



Exploring the Role of the Nurse Educator in Implementing a Comprehensive Infection Prevention and Control Program in Behavioral Healthcare

Jenneth B. Doria

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Correspondence to:
jennethdoria@gmail.com

Jenneth B. Doria, MS, RN

Brigham Young University,
Provo, UT

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Conflict of Interest

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Abstract

Introduction: This paper describes a teaching module, infection prevention and control program (IPCP), developed to explore a nurse educator's role in driving an effective program in behavioral healthcare.

Goal: The IPCP program is to address the prevention and control of hospital-acquired infections (HAIs) in behavioral healthcare, as most studies found in the literature focus on HAIs only in medical and surgical facilities. This model also illustrates how a nurse educator fits the role requirements of teacher, leader, and collaborator in successfully implementing such a program among the residents and staff of behavioral healthcare agencies.

Methods: Using the Health Belief Model, this IPCP program used the structural and performance domains to define and develop the framework for the teaching module.

Implementation: This article describes the optimal engagement of a nurse educator in implementing this comprehensive IPCP project.

Diversification, Roll-out and Discussion: Behavioral healthcare facilities also confront HAIs, much like acute care agencies. Appointing a nurse as an Infection Preventionist in behavioral healthcare is not currently required by The Joint Commission. However, this article demonstrates and confronts the reality that nurse educators can actually take on this important responsibility. Most behavioral facilities have nurse educators on staff, who can effectively implement the IPCP program under their expanded role.

Keywords: educator, infection, behavioral, prevention, nurse

Introduction

Numerous researchers have pointed out that healthcare associated infections (HAIs) cast an enormous economic burden on hospital facilities. R. D. Scott II, an economist, summed up the costs of treatment for direct medical care to be ranging from \$28 billion to \$45 billion based on two Consumer Price Indexes (Scott, 2009). The benefits of infection control interventions were also estimated from \$6 to \$32 billion utilizing the same indexes, taking into account that 10% to 70% of healthcare-associated infections are preventable. He also described the direct costs of HAIs and the savings that can be generated utilizing infection prevention and control measures in hospitals.

Although there is a considerable amount of literature addressing infection prevention and control in acute care medical settings, there are limited studies conducted in non-acute care settings, i.e., behavioral healthcare. Residential treatment facilities, drug rehabilitation centers and outpatient clinics have increasingly become more relevant loci of care in the last decade, and large patient populations reside either at long term or short term behavioral healthcare settings where HAIs also occur (Siegel et al., 2007). Behavioral care settings are also impacted by economic costs of HAIs which include decreased worker productivity or increased staffing coverage to monitor sick clients. Although both medical and behavioral healthcare facilities face a similar challenge of reducing the risks of acquiring and transmitting infection, they face different types of population, illnesses and issues. Behavioral healthcare serves clients who are emotionally compromised, involved in substance abuse, risky behaviors, improper hygiene practices and who may have limited understanding about the spread of infection. Their average length of stay in behavioral healthcare facilities can vary from a few weeks to 24 months, and they live in congregate settings that promote easy transmission of infection. An effective infection prevention and control program (IPCP) anchored upon a model that addresses the needs of its unique clientele is relevant in a behavioral health care facility.

The goal of this paper is to explore the nurse educator's role in implementing an effective and comprehensive infection prevention and control program in behavioral healthcare where infection risks can be addressed through effective educational measures. The nurse educator, who is able to integrate the roles of teacher, leader, and collaborator can target the needs of behavioral healthcare residents and staff who face infection issues inherent in their setting.

Problem

The challenge of implementing an IPCP in behavioral healthcare is that potential problems may not be as easily identifiable as those in an acute care medical setting where HAI data are gathered from specific sites of infection such as surgical sites or catheters (Wilson, 2012). Behavioral healthcare can be in a non-acute care setting where clients are generally able to participate in long-term behavioral therapy because they are physically well. Some clients may have medical problems associated with their diagnoses, such as those confined in eating disorder clinics or substance abuse centers. However, these conditions are non-acute and can be managed simultaneously with behavioral treatment. Residents in behavioral healthcare are subject to HAIs such as eye, ear, nose, and throat, respiratory, skin or enteric infections due to the congregate setting and longer duration of stay compared to regular acute care patients.

