



National Patient Safety Goals
Training Proposal

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Introduction

This proposal will outline the overall objective of the training initiative for Morgan Regional Hospital, including some prerequisite assumptions we have made regarding our existing resources and infrastructure. The remainder of the proposal will provide detail regarding: (1) Instructional design strategy, including a review of competency-based learning and case-based reasoning; (2) learning management system (LMS) specifications; (3) the evaluation plan; (4) project timeline with deadlines and milestones; and (5) project budget and justification chart.

Project Objective

The purpose of this project proposal is to address the instructional needs prescribed by Morgan Regional Hospital, a 1200-bed tertiary hospital located in Indianapolis, IN. According to the specifications provided, the hospital is due for a site visit by the Joint Commission in conjunction with the hospital's accreditation renewal in February 2016. It is presumed that an impromptu site visit will occur prior to the renewal date. An impromptu visit can include asking select management to describe in detail various policies and procedures on hospital safety. These knowledge areas could include: patient safety policies and guidelines, employee job descriptions, employees' knowledge about hospital policies and procedures, cleanliness of the hospital, patient satisfaction, accuracy of patient documentation, and proper use and maintenance of equipment.

In preparation for the impromptu site visits, the client is requesting that all staff (20,000 full-time employees and 5,000 part-time employees) be trained on the National Patient Safety Goals in relation to their respective disciplines. The training must also provide pedagogically sound remediation and instruction for employees requiring various competency needs. It must

also meet the needs of employees with varying educational backgrounds, who work in one of three hospital shifts, and who may or may not have access to a computer during a shift. In addition, it is hoped that the training program will promote cross-disciplinary collaboration. Specifically, the goal is for employees to work together across disciplines in taking a more active role to identify best and worst practices in patient safety as well as to strategize potential problems occurring in their areas. Such interdisciplinary collaboration should help facilitate corrective measures at Morgan Regional Hospital. The hospital has provided us with a select number of employees whom we are to train in delivering this program to all other hospital employees.

Assumptions Regarding Existing Resources

In preparing for our design, we will be making several assumptions regarding the existing resources that are available at the hospital. These include: (1) existing staff, (2) a budget for the LMS already in place, and (3) the option to shift to a new Learning Management System. First, it is assumed that our current staffing pool at Morgan Regional already includes some of the necessary skillsets to help in the design, development, and implementation of this project (e.g., an instructional designer, an LMS administrator, a director of instructional design, a director of training, at least two trainers). These staff/administrative members will be a critical support throughout the lifecycle of the project, particularly in the design and development phases. However, as the driving constraint for this project is time, we will contract out to procure additional support for (1) an instructional designer, (2) two eLearning developers, (3) a video producer, and (4) a videographer. We will also procure necessary additional equipment and technologies (described later in the budget).

Next, we assume that a budget for all learning initiatives at Morgan Regional is already in place for an existing Learning Management System and LMS administrator. However, we also assume that, given the specifications of the course, we have the authority and option to request a proposal a new Learning Management System that better matches our objectives (e.g., a diagnostic assessment capability). The next section will detail our proposed instructional strategy and rationale for the structure and requirements of the course.

Instructional Design Strategy

In this section, we will first describe the instructional theory that guides our training program: cognitive apprenticeship. We will then discuss the two instructional models that we will use to meet the program goals: (1) a competency-based, personalized eLearning course designed to teach the National Patient Safety Goals to all employees, and (2) face-to-face scenario-based discussions about ways that employees can apply those safety standards in their respective areas. Finally, we will briefly describe the instructional design model, Design Layers, that we will use to approach the training design.

