VOLUSION...ASCLS SD

Grassroots explosion of VOICE, VALUE, VISION

Official publication of the American Society for Clinical Laboratory Science ~ South Dakota

TOPIC QUICK LINKS

VOLUSION....ASCLS-SD is published quarterly and is made available to all ASCLS SD members in electronic format. The current issue and past issues will also be available for on-line viewing on the Society's web page: www.ascls-sd.org The co-editors reserve the right to edit content and length of material to meet publication specifications.

All ASCLS SD members are invited to submit articles of interest to the co-editors for publication in future issues.

South Dakota; Truly MEMBERSHIP MATTERS!

Pat Tille
ASCLS-SD President
2014-2015

As we are nearing another year and approaching the annual ASCLS Meeting to be held in Atlanta Georgia, July 28-August 1, it is time for me to summarize this year and bid you farewell as your state president. As with my past two terms as president, I am grateful for all the committee chairs, committee members, board members and all the general membership. During my previous two terms as president, the ASCLS-SD society experienced a growth in membership. However, this year has surpassed my expectations. Through everyone's efforts, ASCLS-SD has reached a record membership of **201**active members. This can only be accomplished through everyone's dedication and participation. As a result, ASCLS SD will have 6 total delegates representing YOUR interests at the national meeting; an increase in 1, due to the increase in membership.

Secondly, after numerous drafts and much discussion, the student/new professional committee put together a travel grant policy and procedure to send two additional members to the annual meeting. This year, two travel grants we awarded. That makes for a total of 8 sponsored members attending the meeting. This is great representation from SD and I look forward to working with them as they learn about the new initiatives, opportunities and challenges as we move forward into the next year.

As the outgoing president, I will remain a continuous supporter of SD, and as in my campaign, and major reason I agreed to serve a third term as president, was to mentor and encourage students and new members, including returning members or practicing professionals who have now joined ASCLS, to become involved and be a part of the organization. I feel that ASCLS SD has had a great and successful year, but we have new challenges ahead.

First and foremost, keep yourself and your colleagues engaged. It is imperative to keep our membership active and growing. Second, with budget cuts and travel costs escalating, we need to consider options for meeting schedules and venues. There is a committee taskforce looking at our meeting structure and offerings, so watch for more updates in the future. And finally, health care is changing...it is important that you understand and keep informed on regulatory issues as well as personal and billing initiatives to maintain our professional position in health care to always insure the best quality care to our patients.

Again, in closing, thank you for the opportunity to serve as your president. I have appreciated the support, the friendships and as always the memories of working with such a great group of professionals. Soon to be Past-president.... Thank you

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ASCLS-SD in Watertown, SD

This year the spring one-day meeting was held in Watertown, SD. This one day meeting was an opportunity to receive continuing education in our profession, but to also elect the new ASCLS-SD Board of Directors for 2015-2016. The one day meeting was also a chance to recognize those individuals for their dedication and promotion of the profession, along with scholarship winners.

2015 Scholarship Winners.
Left to right: Alissa Neigel, Bridget Parsons, and Amanda Horn. All are students in the South Dakota State University MLS Program. Not Pictured: Tracy Howe and Amber Ziebrt also received scholarships and both are enrolled in the Mitchell Technical School for MLT

Detection and Development of AmpC Resistance

By: Stephanie Jacobsen, MS, MT(ASCP)

Scientific Assembly Chair: Microbiology

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Increasing resistance of bacterial microbes to the Beta-Lactam antimicrobials is not a new concept, especially those which produce the Beta-Lactamase enzyme. The Ambler system is the most widely utilized system to categorized the Beta-Lactamases into 4 classes (A, B, C and D) based on their amino acid sequences.[1] Class A, C and D are distinguished by a serine group and Class B is structurally different and therefore known as the metallo-beta-lactamases. Class A and D tend to show increasing resistance to the Penicillins and Cephalosporins; whereas Group C, also known as AmpC, is the class most notable for its ever increasing resistance to the Penicillins, cephalosporins and recently the carbapenems.

