Announcements

VSHP Spring Seminar—Mark Your Calendar

Spring Seminar
April 17–18, 2015
Renaissance, Portsmouth, VA
The Virginia Board of Pharmacy is requiring all pharmacists to obtain at least 1 hour of continuing education (CE) in the subject of “opioid use or abuse” during the calendar year of 2015. VSHP will be working with the BOP to conduct the required CE at its Spring Seminar, April 17-18 at the Portsmouth Renaissance. More details to follow.

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**Message from the VSHP President**

Now that the 2015 General Assembly has ended and its bills are being signed into law, I thought I would mention a few bills which VSHP lobbied for. All of these bills are effective July 1st, which is right around the corner. House Bill 2192 (HB 2192) requires physicians who dispense controlled

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**American Society of Health-System Pharmacists**
7272 Wisconsin Avenue
Bethesda, MD 20814
301-657-3000
- e-mail link
- web link

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**Calendar**

**VSHP Spring Seminar, April 17-18, Portsmouth**
4/17/15 - 4/18/15
Renaissance Portsmouth
Virginia Beach, VA

**2015 Summer Meetings [ASHP]**
6/06/15 - 6/10/15
June 6-10, 2015
Denver, Colorado
web link

**VSHP Fall Seminar, October 9-10, Williamsburg, VA**
10/09/15 - 10/10/15
Kings Mill Resort
substances to now be licensed by the Board of Pharmacy. HB 2063 further defines telemedicine, which is expanding at a rapid pace. HB 1914 allows prescribers to authorize pharmacists to possess epinephrine and oxygen for emergencies – such as fainting during vaccination. HB 1737 describes generally how to regulate outsourcing / compounding facilities – these regulations are yet to be written by the Board of Pharmacy. Finally, HB 1942 (and Senate Bill 1262) provide reform to the prior authorization of medications. Specifically, requests for prior authorization must be turned around by health plans in two business days, all forms must be available in an electronic format, reasons for rejection must be provided, and several other improvements are to be made. This will be a very helpful bill for all those who work with prior authorization.

Our legislative team stayed busy through the General Assembly and no bills which VSHP opposed were passed. If you are interested in this process and how we influence the way the General Assembly works with VSHP, I would encourage you to get involved by contacting Ralston King at rking@whiteheadconsulting.net

Wrapping up, we have our third bonus CE webinar scheduled for May, details of that can be found elsewhere in this newsletter. Also, I’m happy to report that many decades of VSHP archives will be finding a permanent home with the Virginia Historical Society, which is the official state historical society of Virginia. These archives date back to the 60’s and deserve to be kept for future hospital pharmacists to access. The archives clearly show how hospital pharmacy practice has evolved over the intervening decades, and if nothing else help us appreciate just how far we’ve come.

Warm regards,

Brian Baird

VSHP President

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**Big Changes for Virginia General Assembly**

**2015 Retirements and Elections Mean Big Changes for Virginia General Assembly and Opportunities for Engagement**

All 100 House of Delegates and 40 state Senate districts will hold elections this year. Every Virginia voter will have the chance to vote for their General Assembly representatives. In addition, several retirements and intra-party contests will trigger primaries to select party nominations for the November General Election.

Election year provides ample opportunities to engage the candidates in your community. It can be as easy as visiting their website to sign-up for newsletters or high-level interaction through contributions and volunteering. Getting to know your General Assembly members early in their careers can result in long-term and valuable relationships when it comes to policy making. As a supporter and information resource, you can be a “go-to” constituent on important issues.

Here are some great resources for engaging in the 2015 General Assembly races:


Non-partisan, non-profit resource for daily Virginia political news, candidate information, campaign finance details (who gave to whom), PACs, and lobbyists.


The Commonwealth’s website for all things legislative. Find your member using “Who’s My Legislator?” Track bills, understand the legislative process, and locate official information from studies and commissions.

