Pulmonary Rehabilitation
Proposal for On-Line Competencies

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Executive Summary

Pulmonary Rehabilitation (PR) is a department within the Coastal Heart Division of New Hanover Regional Medical Center (NHRMC). As with most clinical departments within a hospital setting, employees within pulmonary rehabilitation are required to update and complete mandatory testing and classes each fiscal year. The hospital education administrative team determines the yearly hospital wide requirements. Unit specific requirements are determined by each discipline (i.e. nursing, respiratory therapist, exercise physiologist) within each department. Coastal Heart employees a full time registered nurse who oversees the education of the 16 departments within that division, including Pulmonary Rehabilitation. In addition, each of the sixteen departments has "unit educators," who directly supervise the testing in specific unit.

Currently all testing is print based. Each unit educator maintains a notebook containing the current education status of each employee and is responsible to directing the employee to upcoming events. Certificates of completion are turned into the unit educator showing proof of attendance and maintained as record for five years.

The Coastal Heart Division desires to place all testing items on their education website. The benefits for this transition include (1) ease of access by employees, (2) allows for a central location of information and requirements, (3) reduces paperwork, (4) reduced responsibility for unit educators and (5) responsibility for completion placed more on the employee. Pulmonary Rehabilitation has been chosen as a test department.

The education needs of Pulmonary Rehabilitation were determined through interviews with the Coastal Heart educator and based on the nursing and respiratory disciplines that the department employs. Interviews were also conducted with the Information Systems department, as they will provide the personnel required to develop and post the information on-line.

Problem Statement

The Coastal Heart Center is a division within New Hanover Regional Medical Center, which encompasses sixteen separate departments, including Pulmonary Rehabilitation. The Coastal Heart Center of NHRMC employs two full time "educators," registered nurses who are responsible for on-going staff education. In addition, each of the sixteen individual departments has an employee designed as their "unit educator." The unit educators are responsible for over seeing that all yearly competencies are given to and completed by staff members in their unit. These competencies, involving multiple testing, are currently print based. Some competencies involve group classes and/or lectures that individuals are responsible for attending. Many of the requirements change from year to year; however, there are a number, which remain constant.

The Coastal Heart Center desires to simplify this process and put many of the yearly competencies on-line, in order to improve the efficiency of the process and to make employees more responsible for completion. Pulmonary rehabilitation has been selected to participate in a trial of on-line completion.

Information Gathering

A needs assessment was planned in order to have a more complete understanding of the education requirements within pulmonary rehabilitation and the environment within which the testing will occur. Personal interviews were conducted with the educators of Coastal Heart and with the unit educator within pulmonary rehabilitation in order to assess the department needs, in terms of testing requirements, level of employee computer skills, and availability of needed computer workstations. Interviews were also conducted with the Information Systems department to determine an accurate time frame for placing information on the hospital website and availability of needed personnel. Based on the needs assessment, an education list was determined that satisfied the requirements of Pulmonary Rehabilitation and also New Hanover Regional Medical Center.

The Deliverables

On-Line Testing Items:
Testing to be placed on-line includes items that are required hospital wide and those that are specific to pulmonary rehabilitation. Many simply require an area where the employee can enter a completion date after attending a class, where as others may include an on-line test. These education units include:

Hospital Wide General Education	Unit Specific
Environmental safety tour *	Emergency preparedness
Corporate compliance	Infection control
Point of care testing	Inservice presentation*
ACLS*	Health screening*
BCLS*	Cardiac monitoring
Mock code*	New equipment operations
Abuse and neglect	
Age specific	
Customer relations/team building	
Cultural diversity	
Falls	

* Required on-line space for completion date only

Job Aide
Due to the variety of computer related skills within the department, a job aide will be completed to guide employees through the main steps required for successful completion of the education portion of the website and the required test items. Items will be listed in out-line form, with pictures and bulleted items for ease of use.

Timeline

The deliverables must be completed by October 2007, the new fiscal year. The work schedule has been mapped in Microsoft Project and is currently scheduled for completion the end of

August 2007. This date will provide some lag time; helping to ensure the project is completed on time. The table below shows the estimated time allotment for major milestones.

Major Milestones	Estimated Completion Date
Initial project planning completed and approved	January 11, 2007
Pre-development strategies completed	April 6, 2007
Completion of deliverables	August 8, 2007
Completion of formative evaluation on final product	August 20, 2007
Summative evaluation planned	August 31, 2007

Finances

No funds have been allocated by NHRMC for this project. All work will be completed within the regular daily operations. The actual total cost of the project in terms of donated time is shown below and is based on projected hours needed to complete each assignment as listed in MS Project. The hourly rate as listed, does not include employee the cost of any employee benefits.