Instructional Theory

One of the main goals of the training is to help all hospital employees become competent in the National Patient Safety Goals. When taken together, the body of safety goals could be seen as what an expert would know about safety protocols and procedures, or in other words, a model of expert knowledge. Models of expert knowledge are addressed in the theory of cognitive apprenticeship (Collins, Brown, & Newman, 1987). This theory assumes that something has been lost in the transition from an apprenticeship model to direct instruction model of education. Collins, Brown and Newman (1987) state, “While schools have been relatively successful in

organizing and conveying large bodies of conceptual and factual knowledge, standard pedagogical practices render key aspects of expertise invisible to students” (p. 2). This theory then argues for specific methods of making expert thinking visible:

1. Modelling - “showing an expert carrying out a task so that students can observe and build a conceptual model of the processes that are required to accomplish the task” (p. 16)
2. Coaching - “observing students while they carry out a task and offering hints, scaffolding, feedback, modelling, reminders, and new tasks aimed at bring their performance closer to expert performance” (p. 16)
3. Scaffolding - “the supports the teacher provides to help the student carry out a task” (p. 17)
4. Articulation - “includes any method of getting students to articulate their knowledge, reasoning, or problem-solving processes in a domain” (p. 17)
5. Reflection - “involves enabling students to compare their own problem-solving processes with that of an expert, other students, and ultimately, an internal cognitive model of expertise” (p. 17)
6. Exploration - “involves pushing students into a mode of problem solving on their own” (p. 18).

Instructional Models

We feel that a combination of a competency-based eLearning course and case-based face-to-face training sessions will allow us to effectively combine the teaching methods described in the theory of cognitive apprenticeship. In the competency-based eLearning course, we can focus on modelling, coaching, and scaffolding expert knowledge and behavior. We will

do this by instructing the employees through scenarios anchored in everyday hospital experience. The face-to-face sessions, based on case-based reasoning, will allow us to focus on articulation, reflection, and exploration as well as interdisciplinary collaboration between hospital employees.

Competency-based education. In order to implement the eLearning part of our training design, we plan on using an online, adaptive, competency-based Learning Management System (LMS). Competency-based education (CBE) is a rising trend in higher education, especially among late-career adult learners. Several educational institutions have created CBE programs in recent years—most notably Western Governors University, Southern New Hampshire University, and the University of Wisconsin. In this instructional model, specific competencies for expert knowledge are outlined first, followed by assessments which reliably measure those competencies, and then course content to prepare students for the assessments. This instructional model works particularly well because the National Patient Safety Standards are written as competencies and include acceptable evidence of the outlined competencies. An example of one competency is shown in Table 1. Since the elements of performance that we are trying to assess are often complex procedural tasks, we will need to be careful that we use assessment methods which access these higher levels of performance.

Table 1

Example patient safety goal, subgoal, and elements of performance

Safety Goal	Subgoal (Competency)	Elements of Performance (Acceptable Evidence)
Improve the accuracy of patient identification	Eliminate transfusion errors related to patient misidentification	When using a two person verification process, on individual conducting the identification verification is the qualified transfusionist who will administer the blood or blood component to the patient.

While some CBE programs operate on a course-based timeline, many of them operate using a more flexible method called direct assessment which allows students to set their own pace for the competency completion (Klein-Collins, 2013). Since the hospital employees are busy with differing schedules, we plan on using this more flexible, self-paced model in our design.

One difference in CBE-based LMS, compared to traditional LMS, is they use the student as the frame of reference. Instead of creating a course and populating it with students, a student is created and sets of competencies are added to them. This allows for a personalized path to be created for each student. In the case of our particular program, this is helpful because the competencies required for each of the staff are different. All of the National Patient Safety Goals apply to a nurse, while only one or two (such as “Prevent Infection”) would apply to a janitor. Allowing flexibility in the content that each employee needs will ensure that we are not wasting employees’ time by covering content that is not applicable to them.

We also want to include adaptive features to our online training system. At the beginning of a course of study we will run a diagnostic assessment, based on an employee’s set of target competencies. This is meant to assess the employee’s existing level of mastery. If the employee is deemed as having already mastered a given competency, they will not need to work on that content in their CBE-based course.

