Annual ACCP Clinical Pharmacy Challenge: 2014 Winners

Alex Olinger, South Dakota State University

Over 104 pharmacy schools from 44 states competed in the 2014 ACCP Clinical Pharmacy Challenge. The challenge experienced its largest group of competing teams and stiffest competition in its fifth year. For those who have not seen these questions before, they make pharmacotherapeutics tests look like a cakewalk. To put it in perspective, the clinical case in the final round dealt with nephrotic syndrome in a pediatric patient. It truly is a test of pharmacy knowledge and an honor to win it all. This year’s 2014 winners were Matt Watson (Chandler, IN).

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Clinical Case:

HPI: A 32-year-old man is admitted to the intensive care unit (ICU) with shortness of breath, dyspnea, fever, and acute renal dysfunction. He also reports a 2-month history of fatigue and weight loss and a recent history of sore throat and altered taste. PMH: GERD (gastroesophageal reflux disease); asthma

SH: Admits alcohol use (average 1 or 2 drinks per day), tobacco use (1 pack/day), and marijuana use (1 or 2 blunts per week). Sexually active with 15 lifetime partners (male and female partners). Admits inconsistent condom use; Current Medications: Omeprazole 20 mg orally twice daily; fluticasone/salmeterol 500/50 mg inhaler 1 puff twice daily; albuterol 90 mcg inhaler 1 or 2 puffs every 6 hours as needed for shortness of breath.

Allergies: Penicillin

Vital Signs: Blood pressure 110/62 mm Hg; heart rate 120 beats/minute; temperature 39°C; respiratory rate 25 breaths/minute; O₂ sat 94%; weight 62 kg; height 74 inches (188 cm).

Labs: WBC 4.7 x 10³ cells/mm³ (SI 4.7 x 10⁹/L); hgb 11.7 mg/dL (SI 117g/L); hct 34.5% (SI 0.345); plt: 75,000/mm³ (SI 75 x10⁹/L); BUN: 50 mg/dL (SI 17.85 micromoles/L); SCr: 3.5 mg/dL HIV-1/-2 antibody reactive; blood and sputum cultures pending; Procedure Data: Chest radiograph: Diffuse bilateral alveolar infiltrates

1. The physician would like to initiate the patient on therapy for esophageal candidiasis. Which is the most appropriate antimicrobial regimen for this indication?
2. The patient is admitted to the ICU in respiratory distress, where an arterial blood gas reveals an oxygen partial pressure of 62 mm Hg and his physicians suspect Pneumocystis jiroveci pneumonia. Which regimen would you recommend for management of his suspected Pneumocystis pneumonia?
3. The patient’s western blot returns, confirming the diagnosis of HIV-1. He also has a CD4 and HIV RNA viral load drawn, which are 125 cells/microliter and 75,000 copies/mL, respectively. His physician would like to initiate antiretroviral therapy. Which additional testing would you recommend to help select an appropriate regimen?
April 2013, the Board of Pharmacy Specialties (BPS) Board of Directors approved the petitions for specialties in pediatric and critical care pharmacy as the 7th and 8th BPS specialty. The process began with petitions submitted jointly by several pharmacy organizations, including the American College of Clinical Pharmacy and American Society of Health-System Pharmacists. In order for these specialties to be approved, each petition was reviewed based on BPS recognition criteria, specifically the need and demand for specialized practitioners to improve patient care by fulfilling responsibilities within a practice setting. Each petition needed to establish a sufficient number of practitioners to distinguish their specialty based on their practice having a specialized function and knowledge, which differentiates them from a recent PharmD graduate. By having specialized knowledge of a pharmacy practice, the petitions must provide sources for continuous specialized education programs such as post-graduate training programs and scientific and clinical literature.

Since receiving approval, specialty councils have been appointed based on reviewed nominations by the BPS Board. These councils have the task of developing

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ACCP Chapter Spotlight: Nova Southeastern University’s Research Mentoring Program
Heather Jarvis, Nova Southeastern University

The SCCP Student Chapter at Nova Southeastern University, College of Pharmacy, has created and successfully implemented a Research Mentoring Program (RMP) for the past four years. Student pharmacists are paired up with current faculty based on similar interests to assist with ongoing projects, literature reviews, and survey research. In addition, RMP consists of monthly workshops which assist students in creating and presenting their research projects. Workshops include topics such as: what is research, how to find and use resources, IRB, basic statistics, research methodology, poster layouts, and what faculty projects are available to participate in.

This program provides opportunities to students

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How did you guys prepare for the Clinical Challenge?

**Matt:** In order to prepare for the Clinical Challenge, we first looked at the sample questions from the previous year on the ACCP website which allowed us to see the level and content of questions we could potentially be asked. Also, the sample questions documented potential topics that we could see in the jeopardy round and we focused our efforts in studying those. Each of us would pick separate topics to study so we could cover a large amount of material.

**Brandon:** Prior to the online rounds, there wasn't much preparation. We certainly utilized the practice materials available to us on the ACCP website, but much of what we learned was through the errors in our previous rounds. We would always examine the questions we missed and discuss why we missed it, whether it be time constraints, gaps in knowledge, or other reasons.

