The Story of Pharmacy at M.D. Anderson Cancer Center
Two Pharmacists’ Stories
TSHP Journal
Published by the
Texas Society of
Health-System Pharmacists
3000 Joe DiMaggio #30-A
Round Rock, Texas 78665-3994
Ph: (512) 906-0546 • Fax: (512) 852-8514
tshp@tshp.org • www.tshp.org

TSHP BOARD OF DIRECTORS
Officers
President - Randy Ball
Immediate Past President - James P. Wilson
Treasurer - Nancy Myers
President-Elect - Brian Cohen
Secretary - Ryan Roux
Secretary-Elect - Jabeen John
President-Elect Designate - Emory Martin

Austin Area – Deana Dossey, President;
Central Texas – Bradi Frei, President;
Javier Palacios, President-Elect
East Texas – Andrea Ries, President;
Becky Barr, President-Elect
El Paso Area – Janet Haskin, President;
David Romero, President-Elect
Gulf Coast – Monica Robinson Green, President;
Rodney Cox, President-Elect
Heart of Texas – Emory Martin, President;
Lubbock Area – Latisha Tomlinson, President;
Tiffany Coomer, President-Elect
Metroplex Area – Brian Cohen, President;
Jack Iskander, President-Elect
Panhandle – Amber Elliott, President;

* * *

TSHP 2011 - 2012 Council & Section Chairs
Communication Affairs – Pamela Price, Chair
Editorial Advisory Board - Jeff Copeland, Chair
Educational Affairs – Steven Pass, Chair
Membership Development - H. Glenn Anderson, Chair
Organizational Affairs – Tammy Cohen, Chair
Professional Affairs – Larry Egle, Chair
Public Affairs – Stewart Wirebaugh, Chair
New Practitioner Section – Kunal Patel, Chair
Industry Section - Reiser Pickett, Chair
Pharmacy Management Section - Rebecca Turner, Chair
Technician Section – Sandy Long, Chair
Student Section – Taylor Nichols, Chair

TSHP Staff
Paul F. Davis, Executive Director
Judy K. Turley, Executive Assistant
Leah Cody, Director of Communications
Melissa Osuna, CPhT, CPE/Membership Manager

The Texas Society of Health-System Pharmacists (TSHP) is the organization representing healthcare pharmacy practice in Texas. TSHP’s membership includes pharmacists, technicians and other healthcare professionals whose goal is to optimize pharmacy practice for the public’s benefit. TSHP is an affiliate of the American Society of Health-System Pharmacists.

Mission Statement
The mission of the Texas Society of Health-System Pharmacists is to support the pharmacist practicing in health systems and other healthcare settings to achieve positive patient outcomes and improved patient equality of life through the provision of pharmaceutical care.

The TSHP Journal is published quarterly by the Texas Society of Health System Pharmacists, 3000 Joe DiMaggio #30-A, Round Rock, TX 78665-3994

Table of Contents
Letters to the Editor .............................................................. 3
President’s Message ............................................................ 4
Legislative/Lobbyist Report ................................................ 5
Evaluation of bevacizumab maintenance in advanced non-squamous non-small cell lung cancer .............................................. 8
Pharmacist James McKinley: The Story of Pharmacy at M. D. Anderson Cancer Center Part I .................................................................... 16
The Impact of Topiramate (Topamax®) Therapy on the Development of Aggressive and/or Agitated Behavior: A Case Report ............................................... 19
Pharmacist Roger Anderson: The Story of Pharmacy at M. D. Anderson Cancer Center Part II .................................................. 22
Speaking of .............................................................................. 26
I was told the Board is considering removing the requirement for a 2-day registration for entrants in the poster competition. I think this is a good idea. It’s hard to get folks away for these meetings, even when it’s in your home town. If a group of staff pharmacists or a group of technicians works on a poster together, there is literally no chance that all can be off the same weekend for 2 days given how lean our departments are staffed. The key thing is that someone has to pin up the poster the day before, which could be a colleague or resident, and then some or all of the authors need to be there during the poster session to stand by their poster and answer questions.

We faced this issue this year. I helped a group of staff pharmacists construct a poster on the effect of implementing a central order entry area. It was good experience for them, and hopefully they will do another poster in the future. However; they all just signed up for 1-day registration (Saturday) so they could stand by their poster. They work Friday and a couple had family obligations Sunday. I was happy they could be there for 1 day and present their poster. I’m pinning it up for them Friday along with mine. Although I don’t think their poster will be the best in the management category, I do believe the requirement that all authors must have a 2-day registration is not realistic in today’s world of health system pharmacy. Personally I would prefer to promote teamwork and collaboration among our staff and be inclusive in group projects rather than cut out folks just to meet this requirement for the poster competition. Presenting the poster and getting good feedback on it provides some recognition among peers that can be almost as satisfying as a formal award.

Take care
Kevin

Kevin Purcell, MD, PharmD, MHA
Regional Coordinator for Pediatric/Neonatal Pharmacy & Pharmacy Education Dept. of Pharmacotherapy & Pharmacy Services Baptist Health System
San Antonio, TX

Note: The Executive Director’s editorial in the Spring, 2011 issue addressed the topic of the future growth and scope of practice of pharmacists. We requested feedback.

Paul,

Nice article in the Journal. You appear to be “stirring the pot.”

I agree with you on most points and hopefully, we’ll land somewhere in-between. You pointed out several areas where there is expanded prescriptive authority for pharmacists. Until that becomes a universal model for pharmacists, I think we’ll continue to have this discussion.

The points that I hadn’t thought about before are the “paid by the government” and “do we want to get paid less?” I don’t think we’re poised to do either of those and perhaps we are best left in the middle where the prescriber has to “sign off” on any recommendations we make. Essentially, that’s where we are now, and many folks are happy to be a part of a collaborative practice. Like you say, why are we pushing so hard to be required to submit CPT codes for what we do? It’s far easier to write a recommendation, a prescription even, that requires a co-signature. Maybe it’s an ego thing, but we do need to get over that.

We’re trying to figure out how to get our pharmacists to start using CPOE. When they do, it would look and act just like a physician order, but just require a co-signature in the background. Most of these, at first, will be protocol driven. With time, that will expand. We actually have a few pharmacists using it now for non-protocol ordering with physicians that are comfortable with the way they practice. I think this is excellent and who could ask for anything more (Gershwin - feel free to sing here...)?

Finally, I am struck by the fact that there’s nothing about Meaningful Use in the Journal or in Annual Seminar. It’s huge. I think we missed the boat somewhat this year by not having a presentation at Annual Seminar. I guess that means I need to write something for the Journal, or collaborate on something for the Journal. And, as I said before, I’d like to see more IT topics at Annual Seminar next year. IT is becoming absolutely ingrained in everything we do these days, even more so with Meaningful Use standards. I think the topics selected can be broad enough for all audiences and managers will be particularly interested.

As you say, just my two centavos.
Andy Laegeler, PharmD, MS
Pharmacist
St. Luke’s Episcopal Hospital
Houston, TX
Welcome to the Summer edition of the TSHP Journal. Since our last Journal, we have had a very successful Annual Seminar which set many records, we have elected our next slate of officers, and we have already begun planning the next Annual Seminar which will be in Dallas in April, 2012. New Councils and Sections have begun working with a record number of volunteers serving our profession and organization. The Executive Committee is finalizing plans for a strategic planning session to be held this Fall to make sure TSHP continues to move forward as the best state professional organization for pharmacy.

While things are going well for TSHP, our profession is facing many challenges and opportunities. The Patient Protection and Affordable Care Act may create opportunities for pharmacists through the formation of Accountable Care Organizations (ACOs). The Centers for Medicare and Medicaid Services (CMS) have implemented new programs which put up to 7.5% of each hospital’s payments from Medicare at risk if certain criteria are not met. Budget shortfalls at the state and national levels continue to put hospital revenues at risk, which in turn puts additional pressure on pharmacy staff to manage productivity and drug costs.

The key message that we need to understand is that healthcare continues to change, and with change, there are opportunities if we are ready to take a leadership role. Pharmacists need to play a vital role in each hospital’s efforts to decrease readmissions and to meet Core Measures. If ACOs form, pharmacists need to be ready to step forward and educate their health system leadership about the importance of using pharmacists to manage complex health issues that drive up costs within the system. Technicians need to continue to grow their practices so they can work with the pharmacists in the new roles that constant change will bring about. The most important thing we can do is to provide the best healthcare to our patients, regardless of the changes that come.

TSHP will continue to advocate for the profession and our Councils and Sections will continue to seek ways to help our membership respond to the ever-changing environment of health system pharmacy. It is important for our membership to be involved, so if you are not currently serving on a Council or Section, consider doing so when the call for volunteers goes out later this year. Consider stepping forward and serving as an officer in your local component chapter. It is important to remember that if we are not willing to step forward and make decisions and lead our profession, someone else will and we may not like the outcome. Get involved, or re-involved, with your organization and your profession.

Randy Ball
TSHP President
The 2011 Texas Legislative Session has adjourned having met for the 140 consecutive days allowed in the Texas constitution. When they convened back in January they faced a $27 billion shortfall for the next budget, the political challenge of redistricting, and the inexperienced enthusiasm of 38 freshmen legislators. Despite that, they accomplished a lot.... They redrew the lines of the House and Senate districts according to the new census population numbers; passed legislation requiring voters to show a photo ID; prohibiting texting while driving; loser-pays tort reform; allowing the hunting a feral hogs from helicopters; and regulating the practice of “hand-fishing” or Noodling.

