



Virginia Commonwealth University  
VCU Scholars Compass

---

Biology and Medicine Through Mathematics  
Conference

---

## **Saving Lives, Limbs and Healthcare Costs}{Saving Lives, Limbs and Healthcare Costs: Quantifying the impact of CHG bathing and effective leadership on the reduction of hospital-acquired infections**

Kelly A. Reagan  
*Virginia Commonwealth University*, [reaganka2@vcu.edu](mailto:reaganka2@vcu.edu)

Follow this and additional works at: <https://scholarscompass.vcu.edu/bamm>

 Part of the [Life Sciences Commons](#), [Patient Safety Commons](#), and the [Physical Sciences and Mathematics Commons](#)

---

<https://scholarscompass.vcu.edu/bamm/2020/talk/36>

This Event is brought to you for free and open access by the Dept. of Mathematics and Applied Mathematics at VCU Scholars Compass. It has been accepted for inclusion in Biology and Medicine Through Mathematics Conference by an authorized administrator of VCU Scholars Compass. For more information, please contact [libcompass@vcu.edu](mailto:libcompass@vcu.edu).

Hospital-acquired infections (HAIs) impact 1 in 22 hospitalized patients and are one of the leading causes of mortality in the United States. In addition to the direct patient impact, HAIs also cost the US healthcare system about \$45 billion a year. Multiple studies have shown that bathing patients with chlorhexidine gluconate (CHG) wipes reduces HAIs. We employed a Markov chain model to assess the impact of CHG bathing on yearly HAIs and associated costs. Although the cost of using CHG wipes over traditional practices is about \$4 more per patient, millions of dollars still could be saved when CHG bathing compliance is improved. Furthermore, we examine the effect of active resistors and organizational constipators on the reduced number of potentially prevented HAIs and the increase in associated healthcare costs. These individuals often delay implementation of emerging best practices in infection prevention.