Editorial Comments

Dr. John Merlino

Chair/Convenor ASM Antimicrobial Special Interest Group (ASIG)

In 2013 in Adelaide, the Antimicrobial Special Interest Group Workshop on Antimicrobial Resistance will focus on MALDI-TOF and Susceptibility Testing: What’s in a name? - Impact of MALDI-TOF on Susceptibility Testing in Microbiology. This will be a DRY Workshop with Practical Slide Demonstrations with Discussions on its applications in various fields of clinical microbiology with ASM Guest Invited Speaker Prof. Patrick Murray.

Professor Patrick Murray

Decreasing the time to species identification and early antibiotic susceptibility determination of bacterial strains recovered from infected patients significantly decreases morbidity, mortality patients and aids in infection control practices. This workshop will focus on the MALDI-TOF system(s) and current applications with automated susceptibility testing methods (Vitek, Phoenix) and disc susceptibility testing methods (CLSI, CDS Users or EUCAST users), its impact on laboratories in providing a faster and accurate turnaround time. Fast and accurate diagnostic identification and AST methods are an important part in guiding treatment for infections and infection control practices.

In this ASIG workshop various invited presenters will give brief presentations on the impact of MALDI-TOF and AST methods in their institutions and what the future holds in screening, identifying pathogens and antimicrobial resistance.

Registration for the Workshop is Essential – All registered will receive PDF copies of the presentations

Workshop: Sunday July the 7th 0800- 12:30 at the Adelaide Convention Centre

Final Program:

Chair: Dr. John Merlino
08:00-08:30
1. Welcome - Introduction: Maldi-Tof and impact on Susceptibility Testing - Dr. John Merlino – ASM ASIG Convenor - ASM ASIG Convenor - ASM ASIG
08:30-09:00
2. Title: “A Ten Year Path from Tradition to Innovation: My Experiences at the NIH” - Dr. Patrick Murray (25 minutes + 5 minutes question time) BD USA World Wide Director of Scientific Affairs
09:00-09:30
3. Title: "Maldi-Tof (Bruker) with the Phoenix and move to 132 well card" Tom Olma (25 minutes + 5 minutes question time) Westmead Hospital, Sydney

Latest NEWS for Antimicrobials
Superbug screening centre urgent: inquiry Senate
09:30-10:00

4. Title: Maldi-Tof (bioMerieux): Identification and Sensitivity Testing from a large private Pathology lab perspective David Gordon (25 minutes + 5 minutes question time) Douglass Hanly Moir Pathology Sydney

10:00-10:30

5. Title: Maldi-Tof (bioMerieux): "Into the Future" The Integration of Maldi-tof at the Alfred Hospital - a large Public Hospital in Melbourne Jolanta Terlecka (25 minutes + 5 minutes question time) Alfred Hospital, Melbourne.

Break: 20 minutes Morning Tea - provided by ASM

Followed by the specific applications of Maldi-Tof in the Medical Laboratory:

10:50-11:20

1. The application of Maldi-Tof (Bruker) and Vancomycin Resistance Enterococci Dr. Paul Griffin (25 minutes + 5 minutes question time) Director of Infectious Diseases at Mater Health Services, Queensland.

11:20-11:35

2. The application of Maldi-Tof in Mycology (15 minutes) "MALDI-TOF for subspecies ID within the Cryptococcus neoformans/C. gattii species complex" Carolina Firacative Westmead Hospital, University of Sydney

11:35-11:50

3. Maldi-Tof: Rapid Methods for identification and susceptibility testing directly from Blood Cultures (15 minutes) Lee Thomas – Westmead, Hospital Sydney

11:50-12:05

4. Application of MALDI-TOF & Chromogenic Culture Media with Molecular Techniques for Antimicrobial Resistance and Infection Control Surveillance. (15 min) Dr. John Merlino

12:05-12:20

FINAL: Panel - John Merlino, Patrick Murray, Paul Griffin and Tom Olma - Discussion, Question and Answers (15 minutes)

Followed by:

Wednesday July 10, 08:00-09:30

Plenary session 12 –

Prof. Patrick Murray

“Microbiology: Yesterday, Today, and Tomorrow”

