

KEEPING TABS

Absolute Pharmacy is the prescription for what ails you.

In each quarterly edition, you'll find the latest news about pharmacy, new medications, technology and more – all through the lens of what is pertinent to the long-term care (LTC) industry.

Absolute Pharmacy has been serving the LTC industry since 1994. We're a part of a dynamic circle of care that consists of rehabilitation, home health care services, hospice care and much more. We have a rich perspective, and we're thrilled to share what we've been learning from industry leaders, our employees and our customers – you!

We are confident you'll find the information useful. If you have a suggestion for a topic you'd like to learn about, let us know at maryjo.mcelyea@abshealth.com.

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An Overview of Drug-Induced QTc Prolongation

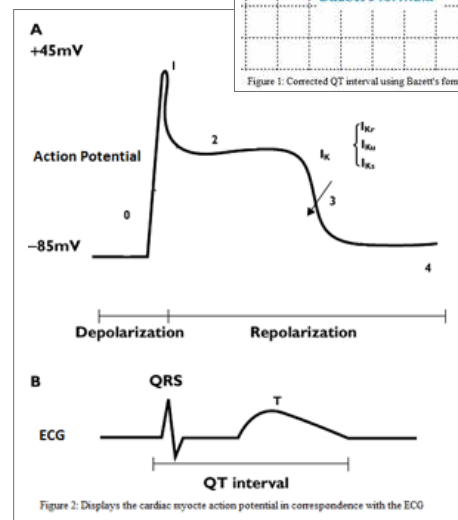
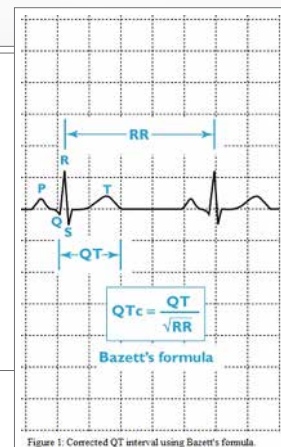
by Dr. Courtney Salvino, Rph PharmD

Prolonging the QT interval predisposes a patient with an increased risk in cardiac arrhythmias, torsades de pointes, or sudden cardiac death. However, a prolonged QT interval does not mean an arrhythmia will develop. On the other hand, an accumulation of risk factors may result in an arrhythmia without causing QTc prolongation. Clinicians need to be able to recognize the patient risk factors, assess risk versus benefit for QTc prolongation, and determine if medications need to be added or discontinued to a current treatment regimen. Pharmacists are excellent resources in aiding treatment decisions with physicians.

CARDIAC PATHOPHYSIOLOGY

The heart is composed of an extensive interconnecting muscular and electrical systems. The action potential of the heart starts in the right atrium at the sinoatrial node (SA node) transmitting an electrical impulse to the left atrium and atrioventricular node (AV node). From the AV node, the impulse travels through the bundle of His through the bundle branches to the Purkinje fibers resulting in ventricular contraction.

At the cellular level as the action potential propagates through the heart, cardiac myocytes proceed through four phases: (4) resting, (0) depolarization, (1) early repolarization, (2) plateau, and (3) late repolarization. These phases are dependent upon a number of ions entering and leaving specific channels in the cardiac myocyte.¹ Repolarization phase of the myocytes is predominated by outward moving potassium ions through the delayed rectifier current I_{KR} ("rapid-moving") and I_{KS} ("slow-moving"). Blockade or malfunction of either of these outward potassium currents may prolong the action potential. I_{KR} is more susceptible to pharmacological influence and may contribute for the pro-arrhythmic effects and manifests clinically as a prolonged QT interval and the emergence of other T or U wave abnormalities on an ECG.² More common signs and symptoms of QTc prolongation include: syncope and seizures upon physical exertion, emotional excitement, or after the use of a new medication.



