



Topic: Developing a Dosage Range Chart for Heparin Therapy

Grade: Community College
An integrated lesson plan covering 1 session of approximately 3 hours.
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Lesson-Planning Approach

Some learners perceive their “world” as a whole, where all things are interconnected and dependent upon each other. These “integrated” students face major challenges in coping with our dominant educational, social, and economic systems, which tend to present information in a linear fashion without the necessity of integration into meaningful context. Integrated students are at-risk of failing as they attempt to grasp information in ways that do not match their experience. Among large populations of at-risk students are many from Native American and similar cultures that do not regard their world as a sum of parts but as a blend of all that they experience.

This lesson plan does include some traditional, linear approaches to delivering information (checklists, rules, analysis, problem solving and organization). In addition to the traditional, linear delivery of information, this lesson plan also includes some of the following strategies, designed to appeal to at-risk students as they learn academic/life skills:

- ❖ Integration of technology
- ❖ Story telling/anecdotal information
- ❖ Non-competitive group and team work
- ❖ Performance-based assessment and rubrics
- ❖ Visual presentations and practice through technology and other means
- ❖ Project-based assignments that integrate family and community
- ❖ Activities appealing to multiple intelligences (Gardner)

Lesson Overview

This lesson acquaints pre-nursing students in an Internet drug calculations course with concepts and calculations related to anticoagulant therapy. In small groups, the students develop a Heparin Dosage Chart to be used maintaining appropriate PTT levels in patients receiving anticoagulant therapy.

Lesson Objectives

Name of Project: Developing a Dosage Range Chart for Heparin Therapy

Project Objectives: When students complete this project, they will be able to:

1. Safely (90% accuracy) convert weight from pounds to kilograms
2. Calculate anticoagulant medication dosages with 90% accuracy
3. Develop a chart for use in computing anticoagulant dosages
4. Work as a team member to develop a Heparin Dosage Chart
5. Follow protocol to adjust Heparin dosage based on PTT for individual patients

Integration of Other Functional/Academic Skills: (Critical thinking is required throughout the lesson.) Students will be able to:

- Utilize interpersonal skills to function as a team member
- Utilize math skills to correctly calculate medication dosages
- Utilize technology to access and complete the lesson
- Read and integrate information from the textbook, class website, and related websites.
- Accurately read and follow a medical protocol.
- Utilize laboratory reports on PTT to appropriately adjust anticoagulant medication doses utilizing a protocol.
- Access and utilize information from the Internet.
- Compile data and enter it into a table.

Websites

Required for students enrolled at Pueblo Community College:

<http://teton.pcc.cccoes.edu:8900>

Support: www.math.com for math review

www.injuryboard.com/specificArticleFromSiteSearch.cfm?Article=660

www.templejc.edu/ems/drugs/heparin.htm

www.nursingcenter.com

Pre-requisites

Ability to perform basic math computations

Ability to read at 10th grade level

Required Materials

Textbook: Drug Calculations: Process and Problems for Clinical Practice, 6th ed., by Brown and Mullholland; Mosby, 2000

Or

Textbook selected by faculty for the course.

Handouts

Heparin Dosage Chart
Anticoagulant Therapy Lesson Rubric

Required Equipment/Technology

Tuberculin syringe for each student
Computer with Internet access
Word processing software

THE LESSON

Note: Students do not learn from what you do but from what you have them do.

Preparation

Activity	Instructor Notes	ET
<ul style="list-style-type: none"> • Determine the suitability of this lesson for your course. • Visit the websites listed in the resources. Add any other websites you would like your students to visit. • Post course materials to your college's online learning server if you will deliver the class via Internet. • Adjust the lesson plan and grading rubric to reflect your goals for your students. • Assign each student to a small group (three to four students) for the project. • Prepare handouts for classroom presentation. 	<p>The method of delivery (web, classroom, or combination of the two) how you prepare for the lesson.</p> <p>If you haven't used the discussion, project, and chat functions of your web courseware in the past, meet with your technician to learn the procedures for these functions. You may want to practice some of them with the technician or a group of instructors before utilizing them in your course.</p>	3 hours
<ul style="list-style-type: none"> • Obtain the Heparin Therapy Protocol from your clinical site. Post a copy to the class website or copy it for handout if you are meeting as a classroom class. 	<p>Protocols will differ slightly among institutions depending on the PTT norms at each laboratory. Utilizing the protocols from your clinical sites makes the lesson more relevant to your students.</p>	½ hour