**Your Government Relations team!** We are also available to introduce you to Virginia politics. Please contact Ralston King at rking@whiteheadconsulting.net if you have questions about races in your community and would like to engage in the political process. We can assist you with identifying the candidates or even hosting a fundraiser.
Clinical Article-New Drug Update: Suvorexant

Hillary Brown, PharmD, BCPS, Virginia Commonwealth University Health System
Ericka Crouse, PharmD, BCPP, Virginia Commonwealth University Health System

Suvorexant (Belsomra™) was approved by the FDA August 2014 for insomnia and is indicated for adults who have trouble falling asleep and/or staying asleep. Suvorexant has a novel mechanism of action, which differentiates it from other currently available sleep agents. It is an orexin receptor antagonist; therefore it exerts effects on both sleep latency and sleep maintenance by blocking orexin, a neurotransmitter that promotes wakefulness. Although higher doses were studied, the recommended initial dose is 10 mg nightly with a maximum dose of 20 mg nightly. It should be taken within 30 minutes of going to bed and with at least 7 hours allotted for sleep. A dose reduction to 5 mg nightly in recommended for patients also taking moderate CYP3A inhibitors, and suvorexant should be avoided in those on strong CYP3A inhibitors. Food may delay time to effect.

In two double-blind, placebo-controlled, parallel-group studies of 3-month duration patients were randomized to receive suvorexant 20 mg if non-elderly, 15 mg if elderly (age >65), or placebo. Sleep latency (time to fall asleep) and sleep maintenance (ability to stay asleep) were measured objectively by polysomnography (PSG) and subjectively by patient report. In both studies suvorexant 15 mg and 20 mg were superior to placebo in promoting sleep latency and sleep maintenance by both measures. Time to sleep onset was decreased by 5 to 10 minutes with suvorexant compared to placebo, which was deemed statistically significant. Of note, in the second study there was no longer a difference on PSG between groups in terms of sleep onset at 3 months. Sleep maintenance was improved by 11 to 31 minutes with suvorexant compared to placebo, which was also statistically significant. Higher doses of 30 mg and 40 mg were also evaluated and found to have similar efficacy but significantly more adverse drug reactions (ADRs). Somnolence was the most common ADR reported. Other ADRs include headache, abnormal dreams, and dry mouth. ADRs reported in the long-term study of patients receiving suvorexant for up to a year were consistent with those reported in the studies lasting 3 months. ADRs occurred twice as frequently in females, which is likely due to increased drug exposure in females compared to males. ADRs appeared to be dose-related and did not resolve with time.

Suvorexant is contraindicated in patients with narcolepsy, as these patients already have low levels of orexin. Because suvorexant mimics the neurotransmitter effects seen in narcolepsy, there is an increased risk of sleep paralysis, hypnagogic/hypnopompic hallucinations, and cataplexy-like symptoms. Based on its mechanism of action, suvorexant can impair daytime wakefulness, driving, and other activities that require full mental alertness and may increase the risk of falling asleep while driving. These effects can last for up to several days after discontinuation and may be more pronounced with the 20 mg dose. Suvorexant, like other hypnotics, may cause complex behaviors with amnesia surrounding the event, such as sleep-driving, eating, making phone calls, or sexual intercourse. A dose-dependent increase in suicidal ideation was noted in clinical studies. Suvorexant is a schedule IV drug.

References
3. Bozorg AM, Thomas DJ, Benbadis SR. Narcolepsy. Medscape. Published
News Pearls

CONGRATULATIONS!!!

We are pleased to announce that two VSHP members have been selected as ASHP Fellows for 2015. This award is intended to recognize excellence in pharmacy practice and promote public awareness of pharmacists who have distinguished themselves in practice. The Fellows will be honored on Tuesday, June 9, 2015, during the ASHP Summer Meetings and Exhibition in Denver.

These individuals have been bestowed with the title of "Fellow" by ASHP in recognition of the excellence they have achieved in pharmacy practice. The ASHP Practitioner Recognition Program rewards excellence in pharmacy practice by granting recognition through the FASHP designation.

Again, we congratulate the awardees Erika L. Crouse and Cynthia P. Williams. We look forward to continued excellence. When you see them, be sure to add your congratulations.

Changes Made to Required Postgraduate Year 1 Competency Areas

In response to questions and concerns, the Commission on Credentialing recently approved minor revisions to Required Competency Areas, Goals, and Objectives for PGY1 Pharmacy Residencies. There is a revised definition of "criteria" and a few new objectives, for example. A detailed summary of the changes and new working grid are available.

