

# Updating the Pharmacy Technician Certification Examination

A practice analysis study

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The Pharmacy Technician Certification Board (PTCB) develops, maintains, promotes, and administers a certification and recertification program for pharmacy technicians. The goal of this program is to enable pharmacy technicians to work more effectively with pharmacists to offer safe and effective patient care and service. PTCB has successfully administered the Pharmacy Technician Certification Examination (PTCE) for 11 years throughout the United States. During that time, PTCB gained the support of major pharmacy employers nationwide and PTCB certification was accepted as the national standard by more than half of all state boards of pharmacy. PTCB administers a psychometrically sound and legally defensible examination three times a year and has certified over 220,000 pharmacy technicians since 1995.

## THE PTCE

The PTCE meets the relevant standards set forth by the testing industry. In addition, the National Association of Boards of Pharmacy (NABP) conducted a comprehensive review of the PTCE in 2001. The PTCE earned high marks for reliability and validity from NABP, paralleling the high standards explicit in NABP's licensure examination. NABP recognizes that the examination is the product of development and administration decisions designed to provide a nationally recognized tool to assure the public that those who earn the Certified Pharmacy Technician (CPhT) designation can perform their responsibilities in a safe and effective manner.

As a national organization, PTCB is able to marshal its resources and relieve

individual states of the burden of local development and administration. For that reason, PTCB performs the following tasks each year:

- Trains both new and seasoned question writers in the development of psychometrically-sound questions that conform to testing industry standards,
- Conducts annual question-writing and -review workshops involving more than 100 pharmacists, pharmacy technician educators, and pharmacy technicians,
- Pilot tests new questions to replenish the question bank,
- Reviews its question bank to delete outdated questions and questions with inadequate psychometric characteristics, and
- Develops four new forms for the PTCE.

As a matter of policy, and to ensure the overall quality, validity, and reliability of the PTCE, PTCB

- Constructs examinations that include 125 scored questions to ensure robust coverage of the test specifications and content validity for the examination,
  - Constructs new forms of the PTCE with minimal overlap between forms,
  - Reviews new forms of the PTCE to maintain strict adherence to the test specifications, including overall content coverage and a targeted focus on calculations and mathematical skills,
  - Preequates each form of the PTCE to ensure that passing the examination represents an identical challenge to the candidate—one that adequately assesses the knowledge base required to protect the public from harm, and
  - Conducts extensive psychometric reviews of the questions to detect flaws in the security of the individual questions and in the PTCE as a whole.
- PTCB is governed by five organiza-

tions: the American Pharmacists Association, the American Society of Health-System Pharmacists, the Illinois Council of Health-System Pharmacists, the Michigan Pharmacists Association, and NABP.

Pharmacy technicians must sit for and pass the national PTCE to use the designation CPhT. To continue to hold certification, a CPhT must successfully complete the recertification process, including the completion of 20 hours of continuing-education credit within two years of original certification or previous recertification. PTCB offers a reinstatement program that allows technicians whose certification has lapsed to become actively certified again.

Practice analysis studies are critical for identifying the appropriate test content on national pharmacy examinations. Both NABP and PTCB conduct periodic practice analysis studies to identify the tasks performed by pharmacy personnel and assess the criticality of those tasks to the protection of public health. The results of these studies are used to create examination outlines. The content outlines of the North American Pharmacist Licensure Examination and the PTCE are derived from practice analysis studies.

## ROLE OF PRACTICE ANALYSIS

The validity and defensibility of the PTCE are maintained by conducting the periodic practice analysis studies. Practice analysis characterizes the work of pharmacy technicians in terms of functions (i.e., broad areas of responsibility), specific responsibilities that pharmacy technicians perform within each function, and the knowledge needed to effectively perform those functions. The PTCE content is structured according to these functions, responsibilities, and knowledge.

The content for all examinations administered from 1995 through 1999 was

## APPENDIX A

# Tasks typically performed by CPhTs in community and health-system settings

### COMMUNITY PHARMACIES

- Accept electronic refill authorization from prescriber or other health care professional
- Assist the pharmacist in accordance with federal rules and regulations in obtaining from the patient or patient's representative such information as diagnosis or desired therapeutic outcome, disease state, and medication history
- Assess prescription or medication order for completeness, accuracy, authenticity, legality, and reimbursement eligibility
- Update the medical record or patient profile
- Assist the patient or patient's representative in choosing the best payment assistance plan if multiple plans are available
- Select the appropriate product for dispensing (e.g., brand names, generic substitutes, therapeutic substitutes, formulary restrictions)
- Assemble patient information materials
- Check for accuracy during processing of the prescription or medication order
- Provide medication and supplemental information to the patient or patient's representative
- Communicate with third-party payers to determine or verify coverage and to obtain prior authorizations
- Communicate with third-party payers and patients or patients' representatives to rectify rejected third-party claims
- Identify and resolve problems with rejected claims
- Direct patient or patient's representative to pharmacist for counseling
- Maintain required inventories and associated records
- Update and maintain patient information in accordance with federal regulations and professional standards
- Perform billing and accounting functions for products and services

### HEALTH-SYSTEM PHARMACIES

- Package finished dosage forms
- Assemble equipment and supplies necessary for compounding prescriptions or medication orders
- Perform calculations required for preparation of compounded i.v. admixtures
- Compound medications for dispensing according to prescription and compounding guidelines
- Prepare sterile products
- Record medication preparation and ingredients
- Place medications in dispensing system
- Deliver medications to patient care unit
- Record distribution of controlled substances
- Receive pharmaceuticals, durable and nondurable medical equipment, devices, and supplies and verify against specifications on original purchase orders
- Place pharmaceuticals, durable and nondurable medical equipment, devices, and supplies in inventory under proper storage conditions while incorporating error-prevention strategies
- Perform non-patient-specific preparation, distribution, and maintenance of pharmaceuticals, durable and nondurable medical equipment, devices, and supplies while incorporating error-prevention strategies
- Maintain required inventories and associated records
- Repackage finished dosage forms for dispensing
- Perform and record routine sanitation, maintenance, and calibration of equipment

### BOTH COMMUNITY AND HEALTH-SYSTEM PHARMACIES

- Affix labels and auxiliary labels to containers
- Prepare prescriptions and medication orders for final check by pharmacist
- Store medication prior to distribution
- Remove from inventory expired, discontinued, slow-moving, overstocked, and recalled pharmaceuticals, durable and nondurable medical equipment, devices, and supplies
- Coordinate written, electronic, and oral communications throughout the practice setting (e.g., route telephone calls, faxes, oral and written refill authorizations; disseminate policy and procedure changes)
- Update, maintain, and use job-related manual or electronic information systems
- Coordinate and participate in staff training and continuing education

derived using the results of the 1992–94 Scope of Pharmacy Practice Project (SPPP),<sup>1</sup> a national analysis of the profession of pharmacy that included the work performed by pharmacy technicians. Since then, advances in the practice of pharmacy have continued to change or expand the more traditional modes of operation. To ensure that the PTCE continued to be a valid, accurate, and up-to-date measurement of the work that pharmacy technicians do, PTCB completed an update analysis in 1999.<sup>2</sup> The test outline produced after the 1999 practice analysis was used to construct all examinations from 2000 through 2005. The study reported herein is the third practice analysis for pharmacy technicians. All three studies were conducted by the Professional Examination Service (PES), a nonprofit organization that provides credentialing program services to licensure and certification groups and serves as PTCB's contracted testing company.

### CURRENT RESPONSIBILITIES OF CPHTs

A task force composed of 10 experts in their field, including pharmacists, CPhTs, technician educators, and regulators was charged with updating the functions, responsibilities, and knowledge from the 1999 practice analysis. Task force members represented diverse practice settings, geographic locations, major employers, technician educators, and state boards of pharmacy.

To complement the work of the task force, telephone interviews were conducted with an additional 21 experts, including pharmacists, CPhTs, and state board of pharmacy representatives. The interviewees represented 13 diverse areas of expertise and 12 different work environments. Interviews focused on responsibilities and knowledge specific to pharmacy technicians' work setting, the content of training offered to new pharmacy technicians, and the critical knowledge required for effective practice.

The practice analysis identified new responsibilities performed by pharmacy technicians, including the handling and processing of restricted, investigational, and chemotherapy drugs; working in mail-order pharmacy settings; and increased involvement in third-party pay-

ment. New knowledge areas identified in the practice analysis included knowledge of error prevention strategies for data entry, cultural diversity, third-party payment, and pharmacy benefit management companies.

### **SURVEY INSTRUMENT**

PES administered a Web-based survey in spring 2005 to a stratified random sample of 4000 CPhTs. Survey participants were asked to rate each of the practice analysis elements (i.e., functions, responsibilities, and knowledge). In addition to indicating the criticality of each element for protecting patients and the public from harm, participants indicated the time spent performing each function and how frequently they performed each responsibility and used each knowledge base. They were also asked who typically performed each responsibility at their work sites. The return rate was 26%, providing sufficient data for analysis. A nonrespondent survey was conducted to analyze the extent to which the respondents represented the overall CPhT population.

### **SURVEY FINDINGS**

#### *Employers of CPhTs*

Half of the survey respondents worked in community pharmacies, a 10% increase from the 1999 survey. This increase is consistent with the growth in the number of community-based pharmacy technicians taking and passing the PTCE. While the representation of community-based CPhTs is higher than in the previous study, results of the nonrespondent survey suggest that the survey sample may slightly underrepresent the overall percentage of CPhTs working in community pharmacies. About one third of respondents (33%) worked in health systems and 17% worked in other settings, including home health, long-term care, ambulatory care clinics, managed care, mail-service facilities, and the military.

#### *Primary responsibilities of CPhTs.*

On average, respondents spend 63% of their time assisting the pharmacist in serving patients, 23% of their time maintaining medication and inventory control systems, and 14% of their time participating in pharmacy practice management and administration. This distribution of the

## **APPENDIX B**

### **Pharmacy technician activities with greatest increase in frequency since 1994**

#### **COMMUNITY PHARMACIES**

- Electronically accept new prescriptions and medication orders
- Contact prescribers and originators for clarification of prescription and medication-order refill
- Select the appropriate products for dispensing (e.g., brand names, generic substitutes, therapeutic substitutes, formulary restrictions)
- Compound medications for dispensing in accordance with prescription and compounding guidelines
- Update and maintain patient information in accordance with federal regulations and professional standards
- Coordinate written, electronic, and oral communications throughout the practice setting (e.g., route telephone calls, faxes, oral and written refill authorizations; disseminate policy and procedure changes)
- Participate in quality assurance activities

#### **HEALTH-SYSTEM PHARMACIES**

- Compound medications for dispensing according to prescription and compounding guidelines
- Communicate changes in product availability to pharmacy staff, patient or patient's representative, physicians, and other health care professionals
- Coordinate written, electronic, and oral communications throughout the practice setting (e.g., route telephone calls, faxes, oral and written refill authorizations; disseminate policy and procedure changes)
- Perform and record routine sanitation, maintenance, and calibration of equipment

#### **OTHER PHARMACIES (HOME HEALTH, LONG-TERM CARE, MAIL ORDER, MILITARY)**

- Electronically accept new prescriptions and medication orders
- Accept refill requests from patients or patients' representative
- Update the medical record and patient profile
- Enter prescription and medication order information into patient profile
- Calibrate equipment needed to compound the prescription or medication order
- Compound medications for dispensing in accordance with prescription and compounding guidelines
- Prepare sterile products
- Store medications prior to distribution
- Provide medication and supplemental information to patients or patients' representative
- Place medications in dispensing system
- Record distribution of prescription medications
- Record distribution of controlled substances
- Communicate with third-party payers to determine or verify coverage
- Communicate changes in product availability to pharmacy staff, patients or patients' representative, physicians, and other health care professionals
- Maintain a record of controlled substances ordered, received, and removed from inventory
- Coordinate written, electronic, and oral communications throughout the practice setting (e.g., route telephone calls, faxes, oral and written refill authorizations; disseminate policy and procedure changes)
- Perform and record routine sanitation, maintenance, and calibration of equipment

## **APPENDIX C**

### **Quality assurance activities typically conducted by pharmacy technicians**

- Multiple-point checking
- Assist pharmacist in monitoring patient outcomes (e.g., collect patient-specific data)
- Inventory control (e.g., separation of medications, bar-code scanning, process verification, system updates)
- Coordinate written, electronic, and oral medication error communications throughout the practice setting (e.g., unapproved abbreviations, look-alike and sound-alike medications)
- Education, training, and certification
- Review discrepancies and billing and fraud errors

workday was similar across community, health-system, and other work settings and was almost identical to that obtained in the 1999 study, suggesting that the relative emphasis on the major roles of the pharmacy technician has remained stable over the past six years.

Community-based CPhTs were most frequently involved in assisting with outpatient prescription dispensing (91%), purchasing and inventory control (56%), and billing (51%). In contrast, health-system CPhTs identified assisting in inpatient medication dispensing (76%), preparing i.v. admixtures (67%), and prepackaging and repackaging (62%) as their primary responsibilities. CPhTs in other settings were primarily involved in assisting with outpatient prescription dispensing (52%), purchasing and inventory control (40%), and prepackaging and repackaging (34%). A similar pattern of setting-related differences in primary work areas was observed in the 1999 study. A list of specific responsibilities of community and health-system pharmacy technicians is provided in Appendix A.

#### *Additional responsibilities.*

In 2005, additional, more advanced responsibilities (including those more traditionally performed by a pharmacist) were performed by several respondents. Direct comparisons were possible between certain ratings obtained in the SPPP and the current study. In each practice analysis, respondents indicated who typically performed each responsibility (pharmacy technicians, pharmacists, support staff, or no one). Several tasks were performed more frequently in 2005 than in 1994 and are listed in Appendix B. In all three settings, pharmacy technicians were more typically involved in compounding medi-

cations and coordinating communications throughout the practice setting. In community settings, there was growth in the extent to which pharmacy technicians were contacting prescribers for clarification of prescriptions and participating in quality assurance activities. Another notable change since 1994 was the expansion in the number of tasks typically performed in other settings, suggesting that the role of the pharmacy technician has expanded in these settings over the past decade.

#### *Quality assurance and medication-error prevention.*

The expanded use of pharmacy technicians and its potential impact on patient safety, particularly in the area of medication errors, has been a topic of concern within the profession. Skilled technicians have been shown to play an important role in improving patient safety and medication-error strategies.<sup>3</sup> An increasing number of state boards of pharmacy, recognizing the integral role of pharmacy technicians, have revised practice regulations to allow a broadening of their responsibilities.<sup>4</sup> To address these pivotal practice matters, the current survey incorporated a qualitative comments section. It included open-ended questions so respondents could describe the medication-error reduction-related quality assurance procedures at their work site and the respective roles of pharmacy technicians. The specific procedures most commonly identified and performed by the respondents are shown in Appendix C. Most often included were activities related to multiple checkpoints in medication order entry and dispensing, incorporation of experienced technicians into the order-entry process, and an error-causality examination paradigm. Tech-

nician roles included medication order entry, multiple-point checking, screening medication orders for dangerous medical abbreviations, physically separating look-alike medications and sound-alike medication names, assisting the pharmacist in monitoring patient outcomes by collecting patient-specific data, and completing technician education requirements. These results denote that a more detailed assessment of the CPhT's role in and affect on quality assurance needs to be performed in future analyses.

#### *Supervisory responsibilities.*

The percentage of CPhTs with supervisory responsibilities increased from 32% in 1999 to 40% in 2005.

The 2005 data indicate that CPhTs who supervise other pharmacy technicians perform a number of tasks more frequently than CPhTs without supervisory responsibilities. Three such tasks included order-entry verification, preparation and packaging of medications produced by other technicians, and preparing prescription and medication orders for final approval by a pharmacist, as allowed by law. Additional practice management tasks included collecting productivity information, performing billing and accounting functions, performing or contributing to employee evaluations and competency assessments, and participating in the establishment, implementation, and monitoring of policies and procedures. Supervisors did not perform any responsibilities less frequently than those without supervisory responsibilities.

#### *Formal on-the-job training.*

Pharmacy technician education and training requirements vary among states and employers. As the responsibilities of pharmacy technicians increase, the level of education and training required to effectively execute these expanded roles should also increase. The survey found that relative to 1999, there has been an increase in the percentage of CPhTs whose employers provide formal on-the-job training. In 1999, 29% of survey respondents indicated their employers provided formal on-the-job training; in 2005, 40% so indicated. This finding was consistent across work settings and indicates the growing recognition by employers that education and training for pharmacy technicians are

### PTCB NATIONAL CERTIFICATION EXAMINATION - WISCONSIN RESULTS

EXAM DATE	# WHO SAT	# WHO PASSED	% PASSED
1995-1999	1,302	1,195	92
2000	547	445	81
2001	491	425	87
2002	425	381	90
2003	448	404	90
2004	490	445	91
2005	531	483	91
<b>Current number of certified Wisconsin pharmacy technicians:</b>			<b>3722</b>

critical components of safe and effective pharmacy systems.

### IMPLICATIONS FOR PHARMACY PRACTICE

The roles and responsibilities of pharmacy technicians across all practice settings have expanded. As pharmacists are increasingly engaged in more contemporary pharmacy practice activities, functions not requiring professional clinical judgment (e.g., pharmacy calculations and compounding) are performed by pharmacy technicians. The required knowledge and skills to perform these functions have been identified and will be incorporated into PTCB's certification process, thus ensuring that pharmacy technicians are competent to assume these responsibilities.

### NEW CONTENT OUTLINE FOR 2006 PTCE

Using the 2005 practice analysis results, a revised content outline for the PTCE was derived from respondents' survey ratings and includes the new task and knowledge areas identified by the task force and validated by the survey. The new content outline for the PTCE can be found on PTCB's Web site ([www.ptcb.org](http://www.ptcb.org)). Implementation of the new test specifications is scheduled for March 2006. The PTCE will be administered on March 11, July 22, and November 18, 2006. An additional examination will be offered on Sept. 9, 2006 in select cities across the nation. ●

Patricia Muenzen is director of research programs for the Professional Examination Service in New York. Melissa Murer Corrigan is executive director and chief executive officer of the Pharmacy Technician Certification Board (PTCB) in Washington, DC. Miriam Mobley Smith is director of experiential education for the College of Pharmacy, University of Illinois at Chicago. Phara G. Rodrigue is associate director of certification programs for the PTCB.

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## Section News

### STUDENT SECTION

## APhA Meeting and Legislative Day on Docket



by Lindsay Sutter, WSPS President

Second semester is flying by as usual with pharmacotherapy and pharmacology filling the students' heads. We are eagerly awaiting our spring break. Some students will be flying out to San Francisco for the APhA Annual Meeting. Many of the attendees are new to the national meeting scene and are excited for the APhA-ASP House of Delegates sessions, the Chapter Roundtable, the Exposition, the Residency Showcase and exploring other possible postgraduate opportunities.

WSPS held its annual health fair in conjunction with PSW's Legislative Day in February in the Capitol rotunda. Operation Diabetes, Asthma and Immunizations completed multiple screenings. This opportunity to share our patient skills and knowledge with legislators, community members, and practicing pharmacists is always rewarding.

With such a huge success last spring, we can barely wait for the 2nd annual Pharmacy Idol program scheduled for later this semester. This popular social event is expected to draw many students, faculty and families.

The DPH-1s have been planning their White Coat Ceremony all semester for their big day at the end of April, held in conjunction with the PSW Educational Conference at the Monona Terrace. Friends and families from around Wisconsin will join in this celebration. ●

### TECHNICIAN SECTION

## Who Will be Our Next Technician of the Year?



by Deb Hartung, CPhT, Technician Section President

I wish to enlighten everyone about one of the most esteemed awards in our organization: the Technician of the Year. In the short history of the Technician Section, we have had deserving recipients who are active in their respective practice sites as well as in PSW.

The award will be presented at the annual meeting in September in Milwaukee. We encourage co-workers, managers, owners, and friends to nominate a technician they feel is worthy of this honor. The criteria for selection will include the candidate's contribution and commitment to the pharmacy technician's practice, their commitment to PSW and other pharmacy organizations, and their commitment to community service. These are the things we all strive for in our professional and personal lives. One of the past recipients, Sharon Belding of Cub Pharmacy in Beloit, expressed her feelings in some very emotional comments. "I will never forget the day when Chris Decker called naming me as the Technician of the Year in 2004. All I can say is WOW. I am not a super tech! I just try to do my best at my work....." She continued to say that there's more to being a technician than daily hands-on experience. Sharon tries to pave the way for others to achieve their best and is proud to be recognized for her efforts by her peers and PSW. All of the past recipients, like Sharon, were shocked at being presented with this honor. Yet each Technician of the Year has embodied the true spirit of this award.

Please take some time to nominate a friend or co-worker and recognize that person's time and effort. The nomination form for Technician of the Year, as well as other PSW awards, can be downloaded from the PSW Web site at [WWW.PSWI.ORG/PROFESSIONAL/AWARDSNOMINATION.PDF](http://WWW.PSWI.ORG/PROFESSIONAL/AWARDSNOMINATION.PDF). We need to reward the best among us for making such outstanding contributions and setting such fine examples. ●