# A COMPREHENSIVE REVIEW AND CRITIQUE OF THE LITERATURE ON EFFECTIVE DELIVERY METHODS FOR MANDATORY TRAINING IN A HEALTHCARE SETTING

by

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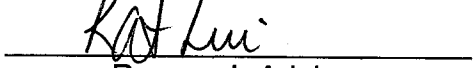

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# ABSTRACT

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Training is an ongoing process in any organization. In order to be successful, companies must strive for performance improvement in all aspects of their business. Training reflects an investment in the company's employees, and in any organization, the perception of personal and professional development is an asset. Technology is rapidly changing, not only in the industrial sector, but in the healthcare industry as well. What this means for healthcare providers is that for many, the formal training they received has been modified several times over. As technology advances, so does the way healthcare workers practice. This means continuous learning in order to stay current.

In a very large healthcare organization, many levels of professionalism are present. For every level there is a need to provide opportunities for continuous learning and training. The difficulty lies in meeting training needs for mandatory training topics that every single employee must receive. Mandatory training in healthcare settings is inevitable. State and federal regulations dictate employees receive annual training in many topics. The problem implied might appear to be easily solved: simply take a "one size fits all" approach. With the advent of computer-based training, compressed video, and satellite teleconferencing, is the delivery method a problem?

This review and critique of the literature is intended to determine if there is an effective way to deliver mandatory training in a healthcare setting to adults of varying professional and educational levels.

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# CHAPTER ONE

## INTRODUCTION

Training is an ongoing process in any organization. In order to be successful, companies must strive for performance improvement in all aspects of their business. Training reflects an investment in the company's employees, and in any organization, the perception of personal and professional development is an asset. Technical trades such as heating and air conditioning, auto mechanics, and other service-oriented fields demand that their staff stay current in their specialties. This can provide the means for a competitive edge in markets where clients have multiple choices in who provides their services.

Technology is rapidly changing, not only in the industrial sector, but in the healthcare industry as well. The focus of healthcare in the year 2000 and beyond is "ambulatory." Gone are the days of lengthy hospital stays. Surgical procedures done 10 years ago that required hospitalization for recovery and rehabilitation are now done on an outpatient basis, with most patients going home the same day their surgery is performed (Kozier, Erb, & Olivieri, 1991). What this means for healthcare providers is that for many, the formal training they received has been modified several times over. As technology advances, so does the way healthcare workers practice. This means continuous learning in order to stay current.

Employers in the healthcare industry face the challenges of not only training staff, but assuring they remain proficient and competent in various skills.

The cost of providing such training for staff is high. Professional organizations often sponsor off-site training seminars or workshops that require attendees to be absent from the job for a day or two. Travel expenses and the cost of filling that employee's position while they are gone are often more than the department's budget can handle for everyone. Information can be filtered to employees in the form of a department lecture at monthly meetings, but there is no guarantee that all employees will attend. For those unable to attend, handouts or notes from the lecture do little to fill the void. If information is presented in a manner that encourages attendees to evaluate the usefulness and applicability of the material, Bandura's social learning theory may prevail: learners may choose to adopt a modeled behavior if they determine it has meaning and value to them (Bandura, 1994). Department meetings or in-services may be videotaped, another format for delivering information to a large number of staff. According to R. Meyer (telephone conversation, April 12, 2004), oftentimes people enter the room at various points in the show, and rarely do people feel they really learned anything from the videotape. The lack of interaction with the speaker tends to be a downfall. If a skill is demonstrated in the videotaped presentation, participants may not be able to readily practice it.

The aforementioned instances present difficulties with a couple of cost-effective delivery methods for simple training needs. In a very large healthcare organization, many levels of professionalism are present. For every level there is a need to provide opportunities for continuous learning and training. From the medical assistants to the nurses, from the appointment coordinators to the lab

technicians, from the physicians to the staff working in specialty areas such as radiology, anesthesia, wound healing, pediatrics, oncology, dermatology, gynecology, surgery...the list of employees with training needs is lengthy.