While a nurse is usually the IPCP-designated staff in an acute care medical setting, it is not required to assign a nurse or other medical practitioner to be responsible to manage infection prevention and control in a behavioral health facility (TJC, 2010). This is described in The Joint Commission's (TJC) Elements of Performance for IC .01.01.01 no. 3 which states that "the organization assigns responsibility for the management of infection prevention and control activities" with a note that the assigned individual need not be a nurse or other medical practitioner (CAMBHC, 2012, p. IC-4). The non-definitive designation of personnel to carry out a major safety component in patient care poses a potential problem. If a behavioral healthcare facility does not have an infection control nurse on staff, the responsibility for

IPCP can be taken on by a nurse educator, who is more likely to be a core staff in most behavioral health facility. The nurse educator can integrate surveillance, prevention and control components of the IPCP with educational measures to help reduce the risks of acquiring and transmitting infection in the facility.

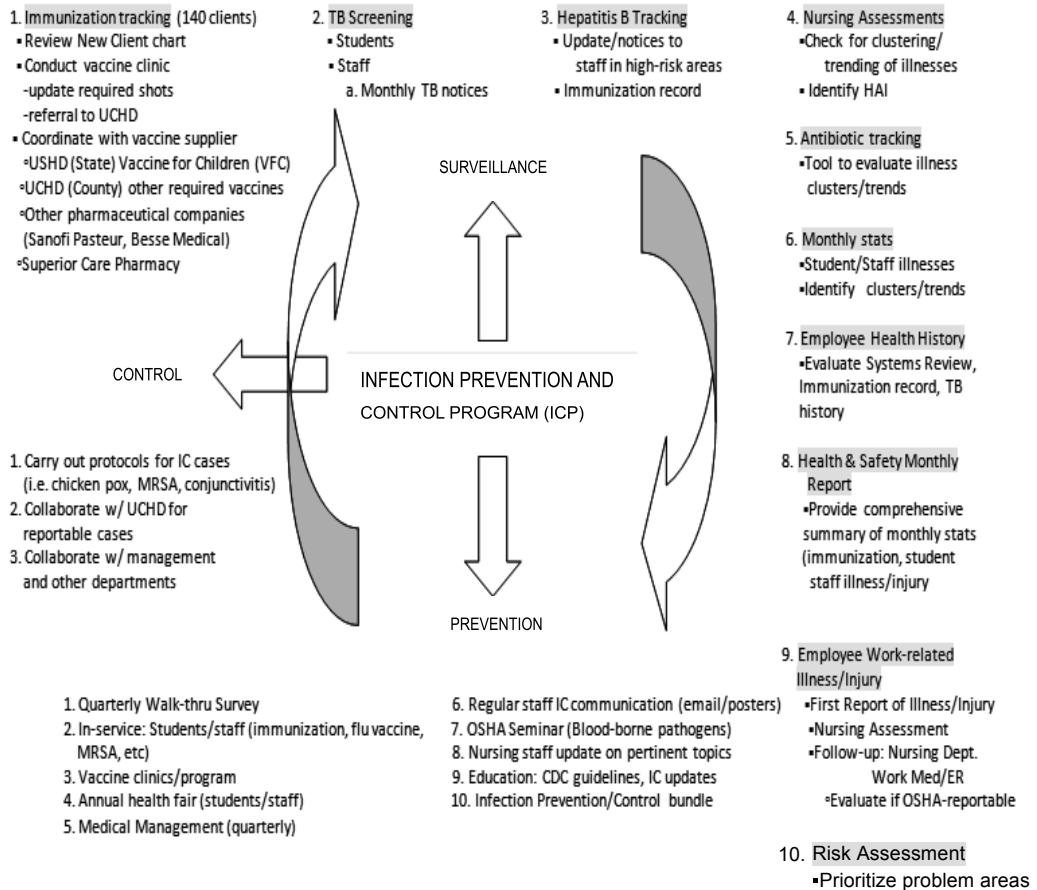


Figure 1: Concept Map - Infection Prevention and Control Program Heritage Schools, Inc.

