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ISID NEWS

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ISID NEWS

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14th International Congress on Infectious Diseases (ICID)

Organized by the International Society
for Infectious Diseases



Miami, Florida • March 9–12, 2010

The 14th ICID Organizing Committee has been hard at work and has developed a unique scientific program that runs the spectrum from cutting edge science to state-of-the-art practices to global infectious disease control, that will be all presented by an international faculty and attended by participants whose diverse backgrounds will create an incomparable opportunity for the worldwide exchange of information. Our six plenary speakers have been selected and are highlighted in this issue of the ISID NEWS.

In addition the 4th Regional Conference of the International Society of Travel Medicine and the II Congreso Latinoamericano de Medicina del Viajero will be held in conjunction with the 14th ICID. This educational program will be hosted by the International Society of Travel Medicine (ISTM) and the Sociedad Latinoamericana de Medicina del Viajero (SLAMVI), together with ISID.

Check for updates and join the 14th ICID Mailing List at the Congress website:

http://www.isid.org/14th_icid/index.shtml

We look forward to seeing you in Miami!

Raul Isturiz
President, ISID



Pedro Alonso, SPAIN

Pedro Alonso, SPAIN

Malaria Eradication

Pedro L. Alonso graduated in Medicine at the Universidad Autónoma de Madrid, followed by post graduate training at the London School of Hygiene and Tropical Medicine. He holds a PhD from the University of Barcelona. Currently he is the Director of the Barcelona Center for International Health Research at the Hospital Clinic (CRESIB), and Professor at the University of Barcelona, and the Chairman of the Board of Governors of the Fundação Manhiça, Mozambique.

Prof. Alonso's professional career has been focused on the most important global health problems, especially those affecting developing countries. The cornerstone of his research activity has been the development and testing of new control tools against the main infectious diseases such as malaria, HIV, acute respiratory infections and other communicable diseases, especially those tools which help to reduce the morbidity and mortality in less developed countries. Having worked in West, East and Southern Africa, most of his professional life has been devoted to Public Health in Africa, with a major emphasis on research and capacity building.

Prof. Alonso led the creation of the Manhiça Health Research Center in Southern Mozambique. He has served in a number of international committees and is currently a member of the MMV Board of Governors, as well as a member of the Steering Committee for the Global Malaria Eradication Research and Development.



Françoise Barré-Sinoussi,
FRANCE

Françoise Barré-Sinoussi, FRANCE

The Discovery of HIV

Françoise Barré-Sinoussi, PhD, is the acting Director of the "Regulation of Retroviral Infections" Unit at the Institut Pasteur in Paris. She has been involved in retrovirology research since the early 1970's and is recognized for her contributions to HIV/AIDS research, in particular as the first author of the publication that reported in 1983 the discovery of a retrovirus, later named HIV, in a patient at risk for AIDS. Dr. Barré-Sinoussi shared the 2008 Nobel Prize in Medicine with Dr. Luc Montagnier for their discovery of HIV. In 1988, she became responsible for her own laboratory at the Institut Pasteur and initiated research programs on viral and host determinants of HIV/AIDS pathogenesis.

Between 1988 and 1998, she has been involved in collaborative programs on HIV vaccine research using primate models. Today, the research programs of her team are focused on regulations of HIV/SIV infection (intracellular restrictions of HIV-1 infection and innate immunity, in particular regulations of T cell activation resulting from the NK-dendritic cell interplay).

Françoise Barré-Sinoussi is author and co-author of more than 220 original publications and more than 120 articles in book reviews. She has been invited to speak at more than 250 International meetings and/or conferences. She has been (and is still) a member of a number of scientific committees in France and elsewhere, including scientific committees of several International AIDS Conferences. She has received 10 national or international awards for her contributions to HIV/AIDS research.

Along with her research activities, since the early 80's Françoise Barré-Sinoussi has been strongly involved in promoting integration between HIV/AIDS research and actions in resource limited countries, in particular through the Institut Pasteur International Network and the coordination of the ANRS research programs in Cambodia and Vietnam, in accordance with her strong commitment to building capacity, training and technology transfers on site in Africa and Asia.

continued on page 3



Martin Cetron, USA

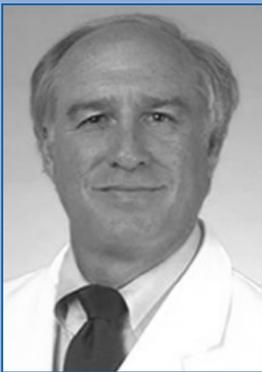
Martin Cetron, USA (SLAMVI / ISTM Plenary Speaker)

The Changing Patterns of Global Migration and the Impact on Infectious Diseases

Dr. Martin Cetron is the Director for the Division of Global Migration and Quarantine (DGMQ) at the U.S. Centers for Disease Control and Prevention (CDC). The DGMQ mission is to prevent introduction of infectious diseases in the U.S. and to prevent morbidity among immigrants, refugees, migrant workers, and international travelers.