Of major importance, the legislature passed a budget for fiscal years 2012-2013, which will spend $27 billion less in those years than was spent in 2010-2011. This was accomplished without raising taxes or depleting the state’s rainy day fund. However, the “fiscal matters” bills that provided the cost savings in public education and Medicaid didn’t pass and a special session of the legislature is currently meeting to address those issues. (See separate story...)

Aside from Medicaid issues, there were a large number of pharmacy bills considered by the legislature this year. The following is a recap of those bills that passed and those that were considered, but did not pass.

**PHARMACY BILLS THAT PASSED**

**Privacy of Patient Health Information....**

*HB 300* by Rep. Kolkhorst (R-Brenham) expands privacy standards for patients protected health information in state law beyond the current provisions of the federal HIPAA laws. New state regulations will:

- Require covered entities to train all employees in privacy laws every two years,
- Provide patients with copies of electronic health records within 15 days,
- Prohibits the sale of an individual’s protected health information to a non-covered entity and only may disclose health information to another covered entity for the purpose of treatment or payment,
- Requires prior authorization from patient before disclosure of information except for treatment or payment purposes,
- Gives the Texas Attorney General jurisdiction over violations and sets penalties at a maximum of $1.5 million,
- Allows the state to request a federal audit of any covered entity, and
- Creates a Health Information Task Force composed of 11 members appointed by the Attorney General.

**Accelerated Refills....**

*HB 2069* by Rep. Naishat (D-Austin) authorizes a pharmacist to dispense a 90 day supply of a maintenance drug (without...
prior approval) when the prescriber writes a 30 day supply with two or more refills.

E-Prescribing of Schedule II Drugs....
SB 594 by Sen. Leticia Van de Putte (D-San Antonio) follows recent changes to federal rules that now allows a prescriber to transmit an e-prescription for schedule II drugs.

Orally Administered Anti-Cancer Drugs....
HB 438 by Rep. Thompson (D-Houston) requires a health benefit plan that provides coverage for cancer treatments to provide coverage for a prescribed, orally administered anticancer medication to the same extent that intravenously administered drugs are covered.

DPS# on Prescriptions....
SB 1273 by Sen. Williams (R-The Woodlands), also amended onto SB 594, still requires prescribers of schedule II drugs to obtain a DPS registration number, but the current requirement that the DPS number be included on prescriptions written for controlled substances is removed. The new law also requires prescription data that is currently sent to DPS by the 15th day of the preceding month will now be sent to DPS by the 7th day.

Workers Compensation “voluntary networks”.....
HB 528 by Rep. Solomons (R-Carrollton) allows workers’ compensation carriers to continue to have contractual fee discounts for pharmaceutical services and to use a voluntary or informal network to provide pharmaceutical services. Those networks can be exempt from mandatory fee guidelines established by the Texas Workers’ Compensation Commission.

Synthetic Marihuana....
SB 331 by Sen. Shapiro (R-Plano) adds synthetic cannabinoids (marihuana) to the Texas Controlled Substances Act.

Meningitis Vaccinations....
SB 1107 by Sen. Davis (D-Fort Worth) extends the requirement for first time college students living in dormitories to receive a vaccination for bacterial meningitis to all students attending public, private or independent institutions of higher learning.

Over-The-Counter Sale of Pseudoephedrine....
HB 1137 by Rep. Darby (R-San Angelo) requires a business establishment before completing an over-the-counter sale of a product containing ephedrine, pseudoephedrine, or norpseudoephedrine to transmit the record to a real-time electronic logging system. The administration of the electronic logging system must be free of charge to business establishments and law enforcement agencies.

Prompt Payment of Pharmacy Claims....
HB 2292 by Rep. Hunter (R-Corpus Christi) requires an HMO or PBM to pay electronic claims within 18 days, and non-electronic claims within 21 days. HMOs and PBMs also may not use extrapolation to complete the audit of a pharmacy and shall provide the pharmacy reasonable notice of the audit and accommodate the pharmacies schedule to the greatest extent possible.

PHARMACY BILLS THAT DID NOT PASS

Physician Dispensing....
SB 546 by Sen. Deuell (R-Greenville) would have allowed all physicians to dispense (sell) any non-schedule drugs directly to patients. The bill only asked physicians to comply with state and federal labeling and recordkeeping requirements and did not address storage or security issues and did not restrict who in a physician’s office may access the drug supply.

Physician’s Assistants in Hospitals....
SB 1750 by Sen. Uresti (D-San Antonio) would have allowed a physician to delegate to a PA prescriptive authority for schedule II controlled substances in hospitals and other health facilities.
Drug Substitution....

*SB 1756* by Sen. Uresti (D-San Antonio) would have prohibited a pharmacist from substituting a generic for a tamper-resistant opioid analgesic drug.

Drug Donations....

*HB 89* by Rep. Cook (R-Corsicana) would have established a drug donation program within the Texas Dept. of Health Services with standards for participating pharmacies and physicians.

Technician Representation on the Board of Pharmacy....

*SB 1262* by Sen. Van de Putte (D-San Antonio) would have added one registered pharmacy technician and one additional public member to the Texas State Board of Pharmacy.

Audits of Mail Order Pharmacies....

*HB 3266* by Rep. Miller (R-Stephenville) would have required the state auditor to conduct a biennial audit of claims data for prescriptions for a 90-day supply of drugs to verify parity between retail and mail order pharmacies.

Abortion Drugs....

*SB 1790* by Sen. Patrick (R-Houston) would have only allowed a physician to sell prescription abortion-inducing drugs.

MEDICAID MANAGED CARE FOR PHARMACY BENEFITS

From the beginning of the 2011, the legislature has been dealing with a $27 billion deficit for the next biennium and Medicaid has been identified as one state program that has grown rapidly and needs to be contained. As of this writing, the legislature is in a special session to finish the process of making substantial cuts to Medicaid. The first step was to expand the current managed care system for medical services into the previously exempted Rio Grande Valley. In addition, the Texas Commission on Health and Human Services also recommended shifting Medicaid pharmacy benefits from the current state run Vendor Drug Program to a managed care contract with regional MCOs and PBMs. The Medicaid program anticipates a saving of nearly $200 million by collecting both drug company rebates AND premium taxes paid by the MCOs. Drug costs and dispensing fees will be established by the managed care entities and selective contracting will limit the number of pharmacies who can participate.

The associations representing retail pharmacy have been active during these discussions and have been successful in getting legislators to include certain safeguards. The provisions included in the Medicaid Cost Containment bill being considered in this special session, which have been agreed-to by the leadership include any-willing provider, prohibition of mandatory mail-order, PBM transparency, and prohibitions of exclusive contracting for MCO owned specialty pharmacies. Once the special session is over and the Medicaid bills have passed, there will be months of activities relating to managed care RFPs and contracting. The HHSC will also need to apply for waivers from the federal government to make many of the anticipated changes.
Evaluation of bevacizumab maintenance in advanced non-squamous non-small cell lung cancer

by: Samit M. Patel, Pharm.D., Texas Tech University Health Sciences Center – School of Pharmacy/Presbyterian Hospital of Dallas; Jonathan E. Dowell, M.D., Veterans Affairs North Texas Health Care System/ The University of Texas Southwestern Medical Center; Sachin R Shah, Pharm.D., Texas Tech University Health Sciences Center – School of Pharmacy/Veterans Affairs North Texas Health Care System

ABSTRACT

Background: The objective of this study was to evaluate efficacy of bevacizumab monotherapy maintenance in advanced non-small cell lung cancer (NSCLC).

Materials and Methods: The study was a retrospective cohort evaluation of patients treated for advanced stage non-squamous NSCLC. Patients were required to have received a minimum of 4 cycles of platinum-based chemotherapy and have demonstrated response. The bevacizumab monotherapy arm patients were administered platinum-based combination chemotherapy with bevacizumab and then received bevacizumab monotherapy until progression of cancer. The observation arm patients had platinum-based combination chemotherapy without bevacizumab and were then observed.

Results: The bevacizumab monotherapy arm included nineteen patients, and twenty-nine eligible patients were included in the observation arm. The median progression-free survival (PFS) was 23.3 weeks in the bevacizumab monotherapy arm, as compared with 10.6 weeks in the observation arm (P=0.107). Subset analyses of patients with non-brain metastasis, good performance status, and stage IV NSCLC were performed due to baseline imbalances in these established prognostic factors. No significant differences in PFS or overall survival (OS) between bevacizumab monotherapy and observation were seen for all subsets analyzed except for stage IV patients. Patients with stage IV NSCLC who received bevacizumab monotherapy had statistically significant lower OS rates compared with the observation arm (35.4 vs. 47.8 weeks; P=0.024).

Conclusions: This study suggests bevacizumab monotherapy maintenance may not provide significant clinical benefit over observation in patients with response to platinum-based chemotherapy. The efficacy of existing second line agents needs to be re-evaluated in patients who have received prior bevacizumab-based chemotherapy.

Key words: bevacizumab; maintenance; non-small cell lung carcinoma; monoclonal antibodies; angiogenesis inhibitors, lung neoplasm; vascular endothelial growth factors.

