Introduction

- Hospital-acquired infections (HAIs) frequently result in worse medical outcomes, increased cost of care, increased length of stay, and higher overall rates of patient morbidity and mortality.
- Surveillance systems to measure the impact of HAIs are rare in middle to low income countries where the burden of disease is estimated to be much higher and with more severe outcomes on patient health.
- In Ethiopia, there is no national data regarding HAI surveillance but regional reviews have indicated a high prevalence. A study done at Jimma University Specialty Hospital in 2011 found the overall rate of surgical site infections (SSI) among obstetric cases to be 11.4%. Comparatively, the National Health Safety Network reported a pooled rate of post-caesarean delivery SSI of 1.46-3.82% for the United States.
- The Systems Engineering Initiative for Patient Safety (SEIPS) evaluation of the work system involves examining the interaction between the five components of the work system (person, tasks, tools, physical environment, organizational conditions) and the way in which they influence one another. The work system in turn affects the processes (both care processes and other) which result in different patient outcomes (quality of care, patient safety) and employee and organizational outcomes.
- The SEIPS model provides a framework that can be used to identify barriers and facilitators of infection control practices and evaluate interactions between structures, processes, and outcomes to identify areas of potential improvement in the complex environment of a hospital.

Methods

- A qualitative study was done to evaluate the potential barriers and facilitators to implementation of effective infection control practices at Jimma University Specialty Hospital in Jimma, Ethiopia.
- A semi-structured interview guide was developed based on the SEIPS model that addressed the interactions between the five components of the work system: person, tasks, tools and technologies, physical environment, and organizational conditions.
- Twenty-two semi-structured interviews of physicians, nurses, pharmacists, and environmental service employees, selected by convenience sampling, were conducted in English or with a native language interpreter.
- These interviews were recorded, transcribed, coded for themes and analyzed using the software Dedoose.

Results

Identified Facilitators of Infection Control

- The primary facilitator to effective infection control practices was at the task level of the SEIPS model. Of the 22 participants, 17 reported task level facilitators. 30% of the total facilitator excerpts (n=141) were coded to the task level. Within the task category, individual responses most frequently reported a manageable workload as a major facilitator.
- The second largest facilitator to infection control was at the organizational level. Of the 22 participants, 15 reported organizational level facilitators. 21% of total facilitator excerpts were coded to the organizational level. Within the organizational category, individual responses stated the hospital management was open to receiving feedback and had the budget necessary for infection control activities.
- The third largest facilitator to infection control was at the person level. Of the 22 participants, 15 reported person level facilitators. 18% of the total facilitator excerpts were coded to the person level. Within the person category, responses indicated there is a positive individual attitude towards improving infection control.

Discussion

To address the identified gaps we recommend that Jimma University Specialty Hospital prioritize the establishment of a functioning infection control department. The aims for this department should include developing infection control policies and protocols based on WHO guidelines, expanding the training program for new employees and including a yearly review for existing employees, incorporation of environmental services to the healthcare team, oversight of quantification and management of personal protective equipment supply chain, and establishing an HAI surveillance program to better identify current risk areas as well as track progress.

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Barriers to Infection Control

- The primary barrier to effective infection control was at the technology and tools level of the SEIPS model. All of the participants reported barriers at this level. 28% of the total barrier excerpts (n=141) were coded to the technology and tools level. The most frequent problem reported was personal protective equipment (PPE) shortage as the result of poor supply chain management.
- The next most prominent barrier to infection control was at the person level. All of the participants reported barriers at this level. 20% of the total barrier excerpts were coded to the person level. Within this category, responses indicated there was no official infection control staff and infection control training for employees was inconsistent and incomplete.
- The third most prominent barrier to infection control was at the organizational level. Of the 22 participants, 20 reported organizational barriers. 17% of the total barrier excerpts were coded to the organizational level. The most frequently reported organizational barriers were the lack of incorporation of the environmental services employees and a nurse rotation program that creates high levels of staff turnover.

Resources