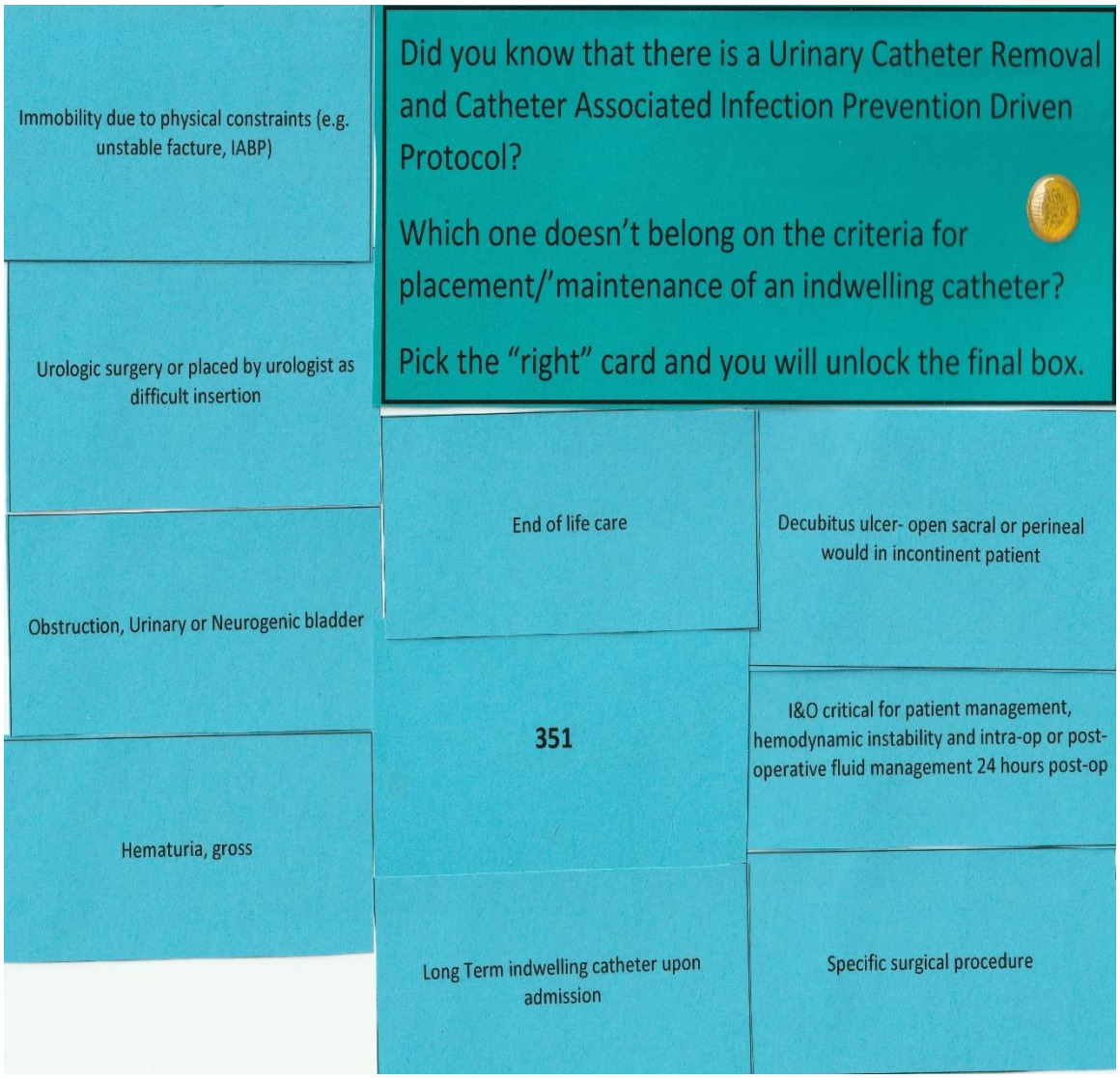
4) When removing the old dressing from a patients CVC site, the nurse should include which step?