An example of such model, Improving Organizational Performance (IOP), is a project proposed for Heritage Schools, Inc. (Heritage), an adolescent residential treatment center in Provo, Utah. Heritage serves adolescents who are 12-18 years old and has a workforce of 350, over 2/3 are residential staff members who provide direct care to students. In conceptualizing and planning this project, a concept map (Figure 1) was developed to provide a visual tool to incorporate the different activities of the model according to the IPCP components. The Joint Commission commended Heritage’s benchmarking efforts and use of surveillance data to drive their decision-making, strategic planning and recommendations on IPCP.

Theoretical Framework

A good IPCP needs to be founded upon a theoretical or conceptual framework for it to be concretely understood and implemented. Its role in reducing the risks of acquiring and reducing transmission of HAIs is underscored by The Joint Commission (TJC) which established Patient Safety Goals and Elements of Implementation that are specific to infection prevention and control (CAMBHC, 2012). Despite numerous articles citing its importance and guidelines from established sources such as the Center for Disease Control

& Prevention (CDC) or Association for Professionals in Infection Control and Epidemiology (APIC) on how to reduce HAIs in healthcare settings, the literature search did not yield any particular framework upon which an IPCP is anchored so that it could be effectively implemented per TJC standards. One study applied the Ecological Model of Behavior Change, the Health Belief Model and the Social Cognitive Theory in the study of reducing the transmission of infection in an intensive care setting (Curry, 2001). Zimmerman (2012) cited the Diffusion of Innovations theory, a conceptual framework that explains the flow of ideas and concepts from the source to the adopters within a social system. However, there is no particular framework utilized to effectively carry out an IPCP, despite its relevance in reducing HAIs.

The role of the nurse educator in implementing a comprehensive and effective IPCP is defined within a structure that can be executed and adapted to any healthcare setting. This is particularly required in behavioral healthcare where infection control risks are not as tangible compared to acute care settings. The conceptual framework of delivering primary care would be adopted, which consists of two domains - structure and performance (Hogg, Rowan, Russell, Geneau & Muldoon, 2008). The structural domain refers to the health care system, the practice context and how it is organized so that it can effectively operate. The performance domain refers to how health care is delivered and the quality of clinical care (Hogg et al., 2008). Utilizing a similar conceptual framework, an IPCP needs to have a structure that spells out its different components, namely, surveillance, prevention and control (TJC, 2010). The performance domain describes a list of activities pertinent to each IPCP component. The tasks under each component have to be specific, with measurable outcomes for evaluation. An IPCP grounded on a conceptual framework using structure and performance domains enables the responsible professional to visualize how the program will be effectively carried out.

The successful implementation of IPCP entails behavioral change so that preventive measures such as standard precautions, hand hygiene, respiratory hygiene and cough etiquette can be integrated into the residents' and employees' health behavior. The role of the nurse educator in promoting this behavioral change would be established through the Health Belief Model (Redding, Rossi, Rossi, Velicer & Prochaska, 2000). This model was initially established by social psychologists in public health to forecast the use of screening tests or immunizations (Redding et al., 2000). The model has four (4) original constructs which could impact an individual's decision to carry out protective health behaviors, namely, perceived seriousness, perceived susceptibility, perceived benefits and perceived barriers (Redding et al., 2000). Perceived seriousness refers to an individual's evaluation of his or her vulnerability of contracting the illness or condition. Perceived severity refers to the person's evaluation of the seriousness, treatment and consequences of the condition. Perceived benefits refer to the individual's evaluation of how a recommended action would decrease the risk or modulate the impact of the condition. While perceived barriers refer to the individual's evaluation of the difficulties in adopting the recommended action, and if the costs of taking such action would be offset by its benefits. Self-efficacy was the fifth construct added, which pertains to the personal belief of being capable of carrying out an action. There are mediating factors such as demographic, structural, social variables, educational level and motivation that were explored in applying the Health Belief Model in influencing behavioral change. Demographics, educational level and motivation are variables that could be at play in triggering behavioral change among residents and staff in behavioral healthcare, particularly in settings that serve a specific age group such as children, adolescents, and young or middle age adults. Educational level and motivation of staff members could also affect adoption of a recommended action such as influenza vaccination or TB screening and these are variables that need to be considered in designing programs that would increase the likelihood of successful implementation.

