

# FACING THE CHALLENGES OF AND PROVIDING SOLUTIONS FOR ANTIMICROBIAL RESISTANCE IN THE INTENSIVE CARE UNIT: A CALL FOR ACTION FROM THE ANTARCTICA (ANTIMICROBIAL RESISTANCE CRITICAL CARE) COALITION

DR JEAN CARLET (LEFT), PRESIDENT, WORLD ALLIANCE AGAINST ANTIBIOTIC RESISTANCE AND  
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The coalition has identified four key areas for improvement: risk stratification, diagnosis, therapy and prevention. Under each area, there are priorities which will need addressing if the management of AMR is to improve.

**B**russels, 15 November 2017. Intensive care and infectious disease specialists from the European Society of Intensive Care Medicine (ESICM), European Society of Microbiology and Infectious Diseases (ESCMID) and World Alliance Against Antibiotic Resistance (WAAAR), united in the ANTARCTICA (ANTimicrobiAl Resistance CriTIcal CAre) – coalition, to call for increased awareness and action among intensive care and infectious diseases health care professionals to reduce AMR development in critically ill patients, to improve treatment of AMR infections and to coordinate scientific research in this high-risk patient population.

AMR is a clear and present danger to patients in any intensive care unit (ICU) around the world. It is associated with increased mortality, prolonged length of stay, increased costs and paradoxically, increased antibiotic use. Studies indicate that at least 25,000 patients die each year of AMR in the hospital, many of them in the ICU. The number of patients affected by and dying from AMR infections in Europe is expected to increase significantly in the next years; by 2050 an estimated 390,000 patients will die from AMR in European countries.

Whereas AMR may affect any patient in the hospital, patients in the ICU are particularly at risk of acquiring AMR

infections due to the intensity of the treatment, use of invasive devices, increased risk of transmission and exposure to antibiotics. AMR is present in every ICU, although prevalence is geographically different and AMR pathogens encountered are variable. In Southern and Eastern Europe, the Middle East, and many countries in Asia, AMR is a daily challenge, with often limited options for antibiotic therapy.

Despite this threat, we are confident that we can turn the tide on AMR in our ICUs for a number of reasons:

- ➔ Knowledge about the mechanisms involved in the development and spread of AMR are increasing.
- ➔ Technologies to rapidly diagnose infections and document the involvement of AMR pathogens are becoming available.
- ➔ New antibiotics particularly aimed at AMR pathogens are becoming available and many are under investigation. In parallel, non-antibiotic strategies to treat severe infections are under development.
- ➔ The importance of infection control in hospitals is now recognized and infection control programmes are increasingly effective in controlling the spread of AMR infections.

In order to consolidate this knowledge, the Coalition against

Figure 1: ANTARTICA's four priority areas for improving AMR management in ICUs

### 1. Risk stratification

- Identify pathogen-specific risk factors for MDR involvement
- Study impact of different antibiotics on MDR development

### 2. Diagnosis

- Develop and evaluate tools for:
  - Early diagnosis of sepsis
  - Early differentiation between infection and inflammation, and between infection and colonization
  - Rapid detection and identification of pathogens and resistant patterns
- Improve methods for rapid phenotypic susceptibility testing

### 3. Therapy

- Obtain pharmaco-kinetic data from ICU patients for all available antibiotics
- Elucidate the role of combination therapy in MDR infections
- Role of alternative route of antibiotic administration (i.e. nebulized antibiotics)
- Improve therapeutic drug monitoring (TDM)

### 4. Prevention

- Clarify the role of decontamination strategies

antimicrobial resistance in critical care has identified priorities in four areas to improve AMR infection management in the ICU (Figure 1) and urges healthcare professionals, scientific societies and industry to take action.

This will require concerted, multifaceted and continued action from healthcare professionals as well as all stakeholders involved including patient organizations, scientific societies, pharmaceutical industry, healthcare policy-makers and politicians. We are aware that the same threat applies to low-income countries where unfortunately some of the high-technological options may not be available. Nevertheless, we are confident that the other low-cost components also apply and may help to reduce the burden of MDR in these countries. In the ICU, tackling AMR remains a responsibility shared by all healthcare workers, from physicians to maintenance personnel, from nurses to physiotherapists, from consultants to medical students. Together, we can reduce AMR in the ICU, and continue to treat our patients effectively. ■

*Dr Jean Carlet, is the President and Founder of ACdeBMR, in English WAAAR (the World Alliance Against Antibiotic Resistance). Trained in internal medicine, head of the ICU in Hospital St Joseph, Paris, for 25 years, he has published in medical journals on the issue of antibiotic resistance for over 30 years. WAAAR gained international recognition with the launch of the Paris Declaration which gathered over 700 signatories from 55 countries, or which over a 100 scientific societies. In 2015 Dr Carlet was nominated by France's Ministry of Health to head the Special Task Force for Antibiotic Preservation. He is a steering committee member of several coalitions such as CARA.*

*Professor Jan De Waele, MD, PhD, is a surgery-trained intensivist with a specific interest in severe infections in critically ill patients. He works at the surgical ICU of the Ghent University Hospital in Belgium. His clinical interests include AMR and antimicrobial stewardship in ICUs. His research activities currently focus on optimizing antibiotic therapy in severely ill infected patients to improve outcomes and combat resistance development. He is active in several societies; he is currently chairing the Infection Section of the European Society of Intensive Care Medicine (ESICM) and is President of the Belgian Society of Intensive Care Medicine.*

# AMR CONTROL 2018

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AND GLOBAL OFFICE FOR INTEGRATIVE WORLD HEALTH AGAINST ANTIBIOTIC RESISTANCE

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# AMR CONTROL 2017

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AND GLOBAL OFFICE FOR INTEGRATIVE WORLD HEALTH AGAINST ANTIBIOTIC RESISTANCE

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DIAGNOSTICS + ANTIMICROBIAL RESISTANCE AND ITS  
INFECTION PREVENTION AND CONTROL + R&D INNOVATION  
ANTIMICROBIAL RESISTANCE IN FOOD, WASTE AND THE ENVIRONMENT



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