QTc INTERPRETATION

The QT interval is the measurement for assessing duration of ventricular depolarization and repolarization. It is measured in milliseconds (ms) starting from the peak of the Q until the end of the T wave (Figures 1 and 2 on previous page). There are two formulas to measure the QTc: Fridericia formula ($QTc = QT / RR^{1/3}$) or Bazett's formula ($QTc = QT / RR^{1/2}$). Bazett's is more commonly used but Fridericia may be more accurate at extreme physiological heart rates. Table 1 displays suggested QTc value interpretations, but there is not a common definition of a normal or prolonged QT interval.³ Prolongation of QT interval beyond 500ms is commonly regarded as an increased risk, and if occurring during drug therapy, the potential offending agent should be reevaluated considering therapeutic alternatives in the risk versus benefit analysis. Being inside or outside of the gender/age range does not guarantee that a patient will or will not develop QTc prolongation. It is meant to serve as a tool to assess the risk of a patient.

Table 1

QTc values for normal and prolonged QT interval after correction with Bazett's formula			
	QTc VALUES BY AGE GROUP AND SEX (MS)		
	1-15 years	Adult Males	Adult Females
Normal	<440	<430	<450
Borderline	440-460	430-450	450-470
Prolonged top (1%)	>460	>450	>470

RISK FACTORS FOR QTc PROLONGATION

Risk factors for QTc prolongation can be divided into two main categories: congenital or acquired. Congenital QTc prolongation is an inherited disease characterized by ventricular myocyte repolarization causing QTc prolongation, syncopal episodes, ventricular tachycardia, and fibrillation. Acquired QTc prolongation are predisposing factors increasing the risk of QTc prolongation as shown in Table 2. The extent of QTc prolongation and risk of torsades de pointes with medication may not always be linearly related to the dose or plasma concentrations of the drug because the patient and metabolic factors are also important to consider, including renal or hepatic impairment and drug-drug interactions. It is a multifaceted situation and all risk factors need to be assessed and considered.^{4,5}

Table 2

Risk Factors for QTc Prolongation ^{4,5}	
<ul style="list-style-type: none"> • Female Gender • Older Age • Bradycardia • AV and SA Node Blocks • Drug-Related Factors • Baseline QTc prolongation • Preexisting Cardiac Disease • Hepatic Impairment • Diabetes 	<ul style="list-style-type: none"> • Hypokalemia • Hypomagnesium • Hypocalcemia • Congestive Heart Failure • Digitalis Therapy • Myocardial Ischemia • Hypertension • Renal Impairment

MEDICATION IMPACT

Numerous medications representing a wide range of pharmacologic classes have been implicated in prolonging the QT interval. Most of the medications that prolong the QT interval act by blocking the IKR. However, the clinical implications of drug-induced QTc prolongation is not clear. It is known that some medications that may prolong QT interval but do not cause torsades de pointes, whereas some medications are associated with cardiac arrhythmia without QTc prolongation. Also, the extent in which the QT interval is prolonged may not be directly related to whether or not a medication will predispose a patient to torsades de pointes or cardiac arrhythmias. Table 3 lists some of the more likely culprits causing QTc prolongation.^{4,5}

Table 3



POTENTIAL MEDICATIONS CAUSING QTc PROLONGATION
(list is not comprehensive)^{4,5}

VERY PROBABLY	POSSIBLE IN HIGH-RISK PATIENTS	
Anti-arrhythmic <ul style="list-style-type: none"> - Amiodarone - Disopyramide - Dofetilide - Ibutilide - Procainamide - Quinidine - Sotalol Antipsychotics <ul style="list-style-type: none"> - Thioridazine 	Anti-Infectives <ul style="list-style-type: none"> - Clarithromycin - Erythromycin - Gatifloxacin - Pentamidine - Sparfloxacin Antipsychotics <ul style="list-style-type: none"> - Chlorpromazine - Haloperidol - Olanzapine - Risperidone 	Antidepressants <ul style="list-style-type: none"> - Amitriptyline - Desipramine - Imipramine - Sertraline - Venlafaxine Other <ul style="list-style-type: none"> - Droperidol

* "Very Probable" indicates more than 50 percent of respondents stated they would check an ECG when starting this medication; "Probable" indicates 40-49 percent of respondents stated they would always check an ECG when starting this medication.

PREVENTION AND MINIMIZE QTc PROLONGATION

It is important for clinicians to recognize and assess the risk for QTc prolongation, especially in the elderly population. The elderly commonly have multiple risk factors predisposing them to QTc prolongation that can further lead to complications, hospitalizations, and death. By being able to identify the risk factors, clinicians are able to accurately assess, minimize risk, and monitor their patients in order to provide exceptional quality care.