The greater difficulty lies in meeting training needs for mandatory training topics that every single employee must receive. For instance, when all employees in an organization must be trained in a specific area to meet regulatory requirements such as in the case of the Occupational Safety and Health Administration (OSHA), the problem is not only how to effectively deliver the training, but how to ensure that the content is both understandable and retainable. Mandatory training in healthcare settings is inevitable. State and federal regulations dictate employees receive annual training in emergency life safety measures, blood borne pathogens, respiratory protection, workplace violence, confidentiality, and hazardous drug handling to name a few (Table 1).

The problem implied might appear to be easily solved: simply take a "one size fits all" approach. With the advent of computer-based training, compressed video, and satellite teleconferencing, is the delivery method a problem?
This review and critique of the literature is intended to determine if there is an effective way to deliver mandatory training in a healthcare setting to adults of varying professional and educational levels. Will a person with a PhD appreciate spending 30 minutes of his or her time on a simple video and post-test designed to address someone at a medical assistant's education level? Will a housekeeper feel overwhelmed by medical terminology in a computer-based training program geared for registered nurses? These are the challenges faced by staff

development professionals in large healthcare settings. While the basic concept of building training around organizational objectives and strategies is easy to achieve given your intended audience, when the audience consists of multiple levels of professionals, extra caution must be taken so as not to offend anyone on either end of the spectrum, and to insure learning transfer has occurred.

The possibility exists that there may be no preferred method of delivery that meets both the organizational training needs and the needs of the "blended" audience. This critique and review of the literature might show that in order to meet the educational needs of the healthcare professionals, training materials will need to be produced utilizing several delivery methods as appropriate for their level of education. The research may also show that there is indeed a delivery method that satisfies everyone's needs at every level. If a solution to this problem can be found, endless hours of designing multiple training materials to meet varying levels of staff's education can be saved.

## Statement of the Problem

In a healthcare setting comprised of staff with varying levels of formal education, how can mandatory training be best delivered so all recipients understand and utilize the content, making it both meaningful and applicable to them regardless of their education level?

## Purpose of the Study

The intent of this study is to determine through a review of the literature whether or not there is a best method of delivering mandatory training to employees of varying educational and professional levels in a healthcare setting.

This writer will review, analyze, critique, and draw sets of implications from recent literature on the subject of adult education methodologies, performance improvement strategies, and conditions for learning.

## Research Questions

There are four research questions this study wishes to address. They are:

1. Is learning preference impacted by level of education or skill level?
2. How critical is consideration of the learners' generational origin in developing teaching and delivery methods?
3. Does the method of delivery for required, mandatory training topics influence the learners' retention and comprehension level?
4. Does the fact that something is mandated downplay the way the material is presented?

## Definition of Terms

For clarity of understanding, the following terms are defined:

Andragogy – "the art and science of helping adults learn" (Knowles, 1984).

Bloodborne pathogens - infectious agents or microorganisms that are transmissible to humans via blood

Epidemiology - "science concerned with defining and explaining the interrelationships of factors that determine disease frequency and distribution" (Taber's Cyclopedic Medical Dictionary, p.488, 1982).

Learning – "a change in human disposition or capability that persists over a period of time and that cannot be solely accounted for by growth" (Kozier, Erb, & Olivieri, 1991, p.278).

Mandatory training – training that is regulated and enforced by state and federal agencies, sometimes considered a condition of employment, often deals with workplace safety issues

## Assumptions and Limitations of the Research

This researcher regarding the scope and limitations of the information available on this topic has made several assumptions. In general:

- Not everyone learns in the same manner. Learning preferences can hinder or heighten the reception of training by employees of all educational levels.
- Computer-delivered training, while cost effective, can be intimidating and frustrating for some learners. It is assumed that healthcare workers have access to and are proficient in the use of computers.
- Mandatory training topics are perceived as redundant and time consuming by the learners (Hequet, 2004). Retention of content is poor when the training is required and learners have no passion for the topic. Trainees learn quickly which hoops to jump through and how to play the system. They often put their time in, take the required test, get their certificate of completion and return to their jobs, satisfied that they have fulfilled their annual mandatory requirements. But behavior

changes intended as outcomes of the training session may not be directly what are reflected once the trainee is back on the job.