INTRODUCTION

An estimated 562,000 cancer-related deaths will occur in the United States in 2009. Lung cancer is the leading cause of cancer-related mortality and will account for 159,000 deaths, which is more than breast, colon, and prostate cancer combined.1 Approximately 85% of lung cancer patients have non-small-cell-lung cancer (NSCLC), which can be further subcategorized as adenocarcinoma (40%), squamous cell (30%), and large cell (15%). Combination chemotherapy improves survival, reduces symptoms, and improves quality of life compared to best supportive therapy in patients with advanced NSCLC.2-4 In 2004, Schiller et al. compared four platinum-based chemotherapy regimens in combination with paclitaxel, gemcitabine, or docetaxel to identify the optimal regimen.5 This study showed that all four regimens produced similar response and survival rates, with a reported median survival of 8 months. In addition, two previous studies have attempted to identify the benefit of continuous chemotherapy in patients with advanced NSCLC. Smith et al. compared the efficacy of three cycles of MVP (mitomycin, vinblastine, and cisplatin) to 6 cycles of the same regimen.6 The study showed no difference in median (6 months vs. 7 months) or one-year survival rate (22% vs. 25%; P=0.2). Sosckini et al. showed that continuous carboplatin and paclitaxel chemotherapy every 3 weeks until progression of disease was no better than four cycles of the same chemotherapy regimen (response rate 24% vs. 22%; P=0.8) (median survival 8.5 months vs. 6.6 months; P=0.63).7 Also, all responses occurred within the first four cycles of chemotherapy in both arms. Both of these studies suggest that continuous chemotherapy until progression of disease does not provide clinical benefit in patients with advanced NSCLC.

Bevacizumab is a recombinant humanized monoclonal antibody that binds vascular endothelial growth factor (VEGF),
which results in inhibition of angiogenesis. Bevacizumab is FDA-approved as first-line therapy for locally advanced or metastatic non-squamous NSCLC in combination with chemotherapy. The approval of bevacizumab was primarily based on a prospective, randomized, multi-center, registrational, phase III trial comparing bevacizumab to standard therapy alone. A total of 842 patients were randomized to receive carboplatin plus paclitaxel, with or without bevacizumab, for 6 cycles. The patients in the bevacizumab arm were allowed to continue on bevacizumab monotherapy until disease progression or unacceptable toxicity. The trial showed a significantly better response rate of 35% in the bevacizumab arm compared to 15% in the control arm (p<0.001). The addition of bevacizumab to carboplatin and paclitaxel also significantly improved median progression free survival (PFS) (6.2 months vs. 4.5 months; HR 0.66; P<.001) and overall survival (OS) rates (12.3 months vs. 10.3 months; HR 0.79; P<.03). 8

This study showed improved efficacy with the addition of bevacizumab to standard chemotherapy, but lacked adequate data to support or refute the value of bevacizumab monotherapy maintenance. The improved PFS and OS seen with bevacizumab may have resulted from the higher objective tumor response rate seen with the combination of chemotherapy and bevacizumab rather than from bevacizumab maintenance. Thus, the purpose of this retrospective study was to evaluate the efficacy of bevacizumab monotherapy maintenance after response or stable disease to a platinum plus bevacizumab-based chemotherapy regimen.

**MATERIALS AND METHODS**

This was a retrospective cohort evaluation of patients treated for advanced stage NSCLC at the Veterans Affairs North Texas Health Care System and University of Texas Southwestern Medical Center in Dallas, Texas. Patients received chemotherapy between January 1, 2002 and October 31, 2007. All patients evaluated were required to have received at least 4 cycles of a platinum-based combination therapy and demonstrate response, with or without bevacizumab. The study was approved by the local Institutional Review Board at both institutions.

Lung cancer patients, at both institutions, were identified through ICD-9 codes and cross-referenced with the pharmacy records of patients who had received platinum-based chemotherapy. Patients were eligible for the study if they had recurrent or newly diagnosed stage IIIB or IV NSCLC. Specifically, only stage IIIB patients who were not candidates for surgery or concurrent chemotherapy and radiotherapy were included. Patients were required to have received a minimum of 4 cycles of platinum-based chemotherapy, with or without bevacizumab, and to have demonstrated stable disease, partial response, or a complete response with first-line chemotherapy. Patients were excluded if they had squamous cell carcinoma or small-cell lung cancer confirmed by pathology report. Patients were also ineligible if they had received prior chemotherapy within 6 months of the initiation of the platinum-based chemotherapy regimen. Furthermore, patients who did not receive bevacizumab monotherapy maintenance, following response to combination chemotherapy with bevacizumab, were excluded.

The patients were then divided into two arms, bevacizumab monotherapy and observation therapy. The bevacizumab monotherapy arm included patients who had demonstrated response or stable disease to platinum-based chemotherapy with bevacizumab and then received bevacizumab monotherapy until progression of cancer. The observation arm consisted of patients who responded to platinum-based chemotherapy without bevacizumab and then were observed until progression of cancer. Radiological scan reports were utilized to assess patients’ sites of metastasis as well as response or progression of cancer. Response Evaluation Criteria in Solid Tumors (RECIST) guidelines were utilized to determine patient response (stable, partial, or complete) or progression on chemotherapy. The stable response was defined as neither partial response nor progression of cancer. The partial response was defined as at least 30% decrease in the size of tumor from the baseline scan. The progressive cancer was defined as 20% increase in the size of tumor from the baseline scan. Age, gender, weight, height, and performance status of the patients were collected from the computerized patient record system or hard-copy medical charts. In addition, pathology reports, oncology clinic notes, and nurse chemotherapy infusion notes were reviewed for lung cancer diagnosis, staging, and chemotherapy treatment. Patients’ dates of death or last visits were recorded as well.

The primary end-point of the study was to compare the PFS of bevacizumab monotherapy with observation alone in patients with advanced non-squamous NSCLC. The PFS for patients on bevacizumab monotherapy was measured from the initial dose of bevacizumab monotherapy. In the observation arm, the PFS was measured from three weeks after the last dose of platinum-based combination chemotherapy was given. The secondary end-point was to compare the OS between patients in these two groups. In the bevacizumab registration trial in patients with advanced NSCLC, the control arm (chemotherapy without bevacizumab) received a median of 5 cycles, while the experimental arm (chemotherapy with bevacizumab) received a median of 7 cycles, which included bevacizumab monotherapy. A total of 215 subjects received monotherapy, and 50% of those patients had received 5 or fewer cycles. Based on this finding, patients on bevacizumab monotherapy had a median PFS of approximately 15 weeks from the first dose of monotherapy. All statistical analyses were performed using Minitab® (Release 15, Minitab Inc, State College, PA) software. The primary end-point of PFS...
and secondary end-point of OS were compared between the groups using the Kaplan-Meier method. The time to event endpoints were analyzed using the Log-rank test. Other continuous variables for baseline characteristics were evaluated by the Mann-Whitney U-test. Nominal variables were analyzed by either Chi-Square or Fisher’s Exact test. Statistical significance was defined as a p-value < 0.05.

RESULTS

Forty-eight eligible patients were identified for the analysis. The bevacizumab monotherapy arm included nineteen subjects while the observation arm was comprised of twenty-nine subjects. Initially, 239 patients were identified who had advanced non-squamous NSCLC. Thirty-nine patients were excluded due to concurrent radiation and chemotherapy or prior chemotherapy within six months of the study eligibility. Of the patients who were receiving platinum-based chemotherapy for treatment, 137 progressed while on combination chemotherapy. Out of the remaining 55 patients who responded to combination chemotherapy, 6 in the bevacizumab monotherapy arm were excluded as they were not continued on bevacizumab monotherapy following a response to platinum-based chemotherapy in combination with bevacizumab.

Patient demographics for the study are shown in Table 1. Seventy-four percent in the bevacizumab monotherapy arm were male, as were 97% in the observation arm. All patients had received platinum-based combination chemotherapy with bevacizumab as their first-line treatment for advanced non-squamous NSCLC. Carboplatin was the platinum treatment of choice, with approximately ninety-five percentage of the patients in both arms receiving this agent. Of note, the observation arm had a higher percentage of patients with poor performance status, more advanced NSCLC, and brain metastases. However, these differences were not statistically significant, except for the presence of brain metastases (P=0.032). The number of chemotherapy cycles administered as well as the type of response (i.e. partial or stable) was similar between the two arms. The average time from the first dose of platinum-based combination chemotherapy, with or without bevacizumab, to study eligibility was also similar between the two arms (17 vs. 16.5 weeks, respectively).

Median PFS was longer in the bevacizumab monotherapy arm compared with the observation arm. The median PFS was 23.3 weeks in the bevacizumab monotherapy arm, as compared with 10.6 weeks in the observation arm (Log-rank test, P=0.107, Wilcoxon P= 0.034) (Figure 1). Three month PFS was significantly better in patients receiving bevacizumab monotherapy (68% vs. 34% for observation arm, P=0.021). Bevacizumab monotherapy continued to provide non-statistically significant benefit at 6 and 12 months compared with observation (Figure 2). The significant early improvement in PFS did not result in improved OS (Table 2). The median OS was 39.4 weeks for the bevacizumab arm compared with 47.9 weeks for the observation arm (P=0.561) (Figure 3).