Integration of Evidence

Healthcare-associated infections (HAIs) can occur during the course of a patient's stay in any health care setting such as home, acute care, or long-term care facility (Collins, 2008). Describing infections

in healthcare evolved from 'nosocomial,' which referred to infections that develop within 24-72 hours of hospital admission, and 'community-acquired,' for infections that developed because of the patient being in a group setting (Shandera, 2001). Hatch (2001) described 'milieu infection' as specific to behavioral care and refers to infections that develop during hospitalization in this type of setting and in substance abuse areas.

The Institute of Medicine reported that U.S. hospitals spend about \$4.5 to \$5.7 billion in treating HAI cases and mortality load of 90,000 cases (Collins, 2008). Although these values are lower compared to the data by Scott (2009) and variations may be due to specific variables being measured, both sources underscored the need to prevent HAIs to reduce the financial and societal burdens in hospitals (Yokoe & Classen, 2008). Roberts et al (2010) measured the costs involved from hospital and societal standpoints for 159 patients (12.7%) who developed HAI out of 1253 high-risk patients. The researchers concluded that the costs for preventing HAIs would be offset by reduced medical costs, the number of lives saved, and available days that hospitals can utilize (Roberts, 2010). Researchers also pointed out that although the need to manage HAIs is inarguable, there are other aspects that should be considered in measuring the costs related to managing them. Fukuda (2011) described the importance of correctly measuring these variables so that they may be adapted to other settings. Graves (2010) concluded that economic costs of measuring HAIs should be estimated properly because of its serious implications and effects on the organization's decision-making relative to cost-effective infection prevention and control activities.

HAIs declined in hospitals in 2010 based upon measurements and monitoring of infections in central lines, surgical sites and catheters, and a decrease in the number of patients who contract healthcare-associated methicillin resistant *Staphylococcus aureus*, or MRSA (McKinney, 2011). There are several studies about HAIs in hospitals but only one study focused on HAI incidence in behavioral care (Shandera, 2001). The term 'nosocomial' was used because that was how infections that developed within health care were described when the study was conducted. The author described that there are nosocomial infections in behavioral healthcare which involve eye, ear, nose, throat, upper respiratory, skin and enteric conditions. Because of this, a system of surveillance that corresponds with acute care HAI measurement should also be applied in behavioral care. Shandera (2001) proposed the use of a system similar to that used in acute care settings for proper identification of sources of infection. There is no recent study found during the literature search relative to the current status of HAIs in behavioral care.

Thomas Frieden, CDC director, urged hospitals and state health departments to apply the progress in reducing HAIs in acute care setting to other areas where healthcare is delivered, such as in dialysis clinics and ambulatory care settings (McKinney, 2011). This conviction is in line with the 1997 SHEA/APIC Position Paper that hospital infection control guidelines may be inappropriately and unrealistically being utilized in long-term care facilities (LTCF) such as nursing homes (Smith & Rusnak, 2007). These authors argued that infection control challenges in LTCFs differ from hospital settings due to various factors, but the most basic difference is that the LTCF caters to patients with more compromised abilities to ward off infections. This is different from a hospital setting which focuses on recovery of patients with acute conditions and have access to high technology (Smith, 1997). The CDC understands that various healthcare settings need to adapt the IPCP guidelines accordingly and as appropriate to their circumstances (Siegel, 2007).