Case-based reasoning. Additionally, as part of the goal of this training is to encourage cross-discipline collaboration in solving local issues, this training will include face-to-face discussions to augment the eLearning content. During these sessions, employees will be grouped

together to solve mock scenarios related to various issues of patient safety. To facilitate dialogue and open discussion in a guided fashion to meet the instructional objectives of the course, we will utilize an approach known as case-based reasoning. Case-based reasoning has been widely used in higher education in training medical students faced with complex scenarios (e.g., University of Georgia). The purpose will be to provide media-presented cases—or scenarios—that align with the National Patient Safety Standards, for hospital staff to consider and discuss together. Groups will then have the ability to review what fictitious characters, from various disciplines, did in the scenarios to identify the problem faced. These in-person groups will then be able to discuss their own interpretations and reach their own conclusions, proceeding in a problem-solving manner until they have: (1) identified the problem in the scenarios (e.g., improper use and maintenance of equipment), (2) determined the proper or best practice, and (3) strategized similar problems that may be occurring in their respective areas and determine corrective measures to implement.

Design Model

Several instructional design models and theories will be utilized to guide the design and development of this training program. Based on the instructional goals prescribed, as well as the range of competencies across the staffing pool, we will utilize the following. First, to guide our initial design stages, we shall appeal to Layers Theory (Gibbons, 2013). Layers Theory is an instructional design theory that views a design in terms of the underlying functional components. These components include functions such as the content, or subject matter of the training, the instructional strategies to be implemented, the interface of the training platform, methods for data management based on learner response, and control systems to mediate learner interaction

in a learning environment. We appeal to this theory because of the emphasis placed on various functions within a design that often go unnoticed. Given that this training will require means for addressing 25,000 employees, we believe it imperative to consider as many different functions as possible.

Another value of a layers approach is that it helps the designer consider, based on project constraints, which layers are of greatest importance. For this training we have identified the following layers, or components, as highest priority: (1) strategy, (2) media-logic, and (3) data management. We identified these three layers as most essential because of the requirements of our eLearning course and our face-to-face training. The strategy layer refers to the instructional strategy (i.e., instructional model, theory, sequencing of instructional events) within a design. The eLearning course relies heavily on a competency-based instructional model and appeals to cognitive apprenticeship while the face-to-face training relies heavily on a case-based reasoning approach. As all other design decisions (e.g., course development, assessment items, data tracking) are ultimately based on the instructional strategy utilized, we identified strategy as the most important layer to focus on. In addition, the competency-based model also places a large focus on diagnostic and formative assessment. Thus another function of high priority is the media logic (i.e., system programming), which in this case refers to the adaptive features of the LMS. Lastly, the assessments will rely heavily on the data that employees taking the eLearning course provide to the LMS—thus necessitating a heavy focus on data management.

Training Implementation Plan

As previously mentioned, our training will be in two parts. The first part will consist of a competency-based eLearning course, while the second part will be face-to-face training sessions

based on case-based reasoning. We will now further discuss how each of these components will be designed and implemented.

Competency-based eLearning Course

To support the eLearning experience, we will be using Difference Engine, a competency-based LMS created by Learning Objects, Inc. The reason that we chose Difference Engine is that it is one of the only LMS designed specifically to handle competency-based education. It allows you to set competencies, perform diagnostic assessments, and personalize learning paths.

Competencies. The eLearning course is organized by competencies. Each of the competencies were extracted from subgoals identified in the National Patient Safety Goals. Subgoals that are alike (meaning that they are derived from the same safety goal) will be grouped together in the eLearning course. Figure 2 shows what the identification of the competencies may look like in the eLearning course. Here the two identified competencies (subgoals) are *Use multiple methods of identification* and *Eliminating transfusion errors*.

Diagnostic assessment. As shown in Figure 2, at the beginning of each of module, there will be an opportunity for the employee to take a diagnostic assessment (The *Show What You Know* button). In the diagnostic assessment, we will create several assessment items mapped to the module competencies. If the student does well on the assessment, then the system will show the mastered competencies as completed, and they will not need to go through the mastered section.

