Training Issues for Biomedical Equipment Technicians and Clinical Engineers

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Training Issues for Biomedical Equipment Technicians and Clinical Engineers

Because the number of education institutions offering BMET/CE programs is dwindling, there is a need for alternative approaches to training in order to keep the field going.
Training Issues for Biomedical Equipment Technicians and Clinical Engineers

Attendees will learn:

– Organizational skills to help manage Biomedical/Clinical Engineering departments
– Alternative educational ideas for training entry level employees
Overview of ASHE 2002

Our Objective was to help the audience:

- Set up an in-house training program to prevent the void.
- Develop retention strategies for keeping trained employees.
Academic Program Closings

Early 1990s – over 100 BMET/BET programs in existence
Numerous program closings over past 10 years

– Reasons included:
  • Decrease in funding
  • Decrease in interested students

Source: AAMI website www.aami.org

Biomedical Education Programs
Average BMET Statistics

The average age of BMETs is rising…

- BMET I = 35.3 years
- BMET II = 36.5 years
- BMET III = 44.6 years
- BMET Specialist = 40.4 years
- BMET Supervisor = 43.2 years
- Clinical Engineer = 44.7 years
- CE Supervisor = 44.6 years
- Director/Manager = 45.1 years

Source: Journal of Clinical Engineering
2001 Survey of Salaries & Responsibilities for Hospital Biomedical/Clinical Engineering & Technology Personnel
Departmental Training Sessions

Weekly/Monthly Sessions

– On-Call Preparation
– In-service (Post OEM training)
Types of Continuing Education

- OEM Training, whenever possible
- Distance Education
- Other
Retention Strategies

Employer Needs & Commitment

Employee Needs & Commitment

Benefits or perks available
  – Merit Raises
  – Promotions
  – Rewards
  – Training Opportunities
Distance Learning

Synchronous Technology
Presentation Equipment
New Classroom Models
  – Active & Collaborative Learning
  – Student Centered Discussion
Distance Learning

Satellite Communications
Audio teleconferencing
Video teleconferencing
Developing modes of delivery
Training Issues for Biomedical Equipment Technicians and Clinical Engineers

Case Study
Case Study

Fully-functioning Clinical Engineering Department at a major teaching hospital
- Metropolitan Medical Center
- Located in primarily rural state
- Large number of out-patient visits
- Trauma Center
- Major Research Center
Case Study

CE Team consisted of 13 members:
– Ten Person Technical Staff
  • Operations Manager/Lead Technician
  • Seven Senior-level Technicians
  • Biomedical Engineer
  • Electronics Technician
– Director and Support Staff
Case Study

Times were relatively good:

– The team had high morale
– There was lots of money for training
– Technicians had lots of experience
– Technicians were on call every two months
– Pay scale was becoming an issue
Case Study

Implemented an in-house training program
  • To maintain employee knowledge base
  • Emphasize cross training

Operations Manager/Lead Technician Left
  • Reemphasized departmental training to increase coverage
Case Study Timeline

- Began in-house training
- Ops Manager left
Case Study

Extended absence due to family illness
  • Technician was absent for nearly one month
  • Workload started to pile up

Natural Occurrences (snow and holidays)
  • Some people were on vacation
  • Some people could not get to the hospital
  • Some people stayed at the hospital
Case Study Timeline

- Began in-house training
- Extended absence
- Natural Occurrences
- Ops Manager left
Case Study

Illness throughout the department
- Affected number of technicians available
- Affected ability to provide customer service

Extended absence due to family emergency
- Technician was absent for three weeks
- Workload continued to pile up
Case Study Timeline

- Began in-house training
- Ops Manager left
- Extended absence
- Natural Occurrences
- Department Illness
- Extended absence
Case Study

Hired Entry-level person

• No formal biomedical training
• No electronics background
• No degree
• Familiar with medical center
Case Study Timeline

- Began in-house training
- Ops Manager left
- Extended absence
- Natural Occurrences
- Department Illness
- Extended absence
- Entry level
Case Study

