What problem is trying to be addressed?

The problem to be addressed is the change in policy for new perioperative nurses specializing in cardiac surgery. This sub-specialty of perioperative nursing practice has experienced a shortage of nurses resulting from staff retirements, internal churn (staff moving within hospital departments) and reduced availability of graduates from basic nursing education programs. Simultaneously, the Saskatchewan Ministry of Health has made a commitment to reduce surgical wait-times to less than three months. In response to these occurrences, operating room (OR) managers have sought to increase the number of graduates completing perioperative nursing education programing. This has resulted in a large number of inexperienced nurses practicing in Saskatchewan ORs and specifically in the cardiac surgical services.

These external pressures to increase surgical capacity have altered the policy of OR managers to rely on a lengthy orientation of “new hires/graduates”. The resulting time lag (approximately 2 years) will not allow Saskatchewan ORs to meet the government prescribed wait-times targets and necessitates a new approach to educating nurses for practice in the cardiac surgical service.

What are the symptoms of the problem?

The symptoms of this problem are delays in patients receiving timely access to surgery, cardiac surgeon frustration, and anxiety for perioperative nurses resulting in turn over off new perioperative nurses. These symptoms have necessitated a change in educational policy by OR managers for nurses entering practice in cardiac surgical service.

Evidence of these symptoms has been identified as follows:

- Surgical volume monitoring has indicated that wait-times targets are not being achieved. Additionally, scheduled cardiac surgeries have been cancelled due to delays from the preceding surgical cases that resulted from inexperienced staff lacking knowledge to coordinate surgical activities in a timely fashion.
- Anecdotal feedback to OR managers from cardiac surgeons on the performance of new staff and fatigue from orientating high numbers of new staff.
- Anxiety has been expressed in “exit interviews” conducted by Regional Health Authorities human resources departments.

This has all been communicated to myself by OR managers in Saskatchewan.
What is the root cause of the problem?

The root cause of the problem is the alteration in educational/training policies for perioperative nurses entering cardiac surgery practice. This has occurred from the external pressure to achieve mandated wait-times for surgery that required additional nurses to quickly enter the practice environment.

A further contributing factor to the change in policy is a lack of long-term health human resource planning in all areas of nursing that has created critical shortages.

Is instruction an appropriate solution to the problem?

Yes, instruction is an appropriate solution because it affords the opportunity to accelerate the acquisition of knowledge for perioperative nurses entering into cardiac surgical care. Instruction offers a directed approach that will build on existing knowledge and advance learner knowledge in a linear approach. This is in contrast to the existing policy to rely on orientation for opportunities to observe and learn.

Utilizing instruction will eliminate barriers to learning in an orientation approach. Examples include:

- Opportunities occur when learners are not available.
- A complex learning opportunity could occur prior to learners being exposed to simple basic/foundational experiences. This could impair the learners’ ability to acquire appropriate knowledge from the experience.
- Opportunities may not occur and the learner will not have been exposed to the knowledge.

The use of instruction through a structured approach will enhance learning and improve the acquisition of knowledge.

Is WBI an appropriate instructional solution?

Yes, a Web Based Instruction (WBI) model is an appropriate solution because it meets the need for improved knowledge related to cardiac surgery for perioperative nurses without disrupting the already tenuous staffing levels in Saskatchewan ORs. The use of WBI will allow learners to engage in learning on their own schedule. This flexibility will prevent disruption of already limited staffing levels.

A Web Based Instruction (WBI) model will meet the learning strategy for the education because the Internet offers the ability to expose students to multimedia resources necessary to learn concepts. There are several resources available via the internet that can be accessed on the learners schedule to enhance their learning. Further, the subject matter is predominately knowledge based content and can be easily “chunked” for learners to access online. This further allows flexibility for learners to “stop” and “start” as needed.

The learners have access to smart phones and mobile devices in their workplace. The nature of this practice environment results in unfilled “down time” that will allow learners to access the course and engage in field-based learning.
<table>
<thead>
<tr>
<th>Actuals</th>
<th>Gap</th>
<th>Optimals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses with basic perioperative nursing skills.</td>
<td>Lack of skills between basic perioperative nursing skills and advanced perioperative nursing in cardiac surgery.</td>
<td>Skills in perioperative sub-specialty of cardiac surgery care.</td>
</tr>
<tr>
<td>Lengthy orientation times.</td>
<td>Reduce the time for learners (perioperative Nurses) to become proficient in cardiac surgery.</td>
<td>Accelerated learning and adaptation to the cardiac surgery practice environment.</td>
</tr>
</tbody>
</table>

**Preliminary instructional goal statement:**

At the end of instruction, the participant will be able to explain the basics of cardiac surgery care for perioperative nurses.

**Why a Web Based Instruction model?**

Web Based Instruction is appropriate because students working in operating rooms will not have time to take a formal in-class course because of the critical shortage of perioperative nurses.

