Are infection control measures helpful in reducing paediatric ward infections?

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Abstract

As the majority of children on paediatric wards, especially in winter, have infections all paediatricians will be involved in infection control and prevention (ICP) without realising it. ICP measures include decisions on isolation of patients, which can be difficult with small numbers of cubicles. Children, who are highly infectious, have potential severe infections and those who are more at risk of developing severe infections (e.g. immunocompromised) should be isolated. Handwashing/decontamination is the central and most essential part of ICP measures. It should be actively encouraged and regularly monitored to ensure adherence. The ward layout will influence how we manage ICP. This includes placement and number of alcohol dispensers, sinks, bathrooms, equipment storage and the number of cubicles. It is also worth reviewing ward cleaning policies to assess whether these can be streamlined, potentially freeing up beds/cubicles earlier and leading to cost improvement without putting patients and staff at risk. We encourage all our staff to be fully vaccinated (including seasonal influenza vaccines and MMR). Paediatricians need to be closely involved in antibiotic stewardship and act as role models for all aspects of infection control, particularly proper handwashing.

Keywords antibiotic stewardship; handwashing; infection control and prevention

Introduction

The following review will cover if general paediatricians can influence paediatric infection control and prevention (ICP) issues, highlighting where there is evidence and what strategies should be employed to promote this. We will not specifically be covering Paediatric and Neonatal Intensive Care Units (PICU & NICU) unless stated, however in general the methods for ICP will be similar.

The biggest difference between paediatric and adult wards, especially during the winter months is that the majority of children are admitted because of infections. ICP should therefore concern every general paediatrician. It is not uncommon for health care professionals (not only in paediatrics) to resist ICP measures where the counterargument is often "show us the evidence". There are many aspects of ICP where there is little good quality evidence, but in these situations common sense should prevail.

NICE has set quality standards for ICP; however the majority of these standards cover scenarios uncommon on a paediatric ward. Of particular importance are the guidances on hand decontamination, need for continuous improvement in ICP (including board level leadership and a designated ICP lead) and antibiotic stewardship.

There were no differences in the rates of new infections acquired by children at home compared to those in medical settings from the few studies identified. Controversially this may mean that for common paediatric infections, for 'normal' children in hospital, we may be able to worry less regarding ICP issues. We will discuss this as we progress through this review remaining pragmatic about where we use this evidence.

Figure 1 shows some of the ICP issues and contamination risks that are commonly encountered in paediatric wards in the UK. The full list of potential risks is given at the end of the article.

History

ICP is not a new topic. It has caused controversy throughout time and still does today. Some of the earliest ICP measures are mentioned by Hippocrates and Galen in the context of plague "leave, go far away and come back slowly". Reducing contact between infectious patients and healthy individuals remains a mainstay of ICP today.

Handwashing/cleansing

Simple handwashing was shown to be effective in reducing infection rates as long ago as the mid-19th century. Ignaz Semmelweis, a Viennese doctor, noticed that more women died from puerperal sepsis after having been examined by doctors or medical students compared to midwives. This was attributed to the fact that the doctors and students had performed dissections/autopsies just before gynaecological examinations. It was a common belief at the time that puerperal sepsis was either transmitted through the air or was an autoinfection from "unclean" woman in childbirth.

As a consequence of this observation Semmelweis recommended strict handwashing, regular changes of bed linen and thorough cleaning of gynaecological instruments. Unfortunately Semmelweis' was ridiculed at the time by scientists and other doctors and his theory was only accepted into clinical practice after his death in 1865. Today we have moved these principles forward so that all of us should be universally employing the 5 moments of hand hygiene and the 6 steps of hand washing technique.

The 5 moments for hand hygiene, when we need to disinfect our hands are:

1. Before touching a patient/entering their bed space/cubicle
2. Before clean/aseptic procedures
3. After body fluid exposure/risk
4. After touching a patient
5. After touching a patients' surroundings

The 6 steps to hand washing or alcohol rubbing technique are shown in Figure 2. Alcohol rubs, which can be carried by

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Figure 1 Identify the potential infection control risks lurking in these picture from a paediatric ward (answers at the end of this article).