Organisms can obtain the AmpC genetically on its chromosome or acquired through a plasmid.[2] The organisms that have the AmpC gene chromosomally are distinguished by the acronym MYSPACE (*Morgenella* spp, *Yersina enterocolitica*, *Serratia* spp., *Providencia* spp., *Aeromonas* spp., *Citrobacter* spp., and *Enterobacter* spp). The MYSPACE organisms express their AmpC gene constituitively, but do not develop Beta-Lactam resistance (specifically carbepenem resistance) unless there is a mutation that alters the membrane porin channels.[3,4]

MYSPACE organisms can also contain the AmpC plasmid that can allow for inducible resistance with prolonged therapy with 3rd generation cephalosprins and the penicillins. AmpC is no longer restricted to the MYSPACE organisms and is also showing increased presence in the Enterobacteriacae. These types of organisms that obtain the AmpC through plasmids can have a mutation in the AmpC regulator gene that leads to hyperproduction and increased resistance to the Penicillins and Cephalosporins; ultimately creating the organisms known as Extended spectrum Beta-Lactamases (ESBL's)[4,5].

Carbapenems are the preferred treatment for ESBL organisms[6], therefore the Enterobacteriacae that become affected by the hyperproduction of AmpC can also develop the mutation in the membrane porin channels resulting in carbapenem resistant Enterobacteriacae (CRE). Continuing to actively monitor for the AmpC gene and potential development of a resistance mechanism is essential to monitor and hopefully prevent the catastrophic potential of carbapenem resistant superbugs.

Sources:

1. Barry,G.H. and Barlow,M. Revised Ambler Classification of β-Lactamases. Journal of Antimicrobial Chemotherapy, June 2005;55:1050–1051.
2. Hanson N.D. AmpC β-lactamases: what do we need to know for the future? Journal of Antimicrobial Chemotherapy. May 2003;52:2–4.

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3. Wozniak A, Villagra N.A, Undabarrena A, Gallardo N, etal. Porin alterations present in non-carbapenemase-producing Enterobacteriaceae with high and intermediate levels of carbapenem resistance in Chile. Journal of Medical Microbiology. September 2012;61(9):1270-1279.
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5. Gupta N, Limbago B.M, Patel J.B, and Kallen A.J. Carbapenem-Resistant Enterobacteriaceae: Epidemiology and Prevention. Clinical Infectious Diseases July 2011;53(1):60–67
6. Towne TG, Lewis JS 2nd, Herrera M, Wickes B, Jorgensen J.H. Detection of SHV-type extended-spectrum beta-lactamase in Enterobacter isolates. Journal of Clinical Microbiology. January 2010;48(1):298-9

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www.ascls-sd.org

ASCLS Region V
www.ascls-sd.org/asclsregionv

ASCLS Region V Fall Symposium
www.ascls-sd.org/region-v-meeting

ASCLS Region V Tri-State Leadership Academy
www.ascls-sd.org/tri-state-leadership-academy

Membership Matters

Above: Keys to the Future honored at the ASCLS-SD meeting in Watertown, SD. Stephanie Jacobsen and Bridget Parsons. Not Pictured: Jennifer Keimig

Below:The Student Leadership Award was given to Bridget Parsons for her dedication and promotion of the profession as the Student Forum Representative for SD and Region V. From Left to Right: PresidentPat Tille, Bridget Parsons, and President-elect Stacie Lansink.

ASCLS
www.ascls.org

EVENT CALENDAR

ASCLS National Meeting
July 28-Aug 1
Atlanta GA

ASCLS Region V Meeting
Oct 1-2
Alexandria, MN

ASCLS-SD
Fall Meeting
Nov 5-6
Cedar Shore Resort
Chamberlain, SD

Stacie Lansink- President, Elect
2014-2015

Anti-Phospholipid Antibodies: A Case Study

A 29 year-old female presented with a dry cough, shortness of breath, chest pain and extreme fatigue. The physician ordered a white blood count that was elevated, and a chest x-ray that indicated bilateral pneumonia.