**Matt:** Prior to the live rounds, we did split up the common topics found in the Jeopardy segment between the three of us. Our studying wasn't extremely in-depth, but generally a more complete surface understanding of a topic and its concepts. However, in my opinion, the primary reason for our success was likely our motivation to learn throughout Purdue's great curriculum and the teaching that we received throughout the PharmD program.

What does this win mean for you and for your school?

**Brandon:** It was definitely exciting for the three of us. We loved our school, and valued the education we received. There were quite a few of our professors that are members, and we received congratulations from all of our departments in our College of Pharmacy. We also pride ourselves in having the ability to detect clinical therapeutic options and treat patients as best we can, so on that level, it is nice to know that we have been successful so far in that endeavor. It was also nice to be recognized on a national stage, and compete against ridiculously talented students from other schools. I don't think I will ever forget this experience.

**Nick:** It was all of your guys first times down at the ACCP Annual Meeting and first time in Austin. Besides the competition, what did you guys enjoy the most about the meeting?

**Nick:** I really enjoyed the PRN Focus Sessions. They discussed interesting and current topics in pharmacy. Some of our favorites were the toxicology session, medical marijuana and derivatives and the impact on pharmacists, and dual antiplatelet therapy session and cases. Other than that, we definitely enjoyed the Texas barbeque.

How did each of you motivate each other and keep up the team's spirits?

**Matt:** We did a good job of asking each other questions to practice how well we knew certain material which inevitably would lead to someone asking a follow-up question and the cycle would continue. We also did a good job of congratulating the person who knew an answer and not blame them if they happened to answer incorrectly.

**Brandon:** We were all extremely grateful to come to Austin and compete, so we considered it a baseline victory. We all enjoy a light-hearted competitive atmosphere and the fact that the win meant a lot.

What advice do you have for students wanting to participate in clinical challenges?

**Matt:** It is important to retain the information that you learn throughout pharmacy school and not erase it from your mind after every test. This can be challenging, however, in order to be successful in this type of competition, being able to recall information quickly is key. Definitely easier said than done. Also, if you think you know what diaphoresis is, wait until you are sitting at the table during the competition at the annual meeting.

**Nick:** There seemed to be a different type of questions. Some seem like they are very drug specific and you either know it or you don't. The other set of questions were case based and more broad. With these questions, you almost have to go with your gut feeling. Although you may not be able to verbalize your rationale or fully explain why at that moment, especially when you're up on that stage, you have to go with it. When we had to answer questions fast in a case, we just trusted our training and rolled with our gut. And the majority of the time, it was right. So for students pick your battles, but if you have a strong feeling, trust yourself.

They would like to give special thanks to faculty advisor Dr. Zach Weber and all their professors at Purdue. Matt plans to pursue a PGY-1 residency and would like to pursue critical care, internal medicine or infectious disease. Brandon and Nick plan on continuing their education and training at Indiana University School of Medicine.
These councils have the task of developing the content outline (domains) for the certification exam, evaluating submitted questions and reviewing the results of the 200-question exam prior to release. Currently, both specialty councils for pediatrics and critical care pharmacy are in the process of creating a question database from submissions by other practitioners. From the database, the 200-question exam will be generated randomly based on the percentage of each domain outlined by the council. The first exams for the pediatric and critical care pharmacy specialties are tentatively scheduled for the Fall 2015. For more information regarding Pharmacy Specialties, please visit http://www.bpsweb.org.

Reference:
"You are stranded on a deserted island full of mystery, intrigue, and the unknown. Lucky for you, you are able to acquire an unlimited supply of one antibiotic to protect you against anything that you may encounter. Which one antibiotic would you request and why?"

Our thought process was to think about what most likely would kill us if we were alone as otherwise reasonably healthy individuals. Antibiotics have had a significant impact in treating or preventing many infections that were previously fatal, or left individuals with severe disabilities. Therefore, antibiotics would be crucial, especially if you fell and broke bones or got an abscessed tooth? We are sure Tom Hanks character in CastAway would have benefited from some pre-op antibiotics! But which antibiotic? First, we thought about what kind of bacteria would be most prevalent on a water-surrounded island. The answer was Pseudomonas! Therefore, we needed at least a broad spectrum antibiotic that covers Pseudomonas. After much discussion, we decided to go with IV piperacillin/tazobactam (Zosyn). Zosyn is sufficiently broad spectrum that it covers every major class of bacteria and being relatively new, it has not developed resistance yet. Zosyn is a penicillin/beta lactamase inhibitor, which covers Staphylococcus, Streptococcus, and Enterococcus species, Enterobacteriaceae, H. influenza, Pseudomonas, and both gram positive and negative anaerobes. Zosyn also does not require safety lab monitoring (such as vancomycin), and would be a safer option since those services are likely not available. It does require some renal adjustment in severe impairment, but being young and otherwise healthy individuals, we do not require that unless we were to develop acute renal injuries. It is unfortunately only available IV and we will probably have to perform some unique survival procedures to administer it.

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JOIN US FOR THE NEXT STUDENT CHAPTER CHALLENGE:
If you could market a new drug to provide you with a super power, what would it be? What would it be called? By which route and how often would this drug need to be taken?