- Much of the literature available for review does not speak to delivery methods for training topics that are required or mandated by state or federal agencies.
- Making mandatory training more palatable often employs the use of games or stimulating exercises intended to increase participation by the learners (Stokamer & Soccio, 2000). It is assumed that the immediate task for the learner is to get through the training/gaming session and get back to work, not for them to have gained a clear understanding of the content and apply the concepts taught.

# CHAPTER TWO

# LITERATURE REVIEW

## Introduction

Training is an ongoing process in any organization. Continuous staff development is vital to maintaining current practices and keeping up with ever-changing technology and practices. Dr. W. Edwards Deming, best known for his philosophy of looking at working organizations as a whole and striving to achieve the very best for that whole, developed 14 points to describe what businesses must do to survive in a competitive marketplace (cited in Ninemeier, 1995). Two of his fourteen points relate specifically to training:

- Institute training at work
- Institute a vigorous program of education and self-improvement for everyone

Properly executed training programs can be a catalyst for job satisfaction, leadership development, and employee retention. Training and learning are central to the maintenance and continuous improvement of professional practice, regardless of the professional's level.

## Healthcare Training Mandates

Yet training is often one of the first functions to feel the blows of the budget-cutting axe. Training departments in a healthcare setting typically do not generate revenue, so it can be hard to justify their existence (Krell, 2001). Healthcare industries fall under the auspices of very stringent regulatory agencies requiring mandatory training, in some cases, annually. One example of

very explicit training mandates involves the 1991 Occupational Exposure to Bloodborne Pathogens Final Rule developed by OSHA (Occupational Safety and Health Administration).

Brachman, (2002), states "In it, OSHA cites specific requirements of employee training, including what topics the training must include, the frequency of training, who must be trained and the documentation requirements." There are no suggestions as to how to accomplish this training, however.

The document submits that employee's training programs must, at a minimum, contain specific content as to the safe use and limitations of preventive practices intended to reduce exposure to bloodborne pathogens, such as the safe use of engineering controls: devices that remove or isolate the bloodborne pathogen from the workplace.

Additionally, training programs must also provide information on the specific disease characteristics, symptoms, and routes of transmission of bloodborne pathogens, and what types of personal protective equipment (PPE) are available to the employee. Detailed explanations about the facility's signage or other prominent visual alerts of dangerous risks of exposure must be given. Brachman, (2002), states "Training must also include what to do if an exposure occurs, the processes for medical evaluation, testing and treatment if appropriate, and an explanation of the facility's exposure control plan."

The Centers for Disease Control's 1998 Guideline for Infection Control in Health Care Personnel recommends educating healthcare personnel about the risk for and prevention of bloodborne infections with information routinely

updated to ensure accuracy. The guideline also states that educational materials need to provide information "appropriate in content and vocabulary to the educational level, literacy, and language of the employee." (Bolyard,et al., 1998).

The latest in a string of mandatory training to hit healthcare agencies is the Health Insurance Portability and Accountability Act (HIPAA). This federal law was enacted in 1996 to primarily address issues of portability and continuity of health insurance coverage and fraud and abuse in health insurance and health care delivery (United States Department of Health and Human Services, 2003). In layman's terms, for healthcare workers this means that a patient's right to privacy and confidentiality is the ultimate priority. Any actions that intentionally or inadvertently disclose a patient's identity without their formal consent is a clear violation of HIPPA. This includes faxing personal medical information, leaving phone messages on answering machines, and in some cases, actions as simple as discussing a "case" in an elevator where others can hear (Ziel & Gentry, 2003). In 1999, healthcare and insurance organizations were informed that they must meet mandatory training standards for all employees of their organization by April 2003. Organizations scrambled to find a delivery method for this training that would accommodate the needs of varying levels of professionals and still be easy to understand.

As you can see, mandatory training in healthcare settings is inevitable. Time, staffing, and method of delivery are just a few of the challenges faced by anyone trying to accomplish a project that involves training. An even larger challenge when training healthcare workers is to provide stimulating, integrative

learning experiences that capture their attention and meet the changing needs of a very diverse population. This writer is employed by a very large healthcare system with over 6,000 employees. A recent review of training needs at Marshfield Clinic by Bruce E. Cunha, Employee Health and Safety Manager, (personal communication, March 2, 2003) revealed approximately 30 training topics, most with specific training requirements by regulatory agencies (Table 1). As the list is reviewed, it becomes clear that computer-based training is acceptable and perhaps even preferred as the delivery method for the majority of topics. Clearly, one can assume cost is a factor when considering how to best present the training content. The challenge is not only how to deliver the training, but how to ensure that the content is understandable, useful, and retainable. This list does not delineate the recipients' level of education or skill, but specifies the need to train based on job tasks performed. It is therefore possible to have varying levels of degreed and non-degreed participants in training sessions.

