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UNIVERSITY of WASHINGTON

The Resident Star

By The University of Washington
Community & Ambulatory Pharmacy Residents

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Reaching out to our diabetics, pre-diabetics, and their families during Diabetes Day at Tulalip Health Clinic

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At the Tulalip Health Clinic and Tulalip Clinical Pharmacy, we offer many opportunities for our patients to learn and grow. Through focused pharmacist managed MTM services, we are able to help our patients reach their goals and optimize their medication therapies. Additionally, with access to a multidisciplinary team, including massage therapy, acupuncture, and nutrition, we can offer our patients alternatives and adjunctive treatment all under one roof. With many members of the tribal population being diabetic or at risk for diabetes, it is important that the pharmacy team, as well as all other team members of the health clinic, form a unified approach to educating patients and their families. That is exactly what our Diabetes Day is all about. With the goal to host this type of health fair every quarter, we are able to reach many of our diabetic patients and get them up to date on their yearly exams and immunizations, as well as screen patients who may be at risk for developing diabetes.

As patients enter the clinic, they are signed in and given a personalized sheet of "to-dos" to accomplish during Diabetes Day. Walk-ins are also welcome to get their blood glucose checked and learn about things like the Affordable Care

Act, substance abuse, nutrition, and of course, diabetes. The pharmacy team is an integral component of the workflow during these health fairs by performing blood pressure checks, comprehensive foot exams, waist circumference measurements, blood glucose checks, immunizations, and medication counseling. Throughout it all, we are able to discuss lifestyle modifications that the patient can implement to control their sugars or reduce their risk, and then guide them to other appropriate stations of the health fair.

One unique feature of the Tulalip Health Clinic is a small community garden right in our backyard overlooking the Tulalip Bay. During the summer months, the garden thrives with vegetables, herbs, and fruits. This has become a helpful tool in the education patients are offered regarding lifestyle adjustments. During Diabetes Day, patients have the opportunity to learn about planting and growing gardens, and indulge in the tasty and healthy meals that can be created from the freshly grown produce. It is a great way to really let the patients have a hands-on approach to their health care. Some patients have been diagnosed with diabetes or identified as being at risk during these health fairs. As a community, our patients can learn together and help each other, and there is no better time or place to do so, than with all the support from the staff at Tulalip Health Clinic on Diabetes Day.

Fluzone High-Dose vaccine: Does it provide better protection for the elderly?



Natasha Gorely, Pharm.D.
Tulalip Clinical Pharmacy

Question from a provider:

What is the evidence behind using the high dose (HD) influenza vaccine and how does it compare to the standard dose (SD) influenza vaccine when immunizing older adults, 65 years and older?

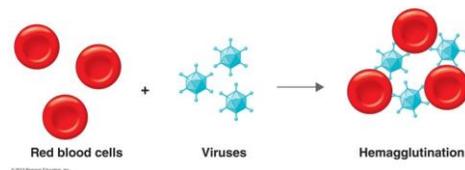
Background:

As we embark on the height of flu season, it is important that everyone is properly immunized and that we as health care professionals inform and reach as many patients as possible. The CDC estimates that 90% of seasonal flu-related deaths and greater than 60% of seasonal flu-related hospitalizations in the United States occur in people 65 years and older.¹ Hospitalizations and further complications can become very costly and detrimental to quality of life for patients. It is known that as we age, our immune systems become weaker, and therefore we may have a decreased response to vaccines. To combat this, Sanofi Pasteur released a HD influenza vaccine (Fluzone High-Dose) in 2009 approved for individuals 65 years and older.^{1,2}

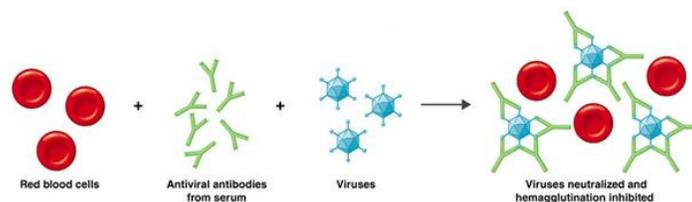
What is the evidence?

In a randomized, double-blind controlled phase 3 trial was conducted, 3837 subjects 65 years and older, with a mean age of 73, were given either the HD or SD vaccine. Subjects in each group had no significant differences with respect to age, race, sex, or presence of underlying disease. This study aimed to measure and compare serum hemagglutinin antibodies demonstrating immunogenicity, as well as the rates of local and systemic adverse effects.³ Blood samples were obtained at baseline (pre-vaccination) and 28 days after vaccination. Subjects were assessed for serious adverse effects and use of health care at 7 days and 6 months after vaccination.