FDA Wants Public Input on How to Improve Drug Safety

Regulatory Affairs Professionals Society (03/19/2015) Gaffney, Alexander

FDA said in a recent Federal Register announcement that it hopes to collaborate with external partners and stakeholders to help address regulatory needs identified by its Center for Drug Evaluation and Research. The center is asking for public input on its regulatory priorities. FDA's Safety Research Interest Group recently identified seven needs in drug safety, including improved risk assessment to reinforce the safe use of drugs, improved product quality and design, and improved clinical trial statistical analyses for safety. FDA is asking outside groups to "submit descriptions of their ongoing research and initiatives" related to these identified needs, and to indicate whether they are interested in working with the agency to address those needs.

National Action Plan for Combating Antibiotic-Resistant Bacteria

White House (03/27/15)

The White House released Friday its National Action Plan for Combating Antibiotic-resistant Bacteria, a detailed plan to address the issue of antibiotic resistance. The 63-page plan outlines steps for adopting the National Strategy for Combating Antibiotic-Resistant Bacteria and implementing the policy recommendations of the President's Council of Advisors on Science and Technology. The plan lists five goals: slow the emergency of resistant bacteria and prevent the spread of resistant infections; strengthen national one-health surveillance efforts to combat resistance; advance development and use of rapid and innovative diagnostic tests for the identification and characterization of resistant bacteria; accelerate basic and applied research and development for new antibiotics, therapeutics, and vaccines; and improve international collaboration and capacities for antibiotic resistance prevention, surveillance, control, and antibiotic research and development. In addition, the plan sets 2020 targets for significant reductions in the incidence of urgent and serious pathogens, including carbapenem-resistant Enterobacteriaceae, methicillin-resistant Staphylococcus aureus, and Clostridium difficile.

All Dispensing Pharmacies Eligible to Request '.Pharmacy' Domain
Names Beginning April 1, 2015

MOUNT PROSPECT, Ill., March 25, 2015 /PRNewswire-USNewswire

The National Association of Boards of Pharmacy® (NABP®) will begin accepting applications for ‘.pharmacy’ domain names from all dispensing pharmacies beginning April 1, 2015. Since the ‘.Pharmacy’ Top-Level Domain (TLD) Program was launched in 2014, the Association has approved about 275 ‘.pharmacy’ domain names applied for or requested during prior limited registration periods. NABP launched the ‘.pharmacy’ TLD to provide consumers around the world a means for easily identifying safe and legal online pharmacies and related resources. The dispensing pharmacy limited registration period is the last limited application phase. Applications from dispensing pharmacies will be accepted through April 30, and approved pharmacies may begin to register their requested .pharmacy domains as early as that date. General availability, when any entity with a pharmacy or pharmacy-related website may apply and, if approved, register for a ‘.pharmacy’ domain name, will begin on June 3, 2015.

Except for those already Verified Internet Pharmacy Practice Sites® (VIPPS®) or Veterinary-Verified Internet Pharmacy Practice Sites® (Vet-VIPPS®) accredited or NABP e-Advertiser-approved, entities seeking a ‘.pharmacy’ domain name must first submit an application, supporting documentation, and an application fee to NABP. NABP will evaluate these materials to ensure compliance with program standards. Note that, as part of the application process, the content of the proposed website must be available for review by NABP. NABP is establishing a network of international regulatory groups to facilitate evaluation of international domain name applications. Once approved, applicants will be able to register the domain name through an approved registrar.

Of the tens of thousands of sites selling prescription drugs online, NABP has reviewed over 10,900 and found that nearly 97% do not follow pharmacy laws and standards established to protect the public health. NABP will grant use of the ‘.pharmacy’ domain only to legitimate website operators that adhere to pharmacy laws in the jurisdictions in which they are based and in which their patients and customers reside, so that consumers can easily find safe online pharmacies.

Additional information about the .Pharmacy TLD Program, as well as information about buying medicine safely online is available at www.safe.pharmacy.

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ASHP News

Florida Hospital Embraces Pharmacist-Led Chronic Care in Physician Offices

[April 15, 2015, AJHP News]

Kate Traynor

BETHESDA, MD 30 Mar 2015—A community-based health system's corporate-level decision to place pharmacists in primary care offices both improves the care of complex patients and aligns with Medicare's shift toward payment for value instead of volume.

The Comprehensive Health Management service at Martin Health System of Stuart, Florida, targets patients with multiple chronic conditions and high use of the health system's services, said Dave Harlow, assistant vice president for professional services and chief pharmacy officer for Martin Health.