The patient was admitted to the hospital for IV fluids and antibiotics and was released a few days later where she started experiencing fluid buildup. She went to her physician where her white blood count was still increased. The patient was readmitted to the hospital for more IV antibiotics and the physician ordered more laboratory tests with the following results:

CBC and Differentials:

WBC	12.7 X 10^9/L		Neutrophils	41%
RBC	5.7 X 10^{12}/L		Lymphocytes	46%
Hgb	17.0 g/dL		Monocytes	8%
Hct	51.4%		Eosinophils	2%
MCV	90.2 fl		Basophils	1%
Platelets	166 X 10^9/L			

Chemistry:

Sodium	141 mmol/L	(135-145 mmol/L)
Potassium	4.9 mmol/L	(3.6-5.2 mmol/L)
Phosphorus	4.0 mg/dL	(2.5-4.5 mg/dL)
Glucose	98 mg/dL	(70-140 mg/dL)
Creatinine	1.2 mg/dL	(0.6-1.1 mg/dL)
BUN	23 mg/dL	(6-21 mg/dL)
Chloride	100 mmol/L	(100-108 mmol/L)
CO_2	24 mmol/L	(20-29 mmol/L)
Anion Gap	14	(7-15)

Coagulation:

Prothrombin Time	12.4 seconds	(10.3-12.8 seconds)
INR	1.1	
APTT	68 seconds	(26-36 seconds)
Thrombin Time	29 seconds	(15-23 seconds)
Factor V Leiden Mutation	Negative	
Prothrombin Mutation	Negative	
Reptilase Time	18 seconds	(14-23 seconds)
Dilute Russell's Venom Viper Time (DRRVT Screen)	2:1	(<1.2)
DRVVT Mix (1:1) Ratio	1.7	(<1.2)
DRVVT Confirmatory Ratio	1.8	(<1.2)
Platelet Neutralization	36 seconds	

The patient continued to complain of shortness of breath, chest pain and fatigue. The physician ordered a D-Dimer and CT scan. The D-Dimer was elevated and the CT scan revealed a massive pulmonary embolism. The testing revealed that the patient had antiphospholipid antibodies. The final diagnosis was Antiphospholipid Antibody Syndrome. Antiphospholipid Syndrome is an acquired autoimmune mediated thrombophilia. The syndrome presents as thrombotic events and pregnancy loss. A patient diagnosed with Anitphospholipic Syndrome typically has suffered venous or arterial thrombosis as well.

Every clinical laboratorian deserves the professional benefits of ***ASCLS!***

Award Winning Publications

A patient that is suspected of having antiphospholipid antibodies may demonostrate abnormalities of the Lupus Anticoagulant (LA) or IgG/IgM Anticardiolipin Antibodies (ACA). It becomes important to establish the diagnosis of Antiphospholipid Syndrome accurately and be able to prevent any recurrent events (Robertson, 201).

The question usually asked is what are antiphospholipid antibodies? The term is used along with lupus anticoagulants and can be misleading. The antibodies are not against phospholipids and the anticoagulant effect that is seen is mainly *in vitro*. The antiphospholipid antibodies bind to the plasma proteins on a negatively charged phospholipid such as phosphatidylserine or cardiolipin (Robertson, 203). Laboratory criteria would include coagulation testing that detect the presence of a Lupus Anticoagulant (LA) and two-enzyme-linked immunosorbent assays (ELISA) to measure autoantibodies directed against cardiolipin and β2-Glycoprotein. If a patient has a positive laboratory test, it must be confirmed on two or more occasions at least 12 weeks apart (Pengo, 1).

Research has tried to determine the mechanism of an antiphospholipid antibody, but it has been difficult and complicated. There has been no evidence so far that demonstrates any apparent clinical issues in humans that these antibodies are pathogenic and may just be a laboratory issue. (Wisloff, 263).

References:

Pengo, V and G. Denas, et al A. Banzato. "Correct laboratory approach to APS diagnosis and monitoring." *Autoimmunity Reviews* (2012): 1-3.

Robertson, Beverly and Mike Greaves. "Antiphospholipid syndrome: An evolving story." *Blood Reviews* (2006): 201-212.

Wisloff, Finn and Sigurd Liestol Eva M. Jacobsen. "Laboratory diagnosis of the antiphospholipid syndrome." *Thrombosis Reasearch* (2003): 263-271.

Members-only discounts for continuing education, resources, references and tools

Professional & Regulatory Advocacy

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Leadership Development

Congratulations to Pam Kiefer. Pam was awarded the ASCLS-SD Lifetime Achievement Award for her years of dedication to ASCLS and the profession.

Pam will be acknowledged at this year's National ASCLS Meeting in Atlanta, GA.

Share ***ASCLS's VOICE, VALUE & VISION*** with your professional friends and colleagues! We all benefit when ASCLS grows! The more members we have in SD, the stronger our professional voice is here at home.

