

Abstractbook

Chair: Ursula Flückiger, MD, Aarau

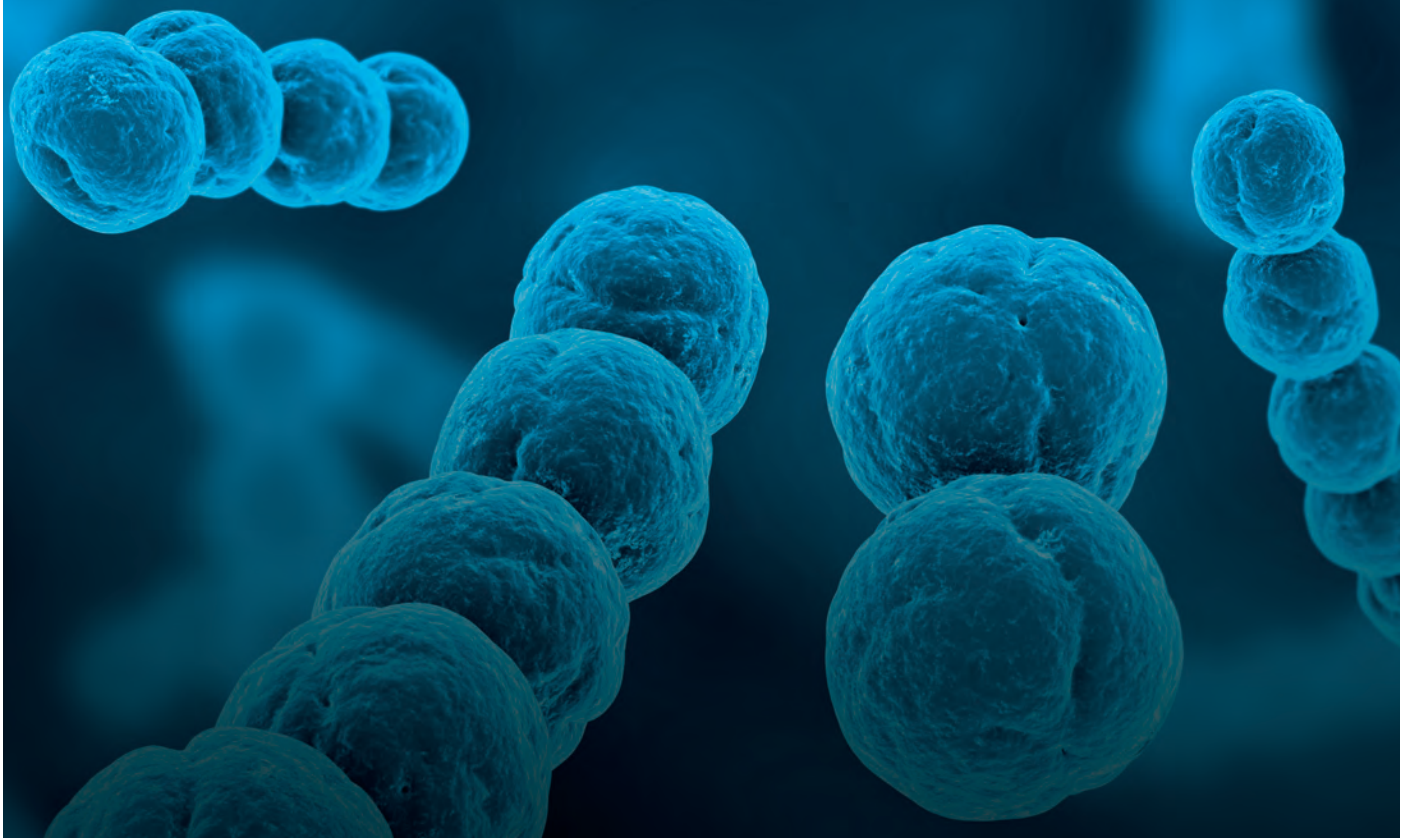
Developing & evaluating interventions to improve antibiotics use in hospitals

Stephan Harbarth, MD, MS, Genève

Global epidemiology of *Acinetobacter baumannii*

Harald Seifert, MD, Köln

Mittwoch | Mercredi 24.08.2011, 12.00-13.00 h
Congress Centre Kursaal Interlaken, Ballsaal



Welcome

I would like to invite you to participate in the Symposium sponsored by Pfizer AG with two topics in the field of antibiotic use and the emergence of resistant bacteria. We are grateful that Dr. Harbarth from Geneva and Prof. Seifert from Köln accepted our invitation to share their knowledge with us.