Subset analyses were also performed. None of the patients with brain metastasis received bevacizumab therapy. The analysis of non-brain metastasis patients in the observation arm (N=22) yielded similar results to all of the patients in the observation arm. The median PFS was 10.6 weeks, and the 3-month PFS was 36% in non-brain metastasis patients (Figures 1 and 2). In patients with a performance status of 0 or 1, the median PFS was 23.3 weeks in the bevacizumab arm compared with 20.4 weeks in the observation arm (Log-rank test, P=0.795). Stage IV only patients had a median PFS of 12.7 weeks in the bevacizumab monotherapy arm compared with 10.6 weeks in the observation arm (Log-rank test, P=0.516; Figure 1). There were no differences in OS rates for all subset analyses, except for stage IV patients (Figure 3). Patients with stage IV NSCLC who were receiving bevacizumab monotherapy had a statistically significant decrease in OS rate compared with the observation arm (35.4 vs. 47.8 weeks; Log-rank test P=0.024)

The median duration of follow-up from the patient’s initial eligibility to result analysis were at least 98 weeks for both the bevacizumab monotherapy arm and the observation arm. Patients in the bevacizumab monotherapy arm received an average of 8.2 cycles and a median of 6 cycles. Approximately 70% of patients discontinued bevacizumab monotherapy due to progression of disease. Twenty percent discontinued therapy due to adverse effects, and 5% due to patient preference. The remaining 5% of patients were on therapy at the time of data analysis.

DISCUSSION

The present study compared PFS after completion of first-line chemotherapy in patients receiving bevacizumab maintenance, following platinum-based chemotherapy with bevacizumab, with patients being observed after receiving platinum-based chemotherapy without bevacizumab. The median number of bevacizumab monotherapy cycles received by patients was 6, which was similar to the 5 cycles of bevacizumab monotherapy received by the patients in the phase III trial.8 Bevacizumab monotherapy provided a longer median PFS compared to the observation group (23.3 weeks vs. 10.6 weeks) following response to platinum-based chemotherapies. The study did not demonstrate a statistically significant improvement in PFS by the Log-rank test but did achieve significance by the Wilcoxon test (P=0.034). This suggests that bevacizumab provided a modest benefit in PFS that was limited to early in the treatment. Additional data supporting this were the improved PFS rates at 3 months for all (including subset analysis) patients. One possible explanation is that prior administration of bevacizumab with
platinum-based chemotherapy provided enhanced response rates that led to early modest improvement in PFS. However, the early improvement in PFS was not further enhanced with bevacizumab monotherapy.

In addition, the longer PFS in the bevacizumab monotherapy arm in this study was likely due to imbalances in patient baseline characteristics that favored the bevacizumab group. Patients receiving bevacizumab monotherapy were younger, more likely to have a performance status of 0 or 1 as well as stage IIIB disease, and did not have brain metastases. When the analysis was limited to patients with a performance status of 0 or 1 or to patients with stage IV disease, no significant difference in PFS between the two arms was seen. Similar to our study, post-hoc analysis of the AVAiL trial failed to show significant improvement in PFS of patients receiving bevacizumab maintenance following response to cisplatin plus gemcitabine based chemotherapy.9

The early improvement in PFS with bevacizumab monotherapy did not result in improved OS. In fact, despite the imbalances in prognostic features detailed above, patients in the observation arm had a better OS compared with those on bevacizumab monotherapy. Furthermore, in the subgroup analysis of stage IV patients, this survival difference was statistically significant. The Kaplan-Meier survival curves show a late accelerated decline in the OS rates among patients receiving bevacizumab monotherapy. This finding raises the question of the efficacy of second-line therapy following progression on bevacizumab-based chemotherapy for stage IV NSCLC.

This study is limited by its retrospective design and small sample size. However, even with the small sample size, significant improvement in early PFS (at 3 months) and decreased OS rates in patients with stage IV NSCLC (who received bevacizumab monotherapy) were clearly demonstrated. The baseline study groups were not well balanced, and therefore, subset analyses were conducted, which may have lowered the power of the study. In addition, given that 88% of the patients on the study were men, the results may not apply to women. Potential strengths of the study are that it excluded all patients with squamous cell histology and any patients receiving adjuvant platinum-based chemotherapy. In addition, the study attempted to match the inclusion and exclusion criteria set in the phase III trial of bevacizumab for the treatment of advanced stage NSCLC. Lastly, this study is unique in that it is the first to evaluate the efficacy of bevacizumab monotherapy in patients who demonstrated response to a platinum-based combination chemotherapy regimen.

In conclusion, this retrospective analysis suggests that bevacizumab monotherapy may not provide significant clinical benefit over observation in patients who respond to platinum-based chemotherapy. In addition, this study further supports the notion that continuation of therapy until the progression of disease in patients with advanced stage NSCLC does not seem to provide OS benefit. The results also lend support to the hypothesis that the significant improvements in PFS and OS shown in the phase III trial were likely due to the higher response rates with bevacizumab combination therapy rather than bevacizumab maintenance. In addition, the rapid decline in survival seen following the completion of bevacizumab in this study suggests that the efficacy of existing second-line agents needs to be re-evaluated in patients who had received prior platinum-based chemotherapy in combination with bevacizumab, and represents an area of investigation. Lastly, the results from this retrospective analysis justify a prospective evaluation of the utility of bevacizumab maintenance in patients with advanced non-squamous NSCLC.

REFERENCE
### Table I. Patient Baseline Demographics.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Bevacizumab (N=19)</th>
<th>Observation (N=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (Range)</td>
<td>58 (43-82)</td>
<td>61 (51-81)</td>
</tr>
<tr>
<td><strong>PS - N(%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>7 (37)</td>
<td>3 (10)</td>
</tr>
<tr>
<td>1</td>
<td>9 (47)</td>
<td>14 (48)</td>
</tr>
<tr>
<td>≥ 2</td>
<td>3 (16)</td>
<td>12 (42)</td>
</tr>
<tr>
<td><strong>Stage - N(%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>3 (15.8)</td>
<td>3 (10.3)</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>4 (21)</td>
<td>3 (10.3)</td>
</tr>
<tr>
<td>Stage IV</td>
<td>12 (65.1)</td>
<td>23 (79.4)</td>
</tr>
<tr>
<td><strong>Brain Metastasis(%)</strong></td>
<td>0 (0)</td>
<td>7 (24)</td>
</tr>
<tr>
<td><strong>Prior Platinum Chemotherapy Combination - %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>89</td>
<td>62</td>
</tr>
<tr>
<td>Gemcitabine</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>Docetaxel</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Average No. of Combination Chemotherapy Cycles - no.(range)</strong></td>
<td>5.1 (4-6)</td>
<td>4.8 (4-7)</td>
</tr>
<tr>
<td><strong>Type of Response to Combination Chemotherapy - %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial</td>
<td>68</td>
<td>72</td>
</tr>
<tr>
<td>Stable</td>
<td>32</td>
<td>28</td>
</tr>
</tbody>
</table>

### Table II. Overall survival at 6, 12, and 24 months.

<table>
<thead>
<tr>
<th></th>
<th>6 months (%)</th>
<th>12 months (%)</th>
<th>24 months (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevacizumab (N=19)</td>
<td>79</td>
<td>37</td>
<td>16</td>
</tr>
<tr>
<td>Observation (N=29)</td>
<td>76</td>
<td>38</td>
<td>17</td>
</tr>
<tr>
<td>Non-Brain Metastasis Observation (N=22)</td>
<td>82</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>Patient with PS of 0 or 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bevacizumab (N=16)</td>
<td>81</td>
<td>44</td>
<td>19</td>
</tr>
<tr>
<td>Observation (N=17)</td>
<td>82</td>
<td>41</td>
<td>12</td>
</tr>
<tr>
<td>Patients with stage IV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bevacizumab (N=12)</td>
<td>67</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Observation (N=23)</td>
<td>83</td>
<td>39</td>
<td>22</td>
</tr>
</tbody>
</table>
Figure 1. Kaplan-Meier curves of progression free survival
Figure 2. Progression Free Survival at 3, 6, and 12 months. A) All patients, B) All patients without brain metastasis C) All patients with a performance status of 0 or 1 D) All patients with stage IV. NS = Not significant.
Figure 3. Kaplan-Meier curves of overall survival
Feature

Pharmacist James McKinley: The Story of Pharmacy at M. D. Anderson Cancer Center Part I

By Avani Desai, P4, University of Houston and Christina Tan, P4, University of Houston

During tours of the internationally renowned University of Texas M. D. Anderson Cancer Center (MDACC) situated in the heart of the Texas Medical Center, one name in pharmacy escapes the lips of every tour guide: Mr. James McKinley, the first pharmacist who laid the groundwork for pharmacy at this institution. Mr. McKinley’s connection with MDACC spans all the way back to before the hospital was situated in the Texas Medical Center in Houston. He is a true pioneer that began the legacy of institutional pharmacy practice for cancer patients at MDACC.

HIS JOURNEY
LEADING UP TO MDACC
Mr. McKinley’s life began in the West Texas town of San Angelo, where he took pre-requisite classes at San Angelo Junior College in hopes of attending The University Of Texas College Of Pharmacy. A childhood injury had left him blind in one eye. However, this brave-hearted young man marched ahead without ever letting that obstacle hinder his bright future. In 1943, Mr. McKinley’s life took a turn when he enlisted in the army and served in the 51st Ordnance Ammunition Company in New Caledonia, an island near Australia and New Zealand. Fortunately, there were no battles fought at this location, so he spent three years in New Caledonia honing his leadership skills as he progressed to the rank of Staff Sergeant before he was discharged in 1946.

