ASCLS The American Society for Clinical Laboratory Science MICHIGAN

NEWSLINKS

NOVEMBER/DECEMBER 2018 AMERICAN SOCIETY FOR CLINICAL LABORATORY SCIENCE - MICHIGAN VOLUME 30 NUMBER 6

Changes in National Meeting

with commentary from our very own Roslyn McQueen

On October 8th, the American Society for Clinical Laboratory Science (ASCLS) and the Association of Genetic Technologists (AGT) announced the two groups would hold their annual meetings jointly beginning in June 2019 in Charlotte, North Carolina.

The partnership was possible after the Society's decision earlier this year to hold its Annual Meeting independently for the first time in more than 20 years. The two like-minded and complimentary membership groups will work together to provide attendees with a single, integrated educational program, abstracts/posters, and industry engagement platform. The format will allow for an expanded and broadened educational program and attendee access to a wider range of industry partners.

"We've worked closely with AGT for many years on advocacy and are both sponsors of the Board of Certification. When the opportunity presented itself, it made a great deal of sense to work more broadly with this trusted partner, " **ASCLS President Roslyn McQueen** said. "As molecular and genetic technology becomes more commonplace in clinical laboratories, tapping the expertise of AGT's membership and thought leaders for an expanded educational program will help our attendees improve the care they provide to patients."

"AGT has been fortunate to work with ASCLS at their meetings on a state level for many years. Our hope is to continue these professional successes on a national level as well," AGT President Jason Yuhas said. "Many of our members work closely with laboratory professionals represented by ASCLS on a daily basis. Our views, visions, and scope of work pair very well between both organizations."

The first joint meeting will take place June 23-27, 2019 at the Sheraton/Le Meridien Charlotte Hotel in Charlotte, North Carolina. The groups' planning

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committees are already focused on adopting innovative, new approaches to learning and industry engagement to build a unique, new attendee experience. Details like the meeting's name and brand, as well as the structure of industry opportunities will be announced in the coming weeks.

Discussions between the groups' leaders began with significant alignment of how their existing meetings had been structured. The ASCLS Annual Meeting Steering Committee (AMSC) and Abstract and Proposal Review Committee (APRC) will take the lead on developing and organizing content with representation and assistance from AGT.

The Association of Genetic Technologists (AGT) was established to promote cooperation and exchange of information among those engaged in classical cytogenetics, molecular and biochemical genetics and to stimulate interest in genetics as a career. AGT's approximately 700 technologists, supervisors, lab directors and genetic counselors comprise a network of dedicated professionals who share a common bond: an interest in genetics. AGT's annual meeting provides opportunities to develop professional contacts in the ever-expanding area of clinical and research genetics. Our publications keep members and subscribers abreast of the latest developments in the field. AGT's continuing education opportunities assist those who have professional certifications in maintaining their professional credentials. In addition, various awards and volunteer opportunities allow technologists to be recognized for their contributions to the profession.

AGT ASSOCIATION OF GENETIC TECHNOLOGISTS

ASCLS MICHIGAN

American Society for Clinical Laboratory Science Michigan

ASCLS-Michigan *Newslinks*

A bi-monthly publication of the American Society for Clinical Laboratory Science - Michigan. Deadlines for articles are the 20th of Feb, Apr, Jun, Aug, Oct, & Dec. Articles must have name of author. Anonymous letters will not be published. The editor reserves the right to edit all materials submitted for publication. Articles appearing in *Newslinks* represent the opinion of the author and may not represent the opinion of the society.

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ASCLS-MI Leadership: Visit our web site at **www.ascls-michigan.org** for a complete listing and contact information for all ASCLS-MI board members and a wealth of other information on the Society.