Although studies that measure HAIs in behavioral healthcare are minimal, information obtained from results of the studies done in other settings can be applied to behavioral healthcare, by adapting infection prevention and control measures that are pertinent to its client and staff populations. Behavioral health needs to have a comprehensive IPCP model that would address issues in reducing the risks of acquiring and transmitting infections germane to this type of facility. Differences in the clients' physical conditions, focus of care, duration of stay and infection issues dictate a different model of controlling

HAIs. For instance, specific to both adolescent and adult residential centers, the IPCP should focus on regularly teaching standard and transmission-based precautions and activities designed to promote health and wellness through in-services, health fairs, and vaccination drives.

Domains of the Infection Prevention and Control Program

An IPCP is crucial in the pursuit of patient and staff safety in any healthcare facility. Experts indicate that an IPCP can reduce HAIs by implementing activities that reduce the risks of acquiring and transmitting infection (TJC, 2010). The burden that HAI imposes upon the healthcare facility and society justifies the program's expansion of cost-effective interventions (Yokoe & Classen, 2008).

The structure domain of an IPCP is comprised of surveillance, prevention and control. Surveillance refers to identifying potential sources of infection. Prevention refers to activities that can hinder the transmission on infection, while control refers to containing the spread of infection (CAMBHC, 2012).

The IPCP should be administered by a trained professional to drive the performance domain and make it a solid and visible entity in the healthcare organization. The term "Infection Preventionist" is currently used to describe IPCP staff trained in infection prevention and control. The need for trained professionals underscores the importance of delivering and sustaining the most basic surveillance and preventive measures (Collins, 2008). The trained professional role fits best with a nurse who is in a unique position to enforce infection control practices (The Joint Commission Resources, 2010). Yokoe and Claussen (2007) argued that a trained and well-staffed IPCP, supervised by an expert, bear the responsibility to carry out and maintain even the most basic HAI surveillance and preventive efforts in a hospital setting, a resource that may not be available to other healthcare facilities such as behavioral healthcare.

Surveillance activities are designed to help the facility identify risks or occurrences of infection, help the person in-charge determine the most effective actions that would alleviate the risks and occurrences of infection, and obtain feedback on the best preventive and control measures to undertake (CAMBHC, 2012). In behavioral care, surveillance activities would include tracking of immunizations among residents and staff, relevant in identifying potential individuals who may be at-risk for vaccine-preventable illnesses.

Preventive measures refer to strategies to reduce risks of acquiring and transmitting infection. Collins (2008) described the use of the acronym 'you H.E.L.P. C.A.R.E.' to facilitate remembering the principles of prevention to reduce HAIs (2008). The acronym reads:

- H: Hand hygiene
- E: Environmental cleanliness
- L: Leadership
- P: Proper use of personal protective equipment
- C: Consistent evidence-based practices
- A: Antimicrobial resistance campaign
- R: Respiratory hygiene and cough etiquette
- E: Evaluation

Control measures refer to steps taken to confine and prevent further spread of an infection outbreak. This requires collaboration with management, physicians, and key personnel in the different departments in behavior healthcare. Clear understanding and operationalization of IPCP is important in preventing further transmission of an outbreak to other residents or staff of a behavioral facility (Collins, 2008).

Conditions Commonly Found in Behavioral Healthcare

Some conditions that are generally observed among clients in behavioral care, aside from the usual ear, eye, nose, and throat infections, are skin problems that could involve community-acquired MRSA,

upper respiratory infections, urinary tract infections, and enteric infections (Shandera, 2001). Other maladies include sexually-transmitted diseases such as chlymidia infection and problems with blood borne pathogens (BBP), related to the use of needles (such as IV drug use and tattooing). Influenza could also be transmitted readily in behavior healthcare because of its congregate nature, as well as limited knowledge of precautionary measures among residents and insufficient flu vaccination among staff.

The Role of the Nurse Educator

There has not been any prior research on the role of a nurse educator in implementing a comprehensive IPCP in behavioral healthcare. A nurse educator has the skills and training to integrate surveillance, prevention and control components of an IPCP, and motivate both residents and staff in adopting health practices that will lead to more positive outcomes.