The nature of the instruction lends to easily modularizing content to enable students to stop and start studying as desired, thus allowing working professionals flexibility to access education (Nurses often work shifts and will work nights), and to link new learning approaches to previous education (perioperative nursing education is delivered in online format).

**Analysis of Context for WBI**

**Organizational Infrastructure:**

The Saskatchewan Institute of Applied Science and Technology (SIAST) is well equipped to offer this type of education. The college has been delivering online education and has an established “Learning Technologies” department capable of supporting development.

As a Boise State University student completing this assignment, I will have access to some of these capacities. As an example I will have access to equipment for the project including computers and software. I will also have access to the organizational culture and support from others within the institution on a limited basis. I will also have ownership of the initial development being created through this EDTECH 512 course. Subsequent revisions (if implemented) will become the ownership of the institution. Despite this organizational infrastructure, I will not have management support because this project is not identified in the institutions current strategic plan and no formal support will be provided.
Allocation and competencies of personnel:

This course will be designed by myself as part of the Boise State EDTECH 512 course. Following completion of the initial project during the summer semester, there will be access to graphic artists, web designers, web support individuals and instructors for actual delivery (if approved by SIAST). The institution delivering the course has experience in Web Based Instruction and will have resources available to assist faculty and students during the delivery of the course. Lastly, there are also administrative and technical supports available to support this course.

Learner location and technology:

The course will be offered to any student, irrespective of geography, that meets the admission criteria for the course. Learners will primarily be located in Saskatchewan and must have access to the Internet via high-speed connection. This geographic spread of students will preclude attendance for any portion of the course on SIAST campus (Wascana-Regina, Kelsey- Saskatoon, Palliser- Moose Jaw or Woodland- Prince Albert).

Further, learners will be further distributed in their time of access to the course as a result of their work schedule. Perioperative Nurses work a variety of shifts and consistency in time to access the course will be variable.

The technology requirements will be outlined for required internet speed, hardware, software, operating systems, etc. Drawing from a population of employed operating room nurses, there will also be access to internet capable smart phones in the practice environment.

Learners Analysis

General characteristics:

The learners engaging in this course will be homogeneous. The requirements of being a Registered Nurse, advanced certification in perioperative nursing and completion of Advanced Cardiac Life Support (ACLS) training will further reduce diversity. Nursing is a Caucasian and female dominated profession. There are few individuals that are male or those that have been educated internationally. These atypical subsets of the nursing profession will be less than 10%. This number is based on existing demographic data on the Registered Nurse population in Saskatchewan. These demographic trends are also valid at the national and international levels.

Finally, the learners will be drawn from a middle class income and have the financial means to access the Internet and computer resources as required.
Motivation:

The motivation of learners for this course will be strong. Learners will be interested in the content because of their chosen career path in nursing, working in the operating and further specializing in cardiac surgery care. The design for the course will focus on portability and usability to encourage student completion with a supportive strategy. The prevention of elevated rates of attrition in WBI models will be a design concern of this course.

Prior knowledge:

As indicated previously, admissions to the course will require prospective learners to have completed an undergraduate nursing degree, advanced certification in perioperative nursing and completion of ACLS training. These learners will bring substantive knowledge of current perioperative nursing and cardiac nursing care, which will provide a “higher” starting point above the line for the learning environment.

Communication skills:

The learners will possess communication skills consistent with their previous education and experience in online learning. This is ensured because the perioperative nursing education program in Saskatchewan and Western Canada are delivered online. Further, the learners will have demonstrated communication skill from academic writing required in their undergraduate education. Lastly, the three required educational foundations will have also established the needed understanding of medical and surgical jargon for communication. These characteristics also demonstrate homogeneous communication skills amongst the learners.

Technical skills:

The learners will also possess consistent basic technical skills as a result of their standardized education (undergrad, perioperative specialization and ACLS certification). These learners will have all previously engaged in online learning for their perioperative nursing education. This will enhance student performance in tasks (i.e. navigation, use of web resources, etc.) and understanding of the technical requirements of learning in a WBI model.

Abilities and disabilities:

The range of disabilities will be limited amongst the population of learners because of the licensing requirements for registered nurses. Specialization in perioperative nursing further limits potential disabilities because of the physical and sensory requirements for practice. This is evidenced by job postings requesting applicants’ proclamation that they possess the ability to stand for extend periods of time, can lift standardized weights, possess visual and auditory acuity, etc. However, there will need to be consideration given to reasonable accommodations for learners with learning disabilities or minor visual/auditory acuity.

The learners’ anxiety will be limited because of their common education and experience in health care. The platform for the LMS will also be familiar.
Other characteristics:

A level of technical jargon will be presented that could impede learners. This will be over and above that acquired through nursing education/experience and perioperative nursing education, but consistent with the practice environment that learners will be prepared to participate in following successfully completing the course.

Relevant Standards

The primary standard that will need to be addressed is the Operating Room Nurses Association of Canada (ORNAC) standards. These national standards guide the practice of all nurses in the Perioperative nursing environment. Nurses are held accountable to these standards for patient safety and functioning of OR environments.