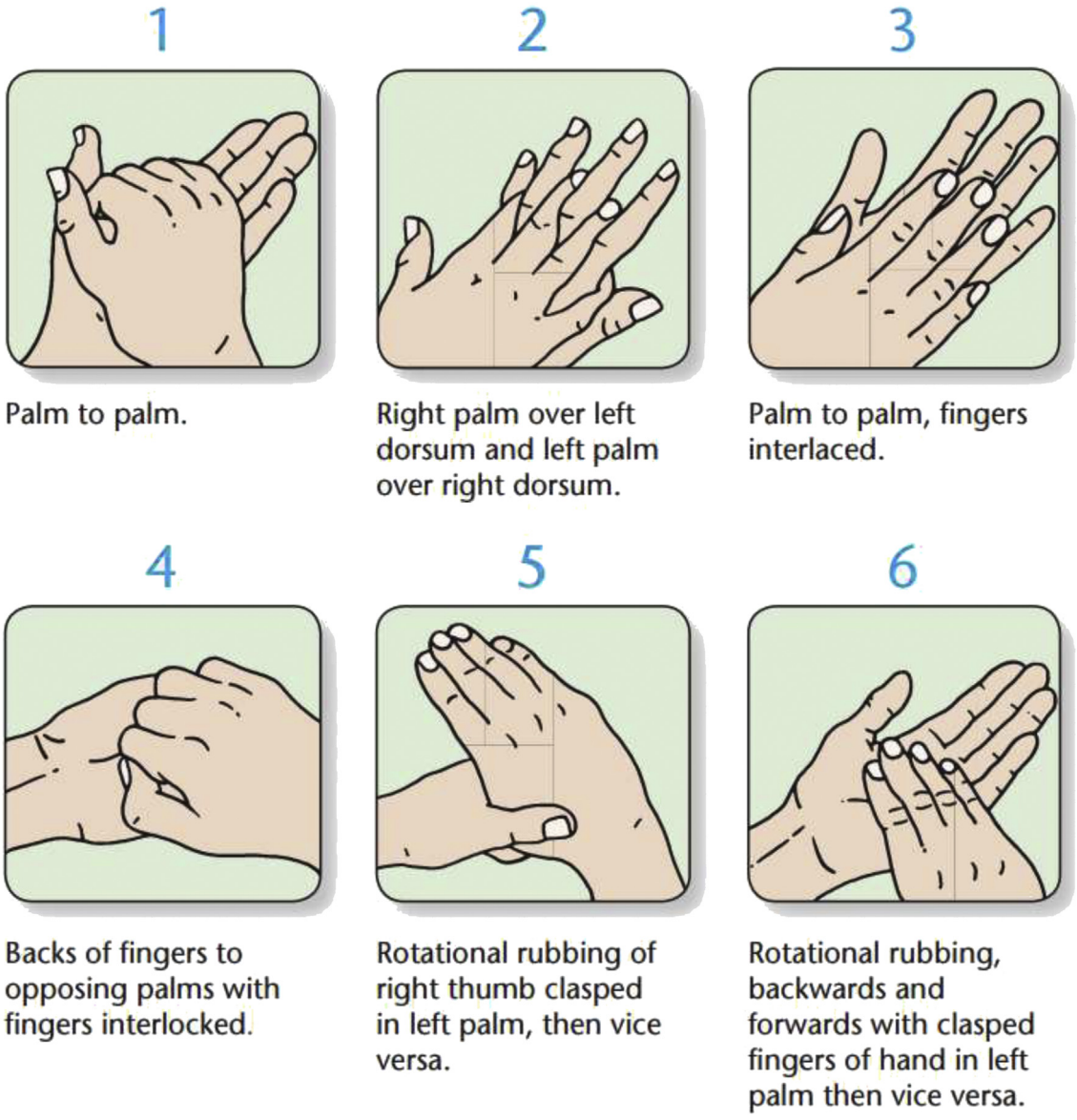

Figure 2 The 6 steps to hand washing or alcohol rubbing technique.

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