ASIG Antimicrobial Symposium

Wed 10th July 2:00-3:30 pm

Symposium 6 Antimicrobials

Chair John Merlino

2:00:00 PM Patrick Murray (30 min) Antibiotic Resistance: Global Problems for Physicians and Microbiologists”

2:30:00 PM Jonathan Iredell (30 min) The silent catastrophe: human impact on biodiversity in the microbiome and the transmissible gene pool

3:00:00 PM Iain Gosbell (30 min) VRSA, VISA, and hVISA – 2013 update

CDS Users Update

4:00pm - 5:30pm Monday 8th July 2013

Professor Sydney Bell

Prior to its introduction, the CDS Method of Antibiotic Susceptibility Testing was first subjected to extensive field testing in Australia and New Zealand over 40 years ago. It has thrived in this country and a number of overseas countries since that time. Contributing to its success have been the contributions made at the CDS Workshops, as these have prompted relevant and useful additions and modifications to the method over many years. As in previous years the CDS workshop will be an interactive session and we welcome feedback from both CDS users and those who do not currently use the CDS method. This year the 7th Edition of the CDS Manual will be previewed and Dr. Peter Newton, a long time user of the CDS and now a member of the development team, will outline the unique advantages of using the CDS. The results of calibration of a number of newer antibiotics will be presented and Jeanette Pham will, once again, take us through the intricacies of resistance mediated by the β-lactamases of the Gram negative species.

The bioMérieux ASM Identifying Resistance Award

This is a recognition award to an individual on the basis of career achievements in the field of the identification of bacterial resistance to antimicrobials in a clinical setting.
This Year Recipient for 2013 is:  
Professor Iain Gosbell

Professor Gosbell was appointed Staff Specialist in 1995 at South West Area Pathology Service (Liverpool Hospital) and was Director 2004-2009. He organised a research group to investigate the emergence of community MRSA in south-west Sydney, and found that a new strain had arrived from New Zealand (the ST30 or Southwest Pacific strain). He was subsequently invited to sit on the NSW Health Community-acquired MRSA Subcommittee, and his work attracted a number of small local grants from the Health Research Foundation, Sydney South West, as well as expanding his role on the Australian Group for Antimicrobial Resistance (AGAR), which performs nationwide multicentre surveillance of resistance in clinically important bacteria. He was elected to the AGAR Executive Committee in 1999-2006, and from 2011 to the present. Prof Gosbell co-authored four AGAR publications concerning aspects of community MRSA in Australia.

Professor Gosbell enrolled in an MD programme in 1999. The thesis described the emergence of the first epidemic clone, ST30 and explored antibiotic susceptibilities including time-kill studies and pharmacokinetic/pharmacodynamic analysis in order to infer in silico what the optimal drug therapy might be for this new organism, as there were (and still are) no clinical trials to determine this. The MD was conferred in 2003.

NSW Health provided $272,000 for a 24-month period commencing late 2002 to set up the “SWAPS Staphylococcal Reference Facility” (SSRF), whose primary purpose was to map with DNA fingerprinting the epidemiology of MRSA in the community and in the hospital setting. Subsequently NSW Health provided funding to implement the “NSW Health Multiply-Resistant Organism Program Component C” from July 2006, to type blood culture isolates and infection control isolates of MRSA.

The funding for the SSRF coincided with the detection of MRSA strains with reduced susceptibility to vancomycin in Melbourne and then Sydney. Our initial case was detected at a peripheral hospital. At the time, it was unclear what the clinical significance of this was for the patient or for infection control. Professor Gosbell initiated an urgent investigation into this, involving liaising with Peter Ward’s laboratory in Melbourne to test the isolates, but getting the testing set up locally at his laboratory at SSWPS. We typed initial isolates urgently (by pulsed-field gel electrophoresis) and found that in fact there were multiple strains of MRSA exhibiting reduced resistance to vancomycin, and that this phenomenon was present in isolates from years previously. Additionally, in cases of MRSA bacteraemia, those with hVISA as determined by population analysis profile, paradoxically had lower mortality than those with vancomycin-susceptible strains.