The screenshot displays a learning path interface titled "Rob's Learning Path". At the top right, there is a red button labeled "Show What You Know". The main content is organized into two sections, each with a red vertical bar on the left containing a circular icon (a book for the first section and a syringe for the second).

Section 1: Use Multiple Methods of Identification

Activity	Duration
Overview	5 min
Why use multiple methods of identification?	5 min
Standard Identification Methods	10 min
In the Field: Identifying Patients	10 min
Identification Assessment	5 min quiz

Section 2: Eliminating Tranfusion Errors

Activity	Duration
Overview	5 min
Before Initiating a Tranfusion	5 min
Using a Qualified Tranfusionist	10 min

Figure 2. The layout of competencies in the eLearning environment

Instructional materials. For each of the identified competencies, we will be using the first three methods of cognitive apprenticeship: modelling, coaching, and scaffolding in order to help students towards expert performance. The nature of these methods suggest that we should create instructional material that are anchored in real-life situations and practice. We will therefore plan on spending much of our instructional design time creating detailed scenarios that will help the employees understand the contexts of the patient safety goals. This will include the creation of several, scenario-based instructional videos. These videos would provide opportunities for modelling, coaching, and scaffolding, creating authentic scenarios that the employee might find themselves in. Some of the videos may be focused on modelling proper procedures and competencies - showing the steps all the way through. In other videos, we will

take more of a coaching and scaffolding approach - we will use the videos to set up a scenario, but leave the resolution of the scenario to the employee.

As shown in Figure 2, each competency will be broken down into sub-steps (such as *Overview*, *Why use multiple methods of identification?*, etc), each representing a meaningful portion of the procedural or declarative knowledge that is required to perform the competency correctly. In addition, at the end of each competency section, there will be an *In the Field* section. This is where one of the video scenarios will be presented. A sample screenshot of an *In the Field* section is presented in Figure 3.

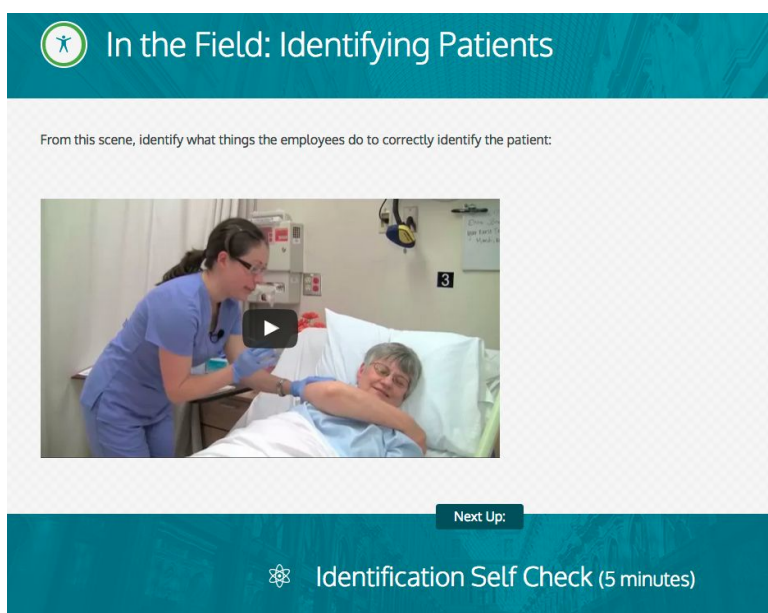


Figure 3. An example of videos presented in the *In the Field* section

Summative Assessment. At the conclusion of each competency section, there will be a small summative assessment. This will be an opportunity for the employee to show their mastery over the concepts that have been covered. If the employee scores 80 percent or above on the assessment, they will have passed that competency. If they score below 80, they will be

remediated back to areas in the competency that they need to review. Mastered competencies for each employee will be recorded in the system.