- Hemagglutination is the process by which the viral surface proteins agglutinate, or stick to, red blood cells forming a lattice-structure.

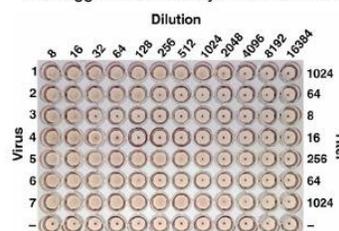


- When antibodies are produced against the viral surface protein, they will prevent agglutination.
- The hemagglutinin inhibition (HAI) test is used to measure these serum hemagglutinin antibodies in the subjects' blood samples.



- Serum samples with varying dilutions are added to wells of a tray that contain a fixed amount of virus proteins.
- The highest dilution of serum that still prevents hemagglutination is the HAI titer of the serum.⁴

Hemagglutination assay: influenza virus



In summary, results showed that immunogenicity measured by HAI titers was significantly higher in the group receiving the HD vaccine compared to those receiving the SD vaccine after 28 days, and met baseline criteria for superiority. Regarding the safety of the two vaccines, local reactions were significantly more common in the HD group compared to the SD group 7 days after vaccination, with mild intensity pain being the most commonly reported side effect among both groups. Systemic reactions such as fever, headache, malaise, or myalgia were not significantly different between the HD and SD vaccines during the first 7 days after vaccination. During the 6 month follow-up analysis, there was no significant difference between occurrence of serious adverse events, or healthcare use.³

Through observational studies, SD influenza vaccines have been shown to be at least 60% effective in preventing influenza-like illness in young healthy adults. In older adults, the SD vaccine is estimated to be 17-53% effective.⁵ The next step in the process, is to determine the effectiveness of the HD influenza vaccine by showing that a higher level of immunogenicity produced by the four times higher dose correlates to a decreased rate of influenza in this population.

In August 2013, Sanofi Pasteur announced the primary completion of a large-scale, multi-center efficacy trial showing that the HD influenza vaccine was 24.2 percent more effective in preventing influenza in adults 65 years of age and older compared to the SD vaccine. With plans to submit the full clinical report by early 2014 to the FDA, the manufacturer will seek a modification to the label for Fluzone High-Dose reflecting the most recent data showing superior efficacy compared to the SD vaccine.⁶

Current Recommendations:

The current 2013-2014 trivalent flu vaccine is composed of virus strains A/California/7/2009 (H1N1)pdm09-like, A/Texas/50/2012, and B/Massachusetts/2/2012-like. The HD influenza vaccine is four times that of the SD influenza vaccine, with 180 mcg (60 mcg per strain) of influenza virus hemagglutinin versus 45 mcg (15 mcg per strain), respectively.⁷ Although the HD is four times higher than that of the SD, the immunogenicity for the A strains was only about two times higher in the HD than the SD according to results from the previously mentioned study.³

Because the current published data reviewed by the FDA has not been able to show a decrease in influenza disease after vaccination with Fluzone High-Dose compared to that of the SD vaccine despite evidence showing increased HAI titers, the CDC does not recommend one vaccine over the other for individuals over the age of 65. New data currently being studied may soon change this recommendation, but until then, we must leave it up to our clinical judgment and the patient's choice. With safety profiles being relatively similar between the two vaccines, and promising results soon to be reviewed which may change the CDC's recommendations, it may be prudent and in the patient's best interest to offer the HD influenza vaccine which provides higher levels of antibody response in a population with an inherently decreased immune system.¹

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Cohort Trial at Bartell Drugs **A Prospective, Non-Experimental, Cohort Trial to Assess the Influence of Immunization Information Systems (IIS) On Patient Vaccinations in a Retail Pharmacy Setting**

Rachel Firebaugh, PharmD, MPH
Bartell Drugs



Recently, Bartell Drugs has partnered with the Scientific Technologies Corporation to conduct an intervention to learn about the impact of pharmacists' utilization of the immunization registry on patient care and public health in the community setting. The study also has the aim of understanding the experience - perceptions and motivations - of pharmacists' administering vaccines and utilizing the immunization registry in Washington. Therefore, I thought I would take this opportunity to explain what the Washington State Registry is and why this cohort trial is potentially important to our field and our patients.

What is the Washington State Immunization Registry?

The Washington state immunization registry is a web-based application that contains 4.2 million patient records with 18 million vaccination records.¹ This registry is well populated with high quality vaccination data and forecasts that follow Advisory Committee on Immunization Practices (ACIP) and Centers for Disease Control (CDC) vaccine schedule recommendations.