A) Remove the catheter stabilization device
B) Place a dry cotton towel under the patients arm
C) Don sterile gloves and mask before beginning the dressing change
D) Gently lift and pull the old dressing off, starting at the exit site

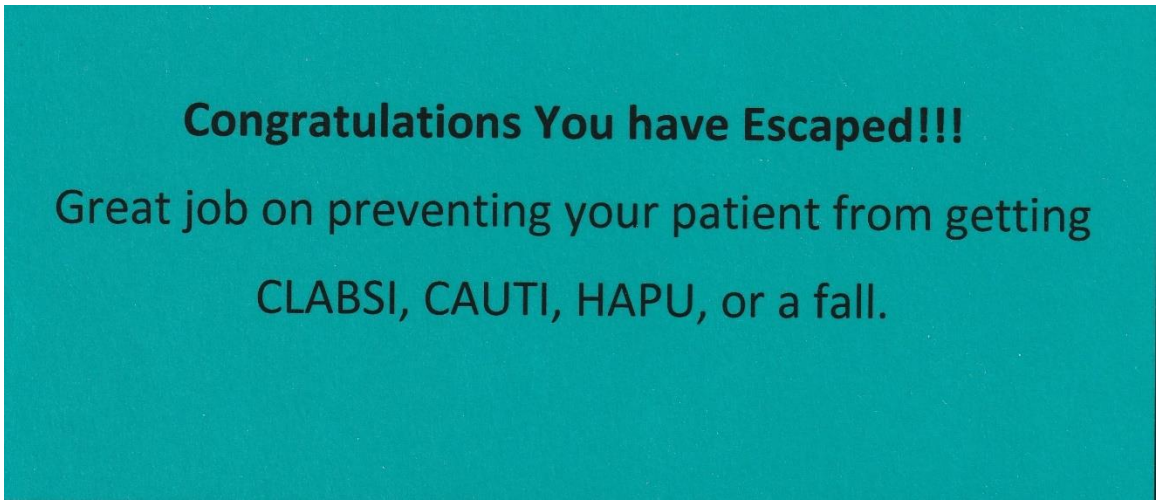
Appendix J
Catheter Activity Side A



Appendix K
Catheter Activity Side B



Appendix L
Last Box



Appendix M

Posttest for Escape Room Activity

By completing this form, you agree that the data can be used to further improve the education program

Date_____

Choose the BEST answer for the questions below.

1) The nurse notices an area of redness on the patient's hip. The nurse presses the area and finds that it is an area of nonblanchable erythema. What condition does this indicate?
   a) Stage 2 pressure injury
   b) Blanchable erythema
   c) Stage 1 pressure injury
   d) Deep tissue pressure injury

2) If not contraindicated, when positioning the patient in bed, the head of the bed should be in which position?
   a) A 30-degree angle or less
   b) A 45-degree angle or less
   c) A 90-degree angle
   d) The high fowler position

3) When providing catheter care, the nurse observes encrustations at the catheter insertion site. What should the nurse do?
   a) Cleanse the encrustations and apply powder to prevent further moisture buildup
   b) Apply antibiotic cream at the insertion site
   c) Leave the encrustations intact to prevent irritation at the catheter insertion site
   d) Cleanse the encrustations on and around the area of the perineum or meatus

4) A patient with a right upper extremity central venous catheter (CVC) reports pain, swelling, and tenderness of the extremity. No fluids are infusing through the catheter. The nurse knows that these signs and symptoms may indicate which CVC- associated complication?
   a) CLABSI
   b) Catheter occlusion
   c) Thrombophlebitis
   d) Extravasation

5) Proper care of central venous catheter (CVC) includes which nursing action?
   a) Cleansing the catheter exit site with antiseptic solution every shift
   b) Replacing the dressing when it is damp, loose or soiled
   c) Changing the dressing no more frequently than every 96 hours
   d) Applying antimicrobial ointment to the catheter exit site

6) Which evidence-based intervention is most effective in reducing falls in a nursing unit?
   a) Purposeful rounds by health care team members
   b) Reduction of noise
   c) Place patient at risk for falls closer to nursing station
   d) Use of raised side rails

7) A patient has redness, drainage, and pain at the central venous catheter (CVC) exit site as well as a fever. Which nursing intervention is the most appropriate?
   a) Obtain a specimen from the catheter site for culture and sensitivity testing
   b) Notify the practitioner and discuss further interventions to confirm CLABSI
   c) Decrease all intravenous fluids running through the CVC to a minimal rate
   d) Cleanse the catheter with antiseptic solution and apply povidone-iodine ointment

8) The nurse observes that a patient's urinary catheter has not drained in more than 4 hours. What should the nurse do first?
   a) Encourage the patient to increase fluid intake
   b) Flush the catheter with sterile normal saline
   c) Check the tubing to see if it is kinked
   d) Notify the practitioner

