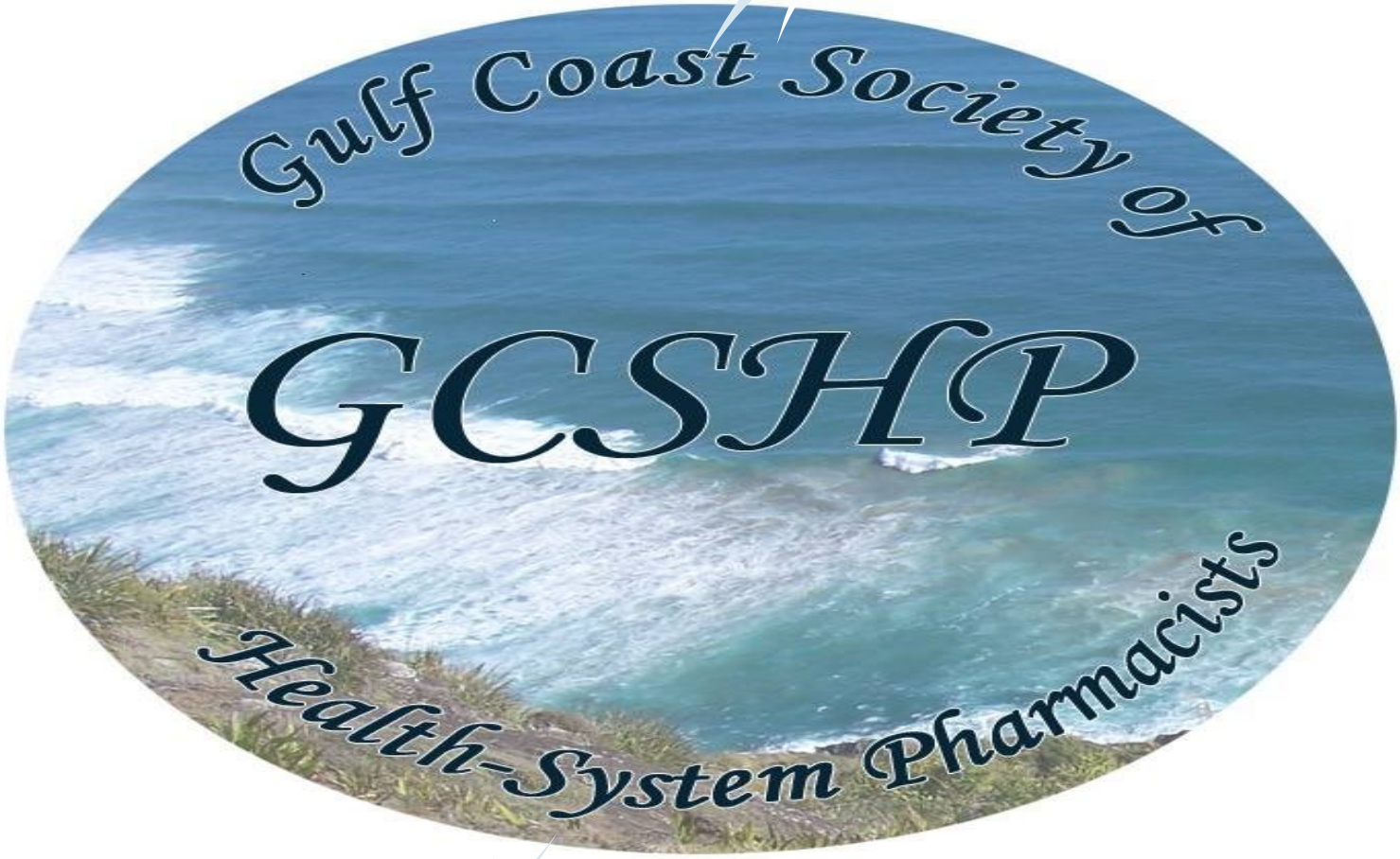
July—September 2016
Summer Issue

Gulf Coast Society of Health-System Pharmacists (GCSHP)



Inside This Issue:

President's Report

Mallory Gessner-Wharton, PharmD, MS, BCPS

Greetings Gulf Coast Society of Health-System Pharmacist Members!

