

INFECTION CONTROL IN HOME CARE

Abdiyeva Azima

Efforts to decrease length of hospital stay and shift care to ambulatory settings, as well as patient and family preference to receive care at home, have contributed to the substantial growth of home care in the past decade. As life expectancy in the U.S. population continues to increase and patients with chronic illnesses live longer, home care will continue to expand. Home care has also broadened in type and scope in the past decade. Most patients are elderly and have chronic conditions requiring skilled nurses and aides. High-tech home care is provided to patients of all ages and may include home infusion therapy, tracheotomy care and ventilator support, dialysis, and other highly invasive procedures. In addition, home-care nurses provide assessment, education, and support to post-acute-care patients who might have spent several additional days in the hospital but are now discharged to cut costs. This category of patient may include postoperative patients, postpartum mothers and their newborns, and patients with acute medical conditions such as newly diagnosed diabetes and recent strokes. In the United States, 9,655 agencies (1998 data) (1) provide home care to patients. Infection control and healthcare epidemiology have not kept up with the needs of the home-care providers or their patients. As this segment continues to expand and services provided in the home increase, the infection control community must address the risks and needs of home care. Infection Surveillance, Prevention, and Control in Home Care Infection surveillance, prevention, and control have constituted a discipline that has been acute-care based and oriented for the past 40 years. However, as the health-care system continues to shift delivery of care from hospitals to other settings, surveillance, prevention, and control programs must respond. Since efforts to measure the incidence of homecare acquired infections, study the associated risk factors, and adapt prevention and control measures for home care are nascent, available studies provide minimal information and little guidance. A few articles have appeared in non-U.S. publications. Overall, the literature is sparse, but expanding slowly (2-22).

Systems of Surveillance: Definitions and Methods Without valid data on the incidence of home-care acquired infection and analysis of risk factors, developing control efforts is difficult. Thus, initial resources must be directed toward developing measurement systems. Definitions and methods for the surveillance of nosocomial infection cannot be readily applied to home care. First, definitions, such as those developed by the Centers for Disease Control and Prevention's (CDC) National Nosocomial Infection Surveillance (NNIS) system (23), rely heavily on laboratory data, including cultures and serologic tests. In home care, the diagnosis of infection for clinical purposes is frequently made on an empiric basis with substantial reliance upon physical signs and symptoms. In fact, physicians routinely rely on the assessment skills of home-care nurses and may not see a patient before making a presumptive diagnosis and writing prescriptions. The current reimbursement system does not support the use of cultures and laboratory tests used for hospitalized patients. For example, cultures are not routinely obtained to diagnose or confirm infections of the urinary tract,

respiratory tract, or wound or skin sites. Cultures are more frequently obtained to confirm and appropriately treat bloodstream infection in patients undergoing home infusion therapy.

Definitions of home-care acquired infection developed for surveillance will need to rely more heavily on clinical signs and symptoms and tests that can be performed by the homecare nurse at the bedside (e.g., urine dipstick testing). A scheme that includes probable home-care acquired infection (i.e., clinical signs and symptoms of pneumonia) as well as definite home-care acquired infection (i.e., confirmed by chest X ray and sputum culture) may be considered. Once developed, definitions must be examined for validity, sensitivity, and specificity. However, methods to identify patients at risk and apply the definitions are also critical. Surveillance methods routinely used in acute care, such as cultures and other laboratory tests, are not practical in home care (24) so other sources of information and methods of screening must be developed. In addition, a system that relies on a designated person(s) to review medical records and assess patients for infection, such as infection control professionals do in hospitals, is impractical in home care because of the logistics of patients, staff, and medical records. A more suitable approach is a two-tiered system, which relies on home-care nurses to identify and report patients with clinical signs and symptoms of infection and on an infection control nurse to review evidence and ascribe a definition (Table). Screening criteria for home-care nurses would include fever, new antibiotic order, purulent drainage from a wound, change in color or odor of urine, change in consistency or color of sputum, respiratory rales and rhonchi, and increased serum leukocytes. Once made aware of these patients, a designated nurse can review the evidence (e.g., clinical signs and symptoms, available laboratory data, nursing and physician progress notes) and apply the definition of home-care acquired infection. This approach should enhance both sensitivity (more nurses observing and reporting patients with clinical signs and symptoms of infection) and specificity (one nurse applying the definition of infection). The use of a single infection control nurse should also improve the reliability of data.

To achieve a system to measure and study the incidence and risks for home-care acquired infection, infection control must develop valid definitions for home-care acquired infection and practical methods for surveillance. These definitions and methods must be developed through a broad, national effort that includes participation by home-care professionals as well as infection control practitioners. These professionals must take a very practical approach to this endeavor and may have to forego rigid application of epidemiologic techniques for a more suitable surveillance system. The Association for Professionals in Infection Control and Epidemiology has recently published draft definitions for surveillance in home care (25). In parallel, home-care professionals must engage in learning the epidemiologic principles of surveillance systems (26) and apply or adapt them as faithfully as possible.

Once consensus is reached on definitions and methods and we describe the epidemiology of home-care acquired infections, we can study specific risk factors for infection. Home-care professionals need the assistance, support, and practical guidance of infection control professionals. Because of substantial financial challenges in home care, one nurse is often responsible for quality improvement, safety, risk management, and infection

control. These professionals can apply and manage surveillance systems but will need substantial guidance and support in developing them. Efforts to initiate surveillance systems do exist.

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