Dr. Harbarth is a well-known expert in infection control with numerous publications on the use of antibiotics. In particular he is interested in new insights into the role of antibiotics in the emergence, selection and spread of antimicrobial resistance. In our daily clinical work it is a real challenge to use antibiotics correctly in order to offer patients the best possible treatment and to avoid unnecessary antibiotic use leading to the danger of emergence of resistance. Dr. Harbarth will give us a lecture about

new interventions to improve antibiotic use in hospitals.

In the second lecture Prof. Seifert will address the global epidemiology of *Acinetobacter baumannii*. Prof. Seifert is an outstanding expert on *Acinetobacter baumannii* and the author of numerous reports on the spread and resistance mechanisms of these gram-negative bacteria. In particular the global dissemination of carbapenem-resistant *Acinetobacter baumannii* illustrates the success of this organism in spreading epidemically. Prof. Seifert will talk about the molecular basis of resistance and the global dissemination of these bacteria.

I am looking forward to meeting you at the Pfizer symposium and hope you will enjoy the meeting.

U. Flückiger

Ursula Flückiger

President of the Swiss Society for Infectious Diseases



Ursula Flückiger, MD

Aarau, Switzerland

Prof. U. Flückiger attended the medical school at the University of Berne, Switzerland and received her MD in 1984. After her training in internal medicine and infectious diseases in the hospitals of Burgdorf, Lucerne and Lausanne she spent over two years at the Rockefeller University in New York in the Laboratory of Bacterial Pathogenesis and Immunology of Prof. V. Fischetti. From 1997 to 2010 she worked in the Division of Infectious Diseases and Hospital Epidemiology at the University of Basel. In 2004 she became Professor of Internal Medicine and Infectious Diseases at the Medical Faculty of the University of Basel, Switzerland. She is a committee member of the Swiss Society for Infectious Diseases since 2003 and since 2009 president of the society. Since 2010 Prof. U. Flückiger is working as a MD for internal medicine and infectious diseases at the Centre for Internal Medicine, Hirslanden Klinik Aarau.

Developing & evaluating interventions to improve antibiotics use in hospitals



Stephan Harbarth, MD, MS

Genève, Switzerland

Stephan Harbarth, MD, MS, is an associate professor and hospital epidemiologist at Geneva University Hospitals in Geneva, Switzerland. He also serves as senior attending physician in geriatric and general infectious diseases.

Dr. Harbarth earned his medical degree from Ludwig-Maximilians-University in Munich, Germany, and completed his residency in internal medicine and tropical medicine at Munich University Hospitals. After serving as a clinical fellow in the Infectious Diseases Division and Infection Control Program in the Department of Internal Medicine at Geneva University Hospitals, Dr. Harbarth completed his master's degree in epidemiology at Harvard University in Cambridge, Massachusetts. He is board certified in infectious diseases.

Dr. Harbarth's work has garnered several awards, including the Interscience Conference on Antimicrobial Agents and Chemotherapy Young Investigator Award from the American Society for Microbiology in 2003, the Young Investigator Award from the European Society of Clinical Microbiology and Infectious Diseases in 2006, the Swiss Society for Infectious Diseases Award for epidemiological research in 2008 and the Society of Healthcare Epidemiology of America Investigator Award in 2011.

A prolific author, Dr. Harbarth has written or coauthored more than 200 scientific publications and is co-editor of several peer-reviewed journals. He is member of many international societies, working groups, advisory boards and tasks forces, including WHO and ECDC. Currently he is the international councilor of the SHEA Board of Directors.

Developing & evaluating interventions to improve antibiotics use in hospitals

1. Interventions to improve antibiotic use

Poor adherence to infection control and irrational antibiotic use promotes AMR. There is widespread misuse of antibiotic treatment and prophylaxis. Quality improvement approaches are helpful, feasible and low-cost tools, in order to improve efficiency in antimicrobial drug management. They should be based on:

- Evidence-based interventions (balanced between sound methodology and pragmatic considerations);
- Center specific strategies (education & management);
- Committed team of people (ABS team, microbiologists & clinicians);
- Co-ownership of the project through involvement of relevant opinion leaders;
- Immediate feedback.

Evidence-based standard treatment guidelines may further improve compliance and antibiotic use.

