ICCMU Position Statement

Introduction

This document provides a set of seven evidence and expert opinion based recommendations for structures and processes that should be in place in all Intensive Care Units (ICU) to support the quality use of antimicrobials.

With due consideration of the unique challenges of the intensive care setting, the statements in this document are derived from the *Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship*, the Australian Commission on Safety and Quality in Health Care document *Reducing Harm to Patients from Health Care Associated Infection: The Role of Surveillance*, and the NSW Health Infection Control Policy Directive: *Prevention and Management of Multi-Resistant Organisms (PD2007_084).*

Additional input has been provided by an expert group comprised of intensivists, clinical microbiologists, infectious diseases physicians, pharmacists and an hospital epidemiologist (Appendix 1). Those experts consulted supported the notion of work to improve the quality of antimicrobial use in ICU but acknowledged that methods that have been successfully employed in other care settings may not be practical or appropriate in intensive care. Intensive care units enjoy the privileged position of unrestricted access to antibiotics however; this must be partnered with a responsibility to ensure that these antibiotics are used appropriately.

Background

The emergence and spread of multi-resistant organisms (MROs) and other antibiotic use related pathogens such as C. difficile cause a considerable burden on the health care system. This burden comes in the form of increased patient morbidity and mortality and increased costs of care.

Considerable evidence exists linking injudicious use of antibiotics to the emergence and spread of MROs and C. difficile. In intensive care units, both antibiotic usage rates and the prevalence of infection with multi-resistant organisms are higher than in other care settings. Additionally, antibiotic use in the intensive care unit is often empiric, using broad spectrum agents.

Principles of judicious or quality use of antimicrobials have been developed to help clinicians obtain the best possible results for individual patients while limiting the risk of further contributing to the development of MROs. In many institutions, antimicrobial stewardship programs have been shown to significantly improve the quality use of antibiotics by application of a number of techniques. It is acknowledged that some components of antimicrobial stewardship programs, such as requirements for

microbiology / infectious diseases approval to prescribe many antimicrobials, may not be appropriate within the ICU to ensure that antimicrobial agents are used judiciously and in accordance with the principles of quality use of medicines.

In 2007, the NSW Department of Health issued the Infection Control Policy: Prevention & Management of Multi-Resistant Organisms (MRO) (PD2007_084). This policy directive contains a number of requirements for health care facilities in relation to the appropriate use of antibiotics. A number of these should apply equally in the intensive care unit as they do the rest of the facility.

Also in 2007, the Infectious Diseases Society of America and the Society for Healthcare Epidemiology released guidelines for institutional antimicrobial stewardship programs. These guidelines made a series of recommendations on what elements an antimicrobial stewardship program should contain based on the available evidence.

In 2008/09, the Australian Commission on Safety and Quality in Health Care established a committee for the purpose of advising the Australian health care system of structures that should be in place to support the quality use of antimicrobial agents. This work was done with specific reference to the Australian setting.

These sources, and expert opinion, have formed the basis of this position statement.

Recommendations to Support Quality Use of Antibiotics in Intensive Care

Recommendation 1

That intensive care units have appropriate policies for first line treatment of sepsis, including policies for empiric antimicrobial management of suspected bacterial infection

Use of guidelines supports clinicians in applying the best available evidence to clinical decision making, removes variability in treatment provided and has been shown to improve patient outcomes.

Recommendation 2

That intensive care units are provided with regular data on the prevalence of microorganisms and their susceptibility and local guidelines for empiric treatment are assessed against this information

Empiric treatment is largely probability driven. Knowledge of the most prevalent microorganisms in the ICU and the hospital, as well as their susceptibility, increases the likelihood that empiric treatment will be effective against the causative agent. Treatment recommendations in local guidelines should reflect local susceptibility data.

Recommendation 3

That intensive care units are provided with timely reports of laboratory results which may be used to guide antimicrobial therapy

Early detection and identification of bacteria causing infection allows optimisation of antimicrobial therapy in terms of both individual patient outcomes and the reduction of broad spectrum antimicrobial use. Step down, or stream-lining programs have proven to be effective methods of reducing the use of broad spectrum antimicrobials. These programs rely on the availability of definitive laboratory results.

Recommendation 4

That intensive care units are provided with antimicrobial usage data on a monthly basis

The routine collection of antimicrobial usage data can provide a method of detecting significant variations in the use rates of antimicrobial agents. This information may also provide a meaningful indication of emerging antimicrobial resistance. These data, with interpretation, provide a measure of the effectiveness of efforts to improve the quality of antimicrobial use. This data set is the most readily available and accessible information regarding the use of antimicrobials and data collection is not a significant burden.

Recommendation 5

That intensive care units have access to standard materials for training medical officers in the quality use of antimicrobials

Medical officers should be afforded the opportunity to learn about the quality use of medicines in intensive care. Education programs have been important components of effective campaigns to improve the quality of antibiotic use. By having standard materials, a consistent message can be provided to medical officers.

Recommendation 6

That intensive care units have mechanisms to audit the quality use of antibiotics and to provide feedback on audit results to individual prescribers.

Audit and feedback of related data to the prescriber, is a powerful driver of quality improvement. It is important for individual prescribers to be alerted to the quality of their prescribing so that they can adjust practice as required. Having standard audit tools and methodology can also permit benchmarking and peer site comparison which provides additional feedback for units concerning their performance.

Recommendation 7

That intensive care units utilise local experts to provide patient focussed ward rounds reviewing all positive microbiology and antimicrobial prescriptions

Medical officers should be afforded the opportunity to review the relevant microbiology and antimicrobial prescriptions to optimise care. Allowing access to the expertise of infectious diseases specialists, microbiologists, pharmacists and infection control practitioners provides emphasis on individual patient treatment. Establishing ward rounds with specialists supports other recommendations in this statement and is an effective method of providing educational opportunities and reduces the use of broad spectrum agents and ensuring therapy is appropriate.

Selected articles

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Appendix 1

Name	Position
Dr Tony Burrell	Director, ICCMU Director, Patient Safety, CEC
Dr Robert Herkes	Co-Chair, Intensive Care Task Force ICU, Royal Prince Alfred Hospital
Dr Zachariah Matthews	Director of Pharmacy, Canterbury Hospital
Dr Tom Solano	ICU, Hornsby Hospital
Professor Lyn Gilbert	Clinical Microbiologist, Westmead Hospital
Daniel Lalor	Project Manager, Medication Safety, Clinical Excellence Commission
Margherita Murgo	Project Officer, Quality Use of Antibiotics in Intensive Care
Ms Lucy Holt	Antimicrobial Stewardship Pharmacist, Children's Hospital Westmead
Dr Rob Cameron	ICU, Gosford Hospital
Dr Gill Bishop	ICU, Campbelltown Hospital
Dr John Gallagher	ICU, Westmead Hospital
Dr Thomas Gottlieb	Microbiology and Infectious Diseases Senior Specialist Concord Hospital
Dr Jon Iredell	Clinical Microbiologist / Infectious Diseases Physician, Westmead Hospital
Dr David Andresen	Clinical Microbiologist / Infectious Diseases Physician, Children's Hospital Westmead
A/Prof Mary-Louise McLaws	Hospital Epidemiologist, UNSW
Dr John Ferguson	Infectious Diseases Physician, John Hunter Hospital