It was then that Mr. McKinley pursued further education in pharmacy at The University of Texas at Austin where he graduated Magna Cum Laude in 1948. Not quite ready to jump into practice, Mr. McKinley applied for a prestigious two-year combination residency and master’s degree program at the University of Maryland College of Pharmacy and The Johns Hopkins Hospital in Baltimore. He became one of two students accepted into this early post-graduate training program for hospital pharmacists. Although opportunities for hospital pharmacists were limited in the South, Mr. McKinley was ready to come back home to Texas after completing his residency and was determined to bring his skills and training to his home state. His diverse experiences landed him his first job which eventually turned into a 33-year long career at MDACC. Embarking into the new field of hospital pharmacy was quite an experience for this pioneer, as the task ahead of him would demand creating a pharmacy from the ground up!

THROUGH THE EYES OF THE PIONEER HIMSELF
In July of 1950, when M. D. Anderson first sought out a pharmacist to organize an onsite pharmacy for their patients, the hospital itself was housed in temporary quarters in a two-story mansion at the old James Baker Estate in the River Oaks area of Houston. The hospital offices and facilities were scattered among several buildings and stables on the estate. At that time, the creation of a pharmacy in hospitals was mainly to provide a cost-savings advantage in the institutional setting. According to this new model of practice, pharmacists could focus on ordering medications and compound certain drugs to decrease purchasing costs.
When Mr. McKinley arrived for his new post at M. D. Anderson, the pharmacy was granted temporary quarters in the outpatient waiting room area in a 9 by 6 foot room, which was actually a remodeled restroom. Mr. McKinley’s pharmacy truly had to be built from scratch! Pharmacy supplies and the reserve stock of medications were kept on a single shelf of a separate building’s warehouse room. At the time, chemotherapy medications were limited to compounds such as mercaptopurine and methotrexate. The total pharmacy staff for the first four years consisted solely of Pharmacist McKinley!

In March, 1954, Mr. McKinley and his wife witnessed the grand opening of MDACC as a six story, 250-bed hospital in the Texas Medical Center. It was one of the first buildings in this Medical Center complex along with Hermann Hospital, Baylor College of Medicine, and the University of Texas Dental School. Prescription volumes multiplied with the expanded ability of the hospital to care for a larger patient population. The pharmacy staff increased with the addition of two pharmacists, a clerk, and a stockman/delivery person. As the hospital continued to grow, Mr. McKinley responded to the need by extending pharmacy hours of operation and adding a few more pharmacists to the team. A group of physicians, originally from the National Cancer Institute, joined forces with MDACC in the 1960s to create a division of Developmental Therapeutics whose primary focus was the use of combinations of chemotherapy agents in various experimental protocols. This led to drastic changes within pharmacy practice, and Mr. McKinley stood at the forefront of compounding new chemotherapy drugs that had never been used or marketed before.

During this time, when nurses were administering combinations of IV medications intravenously, they had no compatibility or stability data available. Nurses and physicians turned to the pharmacy for answers to this pressing dilemma. To solve the problem, Mr. McKinley spent almost a year designing and justifying a proposal that called for an initial staffing of 5 pharmacists, 5 technologists, and 5 delivery personnel to launch a pharmacy based IV admixture program for MDACC. This was a completely new pharmacy service in the Texas Medical Center, as no other hospital in the area had such a program in place. The MDACC Administration granted the pharmacy department the requested staff and also provided designated space in the hospital basement for 5 laminar flow hoods.

It was not long before the reliance upon IV medications produced an overwhelming workload demand in excess of 500 bottles daily. Due to insufficient personnel, time, and the need to pay overtime salaries, Pharmacist McKinley eventually extended IV service shifts and hours of operation to be open around the clock. The number of IV admixtures prepared continued to increase dramatically. Successful implementation of this 24-hour service and the beginning of a system to provide unit dose packaging of all medications were two of the most important achievements of Pharmacist McKinley’s direction and leadership. MDACC became acclaimed as a leader not only in cancer patient care, but also in advancing the practice of pharmacy in these fields. For a time, MDACC was the sole provider of such advanced pharmacy services in the entire State of Texas.

Pharmacy services continued to grow at a rapid rate because of the constant expansion of the hospital. By the mid-1970s MDACC had more than doubled in size with the addition of the twelve story Lutheran Pavilion. The nurses who had previously served as the middlemen between the physicians and pharmacists were no longer required to serve in such a capacity, as oral and IV drugs were now ordered directly from the pharmacy by the physicians. This was critical in this era for creating a modernized health-system at MDACC that had a well-established pharmacist-physician relationship.

As staff and medication orders multiplied, the pharmacy at MDACC outgrew its existing facilities and moved to a larger space that had originally been the cafeteria and kitchen. Also in the 70s, Pharmacist McKinley recognized the need for extending pharmacy services to the patient floors and for working more closely with physicians on rounds for direct patient care activities especially as more PharmD graduates became available. He was a visionary and knew that the pharmacist of tomorrow was meant to manage drug therapy and focus on patient care.

During his career at MDACC, Mr. McKinley was a member of the executive committee of the American Society of Health-System Pharmacists. He served in 1958-59 as one of the early presidents of the Texas Society of Health-System Pharmacists and was a charter member and first president of the Houston-Galveston Area Society of Health-System Pharmacists. He was selected to be a charter member of an
American Board of Diplomates in Pharmacy. He served on several national pharmacy advisory committees, and was an adjunct professor and clinical instructor of hospital pharmacy at The University of Houston and The University of Texas at Austin. Mr. McKinley was often asked to participate as an expert on various panels and to give numerous speeches to diverse professional and scientific organizations, including The American Association for the Advancement of Science. He had a number of papers published in a variety of state and national professional journals.

He was one of the founders and first president of the M.D. Anderson Cancer Center Retirees Association. He also served MDACC as the first president of the Board of Directors of the newly formed M.D. Anderson Federal Credit Union in the late 1950s.

BEYOND MDACC
The firm foundation of the MDACC Pharmacy is undoubtedly credited to Pharmacist James McKinley, who built a solid organizational framework throughout his years of revolutionizing the role of pharmacists in oncology patient care. Towards the age of retirement, Mr. McKinley suggested to the Administration that it was time to find a younger director to take the pharmacy forward. He elected to serve as Assistant to the Director and as an educational liaison between the pharmacy and the nursing staff under the newly hired Director of Pharmacy, Roger Anderson. His time at the hospital overlapped with Roger Anderson’s for four years during which he successfully transitioned the torch of leadership for the next phase of pharmacy growth and development.

In 1983, Pharmacist McKinley retired from the cancer research hospital that now had over 200 pharmacy staff employed. The pharmacy department had expanded to include several satellite pharmacies on nursing units in addition to the very large separate outpatient pharmacy. This was a far cry from Mr. McKinley’s beginnings as a one-man pharmacy in tiny temporary quarters only three decades earlier!

Currently, Mr. McKinley and Patricia, his lovely wife of 62 years, are happily living in a retirement community in West Houston and have enjoyed traveling on many educational trips with the Elderhostel program. When asked about his predictions for the future, Mr. McKinley sees pharmacists as providers of clinical drug expertise with even more direct participation in patient care. His advice to pharmacists is to “have a sincere interest in the patients that we’re serving - their welfare should always come first...Remember what we’re there for, and never stop learning!”

A PHARMACY CAREER WHERE YOU DON’T HAVE TO WORRY ABOUT BATTERIES ON AISLE FOUR.

Are you one of us? Being a pharmacist at a Texas Health Resources hospital offers you a professional environment you can’t get as a retail pharmacist. A chance to work closely with colleagues who are your professional equals. We offer flexibility and time off you can’t get in retail as well. If you’re looking for a chance to be on the front line of patient care with unique opportunities for growth, let’s talk. We’re Texas Health Harris Methodist, Texas Health Arlington Memorial and Texas Health Presbyterian.

TexasHealth.org/jobs
The Impact of Topiramate (Topamax®) Therapy on the Development of Aggressive and/or Agitated Behavior: A Case Report

Abimbola Farinde, Pharm.D., MS, BCPP, CGP, FASCP
Clinical Pharmacy Specialist in Psychiatry

INTRODUCTION
The use of mood stabilizers and/or antiepileptic medications to control the neuropsychiatric and behavioral disturbances of individuals with mental and/or developmental disabilities with concurrent psychiatric disorders is recognized as a standard practice across many long-term care assisted living facilities. Unfortunately, there have been reported cases of these agents exacerbating these disturbances rather than alleviating the problematic symptoms. One of the relatively newer antiepileptic drugs, topiramate, has demonstrated similar clinical efficacy in the management of severe agitation and aggression in psychotic patients when compared to other antiepileptics, carbamazepine and valproate. Unfortunately, topiramate has been shown to be associated 3% incidence of causing agitation and while less than the 6% associated with levetiracetam therapy this still warrants further exploration. (1)

Topiramate (Topamax®) falls under the pharmacologic category of a miscellaneous anticonvulsant whose mechanism of action for mood stabilization and its anticonvulsant effect is not clearly understood. (1) Its anticonvulsant effect is thought to be attributed to its potentiation of gamma aminobutyric acid (GABA)-mediated chloride currents or an increase in human cerebral GABA concentrations within 3 hours of administration. (2) Aside from being FDA-approved for the management of epilepsy (partial onset seizure and generalized tonic-clonic seizures), and for migraine prophylaxis, it is also used off-label for mood stabilization, neuropathic pain, and for cluster headache prophylaxis. (2) The generally recommended adult initial dose of topiramate is 25 mg twice a day, may increase at weekly intervals by 50mg/day to a dosage range of 200-400mg/day. The GABA-A receptor is recognized as a vital target for aggressive behavior but it is theorized that GABA-modulating drug may possess both aggressive-enhancing and anti-aggressive effects in certain individuals. (3)