2. Recommendations on a local level

- Monitoring and feedback of antibiotic prescription and antimicrobial-resistant resistance should be performed, in order to identify problem areas and perform targeted interventions
- Dissemination and implementation of priority practices based on already existing knowledge and guidelines, with local enforcement
- QI-based strategies with feedback should widely disseminated, published and implemented. Prominent targets for these strategies are:
 - optimize antibiotic prophylaxis (streamlining choices, admit forms & prepared packages, mailing of memos, feedback), in order to enable rational and cost-effective use of antimicrobial drugs for surgical prophylaxis;
 - reduce unnecessary and inappropriate use of empiric treatment;
 - decrease treatment duration.
- Improve diagnostic support
- Reduce financial incentives and physician-industry interactions to over-prescribe new antibiotic agents
- Increase institutional and political commitment (regulatory pressure)

3. Recommendations on a national or international level

- a) Public education on preventing infection and reducing transmission
- b) Provider education on diagnosis and management of common infections, antimicrobial use, containment of antibiotic resistance, disease prevention, infection control
- c) Development, updating and use of essential medicines lists, clinical guidelines and treatment algorithms
- d) Drug and Therapeutic Committees to ensure the safe effective use of antimicrobials
- e) Restriction of availability of antimicrobials (not always successful)

Global epidemiology of *Acinetobacter baumannii*



Harald Seifert, MD

Köln, Germany

Professor Dr. Harald Seifert received his MD at the University in Bonn in 1980. After completing his postgraduate training in Internal Medicine at the Johanniter-Hospital in Bonn he joined the Institute of Medical Microbiology, Immunology and Hygiene at the University of Cologne, in 1989. He is Professor of Microbiology and associate director of the Institute of Medical Microbiology, Immunology and Hygiene and director of the Molecular Typing Laboratory. He is a senior lecturer in clinical microbiology and infectious diseases at the Faculty of Medicine of the University of Cologne and associate head of the Clinical Infectious Diseases Counselling Service of the University Hospital in Cologne.

His particular research interests are in the molecular epidemiology of nosocomial pathogens; development of molecular methods for epidemiological typing with a particular focus on the genus *Acinetobacter* and *Staphylococcus*; epidemiology of nosocomial infections, nosocomial bacteremia and catheter-related infections; invasive *Staphylococcus aureus* infections; antimicrobial susceptibility and resistance mechanisms of gram-negative and gram-positive bacteria and fungi.

He has been involved in numerous clinical and in vitro studies on new antibacterial and antifungal compounds both in immuno-compromised and non-compromised patients.

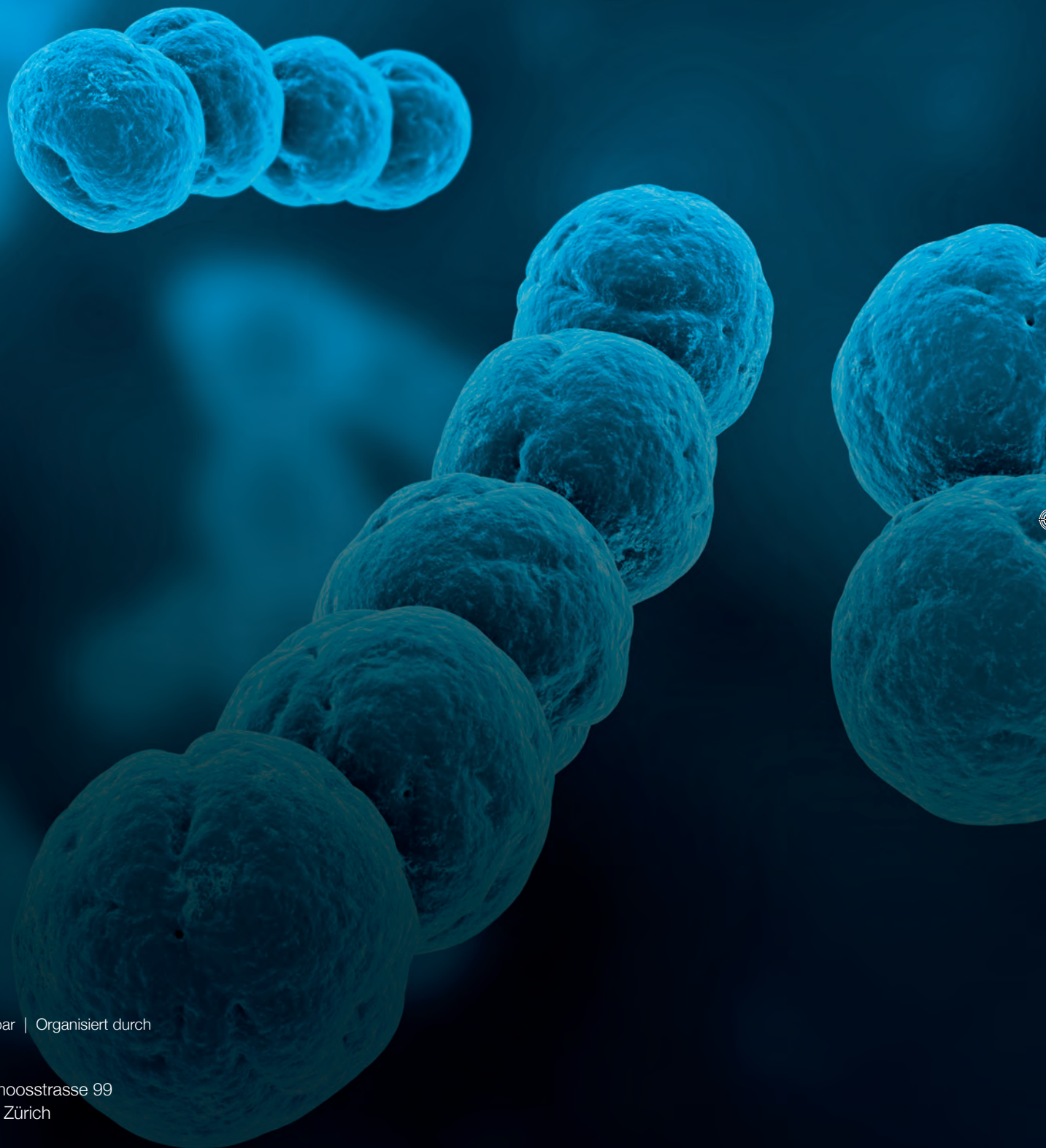
He is a member of the German Society for Infectious Diseases, the German Society for Hygiene and Microbiology, the Paul-Ehrlich-Society for Chemotherapy, the European Society of Clinical Microbiology and Infectious Diseases, and the American Society for Microbiology.