Why is the Study Important for our Profession and our Patients?

Studies show pharmacists' can influence coverage rates and increase access to vaccinations.^{2,3} Each encounter with a patient is an opportunity to verify that the individual is up-to-date with their immunizations and to bring them up-to-date if they are not.

Bartell Drugs is excited to participate in this research because the intervention will potentially benefit the participating pharmacies and greater pharmacy community by increasing our understanding of the impact of pharmacist utilization of the immunization registry on patient care **quality, safety, and efficiency.**

Quality: The study will provide data regarding pharmacists' perceptions surrounding the quality of care they were able to provide to the patient with the addition of access to the immunization registry.

Safety: The study will provide opportunities to understand how immunization registry access may help pharmacists to prevent missed opportunities for immunization and promote health.

Efficiency: The study will provide keen insights into how immunization registry access may be implemented by pharmacies so that it results in the least amount of interruption to normal workflow

As pharmacists' continue to grow in their importance as a public health provider, especially for immunizations, it will be important to understand how the immunization registry can be used most efficiently to further patient care outcomes and deliver quality care in the community pharmacy setting.

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4. Allred, N.J., et al., The impact of missed opportunities on seasonal influenza vaccination coverage for healthy young children. *Journal of public health management and practice : JPHMP*, 2011. 17(6): p. 560-4.
4. Sebelius, K., *The National Vaccine Plan 2010: Protecting the Nation's Health through Immunization*. DIANE Publishing, 2010: p.12, 17

Upcoming events

November 19th: Project/Research Seminar by Dr. Beth Devine 3:45-5pm @ Department of Pharmacy Conference Room H-375

Journal Club Aqua Verde Cafe 5:45 pm

December 7-14th: The Midyear Clinical Meeting, Orlando FL

Depression review:

What drug to choose when my patient is feeling blue?

Kara Springer, Pharm.D.

Providence Pharmacy Monroe



I recently was asked to put together an in-service for the Providence Home Health Team and their team, mostly made up of case managers, nurses and physical/occupational therapists, specifically on why a physician would choose one medication over another and what are the best medications to use in the elderly population.

An antidepressant medication is recommended as an initial treatment choice for patients with mild to moderate major depressive disorder and definitely should be provided for those with severe major depressive disorder unless Electroconvulsive Therapy (ECT) is planned. Nevertheless, antidepressant medications do differ in their potential to cause particular side effects such as adverse sexual effects, sedation, or weight gain. Therefore, the initial selection of an antidepressant medication will largely be based on the tolerability, safety, and cost of the medication, as well as patient preference and history of prior medication treatment (Table 1).¹

There are several classes of antidepressant medications available. All have been shown to be effective making the initial selection largely based on anticipated side effects, pharmacologic properties, patients' prior experience, cost and finally patient preference. On the basis of these considerations, the following medications are optimal for most patients: SSRIs, SNRIs, mirtazapine, and bupropion.¹ The less sedating TCA's (desipramine and nortriptyline) may also be appropriate for some patients.²

The likelihood of different side effects varies among classes of antidepressant medications, among subclasses, and among individual agents. When side effects occur during treatment with an antidepressant, an initial strategy is to lower the dose of the antidepressant or to change to an antidepressant that is not associated with that side effect.¹ Keep in mind intolerance or lack of response with one SSRI does not predict intolerance or ineffectiveness with other SSRIs.²

Older age

The combined prevalence of major depression, dysthymic disorder, and "minor" depression in individuals over age 60 years has been reported to be as high as 25%, and major depressive disorder has been reported to be present in 14%–42% of nursing home residents.¹ Although depression is a common problem in older adults, it is often undetected, undiagnosed, untreated or undertreated.³

There are several considerations in using medications in elderly patients. It is often useful to use medications that address several issues at once. For example, using mirtazapine for a depressed, elderly patient with weight loss and insomnia.¹ Elderly patients usually require lower starting doses with attention being paid to hepatic and renal function plus consideration of potential drug interactions.¹ Monotherapy is preferred in the elderly in order to minimize drug side effects and drug-drug interactions.⁶ Medications typically take up to four to six weeks to show efficacy. In elderly patients, a full antidepressant response may not occur until 8 to 12 or even 16 weeks of therapy.⁶

In prescribing antidepressants, elderly patients may be either over- or undertreated. Over-treatment occurs when age-related pharmacokinetic and pharmacodynamics factors are overlooked. Under-treatment results from an overly conservative approach as a result of the patient's advanced age or concurrent medical problems.⁵