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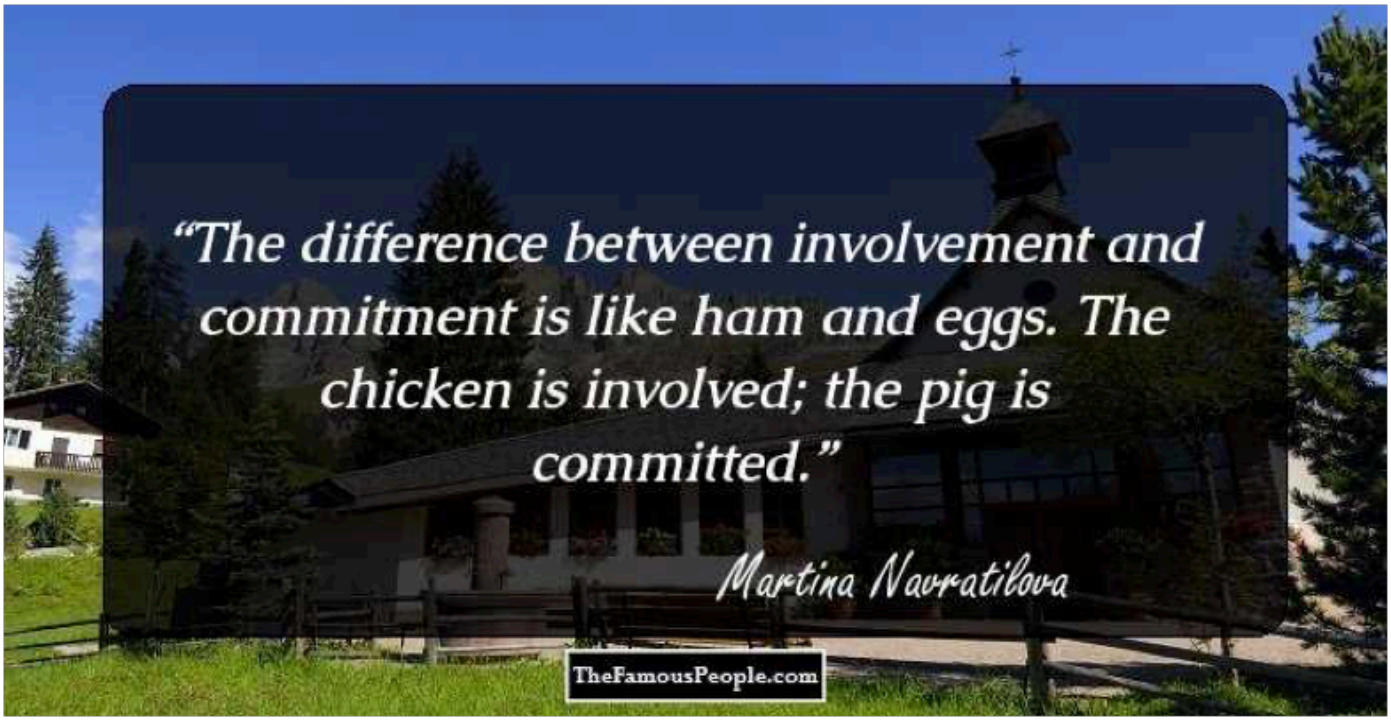
President's Message

Jerry Singleterry

Commitment is not just a word to describe a relationship between two people. In fact, the mere definition of commitment is a pledge or promise; obligation. I learned a very valuable lesson these past few weeks. The commitment we make by just standing up to be counted, isn't enough. Action and follow through are equally important to preserve and propel our profession forward. If we do not follow through with our commitment, then we have failed ourselves. This failure may be attributed to *Atychiphobia* or the fear of failure, but more often it is when we try to face a daunting task alone. I feel this fear growing inside me sometimes, but I refuse to allow this to control me. Like the pig, I am committed. This commitment is a daunting task and I am asking for your help. Read the mission of the ASCLS:

The mission of ASCLS is to make a positive impact in health care through leadership that will assure excellence in the practice of laboratory medicine.