Dr. Cetron received his M.D. from Tufts University and trained in Infectious Diseases at the University of Washington before joining the CDC's Epidemic Intelligence Service in 1992.

His primary research interests are international health and global migration with a focus on emerging infections, tropical diseases, and vaccine-preventable diseases in mobile populations. He has been in this current leadership role at CDC during responses to the key emerging infectious disease outbreaks of the 21st century including the anthrax bio-terrorism incident, the smallpox threat, the global SARS epidemic, and the U.S. Monkeypox outbreak. He is part of the CDC Pandemic Influenza planning and preparedness team and the WHO Influenza Pandemic Task Force.



Myron S. Cohen, USA

Myron S. Cohen, USA

Transmission and Prevention of Transmission of HIV: Clues from the Early 21st Century

Myron S. Cohen is the J. Herbert Bate Distinguished Professor of Medicine, Microbiology and Immunology and Public Health at the University of North Carolina at Chapel Hill. He is Associate Vice Chancellor for Medical Affairs-Global Health. Dr. Cohen received his BS degree (Magna Cum Laude) from the University of Illinois, Champaign-Urbana, an MD degree from Rush Medical College, Chicago Illinois and he completed an Infectious Disease Fellowship at Yale University.

Dr. Cohen serves as the Director of the UNC Division of Infectious Disease and the UNC Institute for Global Health and Infectious Disease, and he is Associate Director of the UNC Center for AIDS Research. Dr. Cohen serves on the Senior Leadership Group of the NIH Center for HIV Vaccine Immunology (CHAVI), and serves as part of the leadership group of the NIH HIV Prevention Trials Network (HPTN). Dr. Cohen serves as an Associate Editor of the journal, Sexually Transmitted Diseases, and the comprehensive textbook, Sexually Transmitted Diseases.

Dr. Cohen received the Distinguished Alumnus Award from Rush Medical College in 2000. He received the Thomas Parran Award (2005) for lifetime achievement in STD research from the American Sexually Transmitted Diseases Association. In 2008 Dr. Cohen received the O. Max Gardner Award for "contributions to mankind," the greatest honor in the University of North Carolina 16 campus system. Doctor Cohen has been repeatedly recognized as one of America's "Top Doctors" and "Best Doctors".

Dr. Cohen's research work focuses on the transmission and prevention of transmission of HIV, with emphasis on the role played by STD co-infections. He has conducted landmark studies related to the biology of HIV transmission and use of antiretroviral agents for prevention. In 2005, Dr. Cohen received an NIH MERIT Award for ongoing support of this work. Dr. Cohen is the author of more than 400 publications. Much of Dr. Cohen's research has been conducted internationally, especially in the African country of Malawi and in the People's Republic of China.

continued on page 4



Keith Klugman, USA

Keith Klugman, USA

Pneumococcal Infections in Children and their Impact on Adults

Keith Klugman is the William H. Foege Chair of Global Health in the Hubert Department of Global Health at the Rollins School of Public Health, Emory University, in Atlanta, Georgia. He is a Professor of Medicine in the Division of Infectious Diseases of the School of Medicine at Emory University and a Visiting Researcher in the Respiratory Diseases Branch of the Centers for Disease Control and Prevention (CDC). He is also the co-Director of the Respiratory and Meningeal Pathogens Research Unit of the University of the Witwatersrand, the Medical Research Council and the National Institute for Communicable Diseases in Johannesburg, South Africa.

Professor Klugman is the Treasurer of the Executive Committee of the International Society of Infectious Diseases, and Chair of the International Board of the American Society for Microbiology. He has chaired expert committees for the World Health Organization in Geneva and the Wellcome Trust in London, and currently serves as an editor or member of the editorial board of 8 international journals on medicine, infectious diseases and antimicrobials.

Professor Klugman's research interests are in antibiotics, antimicrobial resistance and vaccines for bacterial pathogens – particularly the pneumococcus. He has published more than 375 papers on these subjects to date.