## Delivery Methods

There appear to be as many delivery methods for training programs, as there are letters in the alphabet. Vicky Zelenka, R.N., C.I.C., reviewed the following delivery methods commonly used in adult training (personal communication, July 22,2004) and listed perceived advantages and disadvantages:

- On the job training- this method allows for immediate interaction with the trainer, who is often a coworker. It is relatively inexpensive to develop, and there is usually a high transfer of knowledge. The content is relevant to the

trainee's job. On the downside, however, there is usually inconsistency among content due to the difficulty of monitoring or controlling what is taught. On the job training requires workers to be the teachers, and not all workers welcome this challenge.

- Videotapes and teleconferences – This method of delivery is great for large groups of people at multiple training sites. It eliminates or reduces travel time, and allows for the trainer to demonstrate skills or techniques. The content is somewhat controlled and consistent, and the cost to develop can be budget-friendly. There is, however, the chance of media failure or technical malfunction, and there is not always an opportunity for feedback.
- Manuals – Reading materials are easily accessed and can be taken to different locations to read. They allow for each individual's own pace, and can be referenced at a later time. This delivery method assumes the learner is able to read, and can comprehend the written material.
- Computer-based training – This method does not require travel time, so it is often preferred by employee's managers. It requires access to a computer and/or the Internet, if the course is web-based. There is often immediate feedback in terms of test scores, and record keeping is easily done. To develop computer-based courses can be quite costly, and maintenance of the program content to insure accuracy can be a problem if it is not a dedicated task. Since using computers might be intimidating

for some users, this method may cause more anxiety than the trainee wants.

- Traditional classroom – The tried and true classroom lecture is often a preferred method of delivery. It is a familiar method of teaching, but is not without disadvantages. While it is generally easy to design and revise content, there can be inconsistencies from what is taught class to class. Classroom instruction definitely allows for interaction and feedback, but can be difficult to schedule so it is convenient for all trainees. While everyone is exposed to the same message at the same time, if the group is comprised of people with several different learning styles, some people may become easily lost in a style they do not do well with.
- Small group discussions – This format can evolve out of an unplanned, informal gathering of colleagues. It provides ample opportunity for immediate feedback. Proper facilitation can insure that nobody is made to feel threatened or intimidated for sharing with the group. Obviously there needs to be a group of people, more than two, to effectively carry on meaningful discussion. When pre-planned, a skilled moderator should lead the discussion.
- Learning games – For many adults, the thought of playing games during working hours evokes guilt and hesitancy to participate. However, utilizing a popular game-show format, such as Jeopardy, can be informative and fun. Learning games provide an opportunity for discussion and feedback.

In order to be successful, people must be willing to participate. Proponents of this delivery method focus on putting fun back into learning.

## Learning Theories

When designing training programs and choosing delivery methods, it is helpful to have a basic understanding of how and why people learn. There are numerous theories pertaining to learning. Edward Thorndike introduced the concept of behaviorism, basically citing that knowledge transfer takes place if the new behavior, skill or situation being taught closely resembled an old behavior or situation. He proposed that teaching be based on the learner's behavior (cited in Kozier, Erb, & Olivieri, 1991). Humanistic theories of learning have us believe that it is natural for people to learn in an inviting, engaging, environment. According to Rogers, behavior is impelled by an inherent capacity for growth and a natural desire to learn and change (cited in Kozier, Erb & Olivieri, 1991). Malcolm Knowles distinguished the adult learner from the child learner and is credited with the term andragogy, the art and science of helping adults learn (Knowles, 1984). Andragogic concepts are taught in nursing courses and used as a guide for adult patient teaching. The principles can be transferred to any learning research with a focus on adults:

1. As people mature, they move from dependence to independence.
2. An adult's previous experiences can be used as a resource for learning.