Make it a goal to improve the image of the laboratory in your organization. In interprofessional meetings or casual conversation express the views of our society. Be the chicken, be involved by leaving others with an understanding of the value our profession brings to the healthcare team. Consider being the pig. Commit to making our profession stronger through action. We are bigger than ourselves. As Chief Tecumseh said: "a single twig breaks, but a bundle is strong." We as a society can stay strong as long as we continue to prove we stand for the good of the group. I am humbled with what I have witnessed in the actions of the ASCLS-MI board. They show the strength and understanding of the society. They are all definitely the pig, and continue to illustration their commitment. The society, your society, is here always working to better our profession. Taking steps as a chicken or as a pig our profession as laboratorians will benefit.



Clinical Next Generation Sequencing: Where It Stands Today

Beth Duross, Scientific Assembly, Molecular

Since the mid 2000's, massive parallel sequencing, otherwise known as Next Generation Sequencing, or NGS, has been rapidly expanding in clinical diagnostics. Though multiple methods of NGS have been around since the late 90's, the last decade has seen a shift from some major market players into the clinical space and away from strictly research. The sequencing data, once considered too large for small to medium sized labs to handle is now quite manageable due to the decrease in sequencing cost and increasing availability of cloud-based storage. These advances have allowed for the advent of newer, faster, and easier technologies, which are rapidly entering the realm of the clinical laboratory. Some clinical labs are now turning to NGS as the gold standard for sequencing over the classic Sanger method.

In the late 1990's, scientists at Cambridge University came up with the idea to sequence short fragments of DNA using reversible fluorescently-labeled nucleotides, which is the basis for sequencing by synthesis, or SBS. SBS technology was born when the company founded by the Cambridge scientists, Solexa, acquired Manteia Predictive Medicine. This married the ideas of reversible fluorescent deoxy-ribonucleotide triphosphates (dNTPs) and DNA clustering on a fixed plate. In 2007, Illumina bought Solexa and began to market it both to research and clinical facilities. Just a couple of years later, Jonathon Rothburg introduced the semiconductor sequencing platform through his company Ion Torrent, which has since been acquired by ThermoFisher Scientific. His invention was called the Personal Genome Machine, or PGM, and promised faster sequencing with lower up-front costs and required fewer nanograms of DNA input. The semiconductor technology is modeled on the pH change that results from base incorporation into the DNA strand during extension.

Both SBS and semiconductor sequencing methods have their benefits and drawbacks; but for now, they constitute the majority of the market share in clinical NGS platform sales. According to Genetic Engineering & Biotechnology News magazine, in 2017 Illumina made roughly $2.7 billion and the NGS portion of ThermoFisher Scientific made $418 million. Illumina's sole dedication to NGS over other technologies has shown to be a worthwhile investment. Early this year, ThermoFisher began selling their AmpliSeq amplicon-based library preparation kits to Illumina customers for use with the SBS sequencing technology. While this will yield additional revenue for ThermoFisher, it appears to be a bigger gain for Illumina as customers will now have the opportunity to lower library prep costs and reduce nucleic acid input (both DNA and RNA) while retaining the sensitivity of SBS sequencing. As for the platforms, ThermoFisher has added the S5 GeneStudio and the Proton while Illumina has

An example of a commercially available NGS system. More details at: https://www.youtube.com/watch?v=WKdfZk18SXA

introduced multiple new machines with widely ranging sequencing capabilities and price points. As of this publication, the list price for the smallest unit, the iSeq 100, is just $20,000, which is aimed to allow even the smallest of labs to use SBS technology. Oxford Nanopore's MinION $1,000 sequencer has not yet gained traction in the clinical space but shows that the $100 genome is a real possibility. Illumina and ThermoFisher Scientific have cleared a few of their machines and assay kits for FDA approval and CE-IVD markation, which will be the biggest challenge for their competitors to overcome if they want to survive in the clinical arena.

