

## The Future is in Your Hands

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### Introduction

"When I look back upon the past, I can only dispel the sadness which falls upon me by gazing into that happy future when the infection will be banished . . . The conviction that such a time must inevitably sooner or later arrive will cheer my dying hour." These were the last words of Ignaz Semmelweis who died on August 13, 1865 at the age of 47.

Ignaz Semmelweis was a Hungarian doctor who championed hand-washing and is now known as the 'Saviour of Mothers' and the 'Father of Infection Control'. Semmelweis introduced the concept of hand washing after discovering that the occurrence of puerperal fever could be prevented by practicing hand disinfection. He also believed that micro-organisms causing infection were readily transferred from patients to patients, medical staff to patients and vice versa. After his observations, Semmelweis advocated the use of chlorinated lime solution for hand-washing to prevent the spread of infections within a healthcare setting. During the 1800's, many of his colleagues and medical professionals rejected his findings and refused to believe that they could be responsible for spreading infections. Almost 200 years later, convincing health care providers to take hand washing seriously remains an ongoing challenge.

Despite advances in modern medicine, new drug discovery and state of the art medical facilities, infectious diseases continue to spread and pose a threat to human health. Simple as it sounds and as advocated by Semmelweis, hand hygiene is the most effective measure for preventing both community acquired and nosocomial infections, and has the potential to save many lives. The Centers for Disease Control and Prevention emphasizes that hand hygiene is one of the most important and cost effective ways to prevent infections, and the WHO with great advocates for hand hygiene, amongst those being Professor Didier Pittet have launched campaigns such as the 'Save Lives: Clean Your Hands' initiative and WHO guidelines on hand hygiene are available to assist health care workers on proper technique [1].

Importantly this focuses on 'My 5 Moments for Hand Hygiene' to prevent the spread of infections especially within a health care setting. 'My 5 Moments for Hand Hygiene' need to be adopted by health-care staff/personnel and family members who provide medical care to patients and includes the following:

Proper hand hygiene:

- 1 Before touching a patient
- 2 Before performing a procedure
- 3 After body fluid exposure risk
- 4 After touching a patient
- 5 After touching patient surroundings

The institution of hand hygiene measures has a dramatic effect on nosocomial infections with as much as an 80% reduction in catheter-related blood stream infections and 60% reduction in lower respiratory tract infections [2]. For reasons best known to themselves however,

doctors remain the worst offenders with hand washing compliance [3].

Multidrug resistant organisms (MDRO) have become a global health emergency. The WHO 2014 report on global surveillance of antimicrobial resistance revealed that antibiotic resistance is no longer a prediction for the future but is happening right now, across the world, and is putting at risk the ability to treat common infections in the community and hospitals [4].

While a multifaceted approach is required to address the problem of MDRO, infection prevention and control (IPC) is a key element of this strategy, with hand hygiene an integral component. Poor infection control in any setting can increase the spread of MDRO especially during outbreaks. When alternative antimicrobial treatment options are not available, IPC measures are critical for containing the spread of MDRO. Such infections often fail to respond to standard therapy, resulting in prolonged illness and hospitalization, hence it is crucial that proper IPC measures are adhered to, especially hand hygiene.

Apart from the hospital setting, especially with childhood disease, the value of clean hands is emphasized with regard to preventing sickness [5]. Worldwide over 2 million children under the age of 5 die from diarrheal disease and pneumonia, and hand washing may reduce infection by 30%.

Promotion of hand hygiene is an enormous challenge as many health professionals are recalcitrant and compliance is problematic. It is time to realize that hand hygiene is a vital part of the solution to our fight against infectious disease. Behavioral change is pivotal to success and a combination of education and motivation must be maintained ensure the adoption of 'continuous and sustained' hand hygiene practices. All health care professionals have a moral obligation to be compliant and effective and the indifference to evidence-based practice recommendations must be overcome [6]. The fiscal and human burden that health care associated infections impose is enormous, costing almost \$5 billion per annum in the United States and accounting for 90,000 deaths [6]. Compliance with hand hygiene will translate into a decrease in the spread of infectious disease thus saving many lives in the most cost effective manner. The future is in our hands.

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