Roberto Kolter, USA

Roberto Kolter, USA

Microbial Ecology of Infectious Diseases

Roberto Kolter has been a highly influential microbiologist for a period that spans four decades. Early in his career he made enduring advances in our understanding of the regulation of DNA replication as well as practical advances in the development of the most widely used “suicide delivery vectors” of today.

Since establishing his own laboratory at Harvard Medical School in 1983, Dr. Kolter has made contributions in diverse areas of microbiology. Initially, he worked on peptide antibiotic synthesis and secretion, providing some of the earliest knowledge on “ABC exporters”. This was followed by an exploration of the starvation physiology of *E. coli* at a time when virtually no one else thought of investigating stationary phase cultures. In part as a result of those efforts, the control of gene expression in non-growing cells became an area of intense investigation by others that continues to this day. Dr. Kolter's work on the population dynamics of stationary phase cultures, the so-called “GASP” (growth advantage in stationary phase) phenomenon, established such cultures as excellent model systems for experimental evolution studies. Since the mid-1990's he has applied genetic approaches to study bacterial biofilms; Dr. Kolter's laboratory developed the most widely used high-throughput assay for detection of biofilm development. His studies with *Bacillus subtilis* as a model system to understand biofilms continue to be at the leading edge of the field. Most recently, Dr. Kolter is investigating the chemistry of interspecies communication in bacteria. In this area he discovered that a bacterium's quorum sensing signal can also act as a fungal morphogen. In addition, he has developed screens that have led to the discovery of novel secondary metabolites produced by one species that profoundly affect the developmental patterns of other species.

Since 2002, Dr. Kolter has played a key role in the organizing and launching of the Microbial Sciences Initiative at Harvard (MSI) and is currently its co-director. The MSI (www.msi.harvard.edu) is an innovative University-wide interdisciplinary science program aimed at developing new approaches to explore the microbial world. MSI is playing a leadership role in microbial sciences worldwide by bringing together scientists from diverse backgrounds to think about and discuss key issues in microbiology.

Presently, Dr. Kolter is the President-Elect of the American Society for Microbiology and will become its President in July 2009.



Confirmed Speakers

Alonso, Pedro (Spain)
Barre-Sinoussi, Françoise (France)
Bhutta, Zulfiqar (Pakistan)
Cahn, Pedro (Argentina)
Cetron, Martin (USA)*
Cohen, Myron (USA)
Dagan, Ron (Israel)
Daikos, George (Greece)
Edmond, Michael (USA)
Escalante, Ananias (USA)
Freedman, David (USA)*
Giske, Christian (Sweden)
Goossens, Herman (Belgium)
Hirsch, Martin (USA)
Hussell, Tracy (United Kingdom)
Jacobs, Michael (USA)
Jong, Elaine (USA)*
Klugman, Keith (USA)
Kolter, Roberto (USA)
Magill, Alan (USA)*
McCullers, Jonathan (USA)
Metzger, Dennis (USA)
Miro, Jose (Spain)
Mulholland, E.K. (United Kingdom)
Nau, Roland (Germany)
Odió, Carla (Costa Rica)
Peltola, Heikki (Finland)
Pittet, Didier (Switzerland)
Rodríguez-Morales, Alfonso (Venezuela)
Saez-Llorens, Xavier (Panama)
Schwaber, Mitchell (Israel)
Singhi, Sunit (India)
Steffen, Robert (Switzerland)*
Torres, Jaime (Venezuela)
Villegas, María Virginia (Colombia)
Warrell, David (United Kingdom)*
Wenzel, Richard (USA)
Wood, Robin (South Africa)

* RCISTM4 / Slamvi Travel Medicine
Track Speaker

Preliminary Program

A Rational Approach for the Treatment and Prevention of Neonatal Sepsis

- Understanding the Immune System of the Premature and the Term Neonate
- Global Burden of Neonatal Sepsis
- Rational Use of Antibiotics in the Critically Ill Neonate and the Premature Infant
- Strategies to Limit Infections in the Neonate and to Reduce Infection-Related Mortality

Bacterial Meningitis: Prevention and Care

- The Global Impact of Bacterial Meningitis
- The Pathophysiology of Meningitis
- Vaccination Against Bacterial Meningitis
- Effective Adjuvant Therapies for Meningitis

Burden of Plasmodium vivax Malaria in Latin America

- Epidemiology of P. vivax Malaria in the World and Latin America
- Molecular Epidemiology of P. vivax: Tools for Malaria Control
- Severe and Complicated Malaria due to P. vivax
- Treatment, Prophylaxis & Resistance in P. vivax Malaria

Carbapenemase-Producing Bacteria: The Threat of 'Panresistance'

- Clinical Impact and Current Epidemiology of Carbapenemase Producers
- Detecting Carbapenemase Producers in the Clinic
- Controlling the Spread of Carbapenemase-Resistant Bacteria
- Treatment Options for Carbapenem-Resistant Infections

Current Challenges in HIV Care

- State-of-the-Art on ARV Therapy: How Many Standards of Care?
- Drug Resistance and Other Laboratory Monitoring Assays in HIV Infection
- Opportunistic Infections and IRIS in the Era of HAART
- Why are Patients Dying in the HAART Era?