LISTED ARE SOME SUGGESTIONS IN PREVENTING AND ASSESSING RISK VERSUS BENEFIT OF DRUG-INDUCED QTc PROLONGATION:

- 1 Obtain baseline ECG.
- 2 Identify patient specific risk factors.
 - a. Correct risk factors (i.e. potassium or magnesium) before administering a medication known to cause QTc prolongation.
- 3 Identify medications known to cause QTc prolongation.
 - a. Do not exceed the recommended medication dose.
 - b. Avoid the use of multiple QTc prolonging medications.
 - c. Limit the use of medications in patients with preexisting cardiac disease.
 - d. Identify drug-drug interactions, drug-renal interactions, and drug-hepatic interactions.
- 4 Establish monitoring parameters.
- 5 Reassess risk versus benefit of therapy.
- 6 Periodically obtain ECG for monitoring purposes as well as routine potassium and magnesium.

QTc prolongation increases a patients risk for torsades de pointes, cardiac arrhythmia, and sudden death. Drug-induced QTc prolongation is a common acquired risk factor. With new non-cardiac medications coming to market, the list may continue to grow and is likely to remain a problem in the future. All clinicians need to be aware of the problem and be able to assess patient specific situations. Pharmacists are great resources if questions are to arise concerning treatment regimens and monitoring.

References:

- 1) *Physiology of cardiac conduction and contractility.* <http://www.pathophys.org/physiology-of-cardiac-conduction-and-contractility/>. Published 7 October 2013. Accessed 30 April 2016.
- 2) Antzelevitch C, Sicori S. *Clinical relevance of cardiac arrhythmias generated by afterdepolarizations: role of the M cells in the generation of U wave, triggered activity, and torsades de pointes.* *J AM Coll Cardiol* 1994; 23: 259-77.
- 3) Garson A Jr. *How to measure a QT interval-what is normal?* *AM J Cardiol* 1993; 72: 14B-16B.
- 4) Al-Khatib SM, LaPointe NM, Kramer JM, Califf RM. *What clinicians should know about the QT interval.* *JAMA* 2003; 289:2120-7.
- 5) *Drug-induced prolongation of the QT interval and torsades de pointes.* *Lexicomp.* http://online.lexi.com/lco/action/doc/retrieve/docid/patch_f/5712802. Accessed 30 April 2016.

Absolute Wins DMEPOS Contract as Enteral Supplier

Beginning July 1, 2016, Medicare and Medicaid named Absolute Billing Services a winning supplier of enteral nutrition and feeding supplies throughout Ohio and in Mercer County, Pennsylvania.

Mandated by Congress through the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA), every three years suppliers must bid for the contracts to provide Durable Medical Equipment, Prosthetics, Orthotics and Supplies (DMEPOS) items. Only those who win the contracts can supply these items and be reimbursed by Medicare and Medicaid.

Your current enteral supply provider may no longer be able to fulfill your orders. Visit the link below, click "Find a CBA" and input your zip code to check.

<http://dmecompetitivebid.com/palmetto/cbic.nsf/DocsCat/Home#>

Absolute can provide you with enteral nutrition and feeding supplies as well as urological, wound-care and ostomy supplies. Let us take care of all your medical supplies and equipment needs in one convenient shipment, so you can get back to the business of caring for your patients.

Questions?

Contact Jodi Hull at 330.498.8047 or by email at jhull@abshealth.com.

Implications of Recent Drug Approvals in Older Adults

by Becky Sommers, R.Ph, V.P. Clinical Services

SUVOREXANT	
Brand Name	Belsomra
Indication	Treatment of primary insomnia that improves both sleep onset and maintenance.
Mechanism of Action	The orexin neuropeptide signaling system supports wakefulness, and suvorexant blocks the binding of orexin neuropeptide to receptors, thus suppressing the wake drive.
Dosage	Initial dose of 10mg daily, with a maximum approved dose of 20mg daily. No dose adjustments necessary for renal impairment or advanced age. Scheduled substance (C-IV)
Adverse Effects	Amnesia and problems performing sleep related activities (walking, eating, driving), may be similar to those found in Zolpidem.