Project Personnel	Hours	$/hr	Total Cost
Project Manager/Unit Educator	297	$23.00	$ 6,831.00
Instructional Designer	615	$25.00	$ 15,375.00
Instructional Designer Assistant 1	431	$18.00	$ 7,758.00
Instructional Designer Assistant 2	381	$18.00	$ 6,858.00
Multimedia Developer	562	$20.00	$ 11,240.00
Coastal Heart Educator	115	$30.00	$ 3,450.00
Information Systems Personnel	240	$18.00	$ 4,320.00
Pulmonary Rehabilitation Staff Member	5	$20.00	$ 100.00
Information Systems VP	9	$40.00	$ 360.00
Coastal Heart VP	24	$40.00	$ 960.00
Administrative Assistant	34	$13.00	$ 442.00
Total	2713	$265.00	$57,694.00

Constraints

Project constraints that have been identified by the project management team include:

- Personnel will be limited to those currently on staff.
- Pulmonary Rehabilitation Unit Educator will act as Project Manager.
- Coastal Heart Educator and the Pulmonary Rehabilitation unit educator will act as subject matter experts on this project.
- All project work hours will be completed as part of a normal business day.
- Deliverables must be completed prior to the beginning of the next fiscal year, October 2007.

- The administrative assistant of Coastal Heart is labeled as the "site manager" and responsible for communicating changes and problems to Information Systems.

Project Stipulations

Testing materials to be placed within the web site are pre-determined by NHRMC and are not subject to change without approval. The Project Manager and Coastal Heart Educator (SME) would need to seek administrative approval should the instructional and environmental contextual analysis indicate a change in testing.

Gap Analysis

What Is?	What Should Be?	Gap
Mandatory yearly testing print base	Mandatory testing available on-line	Lack of on-line, centrally located testing
Unit educator maintains a print base file for each employee	No change	No gap
Unit educator responsible for directing required information to each employee; often last minute	Mandatory testing available on-line and accessible to all employees the beginning of each fiscal year	Employees lack up front knowledge of yearly requirements
Unit educator responsible for tracking employee testing completion	Completion certificates e-mailed or forwarded to unit educator	Lack of employee responsibility for completion of required testing

Alternative Analysis

In lieu of placing mandatory testing on-line, the following alternative analysis has been proposed:

Alternative Analysis	
1.	Provide all employees with a print chart of required testing at the beginning of the fiscal year, along with times and dates of offered classes.
2.	If the task is too large for Information Systems to complete by the beginning of the next fiscal year, phase in the testing, beginning with hospital wide testing the first year.

Development Team

Member	Duties
Project Manager (Unit Educator)	Works to oversee project through determining project scope, organizing the project, gathering information, determining instructional content and strategies, supervising the creation of draft materials, testing draft materials, verifying revisions, coordinating with various departments involved, monitoring quality and requirements, creating evaluation procedures, identifying milestones to bring project in on time, under budget and with a quality product. Also serves as subject matter expert.
Coastal Heart Educator	Serves as subject matter expert in terms of testing materials required and hospital procedure.
Instructional Designer	Works with project manager, Information systems, multimedia developer and subject matter experts to create on-line testing and job aide, after determining departmental needs.
Instructional Design Assistant 1	Works to support Instructional Designer
Instructional Design Assistant 2	Works to support Instructional Designer
Multimedia Developer	Works with instructional designer to create on-line testing and job aide.
Graphics Designer	Works with instructional designer to create on-line testing and job aide.
Information Systems VP	Approves personnel involved in the project, time allocated and smooth completion.
Coastal Heart VP	Approves personnel involved, time allocated and required approval of milestones
Administrative Assistant	Works with project manager to coordinate daily duties. Also serves as site manager as required by information systems.
Pulmonary Rehabilitation personnel	Works with project manager in evaluation of products

Communication Plan

A communication plan will be developed during the initial planning phase of this project. The team will schedule a series of regular meeting sessions to monitor and report on project progress. The project manager will coordinate each meeting. The working team is fairly small; however, Information Systems department at NHRMC is quite large and very busy. An accurate communications plan will be extremely important to effectively keep the project on schedule. Staff members will also utilize the GroupWise e-mail system within the hospital network.

Evaluation

Formative Evaluation:
The instructional designer will conduct the formative evaluation using one-to-one interviews and small group evaluations. The results will then be presented to the group and changes will be made as needed.

Summative Evaluation:
Once the education web site is up and running, it will be evaluated for effectiveness to determine whether the program goals were achieved. The instructional designer will plan the design of the summative evaluation using one of many different models to establish the effectiveness of the instruction. The results will be compiled and the instructional designer will write a final report to be reviewed by the NHRMC administrative staff.