9) The nurse observes an area of nonblanchable erythema on the patient's back. The nurse realizes that this is caused by a decrease in circulation. What action should the nurse take to relieve the erythema?
   a) Cover the area with a transparent dressing
   b) Arrange for more frequent position changes
   c) Apply a dry sterile dressing
   d) Provide a 5-minute massage

10) Which patient activity has the highest risk for falling?
   a) Patient toileting
   b) Walking in the hallway
   c) Moving from bed to chair
   d) Sitting on the side of the bed

11) Which procedure should be used to cleanse the catheter exit site of a patient who is allergic to chlorhexidine?

    a) Cleanse the site with 30% alcohol solution using a back and forth motion for at least 30 seconds
    b) Dilute the chlorhexidine 1:1 with 0.9% sodium chloride solution, apply it gently to the exit site, then remove it with sterile 0.9% sodium chloride solution wipes
    c) Use swabs to apply a povidone-iodine solution in a circular motion, moving outward from the exit site in concentric circles
    d) Generously scrub the exit site with sterile 0.9% sodium chloride solution; then allow the site to air dry completely

12) A patient who is paraplegic has been admitted with a diagnosis of uncontrolled diabetes mellitus. The patient is able to move from the bed to the wheelchair with minimal assistance but always asks for assistance. The patient has an indwelling urinary drainage catheter in place draining clear yellow urine and requires manual decompaction every other day. Even though the patient is alert and cooperative, which complication is still a high risk for the patient?
    a) Pressure injuries
    b) Urinary tract infection
    c) Bladder stasis
    d) Falls

13) When removing the old dressing from the patient's central venous catheter (CVC) site, the nurse should include which step?
    a) Remove the catheter stabilization device
    b) Place a dry cotton towel under the patient's arm
    c) Don clean gloves and a mask before beginning the dressing change
    d) Gently lift and pull the old dressing off, starting at the exit site

14) Pressure injury prevention measures should be implemented for a patient with which Braden score?
    a) Less than or equal to 16
    b) Less than or equal to 18
    c) Less than or equal to 20
    d) Less than or equal to 24

15) Which type of catheter is the best to place in a patient requiring long-term catheterization?
    a) Hydrophilic coated catheter
    b) Silicone catheter
    c) Coude catheter
    d) Red rubber catheter

16) An older adult female patient is admitted from home. The health care team member observes a small stage II pressure ulcer on the lower aspect of the patient's right buttock. When asked, the patient states that she has limited herself to sitting all day. She is afraid to walk since she fell last month. After arranging a physical therapy consult, what should the health care team member tell the patient?
    a) She did the right thing because she might have fractured her hip
    b) She should move around from side to side when sitting
    c) She needs regular exercise, including walking
    d) She need not to worry because physical therapy can get her back in shape

17) Which intervention will reduce the risk of falling in a patient who needs to go to the bathroom at night?
    a) Place all four side rails up
    b) Place the bed alarm on
    c) Place a commode at the bedside
    d) Round on the patient every 4 hours

18) The nurse observes that the urinary catheter tubing and collection bag are leaking. What is the next course of action for the nurse?
    a) Change the urinary catheter bag
    b) Change the entire catheter system
    c) Tape the leaking areas to keep the system closed
    d) Irrigate the system to assess it for blockage

19) A central venous catheter (CVC) exit site dressing is moist, but it is not due to get changed for another 3 days. Which is the appropriate action?
    a) Reinforce the dressing with gauze and tape
    b) Wait to change the dressing when it is due
    c) Change the dressing immediately
    d) Continue to monitor the dressing

20) When providing routine urinary catheter care, the nurse should use which product to help reduce bacterial flora?
    a) Adhesive tape
    b) Powder
    c) Soap and water
    d) Antimicrobial agents

Appendix N

Escape Room Post Activity Survey

Please check the box that most applies to the following regarding your attitudes and perceptions of the escape room activity. By completing this form, you agree that the data can be used to further improve the education program

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I have more knowledge on preventative measures for CLABSI after completing this activity					
I have more knowledge on preventative measures for CAUTI after completing this activity					
I have more knowledge on preventative measures for HAPI after completing this activity					
I have more knowledge on preventative measures for FALLS after completing this activity					

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I feel confident that I know the hospitals policy and procedures for prevention of CLABSI, CAUTI, HAPI and Falls					
If I am unfamiliar with hospitals policies or procedures for prevention of CLABSI, CAUTI, HAPI and falls, I know where to find this information					
I enjoyed the escape room activity					
I would like to see more learning opportunities using escape rooms					

Comments: