



Pharmacy Practice Perspectives

Articles written for
**PHARMACY STUDENTS, RESIDENTS,
AND NEW PRACTITIONERS**

by
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PHARMACY PRACTICE PERSPECTIVES

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CALIFORNIA SOCIETY OF HEALTH-SYSTEM PHARMACISTS
PHARMACY PRACTICE PERSPECTIVES

Compiled by Sunny Garbutt
Governance & Project Management Specialist
July 2007

FORWARD

The idea for this publication revealed itself in a conversation in March 2006 with former president of the San Gabriel Valley Society of Health-System Pharmacists (SGVSHP) Dan Kudo. As the new staff ambassador to SGVSHP, I called Danny to find out how he would like us to structure this new relationship. I let him know that I would be his trouble-shooter for all things CSHP, but that I was also in the market for good ideas to help make CSHP more valuable to its members.

Dan suggested that the talented members of CSHP, whose practice settings probably covered everything possible for health-system pharmacists, were a vast untapped resource. Many students, residents, and new practitioners probably knew little about the numerous ways they might apply a brand new PharmD if they were to choose health-systems pharmacy as a direction. If someone would only reach out to our members, we could and should compile a collection of practice-setting descriptions, publish them in our e-newsletter, *InfoSource*[™], and ultimately on the CSHP website.

Some ideas are wonderful but too large to contemplate, but this one felt just right. I could do this! Armed with a few names from Danny and more names I acquired along the way, I appealed to many CSHP members, almost every one of whom graciously responded with an article to tell us about his or her personal experiences in the pharmacy profession. One by one the articles grew to the 21 stories you will find inside.

I would like to express my appreciation for editorial comments from staff members, *CJHP* Managing Editor Cindy Hesse and, believe it or not, my husband. Every person who looked at this document gave me some little hint or idea that improved the final product.

Over this past year, I have thoroughly enjoyed working with the contributing authors, and I have learned something from every article. I trust that you, the readers, will also find *Pharmacy Practice Perspectives* to be an interesting, but more importantly, a valuable resource.

Finally, I must extend my personal appreciation to all the CSHP members who contributed their time and energy and worked so closely with me to produce *Pharmacy Practice Perspectives*. You have proven once again that volunteers are the lifeblood of CSHP!

Sunny Garbutt

ROLE OF THE PHARMACIST IN TRAVEL MEDICINE IN THE UNITED STATES

By Jeffery A. Goad, PharmD, MPH, BCPS

The pharmacist is in a unique position to assume the role of a pre-travel health provider. Pharmacists receive extensive disease and infectious disease training in pharmacy school and are honed to be excellent drug and disease counselors. Although some of the diseases and drugs may not have been covered extensively in school, excellent continuing education programs, electronic databases, and textbooks exist to enhance the pharmacist's knowledge.

Although there is little reported in the literature on pharmacist-run travel medicine clinics, pharmacists provide a host of travel health information in the course of their day, whether in community or primary care practice. Depending upon state laws, pharmacists may provide travel health services to varying levels. Extent of collaborative practice and immunization laws will largely determine the scope of services provided.

In 44 states, pharmacists are allowed to administer immunizations, often requiring physician collaboration. Collaborative practice rules are complex and difficult to compare from state to state. Collaborative practice in this instance means a pharmacist who has contracted with a physician or group of physicians to provide a service for those physicians' patients.

Whether the pharmacist is located within the medical practice or at a distant location (eg, a pharmacy), the pharmacist and physician work closely to develop policy, procedures, and protocols that help define the scope of service the pharmacist will provide. In some states, this collaborative practice arrangement allows pharmacists to initiate, adjust, or discontinue medications according to the protocol developed.

Pharmacists were early adopters of computer technology; thus, they are comfortable using computer databases and the Internet. Various comprehensive and constantly-updated electronic databases are available to the pharmacist to use. With collaborative practice agreements and immunization protocols, and using their well-honed computer skills, pharmacists can easily provide the right vaccinations and medications to travelers. Regardless of the extent to which pharmacists may prescribe medications or vaccinate in their state, they can always provide written recommendations for patients to take to their clinicians. These recommendations take a tremendous burden from the physician to research the health risks of the traveler's destination.

Aspects unique to community pharmacy are access and the ability to provide "one-stop shopping" convenience. The pharmacy can dispense the medications just ordered and carry a full array of travel supplies. Common travel supplies include insect repellent, mosquito netting, water purifiers, iodine tablets, first aid kits, sunscreens, and international plugs. Common nonprescription medications that should be stocked include bismuth subsalicylate, loperamide, meclizine, and melatonin.

In the community pharmacy, pharmacists are readily accessible and highly visible. With the implementation of the HIPAA (Health Insurance Portability and Accountability Act) privacy rule and evolution of pharmacy-based patient care services, the physical layout of many pharmacies has changed to allow private or semi-private consultation and direct patient care services.

With the literature indicating a low participation rate among travelers in travel clinics, the availability of pre-travel health in pharmacies may increase the number of travelers seen by a health professional who would have otherwise not sought care. (Appendix 1 illustrates an example of a pharmacist-run travel medicine clinic.)

The reimbursement structure of a travel clinic depends upon the setting. In a primary care clinic, services can be billed incident to the care of a physician, provided the physician is on the premises and available for consultation. In a community pharmacy, services are usually provided on a fee-for-service basis for the visit, immunizations, medications, OTC products, and travel supplies.

Providing pre-travel health services is a valuable preventative medicine intervention that can be both challenging and rewarding for the pharmacist. Although pharmacists have not been traditional providers of this service, their skill sets may include counseling, medical informatics, vaccination, disease management, and prescription and nonprescription product selection. All of these skills are essential to providing pre-travel health and safety preventative services. In addition, the integration of a travel clinic in a community pharmacy may increase access for patients who might not otherwise have sought pre-travel care.

Jeffery Goad is Assistant Professor of Clinical Pharmacy at the University of Southern California School of Pharmacy Titus Family Department of Pharmacy, Los Angeles, California. He also has a Certificate of Knowledge in Travel Health. This article is abridged from an article that Jeffrey wrote for Advances in Pharmacy, Volume 2, Number 4, 2004.

Appendix 1. Profile of the USC International Travel Clinics	
Setting:	Large undergraduate campus and a medical campus
Location:	In collaboration with the Student Health Center, family medicine and the campus pharmacies
Staff:	Pharmacists, pharmacy residents, student pharmacists, nurses, and supervising physicians
Hours:	One and one-half days per week; approximately 15 patients per week
Scope:	Pre-travel clinic: visit, patient/itinerary specific travel health and safety handbook, immunizations, medications, ancillary travel products
Format:	Referrals for medical clearance if required or for ill returned travelers 30-, 69-, or 45-minute visit: vitals (nurse or pharmacist), medical history and itinerary evaluation, counseling, order necessary medications and immunizations from a pre-set formulary, administer vaccinations (nurse or pharmacist), dispense medications from the pharmacy
Payment	Fee-for-service for non-students; student health insurance coverage for students.

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SPORTS PHARMACY

Peter J. Ambrose, PharmD, FASHP

Sports pharmacy is a relatively new field that encompasses both therapeutics (sports medicine) and doping control (drug testing and education). At this point, pharmacists need to be entrepreneurial and create our own niche in this field as we develop our careers. To this end, there are a variety of roles that pharmacists can “play” in the “field” of sports pharmacy.

Therapeutics

Pharmacists can utilize their clinical skills and expertise in drug therapy in this patient population to maximize clinical outcomes. For example, pharmacists can recommend the most appropriate anti-inflammatory agent for a particular athlete’s needs and monitor that therapy to prevent or minimize adverse drug reactions. Treatment of injuries often requires drug therapy, where a pharmacist’s expertise is valuable. Staphylococcus infections are common in contact sports, and MRSA is a major concern even from wrestling mats; thus, pharmacists can have an impact here as well. These are just some examples where the expertise of pharmacists is needed.

Community Pharmacy Practice

Some pharmacists have focused their practice on catering to the needs of athletes. This includes dispensing and compounding unique formulations of medications (eg, creams) that are of particular use for athletes. Regardless of specialization, community practice pharmacists routinely dispense medications to athletes, whether they realize it or not; therefore, we have the opportunity to provide advice and to counsel these patients on over-the-counter medications, dietary supplements, and prescription drugs.

We also have the obligation to counsel athletes who are subject to drug testing to help them avoid the inadvertent use of banned substances. Pharmacists can either contact the appropriate specific sports-governing agency or can advise athlete-patients to contact their sports organization to determine if a particular substance is banned, restricted, or permitted. Pharmacists can also assist the athlete-patient with obtaining medical exemptions, when appropriate, for restricted substances. Community pharmacies would be ideal if they became associated with sports-governing bodies to have athletes report to them for short-notice, out-of-competition drug testing collection; moreover, pharmacists are uniquely qualified to provide drug information.

Doping Control Programs

Pharmacists can participate in doping control programs for the different sports-governing organizations in a variety of ways. Pharmacists have participated as doping control officers for amateur, professional, and Olympic sports by becoming certified by sports-governing agencies, and they have staffed drug information centers (eg, during the Olympics). Further, pharmacists can serve as consultants to the various sports-governing agencies on substances to ban, permit, or restrict and can develop drug formularies for these organizations. Pharmacists can also educate athletes, coaches, athletic trainers, and others by giving presentations on the problem and dangers of drug use in sports.

Conclusion

Sports pharmacy is an emerging field that offers numerous opportunities for pharmacists. Not only is it a rewarding and fun area of practice, it is a valuable service to athlete-patients and sports-governing agencies. For more information, please see references (below).

Peter Ambrose is Professor of Clinical Pharmacy, Department of Clinical Pharmacy, School of Pharmacy, University of California, San Francisco. He also has served as Drug Testing Crew Chief, the National Collegiate Athletic Association; Certified Drug Testing Collector, the National Center for Drug Free Sport; Doping Control Officer, XXVI Olympiad, Atlanta, Georgia, USA; and Doping Control Officer, XXVII Olympiad, Sydney, Australia.

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ONE PHARMACIST – PATHS LESS TRAVELED

Brian Hodgkins, PharmD, FCSHP, FASHP

It is inherent in our nature to seek out the best jobs to meet our career, personal, and family goals. I have spent nearly 15 years discussing where and what students find motivating for pursuing their ultimate practice site(s). The top 5 may surprise some, but they remain – familiarity, flexibility, pay/benefits, location, and lastly clinical challenge.

So what we consider to be the “Holy Grail” of a job often times is largely influenced by where we experience our first exposure to pharmacy. To cite the old adage that “the apple doesn’t fall far from the tree” is applicable to pharmacy. This means that the path first traveled is often the path of least resistance, which in turn often leads to our initial practice site. This also implies that first impressions are lasting, and that we are significantly influenced by the first professional interactions we have with future colleagues, who serve as teachers, mentors, and leaders, and who profoundly shape our career paths.

I would strongly suggest that all aspiring pharmacists remain open minded during their 4 plus years of training and education, because opportunity in the pharmacy profession is growing exponentially. Many practice sites available today simply did not exist 10 years ago. Changes in health-care delivery and financing (Medicare Part D) will ultimately result in more opportunities for pharmacists – the scope of which are yet to be determined.

Many of my colleagues joke about my own path, because it seems I have made a series of unrelated job changes over my career. This may be true, but I have always accepted or sought positions that offered more knowledge, more opportunity, more patient-care challenges for me as a pharmacist, and that ultimately benefited my family.

This being said, here are a few of the interesting practice site opportunities that I have experienced and that may resonate with those of you making career decisions in the near future.

Resident Pharmacist – Best career choice I ever made! Is there anything better than getting paid to learn, develop clinical skills, train, and network with the best leaders in pharmacy? Today there are opportunities for residency training in community based practice, managed care, ambulatory care, and more.

Cancer Center, Director of Clinical Operations – This position gave me administrative scope overseeing medical oncology, radiation oncology, pharmaceutical services, nursing, laboratory services, and more. It required skills that supported work on market and service expansion, physician recruitment and regulatory compliance. This was a great learning experience that provided valuable exposure to hospital-based outpatient service delivery, multidisciplinary collaboration, physician practice management, reimbursement, and health-care management. My experience as a Clinical Coordinator and Pharmacy Director overseeing other clinical departments and disciplines was critical for success in this position.

Director, Medical Liaisons Managed Care – I joined the proverbial “dark-side” for an opportunity to advocate for appropriate pain management access and appropriate therapy. Working for the pharmaceutical industry was one of the most rewarding professional experiences of my career. It was an exceptional learning experience for understanding drug product and integrated health-care policy development and implementation. It also was an excellent way to network and collaborate with health-care decision makers and thought leaders of the largest managed-care companies in the U.S. I was fortunate to work for a small company with outstanding leadership who valued pharmacists both in scope of professional service as well as in compensation, as vital health-care partners.

Many of my colleagues have pursued second-phase career choices in the pharmaceutical industry because of the tremendous opportunity for growth, promotion and impact on health care-decision making from a different perspective. Here, experience is valuable as well as a willingness to travel: and I mean travel! You will certainly come to appreciate the fine art of travel and hotel living. For those of you with an aversion or allergy to pharmaceutical sales representatives, here is your opportunity to understand this much maligned and often misunderstood individual. If you have a passion for a specialty area of clinical practice, excel in teaching or giving presentations to varied professional audiences, and love travel, this could be a practice site for you.

Desert Pharmacotherapy Consultants – Nearly 10 years ago I established a consulting business that provides legal review and analysis of medication or standard-of-care related malpractice or regulatory violation cases. Other services provided are: outpatient surgery or clinic inspections, education, market research, pharmacy reimbursement, and medication therapy reviews. We also do work for a large medical group and independent physician practice on medication-related treatment strategies and collaborative treatment models, as well as providing some physician management support. Future possibilities involve disease-state management, expansion of collaborative practice models, and targeted high-risk patient assessment and treatment programs. Networking, creativity, and a passion for expanding the opportunities for pharmacists are instrumental in making this a successful venture with continued growth.

I have outlined for pharmacists some possible practice opportunities that rely on the solid foundation of basic pharmacy education and training. All of these career opportunities also represent a logical progression of broad practice experience. The importance of a life-long commitment to education and professional networking creates the potential catalyst for that moment when inspiration meets preparation.

CSHP also provides an environment for professional advancement and development. Staying linked to such an organization and the collective wisdom of its membership is a relationship that ultimately cultivates these paths to interesting practice sites. Without my volunteer experience and relationship with CSHP, many of these opportunities and interesting practice sites would never have occurred. Pharmacy remains the profession of opportunity that builds medication experts for life.

Brian Hodgkins is currently Director of Pharmacy Services, Desert Regional Medical Center, Palm Springs, California.

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EVERY PHARMACIST IS A MEDICAL SAFETY OFFICER

Rich Richards, PharmD

The 1999 Institute of Medicine (IOM) report *To Err Is Human* brought to the public's attention that we are likely killing between 44,000 and 98,000 Americans per year in the world's most technologically advanced health system. In that same publication they calculated that we are spending upwards of \$2 billion treating medication-related errors alone.

Pharmacists like Mike Cohen, Founder and President of the Institute for Safe Medication Practices (ISMP), one of the world's premier patient safety resources, and Neil Davis, Professor Emeritus, Temple University School of Pharmacy, Philadelphia, PA, Editor Emeritus, Hospital Pharmacy, have been at the forefront of patient safety for decades and have provided inspiration to many in our field. Patient safety is high on the agenda in "pay for performance" initiatives by government, insurers, and employer groups like Medicare, the "Blues," and Leapfrog. The Joint Commission on Accreditation of Healthcare Organizations (Joint Commission) is evaluating health-care organizations and expecting 100% compliance on its National Patient Safety Goals (NPSG's).

Patient safety is on the front page of the paper. It is everyone's concern and every health-care provider's responsibility, and the pharmacist is smack dab in the middle of the action! Pharmacists have always taken strong responsibility for monitoring drug-drug interactions, drug allergies, and the dosing of the prescriptions and inpatient orders they process. Well-trained and conscientious, pharmacists are currently saving their patients significant amounts of morbidity, mortality, and money.

What more can we do? Lots!

Not every pharmacy is reviewed by Joint Commission, but their NPSG's provide a reasonable framework for discussion.

Goal 1 is to improve the accuracy of patient identification. Pharmacists may not be in a position to operate on the incorrect patient, but we can sure dispense an error without the proper safeguards. As an inpatient practitioner do you always use 2 identifiers for any patient? As an ambulatory practitioner do you always call your patient by the name on the bottle when providing consultation, to insure you are talking to the correct patient? Remember, you cannot complete the age-old pharmacist mantra of "5 Rights" without first having the right patient.

Goal 2 prompts us to improve the effectiveness of communication among caregivers. How many of you take the extra few seconds to read back a telephone order to ensure that what the physician said is what you heard? Back in the dark ages the code between the prescriber and the pharmacist protected the patient from reading the recipe of a secret potion. Today patients search the Internet and may know more about some of their potions than we do. We must cease with the dangerous abbreviations and symbols and write clear and legible prescriptions and documentation.

Goal 3 specifically addresses improving the safety of using medications. Questions to ask yourself include: Does our pharmacy or organization utilize a standard and limited number of concentrations of our medications? When was the last time I reviewed the OTC shelves or the Pyxis machine to ensure sound-alike/look-alike meds were separated? Are all meds labeled whenever there is a hand-off or hands-off situation?

Goal 8 mandates that we collect a complete list of a patient's current medications and reconcile that against inpatient treatment, and that an updated list be transmitted to the next care provider. Typically this is a nursing responsibility in most hospitals, but who better than a pharmacist to assist in the process? As an inpatient practitioner, how have you gotten

involved to ensure your organization's medication reconciliation process is as safe and effective as an FDA approved drug? As an outpatient practitioner, is there an opportunity for you provide a complete list of medications to your patients and educate them on providing this list to all their care providers?

The role of a hospital-based Medical Safety Officer (MSO) requires intimate knowledge of the organization's operations and care-delivery processes. That includes not only how the medication gets prepared in the pharmacy and delivered to the floor, but also how it gets to storage on the unit, how the nurse completes final preparation and delivery of the med, and how the pump is programmed. A strong relationship with the medical staff is essential, as they are your greatest allies and sometimes your biggest roadblocks.

This skill set is typically a by-product of experience as an on-the-floor clinical pharmacist. The MSO investigates medical error from a nonjudgmental, systems-based approach. He or she understands technology and how it can assist in quality improvement processes. He or she is a teacher, passionate about the subject and committed to changing the culture. He or she enjoys forensic investigation, uncovering the root cause of unintended outcomes and errors, and then leading the principles involved in discovering opportunities for improvement.

The successful MSO is a change agent and a project manager, who sells and implements patient-safety-inspired projects. This job understandably is not for all pharmacists, but every pharmacist can play an inspired role in advancing patient safety.

Rich Richards is the Medical Safety Officer for Children's Hospital and Health Center in San Diego, CA. Prior to this role he spent 10 years as a PICU clinical pharmacist and 10 years in information technology at Children's.

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DRUG EDUCATION COORDINATOR

Lisa Gunther Lum, PharmD, FCSHP

The drug education program at Kaiser Permanente began 20 years ago as a pilot project with 1 pharmacist serving as the drug education coordinator (DEC). Today, Kaiser Permanente's DEC program is California-wide and utilizes over 40 drug education coordinators.

The role of the drug education coordinator can be one of the most rewarding yet most difficult jobs in the pharmacy profession. A drug education coordinator promotes formulary and preferred drug therapies and guidelines at the pharmacists' institution or place of practice.

Education

While all of the words in the title "drug education coordinator" are important, in my experience the word "education" is by far the most significant of the group. My audience or customers includes pharmacists and pharmacy staff, physicians, and other prescribers, such as nurse practitioners and physician assistants, as well as department managers, benefits managers, patient educators, top administrators, and other health-care personnel involved in patient care. Medication education for the pharmacists and prescribers is a given, but why the other personnel? Because by informing all personnel about formulary and benefits changes, patient confusion regarding the changes is reduced and a uniform presentation is provided.

Education must be continuous and a variety of media used. Education methods that I find most useful are newsletters, flyers, e-mails, phone calls, personal visits (scheduled, unscheduled, and curbside consults), meeting announcements, oral presentations, table top displays, participation in drug-related CME, and more.

The best part of the job is the creativity. Particularly when making rather difficult medication changes, it is important to have a slogan or "stickiness factor." This slogan is then carried throughout all the provider education media. The best slogan is a "play on words" from popular films or other current news items.

Collaboration

One of the most effective ways to affect change is through the use of physician champions. Physician champions make presentations to physician peers, aid in performing chart reviews of prescribing possibly outside the guidelines, are a resource for specific patient-care questions, and provide overall support of the evidence-based reasons for change. Collaborating and coordinating with physicians and physician leaders is an important part of the DEC's work. We also ensure that individual patients receive the most appropriate medication by reinforcing the ability of our prescribers to use the "formulary exceptions process" when it is medically necessary.

Evidence-based Medicine

The only way to assure ourselves that we are doing the right thing by our patients and not simply the easiest or least expensive option is through the practice of evidence-based medicine. Fortunately, at Kaiser Permanente we have a large, national drug information service that writes drug monographs reviewing the clinical effectiveness of new medications. They compare the drug against agents currently on formulary and all agents on the market, and solicit opinions from medical experts and specialists as to the medication's potential place in our medication armamentarium. Drugs, therapeutic class review, and guidelines are then reviewed and approved by local and regional pharmacy and therapeutics committees. Final decisions regarding formulary drugs and preferred therapies are always made by physicians.

While preparing the monograph, a thorough review of the literature is done including collation of unpublished reports, poster presentations from education events, and FDA warnings. Clinical specialists from the pharmaceutical companies also provide published and unpublished clinical information necessary to make a medical evidence-based decision.

Support and Monitoring

Naturally change is difficult, and a way to support change aside from information is to provide support tools for prescribers. In addition to the pre-printed prescriptions, pocket cards can be an important tool for clinicians. Pocket cards can contain drug/dose conversion recommendations, drug titration or escalation information, or comparison information.

Reports and score cards are important in managing the conversion process and also identify pockets of outlier prescribers. Strong computer skills for DEC's and support staff are a must, as well as the ability to analyze complicated data. It is important to set project-start dates and completion dates as well as minimum thresholds, goals, and targets.

Conclusion

The DEC position does not provide direct patient care but aids in the medication selection process through coordination with various health-care providers. The DEC's knowledge and educational efforts around formulary and preferred-drug therapies are a tremendous resource to prescribers, pharmacy staff, and ancillary departments in the medical center. While interventions and monitoring can sometimes be difficult, it is important to remember that there is medical-based evidence behind the therapy decisions, and that the therapeutic utilization parameters are reviewed and approved by physicians and specialists.

Knowing that my work and educational activities enable the provision of high quality health care for an affordable price for our Kaiser Permanente members is extremely rewarding.

Lisa Gunther Lum is currently the Finance Director of Pharmacy Analytics at Kaiser Permanente in Downey, California. She served as the Drug Education Coordinator at the Kaiser Permanente West Los Angeles Medical Center from 1997 to 2006.

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PHARMACISTS AND COMPLIANCE

Kenneth H. Schell, PharmD, FCSHP

With the passing of the Medicare Modernization act of 2003, various new opportunities have arisen for Pharmacists in health care. With the passage of Medicare Part D, Medication Therapy Management Programs were called on that would permit objective measures of how a patient's health improved with the care. It turns out that this is only the tip of the iceberg with regard to how Medicare will influence health care.

To receive federal subsidies, organizations must have compliance programs to monitor such areas as scope of practice, fraud, training, and policy development to name a few. Why such a focus on compliance? In 2004, health-care spending in the United States reached \$1.9 trillion and was projected to reach \$2.9 trillion in 2009.¹ Health care will consume 15.5% of the U.S. economy this year. The Federal government wants to ensure that its investment is yielding the appropriate results.

Because of the large expenditure, fraud is a major concern of the Federal Government. To combat this, \$1 billion was placed in the 2005 federal budget to fight health-care fraud and abuse. This has yielded a **high rate of return**. In a 6-month period, April 1, 2005 – September 30, 2005, the government obtained the following return:

- \$35.4 Billion savings/recoveries
- \$32.6 Billion in implemented recommendations/actions for better use of funds
- 3,806 Exclusions
- 537 Criminal actions
- 262 Civil actions

Not bad for a one billion dollar investment!

Not all of these actions were the result of malicious intent of the parties penalized. Much of it was lack of oversight: a failure to comply with Medicare rules and guidelines (of which there are over 15,000). Some resulted from poorly-designed business practices. The fact remains, compliance oversight has come to the forefront of the health-care industry.

Pharmacists have a unique opportunity in this environment. Pharmacy is one of the most regulated industries in the country. Penalties for a pharmacy or pharmacist not in compliance with laws and regulations can be extremely severe. As a result, pharmacists have a very keen sense of understanding compliance and compliance structures.

Much of compliance is setting up systems. One can look at compliance in a similar fashion to doing a Medication Use Evaluation. First, one has to establish rules or standards; next, objective measures must be found. Once this occurs, periodic assessments must be done. In addition training programs, policies, and procedures and corrective action systems must be developed and maintained. Again, because of the regulatory environment that pharmacists work in, compliance positions are a good fit.

With health-care dollars becoming more scarce and the public desiring accountability and proof of good care, compliance programs are becoming increasingly important. Organizations understand that it is much more effective to comply than to be penalized. Quality compliance employees can be of tremendous benefit. Pharmacists can take a leadership role in developing and maintaining compliance programs.

¹ National Coalition on Health Care April 19, 2006

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THE HOSPICE PHARMACIST

Victoria Ferraresi, PharmD, FCSHP, FASHP

Hospice is a team-based approach to care that provides for the palliation of symptoms for terminally ill patients and also attends to their emotional and spiritual needs and those of their families and caregivers. As provided in the United States, hospice care is generally delivered in the patient's home, which can be a house or apartment or a skilled nursing, long-term care, or assisted living facility. The focus of treatment changes from curative to palliative in hospice care. As described by the World Health Organization, "control of pain, of other symptoms, and of psychological, social and spiritual problems is paramount."

The Medicare Hospice Benefit is the prototype model of hospice care. It is covered under Part A, or the hospital portion of Medicare benefits. Two physicians (the primary care physician, or PMD, and the hospice Medical Director) must certify at the start of care that the patient has a prognosis of living 6 months or less, if their disease were to follow its natural course, and thereafter at regular intervals by the hospice Medical Director only.

When patients enroll in hospice under Medicare, they sign an election statement that they consent to hospice care. They waive their Medicare benefits *related to the hospice diagnosis* for treatment or curative care. All payments related to the diagnosis must thereafter be channeled through the hospice. The patient's PMD is the only provider: Medicare will reimburse directly for ongoing care for this diagnosis.[‡] Patients may choose to leave hospice care at any time.

The Medicare Conditions of Participation or COPs (42CFR418) clearly define the services that hospices must provide. They can be viewed at www.nhpc.org/files/public/COPS_RevisedSubpartBFG_0106.pdf.

Services are provided at no charge to patients if they are related to the terminal or hospice diagnosis and are for the palliation of symptoms. This includes, but is not limited to, provider visits, medications (both prescription and nonprescription drugs), durable medical equipment (DME), supplies, home-health-aid services, tests and procedures, transportation via ambulance or other means, and hospitalization for symptoms that cannot be managed in the home. Medicare-certified hospices are reimbursed at a fixed capitated daily rate, which is adjusted by region to account for cost-of-living variations. (As of July 2006, the Medicare daily reimbursement in the San Francisco metropolitan area for routine hospice care in the home is \$177.)

All care is planned and directed by an interdisciplinary team comprised of nurses, physicians (both the hospice Medical Director(s) and the patient's PMD), medical social workers, pastoral and spiritual counselors, home-health aides, dietitians, pharmacists, volunteers, bereavement counselors, and physical, speech and occupational therapists. The core disciplines as defined in the COPs are nursing, medicine, social work, and spiritual counselors. These 4 disciplines *must* be involved in all aspects of patient care planning. The interdisciplinary team meets regularly (no less than every 14 days, per regulation) to review the patient plan of care.

[‡] As an example, a patient admitted to hospice due to their colon cancer would receive all care for the palliation of the colon cancer from or coordinated by the hospice. Care can still be obtained for other unrelated diagnoses such as diabetes, hypertension, psoriasis, glaucoma, etc. under regular Medicare with no restrictions. Billings submitted directly to Medicare by providers other than the hospice for services related to the colon cancer (e.g., oncologist visit, pain specialist visit, laboratory work, medications given in the physician's office, scans, etc.) will be denied. Only visits to the PMD will be directly reimbursed to the provider by Medicare for the colon cancer.

For many hospices, pharmacist involvement is limited to drug distribution. Although pharmacists are not defined as a core discipline, a huge role exists in this practice setting for the clinical pharmacist. The primary method of managing symptoms is via drug therapy, and hospices desperately need rational guidance on making the best, most cost-effective use of medications, especially since pharmaceutical costs are rising completely out of proportion compared to hospice reimbursement. §

All hospice patients receive home visits from a nurse and social worker. Patient needs and preferences guide the other services that will be utilized. The PMD usually remains in charge of his/her patient's care. The hospice medical director may play a consultative role or be asked to take over symptom management for the PMD.

Pharmacists have an integral role in hospice care as part of the interdisciplinary team. As an expert in drug therapy, the hospice pharmacist is a clinical resource for pain and symptom management, drug information and education, and drug utilization. By establishing utilization guidelines, mandating the use of generics, medication monitoring, discouraging the use of inappropriate medications, and encouraging cost effective prescribing, pharmacist intervention can improve the quality of care and significantly reduce prescription expenditures.

In my role at Pathways Hospice, prescription expenses have been reduced by 50% at a cost savings to the agency of \$80,000/month, based on the current census of 350 patients. This allows us to operate in the black, whereas many hospice programs capture 80% of their expenses from reimbursement and must turn to charitable donations to make up the rest.

Further, at team meetings, I review all medications and make suggestions about current drug therapy. Many questions arise, and team meetings are an ideal time to educate the entire team on some aspect of drug therapy. Issues run the gamut from the cost of various opiates or cost-effective options for the treatment of nausea and vomiting to treatment strategies for dry, itchy skin.

This consultative role extends beyond team meetings. Physicians and nurses call with questions or therapeutic dilemmas while they are admitting or seeing patients on subsequent visits. Caregivers in the hospital setting may call prior to patient discharge for advice on home treatment and to ease the transition into the home. Perhaps most important is the liaison role with the community pharmacist, who actually provides the prescriptions to our patients.

Our hospice utilizes a pharmacy benefit manager (PBM) and community pharmacies to provide medications for our patients. I provide support to my retail pharmacy colleagues via education about hospice care, pain and symptom management, drug products used in hospice, regulations regarding prescriptions and Schedule II medications in the hospice setting, and reimbursement issues.

With the elimination of the triplicate law in California, it has become much simpler for hospices to obtain medications for patients, who often no longer visit their physician. A pharmacist can play an invaluable role educating other pharmacists about current controlled substance laws, as well as other barriers to adequate pain management.

Working as a hospice pharmacist is extremely rewarding. Sometimes I am asked if I find hospice work depressing. On the contrary, I find it uplifting. Using all of my skills to improve quality end-of-life care for patients and caregivers is very satisfying. Having practiced as a clinical pharmacist for 27 years in poison control, an inpatient surgical service, operating room, pain clinic, and hospice, I would be hard-pressed to find a better practice setting than hospice.

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§ Since the creation of the Medicare Hospice Benefit in 1983, the unadjusted reimbursement rate to hospices has increased a factor of 2.7 from \$46/day to \$126.49 in 2006, with most recent increases at about 3% a year. (Visit www.cms.hhs.gov/center/hospice.asp.) In contrast, the cost of brand name pharmaceuticals is reported up by 4% in the first quarter of 2006 according to the American Association of Retired People (AARP), with generic prices flat at a 0.1% decrease. (See http://assets.aarp.org/rqcenter/health/dd140_drugprices.pdf and http://assets.aarp.org/rqcenter/health/dd141_drugprices.pdf)

the Pharmacy Program Coordinator for Pathways Home Health and Hospice, Sunnyvale, California. Dr. Ferraresi is an Assistant Professor of Clinical Pharmacy at UCSF and is program co-director for a new (July 2006) UCSF Specialty Residency in Pain Management, Hospice and Palliative Care and is a Fellow of CSHP and ASHP. She is currently serving on the Board of CSHP.

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POISON CONTROL – NEVER A DULL MOMENT

Kerry Schwarz, PharmD, CSPI

As a pharmacist working in poison control I never know what is waiting for me when I answer the phone. A mother calls frantic after she finds her child vomiting with an open bottle of ibuprofen tablets; a physician calls to report that a patient has arrived to the emergency department post ictal, unconscious, and smelling like bug spray; someone calls to ask what would happen if their friend took thirty pain pills and is sleepy. And this is just the first 10 minutes of my day.

When people ask me what I do for a living I often do not know how to respond. I usually reply that I am a pharmacist, after which people ask me what drug store, hospital, or pharmaceutical company I work for. When I reply none of the above and tell them I work at the poison control center, this really peaks their curiosity and results in all kinds of questions.

Although the first poison control center was established in 1953, most poison centers started informally as just a telephone information line in a hospital pharmacy or emergency department. Whoever was available – pharmacist, technician, student, nurse, or physician – would answer the phone. Usually the caller was a parent at home with an accidental ingestion of a household product by a child. The health-care professional would consult whatever reference was handy, if any, and, based on their clinical judgment, advise the parent to bring the child to the emergency department or watch the child at home.

Today poison centers have evolved far beyond that phone in the back of the pharmacy. There are now 63 US poison centers that maintain accreditation with the American Association of Poison Control Centers (AAPCC). Poison centers provide fast, free, and expert advice on any potentially toxic exposure, whether the poison is ingested, inhaled, applied to the skin, injected, or splashed in the eye. Most poison centers are now separate from pharmacies or emergency departments and are staffed by professionals who respond only to the poison hotline. All poison centers use the same national toll free phone number, 1.800.222.1222, which automatically routes callers to the closest poison center.

In California, telephone consultation services are provided to health-care professionals and the public 24 hours a day 7 days a week from the 4 sites of the California Poison Control System (CPCS): Fresno/ Madera at Children's Hospital Central California, Sacramento at UC Davis Medical Center, San Diego at UCSD Medical Center, and San Francisco at San Francisco General Hospital. The CPCS manages approximately 850 daily consults system-wide and is administered by the UCSF School of Pharmacy Department of Clinical Pharmacy.

Poison centers maintain an extensive library encompassing everything from electronic media such as Micromedex's PoisIndex, to textbooks, primary literature, and the Internet. All consultations are documented in electronic medical records and are reported instantaneously to the AAPCC. Nationwide poison center data are then analyzed and reported annually in the *Annals of Emergency Medicine*.

Each poison center must have a managing director, a pharmacist or nurse who is a diplomat of the American Board of Applied Toxicology, and a physician medical director who is a board-certified medical toxicologist. The staff is primarily comprised of pharmacists, nurses, and pharmacy technicians. Nurses and pharmacists are known as Specialists in Poison Information or "SPIs" while they are in training, which can take several months to a year to complete. Once they manage at least 2000 human exposure calls and log at least 2000 working hours, they are qualified to sit for the AAPCC SPI examination. When individuals pass this examination, they become certified specialists in poison information (CSPIs), their training is complete, and they are qualified to work in a poison center and manage any and all calls.

Poison centers also have poison information providers, who manage calls from home under specific protocols and the guidance of a CSPI. Many poison centers also offer rotations to nursing, medical and pharmacy students, residents, and fellows.

As a CSPI, on a daily basis I advise parents, family members, physicians, nurses, pharmacists, firefighters, paramedics, and many others on the management of potentially toxic exposures to everything from plants and medications, to dietary supplements and hazardous chemicals, to venomous bites and stings. The severity of the cases ranges from completely nontoxic to immediately life-threatening. As a CSPI, my responsibility is to assess the potential toxicity to patients, determine if they require treatment in a health care facility and, if so, advise health-care professionals on the best course of action. If the exposure is determined to be of minimal or no toxicity and does not require referral to an emergency department, I advise and reassure the caller, calling back to make sure no signs or symptoms of toxicity develop.

Poison center staffs also participate in poison prevention and education, speaking at health fairs and community events to assist parents with ways to “poison proof” their homes. Many poison centers collaborate with industry to evaluate material safety data sheets (MSDS) for hazardous materials. CSPIs in the California Poison Control System are also encouraged to participate in scholarly activities. Many of us present our current research projects as posters and lectures at national and international toxicology meetings.

The work of a CSPI is a lot of clinical toxicology but also part pharmacology, part botany, part sociology, part psychology, part chemistry, and entirely satisfying. At the end of my day I leave work knowing I have made sure that that child stopped vomiting from ibuprofen and reassured his mother; that the patient who drank an organophosphate insecticide received the pralidoxime he needed; and that I successfully coaxed the friend who took the pain pills to seek treatment in an emergency department. And that was just the first 10 minutes of my day.

Kerry Schwarz received her PharmD from the University of North Carolina at Chapel Hill School of Pharmacy and completed an ASHP-Accredited Residency in Pharmacy Practice at the University of California, Davis Medical Center. She is now a Certified Specialist in Poison Information and a Toxicology Management Specialist with the San Diego Division of the California Poison Control System. Dr. Schwarz is an Assistant Clinical Professor with both the UCSF and UCSD Schools of Pharmacy.

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THE PHARMACIST AS A SCIENCE LIAISON

Dan Kudo, PharmD, FCSHP

Traditionally pharmacists entered industry as “sales representatives.” The focus of this position was then, as it is today, to increase sales of the company’s products.

Over the last two decades more science-based field opportunities have evolved. The primary focus of these positions is to provide scientific support in the field. Some of the job titles have included Medical Science Liaison, Clinical Education Coordinator, Medical Information Scientist, and Regional Scientific Manager. The exact responsibilities assumed by these specialists vary and may include functions such as coordinating clinical research and providing drug information or scientific support to health-care professionals or managed care organizations.

While PhD scientists with experience in research are recruited for these positions, pharmacists are uniquely qualified to serve in this capacity. They have demonstrated expertise in a large number of clinical practice areas, and such experience may be particularly attractive to pharmaceutical companies. Creativity and innovation are important components of this position since the scientific needs of individual practitioners, health systems, or managed care organizations are almost never the same.

Industry provides a unique set of opportunities for the pharmacist. Field-based positions, by definition, are not tied to a desk and provide flexibility in the daily work schedule. While many health systems have felt the need to cut back on funding of education for their health-care professionals, pharmaceutical companies often encourage their pharmacists to become active in pharmaceutical societies and to attend educational events such as Seminar 2006, or serve at the regional, state, or national level.

Travel is frequently an essential component of this position and, in some cases, may consume more than fifty percent of an average workweek. The career ladder of most pharmacists within health systems or managed care organizations may culminate at the supervisory or director of pharmacy level, unless they are willing to assume responsibilities of multiple departments.

Pharmaceutical companies provide a tremendous number of opportunities. There are regional and national leadership positions within a specific therapeutic area, as well as multiple levels of opportunities in the sales, marketing, clinical research, and regulatory departments.

Pharmacists interested in being considered for a science liaison position should have a strong clinical background. Specialization in a clinical area or managed care may provide a skill set that is particularly attractive to industry. In conclusion, science liaisons may coordinate research or provide clinical information to health-care professionals, health systems, or managed care organizations and are valued for their clinical knowledge and experience.

Dan Kudo is currently Senior Regional Scientific Manager at AstraZeneca Pharmaceuticals, LP. He previously (1998-2000) served as Director of Pharmacy Services at InterValley Health Plan and Assistant Director and Director of Pharmacy (1980-1998) at Pomona Valley Hospital Medical Center.

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DRUG INFORMATION SPECIALIST

Mirta Millares, PharmD, FCSHP, FASHP

All pharmacists, regardless of practice settings, provide drug information in the course of their work. Pharmacists who specialize in drug information (DI) practice require a different level of knowledge and expertise in various areas such as: critical analysis of the scientific literature; identification, retrieval, and evaluation of print and on-line information resources (eg, library and database searching skills); the ability to clearly communicate drug-related information to medical professionals, colleagues, consumers, and patients in written and verbal formats; formulary management support; drug utilization analysis; and support for development and application of drug use policy and clinical practice guidelines.

In effect, the day-to-day functions of a DI specialist require reading and analyzing various forms of information and data related to drug therapy and applying that knowledge to the care of an individual patient, at one end of the spectrum, a defined segment of the patient population or to an entire patient population (eg, development of a clinical practice guideline), or perhaps affecting an entire health-system's care and benefit structure (eg, a hospital or health plan formulary decision).

I chose to become a specialist in DI practice many years ago, at the completion of my first year "clinical residency" (as it was called then). I was drawn to many aspects of this specialty: providing health professionals with accurate, unbiased, evidence-based information on drugs; specializing in recommending specific solutions to patient-related drug problems; the ability (and need) to learn new things every day of my career; the need to keep up-to-date on new therapies approved by the FDA and "off-label" uses; being involved in the work of the Pharmacy & Therapeutics Committee, in particular influencing formulary decisions and helping to formulate drug use policy along with other health-care providers; and utilizing new technologies to deliver important drug information to providers and patients as quickly and efficiently as possible.

Many people think of "drug information services" as a telephone consultation service or call center, often called the "drug information inquiry service or center." This continues to be a key service provided by drug information specialists in health-systems across the U.S.

At Kaiser Permanente Drug Information Services (KPDIS) – California Regions, our telephone consultation service is a sophisticated, national, information analysis service that responds to drug-related inquiries from any Kaiser Permanente (KP) health-care provider across the U.S. At this time we do not take inquiries directly from patients. All provider inquiries are tracked in a database that links every entry made to a DI staff person and time, creating an excellent record of how and by whom a response is formulated, with all information clearly linked to a reference source.

One exciting new feature for our telephone consultation service will be the ability to access a specific patient's medical record when his/her health-care provider has called with a question specific to that patient. As KP is converting over to a highly secure, completely computerized health record (called KP HealthConnect), all patient information will be gathered in one electronic medical record. Rather than having to record background information on the patient over the phone in order to appropriately respond to a patient-related drug inquiry, the DI pharmacist will be able to view important laboratory data and other information along with the caller for patient-specific inquiries. The pharmacist will not need to rely only on what the caller conveys.

Over the years, the complexity of DI inquiries has increased for various reasons. One key, albeit counter-intuitive reason is that our department has continually looked for ways to *proactively* send out important information to providers even before they need or request it. This has, in effect, advertised our DI service.

For example, KPDIS sends out “Medication Safety Alerts” via wide Kaiser Permanente e-mail distribution with clear information on each safety issue and recommendations for dealing with it. In addition, KPDIS often creates “Drug FAQs” which provide answers to commonly asked questions about new drugs or other hot topics about which health-care providers are being asked. Drug FAQs designed for dissemination to patients or consumers are also provided to help providers inform specific patients.

These and other types of important drug information are not only sent directly via e-mail but are also posted on an internal Kaiser Permanente National Pharmacy Intranet site, maintained by KPDIS. This intranet site is a great example of using new technologies to get drug information into the hands of those who need it as quickly and efficiently as possible. It serves as a portal for access to all sorts of documents and information created by KPDIS, including drug monographs, evidence tables, drug guidelines, the on-line KP drug formulary, information on drug recalls and drug shortages, and more.

Another important function of our KPDIS is formulary management support. A talented group of DI specialty pharmacists in our department is focused primarily on formulary work. These pharmacists have specialized training, experience, and/or knowledge in specific therapeutic areas in addition to their DI analysis skills. They are responsible for following all drugs within their specific therapeutic categories, from the time they are in the clinical research pipeline.

Their first task is to predict when and if a product is likely to receive FDA approval for marketing in the U.S. and helping to forecast the probable impact on care quality, therapy guideline revisions or development, cost, utilization of the new drug, and current utilization of other drugs. This provides a basis for resource planning by the organization and is essential for the budgeting or even the benefit-design process.

Once a drug becomes FDA-approved, the pharmacist then prepares a drug monograph for use by the Medical Group’s Pharmacy & Therapeutics Committee that presents and critically evaluates the evidence available on that drug and provides an unbiased, evidence-based recommendation for the appropriate and safe use of that drug product in our patient population.

Our KPDIS pharmacists also play a key role in providing evidence to support drug utilization guideline efforts. Before any physician-approved therapeutic conversion program is undertaken, for example, KPDIS pharmacists acquire and evaluate the clinical literature along with the appropriate physician experts to assure there is sufficient evidence to support the program.

KPDIS is also involved in evaluation of clinical outcomes in patients. A subgroup within KPDIS is the “pharmacy outcomes research group.” This group of pharmacists and scientists evaluates clinical effectiveness, safety, resource consumption, and economic outcomes resulting from utilization of drug therapies. Using our administrative databases, research can be done in a retrospective manner that can provide useful information on outcomes achieved in a “naturalistic” setting; ie, the real-life medical care setting with a broad variety of providers caring for a broad variety of patients under various conditions. This type of “experience-based” information is invaluable to the pharmacy & therapeutics committee in monitoring results and outcomes achieved with new drugs introduced into the system, and it helps provide a type of post-marketing surveillance for rare adverse events or favorable outcomes.

Drug Information, as a specialty practice, is becoming ever more sophisticated, relevant, and important. Drug information is everywhere you, your colleagues, and your patients look. More and more information is available via the World Wide Web, and consumer “information” in the form of direct-to-consumer advertisements abounds. More clinical trials of varying quality are published in more and more journals. More so-called “national clinical guidelines” (sponsored by Pharma or advocacy groups who are sponsored by Pharma), meta-analyses, review articles, and other materials need pharmacist’s professional analysis.

Drug information specialists are needed to assure unbiased, critical analysis and interpretation of this volume of information so that health systems, and practitioners make evidence-based and informed decisions that benefit our patients and keep medical care affordable and of high quality.

Mirta Millares received her PharmD from the UCSF School of Pharmacy, where she also completed a Residency in Clinical Pharmacy and a 2nd year Specialty Residency in Drug Information Practice. She began her post-graduate career as Assistant Clinical Professor at the USC School of Pharmacy with a clinical practice at the Kenneth Norris Jr. Cancer Hospital and Research Institute. She joined Kaiser Permanente's (KP) Southern CA Drug Information Services as a drug information specialist, later becoming supervisor of the department, and is now Manager of KP's Drug Information Services and Pharmacy Outcomes Research for the California Regions. Dr. Millares continues to teach as a volunteer faculty at USC and is the Director of an ASHP-accredited Specialty Residency in Drug Information Practice at KP. She is editor of the text, Applied Drug Information: Strategies for Information Management, 1998 [second edition currently in progress]. Dr. Millares is a Fellow of CSHP and ASHP and is currently serving on the Board of CSHP.

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THE HOME CARE PHARMACIST

Tricia New, PharmD, FCSHP

Providing care for patients at home can be very challenging as you manage complicated therapies outside of the traditional hospital or clinical setting. As more patients are discharged from the hospital sooner, or are not even being admitted at all to an inpatient setting prior to the start of care, the need for the home care pharmacist to be an integral part of the multidisciplinary team becomes even more important.

As a home care pharmacist you are responsible for the clinical management of patients receiving chemotherapy, parenteral or enteral nutrition, intravenous antibiotics, and pain management or sometimes a combination of the above. You need an understanding of the patient's and family's psychosocial needs, educational abilities, and possible barriers to success at home. Patients and their families are expected to become independent with medication administration, frequently utilizing ambulatory infusion devices. You will be responsible for providing the medication, infusion equipment and supplies, and a nurse, usually from another organization, will see the patient and be responsible for providing most of the hands-on education.

To help patients have a successful outcome in home care, the pharmacist has to be part nurse, part dietician, part social worker, and part detective in order to be a valuable resource, as well as be able to identify when things may not be going as planned. It is not enough for the pharmacist to know about the clinical and administration issues related to the therapy the patient is receiving, but s/he also needs to: understand the type of vascular access the patient has (picc line, central line, port a cath); understand the best method of medication administration based on the patient and/or family ability or desires; be able to identify when a patient needs further assistance from other members, such as the dietician or nurse; and understand all the financial and insurance coverage issues for a given patient, because in home care many of the financial or referral calls are taken by the pharmacist.

In the home care practice, the pharmacist works closely with other members of the health-care team including nurses, physicians, dietitians, social workers, and discharge planners to develop a plan of care for the patient and hopefully to ensure that the therapy is completed successfully.

For a home care pharmacist most communication and relationship building with the patient, the family, and other members of the health-care team occur via the phone. You have to know how to communicate clearly, listen well, and understand what you can do for the person calling.

It is important to listen for what is being said, but also what is not being said. You always have to be the "detective" and get as much information as possible, not just about what the caller is requesting (eg, they are out of dressing change kits), but why are they using extra supplies; does the patient have signs of a central line infection; is s/he running a temperature; is the patient being compliant with the prescribed therapy? When providing therapy to patients there are so many factors in the patient's home that are outside of our control, each phone call must be used as an opportunity to assess basic data about the patient, the therapy, and progress towards treatment goals.

1. Is the patient taking the medication properly (at the appropriate dosing times, or within the appropriate dosing intervals, and as prescribed by the plan of care)?
2. Is the medication being stored properly?
3. Is the patient having any adverse drug events?
4. Does the patient or caregiver understand the appropriate use of the equipment being provided?
5. Is the patient having a good response to therapy?

When nurses, patients, or caregivers call, rather than just taking the information offered, it is important for the-home care pharmacist to do a little more investigating. A typical type of interaction goes as

follows. A patient calls to find out when to expect the next delivery of IV antibiotics and indicates that s/he does not have any Vancomycin for the evening dose; you, the pharmacist, review the mixing schedule, the current medication ordered, and the prescription label, and determine that the patient should have 4 more doses.

As you start to get that sick feeling in your stomach fearing that the patient may have taken doses of Vancomycin twice a day rather than daily as prescribed, you ask questions about the medication schedule. You determine that the patient was having trouble with the infusion device being used for the medication administration and had wasted several doses trying to prime the administration set. In addition, you find out that 2 other doses were left out overnight, so they were thrown away under the assumption that the medication could no longer be used. After starting to breath a little easier (knowing that the patient had not been taking twice the prescribed dose), you use the remainder of the conversation to provide patient education.

The patient may need some additional training regarding the infusion device and may need additional nursing visits. The patient also needs additional information regarding appropriate storage and handling of the medication, as well as the availability of a pharmacist 24 hours a day and the importance of calling a pharmacist with questions regarding their medications. Then you would call the home-health agency involved to communicate what additional training and education should be provided to this patient.

Calls regarding patients receiving narcotic infusions at home are potential red flags. For these patients, the plan is for them always to have a back-up supply of medication in the home, so that as their doses are escalating they do not run out of medication and end up in a pain crisis. The pharmacist may receive a call from the nurse or caregiver saying they are out of medication. From reviewing the mixing schedule and the current physician orders, the pharmacist determines that there should be an extra 250ml bag of morphine that was delivered two days ago.

After inquiring when the last bag was put on the infusion device, determining the current infusion rate, reviewing the delivery slip and finding that a family member signed for the delivery, the nurse looks in the refrigerator again and finds that the bag of morphine has slipped behind the lettuce crisper. (It is always behind the crisper.) If the bag had not been found further investigation would become essential: was there abuse by a family member; was the delivery made as reported; or was pharmacy documentation regarding the deliveries inaccurate?

Another great source of information about a patient's status is the delivery driver responsible for taking the patients their medication and supplies. Frequently the driver is the main representative from the home care organization who is able to see the patient on a regular basis. The driver's reporting of relevant changes or excess supplies or medications can be vital.

Evaluating drug levels and lab results at home also provides for some interesting challenges. If the results don't make sense in the context of previous lab work obtained, a few questions should be considered, including: when was the last dose given; was it drawn prior to the dose or at a different time that was more convenient for a nursing visit; was all the medication administered; or did anything interrupt the administration of the medication or therapy being monitored? Other considerations include how the blood was drawn, and if appropriate flushing and discarding protocols were followed. The home care pharmacist should never just react to the labs without further investigation and may order a repeat lab prior to making a therapy adjustment.

Another key role of the successful home care pharmacist is to understand the importance of educating the nursing staff and being a resource to them, not only about medications but also about the infusion devices and supplies being used. Nurses may be working with several different pharmacies and may not always be familiar with the equipment provided for a specific patient. As equipment and supplies are changed or new information becomes available about more effective ways to use the equipment, written and verbal communication regarding these changes should be provided to all agencies.

Nurses also need to be educated regarding the therapies they are providing, the rationale for the clinical monitoring for each therapy, and the appropriate lab work required. The home care pharmacist provides the nurse with education regarding the importance of accurately documenting when a medication is administered versus when labs are drawn as well as appropriate ordering (trough versus random) and appropriate interpretation of the results.

Appropriate documentation by the pharmacist of interactions with the family, caregivers, nursing agencies, and other members of the health-care team is vital to having a proper record of the patient's care. The pharmacy chart tells the story of the patient's course of therapy and progress towards the goals of the plan of care. When a patient is started on service the pharmacist develops a plan of care including what will be monitored and how frequently labs should be drawn. Clinical progress notes are written to reflect an assessment of the labs, the patient's progress towards goals determined in the plan of care, and any significant events or problems that have occurred during the course of treatment. The pharmacy chart becomes the home care medical record.

Providing high-quality care to patients at home requires asking numerous questions. Since the pharmacist can't make home visits to every patient, s/he must rely on others to provide the information needed to help ensure a successful patient outcome. As a home care pharmacist you get to help patients have a choice about how and where they receive their therapy and empower them to actively participate in their own care.

Tricia New received her PharmD from the University of the Pacific School of Pharmacy. She later completed a General Pharmacy Residency at Good Samaritan Hospital in Portland, Oregon and a Specialized Administrative Residency at Stanford University Hospital. She has spent the majority of her career practicing in the home care setting in Monterey, California most recently with AdvantaCare Infusion. Dr. New is a fellow of CSHP as well as a Past President and member of the Board of Directors.

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PEDIATRIC PHARMACISTS – ADVOCATES FOR THE LITTLE GUY

Richard I. Sakai, PharmD, FCSHP, FASHP

When you mention pediatric pharmacy, people imagine working with cute little cuddly babies or adorable 4-5 year olds, or maybe even teenagers. Surprisingly, pediatric pharmacy includes the entire range of ages from premature neonates weighing less than 1000 grams to young adults that in some cases weigh 100 kilograms or more.

Disease states encountered by pediatric pharmacists range from traditional pediatric illnesses, such as otitis media, strep throat, respiratory distress syndrome, cystic fibrosis, and Reye's syndrome, to diseases that transcend age, such as Sickle Cell Anemia, Meningitis, Pneumonia, and Cancer. The latter diseases have an entirely different pattern when they present in children, including different pathogens in infectious diseases and different types of cancer with completely different treatment protocols.

How do pharmacists feel about working with sick children? Colleagues will tell you that they worry that they may lack the knowledge to effectively dose and monitor these patients. They are also concerned about making a dosing error. A 10-fold overdose can easily occur, considering the 100-fold weight variation in patients encountered in the pediatric setting. Fortunately many inpatient and some outpatient pharmacy systems have dose checking to prevent the 10-fold overdose from occurring. Are these systems perfect? No way. Does every hospital utilize the software to support the pharmacist in dealing with the pediatric patient? No way!

In addition once we are sure that the prescribed dose is correct, how in the heck are we supposed to dispense it where there is no appropriate dosage form? How do we provide that medication in a liquid form? These are some of the challenges a pediatric pharmacist encounters on a daily basis. And what happens when the family brings a child's prescription to a retail pharmacy? Pharmacy software that utilizes an age-range dosing check is not as accurate as checking the dose based on the patient's weight, but any check is better than none.

And all of this does not even address the use of "orphan drugs." The current use of sildenafil for pulmonary hypertension, or the past use of phenobarbital for hyperbilirubinemia, or the prescribing of caffeine for apnea before a commercially manufactured product was available are examples of the challenging practices to which the pediatric pharmacist must adapt. Pediatric pharmacists regularly research compounded formulations, look at stability issues, and review clinical studies supporting new or unlisted uses. Once the product is prepared we must deliver it, in systems never designed with the pediatric patient in mind. Pediatric pharmacists work together, through networking and national organizations, to devise solutions to these and other problems.

There are over 50 pediatric hospitals across the country, and many more institutions have a pediatric unit within the hospital – sometimes a newborn nursery or an expanded pediatric unit. Most pharmacy directors who have these small pediatric units to oversee struggle to find a pharmacist who wants to be the "pediatric" pharmacist.

Why is it so difficult to find pharmacists who feel comfortable in the pediatric setting? Pharmacists are reluctant to volunteer their services if they do not feel qualified to provide the same level of care being offered to adult patients. In addition, today most schools of pharmacy have eliminated specialized pediatric courses from the curriculum and have integrated pediatric pharmacy into the general course work. Pediatric clerkships continue to be an "elective," in part due to a lack of adequate training sites. Bear in mind that 27% of our population is 17 years of age or younger. Baby Boomers are now becoming grandparents, and every year there are over a half million babies born in California (544,685 in 2004).

The good news is that there are still some schools of pharmacy that offer pediatrics as part of the core curriculum and/or offer pediatric clerkships for pharmacy students. There continue to be pediatric residency training programs throughout California, as well as general residency programs that offer some component of pediatric training. This trend seems to be occurring across the country. The number of pediatric pharmacy residency training programs has steadily increased over the years. Membership in Pediatric Pharmacy Advocacy Group (PPAG) has more than doubled over the past 10 years. Numerous reference materials are being published with an emphasis on pediatric drug therapy, dosing, compatibility, and compounding.

Why become a pediatric pharmacist? Kids need an advocate, and the pharmacist is the perfect advocate for them. The career offers an ideal setting for the pharmacist to consult on complex and challenging drug-dosing regimens. The distribution and dispensing systems provide pediatric-pharmacy administrators and technology-oriented pharmacists with opportunities to research, problem solve, and create solutions to ensure accurate drug therapy, delivered in appropriate forms. Pediatric pharmacists encounter many opportunities to provide education to patients, parents, or caregivers. How many times have we encountered the situation where the family can't remember what instructions the physician or nurse gave them about medications to be taken at home?

Pediatric pharmacy offers almost every practice setting with a pediatric twist. Children's Hospital of Central California has a pharmacy director, a clinical coordinator, an oncology pharmacist, a neonatal pharmacist, an ambulatory care pharmacist, an intensive care pharmacist, a med/surg pharmacist, an IV/TPN pharmacist, information technology, home care pharmacists, and retail pharmacists. Future roles include infectious disease, pain service, emergency room, operating room, and medication safety pharmacists, along with the expansion of existing services. An example of this is the addition to the pediatrics oncology area of a pediatric hematology pharmacist who would concentrate his or her practice on hematologic issues.

After 30 plus years in pharmacy practice, pediatric pharmacy practice still remains my passion. For the challenges facing our profession in providing pharmaceutical care for our patients, I say, "Bring 'em on." I hope that along with the challenges come an enthusiastic and growing group of like-minded new pediatric pharmacists. My commitment to our profession is that I will continue to open the doors of opportunity for those new pharmacists interested in pediatric pharmacy. I am confident fellow pediatric practitioners will do the same through their support of teaching programs and career growth.

Acknowledgments: I would like to thank the following individuals who served as mentors and supported me: Bob Levin, PharmD, Ted Tong, PharmD, Gil Burckhart, PharmD, John Tourville, PharmD, Jeff Koup, PharmD, Phil Oppenheimer, PharmD, Jeannette Wilkins, MD, Larry Opas, MD, and of course Joy Bellis Sakai, PharmD.

After graduating from UCSF School of Pharmacy in 1975, Dr. Sakai was a Pediatric Pharmacy Fellow at the State University of New York at Buffalo. He then accepted a position at Valley Children's Hospital in Fresno and subsequently joined the USC School of Pharmacy faculty as an Assistant Professor of Clinical Pharmacy. Dr. Sakai then returned to the San Joaquin Valley, became the Director of Pharmacy at Visalia Community Hospital and then Kaweah Delta Healthcare District. In 1998, Dr. Sakai became the Director of Pharmacy at Children's Hospital Central California where he currently practices. His has been married for 31 wonderful years to Joy Sakai (UCSF '75), and he never talks about pharmacy at home.

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PHARMACY CONSULTING

Phil Klein, RPh, MBA

Most consultants would probably agree that consulting is less like a job and more like a way of life. I have been living a pharmacy consultant's way of life for the past 7 years, and in the span of this brief article I hope to provide insight into this rewarding and stimulating area of pharmacy practice. Perhaps a few of you will pursue additional information and eventually consider consulting your next career step, whether as an independent contractor or, in keeping with this author's perspective, as a consultant working for a company-owned business.

The majority of consulting work focuses on decreasing costs, increasing net revenue, helping resolve regulatory or quality issues, and leading projects for clients who lack expertise and/or labor resources. Consulting fees are almost always derived from these savings, so for the protection of both parties, specific financial and quality measurable outcomes are defined in a contract before work begins.

Clients can include health systems, acute care hospitals, ambulatory, and alternate-care pharmacies. Project management may relate to the supply chain and can range in size from a single hospital 8-week engagement to a multi-hospital system hub-and-spoke drug distribution engagement lasting several years. Clinical, operational and productivity assessment engagements appear routinely and are often followed with implementation work.

Pharmacy redesign work usually includes accommodating new automation and upgrading sterile prep areas to comply with USP 797, the first set of enforceable sterile compounding standards issued by the United States Pharmacopeia (USP). Another frequent consulting opportunity involves section 340B of the Public Health Service Act, also known as PHS drug discount or the 340B program. Section 340B is a federal drug discount program that requires pharmaceutical manufacturers that participate in the Medicaid program to enter into a contract with the Secretary of Health and Human Services (HHS) requiring them, among other things, to give specified discounts on covered outpatient drugs purchased by certain "covered entities" as defined in the program.

A successful consultant must be able to quickly assess and succinctly describe the client's needs and apply his or her knowledge to the specific situation to achieve a desired outcome. Strong interpersonal skills are essential in order for the client to feel comfortable sharing the truth with the consultant. As in any relationship, it is all about building trust. Active listening, excellent oral and written communication skills, completing tasks in the time frames promised, and sensitivity to each client situation are fundamental in building trust.

Other valuable skills include: initiative, self confidence, teamwork, data gathering, organization and validation, analysis, process mapping, process re-design and/or innovation, project management, identifying metrics, training/teaching the client, and ability to manage multiple projects and clients.

Understanding how organizations work along with knowledge of pharmacy practice, drug therapy and various drug distribution, automation and information systems in a variety of settings are also highly valuable. Consultants routinely draw upon other knowledge and experiences: competency in basic computer applications, understanding of reimbursement and financial systems, human resource management, regulatory agencies, and management and leadership. As one colleague expressed it, "Don't just learn the tricks of the trade: learn the trade."

As a consultant you need to make the effort to find someone who will invest in your development. Learn how to learn through activities that require you to research topics and network with pharmacy experts to expand your knowledge. Learning bolsters your self confidence to tackle future obstacles for which the answers are not immediately obvious.

There are certain undeniable realities related to this profession. “Doing without, being alone”¹ is usually a new experience for first-time consultants. The structure of your day is dependent on you. You are now working alone, often from home when not traveling. There is no more interoffice mail to plough through, no coffee breaks with fellow staff, no routine P&T Committee or managerial meetings, no time clock to punch, and no exact beginning or end to your work day. You may see your immediate supervisor only 4 or 5 times a year. The life structure you’ve known from kindergarten through your last job is gone. It is now entirely up to you to plan, schedule and execute all you are expected to accomplish.

And despite these realities, you need to quickly become productive. Everyone expects a new job to require significant up-front time commitment, and the learning curve for a consultant is no exception. Depending on the knowledge base you bring to consulting, it can easily take 1 to 3 years to gain enough expertise in the company’s products and services to independently produce billable hours in excess of your wages, benefits and bonus. If you are fortunate to have a mentor, that time can be shortened.

When you do reach the point where you’re beginning to feel productive, that’s a good time to review the balance in your life. Consulting work is hard. Travel across time zones and pouring yourself into an important project are exciting yet also exhausting. Work is always present when you have a home office, and your mind can easily be tuned onto solving a work-related problem. As a consultant you must schedule time to regain perspective and to rest physically, mentally, emotionally, and spiritually.¹

While consultants bring expertise, perspective, authenticity, friendship, and accomplishment to clients¹, their measure of success comes from repeat business and referral business. Clients must experience and consultants must deliver measurable value as evidenced by meeting all the contract deliverables, minimizing expenses to the client and the employer, generating good client satisfaction responses, and hitting both savings and specific consulting-fee-generating targets.

Some organizations have avoided using consultants while others use them frequently. Some have had a bad experience. (The client’s body language during the initial meeting often speaks to how they feel about consultants.) If their prior consulting experience was negative, it is essential to understand the history and communicate how the client-approved process and time-tested methodology will unfold over the course of the engagement. This important step usually allays the majority of client consultant-related fears.

So what is a “typical” work situation? Rise at 4-5 AM Monday to catch a morning flight. Work on the plane, rent a car upon landing, find client site, and work until 5-6 PM. Check into hotel, exercise, eat dinner, work on computer until 10 PM or later. Usually return home late Wednesday or Thursday, working en route. Work in the home office consists of client conference calls and reports, expense reports, billing reports, and communications with the home office. Occasionally work will extend through a weekend at a client site. Most engagements involve 1 to 8 visits of 2 to 4 days duration. A consultant may manage 3 to 7 client projects at a time.

In exchange for this non-standard lifestyle and depending on experience, responsibility and position, compensation packages range from \$120,000 to over \$200,000 per year including benefits. Positions may include such titles as analyst, consultant, senior consultant, senior executive consultant, VP consulting, and group VP of consulting. In addition, a bonus of up to 20% of annual salary may be available.

Consultants working for a company-owned business are usually provided cell phones, high speed internet access at home, a laptop computer, full medical and dental insurance, stock options, 401K plan, and deferred compensation. Adherence to expense and reimbursement policies as well as code of conduct, HIPAA, ethics, electronic communication, client confidentiality, and other policies must be unwavering in order to preserve the credibility of your company and maintain client trust.

The consultants in our company are 59% RPh, 41% PharmD, and slightly over half possess a Masters degree (MS or MBA). 64% are male, and 36% are female.

After some time in this business, a successful pharmacy consultant could assume a director of pharmacy or hospital administration position, manage a variety of pharmacy businesses, or work for a pharmaceutical company or drug wholesaler. Not surprisingly, consultants uncover unmet customer needs in the course of their work and may pursue an entrepreneurial role after consulting.

One thing is certain: the pharmacy-related health-care challenges of patients, providers, payers, and the consultant's own family will always require experts in various roles. Consulting can be an extremely rewarding and personally satisfying career when you consider the positive changes you help bring about within an organization.

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Phil Klein received his BS in Pharmacy from Oregon State University School of Pharmacy and a Masters degree in Business Administration from Chapman College in California. He is currently a senior consultant for Pharmacy Healthcare Solutions (www.PharmHS.com), a wholly-owned subsidiary of AmerisourceBergen Corporation. Recently, Phil volunteered and begun serving as a mentor for pharmacy students enrolled at the UCSD School of Pharmacy.

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PHARMACISTS PROVIDING INPATIENT PALLIATIVE CARE IN THE HOSPITAL

Thomas Bookwalter, PharmD

Pharmacists in the United States were first asked to participate in the development of palliative care as part of an interdisciplinary study of the needs of terminally ill patients conducted for the Yale-New Haven Medical Center in 1970.¹ Since then several descriptions of pharmacist involvement in end-of-life care have appeared in the literature.²⁻⁸ Pharmacy's role in the delivery of palliative care is still evolving, and recent data from outside the United States suggest a trend toward greater clinical participation, though scarcity in research and publication by pharmacists may be a barrier to achieving that goal.⁹

In 2002 the American Society of Health-System Pharmacists published a statement on the pharmacist's role in hospice and palliative care,¹⁰ and in 2005 *Applied Therapeutics: The Clinical Use of Drugs* became the first text book directed primarily at pharmacy students to include a chapter on end-of-life care.¹¹ Unfortunately despite these publications and recent advances, end-of-life care patients do not always have access to the medications they need.¹²

It is my good fortune to practice end-of-life care in a hospital with a wonderful team – including physicians, a social worker, chaplains, and nurses. Our service is a consult service, so we only see patients when asked. We accept referrals from all medical and surgical teams. The case presentation that follows will help to elucidate my role on the team.

Ms. JR was a 49 year-old female with breast cancer admitted to the hospital for the third time with intractable pain. The primary team handling her case was the general medicine service. We were immediately consulted, as we were very familiar with JR having cared for her during the previous two admissions.

JR's cancer had metastasized to her spinal column and was causing severe pain. Each time we gained control of her pain it was lost after discharge while the patient was at home. In order to insure that she had access to all the pain medication she needed, I worked each time with her community pharmacy to get all her prescriptions filled, so that her husband could pick them up before she got home.

There is evidence in the literature that palliative patients can not obtain the medications they need for pain control once leaving the hospital.¹² Providing access to needed medication is an important role for palliative care pharmacists no matter where they may practice. Despite our best efforts we sometimes do have a re-admit, because a patient was unable to obtain fentanyl patches or high doses of some other opioid.

During her final visit the pain was particularly difficult to control. I had converted her oral regimen back to the intravenous route: we had added a non-steroidal anti-inflammatory drug and were still not having success. She eventually required 160mg/hr of hydromorphone and 30mg ketorolac every 6 hours to achieve a tolerable level of pain. When we started our service the nurses found it helpful to have a pharmacist available to allay fears about using such high doses of opioid; however, by the time we were taking care of JR the nurses were much more comfortable with the pain regimens we were often required to use.

We had consulted the anesthesia pain service to inquire about the possibility of epidural or intrathecal opioid administration; however, an imaging study showed so many pathological vertebral fractures that they felt it was unsafe to place the catheter required.

Unfortunately, with the hydromorphone came some fairly serious myoclonus (sudden, involuntary jerking of a muscle or group of muscles). In retrospect, I think that perhaps we increased the hydromorphone rate too quickly. We have found it best to maintain the drip at the same level over a 6 to 8 hour period using bolus doses of 10-25% of the total 24-hr amount every 1 hour, then adjusting the rate based on the breakthrough requirement. In our efforts to rapidly relieve JR's pain we may have increased the rate without following this principle.

Benzodiazepines are the most effective drugs at relieving myoclonus; therefore, we started a lorazepam drip. Despite reaching doses that were higher than we wished, the myoclonus persisted. We were at a loss and were considering palliative sedation, when the medical resident read a case report about dantrolene providing relief. JR was administered 2 doses of dantrolene 20mg intravenously and the jerking stopped. She died in relative comfort the same day.

My "clinical" contributions for this patient included providing access to medication on her previous discharges, calculating an IV opioid dose based on her last oral regimen and helping to mix the lorazepam drip.

On a more "personal" level, I hope I provided some solace to the patient and her husband by spending time with them, holding hands with them, and reassuring them that we were doing our best and would do everything we could to make JR comfortable. I remember moistening her lips and mouth with a swab. I remember adjusting the curtains to prevent the light from getting in her eyes. I remember sitting with her husband for a long time and crying with the medical intern after she passed away. The team debriefed on the case, and more tears were shed.

Pharmacists can also contribute to the care end-of-life patients by writing protocols such as the "comfort care" orders or "palliative sedation" procedures.

A robust understanding of the medications used to relieve all symptoms (not just pain) and the underlying mechanisms of those symptoms is critical, although I think we still are learning. After 6 years on the service it has become clear to me that communication skills are more important than anything else.

It is important to know what is likely to happen, what to say about it, and how to say it. Listening is probably the most important aspect of communication. Communicating well may provide as much relief from suffering as any of the medications we can provide. As Dr. Rachel Ramen says in her wonderful course, *The Heart of Pharmacy*, "Sometimes we are the medicine."



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APPLIED PHARMACOECONOMICS SPECIALIST IN ACADEMIC MEDICINE

By Robert H. Schoenhaus, PharmD

Regardless of your working environment there is likely some emphasis on getting the best “bang for your buck” when it comes to medication use. The role of managing medication use and the drug budget is normally handled by some combination of pharmacy director, purchasing coordinator, formulary manager, etc. To be successful, an applied pharmacoeconomics specialist in an academic medical center must be somewhat proficient in all those roles. As pharmaceuticals, biologics and health technologies become more and more expensive, the need for pharmacists with expertise in pharmacoeconomics will continue to grow.

Pharmacoeconomics is a growing discipline that attempts to apply cost-benefit, cost-effectiveness, cost-minimization and cost-utility analyses to weigh the relative value of different pharmaceuticals and technologies, especially in countries with socialized medicine. The goal is to get the best return on investment for your health-care dollar. Systems like the VA have become leaders in this field within the United States due to their efforts to maintain or improve upon veteran health care in the context of a national, closed formulary; however, any health-care environment, including academic centers, can benefit from incorporating pharmacoeconomics into daily practice.

For some time, the challenge with pharmacoeconomic data and research was figuring out how to apply it to American health care systems. To differentiate, although many pharmacists with additional background in economics can help conduct pharmacoeconomic research (typically tied to the pharmaceutical industry), the role of an “applied” pharmacoeconomic specialist lies more with interpreting the available economic data to support health-care decision making. The ability to assess and evaluate the design, validity and reliability of health economic studies can be very valuable, especially when such studies are used for marketing purposes by manufacturers. Often, medical professionals do not have adequate expertise in this area and can misinterpret the true value of a drug or device. The role of the pharmacoeconomic pharmacist is to help fill that knowledge gap.

Within an academic medical center, applying pharmacoeconomic principles can help save limited resources by allowing systematic quantification of the value of pharmaceuticals and technologies. Typically these are addressed within the context of formulary management. An applied pharmacoeconomics specialist must combine drug information skills to assess the available evidence for the new drug or technology and work closely with pharmacy purchasing to evaluate the risks and benefits of the manufacturer’s contract. Normally, guidelines and/or criteria for use for the medication or technology follow. These would normally be implemented through the Pharmacy and Therapeutics (P&T) Committee.

Having a pharmacoeconomics specialist as a member of the P&T Committee can be very desirable, as economic matters can be complicated to discuss, and other committee members are unlikely to have economic backgrounds. Ultimately, outcomes research should be performed to ensure that formulary decisions result in the expected clinical and financial outcomes. This process naturally lends itself to pharmacy department research and medication use evaluations.

Justification of new pharmacy services or positions is another area where applying pharmacoeconomic principles can be beneficial. Demonstrating the value of expanding pharmacist roles and responsibilities is essential to growing the profession, but can be challenging with ever-tightening hospital budgets. Justification of new clinics or pharmacists can be facilitated by cost-benefit analysis, which can demonstrate the relative benefit of spending money on pharmacy services versus alternatives. Health-care administrators can utilize these types of analyses when determining resource allocation. For example, ongoing debate on the appropriate type of health-care practitioner

for goals such as medication reconciliation would likely benefit from better understanding of the return on investment for an appointed pharmacist, nurse etc.

Knowledge of informatics can also be very useful for creating and enforcing policy driven by pharmacoeconomics. Gathering data on patient admissions related to diagnoses, procedures and total cost of care can greatly improve the ability to create rational drug policy. Systems without a complete electronic medical record must typically pull data from multiple systems in order to get the “complete patient picture.” Getting access to these different systems (i.e., financial data, diagnosis/procedure coding, etc.) may be challenging, but it will likely provide quick returns on the time investment.

Involvement with electronic order entry design should also be a goal, as medication management can be greatly improved through evidence-based, indication-specific medication-ordering pathways. Electronic order entry systems also allow for additional documentation of medication criteria prior to use. This is similar to a Pharmacy Benefits Management (PBM) system that can require additional documentation prior to approval of a restricted or non-formulary medication. A working knowledge of medical information systems, including their development and integration into clinical practice, is highly valuable training. Such knowledge allows for data collection for economics outcomes research as well. Students and residents interested in learning about information systems should consider an informatics specialty residency (see www.ashp.org).

Managing medication use quickly and appropriately has patient safety implications as well. For example, if a medication is suddenly found to have unanticipated side effects that warrant restricting its use, there is little that can be done to block supply from being accessed through traditional ordering pathways. With the implementation of computerized physician order entry (CPOE) programs, however, prescribers can be routed through risk-adjusted, indication-specific medication-selection algorithms that can help minimize use in riskier patient populations. Once such ordersets are in place and enforced, the ability to drive appropriate medication use is greatly improved. From a contractual standpoint, this methodology can also greatly improve the ability to prioritize medication use within a specific drug class. Doing so will help achieve desired market-share percentages required for maximum manufacturer discounting.

Applying pharmacoeconomics in an academic setting can provide financial as well as important clinical returns on investment. Providing value-conscious health care doesn't necessarily mean short-changing the patients. In reality, spending less money on medication and technologies that have not demonstrated cost-effectiveness allows preserved resources to be allocated directly to patient care. This may involve starting new clinical services, hiring new medical staff, the purchase of advanced diagnostic equipment, etc. The potential volume of patient's who benefit from these additional resources can be substantial.

In consideration of the emerging need for pharmacoeconomic specialists, many pharmacy schools are incorporating pharmaco-economics into their curriculum. Pharmacy students and residents looking to gain additional expertise should explore the available specialty residencies and fellowship programs that offer training in pharmacoeconomics and outcomes research. (Search PGY2 residencies at www.ashp.org.) There are many degree programs (MS, MPH, PhD) that include training in pharmacoeconomics as well. (Search for degree programs on www.ispor.org/education.)

Although many may consider pharmacoeconomics and formulary management less “clinical” than other specialties, I would argue that encouraging cost-effective medication and technology use can have a dramatic impact on the quality of patient care. New clinical services and staff, justified through savings from pharmacoeconomics projects, can greatly improve overall patient outcomes. The volume of positively affected patient lives has been the most rewarding part of my experience thus far.

Robert Schoenhaus received his PharmD from the UCSF School of Pharmacy, after which he also completed a Pharmacy Practice Residency at Kaiser Permanente, San Diego followed by a Managed Care Pharmacy Practice Residency (Pharmacoeconomics and Formulary Management) at the Veteran's Affairs Hospital, San Diego. He

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PHARMACISTS AS ASSOCIATION EXECUTIVES?

Teresa Ann Miller, PharmD

*To recognize an opportunity and use it -
is the difference between success and failure...*

Author Unknown

When I entered pharmacy school, I had no idea of the wonderful and unusual opportunities that I would be offered during my career.

I used to worry that I had not planned it all out in great detail – unlike many of my colleagues who had outlined grand plans and seemed to know just what they wanted to do. Instead, I chose to assess opportunities as they arose and make decisions based on the best information available. Now, as I think back on my past 26 years in pharmacy, I can say that this approach has served me well. They say that time flies when you are having fun, and it seems like only yesterday that I embarked on this journey!

My career path to date has been “non-traditional,” at best; however, as I have traversed the path of lifelong learning, each step I have taken has been informed by those who went before.

My post-graduate experiences have included ASHP’s Executive Residency in health care association management, 24 years as an association executive, working for various pharmacy organizations and most recently, two years working on health care policy for the State of California as a Senior Pharmaceutical Consultant.

This article provides insight into the association executive component of my career. I will describe my service to the State of California in a separate piece.

It all started when I met a couple of ASHP staff members at one of CSHP’s Seminars, long, long ago. I was intrigued by their descriptions of ASHP’s Executive Residency program, and decided to investigate further. Here’s what I found:

ASHP’s Executive Residency is designed for health professionals who aren’t content with the status quo; who care about their profession as much as their industry’s leaders; who are proactive; and who show potential for making a difference through association management techniques.

The basic idea is that you come in a new practitioner.....and you leave an association executive. This sounded like a GREAT idea to me!

Since its inception in 1968 the ASHP Executive Residency has offered its participants access to information, people and events that aren’t available to most people. Why? Because ASHP is deeply committed to grooming health care’s most promising to be tomorrow’s association innovators. ASHP executive residents are privy to some of the best thinking in the pharmacy and association management professions and attend special meetings of ASHP governing bodies including councils, commissions, special task forces, and the board of directors.

ASHP Executive Residents start off with a rotation through each division at ASHP. The orientation period provides a good snapshot of individual roles and functional areas in the organization — and allows each resident the opportunity to identify his or her own areas of interest. The remainder of the year is spent working on specific projects within select divisions under the guidance of the Residency Preceptor. A few of the activities the Executive Residents have the opportunity to engage in include:

- **Membership Services:** Coordinates and evaluates services to members and affiliated chapters and serves as ASHP's liaison to public health information programs, such as Poison Prevention Week.
- **Professional Practice:** Monitors clinical, scientific and administrative issues relating to professional practice. Produces and updates professional practice standards.
- **Accreditation Services:** Surveys ASHP-accredited pharmacy residency programs and technician training programs. The division is growing at a tremendous pace because of increased demand for accredited residencies.
- **Publications & Drug Information Databases:** The group known for publishing best-selling titles like: International Pharmaceutical Abstracts®, AHFS Drug Information®, Handbook on Injectable Drugs, CliniTrend, and dozens more.
- **Educational Services:** Entirely responsible for planning and conducting cutting-edge educational programming for national and regional continuing education meetings, including the popular Midyear Clinical Meeting, the largest international pharmacy meeting in the world.
- **Government Affairs:** Monitors federal and state legislative and regulatory issues related to health care. Meets with legislators on Capitol Hill to advocate pharmacy's position on key issues.
- **Administration:** Responsible for meeting administration, customer service, facilities management, archives, information technology, finance and budgeting, and human resources.

After spending a year at ASHP headquarters, I was hooked on association management as my "second" profession and spent the next 24 years working in pharmacy association settings. During that time, I've had the pleasure of working with the "best and the brightest" in the profession as a CEO, a legislative advocate, an educational program planner, journal editor, membership recruitment specialist, and health policy advisor – just to name a few. I chose to focus on pharmacy associations, but there are also many, many opportunities for pharmacists within non-pharmacy health care associations.

If you are interested in more detail about the ASHP Executive Residency Program, ASHP's website contains a [streaming video](#) (requires a current version of the FLASH media plug-in). The [protocol](#) for the program is also available on the website.

Teresa Miller received her PharmD from the University of Southern California School of Pharmacy. She later completed ASHP's Executive Residency at ASHP Headquarters in Bethesda, Maryland. She spent the majority of her career as a pharmacy association executive, most recently as CEO of the California Society of Health System Pharmacists. Since late 2004, Dr. Miller has focused on health care policy analysis and development for the State of California.

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BLENDING PHARMACY AND QUALITY IMPROVEMENT INTO ONE JOB

William Yee, PharmD, FSCHP, FASHP

In 1997, my director approached me with an unusual proposition. At the time I was a Clinical Coordinator with a 50% staffing commitment. She offered to replace my staffing hours with 50% of my time in Quality Services. We didn't know at the time exactly what I would be doing, but with an impending Joint Commission on Accreditation of Healthcare Organizations (JCAHO) survey and the involvement of medication use around so many of the teams that were in existence, everyone was confident that I would have no shortage of things to do. My salary would remain the same, but I would now be funded 50% by Pharmacy and 50% by Quality. In addition, I would be reporting to both the Director of Pharmacy and the Vice President of Quality. I agreed to the challenge.

Much of the emphasis of our clinical teams at the time revolved around three disease states: acute myocardial infarction (AMI), congestive heart failure (CHF) and pneumonia. While data were being collected with these teams, there were challenges in the department regarding what exactly to do with the data and how to present it in an easy to comprehend, concise package. Prior to my working in Quality, they employed someone whose specialty was statistics, but without a clinical background. My entry into Quality helped provide a clinical background. While I don't profess to be any expert in statistics, I am able to work around MS Excel pretty well and was able to take the data and create graphs that demonstrated performance over time, and started work on profiling individual practitioners.

Another major duty that I acquired was to evaluate medication errors. Quality was the keeper of all occurrence reports, yet there was no one to help analyze the data to identify areas for improvement. Keep in mind that this was 2 years before the report from the Institute of Medicine, "To Err is Human," was published.

Other duties that I assumed included facilitating the Pain Management and Medication Safety teams. This involves scheduling meetings, taking minutes, following up on action items, and keeping the team on track with its aim statements.

Fast-forward 9 years. Today, AMI, CHF, and pneumonia are part of JCAHO's core measures. Medication safety is part of the National Patient Safety Goals. Surgical prophylaxis, now known as the Surgical Care Improvement Project (SCIP), another core measure, is high on everyone's radar. Who would have thought that this experiment in sharing a pharmacist between the Pharmacy and Quality Services departments would have worked so well?

Maintaining the Hospital Formulary. I am responsible for reviewing medications at the Pharmacy and Therapeutics Committee (P & T). While we don't have the strictest of formularies, we do maintain an extensive therapeutic interchange list that allows the department to streamline products within classes where possible.

Coordinating the P&T Committee Agenda. I oversee what is presented at P&T Committee meetings. Besides the formulary reviews, I also make sure that policies are presented and approved, medication-use evaluations are completed and peer review for medication errors is followed up. Pharmacy-managed protocols are developed and approved through our P&T Committee. All pre-printed orders that involve medication use are developed, reviewed and approved by the committee as well.

Overseeing Core Measure Data that is Submitted to JCAHO and Centers for Medicare and Medicaid Services (CMS). All staff in Quality Services complete chart review and data collection for core measures. I have been assigned pneumonia data and review approximately 20 charts each month for adherence to the core measure definitions. In addition, I also review all the data for accuracy before measures are submitted to JCAHO and CMS. Once reports are generated by

JCAHO, I review the data and assure that information is disseminated and action items are generated for areas needing improvement.

Reviewing All Adverse Drug Reaction and Medication Error Reports. At St. Joseph's Medical Center we have an electronic event reporting system. Any time a medication-related report is generated in the hospital, I am notified of its occurrence. For pharmacy-department-related events, I follow up with the person making the error to obtain feedback. For process-related errors, I determine possible system improvements that would prevent future occurrences. Each quarter, I am responsible for producing a report that shows trends and frequencies with recommendations for improvement.

Conducting Root Cause (RCA) and Failure Mode and Effects Analyses (FMEA). Whenever a medication-related event occurs with significant harm to the patient, we assemble a team for a RCA to review the event and develop action items to prevent reoccurrence. We focus primarily on process issues. Generally, we have found that when events occur, it is not the result of any one person or department. Rather, there was a breakdown of multiple processes that allowed an error to happen. This team comes up with recommendations for hardwiring safety measures, adding checks and balances, or streamlining processes to prevent future errors. FMEA, on the other hand, involves a specific process pursued before an event has occurred, finds ways that systems may fail and takes action in advance to prevent error.

Editing and Publishing a Newsletter. With so much information related to medication use being generated in hospitals today, disseminating the information down to the staff level is sometimes a challenge. One mechanism that we use is a quarterly newsletter. This short newsletter contains up-to-date information related to medication use that all employees need.

Precepting Residents in Quality Improvement and Drug Information Management. Everything mentioned above is almost impossible to accomplish by one person. Fortunately, we have a residency program at our medical center that allows me the luxury of having residents help with these tasks. My responsibility is to assign, guide and review residents in many of these projects. In addition to helping the medical center meet its goals, the residents gain valuable skills that they can eventually take to their future careers.

In summary, I can thank my directors in Pharmacy and Quality Services for their foresight to see that some of the duties that they assigned to me in 1997 would become cutting-edge practice in 2007. While still a rarity in hospitals today, I hope that a job such as mine between Pharmacy and Quality Services becomes standard in health-care institutions throughout California and the United States.

William Yee is Clinical Information Coordinator at St. Joseph's Medical Center in Stockton, California. He has been employed at St. Joseph's since 1984, first as Clinical Staff, then as Clinical Coordinator since 1989 and now as Clinical Information Coordinator since 1997. He graduated with his PharmD in 1983 from the University of the Pacific School of Pharmacy in Stockton, CA, and completed his residency in Pharmacy Practice at Indiana University Hospitals in Indianapolis, IN. Dr. Yee received his fellow status from CSHP in 1993 and from ASHP in 2002. A past board member of CSHP, Dr. Yee is currently CSHP President-elect.

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THE MANY ROLES OF A VA PHARMACIST

Nancy E. Ryti Korman, PharmD, FCSHP

Did you know that the Veterans Affairs (VA) is the second largest agency in the federal government? VA operates one of the largest health-care systems in the United States. VA has 157 hospitals and more than 860 community-based clinics. More than 50 million outpatient visits are made through VA hospitals and clinics, and VA fills more than 100 million prescriptions per year. The roles of a VA pharmacist are as varied as our settings, from traditional pharmacist roles to pharmacists involved in direct patient care as a physician extender or helping establish treatment guidelines or promoting patient safety.

When I began my career as a pharmacist at VA San Francisco over 35 years ago, I could not imagine that today I would still be working in the same institution. The opportunities that VA offers a pharmacist are enormous. What attracted me to the position was the environment – VA San Francisco was a teaching institution affiliated with a major university health science campus, UCSF. In fact, more than half of U.S. physicians and nurses have received some or all of their training through VA. VA currently has 100 ASHP-accredited pharmacy residency programs. VA facilities help train students from 107 medical schools, 55 dental schools and more than 1,200 other health-care schools.

In 1970 as a new graduate, I was part of a team of pharmacists who established a pilot program of clinical pharmacy services on a surgical unit (including patient monitoring, rounding, drug information, and unit dose and IV additives services). The opportunity to educate patients has always provided me with a great deal of satisfaction – helping patients learn to take their medications. In time, our services expanded to other acute care settings with the nurses wanting to work on units with these pharmacist services.

When I started at VA San Francisco, UCSF pharmacy residents rotated to our site. In 1971, the Pharmacy Service became a clerkship site for the UCSF Pharmacy School, offering not only acute care experiences but a hands-on elective in IV additives and a drug induced disease didactic elective. In 1980, VA San Francisco established its own pharmacy residency program, providing pharmacists the opportunity to work with pharmacy residents for their entire residency year.

In the late 1980's, we established an affiliation with the University of Pacific School of Pharmacy. It was great to see the sharing of knowledge and experiences between students from 2 pharmacy schools. I have cherished that in all of my positions, having worked with and mentored pharmacy students and pharmacy residents, as well as being a member of a medical or surgical team. These experiences – I refer to them as “in vivo” learning – have kept my gray cells stimulated and provided many fond memories. I have learned a great deal from the students and residents and continue to share what they have taught me.

Over the years, my role has evolved from my first position as a staff pharmacist, then clinical pharmacist, clinical pharmacy manager, residency program director and finally, in my current position of quality improvement and medication safety. What has remained constant is my desire to care for patients, expand the roles of pharmacists and promote patient safety and public health.

At VA San Francisco, pharmacists have the opportunity to participate in interdisciplinary teams at all levels. As a result, I have served as a member and chair of various committees, including the Pharmacy Service Quality Improvement Committee and the medical center's Patient and Family Education Committee. I am currently a member of the VA San Francisco Peer Review Committee and the UCSF Committee on Human Research IRB, representing both the VA and the UCSF School of Pharmacy.

My areas of interest have focused on adult internal medicine, anticoagulation, pain management, and medication safety. I have had the opportunity to work on several projects that resulted in new services, development of an antimicrobial monitoring service, cost avoidance associated with pharmacists' recommendations, justification of a pharmacist in an oncology clinic, and development of an Enoxaparin monitoring service. My current research interests are in depth analysis of actual and close-call medication errors with the goal of improving medication systems and preventing errors.

Looking back on my experiences, I guess it's not hard to see why my professional life still brings me to the VA and why, after 35 years, my career here is still so rewarding.

Nancy Korman is the PGY1 Pharmacy Residency Program Director and the Education/Quality Improvement Coordinator in the Pharmacy Service at VA Medical Center in San Francisco, California. She has been employed at VA San Francisco since 1969, first as a member of the Inpatient Pharmacy staff, then as Clinical Pharmacy Supervisor since 1981, and now as the Education/QI Coordinator since 1995. Nancy graduated with her PharmD in 1969 from the School of Pharmacy at the University of California San Francisco. She is a past recipient of The Long Foundation Prize for Excellence in Teaching given to a Volunteer Faculty Member in the UCSF School of Pharmacy. Dr. Korman received her fellow status from CSHP in 1993 and is a past member of the CSHP Board of Directors.

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A DAY IN THE LIFE OF AN EMERGENCY DEPARTMENT PHARMACIST

Jill Hara, PharmD

The Emergency Department (ED) is a dynamic, unpredictable, and fast-paced environment that drew me to the specialty of Emergency Medicine. There is no such thing as a “typical” day in the ED. My daily activities consist of reviewing medication orders, making empiric antimicrobial suggestions, assisting in the management of toxicologic emergencies and adverse drug reactions, and attending traumas and cardiopulmonary arrests. Septic shock, anaphylaxis, meningitis, acute coronary syndrome, overdose, hypothermia, hypotension, hypertension, a gun shot wound, and acute agitation are all diagnoses that could be managed during the first few hours of my shift in the ED.

After lunch, we will manage a motorcycle accident trauma, a respiratory arrest from a convalescent home, a homeless gentleman in Diabetic Ketoacidosis, and multiple children presenting from a school where one student brought in a bottle of their parents sleeping pills for everyone to try on the playground. Emergency medicine is unique in that we need to treat or resuscitate patients with little to no knowledge of their past medical history, home medications, laboratory information, or drug allergies. This makes a clinical pharmacist’s recommendations of the most appropriate therapies very important.

My path to this exciting practice was not straight forward. As I entered pharmacy school at the University of Southern California (USC) in 1999, my career focus was to one day own a community pharmacy. My interests slowly evolved and changed throughout pharmacy school.

During my fourth year, I opted to take an elective Emergency Medicine clerkship with Dr. Maria Rudis at the Los Angeles County and University of Southern California Medical Center (LAC+USC). The Emergency Department was vast, and immediately I realized that there were not enough hours in the day to absorb and learn all that this environment had to offer.

We were exposed to acute exacerbation of all disease states that were a product of limited health care availability to this certain patient population. Tensions ran high in the ED as patients waited 12 plus hours to be seen by a physician, and traumas – the result of local motor vehicle accidents or victims of unthinkable violent crimes – continued to roll in. Needless to say, there was never a dull moment. That was it: my interest had been sparked.

Dr. Rudis continued to mentor me during my quest for a residency. Since I had intentions of practicing in Southern California for the rest of my life, she encouraged me to go out of state for some varied experience. I eventually sought the ASHP-accredited pharmacy practice residency at The University of Colorado Hospital. The program there allowed flexibility, where I was able to gain the broad clinical experience that comprises pharmacy practice residencies but also focus on several different rotations on my interests in critical care, emergency medicine, and toxicology.