Senior-level Technician Left
- Rural hospital
- Closer to home
- More money

Second Senior-level Technician Left
- Rural hospital
- Closer to home
- More money
Case Study Timeline

- Began in-house training
- Ops Manager left
- Extended absence
- Natural Occurrences
- Senior Tech left
- Department Illness
- Extended absence
- Entry level
- Senior Tech left
Case Study

Director left

- Pursue a different career
- Worked to keep the team together

Transition Team chosen

- Team Leader
- Lead Technician
- Business Manager
Case Study Timeline

- Began in-house training
- Extended absence
- Ops Manager left
- Natural Occurrences
- Director left
- Department Illness
- Senior Tech left
- Entry level
- Senior Tech left
- Transition Team
Case Study

Third Senior-level Technician Left

- Manufacturer
- More money
- Overtime/Call Pay
- Automobile
40th Annual Conference and Technical Exhibition

Case Study Timeline

- Began in-house training
- Ops Manager left
- Extended absence
- Natural Occurrences
- Senior Tech left
- Director left
- Senior Tech left
- Department Illness
- Entry level
- Senior Tech left
- Transition Team
Case Study

In just ten months, over one-half of the senior-level technicians and the director left a department that was considered to be one of the best in the country.
Training Issues for Biomedical Equipment Technicians and Clinical Engineers

Maintaining and Rebuilding
Case Study

Maintaining and Rebuilding
Maintaining and Rebuilding

Director

Business Manager

Administrative Assistant

Operations Manager/Lead Technician

Senior Technician

Team Leader

Senior Technician

Senior Technician

Senior Technician

Senior Technician

Senior Technician

Senior Technician

Senior Technician

Biomedical Engineer

Project Manager

Electronics Technician

40th Annual Conference and Technical Exhibition
Maintaining and Rebuilding

Transition Team Composition:
- Team Leader
- Lead Technician
- Business Manager
Maintaining and Rebuilding

Transition Team Leader
Biomedical Engineer

Transition Team Member
Business Manager

Senior Technician

Senior Technician

Senior Technician

Vacant

Vacant

Electronics Technician

Electronics Technician

Vacant
Maintaining and Rebuilding

Focus of Transition Team:
- Damage Control
- Reorganization
- Maintain Status Quo
Maintaining and Rebuilding

Damage Control: Phase One

- Maintain Current Staff
  - Rebuilding team morale
  - Personal touch with the team
  - Dealing with On-Call Issues
  - Dealing with workload
Maintaining and Rebuilding

Damage Control: Phase Two

- Establish / Implement contingency plan
  - Reorganize areas of responsibility
  - Training
    - Senior Technicians Stepping Up
    - Cross Training
  - Cover Administrative responsibilities
Maintaining and Rebuilding

Reorganization:

– Director Appointed
  • Experienced within Organization
  • No Clinical Engineering Background

– Transition Team Continued
  • Aid new director
  • Day-to-day operations
Maintaining and Rebuilding

Reorganization:

– Open Positions
  • All levels
  • Recruitment Strategies

– New Position: CE Manager
  • Internal promotion
  • One less technical FTE
Maintaining and Rebuilding

Director

Business Manager  Administrative Assistant

Clinical Engineering Manager

Senior Technician  Senior Technician  Senior Technician  Senior Technician  Vacant  Vacant

Electronics Technician  Electronics Technician  Vacant
Maintaining and Rebuilding

Maintain *Status Quo*:

- Level of Customer Service
- Credibility
  - Outsourcing
  - Customers
  - Administration
Continuous Restructuring:

- “Tweaking”
  - Goals and objectives
  - Mission

- Address pay scale issues
  - Establish higher level positions

- Training
The only thing worse than training your employees and losing them, is not training them and keeping them.

Migs Damiani, MSME, PE
Questions?
THANK YOU FOR ATTENDING!
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Part 2    2:15 PM