Writing good assessment items will be critical in our instructional design process. Since we want to foster expert *performance* and not just expert *knowledge*, we want to make sure that test items are assessing higher levels of cognitive thought (i.e., application and analysis from Bloom's Revised Taxonomy; see Anderson, Krathwohl, & Bloom, 2001). While we wish that we could assess employees through performance assessments, it is not possible given the scale of the hospital.

Training Security. While we don't anticipate too many security concerns, we want to ensure that training and assessments are completed by employees themselves. Each employee will be given individual login credentials that are linked to their employee email. Log-ins will be password protected and we will ensure that the data from the training is stored on a secure server.

Case-based Face-to-Face Sessions

The purpose of the face-to-face training sessions is to provide employees, with varying backgrounds and roles, the opportunity to work together in determining how to best promote the safety standards within the Morgan Regional Hospital culture. In order to promote longevity as well as a broad adoption of the standards, we believe it essential to promote solidarity among employees. Additionally, we believe that transfer of competencies will be optimized as employees work together in addressing several hypothetical cases embedded in the workplace. Thus a case-based reasoning approach to these face-to-face sessions will utilized.

In order to facilitate these case-based group exercises, we will run a series of classes beginning first with a week long pilot (see timeline). Based on employee feedback, we will then

implement hospital-wide workshops each day beginning in September. We will offer two classes at different times of the day (e.g., morning and late afternoon) Monday through Friday for employees to select. Each employee will be required to attend one workshop. We foresee each workshop lasting for one hour. The workshops will be facilitated by trainers, who will be trained and monitored by the Director of Training.

As employees enter the workshop they will be placed into randomized groups to facilitate participation among employees in varying roles and departments. The workshop structure will then proceed as follows: (1) Introduction to the workshop, including to the case studies that will be reviewed and evaluated, (2) First case study presentation--an initial case study that clearly points to a problem, several infringements on the safety standards, and how it was handled, (3) A brief discussion where the trainer models a basic heuristic for problem solving (e.g., identifying a problem, evaluating possible solutions, determine and adopt a solution), (4) Other case studies--additional case studies that are more noisy where the problem is less clear and the outcomes are not provided, (5) Group discussions where employees work together to identify the problems, how they might see similar problems in the hospital, and determine the best solutions, and (6) Debrief--trainer brings everyone back together debriefs on the process and experience; a brief discussion of how to promote such problem remediation within Morgan Regional Hospital follows. The focus of these workshops will be in the group discussions where problem identification (i.e., safety violation) and problem solutions are discussed and agreed upon. In addition these activities will help facilitate the different models of cognitive apprenticeship for making expert thinking visible: articulation, reflection, and exploration.

Product Standardization

According to the problem statement, the present scope is to create a training program for Morgan Regional Hospital employees. If the project is successful, however, we could see ourselves trying to license the training material to other hospitals that might be interested in the approach.

Program Evaluation Plan

We will use several sources to evaluate the effectiveness of our program. This includes: competency completion and time usage data from the LMS, surveys and focus groups of program participants, and a mock accreditation visit.

LMS Evaluation Data

By using a competency-based LMS for our training, we will be able to collect detailed data about the progress of the hospital employees through the training program. This data includes information regarding employee progress in accessing and obtaining the required competencies. This information will help us understand the overall adoption rate among hospital employees as well as identify areas in which employees are either struggling with the subject matter, or the content itself. We can then use this information to guide interventions with specific employees (possibly in the form of face-to-face training) or make changes to the existing course content.

Focus Groups and Surveys

Another way that we want to evaluate the quality and relevancy of the course content is by holding focus groups with selected employees while they are engaged in the course. We will be rolling out our eLearning courses in three phases (see Project Timeline below), first to the

hospital managers (to get their buy-in and feedback) then to hospital lab technicians (because they are a relatively small group). After we implement the training with each of these groups, we will hold focus groups with selected group members. These sessions will give us more nuanced feedback regarding the course material and their relevancy to the content standards. We will then implement feedback from these sessions into course revisions before the the eLearning course is implemented hospital-wide.