We are off to a great start this year as an organization!

At the TSHP Annual Seminar in April our new officers were inducted. This includes Katie Morneau as President-Elect, Ed McLean as Treasurer and Laura Blackburn as Director. Our Technician Chair, Faith Rutherford, was inducted as the TSHP Technician Chair-Elect and active GCSHP member Rich Cadle was inducted as President-Elect Designee for TSHP. I am excited to see everything these individuals bring to the organization! Many of our members were speakers at CEs presented at Annual Seminar. Thank you to everyone involved in the planning and presenting.

We held our annual Casino Night at St. Arnold's Brewery. There we announced our outstanding member awards to Katie Morneau (Outstanding Pharmacist Member), Mary Taylor (Outstanding Technician Member) and Kaitlyn Wasko (Outstanding Student Member). Congratulations!

At the end of August our TSHP Lobbyist, Brad Shields, gave a very informative presentation on the bills that were voted on in the previous Texas Legislative Session and what are expected to be discussed in the next Texas Legislative Session. It was a great presentation to stay informed about the laws that affect our profession.

Throughout the rest of the newsletter you will learn of all the other events we hosted as well.

Some of our goals for the rest of the year include additional CE presentations, hosting networking events and service events outside of the inner loop area and increasing our technician membership. If you are interested in becoming more involved, please email: gcshp.membership@gmail.com.

GCSHP Merch

Keep an eye out at future events for official GCSHP merchandise. Support the organization and look stylish at the same time!

GCSHP Annual Awards—2016

Outstanding Pharmacist Member

Katie Morneau, PharmD, BCPS

Outstanding Pharmacy Technician Member

Mary Taylor, CPhT

Outstanding Pharmacy Student Member

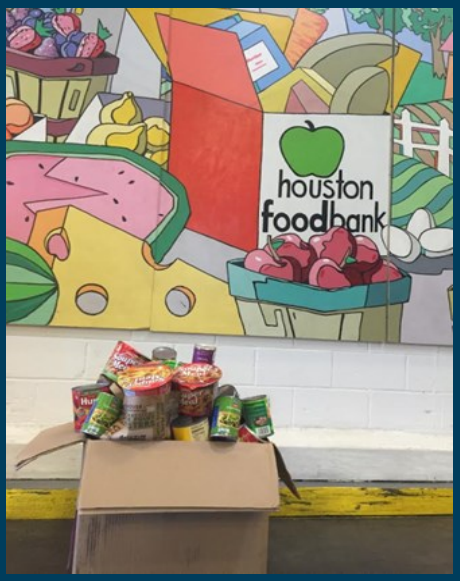
Kaitlyn Wasko

PharmD Candidate—
University of Houston CoP,
Class of 2017

GCSHP 4th Annual Casino Night

Kyle Munch, PharmD, MS

GCSHP held its 4th annual Casino Night in July at Saint Arnold's Brewery. The event was a great success with over 100 attendees enjoying an evening of networking, games and fun!



110 lbs. = 92 meals

Casino Night Food Drive - Houston Food Bank

Elizabeth Sulaica, PharmD

Thank you to everyone who contributed to the GCSHP Casino Night Food Drive! In 2015, GCSHP was able to raise 40 pounds of food to donate to the Houston Food Bank. This year, we were able to donate a total of 110 pounds of food! Even more exciting, 110 pounds of canned food is equivalent to approximately 92 meals for families around the Houston area. In 2015, the Houston Food Bank was able to distribute 79,000,000 meals. This year, their goal is to increase to 100,000,000 meals. In conjunction with Feeding America, for every dollar donated, 11 meals are distributed. Great job everybody!

