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Original research

Reducing the number and impact of outbreaks of nosocomial viral gastroenteritis: time-series analysis of a multidimensional quality improvement initiative

Caroline Mitchell^{1,2}, Paul Meredith³, Matthew Richardson^{1,4}, Peter Greengross⁵, Gary B Smith⁶

Author Affiliations

¹Department of Infection Prevention, Portsmouth Hospitals NHS Trust, Portsmouth, UK

²Department of Infection & Immunity, University College, London, UK

³Research & Development Department, Portsmouth Hospitals NHS Trust, Portsmouth, UK

⁴West Hampshire Clinical Commissioning Group, Eastleigh, UK

⁵The Learning Clinic Ltd, London, UK

⁶The Faculty of Health & Social Sciences, Bournemouth University, Bournemouth, Dorset, UK

Correspondence to

Professor Gary B Smith, Faculty of Health & Social Sciences, Bournemouth University, Royal London House, Christchurch Road, Bournemouth, Dorset BH1 3LT, UK; gbsresearch@virginmedia.com

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Abstract

Background Nosocomial norovirus infections and their control measures disrupt patient care, increase staff workload and raise healthcare costs.

Objective To determine the impact on outbreaks of nosocomial viral gastroenteritis, staff and patients affected, and bed closures of a multidimensional quality improvement (QI) initiative focused on education; improved patient surveillance; early automated recognition and notification of infection of index patients; and proactive care and control measures.

Methods In a pragmatic, retrospective, observational study, we compared numbers of suspected/confirmed norovirus outbreaks at Portsmouth Hospitals National Health Service Trust (PHT) with regional and national data, before and after a multidimensional QI initiative. We also compared mean daily bed closures due to norovirus-like symptoms. At PHT only we recorded patient and staff numbers with norovirus-like symptoms, and days of disruption due to outbreaks.

Results Annual outbreak numbers fell between 2009–2010 and 2010–2014 by 91% at PHT compared with 15% and 28% for Wessex and England, respectively. After April 2010, recorded outbreaks were 8 (PHT), 383 (Wessex) and 5063 (England). For the winter periods from 2010/2011 to 2013/2014, total bed closures due to norovirus were 38 (PHT; mean 0.5 per week), 3565 (Wessex hospitals; mean 48.8 per hospital per week) and 2730 (England; mean 37.4 per hospital per week). At PHT, patients affected by norovirus-like symptoms fell by 92%, affected staff by 81% and days of disruption by 88%.

Conclusions A multiyear QI programme, including use of real-time electronic identification of patients with norovirus-like symptoms, and an early robust response to suspected infection, resulted in virtual elimination of outbreaks. The ability to identify index cases of infection early facilitates prompt action to prevent ongoing transmission and appears to be a crucial intervention.

Abstract link

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