

Pharmacy Tech Topics™

VOLUME 20 NO. 2 | APRIL 2015

Continuing Professional Development for Pharmacy Technicians: Learning Today for a Stronger Tomorrow

AUTHOR: Margaret R. DiMarco Allen, PhD
PEER REVIEWERS: Michael J. A. Rouse, B.Pharm (Hons), MPS
Ann K. Oberg, BS, CPhT
EDITOR: Patricia M. Wegner, BS Pharm, PharmD, FASHP
DESIGN EDITOR: Amanda E. Wolff, BFA

Pharmacy Tech Topics™ (USPS No. 014-766) is published quarterly for \$50 per year by the Illinois Council of Health-System Pharmacists, 4055 N. Perryville Road, Loves Park, IL 61111-8653. Phone 815-227-9292. Periodicals Postage Paid at Rockford, IL and additional mailing offices.

POSTMASTER: Send address changes to:
Pharmacy Tech Topics™, c/o ICHP, 4055 N. Perryville Road, Loves Park, IL 61111-8653

COPYRIGHT © 2015 by the Illinois Council of Health-System Pharmacists unless otherwise noted. All rights reserved. Pharmacy Tech Topics™ is a trademark of the Illinois Council of Health-System Pharmacists. This module is accredited for 2.5 contact hours of continuing pharmacy education and is recognized by the Pharmacy Technician Certification Board (PTCB).

LEARNING OBJECTIVES

Upon completion of this module, the subscriber will be able to:

1. Describe the Continuing Professional Development (CPD) concept, its history and global examples of use in the health professions.
2. Identify three adult learning theories used in the creation of Continuing Pharmacy Education (CPE) activities for pharmacy technicians.
3. Define the purpose of the Accreditation Council of Pharmacy Education (ACPE) and its relationship to technician continuing education and CPE Monitor.
4. Identify the components of ACPE's recommended format for CPD learning and how to use them in developing a personalized professional development learning plan.
5. Recognize the impact of CPD on the values, roles and responsibilities in the professional life of the pharmacy technician and in the improved quality of care for the patient.



ACCREDITATION

Pharmacy Tech Topics™ modules are accredited for Continuing Pharmacy Education (CPE) by the Illinois Council of Health-System Pharmacists. The Illinois Council of Health-System Pharmacists is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. The intended audience is pharmacy technicians.

This module will provide 2.5 contact hours of continuing pharmacy education credit for pharmacy technicians.
ACPE Universal Activity Number: 0121-0000-15-002-H04-T | Type of Activity: Knowledge-based
Release Date: 04/01/15 | Expiration Date: 04/30/17

MEET THE AUTHOR



Margaret R. DiMarco Allen, PhD

Margaret R. DiMarco Allen, PhD, is the Director of Operations and the Continuing Education Administrator for the Illinois Council of Health-System Pharmacists (ICHP), a member based association that is an ACPE accredited provider of both state and national continuing pharmacy education programs for pharmacists and pharmacy technicians. Dr. Allen completed her PhD in the philosophy of Transformative Learning and Change, and has been interested in and involved in education on multiple levels throughout her professional career. Dr. Allen has been with ICHP since 2007 and enjoys CPE administration and assisting with the CPE planning for the ICHP conferences and regional programs. Since January 2013, Dr. Allen has served as co-chair of the Health Care Education Organizations Member Section for the Alliance for Continuing Education in the Healthcare Professions. Dr. Allen also serves on the Leadership Team for the grass roots community wide volunteer organization, Transform Rockford, which is working toward community transformation and revitalization.

Acknowledgements: A special thank you to Kelly Delehanty, PharmD Candidate, UIC-College of Pharmacy-Rockford, for technician survey analysis while working at ICHP as an intern in July 2014, and for internet research assistance on medication errors.

FACULTY DISCLOSURE. It is the policy of the Illinois Council of Health-System Pharmacists (ICHP) to ensure balance and objectivity in all its individually or jointly presented continuing pharmacy education programs. All faculty participating in any ICHP continuing pharmacy education programs are expected to disclose any real or apparent conflict(s) of interest that may have any bearing on the subject matter of the continuing pharmacy education program. Disclosure pertains to relationships with any pharmaceutical companies, biomedical device manufacturers, or other corporations whose products or services are related to the subject matter of the topic.

The intent of disclosure is not to prevent the use of faculty with a potential conflict of interest from authoring a publication but to let the readers know about the relationship prior to participation in the continuing pharmacy education activity. It is intended to identify financial interests and affiliations so that, with full disclosure of the facts, the readers may form their own judgments about the content of the learning activity.

The author's submission has been peer reviewed with consideration and knowledge of these potential conflicts and it has been found to be balanced and objective. The author has no real or apparent conflict(s) of interest that may have any bearing on the subject matter of this continuing pharmacy education program.

NOTICE: *Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.* The author and the publisher of this work have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication. However, in view of the possibility of human error or changes in medical sciences, neither the authors nor the publisher nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from use of such information.

Readers are encouraged to confirm the information contained herein with other sources. For example and in particular, readers are advised to check the product information sheet included in the package of each drug they plan to administer to be certain that the information contained in this module is accurate and that changes have not been made in the recommended dose or in the contraindications for administration. This recommendation is of particular importance in connection with new or infrequently used drugs. Always refer to changes in federal law and any applicable state laws.

Continuing Professional Development for Pharmacy Technicians: Learning Today for a Stronger Tomorrow

INTRODUCTION

What is Continuing Professional Development?

*Tell me and I'll forget; show me and I may remember;
involve me and I'll understand.¹*
- Chinese proverb

Continuing Professional Development is a term that identifies ongoing adult learning, or continuing education, within a profession to maintain up-to-date skills and relevance in that profession. In the United States, continuing professional development (CPD) in pharmacy is both a general term for continuing education (CE) and also a specific structured process of self-directed, ongoing adult learning, to support continuing pharmacy education (CPE) as defined by the Accreditation Council for Pharmacy Education (ACPE). ACPE accredits all colleges of pharmacy and all providers of accredited continuing pharmacy education in the United States. Accreditation is a process of evaluating and reviewing education programs and providers to ensure established professional standards are maintained in providing education content that is of high quality, current, and relevant.² CPD includes analyzing the professional needs of the individual pharmacist and pharmacy technician working in any pharmacy setting, and then developing a plan for improvement and advancement that strengthens both an individual's professional skills and personal growth, and as a consequence improves the quality of patient care.^{3,4,5}

The Pharmacy Technician is a Professional

The pharmacy technician position originated in the military in the 1940's, with initial training programs developed in the 1950's. By 1969, the pharmacy technician position had defined tasks, responsibilities, and full education and training programs – which began in hospitals but then moved into community pharmacies.⁶ National certification began in the mid-1990's and today the pharmacy technician is one of seven health practitioner support occupations recognized by the Department of Labor.⁷ A pharmacy technician's

responsibilities are important to ensure patient safety and may include: calculations, data entry of patient and prescription information, inventory management, reading / filling / labeling prescription orders, compounding, insurance assistance, etc.

In 2002, the need for national standards in pharmacy technician training and continuing education was presented in an influential article that continues to inspire ongoing improvements for the profession.⁶ The American Society of Health-System Pharmacists (ASHP) had been accrediting pharmacy technician education and training programs since 1982, but beginning in the fall of 2014, an ASHP and ACPE collaboration was created, the Pharmacy Technician Accreditation Commission (PTAC), for the purpose of reviewing pharmacy technician education and training programs and making accreditation recommendations to ASHP and ACPE.⁸ Pharmacy technician CPE is available nationally, but requirements for ongoing CPE vary by state.⁹ These education, training and CPE programs confirm competency and employment value for pharmacy technicians, so the push continues to mandate national standards for education / training / recertification requirements due to increasing demands from the changing healthcare environment.⁸

Why Do I Need CPE / CPD?

Physician and bioethicist, Edmund Pellegrino, defined continuing education as a method for guaranteeing competence on the part of healthcare workers; but even more, he described it as a moral responsibility.¹⁰ As a member of the healthcare team, a pharmacy technician has a responsibility to learn everything necessary, and more, to do the best job possible for the patient. At the same time, all learning will help the pharmacy technician develop professionally and so maintain job security by providing quality support to the healthcare team and work site.

Currently, accredited technician education and training programs and accredited CPE provide quality education by ensuring that the profession's standards for program quality, evaluation, improvement initiatives and accountability are met by education providers. CPE ensures the

healthcare team members are all up to date on the latest trends, treatment strategies, drug information, and technological innovations.^{3,9,11} CPD is a process and tool to help healthcare professionals achieve quality lifelong learning through both traditional accredited CPE and new and innovative learning activities – all of which strengthen the quality of patient care. The bottom line is that **ALL** CPE and CPD will ultimately benefit the patient as well as the pharmacy technician. When a pharmacy technician is fully aware of strengths and weaknesses and pursues the learning needed, when skills are kept up to date and roles and responsibilities are clearly understood, and when well-rounded personal growth is pursued, then the CPE / CPD process is really a three-fold win – the pharmacy technician wins, the profession wins, and most importantly, the patient wins!

PHARMACY TECHNICIAN SURVEY AND NEED

This module incorporates results from a focused pharmacy technician survey on CPD and CPE, conducted by the author in May of 2014. **Please refer to Appendix A, page 26.** The survey was emailed to all current and former Pharmacy Tech Topics™ (PTT) subscribers as well as current pharmacy technician members of the Illinois Council of Health-System Pharmacists (ICHSP), the publisher of PTT education modules, and reflects a 15% response rate.

The CPD survey points out two important facts. The composite sampling contains a majority percentage (98%) of certified pharmacy technicians. This implies that PTT readers who are certified technicians are also interested in providing feedback, and are therefore engaged and responsive to their profession. But of these engaged techni-

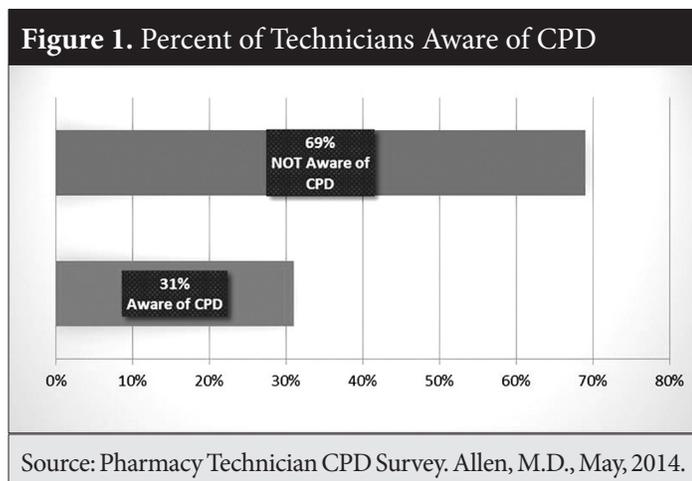
cians who participated in the survey, 69% said they did not know anything about CPD. See **Figure 1.**

This represents a major gap between the current state of technician awareness and use of CPD, as promoted by ACPE, the national pharmacy education accrediting body, and the best practice expectation and goal of many of the professional pharmacy organizations. This expectation is that all pharmacy professionals will be fully engaged in their ongoing continuing pharmacy education for the good of quality patient care. The goal of this module is to close this gap in understanding - to provide some background on the history and value of CPE and CPD, to provide guidance on how to use CPD to advance the pharmacy technician's career and to ultimately improve patient care.

Structure of Module

This module is laid out in five parts. Part one reviews the reasons why CPD and CPE are important and valuable for the pharmacy technician. Part two explores the concept and history of CPD as it evolved globally from the limitations of traditional pharmacy CE. Part three briefly reviews some of the adult learning theories which provide a foundation for all CPE and CPD. Part four outlines the components of the ACPE framework for CPD in the United States. Part five presents a list of organizations that partner with ACPE and / or influence and impact the work and ongoing professional development of pharmacy technicians.

Additional information is provided in the appendices at the end of this module. A glossary of terms is included as **Appendix B, page 27**, to assist the reader. A brief list of website resources on CPD may be found in **Appendix C, page 28**, and more detailed resources will be found in the references. Additional appendices will be introduced specific to the relevant discussions throughout the module.



PART ONE THE VALUE OF CONTINUING PROFESSIONAL DEVELOPMENT

A self-directed, ongoing, systematic and outcomes-focused approach to lifelong learning that is applied into practice. It involves the process of active participation in formal and informal learning activities that assist in developing and maintaining competence, enhancing professional practice, and supporting achievement of career goals.
- The ACPE definition of CPD²

CPD provides a process for meeting the growing expectations, demands and responsibilities being placed on pharmacy technicians by the pharmacy profession. More importantly, CPD provides three major opportunities for pharmacy technicians. First, CPD is a way for pharmacy technicians to be actively involved in developing their skills and knowledge, which makes them more valuable to their patients as a result of improved high quality patient care. Second, CPD creates a positive path of professional growth and promotion, which makes pharmacy technicians more valuable to their employers, and helps raise the level of remuneration for this sometimes under-valued member of the healthcare team. Third, in giving the pharmacy technician the chance to be actively engaged in professional learning and improved patient care, CPD strengthens the pharmacy technician's self-awareness, self-confidence and self-esteem.

Priority 1: Patient Safety

Pharmacy technicians in every pharmacy practice site (hospitals, long-term care, independent and national drug stores / chains, and other healthcare centers, etc.) have a vital role to play in ensuring the safety of every patient receiving pharmacy services. Patient safety must be a top priority for a pharmacy technician's CPD. Adverse drug events are responsible on average for 700,000 emergency room visits and 120,000 hospitalizations annually in the United States, and in a report published in the *Annual Review of Medicine* (2012), it was estimated that 98,000 deaths per year are due to medication errors.^{12,13,14}

Reflection Exercise 1

Case Study – Part 1 – The medication error.¹⁶

A medication error tragedy

On February 24, 2006, two year old Emily Jerry began her final chemotherapy session. Her MRI showed the tumor was gone and this final treatment was to just make sure all traces of cancer were gone. After receiving her final treatment, Emily started screaming in pain, vomiting, fell into a coma and died soon after. Emily died due to an overdose of sodium chloride in her IV chemotherapy bag. An experienced pharmacy technician compounded a bag with **23.4% concentrated sodium chloride** for the little girl, instead of using a prepared bag with **the correct amount – less than 1%** of the concentrated sodium chloride.

We will look at what happened in greater detail later.

A chain of events contributes to any major medication error tragedy, including faulty system procedures, exhausted personnel, miscommunication, and a lack of proper education and training.¹⁵ Sometimes the tragedy of medication errors makes national news and inspires movements, such as in the deaths of Emily Jerry and Josie King due to medication errors.^{16,17} Whatever the series of events leading up to the medication errors, the pharmacist on duty has oversight responsibility. But the reality is that every pharmacy technician has a part to play and a responsibility in ensuring patient safety. Actively pursuing CPD and CPE opportunities will strengthen each pharmacy technician link in the chain of safe patient care.

Priority 2: Job Security and Growth

The healthcare professions are experiencing both challenges and rapid growth so there is a growing call for qualified healthcare support personnel. Healthcare issues include: access expanding due to the Affordable Care Act; baby boomers entering retirement age in large numbers; technology advancing so fast it is hard to keep up with the changes; and healthcare providers being asked to be more efficient (reduce costs) and effective (improve health outcomes) at the same time.¹⁸ In addition, practices such as tech-check-tech, the growing movement for national certification requirements, expectations for a quality work force, and increased pharmacist involve-

ment in direct patient care are also putting demands on the pharmacy technician's roles and responsibilities in support of the pharmacist and the healthcare team. These expectations and practice changes are being placed on all pharmacy professionals, increasing the demand and need for well-trained pharmacy technicians in every setting.

In today's workforce, the strongest growth is occurring in the healthcare support occupations that do not require a baccalaureate degree.¹⁸ According to the Department of Labor's standard occupational classification support personnel in the healthcare professions cover seven occupations: dietetic technicians, pharmacy technicians, psychiatric technicians, respiratory therapy technicians, surgical technologists, veterinary technologists and technicians, and ophthalmic medical technicians. Of these occupations, the Department of Labor estimated that pharmacy technician job growth will expand 20% by 2022, using 2012 employment data (the most current data available on the government website at the time of publication) (Figure 2).⁷

This 20% growth is second only to health technologists and health technicians, and better than the 11% growth expected in other professions (Figure 2).⁷ The reality is that pre-college healthcare workers are increasing in all the practice types, as a means of filling in the gaps and needs in the healthcare professions. Table 1 shows the

estimated growth in numbers – from 355,300 pharmacy technicians to 426,100 by 2022.

The government's employment statistics are based on the pharmacy technician work sites in Table 2.

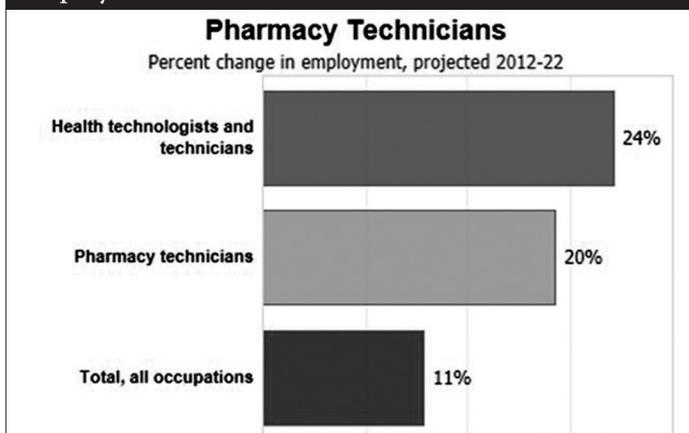
In comparison, Figure 3 shows the work sites for those pharmacy technicians who responded to the CPD survey (Appendix A). Please note however, that those who responded to the CPD survey, as PTT subscribers, may not be representative of the typical breakout as noted in Table 2.

The anticipated increase in healthcare support staffing needs means that responsibilities are increasing as well as the need for more well educated and trained personnel.

Priority 3: Personal Growth and Self-respect

Fifty-four percent of the CPD survey respondents have been pharmacy technicians for seven or more years. In comparison 15% have worked three to six years, and 14% have worked under two years (Appendix A). Regardless of one's time spent in practice, CPD is shown to have value for everyone. CPD provides an opportunity to recharge one's professional batteries by helping one see continuing education in a new and improved way; and for new practitioners, CPD will help them strengthen and expand their current skills. Plus when pharmacy technicians seek

Figure 2. Projected Growth in Pharmacy Technician Employment



Note: All Occupations includes all occupations in the U.S. Economy.
Source: U.S. Bureau of Labor Statistics, Employment Projections program

Source: <http://www.bls.gov/ooh/healthcare/pharmacy-technicians.htm#tab-6>: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2014-15 Edition, Pharmacy Technicians. Accessed July 29, 2014.

Table 1. Quick Facts from the US Bureau of Labor Statistics per the 2012 data.⁷

2012 Median Pay	\$29,320 per year \$14.10 per hour
Entry-Level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
On-the-job Training	Moderate-term on-the-job-training
Number of Jobs, 2012	355,300
Job Outlook, 2012-2022	20% (Faster than the average growth rate of 11% for all professions)
Projected Employment, 2022	426,100
Employment Change, 2012-2022	70,700

Table 2. Pharmacy Technician work site breakout by the US Bureau of Labor as of 2012.⁷

Work Environment	Technicians
Pharmacies and drug stores	53%
Hospitals, state, local, and private	17%
General merchandise stores	12%
Grocery stores	7%
Ambulatory health care services	3%

to move into more advanced roles such as purchasing agent, technician manager, immunization assistant, medication therapy management assistant, community outreach coordinator, hazardous waste compliance overseer, etc., they will need additional education and training to ensure their competencies for new responsibilities.

The use of CPD has been proven to add energy and engagement to the education process, because when people have thought about their needs, both in relation to job responsibilities and personal goals - they are more inclined to participate fully in the education process, retain more of the information learned and apply it more fully in the practice setting. In summary, pharmacy technicians will impact both their professional and personal growth as they learn about, engage in and embrace the opportunity provided by the CPD tool to choose high-quality CPE in order to maintain and increase their skills to provide the best patient care possible, enhance their value to their employers, and elevate their self-respect and value as important contributors to the healthcare team.

PART TWO THE HISTORY AND EVOLUTION OF CONTINUING PROFESSIONAL DEVELOPMENT

Continuing education for the profession of pharmacy is a structured educational activity designed or intended to support the continuing development of pharmacists and/or pharmacy technicians to maintain and enhance their competence. Continuing pharmacy education (CPE) should promote problem-solving and critical thinking and be applicable to the practice of pharmacy.²

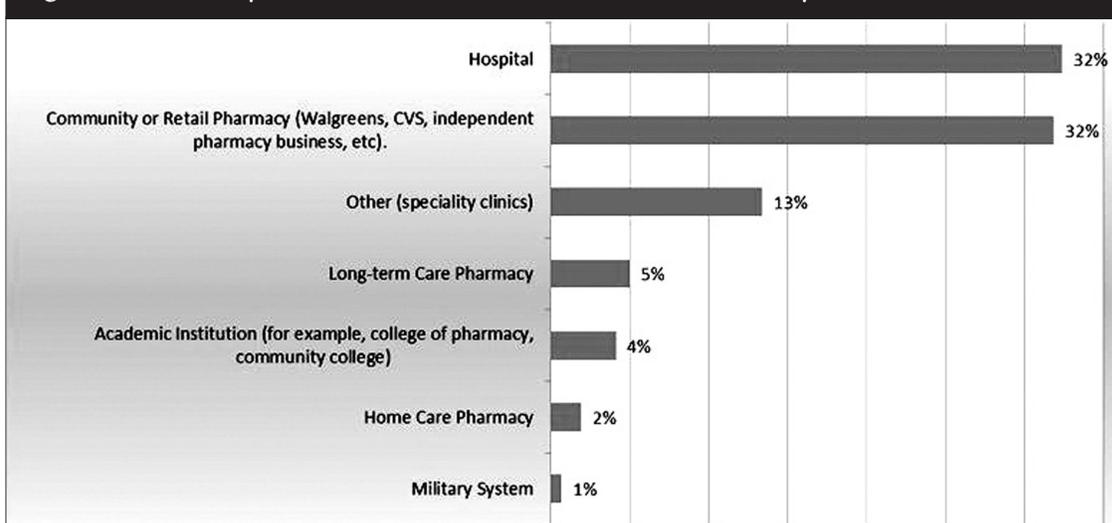
- The ACPE definition of CPE

What is the best form of CPE delivery to achieve the goals of quality education and help pharmacy professionals “maintain and enhance” their skills, value and contributions to the healthcare team? This is actually a global healthcare question and CPD emerged as an answer.

Origins of Continuing Professional Development

The CPD concept emerged out of an experiential learning model that incorporated changing one’s actions as a result of reflecting about new experiences.³ Australia, New Zealand, Great Britain and Canada adopted a form of CPD in the 1990s, in response to a growing awareness of decreased quality care and learner engagement in healthcare.^{3,19} Just like most other professions, healthcare

Figure 3. Pharmacy Technician Work Sites Based on CPD Survey



Source: Pharmacy Technician CPD Survey. Allen, M.D., May, 2014.

providers need some form of continuous learning to remain relevant and useful to their patients. **Table 3** provides an example of other professions currently requiring CE.

Traditional healthcare CPE is focused on staying up-to-date with information on specific disease states and treatment strategies, regulatory issues, and general pharmacy operations and management issues, based on the ever-changing nature of healthcare knowledge and resources. CPD adds a more focused and self-directed method of choosing CPE on the part of the pharmacy professional, so the CPE is more relevant to the learner's individual gaps in knowledge.³

CPD serves to counter the fact that CPE was often random – based on the cost, timing and ease of access.³ For example, pharmacists and pharmacy technicians would attend a CPE program for the credit and convenience, instead of to enhance their skills and strengthen their weaknesses. Other countries embraced healthcare CPD well ahead of the United States as a way of addressing this limitation.¹⁹

Canada's Example

CPD was first introduced in Canada (and Australia) in 1994 through the Royal Australasian College of Physicians and the Royal College of Physicians and Surgeons

of Canada. These two groups began to actively move away from continuing medical education (CME).¹⁹ Today, Canada has a very in-depth CPD program, both for pharmacists and pharmacy technicians as well as other healthcare professionals. Everyone is required to complete the CPD forms and self-assessment. Healthcare professionals document their CPD over the course of a five-year period. A portion of pharmacists and pharmacy technicians are randomly selected every year for CPD review so everyone must retain annual records.¹⁹ The CPD program is structured in three parts: the Learning Portfolio which every practitioner is required to maintain; the Self-Assessment which everyone is required to do once in every five year cycle (random selection); and the Peer Review – 5% are selected annually for peer review.²¹

Canada is also conducting CPD studies on pharmacy technicians that are focused on providing regular structured education for technicians as well as creating a CPD program that is operated by technicians for technicians. One study was started in 2005 at the Winnipeg Regional Health Authority, an acute, long-term and community health services facility, based on the limitations in pharmacy technician performance. The conclusion of this particular study was that it is essential to develop active CPD education programs for pharmacy technicians and to encourage responsibility on the part of pharmacy tech-

Table 3. List of Some Professions Around the World Using CPD^{19,20}

Category	Professional	Region
Air Travel	Passenger and Cargo Pilots	Worldwide
Education	Teachers	United States, Worldwide
Engineering	European Federation of National Engineering Associations	Europe, United Kingdom
Finance	Accountants, Tax Specialists, Investment certified, Financial Management Academy Members	Worldwide (United States, Great Britain, Africa, etc.)
Healthcare	Physicians, Nurses, Midwives, Dentists, Pharmacists, Pharmacy Technicians, Ophthalmologists, etc.	United States, United Kingdom, Italy, Belgium, The Netherlands, Canada, Australia, New Zealand
Information Technology	Software developers, business systems analysts, network administrators, security administrators, etc.	US Military, United States
Legal	Lawyers, Advocates, Tax, Legal Practitioners, Solicitors, Barristers	Scotland, England, Wales, Australia, India, Canada, United States
Safety	Safety Officers, Risk Managers, etc.	Europe
Surveyors	Chartered Surveyors	United Kingdom

nicians, by establishing a structure in which technicians are both the learners and the presenters.²²

Australia's Example

The Australian College of Pharmacy website has a variety of CPD options for practitioners as a way of maintaining and improving the quality of the pharmacy profession in Australia.²³ The Australian CPD program includes competency standards and assessment tools for pharmacy professionals. In addition, Australian CPD has three classifications (groups) based on the realization that practitioners may be in isolated geographic locations / situations in which standard accredited education may not be easily available.

Group 1 activities include reading, listening and absorbing; Group 2 adds a learning assessment component such as multiple choice questions and the answers are recorded; Group 3 focuses on learning and doing something to aid practice change, such as making a presentation, training staff, writing / publishing a journal article, or even engaging in a group discussion during which some kind of practice plan is created.²⁴

Great Britain's Example

The General Pharmaceutical Council (GPhC) regulates all pharmacists, pharmacy technicians and registered pharmacies in England, Scotland and Wales. In 2001, the National Health Service of Great Britain required physicians to be reviewed annually due to poor performance in pediatric cardiac surgeries. The shift to CPD learning and documentation followed in 2002 and now applies to all healthcare professionals in the United Kingdom. The CPD review period is also five years, and documentation must be shown for all five years when called for review.¹⁹ Various relevant learning activities that allow for different learning styles are included as CPD, following Australia's example. Reflection, planning, action (learning) and evaluation are the four main components, but one's learning activities may begin at any point during the cycle depending on the situation and the needs of the learner.²⁵

Great Britain offers a website for storing all CPD documentation (www.uptodate.org.uk), and the learner documents the reflect, plan, act and evaluate portions of his / her learning plan.²⁵ This national database is similar to the United States' new CPE Monitor website (discussed below) for recording all ACPE-accredited learning activities.

In the United States

Formalized CE began as a response to the 1967 National Advisory Committee on Health Manpower's report that health professions needed to ensure the ongoing competency of healthcare providers.¹⁹ At that time, ACPE, established in 1932 and previously known as the American Council on Pharmaceutical Education, provided accreditation services for pharmacy school education. By 1975, ACPE began to accredit CPE providers as well.²⁶ Eventually CE became a normal part of the ongoing maintenance of a healthcare worker's licensing / registration / certification. However, in the United States, the requirements varied from state to state, and so attendance and participation levels in CPE programs also varied.

Healthcare providers (medicine, nursing, pharmacy) and their respective support organizations began debating how to standardize healthcare CE in the United States. Questions included: how to monitor and determine the quality of the CE content; how much CE and how often is sufficient; who are the best CE providers; and how and where does the education provider report, administer and maintain records of the earned CE?¹⁹

In 1987, the need for additional research on the impact of self-fulfillment on adult learning was presented as a future direction for CPE, and a recommendation was made for healthcare educators to review the literature in adult education on this topic in particular.²⁷ In 1999, the Institute of Medicine (IOM) published a report on errors and patient safety in health systems,²⁸ and that was followed by the World Health Organization (WHO) report on improving performance in health systems in 2000.²⁹ Then, in 2003, the IOM published *Health Professions Education: A Bridge to Quality*, and outlined five competencies that are essential for CE in all the healthcare professions. These competencies were not present in a lot of existing CE programs and included patient-centered care, interdisciplinary team-based care, evidence-based practice, quality improvement strategies, and utilization of health informatics.³⁰

CPD Introduced

In 2004, a CPD model was presented by the Council on Credentialing in Pharmacy (CCP) in Washington DC, which described a CPD cycle of five steps: Reflect, Plan, Act, Evaluate, and Record.⁵ This model was based on the International Pharmaceutical Federation (FIP) CPD model. The FIP, created in 1912, is a world-wide coalition

of pharmacy professionals and scientists working with the WHO, the United Nations Educational, Scientific and Cultural Organization (UNESCO), and other global and regional healthcare professionals.³¹ ACPE reviewed FIP's CPD model and recommended further study to determine the best method of implementing CPD in the United States.³²

In 2010, the IOM issued a report that continued to stress major flaws in *all* the healthcare professions in the United States.¹⁹ These flaws included a focus on meeting the different states' regulatory requirements, rather than on the knowledge and practice gaps of the practitioners. In addition, the IOM report recommended more research on the science of adult learning (repeating the 1987 call for study), on creating collaborative learning environments, and the implementation of a form of CPD that incorporates the steps of Reflect, Plan, Act, and Evaluate.¹⁹ This report has had a huge impact on healthcare CE.

CPD Pilot Program

In collaboration with ACPE, a coalition of five states (Indiana, Iowa, North Carolina, Washington, and Wisconsin) developed a pilot program to develop CPD education and documentation forms that pharmacy professionals could use to record their CPE choices.³³ This pilot was so successful that the North Carolina State Board of Pharmacy adopted the CPD process in 2010 and now allows pharmacists to use CPD as an alternative to requiring a set number of CPE credit hours for re-licensure.³⁴

After the positive state pilot results, ACPE began actively promoting CPD as a process and tool which all the accredited colleges of pharmacy and CPE providers should make available with their learning activities. In January of 2015, ACPE approved new guidelines that confirm and define the value and importance of both CPE and CPD.²

CPE Monitor

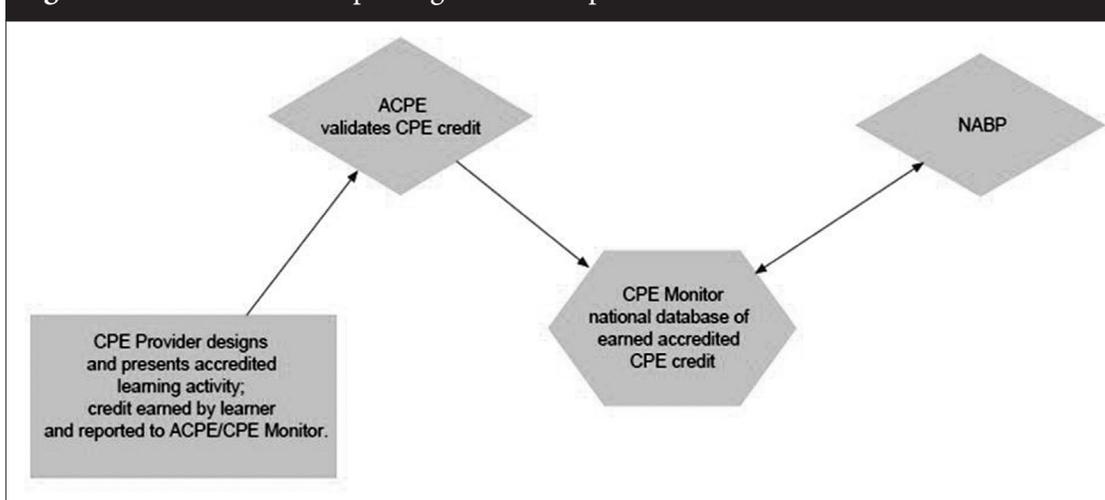
As part of ACPE's internal goal of continuous CPE process improvement, ACPE partnered with the National Association of Boards of Pharmacy (NABP) to develop and implement CPE Monitor. All ACPE CPE credit is now reported to CPE Monitor, a national database that maintains all credit history earned by pharmacists and pharmacy technicians.³⁵

As of January 1, 2013, all credit must be reported by the ACPE provider to ACPE and then, once validated by ACPE, the credit is deposited into CPE Monitor (**Figure 4**). While not every pharmacy technician is required to earn accredited CPE to maintain his/her position, all ACPE-accredited CPE providers are required to report all CPE credit earned to CPE Monitor. In addition, all statements of credit or transcripts must be downloaded now from the pharmacy professional's individual CPE Monitor account, and not from the CPE provider.³⁵ This reporting process has created some confusion and strain as some pharmacy technicians are not yet required to have accredited CPE, so they may not want to get an NABP eProfile ID and use the CPE Monitor database. Acquiring an NABP eProfile ID is very easy, does

not cost anything, and provides the CPE history for all pharmacy professionals. Pharmacy technicians may go to www.nabp.net and click on CPE Monitor to learn more and acquire their own NABP eProfile ID.

CPE Monitor is an extremely important partnership for enhancing CPE quality controls in the profession. First, CPE Monitor provides a one-stop database for

Figure 4. CPE Activities Reporting Relationships



Source: Author's diagram of CPE credit reporting relationship. Allen, M.D. November, 2014.

all the state boards of pharmacy so they may review any pharmacy professional's CPE for re-licensure / recertification requirements. This process also helps pharmacy practitioners because no matter where they live, how often they move, no matter the city or state, or where they work, practitioners will always be able to access their earned credit history in one place – CPE Monitor. Finally, this process eliminates fraud, preventing pharmacy professionals from faking credit reports to their various state boards and employers. Process improvement is an overall goal of ACPE just as practice change is one of the overall goals of CPE and CPD.

PART THREE ADULT LEARNING, THEORIES, CONCEPTS AND BARRIERS – FOUNDATION OF CPD

“Acquisition of knowledge or skills through experience, study, or being taught.”

- The definition of learning in the Oxford online dictionary.³⁶

A “system of ideas intended to explain something.”

- The definition of theory in the Oxford online dictionary.³⁷

When asked why they choose to participate in CPE, 92% of the CPD survey respondents listed recertification as their reason for participating in CPE, which is usually a job requirement and in some cases, a state requirement (Figure 5, on page 12).

Respondents could choose more than one reason however, so 54% participate because of a professional development interest, 46% participate for love of learning and 41% participate to improve the quality of patient care. But, as opposed to the 41% listed in the survey results, healthcare professionals should, in reality, be 100% interested in the quality of patient care...at all times! This means a pharmacy technician needs to take an active interest in CPE at all times, whether or not it is currently required by the employer, state, or certifying body.

Approach to Creating a Learning Activity

CPD is based on the philosophy that adults will learn more and retain what they learn more fully if they are actively interested and involved in seeking the learning opportunity. A great deal of research has been done to understand what, why and how adults learn.³⁸ Healthcare continuing education falls into two models – the learning model focused on improving knowledge and competence, and the assessment model focused on performance and knowledge.¹⁹ These models reflect the two major perspectives that influence the approach to adult learning in the CPD process – behavioral (doing) and cognitive (thinking).³⁹ CPD combines both models through the learner's full participation in choosing needed CPE and in achieving desired performance change.

Test Your Knowledge #1

Word Search

A R Z S J K L A B C D J K M W H O X
 U C R E M I L Y J E R R Y S T W Z D
 S R C L G R E A T B R I T A I N O E
 T S F R A D M W S T U R F R N I L P
 R W G E E S W R I U S P O E D N R A
 A Z X C L D Q W E N I E E R U S T R
 L Q P E M V I A E E O R H R S T N T
 I U I R A C E T P S A Y T E A I O M
 A L O T P S R E W C B C E F I T I E
 S R I I U I O P Y O A S P L D U T N
 G H J F K G E T A W D R D E W T A T
 X C Y Y E S I U I P F G H C K E C O
 Z X R D K L E A R N I N G T B O U F
 P G O I A T O R Y U P I O P L F D L
 M P V U N C Q N W A S D J H K M E A
 X H Q S D A A S G C V B B N M E Z B
 Q C P W C N R Q U O E I U D P D X O
 W T V E P A T I E N T S Y G O I T R
 E H X R J D U E G Y W I G V I C R W
 A J Z T H A Y R K Z E K F A O I E R
 D A P A A P U D V A R G K N Y N R A
 F A S P E T E C H C H E C K T E C H

Accredit

ACPE (Accreditation Council for Pharmacy

Education)

Australia

Canada

Department of Labor

Education

Emily Jerry

Errors

FIP (International Pharmaceutical Federation)

GPhC (General Pharmaceutical Council)

Great Britain

Institute of Medicine

Learning

Lifelong

Patients

Quality Care

Recertify

Reflect

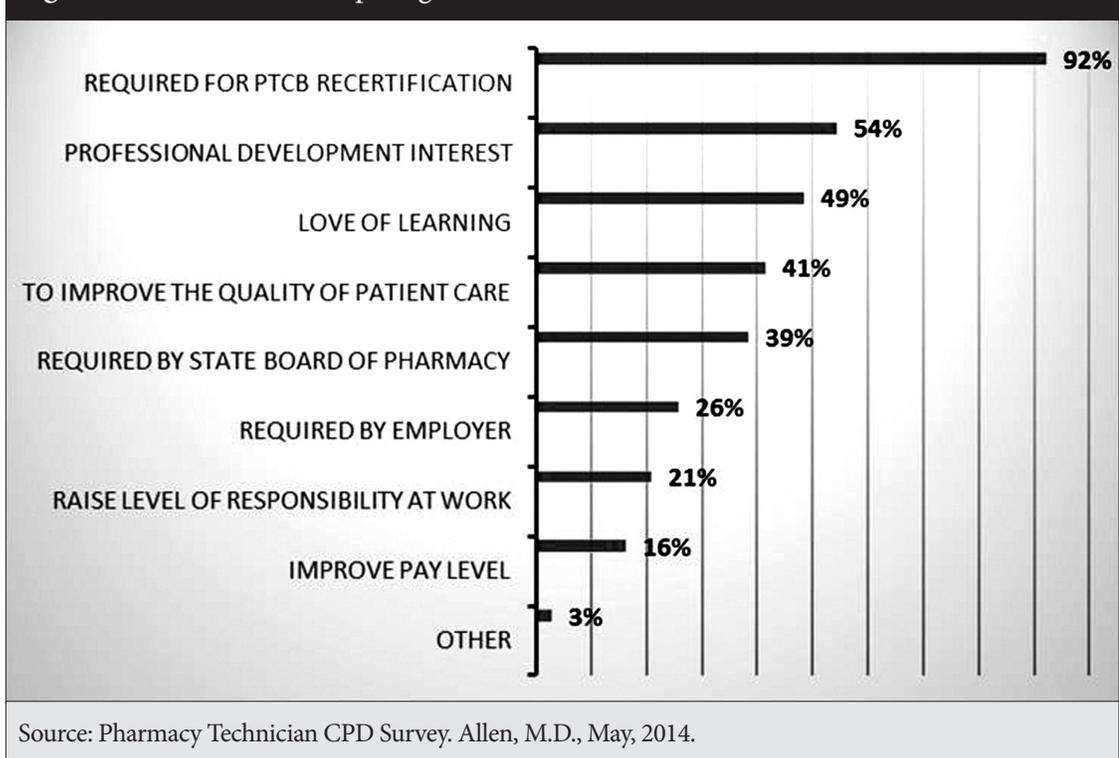
TeckCheckTech

UNESCO (United Nations Educational, Scientific and Cultural Organization)

WHO (World Health Organization)

Answers on page 39.

Figure 5. Reason for Participating in CPE



Cognitive / Thinking

Adult learning theories based on the cognitive perspective are focused on acquiring knowledge and skills, and understanding concepts and processes. Learning occurs in the mind as one assimilates new information, processes it in relation to what one already knows, and determines how to use / apply the information to one's actions. Cognitive theories also recognize the impact of environment, presentation and reinforcement, but those factors are not as important.³⁹

Behavioral / Doing

Adult learning theories based on the behavioral perspective are focused on changing behavior. Certain stimuli (teaching, practicing, etc.) will create a response in the learner that becomes habit over time if properly reinforced. The behavioral approach relies heavily on action (e.g. doing, applying, rehearsing or practicing) in order to learn a skill and so change one's behavior such that a person may perform that new activity easily.³⁹

Reflection Exercise 2

A basic example of behavioral learning would be tying one's shoelaces. A child is taught the process of crossing over the laces, and then has to practice over and over until eventually, tying one's shoes is second nature and does not require any thought at all. An adult example would be learning to do data entry on a computer system. One has to learn the process, which screens and which choices in which order, but eventually, one becomes so used to the system that doing data entry, looking up a record, typing the number keys, etc. is second nature, and does not require reflection or thought.

Can you think of any other things you do without thinking about it?

CPD and CPE are based on a combination of the cognitive and behavioral – the learner's full and actively willing engagement in learning with the desired outcome of change on the job as practice / performance improvement. This combined approach in turn reflects certain underlying assumptions about how adults learn best.

What the Adult Learner Brings to the Learning Activity

All adult learning involves change in attitudes, behaviors, feelings, knowledge and thought. In that sense, all learning is transformational to some degree and lifelong. Malcolm Knowles observed adults in a variety of learning environments, studied the results including any altered behavior, and then combined his observations into some basic assumptions about why and how adults learn.^{38,40}

Here are Knowles' assumptions from a pharmacy technician's perspective:

1. Why – Why should I learn something? Why do I have to attend this learning activity? Will I gain credit for a requirement? Am I being forced to attend this CPE program?
2. Life experience – Will my life and job experiences help me with this activity? Is this activity necessary based on my experience? Do I already know this information or need it? Am I receptive to this learning activity based on my experience?
3. Concept of self – I am a responsible adult. Am I involved in planning, choosing and evaluating the learning activities I attend? Do I feel confident I can learn this? Do I respect myself enough to value my learning?
4. Readiness to learn – Am I mentally, emotionally, and physically ready to learn? Am I willing to admit I need to learn and am I receptive to the new information?
5. Orientation toward problem-solving – I have a problem that I need to solve. Is this the learning activity that will help me solve it?
6. Inner motivation – I really want to attend this program because I want to learn the information. I will learn and retain more because I really want to participate. It will be harder to appreciate and learn if I am forced to attend against my will or need.

Assumptions and motivations will always play a part in a person's approach to learning activities. CPD is a tool to help answer questions and build the inner motivation for learning.

Understanding Personal Learning Styles

Every pharmacy technician also brings an individual learning style to a CPE activity. Below are the summary of styles ACPE uses, based on the work of Zubin Austin (and there are many other models of diverse learning styles used by educators).^{41,42,43}

A = Accommodator – prefers working directly with people, looks for opportunities, prefers hands-on learning, confident, opinionated, and values efficiency.

B = Assimilator – prefers working alone, to observe and learn from others, likes things to be done correctly, with organization and attention to detail.

C = Converger – focused and practical, enjoys leadership roles, has no patience for indecision, impractical or theoretical ideas; wants to get good job done on time, and likes high-energy environments.

D = Diverger – prefers harmony and likes to keep others entertained and engaged; enjoys complex, ambiguous theoretical ideas; and does not care for practical, real-life issues.

Anytime Fun Activity: What is Your Learning Style?⁴¹

Go to www.acpe-accredit.org.
Click on the CPD tab in the upper left corner.
Then click on "Please [click here](#) for CPD resources"
When you open that page, scroll down to the CPD Webinar Series section, 2. Inventory of Learning styles, and Click on b. Health Professionals Inventory of Learning Styles (H-PILS).

Take the test and see what YOUR learning style is.

Barriers to Learning

Every pharmacy technician also has a set of needs and values that may become barriers to learning during a CPE activity. Below are a few of the major barriers to learning.

- Hierarchy of needs theory - The basic needs for safety and survival must be met, before people are capable of new learning.⁴⁴ Pharmacy technicians may be less willing to participate in CPD if they feel the work site is not one that encourages growth through understanding weaknesses (knowledge gaps) and planning on how to fix them.
- Values-based theory - Values often define and influence the way a person relates to others, to work, and to the learning process.⁴⁵ This may impact a pharmacy technician's willingness to question a superior or co-worker, or ask for help.
- Complexity theory - Everyone is always learning and changing based on every experience – all thoughts,

feelings, choices and actions. Reflecting on those changes causes more changes internally so learning becomes layered and never ending.⁴⁶ This idea may feel overwhelming to some.³⁹

- A person's feelings of self-confidence, self-esteem, and self-worth impact learning as well.³⁹ Sometimes a lack of confidence may look like a lack of interest in, or a fear of, learning. Unfortunately a healthcare professional's failure to learn, DOES and WILL impact patient safety through medication and treatment errors, and in the long term, may impact one's job security.⁴⁷
- Learning retention – People remember information based on their learning styles. Studies show how education delivery impacts how much information the learner remembers: reading only - 10% recall; visual and hearing - 20-50% recall; discussion group - 70-80% recall; and doing or analyzing - 90% recall. These results emphasize the need for more interactive learning opportunities as a way to help people remember the material.^{48,49}
- Stages of competency – Every participant in a learning activity will be at a different stage in the learning process, ranging from expert (fully knowledgeable on information presented in the activity) to novice (the ideas are brand new). **Table 4** summarizes one common model for understanding the stages of competency.

The Learning Relationship – Pharmacy Technician, CPE Provider and CPD

In summary, a CPE provider tries to achieve many goals in developing a CE activity, including: develop learning activities that encompass different learning perspectives, while also meeting learner assumptions, the needs of diverse learning styles, and countering possible barriers to learning.

Bloom's Taxonomy and Interactive Learning

ACPE-accredited CPE uses a structured CPE model that is based on Bloom's Taxonomy of Cognitive Levels.⁵² This CPE model outlines six types of learning: knowledge, comprehension, application, analysis, synthesis and evaluation. The activity verbs used in describing the learning objectives for CPE are meant to provide enough information to answer the needs of the varied learning styles, and fall into three subgroups – cognitive (knowledge and comprehension), psychomotor (application and practice), and affective (application, practice and change).^{52,53} These three subgroups of CPE activities include behavioral components as part of the emphasis on desired outcomes in application. In addition, ACPE now incorporates an outcomes learning model based on the work of Donald Moore, which strengthens the behavior / doing component.⁴⁷

In addition, ACPE now requires interactive activities for all accredited providers of CPE to help learners remember the education program information. Interactive activities may include: pre-test and post-test questions; visuals / handouts (slides, etc.); group discussion at each table analyzing a case study or sharing issues based on the topics; and polling questions using an audience response device. In addition, a reflection component is sometimes included, so learners take time to think about the information and make a commitment to change based on what is learned.⁵⁴

In turn, the learner is asked to engage, participate, pay attention, ask questions, respond to polling, provide feedback, and take new ideas and information back to the work site to make real practice change. While there may be a series of levels between conscious competence and unconscious complacency on-the-job, both are of real concern for healthcare professionals. Every successful learning activity reflects the commitment of everyone involved in the process to improve in some way.

Table 4. Common Learning Stages Reflected by Individuals at a Single Learning Activity.^{39,47,50,51}

Knowledge Type	Description	Problem	Learner attitude at activity based on competency level
Unconscious incompetence	I do not know what I do not know, have no idea of my ignorance or that I need to learn about this topic.	I may make mistakes out of ignorance; or avoid doing my job because I do not know what to do.	I do not know why I am attending, other than to get credit. This is boring. I wish I was not here.
Conscious incompetence	I have heard of this topic and know that I know nothing about it and need to learn about it.	I will make fewer mistakes because I recognize that I need to ask for help, since I do not know anything about this topic.	I know I am clueless about this topic and I know I need to learn about it. I am glad to be here.
Conscious competence	I have learned and understand, and continue to consciously seek out better ways to do the task.	I actively understand and do my tasks knowingly and well, and carefully by following learned steps.	I know about this topic and I want to reinforce my understanding. Is there a way to do it better? I am glad to be here.
Unconscious competence (some split this into 2 parts. Part 1 - doing a task well without thinking about it. Part 2 below.)	I have learned and now do things without thinking about the steps I need to follow to accomplish this task.	This task is now routine and habit for me. I do not need to think about every step of what I am doing anymore. I can even teach others the steps. However, this leads to possible mistakes due to over confidence.	I know all about this topic, but have to attend to get credit. This is boring. Maybe I will try to pay attention, or maybe I will check my email, surf the internet, or chat with others at my table. I wish I was not here.
Complacency (Part 2 - unconscious competency leading to over confidence and mistakes.)	I have learned all the steps, I can do them without thinking about it, and I am so confident in my abilities that I no longer stop and analyze what I am doing, even as a review of the task.	I am now dangerous – I have relaxed my attention. Whether compounding a drug or driving a car – when I relax my attentiveness mistakes and accidents happen as a result.	I know all about this topic, there is nothing more for me to learn. I am going to check my email, surf the internet on my smart phone, chat with the others at my table. I really wish I was not here.

Note: These common learning stages are used frequently in HR training programs and were originally attributed to Noel Burch of Gordon Training International.

Reflection Exercise 3

Case Study – Part 2 – The Rest of the Emily Jerry story.¹⁶

A pharmacy technician medication error tragedy

The rest of the story...

When questioned after two year old Emily Jerry's death, the pharmacy technician who made the compounding error, not only did NOT know why she made the mistake, she also admitted that she sensed something was *wrong* but did not stop the process to figure it out. Further, she claimed she did not know such an overdose could kill.

This happened in Ohio, a state without any education, training, registering or licensing requirements for pharmacy technicians in 2006.

Take five minutes and think about this tragedy and ask YOURSELF these questions.

These five minutes may help you to NOT make a similar mistake in the future!

- Is this an example of unconscious incompetence on the part of the pharmacy technician?
- Is this an example of unconscious competence (and complacency) – because the technician knew how to compound, and knew something did not seem right, but compounded the incorrect dose without questioning or investigating further?
- Was this an example of over confidence? Or lack of education and training?
- Or the result of routine procedure mixed in with a compounding / calculations mistake?
- Was there no one the pharmacy technician could have gone to for help, when she felt something was wrong?
- How easy is it to make an error when performing a task you have done a hundred times before?
- Have you ever driven home from work and arrived without even remembering the stop lights and stop signs along the way because your thoughts were on automatic?

The Emily Jerry Foundation has created the “National Pharmacy Technician Initiative and Scorecard” with the goal of pressuring each state to enact strict controls and educational requirements for all pharmacy technicians. The family maintains a website, assigning color-coded grades for each state and its progress so far.¹⁶ Ohio now has a grade of B due to regulatory changes made following Emily Jerry's death. Please visit www.emilyjerryfoundation.org to learn more.

PART FOUR ACPE AND THE CPD CYCLE

To assure and advance excellence in education for the profession of pharmacy.
- ACPE Mission⁵⁵

All accredited CPE must meet ACPE standards, policies, procedures and requirements for CPE providers to maintain their accreditation status. Accredited providers go through a rigorous review of their practices every six years as a means of ensuring they are maintaining quality education and strict standards necessary for independent education that is free of commercial bias or influence from commercial entities; with quality content and faculty; learning assessment opportunities; and evaluations of all activities, and opportunities for, and education on, the concepts and process of CPD for all pharmacists and pharmacy technicians.⁵⁴

ACPE's continuing education policies, standards and requirements revolve around Bloom's Taxonomy (part of the discussion above on learning styles) and Moore's Outcomes (the activity evaluation format with a goal of practice change).^{54,56} Basically, as noted above, people learn different things in different ways. The goal of all CPE providers then, is to have pharmacy technician-specific learning objectives based on education need and to present the learning materials in a way that will have the strongest impact on the learner's retention of the material, while closing the gap between what the learner knows and needs to know. In addition, the learning activities will lead to identifiable outcomes – evidence of practice change and improvement based on the learning activity.

The CPD Cycle – Developing a Personal Learning Plan with CPD

Continuing professional development should include a wide variety of methods for attaining new knowledge, skills, attitudes, and values. CPD learning experiences should be based on an assessment of needs and goals (REFLECT), generated from a personal development plan with outcomes-based objectives (PLAN), and evaluated for achievement of objectives and personal and professional impact (EVALUATE). Key to the CPD approach is linking learning to practice (APPLY).²

Understanding How To Do CPD

CPD does NOT replace CPE; it helps a pharmacy technician make informed choices about CPE. The CPD model that is endorsed by ACPE includes five major components (actions) which will be explored in more detail below – these five components are: Reflect, Plan, Learn/ACT, Evaluate, and Apply. Throughout the CPD process, learners are expected

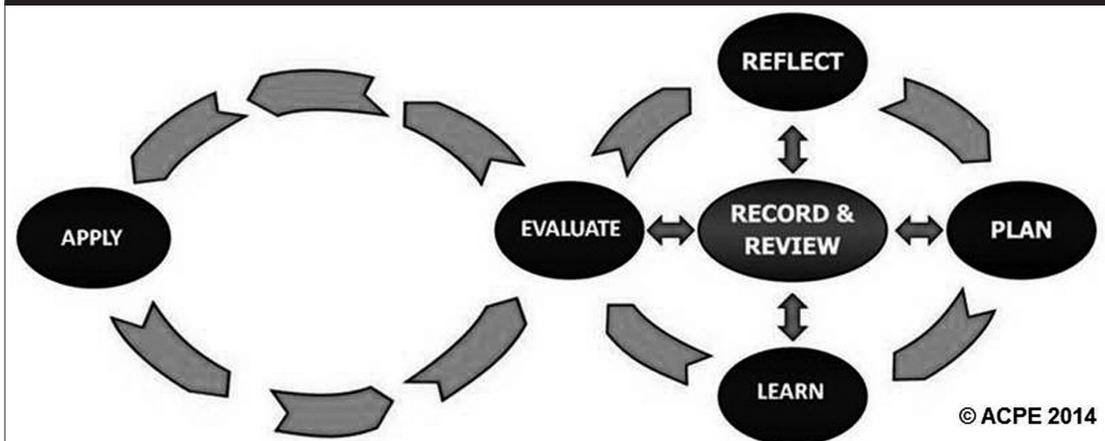
to document all steps in the process of learning outcomes and growth. The ACPE CPD Portfolio⁵² has been developed with the end goal in mind: what are the pharmacy professional's needs and what are the actions needed to fulfill those education needs?

The brief overview of the CPD cycle below is only meant to introduce the concepts. In-depth online tutorials and additional resources and guidance may be found at www.acpe-accredit.org (**Appendix D, page 29**).⁵²

Reflect CPD Form

Healthcare professionals need to practice honest self-appraisal to determine both their strengths and weaknesses. Knowing one's strengths gives one the self-knowledge needed to build one's professional skills further. Recognizing one's strengths also gives the learner the self-knowledge to recognize when those strengths may be overused and become a weakness – for example, the unconscious competency stage of learning that leads to complacency (**Table 4, page 15**), which in turn leads to mistakes.⁵⁷ When one's responsibilities involve the care and well-being of other people, then there is an equally important need to understand weaknesses. Understanding strengths enables pharmacy technicians to actively seek specific job responsibilities by knowing they are capable and competent, while understanding weaknesses enable them to be proactive and seek out the education and training needed so that weaknesses may become strengths.

Figure 6. Continuing Professional Development (CPD) Cycle Graphic



Source: <https://www.acpe-accredit.org/pdf/images/CPDCycle2014Color.jpg>. Continuing Professional Development (CPD) Cycle graphic (© 2005 - 2014). Reprinted with permission from Accreditation Council for Pharmacy Education. Accessed July 29, 2014.

Understanding weaknesses, or knowledge gaps, is not meant to be a negative, as in “I can’t do this.” Rather, it is meant to be an opportunity for the learner to say “I can’t do this today, but I can learn it and do it tomorrow. I don’t know how to do this today, but I will learn how for tomorrow.”

Learning to ask questions

One of the most important steps in learning is asking questions. So the first step in the CPD process is for the learner to reflect on the current situation by asking lots of questions. **Appendices E and F, page 30** provide examples of the CPD Reflect document from two perspectives – a community pharmacy technician and a health-system pharmacy technician. This form asks the pharmacy technician to think about work experiences, supervisor feedback, as well as personal learning goals to determine what learning activities are needed and / or desired. The learner may approach the reflection process in a variety of ways, perhaps focusing on current professional education / training levels and job status, or the nature of the work environment, or professional strengths / weaknesses (skills, talents), and professional long term goals.

The following questions may be helpful in starting the process.

- What do I like about my job? Why?
- What do I dislike about my job? Why?
- What are my current responsibilities / tasks / functions?

- What competencies (knowledge, skill, attitude, value) do I already have for each responsibility?
- What is missing? What do I need to learn to be fully competent?
- What are the future responsibilities / tasks / functions I want to have as part of my job?
- What competencies do I already have? What am I missing?
- How can I acquire the education and information I need for my future responsibilities?
- Do I need a mentor to discuss the responsibility with me and help me determine what I need to do next?
- Do I know what to do and just need to find the right class, seminar, home study, experiential program to help me gain the education I need?

CPD 101 Worksheet⁵²

ACPE also provides a CPD 101 Worksheet that guides learners in evaluating what kind of activities are helpful.

Go to www.acpe-accredit.org.

Click on the CPD link in the upper left corner of the ACPE homepage.

Click on the “Please click here for CPD Resources” link.

Scroll down to “CPD Webinar Series”, 1. CPD101, and click on b. Worksheets.

This pdf helps guide a first time CPD participant in analyzing the learning process as well as knowledge gaps.

If the reflection process seems overwhelming, one easy way to begin is to start a reflection journal (see the box below). The knowledge gaps are the list of weaknesses, or needs and goals, and these may be seen as a problem and a frightening challenge, or they may be seen as a wonderful opportunity. Each pharmacy technician has the power to choose how to approach the growing expectations and requirements for the profession.

Start a Reflection Journal

Begin with the positive: every morning write out three things for which you are grateful today. After gratitude, think about what you want to accomplish – just for today – and write it out.

Every evening before bed: write out three things that happened today for which you are grateful. Then think about what you accomplished today – write it out.

Plan CPD Form

The engaged learner searches for learning opportunities. Possible questions for consideration include:

- Does the job site offer education and training in that identified need?
- Is there online home-study available for the need?
- Is there a live meeting being held by a pharmacy association with CPE presentations that meets the need?
- Is there reading material available online that the pharmacy technician may bring to the supervisor for in-service hours?
- Are there shadowing possibilities for learning?

Use the Plan form (**Appendices G and H, page 31**) to write out each goal, what available resources have been found, and the start and end dates. Documenting a plan by putting something in writing helps one focus on achieving the goal. This plan becomes the starting point for a commitment to change.

All ACPE-accredited CPE will have learning objectives which follow the SMART guidelines. SMART verbs are specific, measurable, attainable, relevant, and timed. The format allows the learner to review an activity’s learning objectives to see if they meet the learning needs; and use or adapt the chosen activities learning objectives to the pharmacy technician’s written goal when documenting the Plan form.

Learn – CPD Activity Completion Tracker (ACT) Form

The next step is to participate in a learning activity. The CPD ACT form (**Appendices I and J, page 32**), is where the pharmacy technician will write out what was learned by breaking it up into learning activity components – referring to the learning objective / goal, the type of learning resource used, what was learned or not learned, and if it was a worthwhile activity and met the needs of the learner. Filling out the ACT form helps the learner reflect on what was learned and also figure out what additional learning might be helpful. What was the learning need / objective and was it met? Is there more to learn?

LOG – CPD Learning Outcomes Growth Form

The next step in the cycle is to complete the LOG (**Appendices K and L, page 33**). ACPE expects every CPE activity to result in outcomes that impact the learner and

lead to performance and practice change. The outcome is the new information acquired. The growth is identified as next steps and usually impacts performance on-the-job, implementing what was learned.

Moore's Learning Levels

ACPE outcome levels are defined through Donald Moore's Outcomes / Learning Levels.⁵⁶ All ACPE-accredited providers of CPE are now asked to structure and evaluate their education programs with outcomes documentation in mind, based on Moore's co-authored article on how to improve continuing medical education (CME). Moore developed the learning levels as part of an analysis on improving the development of continuing medical education (CME) programs, and ACPE has adopted these levels as CPE goals as well.^{47,56}

Moore's outcome levels look at participation (attendance), satisfaction (evaluation), knowledge about and how to, competency through showing how, performance site change, impact on patient health and impact on community health.⁴⁷ It may be helpful for pharmacy technicians to likewise review and evaluate their learning activities using Moore's levels to determine how successful the activity was in general, while also considering how successful the activity was in helping meet the learning goals.

Ideally outcomes growth will lead to new learner needs and new learner goals or next steps. But keep in mind that all components of the CPD cycle are interchangeable. For example, the learner will be evaluating during the learning process: reflecting on what is presented, whether the information meets the stated learning objectives and his/her own goals, how easily the information translates into practice change when back at work, etc. A learner may decide to modify learning plans in the middle of a learning activity as new ideas occur.

The CPD cycle is not written in stone, but serves as a guide for how to think about one's professional development. The most successful outcome of any learning activity will be when new knowledge becomes practice change on-the-job – as a new skill is applied, as process quality is improved, as efficiency and effectiveness is increased, as a new method of communicating with co-workers and / or patients is enacted, and ultimately as quality of patient care and safety is enhanced.

CPD Takes Many Forms

The ACPE CPD cycle forms are available on the ACPE website. Some learners may not be comfortable with the ACPE forms, so doing a web search on individual development plan (IDP), setting SMART goals, and professional development planning will bring up ideas on how to review professional education needs that may be more suited to different learning styles.⁵⁸ **Appendix M, page 34** is an example of a different type of IDP. Anytime pharmacy technicians are engaged in thinking about learning needs, planning out how to meet those needs or taking action, then they are *doing* [participating in] CPD. Many pharmacy technicians may already have individualized methods of determining their learning needs. The ACPE recommended CPD tools presented here are to assist those learners who are unfamiliar with the CPD process, and give the experienced CPD practitioners some new ideas as well.

Understanding Commitment

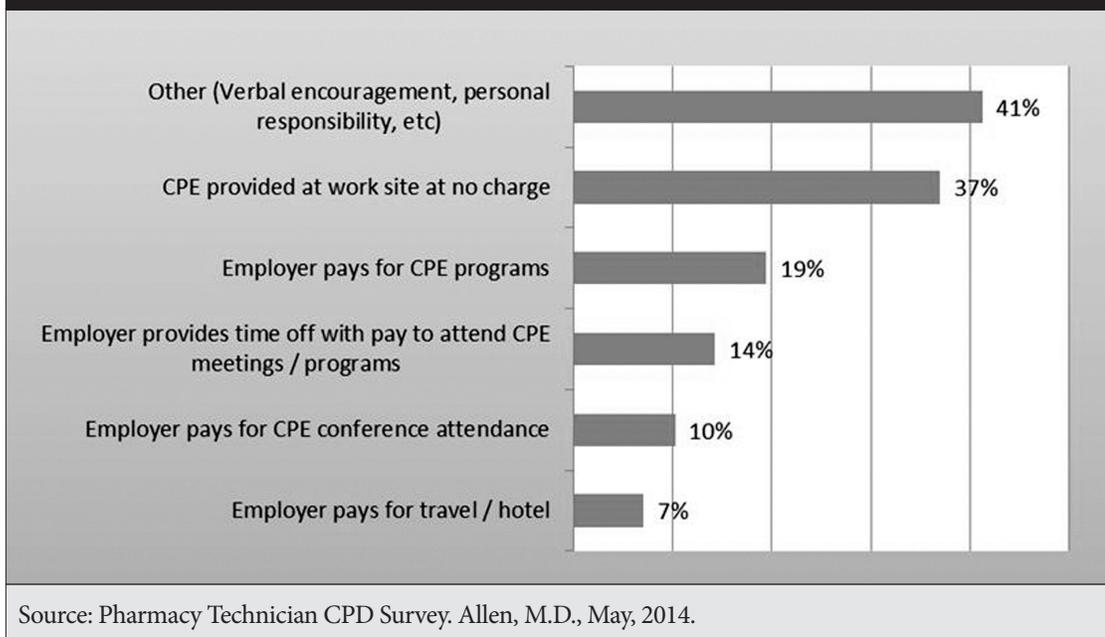
The relationship between a pharmacy technician and the employer can contribute to success in CDP and CPE. The individual's personal commitment to lifelong learning and growth as a professional combined with the organizational support to ongoing learning provided through the employer (reflected as giving time off, paying for education, providing resources for home study, etc.) is the ideal situation.

When asked if their pharmacy supervisor / director encouraged their CPE, 64% of the CPD survey respondents indicated they receive some kind of support to pursue CPE (**Figure 7, page 20**). But that leaves 36% of the pharmacy technicians with no professional support to remain current in their knowledge levels. This adds an extra burden on the technician to actively seek out mentors and learning opportunities in other places.

Crucial Relationships

The most important relationship is the one the learner has with him or herself – the level of self-awareness of needs, preferences for learning, and confidence to pursue the needed activities to fill in the knowledge gaps. Fifty-two percent of the respondents to the CPD survey do not belong to any professional pharmacy organization at all. How many pharmacy technicians that do not receive any support to pursue CPE, also do not belong to any professional organization? Guidance, encouragement and

Figure 7. Types of Employer Encouragement and Support



If pharmacy technicians find themselves in difficult job environments they may seek out local / state / national professional associations for mentors. Every state has a pharmacy association of some kind, and there are many on-line professional support groups as well. Go to state meetings, visit the websites, find someone to talk to, and remember to volunteer along the way. Part of being a professional is to give back by helping others as well – so watch for

direct, active mentoring networks are available through many professional organizations, and these kinds of memberships may help a technician feel less alone when trying to improve their situation and find quality CPE.

Every professional needs trustworthy mentoring relationships. Mentors assist the mentees in understanding where they are in the learning stages of competency. Even very experienced pharmacy technicians may suffer from the weakness of over-confidence or even boredom with routine. Besides there is always something new to learn!

Be Aware of Your Surroundings

Recognizing one’s weaknesses is not always an easy task, and sometimes requires guidance from a co-worker or a supervisor. Seeking this advice is important but practice being aware of one’s work surroundings in seeking a mentor relationship.⁵⁹ This is also part of the reflection process in CPD – to think about the professional situation. Is the work site a reflection of a true learning organization – one that encourages questions and process analysis; one that looks for more efficient and effective ways of managing healthcare resources; one in which all the healthcare personnel are dedicated to providing all staff with the opportunities for ongoing learning so that everyone will provide the best quality patient care?

those opportunities. Everyone can be a mentor to someone in need, based on life and professional experiences.

Having an impact on the work site ultimately depends on relationships of trust, mutual respect and encouragement.⁶⁰ Mentoring relationships make all the difference in helping the pharmacy technician advance in learning, performance and patient care. Relationship building and networking is an important component of any profession, but is extremely important for healthcare professionals.

**PART FIVE
PROFESSIONAL PHARMACY
ORGANIZATIONS PROMOTING CPD**

Some pharmacy technicians may still question the value or need to actively engage in the CPD process. However, the future direction of the pharmacy technician position within the profession is evolving; and along with pressure from the healthcare environment to improve, there is growing pressure to make pharmacy technician certification a national standard, with accredited education and training, using a national model of accredited curriculum, and nationally required accredited CPE. These goals are part of several influential organizations’ strategic plans, recommendations and guidelines for pharmacy education change.

Table 5 on page 22 lists organizations that pharmacy technicians may find of interest. Visit the various websites and check out the resources available for CPE, networking opportunities, and the latest trends and issues for pharmacy practice.

Professional Responsibility for Education and Training

The changing face of healthcare is putting a great deal of pressure on pharmacy technicians to rise to the occasion and meet the needs of healthcare teams. Clearly, the professional pharmacy organizations which provide support, services and advocacy on behalf of the profession are also recognizing the need for high-quality pharmacy technicians on healthcare teams. This puts added pressure on the pharmacy technician in terms of initial training and education, as well as ongoing CPE.

In the author’s CPD survey, 61.14% of the respondents completed on-the-job education and training (**Figure 8**).

Currently, states and employers have varied rules and regulations about pharmacy technician education, training and certification. At this time, all pharmacy technicians are responsible for confirming the requirements they must fulfill to maintain their ongoing status as pharmacy technicians in good standing – whether through certification, employer-provided education and training, or general CPE for job requirements. Based on the long term goals of the major professional pharmacy organizations and associations, quality improvement in the pharmacy technician education, training and CPE process is an ongoing movement.

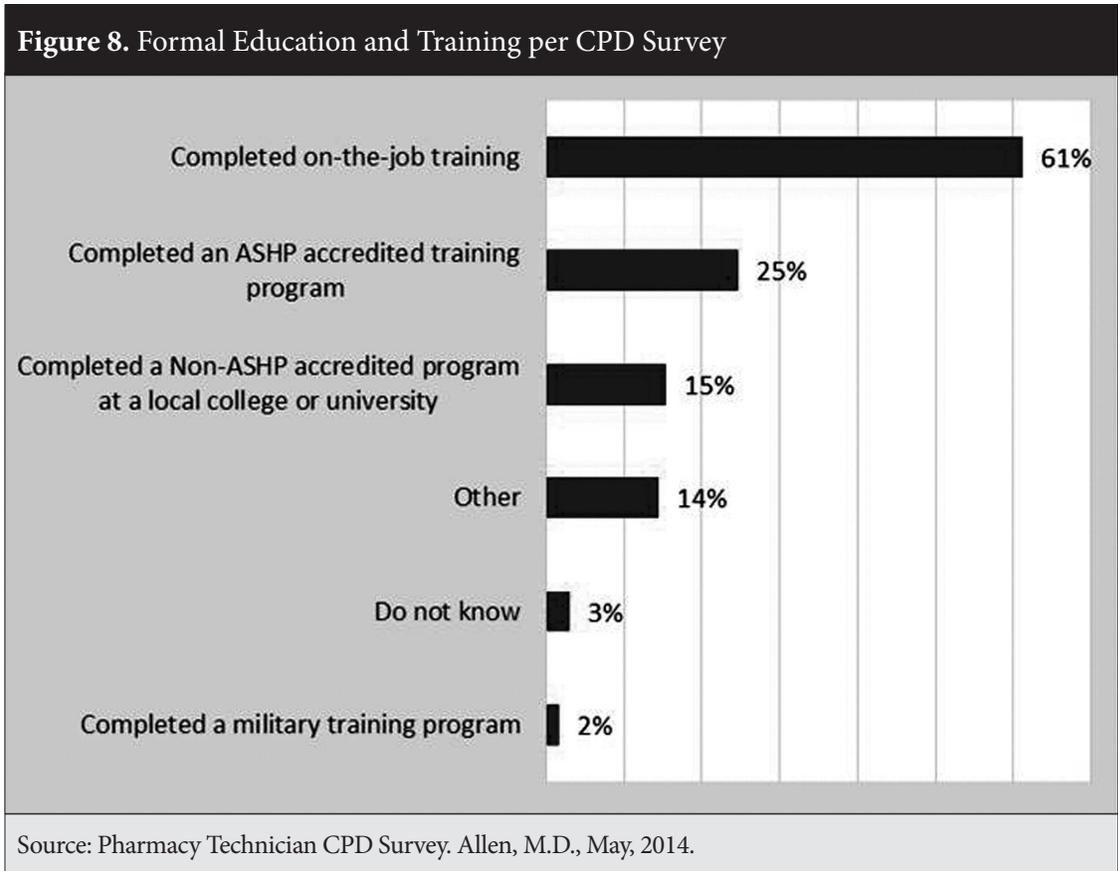


Table 5. List of Organizations Promoting Pharmacy Technician Education and Training Standards

Name	Description
Alliance for Continuing Education in the Healthcare Professions (ACEHP) www.acehp.org	The Alliance was formerly devoted to continuing medical education (CME) only support, but is now a support organization for the many continuing education providers for all the healthcare professions. ACPE is actively partnered with the Alliance in an inter-professional education (IPE) collaboration. ⁶¹ The importance of quality patient care and the recognition that healthcare is about team collaboration has created a push toward collaborative processes, aligned requirements and shared educational resources. ⁶²
American Association of Pharmacy Technicians (AAPT) www.pharmacytechnician.com	Established in 1979, AAPT is the oldest pharmacy technician association. The AAPT mission reflects a focus on education for the pharmacy technician and includes goals to provide CPE to help technicians keep their skills current, and to promote technicians as essential members of the healthcare team. ⁶³
American Pharmacists Association (APhA) www.pharmacist.com	The American Pharmacists Association is a national association, founded in 1852, focused on the needs of pharmacy professionals in all areas, with the largest percentage of members working in community pharmacy. APhA also has state affiliates and collaborates with ACPE for approving and accrediting pharmacy education providers at the level of colleges of pharmacy, CPE programs for re-licensure, and recertification programs for technicians. ⁶⁴
American Society of Health-System Pharmacists (ASHP) www.ashp.org	ASHP is an association focused on the needs of pharmacy professionals working in acute and ambulatory health-systems such as hospitals, clinics, and Veterans Affairs (VA) Centers. According to ASHP best practices, CPD is an important component of CPE and is specifically listed in Goal 4 of the ASHP Strategic Plan of January 2013. ^{65,66} ASHP has recommended that all state boards of pharmacy adopt CPD as the guiding model for fulfilling CPE requirements and is reviewing new guidelines on the role of pharmacy technicians. ⁶⁷ ASHP promotes the value of pharmacy technicians to the healthcare team and to delivery of services, actively lobbies for more responsibility for pharmacy technicians to aid pharmacists and facilitate patient care, and advocates that all pharmacy technicians complete an accredited education and training program and become PTCB certified. ^{65,66,67}
Council on Credentialing in Pharmacy (CCP) www.pharmacycredentialing.org	The CCP is a support organization for all of pharmacy's credentialing programs. The CCP currently has ten pharmacy association / organization members including: ACPE, ASHP, and the Pharmacy Technician Educators Council. The CCP has a variety of resources available on their website that outline CPD for pharmacy technicians and for pharmacy practice in general. In addition, CCP has a Pharmacy Technician Credentialing Framework that recommends guidelines for a national accreditation and curriculum model for pharmacy technician education, as well as a recommendation that all state boards of pharmacy regulate pharmacy technicians with accredited education and competency exams. ⁶⁸
National Association of Boards of Pharmacy (NABP) www.nabp.net	NABP is a professional organization whose mission is to support "the state boards of pharmacy in protecting public health." ⁶⁹ ACPE is actively partnered with NABP through the CPE Monitor project (noted above). In 2009, NABP modified the Model Practice Act, which serves as a guide for all states in developing laws and state board rules related to pharmacy practice, and recommended that all pharmacy technicians be certified by 2015. The NABP Task Force on Pharmacy Technician Education and Training Programs recommends that all state boards of pharmacy require all CPhT's to complete accredited education programs. ⁷⁰ According to a 2011 Pharmacy Law Survey, 80% of state boards license, register or require certification for pharmacy technicians and NABP promotes national standards for pharmacy technician education and training. ^{70,71}
National Healthcareer Association (NHA) www.nhanow.com	The NHA offers a variety of education, training and certifications for allied health professionals, including pharmacy technicians. NHA recently began offering pharmacy technician certification and follows the PTCB guidelines for credit requirements for recertification, including one contact hour of law, at the time of publication. ⁷²
National Pharmacy Technician Association (NPTA) www.pharmacytechnician.org	Established in 1999, the NPTA is the largest organization for pharmacy technician professionals. The NPTA's stated goals for pharmacy technicians include structured and ACPE-accredited CPE. The NPTA Strategic Vision lists five goals that it wants every State Board of Pharmacy to require: mandatory competency-based exams, mandatory registration, standardized education and training requirements, ACPE-accredited CPE, and a pharmacy technician on every state Board of Pharmacy. ⁷³
Pharmacy Technician Accreditation Commission (PTAC) www.acpe-accredit.org www.ashp.org	PTAC is a new collaborative venture of ACPE and ASHP. ⁸ The goal of the commission will be to raise the standards of pharmacy technician initial education and training, as well as the CPE component after certification. This commission will review pharmacy technician education and training programs and recommend accreditation to ASHP and ACPE based on their standards. ⁹ In addition, PTAC will make recommendations on activities, collaborations, and strategic plans that will impact the quality of future pharmacy technician training and education. ⁸
Pharmacy Technician Certification Board (PTCB) www.ptcb.org	PTCB is the largest and oldest national certification body for pharmacy technicians, and has certified over 500,000 pharmacy technicians since its inception. New PTCB guidelines include requiring ACPE-accredited CPE for all pharmacy technician recertification by 2020. In addition, PTCB recently modified requirements so that only technician-specific (T-specific) CPE credit will be accepted for any credit earned beginning January 1, 2015. PTCB has instituted contact hour requirements for law and patient safety for pharmacy technician recertification as a step to address knowledge gaps. Pharmacy technicians must complete 20 contact hours in total every two years for recertification, with one hour in law and one hour in patient safety. ⁷⁴
Pharmacy Technician Educators Council (PTEC) www.pharmacytecheducators.com	PTEC provides a variety of resources and support for pharmacy technician education providers in particular. The organization's goals are to improve and expand on the quality of pharmacy technician education, training and CPE by providing resources for education providers, so they may improve their programs and education materials. ⁷⁵

Test Your Knowledge #2

Match Column A with the definition in Column B.

- | | |
|--|--|
| _____ 1. National Association of Boards of Pharmacy | A. National organization, founded in 1852, that provides resources, legislative support, education, network and other development opportunities for pharmacy professionals and students |
| _____ 2. Continuing Pharmacy Education | B. National organization for state boards of pharmacy |
| _____ 3. Pharmacy Technician Accreditation Commission | C. A collaborative organization devoted to providing support and resources for pharmacy technician educators; affiliated with CCP |
| _____ 4. American Society of Health-System Pharmacists | D. Published reports on the flaws in healthcare Continuing Education leading to endorsement of CPD in US |
| _____ 5. Continuing Professional Development | E. National organization that oversees standards for accredited pharmacy education in the United States |
| _____ 6. Pharmacy Technician Certification Board | F. Process of lifelong learning to advance one's career, and a specific learning process in the pharmacy profession |
| _____ 7. Accreditation Council for Pharmacy Education | G. National organization that provides professional development opportunities for health-system pharmacists and pharmacy technicians |
| _____ 8. Institute of Medicine | H. Ongoing education to maintain up to date knowledge in the pharmacy profession |
| _____ 9. American Pharmacists Association | I. National organization that was established in 1995 to certify technicians |
| _____ 10. American Association of Pharmacy Technicians | J. National organization that supports professional development of pharmacy technicians since 1999 |
| _____ 11. National Pharmacy Technician Association | K. Oldest national organization, founded in 1979, that supports professional development of pharmacy technicians |
| _____ 12. Pharmacy Technician Educators Council | L. Collaborative initiative between ACPE and ASHP that is Pharmacy Technician Educators Council focused on improving the national standards for accreditation of education and training for all pharmacy technicians |
| _____ 13. Council on Credentialing in Pharmacy | M. A world-wide association for pharmacy professionals and scientists, devoted to advancing patient care globally; works with the WHO and UNESCO. |
| _____ 14. International Pharmaceutical Federation | N. An organization that provides guidance and resources for credentialing of pharmacy professionals |

Answers on page 39.

CONCLUDING THOUGHTS

ASHP recognizes that well-educated and highly skilled pharmacy technicians have important roles and responsibilities in the pharmacy enterprise, and that a safe and effective medication-use process depends significantly on the skills, knowledge, and competency of those pharmacy technicians.

To properly fill these roles, pharmacy technicians require standardized education, training, and competency assessment. ASHP advocates that states encourage this education, training, and assessment through the development and adoption of uniform state laws and regulations requiring licensure of pharmacy technicians.

- Draft ASHP Statement on the Role of Pharmacy Technicians⁶⁷

Future of the Pharmacy Profession and Pharmacy Technician Education

Changes are coming for pharmacy technicians. The future of the healthcare professions, in general, is moving toward inter-professional and collaborative teams, which includes nurses, physicians, pharmacists *and* pharmacy technicians. All pharmacy technicians have an opportunity to prove their value and importance to these emerging teams and to participate in the changes by pursuing excellence through ongoing learning and professional development.

The WHO published a report in 2010, outlining guidelines for creating inter-professional and collaborative education programs for all members of healthcare teams.⁷⁶ In the United States, ACPE and the ACEHP have already joined in an inter-professional partnership. ACPE has created an inter-professional joint accreditation provider status which means CE programs may now be designed for multiple members of a healthcare team.⁷⁷ Meanwhile, ASHP is developing additional guidelines for the value and importance of the pharmacy technician role in the Pharmacy Practice Model Initiative (PPMI).⁶⁷

In addition, the nature and future of the education system itself is under review in the United States. The Carnegie Foundation is currently analyzing the value of the credit unit as a measurement of learning achievement now that education is available online 24/7 for students.⁷⁸ This will impact both the academic programs at the colleges of pharmacy and the CPE process as the profession continues to address the learner retention / performance issues mentioned above, and the potential for CPD to provide a more relevant CPE experience.

Finally, the push for CPD and the current movement to establish the lifelong learning practices of CPD in all healthcare professions, is a way of addressing the increasing pressure healthcare educators face both in the United States and around the world to ensure the highest standards of quality education for all healthcare professionals in every professional pathway, so that the highest quality of care is provided to every patient.⁷⁹ This pressure in turn, impacts the healthcare practitioner as each pharmacy technician must take responsibility for staying up-to-date with all the medication, technological and operational changes in the pharmacy profession. In the CPD survey, 72% of the respondents said they would pay for their own CPE if there were no free / employer sponsored CPE available. But 28% said they would not pay for their own CPE (Q13, Appendix A, page 26).

Make a Personal Investment

Sometimes personal investment is essential as a reflection of one's professional commitment. A pharmacy technician's investment of time, energy and money in his / her ongoing lifelong learning as a professional is never wasted, as all CPD and collaborative learning increases one's long-term value to the healthcare team, and so to the patient and to the employer.

Every pharmacy technician's work has value and is important. Staying current is part of being a professional. Ultimately, that is the responsibility of the individual pharmacy technician, not the employer or manager. Each person must take ownership of his/her career, lifelong learning, and promotion value. No one should depend solely on others for success in life. While everyone will need help along the way, in the end, everyone is responsible for the job they do, and the life they lead (both professionally and personally).

Pharmacy Technicians Are Also Leaders

Everyone is called upon to lead at some point in life. The pharmacy technician who understands CPD and its relationship to quality care has an opportunity to gain responsibilities that provide leadership through influence and example. The reality is that lifelong learning is both intrinsically valuable for its own sake (for its impact on the personal development of an individual) and instrumentally valuable for the sake of increased functionality (for its impact on the quality of patient services provided).⁸⁰ When an individual actively chooses to focus on

learning, there is a difference in the quality of the learning. Engaged learners are those who understand the value of learning, participate in the process, and also benefit from the practical value of completing job responsibilities effectively and efficiently. In this kind of learning relationship the pharmacy technician / patient / employer all win. Such learning brings greater depth and breadth to the ongoing creativity and focus employees bring to an organization, which affects how an organization manages change.⁸¹

Change is a constant in life – both in one’s personal and professional life. On-the-job organizational change is inevitable and often necessary. The more easily and practiced a pharmacy technician is in ongoing learning, the more that pharmacy technician will be able to contribute to his / her organization during the challenges of ongoing changes in healthcare.

Make a Commitment to the Future

Use the ideas in this module to reflect on how to give 100% on-the-job and how to use CPD to help fulfill that goal. Rewards will follow – on-the-job recognition and growing responsibility will appear; a relationship of trust between the pharmacy technician, co-workers, and patients will grow; and confidence in knowing who one is and how much one is capable of will flourish. Caring enough to learn more and to learn better, through the CPD process, means the pharmacy technician values the role and contribution this position can and will make to the healthcare team.

CPD is easier than some may think. Identify strengths and weaknesses, plan how to correct the weaknesses, ask for help, seek out mentors, reflect on what is learned, and remember that all problems and barriers are also opportunities – for learning, growth and change.

What you cannot do today, you can learn to do tomorrow!

Reflection Exercise 4

Think about something you can choose to commit to doing right now.

Do you have a dream position?

What do you need to learn to make the dream come true?

Do you need a mentor?

Is there a learning activity you always wanted to do?

Ask yourself questions, choose, and commit!

Commitment to Change

Today, I commit to doing _____.

Try to write a SMART commitment statement (refer to CPD Portfolio section).

Signed by: _____

Date: _____

APPENDIX A	
Pharmacy Technician Knowledge of CPD Survey conducted May 2014.	
Question 1: You are a member of?	
52%	Did not belong to any pharmacy association
20%	Belong to American Association of Pharmacy Technicians
12%	Belong to the State Pharmacy Association
9%	Belong to American Society of Health-System Pharmacists
10%	Belong to a different not listed organization
Question 2: Your primary practice site is? (Employed respondents)	
32%	Hospital
32%	Retail
13%	Other – specialty clinics, e.g. oncology
Question 3: How many years have you been employed as a pharmacy technician?	
54%	Worked for 7+ years
15%	Worked for 3-6 years
14%	Worked for 0-2 years
14%	Have yet to work as a technician
Question 4: Are you currently a CPHT?	
98%	Yes
2%	No
Question 5: What type of certification did you receive?	
98%	PTCB
Question 6: If No to Question 4, why are you NOT certified?	
27%	Too costly
18%	Not required by employer
9%	Not required by state
63%	Other - For example: Let certification lapse
Question 7: Is your certification in progress or a future goal?	
63%	Yes
18%	No
18%	Unsure
Question 8: What kind of formal training have you received as a pharmacy technician?	
61%	On job training
24%	ASHP accredited training
15%	Non-ASHP training
14%	Other -None, self-taught, pharmacist led class
Question 9: Does your pharmacy supervisor encourage CPE?	
64%	Yes
35%	No
Question 10: How are you encouraged by your supervisor? (Choose all that apply)	
37%	CE provided at work site free of charge
19%	Employer pays for CE

14%	Time off with pay for attending CE events
10%	Employer pays for CE conference attendance
41%	Other - Verbal praise; Not encouraged by supervisor, own moral obligation/to keep license current
Question 11: Do you know what the CPD process is and how it can be used to plan in individual's CE activities?	
31%	Yes
69%	No
Question 12: Do you use or have you ever used, the CPD forms provided by an ACPE accredited provider when selecting your CPE programs?	
14%	Yes
61%	No
24%	Do not know
Question 13: Do you participate in CPE programs if you are required to pay?	
72%	Yes
27%	No
Question 14: Which type of CPE activity do you prefer? (Choose all that apply)	
98%	Home study / online
19%	Conferences
18%	Live CPE programs
17%	Worksite training
Question 15: Why do you choose to participate in CPE? (Choose all that apply)	
92%	Required for PTCB recertification
54%	Professional development interest
48%	Love of learning
41%	Improve patient quality of care
38%	Required by state board of pharmacy
25%	Required by employer
21%	Increase level of responsibility at work
16%	Increase pay
2%	Other - Keep current
Question 16: Topics of interest to you based on your professional development needs? (List all that apply)	
100%	More about medication error prevention nationally
77%	More on quality processes and risk management
59%	Steps to be taken to prevent wrong strength ingredient
38%	How to prevent introduction of contaminants
26%	More on patient education
18%	More on communication of drug information
13%	More on staff competency and education
11%	More on adverse drug effect
9%	More on drug discrepancies in ambulatory settings
8%	More on inaccurate drug instructions

APPENDIX B

Glossary of Terms

Accreditation – a process of review and maintaining high level quality education for students of pharmacy as well as CPE for pharmacists and pharmacy technicians.²

Certification – a process of education and training that includes knowledge, application and practice so that a practitioner achieves specialized skills in specific tasks. Pharmacists and pharmacy technicians both pursue various certifications to enhance their skills and value.⁹

CPD – continuing professional development - learning that is self-directed and part of an individual's personal learning plan; for pharmacy a structured approach to choosing learning activities that help develop and maintain competency, aid in professional and personal achievement and growth, and strengthen quality patient care.⁴

CPD Cycle Process as defined by ACPE in the order of natural progression:⁴

- **Reflect** – to think about something, about why, what, who, what if, what is needed...to identify education needs and knowledge gaps
- **Plan** – to prioritize the education needs and knowledge gaps; to research opportunities for CPE to meet the needs.
- **Learn** – engage in a learning activity and record it using the ACT document, a generic Individual Development Plan document, or a personal workbook / journal.
- **Evaluate** – to think about the learning activity, for example: did you learn what you needed to from it? Is there more to learn? How will this learning benefit your practice?
- **Apply** – take the learning back to the work site and initiate practice change – a primary outcome goal for all continuing education.

CE – continuing education – general term for lifelong learning, a method to maintain skills in professions that experience ongoing change, such as law, finance, engineering and healthcare.²⁰

CPE – continuing pharmacy education - any learning activity that increases, updates, reviews a pharmacist's or pharmacy technician's knowledge and skills.²

CPE Monitor – a national database for recording all credit from ACPE accredited providers for pharmacists and pharmacy technicians. A partnership of ACPE and NABP.³⁵

Learning activity – any form of educational activity – for continuing pharmacy education this may be a seminar, lecture, webinar, home study journal, on the job in-service, etc. For ACPE accreditation purposes, a learning activity must follow a specific process and format – it must address the needs with set objectives, approved content, competent faculty, learning assessment and evaluation of the activity as standard components.⁴

Learning assessment – the process of confirming learning has occurred, usually through a pre-and post-test, case study discussions, question and answers interspersed throughout a learning activity; the goal is to reinforce the learning that has just taken place. For home study, this may include puzzles, word games, etc.⁴

Learning objectives – the goal of all learning activities is to identify a gap in knowledge and then meet that need through the learning; the objective outlines the gap that will be addressed.⁴

Program Evaluation – every CPE participant must evaluate the success of the activity for the provider so that improvements may be made in future; ACPE reviews all accredited providers every six years and requires documentation of evaluations by learners.⁴

APPENDIX C

Website resources on Continuing Professional Development (CPD)

- ACPE's website has a lot of information on CPD available to the public www.acpe-accredit.org
- CPD definition: <https://www.acpe-accredit.org/ceproviders/CPD.asp>
- Learning styles: <https://www.acpe-accredit.org/pdf/H-PILS.pdf>
- CPD Portfolio Forms: https://www.acpe-accredit.org/pdf/CPD_Portfolio.pdf

The Council on Credentialing in Pharmacy www.pharmacycredentialing.org – to learn more about the push for national standards of pharmacy technician education and training.

- “White paper on pharmacy technicians 2002: Needed changes can no longer wait”:
<http://www.pharmacycredentialing.org/Files/Technicians%20White%20Paper%20Jan%202003.pdf>
- “Pharmacy Technician Credentialing Framework”:
http://www.pharmacycredentialing.org/Files/CCP%20technician%20framework_08-09.pdf
- “Continuing Professional Development in Pharmacy” by Michael J. Rouse:
http://www.pharmacycredentialing.org/Files/CPD_AJHPOct04.pdf
- “Commentary on Continuing Professional Development in Pharmacy”:
http://www.pharmacycredentialing.org/Files/CPD_JAPhA_M_R_Comment.pdf
- “Profession-wide dialog concerning the development of national standards and an accreditation process for pharmacy technician education and training”:
<http://www.pharmacycredentialing.org/Files/TechComments.pdf>

National Pharmacy Technician Initiative and Scorecard – to monitor each state's progress in pharmacy technician education and training requirements.

- Emily Jerry Foundation www.emilyjerryfoundation.org

Example of how to journal for professional development on the MindTools website www.mindtools.com

- “Journaling for Professional Development”:
http://www.mindtools.com/pages/article/journaling.htm?utm_source=nl&utm_medium=email&utm_campaign=25Feb14#np

APPENDIX D

Snapshot of the ACPE website's CPD Resources Webpage

Home About ACPE News Standards Meetings Complaints Contacts

Continuing Professional Development (CPD) Resources

[Guidance on Continuing Professional Development \(CPD\) for the Profession of Pharmacy](#) describes the components of CPD as an approach to self-directed lifelong learning and offers categories and examples of learning activities beyond CPE which can contribute to the development of pharmacy professionals.

[Guidance on Continuing Professional Development \(CPD\) for Professional Degree Programs](#) offers guidance on the components of the CPD model as well as the skills and behaviors needed in self-directed lifelong learning.

For a short presentation that provides a summary of the components of the CPD cycle, [click here](#)

[Council on Credentialing in Pharmacy \(CCP\)](#) offer a resource document and two publications that provide additional detail and background regarding CPD

To download a copy of the CPD Cycle graphic [click here](#). For terms of use of the ACPE-copyrighted CPD Cycle [click here](#).

CPD WordPress Sites
Visitors are welcome to follow and make recommendations
[CPD Scholarship](#) – categorizes and profiles articles about CPD in pharmacy
[CPD News and Resources](#) – provides CPD-related information and resources

CPD Webinar Series
ACPE has made available the following CPD educational resources to pharmacists, pharmacy technicians, student pharmacists, and CE providers. Click on the links below to access the presentations and their associated documents. Most of the audio-visual presentations will take approximately one hour with exercises.

- CPD101:** This presentation describes the concepts and components of CPD, the need to improve how pharmacists approach their continuing education and lifelong learning, and compares and contrasts the traditional CE model with a CPD model.
 - [Handouts](#)
 - [Worksheets](#)
 - [Self-assessment questions](#)
- Inventory of Learning Styles:** This presentation discusses the role of self-reflection in CPD and how to apply learning styles theory to facilitate self-reflection.
 - [Handouts](#)
 - [Health Professionals Inventory of Learning Styles \(H-PILS\)](#)
 - [Self-assessment questions](#)
- Using Reflection to Create A Learning Plan:** This presentation describes the importance and application of reflection in personal and professional development and how to design learning objectives that address the personal and professional goals identified through reflection.
 - [Handouts](#)
 - [Bloom's Taxonomy](#)
 - [Self-assessment questions](#)
- Act, Evaluate, and Record Your CPD:** This presentation describes how to implement a personal learning plan to accomplish identified learning objectives, evaluate your learning and overall CPD process, and develop and maintain a CPD portfolio.
 - [Handout](#)
 - [Self-assessment questions](#)
- CPD Portfolio** This document contains worksheets that can help you to get started with your own CPD. The CPD portfolio is intended as a tool to support your learning.
- Answers to self-assessment questions:
 - [CPD101](#)
 - [Inventory of Learning Styles](#)
 - [Using Reflection to Create a Learning Plan](#)
 - [Act, Evaluate, and Record Your CPD](#)

Source: <https://www.acpe-accredit.org/ceproviders/CPDReSource.asp>. Accreditation Council for Pharmacy Education CPD Resources webpage. Accessed February 21, 2015. Reprinted with permission of ACPE.

REFLECT

<p>What other healthcare providers do you interact with regularly? nurses, pharmacists, other technicians</p> <p>If no in direct patient care, who are your customers? Or whom do you interact with on a regular basis? customer filling prescriptions, family picking up medications</p>	<p>Describe the interaction: run register collect payments fill prescriptions fax refills</p>
<p>Professional Strengths and Opportunities for Development:</p> <ol style="list-style-type: none"> List work-related situations from the past learning cycle in which you felt confident or competent: Running register, filling medication prescriptions and processing prescriptions What knowledge/skills contributed to the successes above? (You may want to create a learning objective to further develop this skill/strength) Comfortable with typing and computer databases; operating technology systems; reading prescriptions, generic trade names of medications. List work-related situations from the past learning cycle that you need to feel more comfortable or satisfied with: Do not understand Medicare / Medicaid / Plan B process What knowledge/skills would you want to develop or improve to better manage similar situations in the future? Better understanding of insurance information, ability to communicate insurance information and questions better, Responsibility for training new technicians What areas of improvement does your supervisor recommend from your performance improvement (optional)? Be more detail-oriented, More confidence in contacting insurance companies with questions Master all entry level tasks so able to train new technicians What knowledge/skills, attitudes or values do you need to work on or acquire for the coming learning cycle? <ul style="list-style-type: none"> Knowledge Medicare / Medicaid / Plan B and private insurance plans Skills Focus, communication, time management, ability to multi-task Attitudes Positive, open to mentor advice Values Determination, patience 	

APPENDIX E

Community Pharmacy Technician Reflect Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

REFLECT

<p>What other healthcare providers do you interact with regularly? Nurses and physicians</p> <p>If no in direct patient care, who are your customers? Or whom do you interact with on a regular basis? Hospital patients are the ultimate customer, but nurses and physicians are ones I interact with.</p>	<p>Describe the interaction: Nurses may call down to pharmacy with questions such as where is my dose? Or they need help with the automated dispensing machine. I answer questions to the best of my ability, or give the call to a pharmacist. I also go up to the unit to help the nurse if needed.</p>
<p>Professional Strengths and Opportunities for Development:</p> <ol style="list-style-type: none"> List work-related situations from the past learning cycle in which you felt confident or competent: Helping nurses find missing doses of medications (where in the verification-dispensing process is the medication), compounding IV doses of medications. What knowledge/skills contributed to the successes above? (You may want to create a learning objective to further develop this skill/strength) Training on computer system use, training in aseptic technique. List work-related situations from the past learning cycle that you need to feel more comfortable or satisfied with: Creating reports to determine where inventory of certain medications are in the hospital at any point in time, aseptic techniques. What knowledge/skills would you want to develop or improve to better manage similar situations in the future? More training with the automated dispensing cabinet computer system Full understanding of USP Chapter 797. What areas of improvement does your supervisor recommend from your performance improvement (optional)? Staying up to date with email communications about medication shortages or policy / protocol changes in the department What knowledge/skills, attitudes or values do you need to work on or acquire for the coming learning cycle? <ul style="list-style-type: none"> Knowledge Automated dispensing cabinet computer system navigation All aspects of USP Chapter 797 Skills Can always practice or improve on aseptic technique and communication skills. How to approach nurses and physicians with questions and answers for good team effort for patient care. Attitudes Urgency to provide patients' medications in a timely manner. Accountability for the work I do so that I always provide the best patient care. Values Compassion for the patients who are there, and vigilance in patient safety. 	

APPENDIX F

Hospital Pharmacy Technician Reflect Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

APPENDIX G

Community Pharmacy Technician Plan Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

PLAN: Personal Learning Plan			
Goal SMART Learning Objective	Resources Planned Activities	Dates	ACT Done?
Become proficient with Medicare, Medicaid, Plan B, Part-D Plans, learn the resources available that will help me when needed.	Research online webinars offered through work. Review provider / websites and insurance plans. Review the government website tutorials. Talk to others who work with these plans daily. Attend a state or regional pharmacy meeting with this topic (e.g. the CPE "How to Maneuver Plan B" at state meeting in spring).	Start Date	
		Goal finish date	
		Actual finish date	
Develop a training presentation to practice strengthening my communication skills	Research if there is a local Toastmaster's Club where people learn how to talk in public to groups. Take a communication class at the community college.	Start Date	
		Goal finish date	
		Actual finish date	
Perform inventory duties such as ordering, checking in outside vendors, returning merchandise	Learn to use ordering machine Shadow with an experienced technician at another store Find CPE on inventory management Find ASHP accredited training programs	Start Date	
		Goal finish date	
		Actual finish date	
Accurately reconcile inventory logs	Match invoices to delivery receipts. Shadow advanced technician on detail review techniques. Attend a class on organization techniques.	Start Date	
		Goal finish date	
		Actual finish date	
Prepare work flow schedule board Create a work schedule Train new technicians	Determine stations for employees to improve work flow. Take class on scheduling, class on excel. Review company manuals on workflow steps. Attend CE on mentor techniques, communications skills. Complete a personality assessment such as Myers-Briggs, to help understand my strengths and weaknesses in learning.	Start Date	
		Goal finish date	
		Actual finish date	

S=Specific	M=Measurable	A=Attainable	R=Relevant	T=Timed
------------	--------------	--------------	------------	---------

APPENDIX H

Hospital Pharmacy Technician Plan Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

PLAN: Personal Learning Plan			
Goal SMART Learning Objective	Resources Planned Activities	Dates	ACT Done?
Serve as a trainer on the automated dispensing cabinet system	Used technician supervisor to obtain on-the-job training with computer system	Start Date	
		Goal finish date	
		Actual finish date	
Create accurate reports on hospital wide medication inventory	Navigate the automated dispensing cabinet system in down time to practice creating reports.	Start Date	
		Goal finish date	
		Actual finish date	
Score 100% on all pharmacy department exams. Pass all end product testing with no contamination.	Read USP Chapter 797 document. Attend CE program on Chapter 797. Perform frequent sterility testing.	Start Date	
		Goal finish date	
		Actual finish date	

ACT (Activity Completion Tracker)

Date: _____ Time spent engaged in learning: _____ hours

Learning Objective(s) *What did you want to learn? (Use SMART objectives)*

Become proficient in processing insurance plans such as Medicare, Medicaid, Plan B, Part D.

Learning Resources *What did you use to achieve your objective?*

Attended CE program at state association conference on insurance billing.
Reviewed insurance plans websites and resource options.
Shadowed senior technician at another location for 8 hours.

Evaluation & Reflection

Describe your learning experience. Consider the following:

- What did you learn?*
How to find resources on the plans.
Better understand of Medicare and Medicaid system.
- Were your learning needs met?* Fully Partially Not at all
- If your learning objective was not fully met, what challenges or obstacles did you encounter and how may they be overcome?*
Need to improve multi-tasking; need more CE and training on-the-job; need to find a mentor.
- What new learning needs identified as a result of this learning experience?*
Want to make presentations / train other technicians on the job someday - help them.

Personal Notes:

Practice proofreading to improve accuracy in filling out forms.
Practice public speaking - maybe join a local toastmasters club so I can take on training and making presentations; ask for more opportunities to present reports on-the-job.

Outcomes

Identify which outcome(s) apply to this learning activity.

- How will you change your practice based on this learning? (Set specific goals)*
I will volunteer to take on the insurance oversight responsibilities - contacting both patients and insurance providers.
- I plan to pursue additional information. (If so, what, when and how?)*
How to make presentations - join toastmasters, meet with supervisor, shadow advanced technicians, find online articles on presentation skills.
- The findings reaffirm my knowledge and skills and no change is needed to my practice at this time.*

APPENDIX I

Community Pharmacy Technician ACT Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

ACT (Activity Completion Tracker)

Date: _____ Time spent engaged in learning: _____ hours

Learning Objective(s) *What did you want to learn? (Use SMART objectives)*

Enhance automated dispensing system knowledge so I may train others.
Develop skills in creating hospital wide medication inventory reports
Develop strong aseptic technique

Learning Resources *What did you use to achieve your objective?*

Technician supervisor
Hospital computer systems
CE programming and USP 797 documents

Evaluation & Reflection

Describe your learning experience. Consider the following:

- What did you learn?*
- how to create multiple types of inventory reports.
- how to navigate automated dispensing cabinet system more efficiently
- proficient understanding of USP 797 and aseptic technique
- Were your learning needs met?* Fully Partially Not at all
- If your learning objective was not fully met, what challenges or obstacles did you encounter and how may they be overcome?*
Finding time to study and practice was difficult on some days.
- What new learning needs identified as a result of this learning experience?*
Continue to navigate and become more familiar with the automated dispensing system, practice inventory reporting, and maintain strong aseptic technique.

Personal Notes:

Outcomes

Identify which outcome(s) apply to this learning activity.

- How will you change your practice based on this learning? (Set specific goals)*
I will use the resources provided to efficiently / effectively fulfill my responsibilities.
- I plan to pursue additional information. (If so, what, when and how?)*
- The findings reaffirm my knowledge and skills and no change is needed to my practice at this time.*

APPENDIX J

Hospital Pharmacy Technician ACT Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission

APPENDIX K

Community Pharmacy Technician LOG Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission.

Date(s)	Learning Activity (If applicable, include Name of Provider and ACPE UAN)	Time	Outcome(s)	Next Steps (Growth)
9/23/2014	Attended state meeting presentation on Plan B.	60 min	Learned useful information and got some resources in handouts that will help when I have questions.	Continue reading, researching and learning about the plans
varied	Researched insurance plan websites, accessed tutorials they provide, and read all the FAQs provided online.	6 hours	Becoming more proficient with plans; becoming better at finding answers online; making connections with insurance company representatives as resource.	
11/10/2014	Made a presentation on inventory control problems for all the technicians.	45 min	Practice in preparing a presentation, worked with pharmacist supervisor to prepare and developing a mentor relationship that helps me with other opportunities.	Look for every opportunity to do more
1/22/2015	Shadowed an advanced technician at a sister store for a day.	8 hours	Learned a lot about how to look at the whole process of inventory control, from beginning to end; I think this helps me know how to focus my attention.	Apply my new understanding of the big picture to how I track and maintain inventory controls and details.

APPENDIX L

Hospital Pharmacy Technician LOG Form Example

Form source. Accreditation Council for Pharmacy Education. CPD Portfolio. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. Used with permission.

Date(s)	Learning Activity (If applicable, include Name of Provider and ACPE UAN)	Time	Outcome(s)	Next Steps (Growth)
8/20/2014	Session with technician supervisor reviewing automated dispensing system	30 min	Proficient with the automated dispensing system and arranging to provide training for new technicians.	Practice in down time
Varied	Practice creating inventory reports	20 min	Asked to coordinate and complete inventory reports for the department	Continue reporting, experiment with Excel formats
9/5/2014	Session with technician supervisor	25 min	Education and training on aseptic technique	Proficient but keep practicing
Varied	Reading USP 797	30 min	Passed all department exams	Maintain up-to-date knowledge
9/23/2014	Attended CE webinar program on USP 797	60 min	Passed the CE webinar post test	Using my knowledge to assist.

References

1. Think-Exist.com. Finding Quotes was Never This Easy. Available at: http://www.en.thinkexist.com/quotation/education_is_a_social_process-education_is_growth/148047.html. Accessed February 22, 2015.
2. Accreditation Council for Pharmacy Education. Guidance on continuing professional development for pharmacy professionals, January 2015. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015. PDF link: <https://www.acpe-accredit.org/pdf/CPDGuidance%20ProfessionPharmacyJan2015.pdf>
3. Rouse MJ. Continuing professional development in pharmacy. *Am J Health-Syst Pharm* 2004, 61: 2069-2076. Available at: http://www.pharmacycredentialing.org/Files/CPD_AJHPOct04.pdf. Accessed November 23, 2014.
4. Accreditation Council for Pharmacy Education. Continuing Professional Development (CPD). Available at: <https://www.acpe-accredit.org/ceproviders/CPD.asp>. Accessed February 22, 2015.
5. Council on Credentialing in Pharmacy (CCP). CCP Resource Documents: Continuing Professional Development. 2004. "The Council on Credentialing in Pharmacy Resource Document Continuing Professional Development in Pharmacy". Available at: <http://www.pharmacycredentialing.org/Files/cpdprimer.pdf>. Accessed November 23, 2014.
6. American Society of Health-System Pharmacists. White paper on pharmacy technicians 2002: Needed changes can no longer wait. *Am J Health-Syst Pharm*. 2003; 60:37-51. Available at: <http://www.ashp.org/DocLibrary/Best-Practices/HREndWPTechs.aspx>. Accessed November 23, 2014.
7. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2014-15 Edition, Pharmacy Technicians, on the Internet at <http://www.bls.gov/ooh/healthcare/pharmacy-technicians.htm>. Accessed July 29, 2014.
8. Accreditation Council for Pharmacy Education (ACPE). ASHP-ACPE Collaboration will advance quality of technician education, training. Announcement and FAQ PDF links available at: www.acpe-accredit.org. Accessed November 23, 2014.
Pharmacy Technician Accreditation Commission. Frequently Asked Questions. Available at: <http://www.ashp.org/DocLibrary/Accreditation/Pharmacy-Technicians/PTAC-Frequently-Asked-Questions.pdf>. Accessed February 26, 2015
9. American Society of Health-System Pharmacists. Pharmacy technician accreditation FAQs. Available at: www.ashp.org/DocLibrary/accreditation/FAQs-Pharm-tech.aspx. Accessed February 22, 2015.
10. American Society of Hospital Pharmacists. ASHP statement on continuing education. *AM J Hosp Pharm*. 1990; 47: 1855. As quoted in "Continuing professional development in pharmacy". Michael J. Rouse. *AM J Health-Syst-Pharm*. 2004; 61:2069-76. Available at: http://www.pharmacycredentialing.org/Files/CPD_AJHPOct04.pdf. Accessed November 23, 2014.
11. Council on Credentialing in Pharmacy. Guiding principles for accreditation of organizations, sites or programs in pharmacy. Jan 2006. Available at: <http://www.pharmacycredentialing.org/Files/CCP%20Guiding%20Principles%20for%20Accreditation%20Adopted%20January%202006.pdf>. Accessed November 23, 2014.
12. Centers for Disease Control and Prevention (CDC). Medication Safety Basics. Available at: <http://www.cdc.gov/medicationsafety/basics.html#ref>. Accessed July 29, 2014.
13. U.S. Department of Health & Human Services. Agency for Healthcare Research and Quality. AHRQ Study examines adverse drug events caused by medication administration errors. 352. Available at: <http://www.ahrq.gov/news/newsletters/e-newsletter/352.html>. Accessed July 29, 2014.
14. Cuong J, Aswani MS, Rosen M, et.al. Reducing medical errors and adverse events. *Annual Review of Medicine*, 63: 447-463. February 2012. Available at: http://www.annualreviews.org/doi/abs/10.1146/annurev-med-061410-121352?url_ver=Z39.88-2003&rfr_dat=cr_pub%3Dpubmed&rfr_id=ori%3Arid%3Acrossref.org&journalCode=med Accessed 2014 Nov 23.
DOI: 10.1146/annurev-med-061410-121352. Accessed July 29, 2014.
15. Baxter's Pharmacy Solutions. Human errors in sterile product preparation. Available at: www.youtube.com/watch?v=3v0ZKtL4R_Y&index=10&list=PLS4lhE1do3QU-8l-lb1UgoQlFsjUTzVtB. Accessed February 16, 2015.
16. Emily Jerry Foundation. Emily's story. Available at: <http://emilyjerryfoundation.org/emilys-story/>. Accessed November 23, 2014.
17. Josie King Foundation. Available at: www.josieking.org. Accessed February 22, 2015.

18. Ross, M, Svajlenka, NP, & Williams, JR. Part of the solution: pre-baccalaureate healthcare workers in a time of health system change. *Brookings Report*, July 24, 2014. Washington DC, Brookings Metropolitan Policy Program. Available at: <http://www.brookings.edu/research/interactives/2014/healthcare-workers/#/M10420>. Accessed November 28, 2014.
19. Institute of Medicine. 2010. Redesigning continuing education in the health professions. Washington DC. National Academies Press. Available at: http://books.nap.edu/openbook.php?record_id=12704&page=29. Accessed 2014 Nov 23.
20. En.Wikipedia.org. Continuing professional development. Available at: http://en.wikipedia.org/wiki/Continuing_professional_development. Accessed July 29, 2014.
21. Ontario College of Pharmacists (Canada). Quality Assurance Program. Available at: <http://www.ocpinfo.com/practice-education/qa-program/>. Accessed November 23, 2014.
22. Krevesky, JS, Raymond, CB, Woloschuk, DMM. Continuing professional development for pharmacy technicians: Start of an evolution? *Can Pharm J* (Ott). 2012 May, 145(3); 120-122.PMCIS: PMC3567518/. Doi:10.3821/145.3.cpj120. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3567518/>. Accessed November 23, 2014.
23. Australian Pharmacy Council. Accreditation of Continuing Professional Development. Available at: <http://pharmacycouncil.org.au/content/index.php?id=21>. Accessed November 23, 2014.
24. Guide to Continuing Professional Development. NSW Nurses Association. 2011. Available at: http://members.nswnma.asn.au/members_only/pdf/Continuing_Professional_Development_-_resource_guide.pdf. Accessed November 23, 2014.
25. General Pharmaceutical Council. A Guide to the GPhC's requirements for undertaking and recording continuing professional development. Revised July, 2011 (version ii). <http://www.pharmacyregulation.org/sites/default/files/GPhC%20Plan%20and%20Record%20g.pdf> Accessed November 2, 2014.
26. Accreditation Council for Pharmacy Education. About ACPE. Available at: <https://www.acpe-accredit.org/about/default.asp> Accessed November 23, 2014.
27. Arndt, JR & Coons, SJ. *Continuing education in pharmacy*. Alexandria, VA: American Association of Colleges of Pharmacy. 1987.
28. Institute of Medicine. To err is human: Building a safer health system. Report November 29, 1999. Available at: <http://www.iom.edu/Reports/1999/To-Err-is-Human-Building-A-Safer-Health-System.aspx>. Accessed November 2, 2014.
29. World Health Organization. The world health report 2000 – Health systems: improving performance. 2000. Available at: <http://www.who.int/whr/2000/en/>. Accessed July 29, 2014.
30. Institute of Medicine. Health professions education: A bridge to quality. Report April 18, 2003. Available at: <http://www.iom.edu/reports/2003/health-professions-education-a-bridge-to-quality.aspx>. Accessed November 2, 2014.
31. International Pharmaceutical Federation (FIP). Available at: http://fip.org/?page=menu_about. Accessed November 26, 2014.
32. Accreditation Council for Pharmacy Education. ACPE Statement on Continuing Professional Development (CPD). Available at: <https://www.acpe-accredit.org/pdf/ACPE%20Statement%20on%20CPD%20Sept%202003.pdf>. Accessed November 23, 2014.
33. Dopp, AL, Moulton, JR, Rouse, MJ, & Trewet, CB. A five-state continuing professional development pilot program for practicing pharmacists. *Am J Pharm Educ* 2010; 74 (2) Article 28. PMID: PMC2856417. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2856417/>. Accessed November 23, 2014.
34. North Carolina Board of Pharmacy. Continuing professional development (CPD). Available at: <http://www.ncbop.org/CPD.htm> Accessed November 23, 2014.
35. Accreditation Council for Pharmacy Education. CPE Monitor. Available at: <https://www.acpe-accredit.org/CPE-Monitor/cpedefault.asp>. Accessed January 22, 2015.
36. Oxford Dictionaries.com. Learning. Available at: http://www.oxforddictionaries.com/us/definition/american_english/learning?searchDictCode=all. Accessed November 23, 2014.
37. Oxford Dictionaries.com. Theory. Available at: http://www.oxforddictionaries.com/us/definition/american_english/learning?searchDictCode=all. Accessed November 23, 2014.

38. Knowles M. *The adult learner: A neglected species*. 1973. Available at: <http://files.eric.ed.gov/fulltext/ED084368.pdf> Accessed November 23, 2014.
39. Schunk DH. *Learning theories: An educational perspective*. Columbus, OH/Upper Saddle River, NJ: Pearson / Merrill Prentice Hall. 2004
40. En.Wikipedia.com. *Andragogy*. Available at: <http://en.wikipedia.org/wiki/Andragogy>. Accessed November 23, 2014.
41. Accreditation Council for Pharmacy Education. *The Health Professionals' Inventory of Learning Styles*. Available at: <https://www.acpe-accredit.org/pdf/H-PILS.pdf> Accessed November 23, 2014.
42. Austin, Z. 2009. *Inventory of Learning Styles*. Accreditation Council for Pharmacy Education. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed February 22, 2015.
43. Gardner H. *Frames of mind: A theory of multiple intelligences*. New York, NY: Basic Books. 1985.
44. Maslow AH. *Toward a psychology of being* (3rd ed.). New York, NY: John Wiley & Sons. 1968.
45. Beck DE & Cowan CC. *Spiral dynamics: mastering values, leadership, and change*. Malden, MA: Blackwell Business. 1996.
46. Morin E. *Seven complex lessons in education for the future*, N. Poller, trans. Paris, France: Unesco. 2003.
47. Moore DE Jr., Green JS & Gallis HA. 2009. Achieving desired results and improved outcomes: Integrating planning and assessment throughout learning activities. *Journal of Continuing Education in the Health Professions*, 29(1), 1-15. doi:10.1002/chp.20001. Available at: <http://eo2.commpartners.com/users/acme/downloads/Moore.etal09.pdf>. Accessed November 23, 2014.
48. How Much Learning Do Students Retain? National Training Laboratory Study. Available at: <http://www.simulationpoweredlearning.com/retention-graph.html> Accessed February 22, 2015
49. Tofade T. 2009. Using Reflection to Create a Plan, National Safety Council Learning Retention Results. Available at: https://www.acpe-accredit.org/pdf/Presentations/Using%20Reflection/reflection_create_plan_project.html. Accessed February 22, 2015.
50. En.Wikipedia.org. *Four stages of competence*. Available at: http://en.wikipedia.org/wiki/Four_stages_of_competence. Accessed November 23, 2014.
51. Businessball.com. *Conscious competence learning model: four stages of learning theory – and other theories and models for learning and change*. Available at: <http://www.businessballs.com/consciouscompetencelearning-model.htm>. Accessed November 23, 2014.
52. Accreditation Council for Pharmacy Education. *Continuing Professional Development (CPD) Resources*. Available at: <https://www.acpe-accredit.org/ceproviders/CPDResource.asp>. Accessed November 23, 2014.
53. Accreditation Council for Pharmacy Education. *Standard 7 Active Learning Strategies*. Available at: <https://www.acpe-accredit.org/ceproviders/resources.asp>. Accessed November 23, 2014.
54. Accreditation Council for Pharmacy Education. *CE Providers: Documents and Forms*. Available at: <https://www.acpe-accredit.org/ceproviders/resources.asp>. Accessed November 23, 2014.
55. Accreditation Council for Pharmacy Education. *About ACPE: Strategic Plan-Mission*. Available at: <https://www.acpe-accredit.org/about/mission.asp> Accessed November 23, 2014.
56. Moore DE Jr. *Integrating Outcomes Assessment*. Presentation. Available at: <https://www.acpe-accredit.org/ceproviders/resources.asp>. Accessed February 22, 2015.
57. Snyder CR, Lopez SJ (Eds.). *Handbook of positive psychology*. New York, NY: Oxford University Press. 2002.
58. Great leadership by Dan.com. *How to write a great individual development plan (IDP)*. Available at: <http://www.greatleadershipbydan.com/2008/11/how-to-write-great-individual.html>. Accessed February 22, 2015.
59. Schein E. 1990. *A general philosophy of helping: process consultation*. Sloan Management Review, Spring 1990; 31, 3; ABI/INFORM Global. Available at: hsi2011.wikispaces.com/file/view/schein+helping.pdf. Accessed November 23, 2014.
60. Gittell JH. *High performance healthcare: using the power of relationship to achieve quality, efficiency and resilience*. McGraw-Hill Professional: United States. 2009.
61. Accreditation Council for Pharmacy Education (ACPE). *Alliance for CEHP and ACPE Announce Collaboration to Foster Interprofessional Education and Practice*, October 2013. Available at: https://www.acpe-accredit.org/pdf/ACEhp_ACPE_Release.pdf. Accessed November 23, 2014.

62. Alliance for Continuing Education in the Health Professions. Available at: <http://www.acehp.org/imis15/acme/>. Accessed November 23, 2014.
63. American Association of Pharmacy Technicians. Available at: <http://www.pharmacytechnician.com/?page=A2>. Accessed July 29, 2014.
64. American Pharmacists Association. Pharmacy Technician Resources. Available at: <http://www.pharmacist.com/pharmacy-technician-resources>. Accessed July 29, 2014.
65. American Society of Health-System Pharmacists (ASHP). ASHP Strategic Plan. Goal 4. Available at: <http://www.ashp.org/DocLibrary/AboutUs/Strategic-Plan.pdf>. Accessed November 23, 2014.
66. American Society of Health-System Pharmacists (ASHP). Best Practices, Policy Positions and Rationale, 1982-2013. Positions 0211, 0916, 1111, 1203. Available at: <http://www.ashp.org/DocLibrary/BestPractices/policypositionsandrationales2013.aspx>. Accessed February 22, 2015.
67. American Society of Health-System Pharmacists (ASHP). Draft policies and guidance documents. Available at: <http://www.ashp.org/menu/PracticePolicy/PolicyPositionsGuidelinesBestPractices/DraftGuidanceDocuments>. Accessed February 24, 2015.
68. Council on Credentialing in Pharmacy (CCP). CCP Resource Documents: Continuing Professional Development. Pharmacy technician credentialing framework, August 2009. Available at: <http://www.pharmacycredentialing.org/>. Accessed November 23, 2014.
69. National Association of Boards of Pharmacy (NABP). About. Available at: <http://www.nabp.net/about>. Accessed February 22, 2015.
70. National Association of Boards of Pharmacy (NABP). Available at: <http://www.nabp.net/programs/cpe-monitor/cpe-monitor-service/technicians/#techs>. Accessed February 22, 2015.
71. National Association of Boards of Pharmacy. Technicians. <http://www.nabp.net/technicians>. Accessed February 22, 2015.
72. National Healthcareer Association. Available at: <http://www.nhanow.com/home.aspx>. Accessed July 29, 2014.
73. National Pharmacy Technician Association. Available at: <http://www.pharmacytechnician.org/en/cms/?490>. Accessed April 18, 2014.
74. Pharmacy Technician Certification Board (PTCB). Who we serve. Available at: <http://www.ptcb.org/who-we-serve/pharmacy-technicians#.VOpDcP50wdl>. Accessed July 29, 2014.
75. Pharmacy Technician Educators Council. Available at: <https://www.pharmacytecheducators.com/content/about-ptec>. Accessed November 23, 2014.
76. World Health Organization (WHO). Department of Human Resources for Health. Framework for action on interprofessional education & collaborative practice. 2010. Geneva, Switzerland. Available at: http://www.who.int/hrh/resources/framework_action/en/. Accessed February 22, 2015.
77. Joint Accreditation for Interprofessional Continuing Education Available at: <http://www.jointaccreditation.org/>. Accessed February 22, 2015.
78. Silva E. Carnegie Foundation for the Advancement of Teaching. The carnegie unit – revisited May 28, 2013. Available at: <http://www.carnegiefoundation.org/blog/the-carnegie-unit-revisited/>. Accessed November 24, 2014.
79. Evans JA, Mazmanian PE, Dow AW, et.al. Commitment to Change and Assessment of Confidence: Tools to Inform the Design and Evaluation of Interprofessional Education. Online publication: 24 Sep 2014. *Journal of Continuing Education in the Health Professions*, 34: 3, 155-163, Summer 2014. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/chp.21246/abstract;jsessionid=5859730F4231AAF9E3FB678ADF188DEB.f01t03>. Accessed February 22, 2015.
80. Kilpatrick S & Fulton A. Developing effecting learning programs: What extension can learn from the fields of adult education and learning communities. The Regional Institute. 2003. Available at: <http://www.regional.org.au/au/apen/2003/refereed/073kilpatrickkeynote.htm>. Accessed February 22, 2015.
81. Senge PM. *The fifth discipline: The art and practice of the learning organization*. New York, NY: Currency Doubleday. 1990.

ANSWER KEY: TEST YOUR KNOWLEDGE
EXERCISES

Test Your Knowledge Exercise #1:

Word Search Answer Key

A	R	Z	S	J	K	L	A	B	C	D	J	K	M	W	H	O	X
U	C	R	E	M	I	L	Y	J	E	R	R	Y	S	T	W	Z	D
S	R	C	L	G	R	E	A	T	B	R	I	T	A	I	N	O	E
T	S	F	R	A	D	M	W	S	T	U	R	F	R	N	I	L	P
R	W	G	E	E	S	W	R	I	U	S	P	O	E	D	N	R	A
A	Z	X	C	L	D	Q	W	E	N	I	E	E	R	U	S	T	R
L	Q	P	E	M	V	I	A	E	E	O	R	H	R	S	T	N	T
I	U	I	R	A	C	E	T	P	S	A	Y	T	E	A	I	O	M
A	L	O	T	P	S	R	E	W	C	B	C	E	F	I	T	I	E
S	R	I	I	U	I	O	P	Y	O	A	S	P	L	D	U	T	N
G	H	J	F	K	G	E	T	A	W	D	R	D	E	W	T	A	T
X	C	Y	Y	E	S	I	U	I	P	F	G	H	C	K	E	C	O
Z	X	R	D	K	L	E	A	R	N	I	N	G	T	B	O	U	F
P	G	O	I	A	T	O	R	Y	U	P	I	O	P	L	F	D	L
M	P	V	U	N	C	Q	N	W	A	S	D	J	H	K	M	E	A
X	H	Q	S	D	A	A	S	G	C	V	B	B	N	M	E	Z	B
Q	C	P	W	C	N	R	Q	U	O	E	I	U	D	P	D	X	O
W	T	V	E	P	A	T	I	E	N	T	S	Y	G	O	I	T	R
E	H	X	R	J	D	U	E	G	Y	W	I	G	V	I	C	R	W
A	J	Z	T	H	A	Y	R	K	Z	E	K	F	A	O	I	E	R
D	A	P	A	A	P	U	D	V	A	R	G	K	N	Y	N	R	A
F	A	S	P	E	T	E	C	H	C	H	E	C	K	T	E	C	H

Test Your Knowledge Exercise #2:

Matching

1. B
2. H
3. L
4. G
5. F
6. I
7. E
8. D
9. A
10. K
11. J
12. C
13. N
14. M