LITERATURE REVIEW
According to Lane and colleagues (2009), topiramate can produce an inverted U-shaped dose response curve with increases in aggression at 200mg and a moderate decrease at 400mg. The authors concluded that topiramate at doses >400mg may have an anti-aggressive effect while dose levels in 200-300mg may produce increases in aggression. (3) The mechanism by which topiramate causes behavioral and/or psychotic symptoms is also not clearly understood but it is hypothesized to be related to GABA inhibition of the substantia nigra or the overactivity of the dopaminergic pathway. (4)

The development of aggressive behavior was reported with topiramate in one of the clinical trials that lead to its approval. In a multi-centered placebo-controlled, add on epilepsy trial that consisted of 9% of pediatric patients 2 to 16 years of age with partial onset seizures on topiramate (n=98) and placebo (n=101), four participants displayed an aggressive reaction in the placebo group whereas nine exhibited the aggressive reaction in the topiramate group. (5)

The participants in this add-on trial were receiving one or two concomitant drugs in addition to topiramate or placebo. Another report released by Khan and colleagues (2009) described the development of psychotic symptoms from a retrospective chart review on 80 patients that were treated with topiramate. The retrospective chart review reported that five patients developed psychotic symptoms (e.g., violent/hostile moods and agitation) within 2 to 46 days after beginning therapy but three patients improved with the discontinuation of topiramate with none requiring the administration of an antipsychotic. (6) Prior to the release of this particular case report, the previously described reports were instrumental in bringing attention to the potential development of this reaction with topiramate. One of the proposed explanations for the development the topiramate-induced psychosis was thought to be attributed to either abnormal metabolism of topiramate or a familial predisposition to psychosis. (7) These hypotheses may serve as stepping stones towards discovering...
the exact mechanism by which topiramate causes psychotic decompensation or agitated/aggressive behavior. (8)

CASE DESCRIPTION
A 28-year-old Caucasian male with diagnoses of attention-deficit hyperactivity disorder, severe mental retardation, intermittent explosive disorder, generalized convulsive epilepsy, and hypertension was referred to the campus staff psychiatrist upon recommendation from the psychology department due to the patient’s abrupt change in behavior. Prior to the request for this evaluation, a recommendation was made for an assessment of the patient’s mental decline. The recommendation following this comprehensive assessment was to engage in additional observations of the patient before any pharmacological interventions or changes would be made to his medication regimen. The patient was on divalproex sodium extended-release 1,000mg at bedtime for intermittent explosive disorder, amphetamine/dextroamphetamine 20mg in the morning (8am), noon (12pm), and evening (5pm) for attention-deficit hyperactivity disorder, and propranolol 30mg bid and clonidine 0.1mg in the morning for hypertension. After a neurology consult, which included an electroencephalogram (EEG) and computer tomography (CT) scan of the brain being performed, the patient was diagnosed with partial complex seizures, and the recommendation was made to start topiramate 50mg daily x 5 days then 50mg bid x 10 days, and increase to 100mg bid (current dose) with a follow-up in 6 weeks. Patient had a history of having petit mal seizures. All of the other medications were continued at the same dose with the exception of propranolol and clonidine, which were both discontinued after the patient became hypotensive. A new blood pressure medication, lisinopril 10mg daily, was started with recommendations to increase the dose as needed and to check blood pressure at different times during the day.

About 2 weeks later, the patient began to display erratic behaviors (aggressiveness and a total disconnection from the people around him) that led to property destruction. Physical restraints were applied to the patient but no medications were administered to control the behaviors. In September 2010, the patient required as many as 10 physical restraints on different days after the initiation of topiramate in August 2010. A topamax level of 5.8mcg/ml (range 2-25mcg/ml) was obtained in October 2010. The patient’s normal pattern of disruptive/aggressive behavior was chiefly influenced by internal stimuli rather than by environmental or social factors and this manifested as episodes of scratching or throwing objects. Previous episodes with the last being documented three weeks prior to this episode, had never led to the destruction of property (e.g., furniture, television) with the patient. While it was documented that the patient’s last seizure activity was on 3/20/06, after the EEG and CT of the brain were performed, psychiatry was in agreement with neurology’s recommendation to initiate topiramate since it was also believed that this would assist with the behavioral disturbances. During this time, the patient’s divalproex sodium extended-release was increased from 1,000mg to 500mg in the morning and 750mg at bedtime with hopes of targeting his recent change in behavior. A routine check of the valproic acid level was 130mcg/ml which was considered to be high since toxicity can occur at levels of 100-150mcg/ml. Dose of valproic acid was decreased back to 1000mg at bedtime. A repeat valproic acid level was obtained 4 weeks later which came out to be 100mcg/ml so the dose of divalproex sodium extended-release was increased the next day back to 1250mg daily (500mg in the morning and 750mg at bedtime). Propranolol was restarted at 10mg tid to also target patient’s behavioral disturbances with lisinopril being decreased to 5 mg daily.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage Changes</th>
<th>Discontinuations</th>
<th>Initiations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divalproex sodium extended-release</td>
<td>Increased to 500mg in the morning and 750mg at bedtime within 2 weeks</td>
<td></td>
<td>Lisinopril 10mg daily, decreased to 5mg daily</td>
</tr>
<tr>
<td>1,000mg at bedtime</td>
<td>Decreased back to 1000mg at bedtime after routine 1 week later</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased back to 500mg in the morning and 750mg at bedtime four weeks later</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphetamine/dextroamphetamine 20mg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the morning, noon, and evening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propranolol 30mg twice daily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propranolol 30mg twice daily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restarted at Propranolol 10mg tid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Another EEG was scheduled for the patient during which time topiramate was temporarily held and patient’s behavioral symptoms appeared to decrease. The patient only required two physical restraints in October 2010 compared to the ten that were required in September 2010. The recommendation was made to discontinue topiramate and start the patient on another antiepileptic medication but this was not accepted by psychiatry. The topiramate was restarted after being temporarily held based on the rationale that it provides good seizure control but the patient’s behavior worsened. The decision was made to start risperidone 0.5mg bid as an additional step to manage the continued behavioral disturbances.

DISCUSSION
This particular case report demonstrates the possibility that topiramate may have contributed to worsening of agitated and/or aggressive behaviors in this patient. When initiating topiramate, it is best to increase the dose gradually over 2-8 weeks and closely monitor for any significant signs of behavioral disturbances. A comprehensive assessment should be performed of any other factors that may contribute to the behavioral disturbances rather than making blanket assumptions because it is through the process of identifying and ruling out potential contributing factors can an accurate conclusion be drawn. This case report also demonstrates how easily polypharmacy can occur when a medication that can be the suspected culprit for the behavioral disturbance is not discontinued at the first signs of a problem. Lastly, while there is still no definitive proof that topiramate can cause or can serve as a contributing factor to cause agitated/aggressive behaviors in some individuals, it is important for clinicians to engage in close monitoring for the development of these symptoms, especially during the initial stages of topiramate therapy and throughout the course of therapy.

CONCLUSION
It takes both a collaborative effort and immediate action by all members of the health care team in order to appropriately address the aggression/agitation that can develop from topiramate therapy. Both psychiatry and neurology were able to come together to arrive at the clinical decision that the initiation of topiramate would be in the best interest of the patient because not only would it help to improve the patient’s seizure activity but allow for mood stabilization. Once the observation was made that topiramate could be the potential cause of the observed behavioral disturbances, both disciplines were able to come to a compromise to address the presenting issue. This case report specifically demonstrates the step by step approach that must be taken by every member of the multi-disciplinary team to ensure that once an adverse reaction is observed in a patient on topiramate therapy, all members must be unified in their method and the approach that is taken to yield a successful therapeutic intervention.

REFERENCES
Pharmacist Roger Anderson: The Story of Pharmacy at M. D. Anderson Cancer Center Part II

By Avani Desai, P4, University of Houston and Christina Tan, P4, University of Houston

Following in the footsteps of heroes before him such as Pharmacist James McKinley, Dr. Roger Anderson ventured across the nation in July of 1978 to join the leading medical team at the University of Texas M. D. Anderson Cancer Center (MDACC) as Director of Pharmacy. It was here that he became a legend in hospital pharmacy practice, implementing ideas and setting the stage for greater pharmacist integration into cancer patient care. His ideas and innovations not only impacted the way pharmacy was practiced and the role of the pharmacist at MDACC, but his successes rippled across the nation’s institutions through his strong leadership and involvement in pharmacy organizations.

HIS JOURNEY LEADING UP TO MDACC

Dr. Anderson’s journey in pharmacy prior to arriving in Houston allowed him to bring a futuristic vision for hospital pharmacy at MDACC. After earning a Bachelor of Science in Pharmacy from Ferris State University in 1964, Dr. Anderson pursued a dual Master’s degree and Residency program in hospital pharmacy in conjunction with The Ohio State University and Grant Hospital in Columbus, Ohio. Directly following this post-graduate traineeship, Dr. Anderson worked as the Assistant Director for two years at The Ohio State University Hospital. It was here that he became educated on techniques such as sterilization and manufacturing sterilized injectable products.