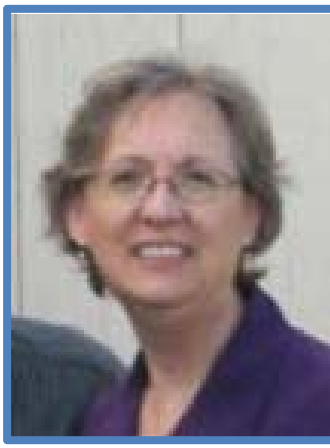
Recruitment tips & tools can be found at:
http://www.ascls.org

http://www. ascls-sd.org

ASCLS-SD WELCOMES NEW MEMBERS!!!

PAC – the "Inside Scoop – what's in it for me?"

By Melissa Saxlund and Shirley Heber



Don't stop reading yet – this article is all about you! A common theme lately when discussing ASCLS membership and/or donations is "What's in it for me – why should I donate my dollars to ASCLS PAC, or even remain an ASCLS member?" Students and members alike, the ASCLS PAC has a vested interest in YOU! One area of primary concern is the need for increased national funding for students in laboratory science programs. Your PAC donation is vital to support these efforts to assure that current and future laboratory science students will have access to financial help.

Facts every ASCLS member needs to know……

- ASCLS is committed to supporting the laboratory profession – many decisions that affect us are made on Capitol Hill. Lobbying is essential to assure input on critical health care decisions and to obtain funding for student programs.
- ASCLS PAC (Political Action Committee) supports these efforts solely through member contributions.
- *Without member support and donations, the ASCLS PAC will cease to exist*
- ASCLS annual fundraising goal is **$50,000** – donations to date are less than half
- If every member gave at least **$10.00,** we would far exceed our goal
- **What will $10.00 buy?**
  - Two Starbucks specialty coffees
  - Daily 20 oz bottle of soda for a week
  - Lunch out with friends
  - A couple drinks at a local bar

Please consider a donation to ASCLS PAC – donations can be made online when you renew your ASCLS membership, or can be done separately. For questions, contact Melissa Saxlund at masaxlund@hotmail.com.

What is a PAC?

Political Action Committee (PAC) — A popular term for a political committee organized for the purpose of raising and spending money to elect and defeat candidates. Most PACs represent business, labor or ideological interests. PACs can give $5,000 to a candidate committee per election (primary, general or special). They can also give up to $15,000 annually to any national party committee, and $5,000 annually to any other PAC. PACs

may receive up to $5,000 from any one individual, PAC or party committee per calendar year.

PACs have been around since 1944, when the Congress of Industrial Organizations (CIO) formed the first one to raise money for the re-election of President Franklin D. Roosevelt. Although commonly called PACs, federal election law refers to these accounts as "separate segregated funds" because money contributed to a PAC is kept in a bank account separate from the general corporate or union treasury.

For more information on PACs, check out the FEC's "Campaign Guide for Corporations and Labor Organizations" and the "Campaign Guide for Nonconnected Committees" (both available in PDF format). For an alphabetical list of PAC acronyms, abbreviations, initials, and common names, see the FEC's list of PACRONYMS. A chart showing changes in the number of PACs between 1977 and 1998 is also available on the FEC's web site.

VOLUSION… ASCLS-SD

Stacie Lansink, Editor

Stacie Lansink- ASCLS-SD President
South Dakota: Looking to the Future!

As your incoming president for the upcoming year, it will be an honor to work with the membership to grow the profession and the society. I recently completed my Master of Science in Medical Laboratory Science from the University of North Dakota and I was there for graduation. As I introduced myself, I made sure to mention that I was the incoming ASCLS-SD President and my involvement in the upcoming ASCLS Region V meeting. It was amazing that some of my classmates saw that as an opportunity to get back into ASCLS and become involved in their states. I hope to continue that as we continue to grow our membership in South Dakota by promoting the initiatives and opportunities that our past president, Pat Tille instituted during her term.

The strength of the society lies within the strength of the members. We must continue to mentor and encourage other colleagues to become involved and not to be afraid to voice their opinions. A society should be governed by the voice of the members and not just a select few. But the only way that happens if you become involved and encourage others. The ASCLS-SD board worked diligently to respond to the general membership this year, and to that end I believe 2014 was a very successful year. The one way to measure that is by seeing new professionals participate in ASCLS-SD. There is no doubt 2014 can be measured at 201 strong!