Surveys will be used to gather feedback from participants of the face-to-face training sessions. We will be holding a pilot of the face-to-face training sessions with employees who are quick completers of the eLearning course. Following these pilot sessions, we will issue surveys to participants to get feedback on whether these session met our desired goals. Feedback will determine if any changes need to be made to the face-to-face training before implementing it hospital wide.

Mock Accreditation Visit

To help the hospital gain a sense of the preparedness for the accreditation visit, we will be holding a mock accreditation visit several months prior to the actual accreditation visit. During this visit, we will have members of the training staff or hospital administration act as accreditors. They will schedule meetings with randomly selected employees, asking them questions about their understanding of the safety standards. These mock visits will help the administration to conduct a formative evaluation on the current status of knowledge of the standards within the organization. Based on the lessons learned in these mock visits, we can then schedule additional face-to-face training sessions or (if necessary) create supplementary online training.

Project Timeline

Based on the requirements specified, it is clear that schedule is extremely important to the success of the project. To ensure that the proposed project plan be implemented on-time we recommend the following timeline (Figure 4) be adhered.

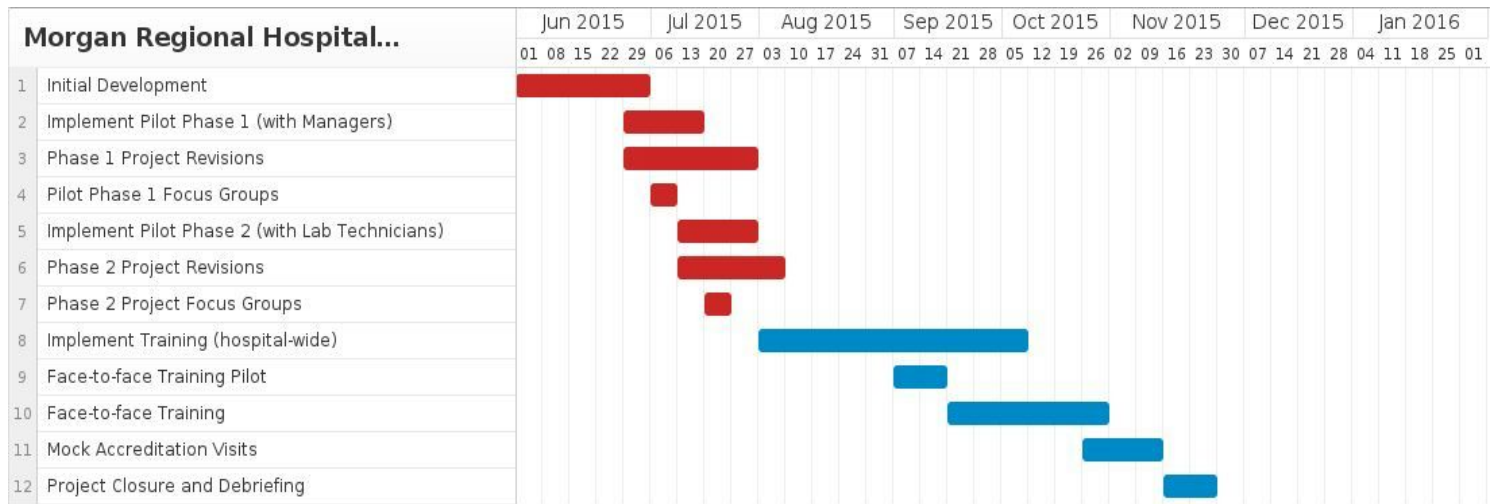


Figure 4. Project Timeline

Project Budget

Our estimated budget for the project is shown below:

Design	<u>hourly</u> rate	<u>hours</u> estimated	<u>total</u>
Contract Instructional Designer	\$30.00	400	\$12,000.00
Contract Editor	\$25.00	400	\$10,000.00
Development			
Contract eLearning Developers	\$25.00	400	\$10,000.00
Contract eLearning Developers	\$25.00	400	\$10,000.00
Video Producer / Director	\$25.00	400	\$10,000.00
Video Shooter / Editor	\$25.00	400	\$10,000.00
Equipment:			
Video Editing Computers (2)			\$5,000.00
Video Equipment			\$5,000.00
Software (Creative Suite, Articulate)			\$5,000.00
Incentives			
Food and Supplies for Training			\$5,000.00
Total			\$82,000.00

Figure 5. Itemized Budget

Budget Justification

The following section breaks down the proposed itemized budget and provides a rationale for the proposed items, costs, and time allotted.

1. Design (Section 1 on the proposed budget)
 - a. Hourly contract is requested for an instructional designer at a standard base payment of \$30 per hour for an estimated duration of 400 hours, for a total of \$12,000. The instructional designer will help ensure that the instructional strategies and activities employed in the eLearning course and the face-to-face training sessions all meet the intended instructional goals. She/he will also oversee development of the eLearning course and manage the eLearning

developers. Lastly, the instructional designer will coordinate with the Director of Training in designing the face-to-face training.

- b. Hourly contract is requested for an editor at a standard base payment of \$25 per hour for an estimated duration of 400 hours, for a total of \$10,000. The editor will help ensure that all published client-side products are communicated clearly, correctly, and effectively. She/he will also verify that all materials meet the established style guide requirements at Morgan Regional Hospital.
2. Development (Section 2 on the proposed budget)
 - a. Hourly contract is requested for two eLearning developers at a standard based payment of \$25 per hour for an estimated duration of 400 hours, for a total of \$10,000. The eLearning developers will develop the eLearning course within the proposed authoring tool, Articulate Storyline. They will utilize all content, images, videos, and other learning objects provided to them and develop them within Storyline. They will then publish the course within the LMS, under the supervision of the instructional designers.
 - b. Hourly contract is requested for a video producer/director at a standard base payment of \$25 per hour for an estimated duration of 400 hours, for a total of \$10,000. The video producer/director will oversee the writing and planning in pre-production, direct the video shoots in production and, under the supervision of the instructional designers and Chief Learning Officer, ensure that the intended case studies are captured in an engaging and instructionally sound manner.

- c. Hourly contract is requested for a video shooter/editor at a standard base payment of \$25 per hour for an estimated duration of 400 hours, for a total of \$10,000. The video shooter/editor will capture the footage during production as well as edit and deliver the footage in post-production.
 - d. Base payment is requested for the following equipment:
 - i. 2 Video editing laptops (i.e., Macbook Pros) for the video producer and video editor. Each Macbook Pro is estimated at a cost of \$2500 for a sum total of \$5000.
 - ii. Video equipment for the video producer and editor such as camera equipment, lenses, lighting, mics, and necessary props. The estimated sum total is \$5000.
 - iii. Adobe Creative Suite is requested for the video editor to provide proper photo and video editing tools in post-production. Additionally, Articulate Storyline is requested for the eLearning developers to utilize in course development. The estimated sum total for these software packages is \$5000.
3. Incentives (section 3 on the proposed budget)
- a. Foods and other supplies are requested as incentive items for the face-to-face training sessions. As these sessions are expected to last daily for up to a month during regular business hours, we are requesting foods and supplies to help incentivize employees to take time out of their schedules to participate in the

one-hour training session. The estimated sum total for food and supplies for the month-long sessions is \$5000.

4. Total (section 4 on the proposed budget)
 - a. The estimated sum total of all contracted work and supplies throughout the lifecycle of the project is \$82,000.

Conclusion

We believe that a combination of a competency-based eLearning course and a case-based face-to-face training will be the perfect mixture to handle the training needs of Morgan Regional hospital. Through these techniques we hope to provide each hospital employee with a solid mastery of the National Patient Safety Goals, and an in-depth understanding of how they can apply those skills in their everyday workday.

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