Read More

FDA Revives Compounding Advisory Committee

[April 15, 2015, AJHP News]

Kate Traynor
BETHESDA, MD 30 Mar 2015—When FDA in late February convened a meeting of its Pharmacy Compounding Advisory Committee, the agency essentially resumed a project that had been on hold for more than a dozen years.

Part of that project involved revising FDA's 1999 list of drugs that may not be used for compounding because they are not safe and effective. The development of the list had been shelved after a 2002 Supreme Court ruling invalidated part of the statute by which FDA regulates compounded products.

Read more

ASHP Honors Pharmacy Students for Campus, Practice Leadership

3/30/2015

ASHP has recognized twelve pharmacy students for their achievements in campus leadership and pharmacy practice in hospitals or ambulatory care clinics (including professional work experience, internships, and other accomplishments) with the ASHP Student Leadership Award.

The award, sponsored by ASHP and the ASHP Research and Education Foundation, is given to student members in their second through fourth professional years of pharmacy school. The award winners receive a plaque, an ASHP drug information reference library, and a $2,000 cash award.

Read more

ASHP Honors Members for Practice Excellence, Leadership

Thirty-Five Pharmacists Designated Fellows

3/27/2015

Thirty-five pharmacists who practice in hospitals, ambulatory care clinics, and other settings have been given the title “Fellow” of ASHP in recognition of the excellence they have achieved in pharmacy practice. The 2015 Fellows will be honored on Tuesday, June 9, 2015, during the ASHP Summer Meetings and Exhibition in Denver.

The ASHP Practitioner Recognition Program rewards excellence in pharmacy practice by granting recognition through the FASHP designation. Members who have achieved FASHP status have successfully demonstrated sustained commitment or contributions to excellence in practice for at least 10 years, contributed to the total body of knowledge in the field, demonstrated active involvement and leadership in ASHP, and have been actively involved in and committed to educating practitioners and others. The program has recognized 838 Fellows since it began in 1988.

Read more

New Combination Vaccine Licensed for 4- to 6-Year-Olds

Cheryl A. Thompson

BETHESDA, MD 26 Mar 2015—FDA and Sanofi Pasteur Inc. on Wednesday announced the licensing of a new vaccine for use in children 4 to 6 years of age to complete the diphtheria, tetanus, and pertussis (DTaP) vaccination series and inactivated poliovirus vaccination series.

The vaccine, its labeling (PDF) states, is intended for children who have already received four doses total of Sanofi Pasteur’s DTaP vaccine or the company’s diphtheria and tetanus toxoids and acellular pertussis adsorbed, inactivated poliovirus, and Haemophilus b conjugate (tetanus toxoid conjugate) vaccine.
Pharmacy News

Label Design May Affect Medication Safety in an OR Crisis
Journal of Patient Safety (03/07/2015) Estock, Jamie L.; Murray, Andrew W.; Mizah, Margaret T.

The redesign of medication labels can help prevent some types of medication errors. In one study, 96 anesthesia trainee participants were randomly assigned to either a current or a redesigned label condition. Each participant was the sole anesthesia provider in a simulated operating room scenario and was asked by the surgeon to administer hetastarch to the simulated patient. The anesthesia cart's fluid drawer contained three 500 mL I.V. bags of hetastarch and one 500 mL I.V. bag of lidocaine. The redesigned labels were intended to help participants correctly select hetastarch or to detect incorrectly selected lidocaine before it was administered. Among the participants who correctly selected hetastarch, 63% had been given the redesigned labels and 40% had been given the current labels. Of the participants who incorrectly selected lidocaine, the percentage who noticed it before administration did not differ by label condition.

Pharmacogenomics Coming to EMRs
Healthcare IT News (03/10/15) Versel, Neil

A pharmacogenomics clinic has opened at NorthShore University HealthSystem in Evanston, IL, among just a handful in the nation to focus exclusively on pharmacogenomics. NorthShore, with three hospitals in the very first group to achieve Stage 7 on the HIMSS Analytics EMR Adoption Model, has long been nearly paperless. Mark Dunnenberger, senior clinical specialist in pharmacogenomics in NorthShore's Center for Molecular Medicine, envisions a future where every NorthShore patient will have pharmacogenomic data in their medical records. With this goal in mind, he and his team must figure out how to get pharmacogenomic issues into medical records so physicians can use it in practice. Dunnenberger says his team is working on building "systematic and discrete data points" into the medical record to make this information easily accessible to clinicians and compatible with clinical decision support systems. "It will be like doing drug–drug and drug–allergy checks," according to Dunnenberger. The Clinical Pharmacogenomics Implementation Consortium, supported by NIH and run by St. Jude Children's Research Hospital, is driving the development of such data points.