2017 TSHP Annual Seminar

Galveston, TX, April 28-30, 2017: San Luis Resort & Spa

- If you are an educator and looking for an opportunity to present, consider applying for TSHP's Speakers' Bureau. If you would like to be considered for the 2017 Annual Seminar, applications must be completed by November 1, 2016. Visit TSHP website for more detail or click here: https://www.tshp.org/tshp-speakers-bureau.html

- The TSHP Council on Organizational Affairs is accepting nominations for TSHP members who have contributed through professional, educational, organizational, or community service to receive the TSHP Special Recognition Award. If you know someone who deserves recognition for their service, please click here: https://www.tshp.org/special-recognition-award.html for more information and to submit your nomination. Nominations will be reviewed quarterly.

2017 TSHP SILENT AUCTION DONATIONS NEEDED!

The TSHP-PAC Silent Auction, held during the TSHP Annual Seminar, is the PAC's annual fund-raising event. Monies raised from this event help to ensure that our friends in the legislature know that we appreciate the efforts they have made, and continue to make, on behalf of the TSHP, the Texas Pharmacy community and YOUR patients.

What Can I Donate? Here are a few of the many wonderful items that have been donated:

- **Restaurants, food and regional items:** a variety of fantastic wines and gift certificates for restaurants
- **Pharmacy collectibles:** mortars and pestles, antiques, china, apothecary jars, pillboxes, signs and much more
- **Artwork and photography:** oil and watercolor paintings and special photographs
- **Clothing and jewelry:** hand-made clothing and accessories, handcrafted and fine jewelry
- **Gift Baskets:** the sky is the limit!

When Can I Donate? You can start donating today! You can submit your donation form today by clicking here: https://www.tshp.org/contributions.html. So that we can be prepared for the Silent Auction, we ask that you submit your donation forms by April 21st.

Save the Date:

2017 TSHP Annual Seminar

Galveston, Texas

April 28-30, 2017

San Luis Resort & Spa

GCSHP Volunteer Event

Houston Children's Charity

Reba Forbess, PharmD

Houston Children's Charity (HCC) is a non-profit organization dedicated to improving the quality of life for Houston's underprivileged, abused and disabled children. This August, GCSHP teamed up with HCC to help provide children in the Houston area with school supplies and uniforms to give hope to otherwise struggling families to make sure their children have the best possible start for the 2016-2017 school year.

Through membership donations, GCSHP was able to provide the HCC Closet with $600 worth of school uniforms and $90 in monetary donations. The HCC closet provides children the opportunity to shop in a store front set-up with every item being free of charge for the families. Over 100 families come to the store each month, with even more during the months of August and September for back to school.

Additionally, a few GCSHP members were on hand to help with HCC Back2School backpack distribution. This annual distribution provides school age children with a backpack, school supplies, books, and toiletries to give them a head start with an ever-growing list of school supplies required by local area schools. The rewards of seeing the smiles on the children was well worth the heat!

Thanks to all the GCSHP members that helped HCC start so many children off on the right foot for the upcoming school year!

GCSHP Upcoming Events:

- Networking Social: Houston—8th Wonder Brewery
    - ◊ Thursday, October 13th: 6pm-9pm
- Networking Social: The Woodlands—Grimaldi's Pizzeria
    - ◊ Wednesday, November 9th: 6pm-9pm

ASHP Upcoming Events:

- 21st Annual ASHP Conference for Pharmacy Leaders—October 17-18, 2016 in Chicago, Illinois
- 51st ASHP Midyear Clinical Meeting and Exhibition—December 4-8,2016 in Las Vegas, Nevada

Resident Section

Metformin Renal Adjustment Changes

Joshua Blackwell, PharmD
PGY2/MS Health System Pharmacy Administration Resident
CHI St. Luke's Health – Baylor St. Luke's Medical Center