In conjunction with the growth of the NGS platforms, new companion equipment and library preparation methods are also in an upswing. Qiagen, BD, Agilent, Beckman Coulter, Eppendorf, and others are leading the way to help labs produce cheaper and easier NGS libraries. These companies are introducing automated liquid handlers, reagent kits, single-cell sequencing platforms, and liquid biopsy assay kits, among other solutions. Data storage cost per gigabyte has dramatically decreased since 2009, from 11 cents/GB to today's cost of 3 cents/GB. At 250GB to 1TB of data per run, NGS data output has gone from unfeasible to store long-term to a routine clinical practice in less than a decade. Labs can benefit from this surge in innovation by combining the best offerings of multiple companies to develop the most robust, easiest, and cheapest assay possible. There is a downside to this approach though, as utilizing multiple vendors and platforms can mean a labor-intensive research phase and a costly validation period. The benefits of having the best possible assay must outweigh the cost of this time-intensive endeavor, which is why mainly larger hospitals, reference labs, and for-profit labs have been taking on this onerous development process up until now.

What does this growth mean for clinical Molecular Diagnostics laboratories of all sizes? Lower start-up costs mean that small to medium sized labs and hospitals can afford to buy these machines and start validating their tests in a NGS format.

Heading away from Sanger sequencing is required for oncology specimens with a low tumor burden as well as in liquid biopsies and cell-free fetal DNA screening. Increasing usage of NGS as the gold standard for sequencing is also leading to greater availability of proficiency samples and inter-laboratory collaborations that will improve the accuracy of results for all labs involved. This is already showing promise in that assays for less common disease states and carrier variants are being offered at more laboratories which inspires competition both in terms of developing the best testing methods and in lowering the costs of said tests for patients. The increased availability of this testing capability is required for what has become a much-used buzzword: precision medicine.

graphic from http://nextgenseek.com/2012/11/did-you-know-there-are-at-least-20-applications-of-next-generation-dna-sequencing/

U.S. Department of State: Foreign Service Regional MLS

Editors Note: ASCLS state newsletter editors have been requested to post this information to inform our Medical Laboratory Scientist and Medical Technologist colleagues about a very unique career option as a Foreign Service Regional Medical Laboratory Scientist. Looking for a change? Check this out!

The U.S. Department of State offers a dynamic career as a Foreign Service Regional Medical Laboratory Scientist (RMLS), living and working overseas. An RMLS provides invaluable support to medical units (similar to a small clinic) in U.S. Embassies and Consulates worldwide, by providing services in their overseas assigned post and when traveling to several dozen regional posts. Services include managing the medical unit laboratory, visiting local laboratories and blood banks, training colleagues on testing techniques and quality control, and addressing food and water safety issues.

- Visit careers.state.gov/med for more information about this family-oriented career that offers free housing and free education for children K to 12, while assigned overseas.
- Go to this link, https://careers.state.gov/work/foreign-service/specialist/career-tracks/regional-medical-laboratory-scientist/, and click on Keep Me Informed to get a notification when the next RMLS vacancy announcement is open and accepting applications.
- Write to MEDRecruiting@state.gov with additional questions.

2019 ASCLS-Michigan Poster Contest

Kay Castillo, Poster Chairperson

The 2019 ASCSL-MI Poster Contest will take place at the Annual Conference in East Lansing, Michigan on April 10-12, 2019. Anyone interested in participating in the contest will find the Poster Contest Guidelines posted on the ASCLS-MI website under Awards: Clinical Posters. Additional questions may be emailed to Kay Castillo, the poster chairperson, at **khcastil@svsu.edu**

One Health Initiative

Lindsy Hengesbach

Did you know that more than half of all infectious diseases in humans are spread from animals? In fact, 6 out of 10 infectious diseases are zoonotic in nature. Many of these diseases originate in animals via environmental conditions (think drought, poor waste management etc.). Human, animal and environmental health are all connected. The CDC recognizes this and is attempting to predict, prevent and control infectious disease outbreaks through it's One Health Initiative. This initiative combines communication, collaboration and coordination between the people that protect human, animal and environmental health to achieve the best global health outcomes.

The Mission and Vision Statements of the One Health Initiative are given below:

Mission Statement

Recognizing that human health (including mental health via the human-animal bond phenomenon), animal health, and ecosystem health are inextricably linked, One Health seeks to promote, improve, and defend the health and well-being of all species by enhancing cooperation and collaboration between physicians, veterinarians, other scientific health and environmental professionals and by promoting strengths in leadership and management to achieve these goals.