3. An adult's readiness to learn is often related to a developmental task or social role.
4. An adult is more oriented to learn when the material is immediately useful, not useful sometime in the future (cited in Kozier, Erb, & Olivieri, 1991).

Merely attending a learning session does not guarantee that learning will take place. Teaching can occur without any learning taking place and learning can occur in the absence of teaching. Gagne (1985) explained that there must be an observable change in performance or behavior after a person has been placed in a learning situation for learning to have occurred. Gagne's work detailed what he believed teachers and instructors needed to do to make learning happen. This included several points now known as Gagne's Nine Events:

1. Gain the learner's attention, peak their interest and draw them in.
2. Describe or explain the goal of the instruction. How will this knowledge be useful to the learner?
3. Bring together old and new knowledge by simulating recall of prior knowledge.
4. Present the material to be learned, keep in mind that breaking it down into smaller components that are easily mastered is preferred by adults.
5. Offer guidance for learning by giving tips and tricks for the mastery of the desired performance.

6. Allow the learner to practice the newly acquired skills or apply the knowledge.
7. Provide informative feedback by analyzing the learner's behavior, (or let the learner do it.)
8. Assess the performance to see if the lesson has been learned.
9. Enhance retention and transfer of knowledge to the job. Learning is more meaningful if it can be readily applied to real situation.

Gagne's work identified that different kinds of learning goals needed different types of instruction (1985). A strong believer in the component-mastery idea; breaking each task into smaller, easier to master components, Gagne went on to identify five kinds of performance that required very unique types of instruction: motor skills, verbal information, intellectual skills, attitudes, and cognitive strategies. When teaching tasks that require the use of motor skills, observation and practice can lead to the desired result of mastery of the skill. Telling or writing information or drawing a diagram can demonstrate verbal information. The learner can then state the facts, concepts or principles of the information presented. Intellectual skills are comprised of concepts and rules. Associating an item with an item or name is a useful teaching strategy. For instance, charts or tables that depict conversions from pounds to ounces can be useful in teaching association which ultimately leads to the ability to convert pounds to ounces in one's head. Attitude is the most difficult domain to influence by training. Our choices of personal action are influenced largely by attitude. It is helpful to associate a positive model with the desired attitude. Cognitive strategies are

consciously applied techniques for recalling information. College students can often be found employing the use of mnemonics or memory aids to help aid in recall: "Please excuse my dear Aunt Sally" has proven to be useful in this writer's recall of the order of operations for basic mathematical formulas: parenthetical, exponent, multiplication, division, addition and subtraction. "ROY G. BIV' is a mnemonic for remembering the primary colors of the visible spectrum.

## Generational Differences

Just as classic works by well-known theorists hold the key to unlocking the mysteries of why we learn and how we learn best, a new field of study is emerging that looks at the generational differences between the current workforce that may ultimately have an impact on learning and teaching styles. Zemke, Raines, & Filipczak (2000) defined four distinct generations in the current work force: Veterans, Boomers, GenXers and Nexters. The life span of these four groups of people stretches over 80 years. Understanding their backgrounds may help us understand their learning preferences and expectations.

- Veterans – This group of people were born between 1922-1943. They are considered keepers of wisdom not found in textbooks. Those classified as Veterans prefer an environment that is risk-free and offers stability, such as a traditional classroom. When associating with Veterans it is helpful to acknowledge their past experience and background.
- Boomers – Born between 1943-1960, these people are responsible for the 60-hour workweek. They tend to prefer an interactive, non-authoritarian learning environment. Most Boomers are attracted to the team-working

concept and like to problem solve. Boomers learn best when trainers come across as equals. Interestingly, Boomers make up the largest market for self-help books.

- GenXers – This group of learners was born between 1961-1980, and grew up in the what we called the "latchkey era." Parents instilled in them the importance of a job for not only for survival, but also for the finer things in life. This group is used to change – they've lived it. Their philosophy is to work to live, not to live to work. GenXers prefer non-traditional learning settings. They like games and activities that make learning fun. GenXers prefer electronic media or training tools that offer answers as they work.
- Nexters – Born after 1980, this group values diversity and thinks the Internet is a common staple. Combine the attitudes and values of the Veterans, Boomers and GenXers, and you have the Nexters. Their preferred learning environment includes a combination of teamwork and technology. They are task oriented and prefer entertaining activities. Nexters like to read, so supporting important content with written materials is advantageous. Limiting lecture time is crucial to successful interactions with Nexters (Zemke, Raines, & Filipczak, (2000).