International Perspectives on Infection Control

- The Future Hospital Epidemiologist's Portfolio for Success
- International Controversies: Below the Elbow and Incremental Value of MRSA Screening
- Engaging Nations in a Commitment to Infection Control
- With Limited Resources: How to Begin and How to Sustain an Infection Control Program

Successful Short Antibiotic Treatment of Childhood Pneumonia—Myth or Reality?

- Determinants of Bacteriologic Eradication in Respiratory Tract Infections
- What Are the Benefits of Short Antibiotic Treatment?
- Short Treatment and the WHO-Defined Pneumonia—What Are We Treating?
- Can Short Antibiotic Treatment be Widely Used in Developed Countries?

Update on Fungal Infections

- Aspergillus Infections: What Is New in Diagnosis and Treatment
- Treating Resistant Filamentous Fungi Infections
- Endemic Fungal Infections in the Americas
- Fungal Skin Infections in the Tropics

continued on page 6



Preliminary Program *continued from page 5*

Synergistic Lethality of Bacterial and Viral Pneumonia

- Synergistic Lethality of Influenza and Pneumococcal Diseases in Humans
- Evidence from Animal Models
- Human Metapneumovirus Synergistic Lethality in Humans and Animals

Symposia Under Development

- Antibiotic Pharmacology: Implications for Therapy
- Implementing Antimicrobial Stewardship in the 21st Century
- Influenza: How Do We Avoid the Worst Case Scenario
- Monoclonal Antibody Therapeutics in Infectious Diseases
- Neglected Tropical Diseases: Present Need and Present Action
- Pneumococcal Disease and Global Vaccine Prevention
- Tracking Zoonotic Diseases Around the Globe
- Tuberculosis: New Approaches to an Evolving Challenge
- Update on Infectious Diseases in Transplant Recipients

SLAMVI/ISTM Symposia

- Vaccination for the Latin American Traveler
- Yellow Fever, Dengue and Other Emerging Infections in Latin America
- Development of Travel Medicine in Latin America
- Illness in the Returned Traveler
- Rabies, Bites, and Envenomation
- Destination Workshops for Latin American Countries Traveler's Diarrhea and Other Foodborne Diseases of Latin America

Submit your abstract online!
http://www.isid.org/14th_icid/index.shtml



Art Deco from the Greater Miami Convention and Visitor's Bureau

ProMED's New African Regional Networks



Dr. Sidi Coulibaly



Dr. Fabian Ekue



Dr. Benson Estambale



Dr. Joseph Wamala

ProMED-FRA (ProMED-FRA and ProMED-EAFR)

ProMED-mail has made much progress in developing our African regional networks in collaboration with HealthMap during the first six months of the Google.org grant. The French-language network focusing on West Africa (ProMED-FRA) is fully functional and the launch of the new English-language East Africa network (ProMED-EAFR) and website will take place very soon.

Dr. Sidi Coulibaly is the ProMED-FRA Regional Moderator based in Ouagadougou, Burkina Faso. He also works in the Department of Planning, Research and International Cooperation of the Ministry of Health. **Dr. Fabian Ekue** has recently joined Sidi as Veterinary Moderator based in Yaoundé, Cameroon. Fabian has experience as Scientific Coordinator of Animal Production and Fisheries Research from the Institute of Agricultural Research and Development (IRAD) and Coordinator of the Rumpi Area Participatory Development Project in Buea, Cameroon. He is presently Chief Research Officer working at the head office of IRAD in Yaoundé.

Dr. Benson Estamble was recently brought on as Regional Moderator for the ProMED East Africa network (ProMED-EAFR). He is Director of the Institute of Tropical and Infectious Diseases (UNITID) and an Associate Professor in the Department of Medical Microbiology, College of Health Sciences, University of Nairobi, Kenya. Working with Benson on the East Africa network is **Dr. Joseph Wamala**, who recently joined the team as Infectious Disease Moderator. Joseph is based out of Kampala where he works as an Epidemiologist for the Ugandan Ministry of Health. Joseph has experience heading the Ugandan MOH's Central Rapid Response Team during outbreaks of deadly pathogens such as marburg virus, pneumonic plague, ebola virus and cutaneous anthrax.

ProMED-mail warmly welcomes our new African moderators!

ProMED-PORT: Subscribers Increasing in Numbers

The number of subscribers to ProMED-PORT are increasing. After a stalemate that lasted up to mid-2006, the number of subscribers has been rising since. As of December 31, 2008 there were 1,552 users from 55 countries, a significant growth, compared to 1,092 users from 49 countries in June 30, 2006, a 50% increase.

ProMED-mail team at the ProMED-mail Editorial and Training Meeting held in conjunction with IMED 2009 in February in Vienna, Austria



Molecular Epidemiology of Dog Rabies in Nigeria

by **Mariam Florence Ogo, DVM, MSc**

Department Veterinary Tropical Diseases • University of Pretoria, South Africa
Viral Research Division • National veterinary Research institute, Vom, Plateau state Nigeria

Louis H. Nel

Department of Microbiology and Plant Pathology. • University of Pretoria, South Africa

Claude T. Sabeta

Rabies Unit, Onderstepoort Veterinary Institute, South Africa



Mariam Florence Ogo, DVM, MSc.

Dr. Ogo has been a Veterinary research officer at the National Veterinary Research Institute Vom Nigeria for the past 7 years. She has extensive experience in research into viral disease of ruminants, canine and poultry especially as regard vaccine production and currently registered for a research post graduate degree training (MSc) in the department of Veterinary Tropical Diseases, University of Pretoria, South Africa. She recently fulfilled requirements of an MSc degree with support from ISID.

Background:

As in many parts of the developing world, both human and animal rabies statistics are limited in Nigeria. This is largely due to underreporting, misdiagnosis and lack of national rabies surveillance systems. It is estimated that at least 10,000 human deaths occur every year in Nigeria, with 99% or more due to dog rabies. This is despite the availability of Low egg passage (LEP) flury strain rabies vaccine which is produced locally for vaccination of dogs. As a result rabies is on the increase and continues to pose a public health threat.

Objective:

The general objective was to investigate the molecular epidemiology of dog rabies in Nigeria by nucleotide sequencing of partial regions of the glycoprotein (G) and nucleoprotein (N) genes of virus isolates from different geographical areas. The phylogenetic relationships of these viruses were also assessed with those from neighbouring Chad, Cameroon, Niger and Benin.

Methods:

A hundred dog brain tissues from a panel of samples submitted for routine diagnosis at the Rabies Unit of the National Veterinary Research Institute, Vom Nigeria were included in the study. Total viral RNA was extracted using Tri-Reagent (Sigma, USA) and partial regions of the N and G genes were reverse transcribed and amplified. The PCR products were purified using the Wizard PCR purification system (Promega, USA) and then cycle sequenced with same primer sets as specified by the manufacturer (Applied Biosystems USA). The phylogenetic analysis was carried out with the MEGA program.

Results:

This phylogenetic analysis showed that all the dog viruses included in the investigation could be segregated into two major groups according to geographical origin. The viruses demonstrated at least 99% sequence homology and were distinct from the Pasteur virus (PV) used as the outlier. They also showed a 13.2% sequence divergence from the PV. It was also obvious that rabies viruses from Nigeria and her neighbours all grouped into the Africa 2 dog lineage clearly distinct from those of north, central east and southern African countries.

Conclusions:

This study provides baseline data on rabies epidemiology in Nigeria. It is evident that one dominant variant is circulating in domestic dogs and the close evolutionary and epidemiologic links of Nigerian viruses with those of her neighbours was also illustrated from this study. The genetic characterization has shown that the viruses are very closely related with geographical and site dependence. Clearly, a mass vaccination campaigns targeted at stray dogs remains the only effective means of breaking the rabies cycle and the transmission to humans and other animals. The unrestricted movement of people and animals across international borders can influence the spread of rabies and other infectious diseases especially to areas that are considered free. There is a need to enforce strict dog movement control along human transportation routes.

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Molecular Epidemiology of Dog Rabies in Nigeria. *continued*

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Acknowledgements

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Angela Carvalho Freitas, M.D., MPH

Dr. Carvalho Freitas M.D. is 31 years old and graduated from the University of São Paulo Medical School - Brazil in 2002. She is an infectious diseases specialist whose post graduate work was completed in the Infectious Diseases Department of University of São Paulo Medical School in 2006. She was awarded a masters degree in public health from the Faculty of Public Health of University of São Paulo in 2008. Currently she is a Medical Assistant at the AIDS Outpatient Care Clinic of Infectious Diseases Department of University of São Paulo Medical School, and a Clinical Researcher at the HIV Vaccine Trial Unit (HVTU) of the Centro de Referência e Treinamento em DST/AIDS, Vila Mariana, São Paulo, Brazil.

Modeling the impact of introducing the pertussis' vaccine booster for adolescent and adult in São Paulo City, Brazil.

Author:

Angela Carvalho Freitas, M.D., MPH

Supervisor:

Júlio César Rodrigues Pereira, PhD

Institution:

School of Public Health at the University of São Paulo, Brazil

Conclusion date:

august 2008

Report:

As we had planned, it was possible to improve the first model that we had proposed in the Research plan to Small Grant Program, and we have interesting conclusions. The work was concluded in August 2008.

The results was presented as poster on the XVIII World Congress of Epidemiology /VII Brazilian Congress of Epidemiology, in Porto Alegre - Brazil, during September 20-24, 2008.

We had either submitted an abstract to the 13th International Congress on Infectious Diseases (Kuala Lumpur - Malaysia, 2008) with the title "The impact of pertussis' vaccine booster for adolescents at São Paulo city - Brazil". It was approved to poster presentation but unfortunately I could not able to attend the congress.

Now we are trying to publish the paper in a peer-reviewed journal. It was already submitted on the European Journal of Epidemiology and we are waiting for their decision.

Abstract:

Assessment Of Pertussis Boosters For Adolescents And Young Adults In São Paulo, Brazil

Background:

Whooping cough incidence is on the rise throughout the world and acellular pertussis booster immunisations are being adopted for adolescents and adults in different countries. Different strategies are used according to different epidemiological profiles, whose

proper recognition is imperative for a successful intervention. Meagre health budgets prevent developing countries of conducting epidemiologic surveillance as those regularly conducted in wealthier societies. Thus, epidemiologists are expected to draw from available data as to produce recommendations to public health authorities and the present study endeavours to put forward a model able to appraise different booster strategies for São Paulo city.

Methods:

A stationary compartmental age-dependent dynamic model accounting for immunity waning was conceived. Additionally to the current vaccination scheme, different strategies were tested and those referring to (i) 35% or (ii) 70% coverage at age 12 and (iii) both 35% at 12 and 70% at 20 are reported since they epitomise possible outcomes.

Results:

Scenario (i) produces a 59% total reduction of disease occurrence and a 53% reduction for infants; scenario (ii) yields a 76% total reduction and a 63% infant reduction; scenario (iii) reduces 62% of disease occurrence altogether and 54% of occurrences among infants. Conclusion: a single vaccine booster at age 12 comes out as the best option since it provides the best overall reduction and best impact over infants who are more liable to adverse outcomes. If this is the age group at stake, then young adult vaccination may be a spendthrift strategy.

Modeling the impact of introducing the pertussis' vaccine booster for adolescent and adult in São Paulo City, Brazil. by Angela Carvalho Freitas, M.D., MPH *continued*

The Model

The following differential equations describe the pertussis' model, and we can see it on the flow diagram below.

$$(1) \frac{dSp}{da} = -\lambda(a) * Sp - pv1(a) * Sp - \mu(a) * Sp$$

$$(2) \frac{dI}{da} = \lambda(a) * Sp + \lambda(a) * Ss - \gamma(a) * I - \mu(a) * I - \mu d(a) * I$$

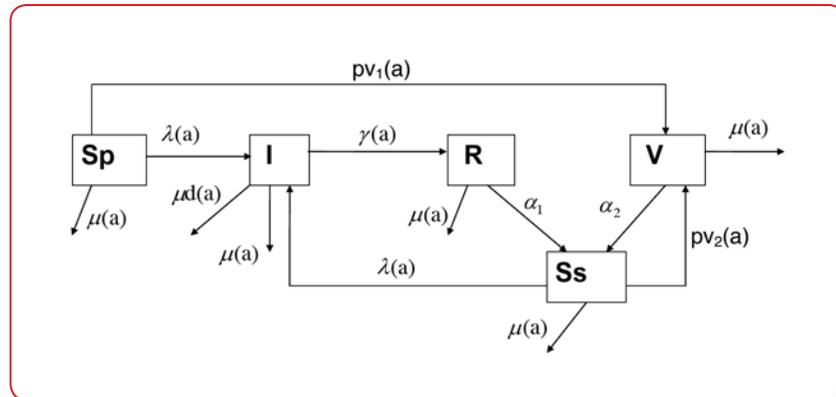
$$(3) \frac{dR}{da} = \gamma(a) * I - \alpha_1 * R - \mu(a) * R$$

$$(4) \frac{dV}{da} = pv1(a) * Sp + pv2(a) * Ss - \alpha_2 * V - \mu(a) * V$$

$$(5) \frac{dSs}{da} = -\lambda(a) * Ss + \alpha_1 * R + \alpha_2 * V - pv2(a) * Ss - \mu(a) * Ss$$

Where

$$(6) \lambda(a) = \lambda_i = \sum_j \beta_{ij} * I_j$$



Whooping cough age-dependent compartmental model.

Legend:

Sp: primary susceptible; Ss: secondary susceptible; I: infected; R: recovered from and immune to disease; V: immune after vaccine; (a): age-dependent transmission rate; (a): age-dependent recovery rate; α_1 and α_2 : immunity waning rates; pv1(a) and pv2(a): age-dependent immunization rates; (a): age-dependent mortality rate; d(a): age-dependent disease-mortality rate.



Diana Waturangi,
Ph.D.

Diana Waturangi is a lecturer and researcher at Faculty of Biotechnology, Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia. She received several international research grants for studies on prevalence and detection of pathogenic bacteria from foods. She is interested in research on the quality and sanitation of drinking water and food, especially street foods in Jakarta, Indonesia.

Detection of Virulence Genes and Class 1 Integron Associated Gene Cassettes in *Vibrio Cholerae* Isolated from Ice of Streetfoods in Jakarta, Indonesia

Diana Waturangi, Ph.D.

Vibrio cholerae is a noninvasive Gram negative bacterium that lives naturally in the aquatic environment. Ice used in beverages could be one of the sources of *V. cholerae* transmission. Almost all of the beverages are served with ice cubes in Jakarta. But there is no regulation to control the quality of ice. Street food is considered as one of the potential major public risks in Jakarta.

The isolates were collected from ice used for street foods in Jakarta. In this study, we isolated *V. cholerae* using selective medium and continued with biochemical assays (KIA, lysine decarboxylase, and indole). Serological tests were done using polyvalent antiserum to determine O1 or non-O1 and monovalent antisera to determine Ogawa or Inaba. Hexaplex PCR is used for rapid detection of virulence genes such as *ctxA*, *ompU*, *tcpA*, *ace*, *zot*, and *toxR*. The hemolysis assay were done by using Brain Heart Infusion medium. Antibiotic resistance test were examined by using disc diffusion test for ampicillin (10µg), streptomycin (10µg), kanamycin (30µg), trimethoprim (5µg), tetracycline (30µg), ciprofloxacin (5µg), erythromycin (15µg) and sulfamethoxazole (25µg). All of the samples were screened for the presence of class 1 integron by PCR using specific primers 5'CS and 3'CS.

From six hundred and seventy one presumptive *V. cholerae* isolates, we found one hundred and eight (16.10%) were positive *V. cholerae*. We recovered eighty four isolates of *V. cholerae* classified as non-O1 and twenty four isolates were O1. From O1 serotype, twenty isolates were classified as Ogawa and four isolates were Inaba.

Based on the results from the hexaplex PCR, we found eighty samples (74.07%) gave positive results for *toxR*, twenty five samples (23.15%) for *ctx*, fifteen samples (13.88%) for *ompU*, one samples (0.93%) for *zot* and all samples gave negative results for the *tcp* and *ace* genes.

Ninety isolates (74.07%) were positive in hemolysis assays. From the antibiotic resistance assays, 70.37% isolates were resistance to ampicillin, 19.45% isolates to tetracycline, 61.11% isolates to streptomycin, 51.85% isolates to kanamycin, 2.77% isolates to ciprofloxacin, 37.97% isolates to erythromycin and 42.59% isolates were resistance to sulfamethoxazole-trimethoprim.

From the detection of class 1 integron by PCR using primer 5'CS and 3'CS. 42.59% were positive for class 1 integron.

A lot of ice in Jakarta was contaminated with *V. cholerae*. Some of the isolates were classified as toxigenic and others were pathogenic strains. The isolates which do not have the virulence genes detected in this study might have different virulence mechanism. A majority of the isolates were resistant to more than one antibiotics, most of them are correlated with class 1 integron. Finding of antibiotics-resistant *V. cholerae* in this study need to be aware of due to their correlation with integron as one of the resistance dissemination factors.