In the United States, there are 29.1 million individuals who have diabetes with 8.1 million who may be undiagnosed. [1] As the prevalence of diabetes rises, there is an increased risk for patients to develop cardiovascular diseases and early mortality. Metformin is a common first-line pharmacologic therapy used in patients with type-II diabetes and, in 2014, metformin or metformin-containing products were dispensed in outpatient pharmacies to approximately 14.4 million patients. [2] Metformin is a biguanide, which decreases hepatic glucose production, decreases intestinal glucose absorption, and improves insulin sensitivity ultimately increasing peripheral glucose uptake and utilization. [3] The normal dosing of this medication depends on the formulation, immediate release versus extended release. It is recommended to start at a low dose and gradually increase the dose with 1-2 weeks between dose titrations to minimize gastrointestinal symptoms. Current dosing recommendations state for serum creatinine levels of greater than 1.5 for men and greater than 1.4 for women, metformin use is contraindicated. Although metformin labeling strongly recommends against metformin use in these patients, the Food and Drug Administration (FDA) is requiring labeling changes to expand metformin's use in certain patients with reduced renal function.

The FDA's recommendation is supported by several literature sources. The study conducted by Rachmani, et. al. evaluated the safety of continued metformin use in patients with contraindications to medication use. The study population was 393 patients with type-II diabetes with serum creatinine ranging from 1.5-2.5 mg/dL, and patients were randomized to either continue or to stop metformin and followed for four years. Results showed patients who discontinued the medication had an increase in body mass index and higher hemoglobin A1C. There were no cases of lactic acidosis as well. The study concluded patients tolerating the medication, even with mild renal impairment possibly with serum creatinine as high as 2.5 mg/dL, may continue taking metformin.[4]

Kamber, et. al. was a substudy within a longitudinal observational study, which evaluated 1279 patients to determine lactic acidosis incidences in patients with type-II diabetes. Out of the study populations, 425 patients were taking metformin and of these, 18.4% had eGFR < 60mL/min. Out of the 25 patients who experience lactic acidosis over the course of the 13.2-year study follow-up, five patients experienced one or more significant comorbidities that can be associated with lactic acidosis (renal failure, myocardial infarction, cardiogenic shock or thromboembolic disease). Although one patient out of the five described did not have a serum creatinine documented, the other four patients had serum creatinine ranging from 0.89-10.63 mg/dL (see table below). The authors concluded the incidence of lactic acidosis in patients with type-II diabetes is low; however, lactic acidosis can increase with age and in patients with an extensive history of diabetes which can increase the risk of cardiovascular and renal disease.[5]

Ekström, et. al. conducted an observational study to evaluate the effectiveness and safety of metformin in 51,675 type-II patients with diabetes with varying renal function. Results showed metformin, in comparison to other treatment, reduced risks of acidosis or serious infection (adjusted HR 0.85, 95% CI 0.74 to 0.97) and all-cause mortality (HR 0.87, 95% CI 0.77 to 0.99), and in patients with eGFR 45-60 ml/min/1.73 m^2. There were no increased risks of all-cause mortality, acidosis or serious infection, or cardiovascular disease in patients with eGFR 30-45 ml/min/1.73 m^2. Authors concluded patients with renal impairment did not have an increased risk of the above conditions, and metformin use benefits outweigh the risk of severe side effects in patients with type-II diabetes.[6]

The FDA has reviewed the literature above and others to provide companies with labeling recommendations which include[7]:

- Obtaining the patient's eGFR prior to starting metformin and having the medication contraindicated in patients with eGFR < 30 mL/min/1.73m^2. Starting metformin in patients with eGFR < 45 mL/min/m^2 is not recommended
    - After starting metformin and patient's eGFR becomes less than 45, assess risks versus benefits. Discontinue metformin if patient's renal function becomes less than 30
- Patients on metformin should have an eGFR measured at least annually, and patients at an increased risk for developing renal impairment (i.e. elderly) should have renal function assessed more frequently
- Discontinue metformin at the time or before an iodinated contrast imaging procedure in patients with eGFR 30-60; patients with history of liver disease, alcoholism, or heart failure; or patients who will be administered intra-arterial iodinated contrast. Patients renal function should be revaluated 48 hours post imaging procedure and metformin should be restarted once renal function is stable

Metformin, along with lifestyle modifications, can have significant benefits in patients with type-II diabetes. Since all patients are dynamic, it is important to look at the overall clinical picture when administering or dosing patients with metformin. As the literature suggests and FDA recommends, patients with mild to moderate renal insufficiency can continue metformin; however, proper monitoring should be in place to ensure the patient is not experiencing adverse drug events from continuing the medication.