Clearly, one can see that the delivery methods for training topics can have an impact on how that training is received depending on the learner's generational origin. One thing that definitely separates Nexters from GenXers and Boomers is that they are the first generation for which technology is not a big deal. They have been immersed in so much technology that it is their norm. But it

would be a mistake to make final assumptions about any of the generations presented. Just because Nexters have grown up with the Internet doesn't mean that they will choose to do independent online classes. Each group can be viewed as having certain characteristics that define and separate them from other groups, but ultimate learning styles and preferences are influenced by many factors that should not be generalized in an effort to avoid defining a learner's needs.

The characteristics of an effective training program should include attention to diversity, course objectives, the subject's motivation to learn, evaluation of the effectiveness of the program, and then finally, the application of learning.

An ongoing process that is sometimes erroneously reserved just for the final phases of training programs is: evaluation. Evaluation helps to determine the value and effectiveness of a learning program. Validating the learning objectives can really only take place through evaluation. Kirkpatrick's four level evaluation model (Kirkpatrick, D. 1994) is probably the best known and most frequently utilized method for evaluating effectiveness of training programs.

- Level One – Reaction. Participants may demonstrate their reaction to the way they received the information by completing smile sheets at the end of the presentation. This level does not indicate whether learning transfer has occurred. It may only be indicative of the learning environment, not the actual level of learning that has taken place. Overall customer satisfaction is really being measured in this level.

- Level Two – Learning. This level measures a participant's improved knowledge, or increased skill. It can best be defined, as comparing what was known prior to the training program and what the participant knows following training. Behavior change back on the job is the best indicator that learning transfer has occurred.
- Level Three – Behavior. The level of behavior is defined as the extent to which behavior has changed as a result of completing a training session. Since the primary purpose of training is to change behavior, it is imperative that behavior changes be measured, regardless of the type of method used to deliver training.
- Level Four – Results. This level of evaluation goes beyond the learners who may have participated and focuses on the organization. What happens to the organization as a result of the application of learned skills is often not measured as it is time consuming and costly. The true return on investment can be found in this level of evaluation.

Positive attitudes toward the training directly impact learning and behavior levels, regardless of the learner's degree of education or skill level. Going into the training with a desire to learn something new or enhance current knowledge will serve as a catalyst for learning transfer. Perotta (2004), states, "Nothing is worse than trying to train a group of staff members that does not want to be there. When training is thrust on employees…they view it as one more task that cuts into their time spent with patients".

# CHAPTER THREE

## SUMMARY, CRITICAL ANALYSIS AND RECOMMENDATIONS

Many factors influence a person's learning style and preference for learning. For the most part, adult learning has to have meaning and immediate applicability in order for it to be perceived as useful. Adult learners view learning as necessary to acquire new skills or solve problems. A change in the learner's behavior must take place for learning to occur. Motivation, values, attitudes, and prior knowledge can impact the changes in behavior that indicate learning has taken place. There do not appear to be any conclusive findings that indicate learning preference is impacted solely by level of education or skill level. It may be advantageous to those designing mandatory training programs to pay attention to offering more hands-on opportunities when the goal of the training is to improve or introduce new skills in the practice setting. The literature does support practicing new methodologies immediately in the workplace to promote behavior changes. As for programs designed to inform staff of updated material or changes in regulations, direct impact and applicability of the new information will determine whether the learner chooses to retain the information.

Generational differences in the population of learners studied indicate specific trends in preferences for learning styles. It appears the older the learner; the more traditional methods of teaching are preferred. Lecture and reading reinforce the content being taught. The younger students, those born in the society of technology, do not do well with lecture. Their focus is on interactivity and non-traditional learning styles. Reading does play an important role in this

group's learning process. The youngest of the populations studied have been in school since age four, and according to J. Pingel, "they have grown up with television instructional media like "The Learning Channel" (personal communication, April 2, 2004).