EXOABAN	
Brand Name	Savaysa
Indication	1.) Prevention of stroke and systemic embolism in patients with non-valvular atrial fibrillation (NVAF); and 2.) Treatment of deep vein thrombosis (DVT) and pulmonary embolism after 5-10 days of parenteral anticoagulant.
Mechanism of Action	Selectively inhibits free factor Xa and prothrombinase activity, thereby preventing thrombin induced platelet aggregation.
Dosage	1.) Patients with NVAF – 60mg daily with or without food regardless of age. It is not recommended in patients with CrCl >95ml/min. Adjust down to 30mg daily if patients have CrCl of 15-50ml/min. 2.) Patients with DVT or PE – 60mg daily with or without food, initiated 5-10 days of parenteral anticoagulant. The dose is reduced to 30mg daily if CrCl 15-50ml/min., a body weight of 6kg or less or are taking a concomitant P-gp inhibitor.

DROXIDOPA*	
Brand Name	Northera
Indication	Treatment of symptomatic neurogenic orthostatic hypotension (NOH).
Mechanism of Action	Droxidopa is synthesized by dopa-carboxylase to norepinephrine, leading to increase in blood pressure.
Dosage	100mg three times daily with or without food, with a maximum of 600mg three times a day. Not recommended in patients with a glomerular filtration rate (GFR) <30ml/min.
Adverse Effects	Possible supine hypertension.

** Note: The efficacy of droxidopa beyond two weeks has not been established, therefore physicians should use with caution and periodically assess efficacy to ensure benefits outweigh risks for individual patients.*

Annals of Long Term Care: Jan, 2016; pg25-30 Christine Eisenhower, PharmD, BCPS; et al. Implications of recent Drug Approvals for Older Adults

Vaccines: Frequently Asked Questions

Are vaccinations Medicare Part B billable?

Flu and pneumonia vaccines are billable to Medicare Part B. Facilities can roster bill for both the vaccine and administration. Orders for the flu and pneumonia vaccine can be placed at pharmacy under “vaccination” and resident names can be put into the directions for tracking.

What are the HCPC/CPT codes and Fee Screen that should be utilized?

Medicare Part B billing hcpc/cpt codes and Medicare Fee Screens can be updated every year by CMS and should be reviewed before billing. Billing Codes for the 2015-2016 year are:

- Flu Q2035 - admin G0008
- Pneumonia 90732 - admin G0009
- Prevnar 90670 - admin G0009

Is only one pneumonia vaccine Medicare Part B billable?

Pneumonia vaccines were extended to include Prevnar 13 and the resident can have both the pneumonia vaccine and the Prevnar 13 vaccine with both being billable.

What timeframes are vaccinations billable to Medicare Part B?

Flu shots can be reimbursed annually, pneumonia every five years, and Prevnar 13 is a one-time billable item.

How are vaccinations usually dispensed to the facility?

Flu orders will be shipped in multi-dose vials, pneumonia can be shipped in multi- or single-dose as ordered.

Is there a better and more efficient way to administer influenza and pneumonia vaccines?

Vaccine clinics can be scheduled and administered by Absolute Pharmacy personnel, relieving cost of vaccine and labor from the facility. Clinics are held once a year and usually begin to schedule in October.

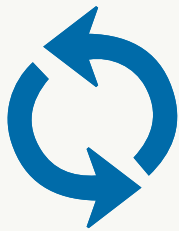
Are TB tests or hepatitis vaccines billable to Medicare Part B?

Tuberculosis tests and hepatitis vaccines are not billable to Medicare Part B.



Absolute Insights

Absolute Pharmacy is Point Click Care Integrated!



Absolute Pharmacy will receive census messages called ADT messages. These census messages are automatically communicated to the pharmacy and include Admission, Discharge and Transfer census changes.



Medication Orders entered into Point Click Care will be automatically sent to Absolute Pharmacy as an ePrescription. Exceptions do apply for IV and Controlled Medication orders.



The check-in process that occurs nightly will link prescription orders dispensed by Absolute Pharmacy to orders entered in Point Click Care leading to an accurate MAR and efficient medication pass.