He was also involved with the implementation of the first centralized IV admixture program by pharmacists in the United States. Before this, primarily nurses or physicians performed these duties. Additionally, Dr. Anderson initiated the first nuclear pharmacy program at Ohio State. Every morning, he would prepare ingredients to make radioactive technetium sulfur colloid from scratch, a compound which was injected intravenously to visualize the liver. This formulation was one-of-a-kind, and had never been done before; thus, Dr. Anderson was very much a pioneer even in the field of nuclear pharmacy.

In 1969, Dr. Anderson was offered a position as the Director of Pharmacy at the Grant Hospital in Columbus. It was here that Dr. Anderson initiated one of the first unit-dose programs for patient medications. Although it is hard to imagine hospitals functioning without such a fundamental program for medication administration, it is important to note that such a concept was a novelty during this time. Prior to the development of unit-dose programs, nurses would individually pour medications into cups every hour a patient was expected to receive a dose. In fact, the unit-dose system drastically reduced medication errors as it provided a greater standardization for nurses overseeing patient drug delivery. Dr. Anderson also instituted one of the earliest 24-hour pharmacy services in the country, and he expanded the number of pharmacy positions, including the earliest clinical pharmacist role (in the ER) at Grant Hospital. In 1973, Dr. Anderson joined a company called Pharmacy Systems as the Vice President of Operations to launch contract pharmacy management services across 12 hospitals in the State of Ohio during the next five years.

HIS STORY AT MDACC

It is no surprise that MDACC sought Dr. Anderson’s leadership when their first pharmacist, James McKinley, was planning
for retirement. By this point in his career, Dr. Anderson was ready to shift to an academic hospital setting and enhance his expertise in a new patient population—cancer patients. July 1978 marked the transition of Dr. Anderson as a pharmacy leader who had officially “Gone To Texas!”

Upon his arrival at MDACC, Dr. Anderson noted the strong foundation of its pharmacy and credits Pharmacist James McKinley for his humble leadership; his well-respected relationships with his staff, physicians, and nurses; and the strong legacy that he had built for the institution’s pharmacy services. With a large pharmacy staff to supervise and an expanded pharmacy division scattered throughout multiple areas of the hospital to oversee, Dr. Anderson knew he had great shoes to fill! Nonetheless, he was excited for what lay ahead of him, and he forged ahead, determined to mold pharmacy into one of the most significant and essential professions for cancer patient care at MDACC.

The next 26 years marked an evolution of pharmacy like no other at MDACC. Under Dr. Anderson’s direction, a hospital pharmacy general practice residency was formed in conjunction with the University of Houston College of Pharmacy Master’s program. This eventually transitioned to a PGY2 Oncology specialty residency, as it seemed most appropriate for this institution. In this way, MDACC remained at the forefront, as an academic institution for post-graduate pharmacy training.

Drawing from his experience with nuclear pharmacy, Dr. Anderson began conducting research on occupational exposure to cytotoxic drugs in 1979. His publication entitled “Risk of Handling Injectable Antineoplastic Agents” in the American Journal of Hospital Pharmacy in 1982, marked the first definitive study in this field. He was then invited to help formulate guidelines and alerts to limit hazardous occupational exposure to cytotoxic agents. Offering solutions to hazardous drug exposure served as an opportunity for Dr. Anderson to extend his scope of impact globally by addressing a growing public health concern.

Just as the therapy for cancer was becoming less inpatient- and more outpatient-based, Dr. Anderson’s team purchased infusion pumps for ambulatory infusion therapies. Implementation of these pumps was a great step forward, as patients now had the option to receive certain chemotherapy regimens in the comfort of their own home. With Dr. Anderson’s leadership, ambulatory treatment centers were established, as well as a full service outpatient pharmacy. When the pharmacy prescription volumes became overwhelming, Dr. Anderson worked to install automation into pharmacy services through unit-dose robots and Pyxis machines, which facilitated better management of the pharmacy’s workload. He hired retail pharmacist Lucy Moyer to tackle the large prescription volumes in the outpatient pharmacy. This led to better service levels and reduced wait times for patients.

The pharmacy department’s IV medication preparation began burgeoning at MDACC. This was a great challenge for the pharmacy as these duties became more and more demanding on the pharmacy staff. It was at this time that Dr. Anderson discovered a company to which he could outsource a number of the IV dose preparations. This was a great accomplishment for pharmacy as more pharmacists were now able to focus their energies on their clinical services.

While Dr. Anderson transformed the operations of pharmacy to suit the needs of cancer patients over time, another one of his dearest and most astonishing successes involves his recruitment of Pharmacist Larry Trissel, the author of the Handbook for Injectables. MDACC soon became the leading facility utilizing pharmacy injectable combination products, as it was here that Mr. Trissel conducted stability and compatibility testing for injectables with the assistance of other chemists, drug companies, and student interns from the University of Houston and Texas Southern University.

Dr. Anderson had fulfilled his role as Director to the greatest extent, and it was his desire to be able to show the successes of pharmacy practice at MDACC to the world. To achieve this mission, he inaugurated the Annual Pharmacy Symposium on Cancer Chemotherapy. This event was held annually as a two and a half day conference that attracted hundreds of pharmacists nationally and internationally with the objective of disseminating knowledge of pharmacy oncology and the care of cancer patients. These symposia continued even after he left MDACC for many years.

During Dr. Anderson’s term as Director, the pharmacy presence at MDACC grew to over 400 total pharmacy staff, 200 of whom were full-time pharmacists, including 65 clinical pharmacists. Expansion of pharmacy staff came with Dr. Anderson’s persistent demonstration of the impact phar-
macists made in reducing medication errors and managing medication therapy. In fact, the topic of his dissertation for his doctorate in Public Health centered on the cost savings and value of clinical pharmacist integration into the medical team at MDACC. In his three-year study, Dr. Anderson statistically analyzed the quality of patient care after the implementation of unit-dose automation, outsourcing of IV medications, and the use of pharmacists’ clinical services in supportive care, particularly in the area of antiemetics, growth factors, and antibiotics. His findings of substantial drug cost savings and improved patient care outcomes were convincing to the senior administration in substantiating the value of pharmacists at MDACC. More importantly, the safety and prescribing outcomes improved drastically as oncologists were enabled to focus solely on their oncology expertise, while clinical pharmacists assisted with supportive patient care.

Dr. Anderson’s achievements led to the elevation of Pharmacy as a Clinical Division of the hospital, of which he became Division Head. This was remarkable, since it is uncommon for hospitals to rank pharmacy as having equal footing as other areas such as medicine, surgery, and pediatrics.

BEYOND MDACC
After MDACC, Dr. Anderson anticipated retiring from his career. However, Medco soon recruited him as their Chief Pharmacist. In a company of 3,000 pharmacists and 65 million patients, Dr. Anderson designed “Therapeutic Resource Centers,” in which he stratified patients according to their primary chronic disease state category and divided pharmacists to assist in medication therapy management in the patient-doctor-pharmacist triage. This was, and still is, a very unique practice model in the mail service/PBM industry. He also helped develop automation to help fill prescriptions more efficiently and reduce human error. After five years with the company, he left behind a legacy of an expanded role for pharmacists and better patient outcomes.

Currently, Dr. Anderson works for US Oncology to promote pharmacists assisting in appropriate drug therapy at oncology physicians’ offices. In his words, “It’s the same story everywhere — M. D. Anderson, Medco, US Oncology — pharmacists are demonstrating their value.” Dr. Anderson not only impacted pharmacy at his local practice sites, but also served in diverse state and national positions. At the state level, Dr. Anderson was appointed by former Governor George W. Bush to serve on the Texas State Board of Pharmacy. In the State of Ohio, he served as President of the Ohio Society of Health-System Pharmacists. He has given hundreds of lectures nationally and internationally and authored 65 publications throughout his career. His leadership has been recognized by ASHP through the Harvey A.K. Whitney Lecture Award. Dr. Anderson has also maintained an impressive perfect attendance record at the Annual ASHP Midyear meetings over the past 38 years. It is no surprise that he gave back to ASHP through the intensive three-year commitment as President-Elect, President, and Past-President. Furthermore, The Ohio State University has recognized Dr. Anderson as a hero in pharmacy with the Clifton J. Latiolais Award.

When asked where he sees the future of pharmacy, Dr. Anderson stresses the focus of a pharmacist’s role on nothing other than the patient. He views the profession as moving towards personalized medicine that is drug-oriented, based on genetics or other criteria. In his words, “There is tremendous, unlimited opportunity, even though we’ve gone so much farther than when I first started.” His advice to pharmacists and students is “to take on responsibility for the outcome of what you do. Too often pharmacists fill the prescription they think is safe, and then that’s it. But they have to go beyond that.” Furthermore, he emphasizes the significance of mentorship in our profession for the development of future pharmacists who can carry the torch of patient-focused clinical services forward for generations to come!
HealthSystemCE.org is a new e-Learning Center designed to meet the educational and practice needs of state health-system pharmacists and pharmacy technicians. This educational program is available at no additional cost to our membership.

The e-Learning Center has been developed by the Foundation for Continuing Professional Development, supported by the California Society of Health-System Pharmacists, the Illinois Council of Health-System Pharmacists, the New York State Council of Health-system Pharmacists and the Texas Society of Health-System Pharmacists.