It is important to reach the same therapeutic dosage range as in younger adults in order to maximize the chances of achieving complete remission.⁶ Initial medication dosage should be adjusted for the older adult, typically cutting the usual starting dose in half. Lower starting doses will compensate for decreased drug clearance in the elderly, minimize initial side effects and promote medication compliance and maintenance.⁶

Elderly patients are particularly prone to orthostatic hypotension and cholinergic blockade, for this reason SSRIs, SNRIs should be considered over MAOIs or TCAs. The side effect profile of SSRIs is better tolerated by older people than those of other antidepressants.⁴ The FDA issued warnings that citalopram causes dose-dependent QT interval prolongation that can lead to arrhythmias and therefore recommends that the maximum dose in patients >60 years of age should not exceed 20 mg per day.⁷ The anticholinergic effects, which can result in memory impairment, urinary retention, constipation, dry mouth, glaucoma, and cardiac conduction abnormalities, diminish the utility of TCAs for use in frail older people.⁴

SNRI's are reasonable second line choices for patients and may be appropriate for patients who suffer from comorbid pain.⁶ Elderly patients on SNRIs should be monitored for hypertension.

Mirtazapine has been shown to be an effective antidepressant in the elderly and better tolerated than paroxetine. Furthermore, secondary measures of anxiety and sleep were improved following mirtazapine use.⁵

Bupropion does have some activating effects making it useful in patients who complain of lethargy, daytime sedation, or fatigue. ⁶ It is contraindicated in patients with seizure disorders, concurrent use of benzodiazepines or other CNS depressants, alcohol detoxification, or prior/current diagnosis of bulimia.⁶

TCAs are third- or fourth-line treatment options for patients due to their arrhythmic and anticholinergic side effects. Among the TCAs, desipramine and nortriptyline should be considered over amitriptyline, imipramine, and doxepine due to increasing sensitivity to side effects due to increasing age.¹

MAOI's can be used for depression resistant to other agents.⁶

In summary, there are several things to consider when choosing the right antidepressant medication for patients, especially the elderly population. As pharmacists we can help providers make the right medication choice and help provide education to patients about their medications.

Table 1. Factors to Consider in Choosing an Antidepressant Medication¹

Patient preference	Co-occurring psychiatric or general medical conditions
Nature of prior response to medication	Potential drug interactions
Relative efficacy and effectiveness	Half-life
Safety, tolerability, and anticipated	Cost

Things to consider when choosing an antidepressant in the elderly

Monotherapy, when appropriate, is preferred

Initial response may be delayed

SSRIs and SNRIs may be considered first line

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7. FDA Drug Safety Communication: Revised recommendations for Celexa (citalopram hydrobromide) related to a potential risk of abnormal heart rhythms with high doses

New things happening in Monroe

We've moved!!



Providence Medical Group (PMG) Monroe and Providence Regional Medical Center have proudly worked together to build an entirely new, state-of-the-art healthcare facility in the community of Monroe. On October 7 the doors opened for the first full day of clinic in the new building. PMG Monroe has almost doubled the size of their previous clinic and now has space for more than 30 medical providers. The new building provides several clinical services including primary care, several specialty care providers, medical imaging services, non-invasive diagnostics and urgent care services.

One of the new features of the building is the "Versus" self-rooming system. Patients are assigned a badge when they arrive and through sensors in the ceiling all patients and staff are able to be located through

the Versus online system. Patients are told what room to go to and are able to walk into their assigned room avoiding any waiting. With the online system, the Medical Assistant is able to see when the patient is in the room and they can enter to begin the appointment. The initial thoughts of "big brother" have settled down and patients and staff are now more comfortable with the new technology.



Providence Pharmacy Monroe Residency project: Transitional Care Management

Pharmacist Role in Transitions of Care in the Patient-Centered Medical Home

Due to the significant clinical and economic impact of high hospital readmission rates, on January 1, 2013, Medicare instituted new transitional care codes, providing higher reimbursement rates for providers in order to promote improved continuity of care during this crucial time. These transitional care codes have more requirements compared to alternate codes. The new codes are 99495, associated with moderate complexity decision making and requiring a follow up within fourteen days of discharge, and 99496, associated with high complexity decision making and requiring a follow up visit within seven days of discharge. ¹

Implementing these new codes into the Monroe clinic will be the focus of Irina's and my residency project this year.

We receive daily discharge reports from Providence Everett Medical Center and Valley General Hospital-Monroe for review and identification of patients

meeting inclusion criteria for our study. Examples of patients we will be including are CHF and COPD exacerbations, pneumonia and diabetes.

Irina and I will contact eligible patients within 2 business days of discharge via phone call to follow up regarding their hospital stay and invite them to return to clinic. They will be scheduled for follow up appointment with their PCP and offered an appointment to meet with a pharmacy resident prior to this for a medication review.