In 2004, A/Prof John Turnidge and A/Prof Keryn Christiansen on behalf of the Australian Society for Antimicrobials invited Prof Gosbell to edit and co-write a monograph on staphylococcal infections, which was published as a supplement in the December 2005 edition of the Internal Medicine Journal, “Staphylococcus aureus infections – a modern approach to diagnosis and treatment”. In 2009 Tuckweng Kok and Prof Gosbell were asked by the Australian Society for Microbiology to guest edit and write chapters for an edition of Microbiology Australia, “Clinical Microbiology – Diagnostic Microbiology in the 21st Century – a Quiet Revolution”, published September 2010.

In October 2009 Prof Gosbell took up his present position as Head of Microbiology and Infectious Diseases in the new School of Medicine at the University of Western Sydney. This position also involves a Clinical Academic position in the Department of Microbiology and Infectious Diseases, South Western Sydney Pathology Service, Liverpool. In this new role he has established a new wet laboratory, firstly successfully applying for research space in the newly refurbished wet laboratory of the Ingham Health Research Institute (IHRI) in the precinct of Liverpool Hospital, secondly recruiting the staff, andthirdly obtaining funds to equip the new laboratory.

The staphylococcal researchers have combined to form the “Antibiotic Resistance and Mobile Elements Group” (ARMEG), which consists of Prof Gosbell, Dr Jensen (from Ron Skurray’s and Neville Firth’s group at the University of Sydney) and Dr Espedido (from Jon Iredell’s gram-negative group at Westmead) of UWS, and affiliates A/Prof van Hal (UWS Conjoint/SSWPS – Liverpool initially, then Royal Prince Alfred Hospital), and A/Prof Neville Firth (University of Sydney).

Professor Gosbell’s research unit, ARMEG, moved into the Ingham Institute for Applied Medical Research early in 2012. The IIAMR has four floors, the top floor being a PC2 wet laboratory where the ARMEG is now situated. Currently ~200 researchers are housed in the IIAMR. It was officially opened in October 2013.
ARMEG has developed an extensive project to examine resistance in MRSA. This project involves collaborations with:

1. Wellcome Trust Sanger Institute (Prof Mark Holden)
2. University of Queensland Institute of Molecular Bioscience (Prof Matt Cooper)
3. Pathology Queensland (Prof Graeme Nimmo)
4. Royal Prince Alfred Hospital (A/Prof Sebastiaan van Hal)
5. University of Sydney (A/Prof Neville Firth)
6. Department of Microbiology and Infectious Diseases, South Western Sydney Pathology Service, Liverpool.

This project aims to examine pathogen specific genomic factors associated with patient outcomes in MRSA and the evolution of ST239 in a single institution over a 12-year period. So far one PhD thesis (A/Prof S. van Hal) has been produced, which resulted in 7 publications to date, a large amount of in-kind support has been provided by the collaborators, and active mainstream grantseeking is underway.

ARMEG have been successful in obtaining $136,505 from research funds from the School of Medicine, UWS, which was matched by a $52,000 equipment grant from IHRI, to purchase items of equipment to fit out the new wet laboratory. Additionally two instalments of $90,000 each of seed funding have been provided by UWS. The new wet laboratory is now fully functional and the first experiments (the vancomycin resistance PCRs) commenced there in December 2010. In 2012 our first PhD student (A/Prof van Hal) submitted his thesis for examination, and our MBBS Hons Student graduated with the University Medal and First Class Honours. We have 1 PhD, 1 MSc and 1 BSc (Hons) student for 2013. Two of our recent papers have been commended by international groups:


The most recent collaboration of ARMEG is with A/Prof Vickery and A/Prof Deva of the Surgical Infection Research Group, Advanced Medicine Institute, Macquarie University, and Prof Mary-Louise McLaws (School of Public Health and Community Medicine, University of NSW), to examine the role environmental biofilms containing MRGs might contribute to hospital-associated infections. Destructive sampling for biofilms was done when an ICU was decommissioned and terminally cleaned. We found biofilms containing MRSA and VRE on these surfaces. This project has now attracted local funding (UWS Research Grant Scheme) and is being considered for an ARC Linkage Grant (UWS, Macquarie University, Whiteley Corporation).

