

when the rates were calculated using central line days as the denominator (considered the gold standard) compared with using patient days as the denominator. For example, if a unit was in the 47th percentile when central line days were used and the 54th percentile when patient days were used the percentile error was 7. The higher the percentile error the greater the impact of risk adjustment for central line days. For the 2,599 unit/years analysed, there was a high correlation between percentiles based on central line days versus those based on patient-days. The percentile error was 20 or more for 15.4% of the unit/years. The median percentile error was ± 7 . Percentile error decreased as the device utilisation ratio increased. Although the median is low, it is significant that the 90th percentile for percentile error was ± 23.7 ; this means that for 10% of unit/years the absolute value of the percentile error was 23.7 or greater.

Sensitivity and predictive values were also analysed and while calculations using patient-days had a fair sensitivity of 75 – 77% for finding units with high or low central line day rates the positive predictive value of high or low patient day rates was only 56 – 65%.

The authors point out that these methods can be used to assess the impact of risk adjustment more widely. If risk adjustment causes rates to be different to a meaningful degree from the crude (unadjusted) risk rates then this argues for risk adjustment, but the converse is also true. The greatest difficulty may lie in deciding what constitutes a 'meaningful difference'.

Tokars JL, Klevens RM, Edwards JR, Horan TC. Infection Control and Hospital Epidemiology September 2007; 28(9).

Book review

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Infections in Critical Care Areas

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Infections in Critical Care Areas is a collection of articles published together in one issue of the journal *Critical Care Nursing Clinics of North America*. This publication has four issues a year, each focusing on a single topic, and aims to provide up-to-date reviews and practical guidance for critical care nurses.

There are thirteen articles in total and the flow of topics is logical. The first two articles review the anatomy and physiology of the immune system, providing a useful review of terms as well as the inflammatory and infectious processes. The next three articles cover various types of infections – bacterial, tick-borne/rickettsial, and spirochete (predominantly Lyme disease). The following four articles focus on antimicrobial issues. First there is a general review of antimicrobial types that reviews classifications, adverse effects and so on. The next article describes issues surrounding antimicrobial resistance. Then follows one article each on MRSA and VRE in critical care areas. Separate articles are provided on sepsis and the multiple organ dysfunction syndrome (MODS). The last two articles cover the specialised and interesting topics of infective endocarditis and avian influenza.

A strength of the publication is that each article can be read either as a stand-alone piece or in conjunction with the other articles. There is some repetition of content between chapters, which is probably unavoidable in this type of publication, but does

become an issue if reading the combined work in one sitting. As might be expected, some sections are stronger than others. The article on *sepsis in critical care* stands out as a particularly good contribution that is comprehensive, up to date, evidence-based, and provides practical direction.

Each chapter is written by one or more registered nurses, most in senior academic positions, with a smaller number of nurse practitioners. The work is generally well referenced; medical and nursing research literature is covered, in addition to relevant policies and statements released by key bodies. On the other hand, at least one chapter cites a Wikipedia website as a reference. Although this website references another website, which in turn references it to a book chapter, it would be more usual to cite the original peer-reviewed source.

All authors are from the USA and the focus is targeted at a North American readership; this somewhat limits accessibility to Australian and other readers. For example, the cited incidence rates are usually based on USA data, and the terminology regarding antimicrobials and diagnostic tests is not always clear to an international audience. The publication would appear to be of most interest to its intended audience, ie critical care nurses. Australian ICPs will no doubt find some sections of the publication useful, but may not find the included information and approach entirely meets their specialised needs.

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