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Importance of patient education on home medical care waste disposal in Japan

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ABSTRACT

To determine current practices in the disposal and handling of home medical care (HMC) waste, a questionnaire was mailed to 1965 offices nationwide. Of the office that responded, 1283 offices were analyzed. Offices were classified by management configuration: those attached to hospitals were classified as "attached offices" and others as "independent offices". More nurses from attached offices recovered medical waste from patients' homes than those from independent offices. Most nurses educated their patients on how to store HMC waste in their homes (79.3% of total) and on how to separate HMC waste (76.5% of total). On the other hand, only around half of nurses (47.3% from attached offices and 53.2% from independent offices) educated their patients on where to dispose of their HMC waste. 66.0% of offices replied that patients had separated their waste appropriately. The need for patient education has emerged in recent years, with education for nurses under the diverse conditions of HMC being a key factor in patient education.

1. Introduction

Home medical care (HMC) services have recently gained more prominence and become more widespread in the European Union (Eurostat, 2013), United States (USA) (The National Association for Home Care and Hospice, 2010) and many other developed countries. In the USA, approximately 12 million individuals with acute illness, long-term health conditions, permanent disability, or terminal illness currently receive care from more than 33,000 providers (The National Association for Home Care and Hospice, 2010). Domestic medical waste is a constant concern and a growing problem in HMC services. In the United Kingdom (UK), HMC waste discharged from home is estimated to be between 24,500 and 33,000 tons per annum (Blenkharn, 2008). In the UK, the regulation of waste is founded on the three pillars of health and safety legislation, waste legislation and carriage legislation that come together to provide the basis for the effective management of risks posed by waste (Griffith and Tengnah, 2006). Clinical waste is divided into five categories. The most common method of segregating waste is by using color-coded bags. District nurses must ensure that the proper containers or packaging are used to segregate clinical waste (Griffith and Tengnah, 2006). In the USA, the US Environmental Protection Agency regulates infectious waste management (USEPA 2012). There have been some studies about HMC waste legislation in the UK (Blenkharn, 2008; Griffith and Tengnah, 2006), about HMC waste of sharp items in USA (Stephanie et al., 2008; Kathleen and Jenny, 2007) and about HMC waste infection control in UK (Mark, 2007; Jayne and John, 2007). There are differences in the laws and regulations in each country, but the goal of a safe process is common. In Japan, with 5903 HMC offices operating since 2010 (Japan Ministry of Health Labor and Welfare Statistics, 2012) there are about 110,700 people a year receiving HMC in Japan (Japan Ministry of Health Labor and Welfare Statistics, 2011). This is expected to exceed 250,000 by 2025 (Japan Ministry of Health Labor and Welfare, 2011). In Japan, all medical waste is first separated into infectious and non-infectious categories. For determining infectious waste, three steps are used, as shown in Fig. 1. The Japanese Waste Disposal and Public Cleansing Law (Japanese Waste Management Law) classifies waste materials as industrial waste or general waste (Japan Ministry of the Environment, 2001) (see Fig. 2). Industrial waste results from business activities and general waste refers to any waste other than industrial waste. Although infectious waste from hospitals or clinics is classified as specially controlled industrial waste (Miyazaki and Une, 2005), HMC waste is classified as specially controlled general waste (Fig. 2). Municipalities are responsible for the disposal of specially controlled general waste, which includes HMC waste. However, many municipalities, especially smaller ones, do not accept some or all HMC waste due to fear of infection or the presence of sharps (Japan Ministry of the Environment, 2005;

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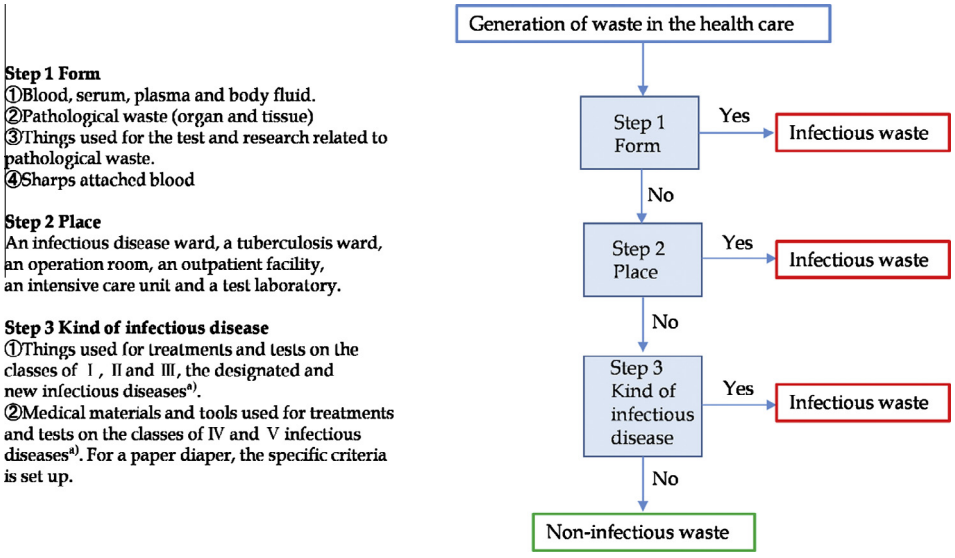