The Health Belief Model can be used by the nurse educator in triggering behavioral change among residents and staff (Redding et al., 2000). The perceived susceptibility construct is operationalized by focusing on how inherent risks increase their vulnerability to eye, ear, nose, throat, upper respiratory, skin and enteric infections. The perceived severity construct is evidenced by using infection rates among residents and staff surveillance data to support the presence of HAIs in this setting and its psychosocial and financial impact upon the residents, staff and the facility. The same surveillance data can also be used to bring out the perceived benefits construct, by tracking the incidence of illnesses before and after influenza vaccination and how residents and staff benefitted from reduced absenteeism and increased productivity. Adhering to IPCP leads to benefits among employees, such as improved productivity and reduced absenteeism due to illness. Advantages to the clients include the ability to actively participate in the treatment program due to good health.

The nurse educator can conduct a risk assessment in the behavioral facility and utilize it to evaluate the potential barriers in implementing changes in health practices. Perceived barriers in healthcare can be impacted by different variables such as management support of the IPCP, the demographics and educational level of the resident and staff population, the costs involved in infection prevention and control initiatives, or the time allotted for the nurse educator to carry out surveillance, prevention and control components of the IPCP. Other potential barriers include staff members' adherence to certain beliefs such as the flu vaccine causing illness, inability to change unfavorable health habits, or lack of personnel to effectively implement the different components of the program. These barriers can be addressed using evidence-based preventive measures coupled with teaching strategies to improve self-efficacy among residents and staff.

The IPCP professional often wears multiple hats especially in smaller behavioral healthcare facilities, and the increased responsibilities create an imbalance in meeting all the tasks required in implementing the program (Collins, 2008). By focusing on areas that need the most improvements, such as disseminating information about vaccine-preventable illnesses or use of personal protective equipments, the nurse educator will be able to strike a better balance in meeting those that are of top priority.

The nurse educator will be able to utilize innovative teaching approaches about the different modes of infection transmission and will be able to better motivate staff and residents to comply with basic infection control practices, such as hand hygiene, respiratory hygiene, cough etiquette and vaccination. Healthcare workers indicated that a combination of written materials, in-services, classroom learning, group activities, webinars, workshops, infection prevention rounds, and one-on-one teaching are the best ways to educate them about infection prevention (Pyrek, 2011). The nurse educator will also be able to enhance teaching using online instruction, which provide staff with better access to the educational program at times most convenient to their schedule. Online educational courses in infection control led to better outcomes in reducing HAIs. This author designed an online Infection Prevention and Control Program for public access (Doria, 2012). Most available IPCP programs require registrants to pay.

The central figure in this Health Belief Model is the nurse educator who will be able to pull in the different components of the IPCP program set in a behavioral healthcare setting. An infection prevention and control bundle can be developed that will include hand hygiene, respiratory hygiene and cough etiquette and vaccination (Yokoe, 2008). This bundle should be tailored to the unique needs of the behavioral healthcare facility where the focus of care can vary from one setting to another.

The nurse educator in this IPCP model functions as the leader who envisions change, shares it with others, and promotes health and wellness through evidence-based practice. Role modeling is a significant component of leadership, and the nurse educator is a key change agent who can motivate the residents and staff to overcome the barriers to positive health practices. Promoting health and wellness will be directed at correcting myths and misconceptions about immunization, conducting TB and hepatitis B screenings, sponsoring health fairs participated in by different community health agencies, vaccine clinics, employee fitness programs and other health-promotion activities that cost minimally but have the potential to deliver immense measurable health benefits (Graves et al., 2010).

The nurse educator will also be in a collaborator role, networking with management, the medical director, department managers and staff to discuss infection risks in the facility during health and safety, policy or executive management meetings. The participation and input from different important internal resources and experts is vital when planning, designing and implementing a comprehensive and facility-wide IPCP. Strong relationships with external collaborators, such as various community health agencies, are relevant when addressing larger issues (as in pandemic influenza program plans) that require a coordinated effort between the facility and other outside providers.