We have received very positive feedback and excitement from our providers about implementing this service and are looking forward to working on this project throughout the year.

Reference:

Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists. *Journal of Hospital Medicine*. 2007;2(5):314-323.

Urinary Incontinence: Medications as a Potential Cause

Rachel Firebaugh, PharmD, MPH
Bartell Drugs



Recently, I had the opportunity give a lecture about urinary incontinence to second year medical students at AT Still University School of Osteopathic Medicine. I chose to focus on a small portion of this bigger topic for the current drug information bulletin.

What is urinary incontinence?

Urinary incontinence is defined as the involuntary leakage of urine.¹ It can either be classified as transient or chronic. Transient incontinence is urinary leaking that spontaneously reverses after the underlying cause is resolved; this type of incontinence usually has a sudden onset and has been present for less than six weeks at the time of evaluation.² Chronic urinary incontinence does not typically resolve naturally and is classified into five types: stress, urge, mixed, overflow, or functional.

Which of your patient's may be affected?

It is a common misconception that urinary incontinence only impacts the elderly. Although the prevalence and severity of urinary incontinence increases with age, urinary incontinence affects pregnant women (30-60%), younger and middle-aged women (12-42%), and in total it affects 20 million women and 6 million men.^{1,2,3}

Why is this an important topic?

- Urinary incontinence often goes undetected by clinicians.
- Under reported: At least one-half of patients with incontinence do not report the issue to healthcare providers.³
- Under treated: Even when the practitioner is aware of the incontinence, often it is not treated adequately, leaving the patient with diminished quality of life at home and at work.⁴
- Patients who have incontinence are more likely to have depression, limited social and sexual function, and a reliance on caregivers.²

How might a patient's medications play a role in causing or worsening incontinence?

Before turning to behavioral, pharmacologic, or surgical treatments it is important for the provider to identify if there are any reversible causes for the urinary incontinence. The mnemonic DIAPPERS is a helpful tool for remembering the common reversible causes of incontinence which include delirium, infection, atrophic vaginitis, pharmaceuticals, psychological disorders, excessive urine output, reduced mobility or reversible urinary retention, and stool impaction.²

Table 1. Differential Diagnosis of Transient Causes of Urinary Incontinence (DIAPPERS)²
Delirium
Infection (acute urinary tract infections)
Atrophic vaginitis
Pharmaceuticals
Psychological disorders, especially depression
Excessive urine output
Reduced mobility or reversible urinary retention
Stool Impaction

As pharmacists, we should keep in mind the potential medication causes that are reversible as we work together with our care team. Identification of a medication as a reversible cause of urinary incontinence can be a relatively simple fix that can result in a significant improvement in your patient's overall quality of life.

Table 2. Medications that may cause or worsen urinary incontinence ⁴

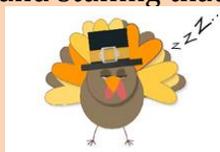
Medication	Effect on continence
α-Adrenergic agonists	Outlet obstruction (men)
α-Adrenergic blockers	Stress leakage (women)
Angiotensin-converting enzyme inhibitors	Associated cough worsens stress and possibly urge leakage in persons with impaired sphincter function
Anticholinergics	Impaired emptying, retention, delirium, sedation, constipation, fecal impaction
Antipsychotics	Anticholinergic effects plus rigidity and immobility
Calcium channel blockers	Impaired detrusor contractility and retention; the dihydropyridine agents can cause pedal edema, leading to nocturnal polyuria
Estrogen	Worsens stress and mixed leakage in women
Loop diuretics	Polyuria, frequency, urgency
Narcotic analgesics	Urinary retention, fecal impaction, sedation, delirium
Nonsteroidal anti-inflammatory drugs	Pedal edema causing nocturnal polyuria
Sedative hypnotics	Sedation, delirium, immobility
Thiazolidinediones	Pedal edema causing nocturnal polyuria
Tricyclic antidepressants	Anticholinergic effects, sedation
Beta blockers	Urge incontinence
Opioid analgesics	Sedation, anticholinergic effects
Histamine 1 receptor antagonists	Confusion
Lithium	Polyuria

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Turkey Day Myth Debunked

Did you know that it's not really the tryptophan in turkey that makes you sleepy after Thanksgiving dinner? While tryptophan is used in your body to make serotonin, and in turn serotonin is made into melatonin, it requires carbohydrates to assist in that conversion. So, while lots of turkey may build up your tryptophan stores, it's combining it with all the mashed potatoes and stuffing that will actually make you want to snooze on the couch.



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