The mission of HealthSystemCE.org is to ensure the highest integrity of content and to facilitate ease of access to a comprehensive menu of ACPE accredited continuing pharmacy education home-study programs applicable to daily practice. The California Society of Health-System Pharmacists, the Illinois Society of Health-System Pharmacists, the New York State Council of Health-system Pharmacists, and the Texas Society of Health-System Pharmacists are accredited by the Accreditation Council for Pharmacy Education as providers of continuing pharmacy education.

HealthSystemCE.org provides:

- Topics that will range from clinical practice, therapeutic and JCAHO related topics, pharmaceutical care, pharmacy management, and subject matter relevant to hospital, health system as well as home care pharmacy.
- Automated test grading and transmission of CE statements of participation including comprehensive database management of participation and learning outcomes.
- Personalized course history of your participation in all learning modules.
- In addition to meeting CE re-licensure or recertification requirements for pharmacists and Certified Pharmacy Technicians, programs may also serve to meet training requirements of accrediting bodies such as JCAHO and others.
- Technical support for the site is provided online at the web site and via a toll-free phone number.
Speaking of. . . .

(Pharmacist)
Immigration Reform

by Paul F. Davis, R.Ph.
Executive Director

Well, I had a layover in Phoenix on a recent trip, and I must have caught something from the water. Those folks over there have it about half right – we’ve got a big problem with people coming into our state, but here in Texas it’s not illegal immigrants – it’s pharmacists!

I don’t know if you’ve noticed, but all of a sudden we’re up to our armpits in pharmacists – and there’s more on the way!

A few readers will remember the “good old days” when we somehow struggled along with about 72 colleges of pharmacy in this country. Here in Texas there were three schools (UT, UH and TSU) and we imported about half of the new licensees we had from other states each year. (Of course a bunch of them were Texans anyway, and just went to Southwestern Oklahoma or Northeast Louisiana, or some other place that was closer to home than Austin or Houston.)

And then there was a lot of noise and activity. I’m not sure if it was the explosion of drugs and research; or the assumption that we’d need a bazillion pharmacists to dispense all those pills to all those old people; or if it was pharmacists finding new roles and the owners needing new replacement parts in the stores when Bubba became a certified precision-care pharmaceutical specialist; or the growth of the population and economy and chain pharmacies opening across the street from each other; or cities/regions/universities feeling like they were 2nd class if they didn’t have a pharmacy school, law school, and medical school; or the fact that young people who had biology degrees and couldn’t find a job and realized that pharmacy might not be a half-bad career; or just the marketplace. Why, there was even a time when the federal government was giving money away to attract people into the health professions – like pharmacy and medicine and nursing. But however it happened, pharmacy schools bloomed like onions after a Spring rain. And there were people who began warning that ‘maybe we’re going to have too many pharmacists’ someday.

And today, we have some 120+ pharmacy schools and colleges around the country. Ohio now has 7 colleges. There are 8 schools in California, with 3 more on the horizon. New York has 7 accredited programs, as does Pennsylvania. (Hey! We’re supposed to be #1 here in Texas!! We’ve got a serious college of pharmacy-disparity situation going on here, with our measly 6 schools!)

It got bad enough that ASHP and APhA addressed the issue through a joint statement from their Executives calling for ‘the profession to have a dialogue’ on the subject, and the ASHP House of Delegates just adopted a policy opposing “expansion of enrollment in existing or new colleges of pharmacy unless well-designed projections demonstrate that such enrollment increases are necessary to maintain a viable pharmacist workforce.”

Now, let’s add in the latest development in all this – initial funding for Texas’ 7th College of Pharmacy at the University of North Texas in Dallas.

During the regular session of the Texas Legislature, HB 4 was introduced as the Supplemental Appropriations bill that was designed to get the State through the CURRENT fiscal year (ending August 31). We were a few billion short of meeting our obligations, and it was a ‘must pass’ bill. (Like we’ll have in 2013, but that’s another story.)

The University of North Texas Health Science Center at Dallas and in Ft. Worth has been lusting after a college of pharmacy
as long as I can remember. There are legislators, civic leaders and educators who don’t feel that the Metroplex will be ‘complete’ until it boasts a full complement of medical, pharmacy, nursing, law and other professional schools commonly associated with major metropolitan areas in the U.S.

Trouble was, during this session in particular, there was no new money for new programs. In fact they (the Legislature) were looking for things to cut – like Medicaid, education, government... So, while we were watching out for any new colleges of pharmacy and were assured that one wouldn’t pass even if it emerged, a little surprise gift was discovered under the cactus tree at the end of the Session.

Somehow, after HB 4 passed the House and the Senate Finance committee, Senator Steve Ogden (R-Bryan), Chair of the Committee, offered a few amendments to the bill on the floor of the Senate when the bill was brought up for consideration. No one questions a chair of a committee amending a bill, and the legislation was amended, passed on a suspension of the rules, and sent back to the House, which concurred in the Senate amendments within 2 days.

Sen. Ogden included $300,000 for a start-up/study of a college of pharmacy for UNT. No one in pharmacy caught that little two-line insertion. No one on the Senate floor caught it. No one in the House, which had been instructed to concur, caught it. It passed and was sent to the Governor for signature.

Here’s where it got interesting. TSHP members found the measure when UNT began bragging about its “new college of pharmacy.” We began looking into possible options and found that the Governor’s office, which wasn’t aware of the amendment’s implications, was of the opinion that the Governor could not ‘line item veto’ the measure, even if he was of a mind to. The veto provision, in their opinion applied only to the budget. The only option was to ask for a veto of the entire supplemental appropriations bill – which even if President Obama had asked was not going to happen (!)

So – UNT has successfully found funds to at least study the feasibility of establishing a new college of pharmacy for Texas. Actually, a pretty neat political move (if you’re UNT). The last North Texas school that did that was the University of Dallas, which hired a dean and, after looking at the realities of the marketplace, decided that it didn’t make financial sense to set up another college at this time. Of course, they are a private school that has to worry about a “bottom line.” UNT is state-supported.

How this plays out is still to be determined.

Texas continues to “immigrate” about ½ of the new pharmacist licenses each year by reciprocating pharmacists in from other states. While the national economy continues to limp back to life, pharmacists in the North, East and West continue to hear great stories about how wonderful life is in Texas and decide to look into it – whether they need a job in order to survive, a place to retire, or are just tired of shoveling snow. And the State continues to grow in population, home-bred or through immigration.

Some of the implications are obvious: More colleges of pharmacy would mean that more students could enter the profession. More people would have the chance to ‘move up’ in society. With the aging of society there will be more drug orders and prescriptions to deal with. Someday all the Baby Boomers will be gone – whether through retirement or a less gentle way, and that’s a huge void that will need to be filled. With expanding roles, there will be more opportunities for pharmacists to move out beyond the ‘four walls’ as many have been doing for a long time, and we’ll still have need for real, live pharmacists in stores, clinics and hospitals. To employers, a surplus of pharmacists would mean that they could choose to hire better qualified pharmacists, and not have to take just anyone who has a license in order to remain open and legal. Maybe 72 colleges of pharmacy were enough in 1960 when the population was 203 million people; and 120+ is what we need today with a population of 308 million. It’s about the same ratio.

On the other hand, more students entering pharmacy schools could lead to a real surplus of graduates. It could lead to admission of students not as ‘qualified’ (or ‘smart’) as today’s students. A surplus of pharmacists could mean that – with a ‘pick and choose’ market – pharmacists’ salaries could fall. If pharmacists’ salaries fall TSHP members could find less in their paychecks or fewer opportunities to move to new positions. We could experience a lack of qualified educators to train new pharmacists, and the quality of the curriculum of new schools would drop, as would the competency of their graduates. Limited resources like tax dollars would be spread among more institutions, causing an overall decreased in funding for
pharmacy education. Tuitions might rise more rapidly. Pharmacists who have invested years and huge sums in ‘getting to this point’ would see their future values diminished, making the problems with the housing bubble look small by comparison.

On the other hand (as Tevya would say in “Fiddler on the Roof”), if technology continues to advance and pressure remains on holding down costs, there could be less need for pharmacists in a distributive role and technicians and machines could take over many routine duties that pharmacists are now required to handle. Perhaps more pharmacists, not having to ‘count and pour’ would lead them to press for other duties, like diagnosing and prescribing, further expanding the practice.

And yet, on the other hand, if pharmacists’ salaries fell would healthcare costs come down and is that a reasonable public policy position to take? With the Physician Assistant and Nurse Practitioner movements we saw “government intervention” into building educational opportunities to add more primary healthcare workers and supporters to the workforce to care for the anticipated future healthcare needs. Maybe an oversupply of pharmacists would get salaries into a realm where they could be employed within a physician’s office to handle the drug management of patients without competing with a physician’s salary.

It’s like the old medicine story: if one aspirin is good, why not two? If one Pharm.D. is good . . .

So it seems what we have is a lot of emotion, a few facts, and not much knowledge. I don’t think 120+ schools is good, but I don’t know if it’s bad.

I happen to agree with Manasse and Menighan – let’s get on with discussing this, get some facts, find out what we really need and want and get about the business of shaping our future. Having heard from our members that the last couple of graduating classes were having trouble finding jobs, TSHP brought this to the table at the last Texas Pharmacy Congress meeting, where all the Texas associations, colleges and board of pharmacy sit. This needs a dialogue that takes into account not only practitioners, but educators and the public as well.

Let’s not just react – but act. We’ve seen, time and time again, that there are many out there who are perfectly glad to shape it for us, but their interests are mostly spelled out in dollars and cents – not sense.