Vision Statement:

One Health (formerly called One Medicine) is dedicated to improving the lives of all species—human and animal—through the integration of human medicine, veterinary medicine and environmental science.

One Health shall be achieved through:

- Joint educational efforts between human medical, veterinary medical schools, and schools of public health and the environment;
- Joint communication efforts in journals, at conferences, and via allied health networks;

- Joint efforts in clinical care through the assessment, treatment and prevention of cross-species disease transmission;
- Joint cross-species disease surveillance and control efforts in public health;
- Joint efforts in better understanding of cross-species disease transmission through comparative medicine and environmental research;
- Joint efforts in the development and evaluation of new diagnostic methods, medicines and vaccines for the prevention and control of diseases across species and;
- Joint efforts to inform and educate political leaders and the public sector through accurate media publications

Our role as laboratorian citizens:

Please help me celebrate One Health Day on November 3, 2018 by taking steps to prevent the spread of disease from animals to humans. If you are a pet owner practice good hygiene, safe handling procedures and ensure your pets vaccinations are current. If you are an avid hunter and you suspect your animal is ill, have it tested for diseases. Chronic Wasting Disease has become more pronounced in Michigan. Have your deer tested before you ingest prions. When you are working in the laboratory, take a One Health Approach by considering environmental factors and the patient's contact with animals.

Communicate and collaborate on your findings with public health labs and other stakeholders.

Resources:

https://www.cdc.gov/onehealth/index.html

https://www.cdc.gov/healthypets/pets/reptiles/safe-handling.html

https://www.cdc.gov/healthypets/pets/small-mammals/petrodents.html

Factors that Affect Human and Animal Health	
Factor (Cause)	Change (Effect)
Human populations are growing and expanding into new geographic areas.	As a result, more people live in close contact with wild and domestic animals. Close contact provides more opportunities for diseases to pass between animals and people.
The earth has experienced changes in climate and land use, such as deforestation and intensive farming practices.	Disruptions in environmental conditions and habitats provide new opportunities for diseases to pass to animals.
International travel and trade have increased.	As a result, diseases can spread quickly across the globe.

Nominations for 2019 BOD!

Becky Potter

Have you thought about becoming more involved with ASCLS-MI, but not sure how? Do you want to develop your leadership skills, be able to network closely with other ASCLS-MI members, or make an impact on your profession?

Consider running for an elected position for ASCLS Michigan's Board of Directors. Being a part of the Board of Directors gives you the opportunity to promote the medical laboratory science profession, engage our organization's members, and develop leadership skills.

The Board of Directors is an elected volunteer group of professionals within the state organization that have various medical laboratory science backgrounds. Their roles include promoting membership activities and communicating organization updates to our membership community at large.

If you are interested in becoming involved, check out the open positions below. You can also learn more on the ASCLS Michigan Elected Positions Webpage

- President Elect – 1 year term (3 year commitment)
- Secretary– 1 year term
- District Representative – 1 year term, 3 representatives per district (see ASCLS Michigan Bylaws Article VIII for listing of District boundaries by county)
- New Professional New Member – 1 year term
- Nominations Committee – 2 year term, 2 open positions
- Government Affairs – 2 year term

If you would like to serve on the BOD, know someone you would like to nominate for a position, or have questions about a position, please contact one of the Nomination Committee members or submit a Nomination Form to a committee member.

Becky Potter: rebecca.korbely@gmail.com

Renee Sutton: reneesutton00@gmail.com

Kristin Landis-Piwowar: landispi@oakland.edu

Lily Scholl: schollli@gvsu.edu

Nominations must be submitted to the Committee by February 23, 2019

American Society for
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MICHIGAN

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Mark Your Calendars

ASCLS-Michigan

Annual Meeting & Exhibits

April 10-12, 2019

Kellogg Hotel & Conference Center,

Michigan State University,

East Lansing

It's in your blood!