Keywords: *V. cholerae*, ice, class 1 integron, hexaplex PCR, virulence genes, Jakarta

New deadline for the SSI/ISID Fellowship - October 1, 2009



ISID and the Swiss Society for Infectious Diseases (SSI) jointly sponsor the SSI/ISID Infectious Diseases Research Fellowship Program to support infectious disease physicians and scientists from developing and middle income countries through multidisciplinary clinical and laboratory training at select biomedical institutions in Switzerland.

Language skills of French or German are required.

For more information: http://www.isid.org/programs/ssi_isid_fellowship.shtml



Recent ISID Program Awardees

Small Grants–Spring 2008

Ifedayo Adetifa, The Gambia

Bacterial Diseases Programme, Medical Research Council (UK) Laboratories

A pilot study of nasopharyngeal carriage of *Streptococcus pneumoniae* in Nigerian children

Jackson Onyuka, Kenya

Biomedical Science and Technology, School of Public Health and Community Development
Evaluation of different methods for controlling fish-borne pathogenic microbes

Cristina Guerra-Giraldez, Peru

Dept. of Microbiology, School of Science, Universidad Peruana Cayetano Heredia
Adequate cultures of clinical isolates of *Trichomonas vaginalis* for molecular studies of virulence

Small Grants–Fall 2008

Charmaine Mlambo, South Africa

University of the Witwatersrand, Clinical Microbiology and Infectious Diseases
Molecular and epidemiological characterization of multidrug-resistant *Mycobacterium tuberculosis* isolates in Johannesburg, South Africa

Saradiya Chatterjee, India

Prof. Benjamin M. Pulimood Laboratories for Infection, Immunity and Inflammation
Clinico-epidemiologic and molecular characterization of metallo beta lactamases (MBLs) producing *Pseudomonas aeruginosa* causing nosocomial infections

Jobiba Chinkhumba, Malawi

Malaria Alert Centre, Department of Community Medicine, College of Medicine
Impact of HIV infection on the performance of malaria rapid diagnostic tests

Daniel Ojurongbe, Nigeria

Department of Medical Microbiology and Parasitology, College of Health Sciences, Ladoko Akintola

University of Technology
Plasmodium falciparum antifolate resistant alleles and associated opportunistic infection among HIV individuals on Cotrimoxazole prophylaxis in Osogbo, Nigeria

Pamela Valva, Argentina

Laboratory of Molecular Biology, Pathology Division, Ricardo Gutiérrez Children's Hospital
Serum markers of liver injury in chronic hepatitis C virus infection

SSI/ISID Fellowships 2008

Juan Carlos Ambrosioni Czyrko, Argentina

Infectious Diseases "Francisco J. Muñoz" Hospital, Infectious Diseases Department
Dr. Czyrko will conduct his research in collaboration with scientists from the Infectious Diseases Divisions in Geneva, Switzerland.

Marina Macedo-Viñas, Uruguay

Universidad de la República, Facultad de Medicina, Département de Bactériologie et Virologie
Dr. Macedo-Viñas will conduct her research in collaboration with scientists from the Infectious Diseases Divisions in Geneva, Switzerland.

ISID Scientific Exchange Fellowships–2008

Ines Badano, Argentina

University of Pennsylvania, USA
Analysis of Ethnic Differences in the Distribution of TNF- α SNPs and Human Papillomavirus (HPV) Infection

Elkin Lemos Luengas, Colombia

University of Toronto, Canada
The economic impact of introducing HIV/AIDS guideline into Colombian National Drug Formulary: Costs-effectiveness and budget-impact analysis

Calendar of Events

July 30–Aug 2, 2009

3rd Ditan International Conference on Infectious Diseases (DICID)

Location: Beijing, China

Venue: Convention Center, BICC

Contact: Mr. Gary Ng

Tel: +852-2827-2080 (International) / +86-136-9150-9725 (China)

Email: info@bjditan.org

Web: <http://www.bjditan.org/>

Aug 12–15, 2009

XIII Congreso Latinoamericano de Infectología Pediátrica

Location: Guayaquil, Ecuador

Venue: Centro de Convenciones Simón Bolívar

Contact: President of the Congress:

Dra. Greta Miño

Web: <http://www.congresoslpe2002.org> or <http://www.slpe2009.org>

Official language: Spanish