Trial of Everolimus-Eluting Stents or Bypass Surgery for Coronary Disease
New England Journal of Medicine (03/26/15) Vol. 372, No. 13, P. 12; Park, Seung-Jung; Ahn, Jung-Min; Kim, Young-Hak

Researchers for the BEST Trial report that for patients with multivessel coronary artery disease, those who had undergone percutaneous coronary intervention (PCI) with everolimus-eluting stents had a higher rate of major adverse cardiovascular events than patients who had undergone coronary-artery bypass grafting (CABG). The study, which had planned to include more than 1,700 patients at 27 centers in East Asia, was stopped early due to slow enrollment. Of the 880 patients enrolled, the primary endpoint—a composite of death, myocardial infarction (MI), or target-vessel revascularization at 2 years—occurred in 11% of the PCI group and in 7.9% of the CABG group. At a median follow-up of 4.6 years, the primary endpoint had occurred in 15.3% of the PCI patients and in 10.6% of the CABG patients. There were no significant differences between the PCI and CABG groups in terms of a composite safety endpoint of death, MI, or stroke, but rates of any repeat revascularization and spontaneous MI were significantly higher following PCI than after CABG, according to the findings.
ASHP, ISMP Issue Warning About Look-Alike Packaging for Neostigmine and Phenylephrine

*American Society of Health-System Pharmacists (03/24/15)*

The American Society of Health-System Pharmacists and the Institute for Safe Medication Practices have issued a National Alert for Serious Medication Errors regarding look-alike packaging for neostigmine injection (Bloxiverz—Eclat) and phenylephrine injection (Vazculep—Eclat). Neostigmine is a cholinesterase inhibitor indicated for the reversal of nondepolarizing neuromuscular blockade after surgery, while phenylephrine is approved for the treatment of clinically important hypotension resulting primarily from vasodilation in an anesthesia setting. Health care providers have reported concerns about similarities in the size, color, and design of the vials and outer cartons of neostigmine injection 10 mg per 10 mL and phenylephrine 50 mg per 5 mL. There have been storage mix-ups as well as several close calls in which the wrong product was used during sterile compounding. To safeguard against further mix-ups, ASHP and ISMP recommend keeping supplies of the drugs widely separated in long- and short-term storage areas; alerting staff to the potential risk for confusion between the drugs; bar code scanning containers during inventory management and before dispensing; and diluting phenylephrine injection prior to administration.

**Definitions of Pharmaceutical Opioid Use Disorders and Dependence for Chronic Pain**

*The Lancet Psychiatry (03/18/15) Degenhardt, Louisa; Bruno, Raimondo; Lintzeris, Nicholas*

A study was conducted to compare the World Health Organization's ICD-10 and proposed ICD-11 and the American Psychiatric Association's DSM-IV and DSM-5 classifications for opioid use disorders. Researchers examined similarities between classification systems and tested the unidimensionality of the syndrome. The study, which included more than 1,400 patients taking prescription opioids for chronic pain, found that the proportion of participants fitting the criteria for lifetime dependence was generally congruent between DSM-IV, ICD-10, and ICD-11. The researchers concluded that the ICD-11 definition of dependence was not only the best fit but also the most analogous with previous classification systems.

**Aflibercept, Bevacizumab, or Ranibizumab for DME**


In a study of 660 adults, researchers tested the relative efficacy and safety of intravitreous aflibercept (Eylea—Regeneron), bevacizumab (Avastin—Genentech), and ranibizumab (Lucentis—Genentech) in treating diabetic macular edema (DME). Patients were randomly assigned to receive 2 mg intravitreous aflibercept, 1.25 mg bevacizumab, or 0.3 mg ranibizumab. Medications were administered as often as every 4 weeks for 1 year. Between baseline and 1 year, the mean visual-acuity letter score improved by 13.3 with aflibercept, by 9.7 with bevacizumab, and by 11.2 with ranibizumab. While improvement was greater with aflibercept, it was not clinically meaningful, as the difference was driven by the eyes with worse visual acuity at baseline. Researchers found no significant differences in rates of serious adverse events, hospitalization, death, or major cardiovascular events. All three treatments improved vision in eyes with center-involved DME, but the relative effect depended on baseline visual acuity.