Fig. 1. Judging flow for infectious waste. A case where it would be difficult to judge based on this flow chart, then you should consult with a medical doctor and follow his or her judge. (a) See reference for infection classification of Japan (National Institute of Infectious Diseases, 2014).

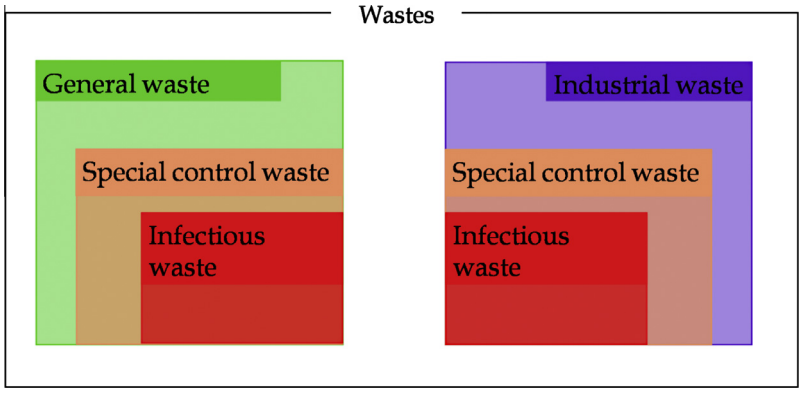

Fig. 2. Categorization of waste under Japanese Waste Management Law.

Miyazaki et al., 2007; Harada, 2007; Harada, 2011). Recently, certain large municipalities have begun to accept HMC waste and have provided guidelines on how this waste should be treated (City of Sapporo, 2012; City of Nagoya, 2013). Home patients often store their HMC waste that is not collected by domiciliary nurses or home doctors until the general waste collection day, but in the event when this waste is not collected by municipalities, the patients are required to take it to the hospital or pharmacy (Miyazaki et al., 2007; Sugihara et al., 2009) and the safety aspects of this waste are left to the individual patient. Domiciliary nurses often educate their patients about HMC waste when visiting them, but there have been few studies on educating home patients on the issue of HMC waste. In addition, these studies included only small sample numbers (Sugihara et al., 2009; Hirai et al., 2001) and there is therefore a bias toward regions (Sugihara et al., 2009; Yano et al., 2002; Hirai et al., 2001) and a low response rate (Sugihara et al., 2009). The purpose of this study was to investigate the reported educational levels of home patients regarding HMC waste management as provided by domiciliary nurses and to identify specific problems.

2. Subjects and methods

To determine current practices in the disposal and handling of HMC waste, a questionnaire was formulated and mailed to 1965 offices nationwide in 2009. A total of 3558 offices were registered with the National Association for Home-Visit Nursing Care in 2008 and all offices have the office-specific number. Studied offices were randomly selected by a computer to avoid bias in the region selected for study. The questionnaire was evaluated for recovery rate and inappropriate replies in advance by a pilot study targeting 200 offices. The formula of the questionnaire was mainly selection, and choices were selected with reference to previous studies (Sugihara et al., 2009; Yano et al., 2002). The collected questionnaires were uploaded to the computer and provided to all study subjects. Statistical data analyses were conducted using SPSS® statistics software (ver.21, IBM corp.). Continuous parameters with normal distribution were analyzed by Student's *t*-test and, binary variables were analyzed by the chi-square test; a two-tailed test was used for all statistical analyses. In all cases, a *p*-value of 0.05 was used as the threshold level of significance.

3. Results

3.1. Basic characteristics of subjects

Nurses at 1314 offices replied to the questionnaire, 651 offices did not reply, and 26 offices had closed down. Five offices performed only psychiatric services and thus did not dispose HMC waste. Analysis of the remaining 1283 offices was performed. Offi-