He has published over 140 peer-reviewed scientific publications and 32 book chapters. He is the editor of a textbook on catheter-related infections and of the German Guidelines on Laboratory Diagnosis of Bloodstream Infections and Catheter-related Infections.

The Global Epidemiology of *Acinetobacter baumannii*

Acinetobacter species have received increasing attention during the past three decades as significant opportunistic pathogens, usually in the context of serious underlying disease. Nosocomial infections and hospital outbreaks have been mainly attributed to *Acinetobacter baumannii* in particular in the intensive care unit setting, and to a lesser extent also to *A. nosocomialis* (previously *Acinetobacter* gen.sp. 13TU) and *A. pittii* (previously *Acinetobacter* gen.sp. 3). Community-acquired infections have been reported mainly from south-east Asia and tropical Australia but have occurred only rarely in the western world. Other members of the genus *Acinetobacter* are less frequently involved in human infectious diseases. These latter organisms are ubiquitous in the environment and may constitute part of the human skin flora while the natural habitat of *A. baumannii* is still poorly defined. Identification to species level of these organisms using commercial identification systems remains problematic.

A. baumannii ranks 10 among the most frequent organisms causing nosocomial bloodstream infections in the US. Recent data from the National Nosocomial Surveillance System (NNIS) showed also a substantial increase of *Acinetobacter* in nosocomial pneumonia in the US. Increasing resistance of *A. baumannii* to the major antimicrobial drugs is a cause of serious concern. Resistance to the carbapenems has risen dramatically over the past five years, in particular in Asia but also in the US and in Europe. This organism is known for its propensity for nosocomial cross transmission that has been attributed to its multi-drug resistance coupled with its ability for long-term survival in the hospital environment. These characteristics have led to the designation of *A. baumannii* as the “gram-negative MRSA”. An ever increasing number of hospital outbreaks caused by *A. baumannii* has been reported from numerous countries around the world. In addition, inter-hospital spread of multi-drug resistant *A. baumannii* has been observed as well as spread between countries. Molecular typing plays an important role in revealing new insights into the epidemiology of *A. baumannii* and in coping with its epidemic spread. Recent data obtained with rep-PCR and MLST typing indicates that several epidemic *A. baumannii* strains (clones) circulate around the world including the worldwide (previously European) clonal lineages I-III. Among these, worldwide clonal lineage II (corresponding to European clone II) makes up almost 50% of carbapenem-resistant *A. baumannii* from a worldwide collection of strains. However, it still remains to be elucidated what apart from its multiple resistance genes makes this clone so successful in spreading around the globe.



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