**FDA's Electronic Drug Labeling Proposal Comes Under Fire**

*Regulatory Affairs Professionals Society (03/25/2015) Gaffney, Alexander*

Legislators and patient safety groups warn that FDA's effort to require certain
drug labeling information be distributed electronically instead of on paper "package inserts" could put patients at risk. The proposed regulation would bar drug manufacturers from distributing information in paper form, in order to "ensure that the most current prescribing information for prescription drugs will be available and readily accessible to health care professionals at the time of clinical decision-making and dispensing." The electronic requirements do not apply to patient labeling, including package inserts and medication guides, or promotional labeling—only to the drug's "professional labeling." Some safety groups have called the proposal unworkable in its current format, complaining that the label repository website is onerous to use. Meanwhile, several legislators have written to FDA expressing their concern about the proposed rule. "Pharmaceutical paper inserts are an important tool for our pharmacists and health care professionals that are in charge of administering life-saving medications to our hardworking families and seniors," said Sens. Susan Collins (R-ME), Angus King (I-ME), and Rep. Bruce Poliquin (R-ME) in a joint statement.

Sagent Recalls Atracurium Besylate Injection

FDA MedWatch (02/24/15)
Sagent Pharmaceuticals has initiated a voluntary recall of two lots of atracurium besylate injection, USP, 50 mg/5mL single-dose vials (NDC 25021-659-05) and four lots of atracurium besylate injection, USP, 100 mg/10mL multi-dose vials (NDC 25021-672-10) made by Emcure Pharmaceuticals Ltd. and distributed by Sagent. The recall is being undertaken due to FDA observations related to aseptic and GMP practices at the manufacturer's site that could potentially affect product sterility. The recalled lot numbers are VATA012, VATA015 (50 mg/5mL) and VATB012, VATB013, VATB014, VATB017 (100 mg/10mL). These were distributed to hospitals, wholesalers, and distributors nationwide from February 2014 through February 2015. Sagent reports that it has transferred the manufacture of the drug to its own facility, and the product manufactured there is not involved in the recall.

Are New Oral Anticoagulant Dosing Recommendations Optimal for All Patients?

Journal of the American Medical Association (03/10/15) Vol. 313, No. 10, P. 1013; Powell, J. Robert
A Viewpoint article discusses optimal dosing of new oral anticoagulant drugs for all patients. J. Robert Powell, PharmD, Eshelman School of Pharmacy, University of North Carolina, points out that research has shown the new direct-acting oral anticoagulants (DOACs) to be noninferior or superior to individualized warfarin dosing for preventing stroke, with a similar or lower risk of hemorrhage. There are several common features to these drugs, but individualized dosing could further increase patient safety. Powell suggests that individualized DOAC dosing could be useful for drugs with greater interpatient variability in pharmacokinetics or pharmacodynamics, patients who do not have average characteristics, or when patients have multiple characteristics that could affect dosing. However, without FDA action on the issue, drug companies likely will not move in this direction. "It may be that dose individualization could decrease differences between drugs if they are titrated to a more common standard based on individual patient requirements," writes Powell. "Greater assurance is needed so these new anticoagulants can be optimally dosed for all eligible patients."

Technology Helps Yuma Pharmacists Help Patients

Pharmacy Practice News (03/19/15) Rosenthal, Marie
Yuma Regional Medical Center (YRMC) appears to be a nondescript hospital nestled in a remote corner of Arizona, 20 miles north of the U.S.-Mexico border and 180 miles clear of the nearest U.S. acute care hospital. But YRMC is more than just a run-of-the-mill medical facility, as evidenced by its use of automation technology to better serve the community, decrease medication errors, increase patient safety, and support the doctors and nurses. The centerpiece is an
An integrated automation solution by Aesynt. A physician inputs an order, the pharmacist verifies it, and a robot fills the order. The robot repackages the tablets into single-dose units and marks them; so far, it has completed more than 40 million doses and has yet to make an error. For a rural hospital, such precise inventory control is particularly important because help following a stocking error is nowhere close. In addition, the investment in automation technology shows a commitment to devoting less time to paperwork and more time to personalized patient care.