Presentation

Activity	Instructor Notes	ET
<ul style="list-style-type: none"> • Lead a class discussion of mechanisms of blood clotting and the purposes of anticoagulation therapy • Instruct the students to access the lesson on the website. • Hand out a copy of the Anticoagulant Therapy Protocol from your clinical site. 	<p>Avoid getting drawn into the details of coagulation. The process is complex and is taught in Physiology.</p> <p>Students may access the site from the classroom or from home. If you are teaching online, you will want to scan this document and include it in the website for your course.</p>	1 hour

Performance and Practice

Instructions for students	Teacher notes	ET
<ul style="list-style-type: none">• Give students the website address for the class.• Have them contact you in person, by phone, or by email if they encounter difficulties with the lesson.• Instruct them to notify you if they are unable to contact their group members.	<ul style="list-style-type: none">• Be available online or in person to assist students as they complete the lesson.• Facilitate the process of students contacting the members of their small group.• Utilize the grading rubric to calculate a score for each group.• Post the group score to each student's grade sheet.	2 to 3 hours

Lesson Assessment Strategy (Formative – As the lesson progresses)

Preparation, Presentation and Overall Implementation (Instructor)

- Is this lesson meeting an objective for my course?
- Is the lesson culturally relevant to the students?
- Is the type of delivery I'm using enhancing students' learning or interfering with their learning?
- Is my method of dividing the students into groups working well for this class?
- Are the students able to work productively in their group.

Performance and Practice (Student)

- Do the students find the lesson interesting?
- Are the students making use of the available technology?
- Are the students participating in their group?

Technology

- Are the students able to access the websites?
- Do students know how to use the word processing software?
- Is technology available for students to present their lesson to the class?
- Are the students allowed to practice with the technology before their class presentation? Are they able to achieve a smooth presentation with the technology?

Handout

Group Project:

Using the same group you were in for the Diabetes Teaching Plan, each group is to develop a portion of a Dosage Calculation Guide. Visit this website to read an article about calculating heparin dosages by weight, and to locate a sample chart.

http://www.findarticles.com/cf_0/m3231/n8_v28/21033757/p3/article.jhtml?term=heparin

Using the chart below, create a Calculation guide for IV administration of 18U/kg/hr for patients weighing between 120 and 240 lbs. Since kg are always rounded off to the nearest full kg, your first column will have a range of weight in lbs. I have put in the first line for you.

When your group has completed your portion of the chart, email it to me as an attachment. I will compile all six sections and email the completed chart back to you. You will be able to use both the conversion section and the dosage section as a future resource.

Group 1: Weights from 120-140 lbs.

Group 2: Weights from 141-160 lbs.

Group 3: Weights from 161-180 lbs.

Group 4: Weights from 181-200 lbs.

Group 5: Weights from 201-220 lbs.

Group 6: Weights from 221-240 lbs.

Activity Checklist

	Activity
	I completed the assigned worksheets.
	I completed the practice problems online.
	I participated in the group project.
	I downloaded a copy of the completed Heparin Dose Chart.

Technology Checklist

	Activity
	I accessed the lesson online.
	I completed the practice problems from the online assignment.
	I can name the members of my small group for the online project.
	I communicated with my small group online.
	I communicated with my instructor online.
	I visited the websites linked to the anticoagulant lesson.

Lesson Rubric

Anticoagulant Therapy Rubric

Item	Unacceptable 0- 5 pts	Acceptable 6- 12 pts	Good 13-19 pts	Excellent 20-25 pts
Participated in group discussion on WebCT	Did not participate	One to three entries	More than three entries; one or more entries is a response to a teammate	Participated in decision regarding who did which part of the Heparin Chart
Worked on Heparin Chart	Did not complete assigned portion	Partially completed assigned portion	Completed assigned portion; did not send it to instructor as an email attachment	Completed assigned portion and sent it to instructor as an email attachment
Submission was accurate	Calculations for the Heparin Chart contained more than four incorrect calculations	Calculations for the Heparin Chart contained two to four incorrect calculations	Calculations for the Heparin Chart were all correct	Calculations for the Heparin Chart were all correct and
Evaluated the group project	Did not complete the evaluation form	Partially completed the evaluation form	Completed each item on the evaluation form, using brief, non-specific submissions	Completed each item on the evaluation form with complete sentences. Submissions provided concrete suggestions for improvement of the lesson.

Grade:

90-100 pts = A

80-89 pts. = B

70-79 pts = C

60=69 pts.=D

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Mountain Plains Distance Learning Partnership 2002

less than 60 pts = failing