Professor Gosbell currently has 73 publications in peer-reviewed journals, with 738 citations and an h-index of 15. He has also had 31 invitations to speak at conferences; presented 57 other conference papers, co-written 6 government reports, edited one supplement and one journal edition, and published 7 other works. With the formation of the ARMEG, moving into the new Ingham Institute for Applied Medical Research, and the establishment of a network of collaborators, Prof Gosbell is in a strong position to undertake further impactful translational research.

**Latest NEWS for Antimicrobials**

**Superbug screening centre urgent: inquiry Senate**

The Examiner By Jill Stark June 9, 2013 3 am

Australia urgently needs a national centre to manage the threat of deadly superbugs, and must start screening all imported meat and seafood to prevent their spread, a Senate inquiry has recommended.

Tighter monitoring of the use of antibiotics in animals bred for food should also be introduced, along with national standards for hospital infection control.

The inquiry, instigated by Greens senator and former GP Richard Di Natale, was set up in response to an alarming increase in antibiotic resistance, and rising rates of superbug infections.

Doctors told the inquiry that, while the bugs had once affected mostly people with weakened immune systems, such as cancer or transplant patients, healthy Australians were increasingly contracting superbugs through routine medical...
procedures due to the proliferation of antibiotic-resistant bacteria.

The widespread use of antibiotics in intensive farming, particularly in meat, poultry and seafood imported from countries such as China and Vietnam, has been pinpointed as one likely factor fuelling the trend.

"This is a problem that the medical community and infectious diseases and public health specialists have known about for over a decade but there just hasn't been an adequate response from successive governments. But we must act because in terms of the health impact, the rise of superbugs has the potential to take us to a pre-industrial age era in medicine where we just don't have antibiotics," Dr Di Natale said.

The inquiry's findings, released on Friday night, have been welcomed by infectious diseases experts who say there will be dire consequences for human health if the government does not adopt them.

"We have time to fix this but we don't have much time. We have about five years to get this right before it's really going to be a major problem," said Professor Lindsay Grayson, director of infectious disease at Melbourne's Austin Health. "If the superbug situation gets much further out of control, then we won't be able to do transplantations, a lot of chemotherapy for cancer will need to stop, neonatal intensive care units won't be able to look after kids any more because all of those fantastic advances in human healthcare have only been made possible because we've been able to treat the inevitable routine infections that occur, with antibiotics."

Improved surveillance and reporting systems to determine how many and what type of antibiotics are being used on humans and animals has also been suggested.

### 2013 Commonwealth Health Minister's Medal

June 7th, 2013

ASM Member receives 2013 Commonwealth Health Minister's Medal

The ASM congratulates A/Prof Anton Peleg, an ASM member who was last night announced as this year's recipient of the Commonwealth Health Minister's Award for Excellence in Health and Medical Research at the ASMR MRW® dinner in Melbourne. Based at Monash University and the Alfred Hospital, Anton is an infectious diseases physician and NHMRC Biomedical Fellow in the Department of Microbiology who studies hospital-acquired infections and antibiotic resistance.

"This award recognises outstanding individual achievement by a young Australian researcher. A/Prof Peleg was selected because of the significance of his work and the innovative approach he has taken to infectious diseases research," Ms Plibersek said.

Anton’s vision for the next four years is to apply innovative methodologies to identify mechanisms by which the most critical hospital-acquired pathogens cause disease and identify targets which may be the basis of future drug development.

The award recognises outstanding young medical researchers for their achievements to date, and anticipates their future contributions to health and medical research. The Award is presented to recipients of NHMRC Career Development Fellowships.

For further ASM ASIG Information on this Newsletter Contact:

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BD Diagnostics and Bruker Join Forces to Improve Antimicrobial Susceptibility Testing

BD Diagnostics and Bruker Daltonics are teaming up to provide an integrated approach to bacterial and fungal identification and antimicrobial susceptibility testing. The companies are combining the BD Phoenix™ system, the Bruker MALDI Biotyper, and BD’s data-management EpiCenter system with the aim of reducing the turnaround time for diagnostic results and improving laboratory efficiency and costs.