The trend seen in this writer's healthcare organization is to design programs for computer-based delivery. This method makes use of the large established information systems infrastructure. For members of the younger generations, computer-based delivery is comfortable and they navigate through programs easily. While members of the older generations may not be as adept in computer skills, they are likely to see the value in training that is available when it best suits their timeframe, thus eliminating the need to sit in a conference room while patient care suffers.

Learning needs can be mandated as a condition of employment, as is the case in healthcare settings. Federal and state regulatory agencies dictate specific training needs and the frequencies of delivery of those needs. Training large numbers of staff with varying levels of education and professionalism can be challenging, especially when the topics are required. The search for a common delivery method for these topics is ongoing, and so far appears to have limited success. While agencies such as OSHA dictate which topics are to be taught, they do not offer suggestions for how to deliver the content. The goal of trainers is to deliver subject matter that is easily comprehended and useful in the trainee's immediate workplace environment.

There does not appear to be a decisive method or recommendation for delivering training topics that are mandated by regulatory agencies. Analyses of the literature reviewed for this study proposes the reader consider carefully the numerous types of delivery methods available: computer-based training modules, self-directed learning packets, interactive television, videotaped presentations, and traditional lecture, to name a few. Linking the training topic to a specific type of delivery method will require detailed assessment of the intended audience. It may be advantageous to identify groups with similar learning styles, and then design training programs that correspond to their style. While it is true that many learners don't know what their learning style is, the trainer is often left to hope that most of their students have some flexibility and are capable of adapting easily to a learning environment that includes a delivery method that may not be their preferred method. Struggling to find the perfect delivery method for mandatory training topics does nothing to address the fact that one of the biggest barriers remains, lack of interest on the learner's part. There is no perfect one size fits all delivery method that will consider the varying educational levels of healthcare professionals. In this writer's opinion, it is more advantageous for the learner to meet the learning objectives for mandatory training topics, than it is to facilitate enhanced technology in an effort to entertain the audience. Successful training, regardless of the trainee's level of education or skill, will be measured by a positive outcome of transfer of training to the job.

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**Table 1**

## Training Needs for Marshfield Clinic system

18-Aug-03

Bruce E. Cunha

| Training needed | Frequency | Who | CBT Ok? | Regulation or guideline? | Specific Training Requirements |
|---|---|---|---|---|---|
| Accident Prevention Signs and Tags | Upon hire or assignment | All | Yes | **R (OSHA)** | **Y** |
| Bloodborne Pathogens | Within 10 days of assignment and **Annually** | Employees with potential exposure. ( Approx 4,000 + -) | Yes if employee able to get immediate answer to questions. | **R (OSHA)** | **Y** |
| Compressed Gas | Not Specified | Employees who handle compressed gas (up to 4,000+ -) | Yes | **G** | **Y** |
| Confined Spaces | Upon assignment & if changes in program | Employees entering confined spaces (Less than 50 - primarily building services) | Yes | **R (OSHA)** | **Y** |
| Control of Hazardous Energy (Lockout/Tagout) | Upon assignment & if changes in program | Employees working on machinery or sources of energy and employees working in the area where Lockout/tagout is used (less than 100 primarily building services | Yes | **R (OSHA)** | **Y** |
| Employee Emergency Action and Fire Prevention Plans | At hire required. Annually recommended | All | Yes | **R (OSHA)** | **Y** |
| Ergonomics | Not Specified | All | Yes | **G** | **N** |
| Fire Extinguishers | At hire and annually | All | Yes | **R (OSHA)** | **Y** |
| Hazard Communication | Upon assignment and when a new hazard is introduced | Potentially exposed employees (4,000+ -) | Yes | **R** | **Y** |
| Hazardous Drugs | Upon assignment and annually | Employees who handle hazardous drugs (250+) | Could use CBT for education but need competency training | **G** | **Y** |
| Hazardous Materials Handling and Shipping | Within 90 days of hire and every 2 years | Employees that pack, unpack, ship or arrange for shipping of hazardous materials | Yes | **R (DOT)** | **Y** |