Upon completion of my first residency I had a chance to complete an Emergency Medicine and Critical Care Specialty Residency back at LAC+USC medical center with Dr. Rudis. I seized the opportunity to become a specialist in this vast field and once again return to the endless learning opportunities that the medical center had to offer. I learned alongside the Emergency Medicine Physician residents and followed much of their same curriculum. I was counted upon to provide the latest pharmacology, kinetics, or drug studies at their educational conferences, such as weekly grand rounds and journal clubs. The interaction between pharmacy and the ED Physicians, ED resident physicians, and ED staff was a very positive one.

Midway through the specialty residency I created an ED Pharmacist job description and proposed it to the Directors of Pharmacy at two different hospitals. To my surprise, a few months later I was offered both positions. The choice was a difficult one, but I elected to take the position at Huntington Hospital in Pasadena, California.

To the credit of Dr. Jean Pallares, Director of Pharmacy, the ED Position at Huntington Hospital was approved. She presented to hospital administration the multiple reasons to initiate this new ED Pharmacist position including, but not limited to, compliance with JCAHO regulations to have pharmacists review orders in the ED prior to medication administration.

The first challenge was to establish a rapport and clinical credibility with an ED staff that had never interacted with a clinical pharmacist who had specialized in Emergency Medicine. My extensive specialty training and confidence in managing several typical ED presentations and diagnoses facilitated this transition.

I have now been fully integrated into the department where physicians will consult me on various issues from potential adverse drug reactions to the best vasopressor to use in a septic patient. Nurses consult me regarding drug interactions and administration reactions and alert me to processes that are vulnerable to potential medication errors. I find these constant clinical consults to be challenging and rewarding.

Another challenge when establishing clinical pharmacy services in a new practice setting is figuring out how one full-time pharmacist can impact all shifts on all days of the week. This is a feat that could only be accomplished through varied administrative projects. Within, 6 months of the start of my position, I had established the Pharmacy Emergency Department Committee (The PHED)

The PHED's goals are to update processes and provide education to improve the safe use of medications in the department. We've established a monthly "FYI" bulletin about emerging medication issues, a quarterly newsletter, and are working on protocols for the management of Diabetic Ketoacidosis and thrombolytics in ischemic stroke. These educational endeavors and protocols improved the safe use of medications in the department during all hours of the day, and not just when I am present in the department.

Teaching has become a passion of mine and within the first year of my position I had two pharmacy practice resident rotations and four pharmacy clerkship spots open. The students and residents who rotate through the ED seem to enjoy the varied experiences and fast-paced environment as much as I do. We will also be establishing a PGY2 specialty residency in Emergency Medicine Pharmacy Practice this July. We look forward to continued growth of the Emergency Department Pharmacy program at Huntington Hospital.

Jill Hara received her PharmD from the University of Southern California. She went on to complete an ASHP-accredited pharmacy practice residency at the University of Colorado and a specialty residency in Emergency Medicine and Critical Care at Los Angeles County – USC Medical Center (LAC+USC). Dr. Hara launched her career as an Emergency Department Clinical Pharmacist at Huntington Hospital in Pasadena, California.

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PEDIATRIC ONCOLOGY PHARMACY PRACTICE

Scott Takahashi, PharmD, FCSHP

At Kaiser Permanente's Los Angeles Medical Center, the pediatric hematology-oncology service is responsible for the management of over 80 patients and 45 investigational protocols. Patient care is delivered with a multidisciplinary approach with participation combining the skills of pediatric hematologist-oncologists, ambulatory care pharmacist, nursing case manager, the nursing staff, dietician, and social worker. This team performs all necessary evaluations and follow-up care required for a cancer treatment plan.

To understand the methodology, a description of The Children's Oncology Group (COG) is needed. The COG is a centralized consortium for research and evaluation of complex cancer treatment programs. It was borne from the grouping of the National Wilms Tumor Study Group, Rhabdomyosarcoma Study Group, Pediatric Oncology Group, and several other specialized children study groups. This centralization helps to consolidate resources for data analysis, tissue study, diagnostic laboratory facilities, and administration. Through the efforts of organized study practices, the remission rate for standard risk acute lymphocytic leukemia (ALL) has exceeded 90%!

A success rate like that does come with a price. A feature characteristic of the COG treatment plans is a greater level of complexity compared to adult treatment plans. For example, a leukemia protocol has several phases: induction, consolidation, interim maintenance, delayed intensification, and maintenance. Each varies in length and treatment intensity, which are related to the patient's risk at time of diagnosis and response to therapy. Some phases can be extended or repeated as dictated by the protocol.

In the treatment of ALL, the initial phase, induction, usually lasts 29 days with several lumbar punctures scheduled at the beginning, middle, and later in the treatment plan. Anthracycline, vinca alkaloids, asparaginase, and systemic steroids are administered during this phase. Depending on response after 1 week of therapy, the patient may be evaluated as slow early responder (which may confer a higher risk due to slower removal of immature white cells) or rapid early responder. This diagnostic finding alters the treatment plan of all therapy to follow. A slow early responder may repeat additional courses of interim maintenance and delayed intensification. The overall roadmap and timeline looks more like a spider web instead of a linear treatment plan.

The administration decision tree of a single treatment day requires attention to detail. For example, during interim maintenance, escalating doses of intravenous methotrexate are administered every 10 days. The dose escalation is dependent on the neutrophil and platelet counts, as well as renal and liver function tests. If the platelets are more than 75,000 cells/mm³ and neutrophils are greater than 750 cells/mm³, the dose is escalated by 50 mg/m². For levels less than this, the patient would have treatment modified as follows:

1. delay therapy and re-check blood tests in 4 days, or
2. not escalate and repeat the dose of 10 days prior, or
3. reduce the methotrexate dose, or
4. hold the dose and contact the study coordinator.

Future doses at 10, 20, 30, and 40 days from this point will be affected by any dose modification.

My role as part of the team is to help the treatment plan stay on track. Using an understanding of the treatment protocols, I work with the medical team to create computer algorithms to follow the treatment protocol, order and control the use of investigational agents, compound medications, monitor and improve antineoplastic handling practices and lastly, provide medication information to patient and staff. I also assist the physician in preparing rather lengthy and complex admission orders for

treatment plans that include high-dose methotrexate (12 gm/m²) with leucovorin rescue or multiple medications given in a specific order with protocol dictated infusion order as well.

It should be obvious that the pediatric antineoplastic treatment is very complicated. Integration of pharmacy services is crucial to achieving best outcomes and avoiding medication errors. Adherence to the treatment protocols is another goal of therapy as the pooling of study results assists in improving the success rate in the management of such a catastrophic diseases.

On a personal note, treating patients with cancer can be very challenging to the medical team and the individual health-care professional. Over the time you help care for patients you get to know them and their families. You witness how much better they can be from the time of diagnosis until remission.

Holidays and parties with our patients have a much deeper significance, because for some each one is a special gift. Unfortunately not all are able to be cured. For those patients and their families, the medical team supports the process of loss and grief. Caring for the patients and their families during this important time is challenging, rewarding, and memorable.

Scott Takahashi, PharmD, FCSHP received his Doctor of Pharmacy from the USC School of Pharmacy, where he also completed a Residency in Hospital and Clinical Pharmacy. He joined Kaiser Permanente as an inpatient pharmacist specialist and later joined the ambulatory care service with practice areas in anticoagulation, asthma, geriatric medicine, and cholesterol management and now is the Pediatric Ambulatory Care Pharmacist, specializing in oncology, cholesterol management, and anticoagulation as well as adult and pediatric asthma care. Dr. Takahashi is the clerkship coordinator for the Los Angeles Medical Center, instructor and faculty member for the UCSF and USC Schools of Pharmacy, and a Fellow of CSHP. He is currently serving on the CSHP Board of Directors.

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PHARMACISTS AS HEALTH CARE POLICY ANALYSTS

Teresa Ann Miller, PharmD

I am often asked the question: "After working for CSHP for 14 years, how do you like working for "the state"? That question is often followed by the statement: "It must be very different." I always reply, "Working for the state' is not what you might have imagined (or been told): I LOVE it!" And yes, it is different, interesting, and challenging!

I work for the California Department of Health Services (CDHS), which, as of July 1, will be known as the California Department of Health Care Services (DHCS). The Department's mission is "To protect and improve the health of all Californians." Given there are 36 million people in California, that is not a small task!

While there are many, many opportunities for pharmacists within state service and within the Department of Health Services⁴, this article focuses on my area, which is pharmacy policy related to the Medi-Cal program. Medi-Cal currently serves approximately 6.7 million beneficiaries and has a pharmacy provider network of approximately 6,000 pharmacies.

More specifically, I am one of 20 pharmacists who work in the Pharmacy Policy & Contracting Section. Our section is divided into 4 different units, each with primary responsibility for one of the following: 1) legislative, regulatory and policy analysis; 2) negotiating with pharmaceutical manufacturers for rebates on drugs provided to Medi-Cal beneficiaries; 3) negotiating with manufacturers for rebates on medical supplies; and 4) Data Analysis.

I am a member of the first group, known as the "Pharmacy Policy Unit". Our focus is, as our name suggests, pharmacy policy. The beauty of my position is that it has afforded me the opportunity to contribute to a wide variety of California's health care policy development discussions. To give you an idea of the types of opportunities that present themselves in this environment, I thought I'd first share the "**job description**" version of my responsibilities – followed by some examples of actual projects I've worked on in my first 2 ½ years here.

Responsibilities:

- ✓ **Analysis of state and federal law, regulation, and policy changes for potential impact on the Medi-Cal drug program.**
- ✓ **Development of required issues memos, legislative proposals, regulation changes, and policy memos.**
- ✓ **Assessment and response to telephone/correspondence from beneficiaries, providers, provider organizations, and legislators concerning scope of pharmaceutical benefits and associated utilization controls.**
- ✓ **Interpretation of California Department of Health Services policy for Medi-Cal field offices, Departmental staff, legislators, and the public. Consultation with legal staff on court actions. Analysis and response related to provider appeals and fair hearings.**

⁴ Within the California Department of Health Services, pharmacists work in a wide variety of areas other than the Medi-Cal Pharmacy Policy and Contracting Unit, including Licensing and Certification (as inspectors), Office of AIDS (policy development) and Medi-Cal Managed Care (policy development), to name a few.

Project Examples:

- **Medicare Part D:** Since January of 2005, I have served as the State of California's point person for the implementation of the Medicare Prescription Drug Benefit (Medicare Part D). In that capacity, I chaired an Inter-Departmental Steering Committee that was charged with assessing the MMA's impact on the State of California's health agencies and developing and implementing strategies for dealing with those impacts. That group met on a regular basis throughout 2005 and for the first few months of 2006.

We dealt with a multitude of issues related to the transition of individuals with both Medi-Cal and Medicare from Medi-Cal drug coverage to the new, federal prescription drug benefit, also known as Medicare Part D. This experience required that I become knowledgeable about and conversant in both Medi-Cal and Medicare in a very short period of time, not only with respect to pharmacy issues, but all health care policy issues related to this new federal benefit. Our group was comprised of representatives from a wide variety of state departments other than CDHS, including the Department of Developmental Services, the Department of Mental Health and the Department of Aging, to name a few.

- **Legislative analysis:** I am routinely asked to analyze legislation and prepare briefing papers recommending Department of Health Services' positions. In each case, I first research the actual proposal and the author's reasons for introducing it; I then develop an analysis of the bill's potential impact on the Medi-Cal program. Based on that analysis, I recommend a position for the Department's Office of Legislative Services' review. This information is presented to upper management for review, modification, and/or approval prior to becoming official Department policy.
- **Pharmacy Policy liaison, California Mental Health Care Management Program (CalMEND):** CalMEND is a consumer focused, evidence driven effort to develop and implement a statewide mental health care management program that improves health outcomes by promoting appropriate shared decision making by consumers, family members and providers to support each person's wellness/recovery journey. This effort was jointly created by the Department of Health Services (DHS) and the Department of Mental Health (DMH) in collaboration with state agencies, county mental health agencies, the University of California Medical Centers, and consumer and family representatives. I am one of a number of pharmacists in our section who are working on this project, which is multifaceted and includes efforts to reduce the rate of antipsychotic polypharmacy for beneficiaries of publicly funded programs in California, among many other things.
- **California HIV/AIDS Pharmacy Pilot Project:** I serve as the project manager for this program, authorized by AB 1367 (Steinberg, 2004) to evaluate the provision of Medication Therapy Management Services (MTMS) for patients with HIV/AIDS. This program, under California Welfare and Institutions Code, Section 14199-14199.3, allows 10 pharmacies in the state to be compensated an additional \$9.50 per Medi-Cal claim for MTMS they provide to HIV/AIDS patients for the 3-year term of the pilot. The goal of this program is to evaluate outcomes in pilot pharmacy patients vs. patients of non-pilot pharmacies and provides the opportunity to document the types of MTMS being provided and determine how outcomes are being affected.

I hope I've stimulated your interest. As I stated in the beginning, "working for the state" is not what you might have imagined (or been told). It's a whole new world, with many opportunities to "*protect and improve the health of all Californians*"!

Teresa Miller received her PharmD from the University of Southern California School of Pharmacy. She later completed ASHP's Executive Residency at ASHP Headquarters in Bethesda, Maryland. She spent the first 25 years of her career as a pharmacy association executive, 14 of which were as CEO of the California Society of Health System Pharmacists (CSHP). Since late 2004, Dr. Miller has focused on health care policy analysis and development for the State of California as a Senior Consulting Pharmacist within the Department of Health Services.

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A school of goldfish swimming in a tank. One goldfish in the center is a vibrant blue, standing out from the rest of the crowd of yellow and orange goldfish.

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