Minimizing Cross-Contamination in the Dental Setting
Design Team Members

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Minimizing Cross-Contamination

- Content Analysis
- Module
- Methodology
- Analysis & Results
- Revisions
- Insights
Content Analysis

Design Components:
- Goals
- Instructional Analysis Hierarchy
- Target Population
- Tests
- Strategy
Goals

- Inform learners of the process and methods used to prevent cross-contamination
- Identify items that need to be sterilized, disinfected or cleaned
Analyze a given situation in a dental setting and determine the factors necessary in minimizing cross-contamination.

1. Define sterilization.
2. Define disinfection.
3. Define critical patient care items.
5. Define non-critical patient care items.
6. Identify critical patient care items.
7. Identify semi-critical patient care items.
8. Identify non-critical patient care items.
9. Define the process of a dry conventional oven.
10. Define the process of a steam under pressure unit.
11. Define the process of a unsaturated chemical vapor under pressure unit.
12. Define an iodophor.
13. Define a phenolic.
14. Define a glutaraldehyde.
15. Determine the choices available for sterilizing and disinfecting patient care items.

Figure 1: Instructional Analysis Hierarchy
Determine the environmental surfaces that need cleaning. (21)

Identify clinical contact surfaces. (19)
Define clinical contact surfaces. (17)
Define environmental surfaces. (16)

Identify housekeeping surfaces. (20)
Define housekeeping surfaces. (18)

FROM PART 1

Figure 1: Instructional Analysis Hierarchy continued
Target Population

University of Hawaii Dental Hygiene Program
Target Population

- 1st year dental hygiene students
- Completed core-requirements prior to entering program
- Microbiology
Test Items

- Multiple choice
- Short answers
- 22 items
- 30 questions
Gagne’s Nine Events of Instruction

- Gaining Attention
- Inform Learners of Objectives
- Stimulate Recall
- Present the Stimulus
- Provide Learning Guidance
- Elicit Performance
- Assess Performance
- Enhance Retention & Transfer
Module

Best design features:
- Graphics used throughout module
- Chapters
- Pictures
- Bold type face
- Feedback and reminders
Methodology: Formative Evaluation

- Content Expert
- Peer Review
- Instructor Review
- One-on-one learners
- Small group learners
- Environment
Content Expert

- Dental hygiene professors knowledgeable in infection control procedures
- Wording of content for instructional module
Peer Review

- ETEC 603 peers
- 2 peer reviews per group member
- 1 week
- 30 minutes to discuss or clarify suggestions
- Identified spelling, grammar and content errors
- Positive comments
Instructor Review

Dr. Catherine Fulford
- Good use of pictures
- Color: intensified pictures
- Increase size of pictures
- Missing information presentation for terminal objective
- Suggested adding more pictures to choose from
- Spelling, grammatical and content errors
One-on-One Learners

- 2 females; 1 male
- 2 healthcare field
- Family members
- Completed within 1 hour
- Identified pictures to change
- Module presented in a logical order
- Good graphics
Small Group Learners

- 17 subjects
- 1st year dental hygiene students
- Mostly positive comments
- Easy to understand module
- Students wished exams were similar in hygiene school
Environment

- Dental hygiene classroom
- Fairly quiet except noise from clinic
- 1 student per table
- Air-conditioned
Analysis & Results

- Comments
- Demographic data
- Test data
- Attitude Survey
Comments

- “nice pictures”
- “very informative”
- “liked the test questions”
- “numbering was confusing”
- “easy to understand module”
- “when is the pizza coming”
Demographic Data

- 2 males, 15 females
- Age: 18-32
- Mixed ethnicity
- 4 students noted English as a second language
- 65% had prior experience in a dental setting
Test Data
Test Data

**Figure 8.** Comparison of pre & post test scores in the instructional analysis hierarchy.

Note: the number to the left below each objective is the pre-test scores and the number to the right in bold is the post-test scores.
Test Data

Figure 8. Comparison of pre & post test scores in the instructional analysis hierarchy (Continued).

Note: the number to the left below each objective is the pre-test scores and the number to the right in bold is the post-test scores.
Test Data

Figure 11. Comparison of pre-test scores with experienced vs. non-experienced students.
Figure 72. Comparison of embedded test scores with experienced vs. non-experienced students.
Test Data

Figure 13: Comparison of post-test scores with experienced vs. non-experienced students.
Attitude Survey

Positive side:
- Module fulfilled its purpose
- Interesting
- Useful for their field
Negative side:

- Clarity of some pictures
- Sequencing of test questions
- Not enough time to complete module
Revisions

- Content experts
- Peer reviews
- One-on-one reviews
- Instructor review
- Small group learners
Problems: Content

- Test items not matching with information
- Missing terminal objective information presentation
Problems: Process

- Students showed up late
- Numbering in the module not consistent with scantron sheet
- Short answers difficult to grade
Problems: Format

- Misspelled words
- Grammatical errors
- Choice of words
- Missing table of contents
- Some black and white pictures difficult to see
Insights
What we learned through the process

- No matter who reviews it, there will always be changes
- Revise, revise, revise
- Very time consuming
- We worked well together
What we discovered...

- Pictures say a thousand words
- Motivation is the key
- Something always goes wrong
- Be prepared and flexible
- Wording of test questions makes a big difference
What went wrong?

- Numbering system in instructional module
- Not prepared with answer sheets prior to testing
- Subjects came late
What went right?

- 5 bonus points
- Pizza
- Bacteria game
- Using scantron sheets
What we would do next time?

- Oral and written instructions
- Staple answer sheets to test questions prior to day of examination
If we had more time and money, we would...

- Color copies
- Experts to evaluate module before one-on-one reviews
- Administer module to 2nd and 3rd year students in the Dental Hygiene Program
Questions?

Credits: Microsoft Clip Art
Thank You