Resident Section

Metformin Renal Adjustment Changes

Joshua Blackwell, PharmD
PGY2/MS Health System Pharmacy Administration Resident
CHI St. Luke's Health – Baylor St. Luke's Medical Center

Brand Name	Active Ingredients
Actoplus Met	metformin and pioglitazone
Actoplus Met XR	metformin and pioglitazone, extended release
Avandamet	metformin and rosiglitazone
Fortamet	metformin extended release
Glucophage	metformin
Glucophage XR	metformin extended release
Glucovance	metformin and glyburide
Glumetza	metformin extended release
Invokamet	metformin and canagliflozin
Janumet	metformin and sitagliptin
Janumet XR	metformin and sitagliptin, extended release
Jentadueto	metformin and linagliptin
Kazano	metformin and alogliptin
Kombiglyze XR	metformin and saxagliptin, extended release
Prandimet	metformin and repaglinide
Riomet	metformin
Synjardy	metformin and empagliflozin
Xigduo XR	metformin and dapagliflozin, extended release

*These medicines are also available in multiple generic versions

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Student Section

Update to Hospital-acquired and Ventilator-associated Pneumonia Recommendations: 2016 IDSA and ATS Guidelines

Jennie Do, PharmD Candidate 2017, University of Houston College of Pharmacy

Hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) are still among the most commonly seen hospital acquired infections with studies showing marked increases in mechanical ventilation and hospitalization days as well as increased mortality. The Infectious Diseases Society of America (IDSA) and the American Thoracic Society (ATS) recently published updated guidelines for the diagnosis and treatment of HAP and VAP. The new guidelines have maintained the definition of pneumonia (new lung infiltrate along with presentation of infectious etiology) as well as HAP (pneumonia occurring more than or equal to 48 hours after admission) and VAP (pneumonia occurring more than 48 hours after intubation).

The major differences between the current 2016 guidelines and the previously published, 2005 guidelines, include:

- use of Grading of Recommendation Assessment, Development, and Evaluation (GRADE) methodology to evaluate the available evidence whereby recommendations are either graded as "strong" or "weak" followed by the quality of evidence (i.e. low, moderate etc.)
- removal of healthcare-associated pneumonia (HCAP) as a distinct group
- recommendation for hospitals to use antibiograms to aid clinicians in choosing optimal antimicrobial agents, and
- removal of preventative recommendations (due to the already published guidelines by SHEA – last updated in 2014).

In addition, the 2016 guidelines include a section regarding the use of biomarkers (PCT, sTREM-1, CRP) and the Clinical Pulmonary Infection Score (CPIS) to initiate antibiotic therapy; however, none are recommended to use for deciding whether or not to initiate antibiotic therapy.

Below are the recommendations for empiric therapy for VAP and HAP based on the 2016 guidelines. Patients' regimens are based off of MDR risk factors, risk factors for specific organisms, as well as patient- and hospital specific characteristics. Therapy can be de-escalated based on cultures and sensitivities as well as patient presentation. For both VAP and HAP a 7 day course of therapy is recommended; however, it is noted that a shorter or longer duration of therapy may be indicated based off of the patient's clinical status.