Work Breakdown Structure

1.   Initial project planning meeting
  1.1.   Goal clarification
  1.2.   Identify participants
      1.2.1   Determine project members
      1.2.2   Determine member roles
      1.2.3   Establish communication structure
      1.2.4   Determine meeting schedule
  1.3.   Determine time line
      1.3.1   Create rough time line for component completion
  1.4.   Determine project costs
      1.4.1   Create budget
  1.5   Create presentation for initial project approval
      1.5.1   Develop word processing and graphics
      1.5.2   Schedule time and place for presentation
      1.5.3   Arrange for necessary equipment (computer for PP)
  1.6   Project development reviewed and approved by unit educators and NHRMC
      1.6.1   Initial planning completed

2.   Needs Assessment/Gap Analysis
  2.1   Conduct needs assessment
      2.1.1   Create interview format
          2.1.1.1   Determine questions to examine what is happening
          2.1.1.2   Determine questions to examine what should be
          2.1.1.3   Verify content validity
      2.1.2   Determine participants
      2.1.3   Conduct interviews
      2.1.4   Analyze results
      2.1.5   Identify gaps

           2.1.5.1   Determine gaps
           2.1.5.2   Identify cost of gaps
      2.1.6   Create presentation identifying gaps
      2.1.7   Submit to group for approval

3.   Conduct instructional analysis
      3.1   Identify learning goals (attitudinal, cognitive, psychomotor)
      3.2   Identify entry behaviors
           3.2.1   Identify learner prerequisite skills needed to accomplish task
           3.2.2   Identify learner attitudes needed to accomplish task

4.   Environmental Contextual Analysis
      4.1   Collect context data in performance environment
           4.1.1   Interview managers to determine level of support
           4.1.2   Interview staff to determine motivation and attitudes toward new task
           4.1.3   Observe physical aspects of work environment
                4.1.3.1   Identify accessibility of computers
                4.1.3.2   Identify computer equipment is up-to date for assigned tasks
                4.1.3.3   Identify time for completion of required tasks
      4.2   Identify gaps
      4.3   Determine compatibility of site with deliverables
      4.4   Submit to group for approval

5.   Write performance objectives
      5.1   Review initial project goals to ensure compatibility with intended learners
      5.2   Write terminal objectives
      5.3   Submit to group for approval

6.   Review Assessment Items (Pre-determined by NHRMC)
      6.1   Review assessment items to ensure compatibility of intended learners
           6.1.2   Evaluate and revise test items as needed
           6.1.3   Obtain approval for revisions

7.   Develop instructional strategies
      7.1   Validate media
           7.1.2   Web based
           7.1.3   Job aide for smooth completion of task
      7.2   Determine sequence and grouping of instructional units

8.   Determine project layout and design
      8.1   Develop website layout
           8.1.1   Develop word processing
           8.1.2   Design graphics
           8.1.3   Design assessment layout
           8.1.4   Design completion certificates and means of forwarding to unit educator
      8.2   Develop job aide

        8.2.1   Develop word processing
        8.2.2   Develop graphics and/or screen prints
   8.3   First draft of deliverables completed

9. Evaluation of draft site
   9.1   Plan formative evaluation
   9.2   Conduct formative evaluation
   9.3   Analyze results
   9.3   Present results of formative evaluation to group
   9.4   Initial evaluation completed

10. Awareness Activities
   10.1   Develop materials
   10.2   Distribute materials

11. Revise first draft of deliverables
   11.1   Edited for content
   11.2   Edited for grammar
   11.3   Second draft of deliverables completed

12. Conduct formative evaluation of second draft
   12.1   Formative evaluation planned
   12.2   Formative evaluation conducted
   12.3   Deliverables edited for content and grammar
   12.4   Deliverables submitted for approval
   12.5   Deliverables approved

13. Final draft of deliverables
   13.1   Website completed and loaded onto Capslive
   13.2   Job aide completed

14. Summative evaluation planned

Risk

- Information Systems may not have the work completed and uploaded onto the website by the deadline of October, 2007.
- Job aide may have print errors

Risk Assessment and Response	
Definition	*Condition*: Information Systems Department may not be able to complete the updates to the website within the desired time line. *Consequences*: Project completion date will be delayed resulting in employees not having access to testing at the beginning of the fiscal year
Probability	Using the risk selection matrix, it has been determined that the probability of this risk is high and the severity of the consequences is medium, resulting in a **high** risk.

Probability	Risk Selection Matrix		
High	Medium	High	Extreme
Medium	Low	Medium	High
Low	Minimal	Low	Medium
	Low	*Medium*	*Very High*
	Severity of Consequences			
Response	In order to minimize the above risk the following actions will be taken: - Add time into the project during the development phase - Consult with IS regarding "reasonable" work completion schedule, including milestone dates - Maintain communication lines with IS regarding achievement of milestones

Risk Assessment and Response	
Definition	*Condition*: Job aide may have print errors and need to be revised. *Consequences*: Revisions will required the project completion date to be delayed
Probability	Using the risk selection matrix, it has been determined that the probability of this risk is low and the severity of the consequences is low, resulting in a **minimal** risk.

Probability	Risk Selection Matrix		
High	Medium	High	Extreme
Medium	Low	Medium	High
Low	Minimal	Low	Medium
	Low	*Medium*	*Very High*
	Severity of Consequences			

Response	In order to minimize the above risk the following actions will be taken: • Involve multiple personnel in the review and editing process prior to sending the job aide to the print shop

Network Scheduling and Planning – *see Microsoft Project*
- Network diagram showing durations and earliest start and finish times
- Network diagram showing durations and latest start and finish times
- Scheduling showing slack
- Critical path
- Revised schedule

In order to ensure that the project is completed by October 2007, days were added into each phase and it is scheduled for completion by the end of August, 2007.