Next Steps:

- 1** | Contact your facility's Point Click Care Sales Representative.
- 2** | Point Click Care will schedule the facility's implementation with Absolute Pharmacy.
- 3** | After the kick-off call is scheduled, your facility could be live in 30-60 days!

Questions?

Please contact Point Click Care for specific questions regarding costs, timeframes and system requirements.

Please contact **Brandi Clouston at Absolute Pharmacy at 330-498-3715** or email at bnclouston@abshealth.com for pharmacy specific questions.

Absolute Insights

IV Pump Return

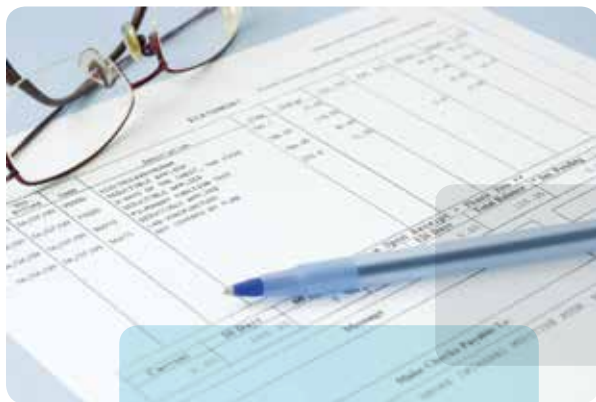
Due to an accreditation mandate by the Centers for Medicare and Medicaid Services, Absolute Pharmacy is required to collect every IV pump after each individual patient use. Upon return to Absolute Pharmacy, the pump will be appropriately cleaned and calibrated.

IV pumps are labeled with the serial number (found on the back of the pump) and sticker stating that the pump is the property of Absolute Pharmacy. Once in patient use, the Daily IV Verification Form will ask for the pump's serial number to be written next to the order. This is to properly track the IV pump's usage and guarantee proper billing.

We appreciate your cooperation in returning these IV pumps in a timely manner. Should Absolute Pharmacy need to send a pump out for repairs beyond that of normal wear and tear, a \$200 charge will be assessed to the facility. If a pump needs to be replaced because of irreparable damage, a \$500 charge to replace the pump will be assessed to the facility.

Please help us keep IV pump costs at a minimum by returning any unused pumps to Absolute Pharmacy as soon as possible.

Split Billing Upon Discharge



Upon resident discharge, medications may be sent home with the resident. There are however many questions that come along with this, particularly related to billing.

What can be 'split billed'?

Any medication that crosses between financial classes may be 'split billed.'

Once pharmacy receives notification of a financial class change, split billing will occur.

Example: Facility is billed for 30 days of a solid, oral medication and the financial class changes during the 30 days, the charges will split to follow the days. If the facility was billed for 30 days and after 10 days there was a financial class change, the facility would receive a credit for the other 20 days.

How do I notify the pharmacy that medications were sent home?

Send a telephone order stating that the resident is being discharged with medications and list the medication.

Can narcotics be sent home with a resident?

Yes. Fill out a telephone order to send to pharmacy and place in the patient chart.

When can a resident get these medications filled at a retail pharmacy?

Assuming the resident has a prescription from the physician, residents should be able to get medications filled at a retail pharmacy two to three days before finishing a punch card that has been taken home.

Absolute Insights



Put a Face to a Name: Theresa Cunningham

1. How long have you worked for Absolute Pharmacy?

A: Six months.

2. What do you do for Absolute Pharmacy?

A: I am the customer service manager.

3. What do you absolutely love about working for Absolute Pharmacy?

A: Technology and innovation.

4. What chore do you absolutely hate doing?

A: Mopping the kitchen floor.

5. What do you enjoy doing the most?

A: Attending sporting events for my kids.

6. What's your favorite song?

A: Pennies from Heaven by Frank Sinatra.

7. If you could choose anyone, who would you pick as your mentor?

A: Oprah Winfrey.

8. If you could take a vacation anywhere in the world, where would it be?

A: Rome, Italy.

UPCOMING EVENTS

LEADINGAGE PA

Hershey, PA, June 15-16

LEADINGAGE OH

Columbus, OH, September 7-8