Ventilator Associated Pneumonia (VAP) & Hospital Acquired Pneumonia (HAP) – Empiric Therapy	
All empiric regimens for **VAP** or **HAP** Guideline Recommendations: aminoglycosides (**VAP & HAP**) and colistin (**VAP** only) are 2nd line options compared to other agents with adequate gram-negative activity and should be avoided	Agent with S. *aureus*, *Pseudomonas aeruginosa*, and gram-negative bacilli coverage **(piperacillin-tazobactam, cefepime, levofloxacin, imipenem, or meropenem)**
VAP + risk factor for MDR VAP [a] **HAP** + risk factor for MRSA [b] or high risk for mortality [c] **VAP** or **HAP** where patient is being treated in unit where > 10% (**VAP**) or > 20% (**HAP**) of S. *aureus* isolates are methicillin resistant, or patient is in unit where percent of S. *aureus* isolates is unknown	Add a MRSA agent (vancomycin or linezolid) to regimen
VAP + 1 of the following (risk factor for MDR VAP [a], patient being treated in unit where > 10% of gram-negative isolates are resistant to an agent considered for monotherapy, or patient in unit where percent of antimicrobial susceptibility rates are unknown) **HAP** -+ risk factor for *Pseudomonas* or other gram-negative infection [b] or high risk for mortality [c] **VAP** or **HAP** where patient has structural lung disease increasing risk for gram negative infection (i.e. bronchiectasis or cystic fibrosis)	2 antipseudomonal agent (one beta-lactam based and one non beta-lactam based) regimen [d] indicated
[a] Risk factors for MDR VAP – Prior IV antibiotic use within 90 days, septic shock at time of VAP, ARDS preceding VAP, 5 or more days of hospitalization prior to occurrence of VAP, acute renal replacement therapy prior to VAP onset [b] Risk factor for MRSA/MDR HAP/MDR *Pseudomonas* VAP or HAP – Prior IV antibiotic use within 90 days [c] High risk for mortality – Ventilator support due to HAP or septic shock [d] If alternative agents cannot be used, aztreonam may be used as an adjunctive agent with another beta-lactam based agent	

Student Section

Update to Hospital-acquired and Ventilator-associated Pneumonia Recommendations: 2016 IDSA and ATS Guidelines

Jennie Do, PharmD Candidate 2017, University of Houston College of Pharmacy

Antibiotic Coverage	Specific Antibiotics & Dosing
MRSA	Vancomycin 15 mg/kg IV Q 8-12 h
	Linezolid 600 mg IV Q 12 h
Beta-Lactam Based Antipseudomonal	Piperacillin-tazobactam 4.5 g IV Q 6 h
	Cefepime 2 g IV Q 8 h
	Ceftazidime 2 g IV Q 8 h
	Imipenem 500 mg IV Q 6 h
	Meropenem 1 g IV Q 8 h
	Aztreonam [a] 2 g IV Q 8 h
Non Beta-Lactam Based Antipseudomonal	Ciprofloxacin 400 mg IV Q 8 h
	Levofloxacin 750 mg IV Q 24 h
	Amikacin 15-20 mg/kg IV Q 24 h [b, d]
	Gentamicin 5-7 mg/kg IV Q 24 h [b, d]
	Tobramycin 5-7 mg/kg IV Q 24 h [b, d]
	Colistin 5 mg/kg IV x 1 (loading dose), followed by 2.5 mg x (1.5 x CrCl + 30) IV Q 12 h [c, d] (maintenance dose)
	Polymyxin B 2.5-3 mg/kg /day divided into 2 IV doses [c, d]
Antibiotic dosing in patients should be based on pharmacokinetic and pharmacodynamic data (when applicable: use of antibiotic blood concentrations, extended and continuous infusions, and weight-base dosing) [a] Aztreonam is only an adjunctive agent and if use is warranted, regimen must include coverage for MSSA [b] Aminoglycosides' role in HAP - Only recommended in patients with high risk of mortality [c] Colistin and Polymyxin B only have recommendations in VAP therapy; they are not included in HAP therapy [d] In patients with definitive gram-negative bacilli infection only susceptible to aminoglycosides or polymyxins, both inhaled and systemic antibiotics are recommended as opposed to only systemic antibiotics	

References:

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