| | | | | | |
|---|---|---|---|---|---|
| Hazwoper | Initial training before permitted to take part in emergency operations; annual refresher training or demonstration of competency | Individuals who respond to actual or potential hazardous release for purpose of protecting nearby persons, property, or environment. (50) | No | **R (OSHA)** | **Y** |
| Infection Control | Upon assignment | Employees exposed to infectious agents/patients (4,000+ -) | Yes | **G** | **Y** |
| Instrument Cleaning and Sterilization | Upon Assignment | Individuals responsible for cleaning and sterilizing instruments (<50) | Yes but requires competency testing | **G** | **Y** |
| Ionizing Radiation | Prior to potential exposure | Employees working in or frequenting a radiation area (200+ -) | Yes | **R (OSHA)** | **Y** |
| Lasers | Not Specified | Qualified and authorized laser operators and employees with potential laser exposure | Yes | **R (OSHA)** | **Y** |
| Lead | Prior to exposure | All employees with potential exposure to lead (<100) | Yes | **R (OSHA)** | **Y** |
| Liquefied Petroleum Gasses - Storage and handling | Not Specified | Employees involved in handling LPG (10) | Yes | **R (OSHA)** | **Y** |
| Medical Services and First Aid | Not Specified | One or more employees per facility | No | **R (OSHA)** | **Y** |
| Medical Waste | Upon assignment and **Annually** | Employees who handle medical waste (3,000 + -) | Yes (May be included under Bloodborne pathogens) | **R (EPA)** | **Y** |
| Occupational Exposure to Hazardous Chemicals in Laboratories | Upon assignment, new exposures and as determined by employer | Potentially exposed laboratory (including research, vet and food safety 500 + -) | Yes | **R (OSHA)** | **Y** |
| Personal Protective Equipment | Prior to performing work that requires PPE. | Employees required to use PPE (3,000+) | No | **R (OSHA)** | **Y** |
| Respiratory Protection | Prior to using respirator and **Annually** (not required annually for TB) | Employees required to use a respirator (including for TB and SARS) (could be as few at 500 or up to 4,000 + -) | No | **R (OSHA)** | **Y** |

| | | | | | |
|---|---|---|---|---|---|
| Scope Cleaning | Upon assignment | Employees who clean and disinfect scopes (<75) | Yes, but also requires competency testing | **G** | **Y** |
| Sharps Safety Devices | Prior to use and whenever a new device is introduced | Employees using safety sharps systems (4,000 + -) | No requires hands on training | **R (OSHA)** | **N** |
| Tuberculosis | Before initial assignment and **Annually** | All health care workers, including physicians (4,000+ -) | Yes | **G** | **Y** |
| Ultraviolet Radiation | Not Specified | Potentially exposed employees (25 - 50) | Yes | **G** | **N** |
| Waste Anesthetic Gas | Not Specified | Potentially exposed employees (2-4 hundred) | Y | **G** | **Y** |
| Workplace Violence | Upon hire and annually recommended | All | Y | **G** | **Y** |
| | | | | | |
| **Potentially needed training (depending on exposure)** | | | | | |
| | | | | | |
| Asbestos | Upon assignment and **Annually** | Employees exposed to levels above limits or employees expected to do remodeling and must be able to recognize asbestos (building services, construction and housekeeping) | Y | **R (OSHA)** | **Y** |
| Cadmium | Upon assignment and **Annually** | Employees exposed to levels of cadmium above limits (< 25) | Y | **R (OSHA)** | **Y** |
| Formaldehyde | Upon assignment and **Annually** | Employees exposed to more that 0.75 PPM over 8 hours or 2 PPM over 15 min. Training level is 0.5 PPM (< 200) | Y | **R (OSHA)** | **Y** |
| Hearing Conservation | **Annually** | Employees exposed to over 85db of noise over 8 hours (< 100) | Y | **R (OSHA)** | **Y** |
| Xylene | Upon assignment and **Annually** | Employees exposed to >100 PPM over 8 hours or 150 PPM in 15 minutes (< 200) | Y | **R (OSHA)** | **Y** |

Prepared for internal department needs at Marshfield Clinic by Bruce E. Cunha, R.N., B.S.N., M.S., C.O.H.N. on August 18, 2003.