Green and Pettis (2011) described seven (7) domains of an IPCP. These are (1) identification of infectious disease processes, (2) surveillance and epidemiologic investigation, (3) prevention and control of transmission of infectious agents, (4) employee and occupational health, (5) management and communication, (6) leadership, and (7) education and research. The authors (Green & Pettis, 2011) described these different components as essential in an IPCP that is epidemiologically-focused and will require negotiation skills, ability to relate to various stakeholders, knowledgeable about process and system flows, 'lean sigma' and the business strategy model to improve efficiency and output. The IPCP staff should be able to influence and not dictate health practices, as well as create a culture of safety (Green & Pettis, 2011). Understanding these role requirements for the IPCP model to be successful in behavioral healthcare, it is evident that the nurse educator will be able to take on these challenges and be able to promote similar approaches.

Recommendations

This IPCP project was designed as an Improving Organization Performance (IOP) program for Heritage Schools, Inc. This may be tailored to any behavioral healthcare setting, such as modifications to some of the infection control topics and the format of the delivery of content, based on the facility's focus of care, the general level of understanding of the residents and the acuity of the residents' condition.

The following are other recommendations resulting from the implementation of this particular project:

1. Design the IPCP to address the unique needs in diverse behavioral healthcare settings such as residential treatment centers, substance abuse clinics, rehabilitation facilities and other types of programs that serve clients with behavioral issues.
2. Utilize surveillance data to drive decisions about activities that would help residents and staff understand infection control risks inherent to their facility and to design programsthat would motivate wide-based participation from residents and staff.

3. The management of the behavioral healthcare organization should explore the potential of hiring a nurse educator or a nurse with a strong teaching background, instead of assigning non-medical personnel to implement the IPCP. The initial cost of hiring a nurse educator will be offset by the overall reduction of infection rates and the transformation of health behavior among residents and staff.
4. The nurse educator should focus on teaching basic infection concepts such as transmission of infection within a health care setting, standard and transmission-based precautions, the importance of vaccinations, TB and Hepatitis B screenings, and reducing infection control risks through non-pharmaceutical measures such as hand hygiene, respiratory hygiene, and cough etiquette.
5. Explore the option of online instruction to reinforce infection prevention and control concepts, as well as offer better access to more residents and staff who might not be able to attend scheduled classes due to staffing issues or personal demands.
6. Promote influenza vaccination as a facility-wide program, especially among those who directly provide care to residents. It is essential to conduct in-services among residents and staff prior to the flu season in order to provide information, eradicate myths, and reduce barriers to flu vaccination.
7. Collaborate with community-based resources such as the health department and other health care agencies to promote a culture of safety and wellness. Resource speakers and staff can participate in health fairs and in-service meetings to increase awareness of infection risks and promote health and wellness among residents and staff.
8. Management should support infection prevention and control initiatives and factor in the benefits of a productive workforce and healthy residents when formulating their annual facility budget.
9. Increase the visibility and importance of the IPCP by having the nurse educator participate in department meetings and provide infection prevention and control in-services on a quarterly basis.
10. Integrate the IPCP within the behavioral healthcare facility's mission by stressing that its goals will be better achieved with staff who value health and wellness and are willing to adopt health practices that will impact the patients and clients they serve and relate with.

Conclusion

Healthcare-associated infections (HAIs) are major deterrents to patient care and safety and they exert a tremendous economic burden on any healthcare facility (Yokoe, 2008). Majority of studies focus on controlling HAIs in acute medical care through infection prevention and control activities that are adapted to that setting. However, there is a lack of research on pertinent surveillance and preventive measures of HAIs in behavioral healthcare. Organizations that cater to behavioral healthcare require a comprehensive IPCP that can be made tangible and relevant to their residents and staff.

The Joint Commission Elements of Performance does not currently require a nurse or a health practitioner to implement IPCP in behavioral healthcare (CAMBHC, 2012). There is a discrepancy between the need to control HAIs and the absence of an infection preventionist in this type of healthcare setting. The skills of a nurse educator suit the required and expanded roles for the IPCP program to teach, lead and collaborate. Integrating these functions into the Health Belief Model, the nurse educator will potentially be able to eradicate barriers to health promotion and wellness.

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