An Analysis of the Recording of Tobacco Use among Inpatients in Irish Hospitals

Abstract:
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Abstract
Smoking is the largest avoidable cause of premature mortality in the world. Hospital admission is an opportunity to identify and help smokers quit. This study aimed to determine the level of recording of tobacco use (current and past) in Irish hospitals. Information on inpatient discharges with a tobacco use diagnosis was extracted from HIPE. In 2011, a quarter (n=84,679) of discharges had a recording of tobacco use, which were more common among males (29% (n=50,161) male v. 20% (n=34,518) female), among medical patients (29% (n=54,375) medical v. 20% (n=30,162) other) and was highest among those aged 55-59 years (30.6%; n=7,885). 2007 reported that 48% of adults had smoked at some point in their lives. This study would suggest an under-reporting of tobacco use among hospital inpatients. Efforts should be made to record smoking status at hospital admission, and to improve the quality of the HIPE coding of tobacco use.

Introduction
Smoking is currently the largest avoidable cause of premature mortality and disability in the world, and helping smokers to quit smoking is the most cost-effective intervention available1. In Ireland, it is estimated that 36,000 hospital discharges per year are attributable to smoking2. Hospital admission is an opportunity to identify smokers and offer help to stop smoking. Clinical guidelines recommend the ascertainment of smoking status and the delivery of smoking cessation interventions in all health consultations3. 2007 reported that almost half (48%) of adults were current or former smokers4. Recent figures from the National Tobacco Control Office report that the prevalence of cigarette smoking in Ireland is currently at 21.7%5.

International literature on the prevalence of current smoking among hospital patients varies widely: UK studies report that 13% of hospital patients were current smokers6; studies from the United States and Brazil report that between 15% and 25% of hospital inpatients are current smokers7-10; however, additional studies from Australia, Italy and San Francisco in the United States estimate that as many as 60% of hospital patients may be active smokers11-15. In Ireland, St Vincent’s University Hospital in Dublin, has published widely on smoking prevalence in their hospital population16,17. In 2010, they reported that 18% of inpatients were current smokers, down from a rate of 22.7% in 200617. In 2012, a study in Beaumont Hospital reported that 21% of a sample of their inpatients was current smokers, with 61% of them reporting that they had been asked by a healthcare professional about smoking in the previous twelve months18. In 2007, a Health Service Executive (HSE) commissioned National Consumer Satisfaction Study reported that 29% of respondents were current smokers, and that 49% of them had received information about stopping smoking, mostly leaflets19. The aim of this study was to determine the proportion of inpatient hospital discharges from acute hospitals in Ireland, who had tobacco use recorded as a diagnosis on their medical record, as reported on the Hospital In-Patient Enquiry (HIPE) System.

Methods
Data for this study were extracted from the Hospital In-Patient Enquiry (HIPE) system via Health Atlas Ireland (HAI). HAI is an open source application which enables web-based mapping of health-related data on a national basis. All inpatient discharges (excluding maternity, HIPE code admission type 6) from acute hospitals in the Republic of Ireland, aged 18 years and over, with any diagnosis of tobacco use were extracted for the years 2005-2011. Tobacco use was defined as per Table 1. Results are presented by year of hospital discharge, age and gender and consultant specialty. Using HAI, additional analysis was carried out on those discharges aged 35 years and older, who had a principal diagnosis of a smoking-related condition as defined by Callum & White from the London Health Observatory20 to determine the level of recording of tobacco use among these groups.

Results
The Recording of Tobacco Use on HIPE, 2005-2011
In 2011, 24.6% (n=84,679) of inpatient discharges had a recording of tobacco use (current or past) on their HIPE record. This compares to 19.7% (n=66,409) in 2005. Looking at the individual codes as detailed in Table 2, the most commonly recorded diagnosis codes were F17.2 current tobacco use and Z86.43 past history of tobacco use disorder. Few recorded the F17.1, F17.2 or F17.3 diagnosis codes. In 2011, 13.4% of inpatients had a diagnosis of F17.2 current tobacco use and 11.1% had a diagnosis of Z86.43 past history of tobacco use. This compares to 12.0% (current) and 7.7% (ex-smokers) in 2005.
Profile of the Discharges with a Recording of Tobacco Use as Reported on HIPE, 2011

Figure 1 details the proportion of hospital discharges recorded as being current smokers (Z72.0) or ex-smokers (Z86.43), by age-group in 2011. Almost all discharges were of any age group aged 18-19 years (30.6%), with the lowest level among those aged 18-19 years (12.6%). Looking at current smokers, the highest proportion were among discharges aged 45-49 years (20.2%), after which the levels decreased with increasing age. The proportion of ex-smokers increased with increasing age, with the highest proportion of ex-smokers among those aged 70-74 years (17.3%). The majority (73%) of ex-smokers were aged 60+ years.

Almost 30% (28.6%) of male discharges had a recording of tobacco use compared to 20% of females. In 2011, similar proportions of male and female discharges were recorded as being current smokers (male:14.7%, female:12.2%); however, almost twice as many male discharges were ex-smokers (13.9%) compared to females (8.3%). By consultant specialty, almost 30% (28.5%) of medical discharges had a recording of tobacco use compared to 19.7% of other discharges. In 2011, 14.7% of medical discharges were recorded as being current smokers and 13.8% were ex-smokers, compared to 11.8% (current) and 7.9% (ex) of other discharges.

Discharges aged 35+ Years with smoking-related diseases/conditions

Figure 2 details the level of recording of tobacco use among discharges aged 35 years and over, with a principal diagnosis of a smoking-related condition as defined by Callum & White 21 for 2011. The highest level of recording of tobacco use was among those with a principal diagnosis of cancer of the larynx (58.6%), followed by chronic airway obstruction (55.4%) and cancer of the trachea, lung and bronchus (55.3%). The lowest rate was among those with cataracts (3.8%).

Patients with a principal diagnosis of cancer of the upper respiratory sites (32.1%), cancer of the larynx (29.1%) and cancer of the trachea, lung and bronchus (26.6%) were most likely to be current smokers, while those with a principal diagnosis of chronic airway obstruction (30.6%), cancer of the larynx (29.5%) and cancer of the trachea, lung and bronchus (28.7%) were most likely to be ex-smokers.

Discussion

Hospital admissions are an opportunity to identify smokers and to offer help to enable them to quit. Clinical guidelines recommend the ascertainment of smoking status and the delivery of smoking cessation interventions in all health consultations. The aim of this study was to determine the proportion of inpatients with a recording of tobacco use on their medical record, as reported on HIPE. This study reports that a quarter (24.6%) of inpatients had any recording of tobacco use on their medical record. The National Tobacco Control Office reports that 21.7% of the Irish population are current smokers, defined as smoking at least one cigarette per week. This data would suggest that there is an under-reporting of tobacco use (current and past) among these hospital inpatients.

HIPE is the only data source for this report, and is the only source of morbidity data available nationally for acute hospital services in Ireland. It has high quality controls and is managed by the Healthcare Pricing Office. There are limitations to this study. The data source itself (HIPE) records episodes of care and does not allow for the tracking or linking of individual patients through the hospital system. Due to the lack of unique identifiers, patients may be admitted to hospital more than once in any given period with the same or different diagnoses, or admitted to different hospitals and therefore given a different medical record number. However, we feel that these limitations will not impact greatly on our study, as the overall aim was to report on the level of recording of patients history of tobacco use on medical records during their hospital admission. Most of this report considered the diagnostic codes 272.0 and 286.43 as 99.9% of the data concerned these two codes, with less than 1% relating to the F17.1, F17.2 and F17.3 codes (see Table 1). A review of these codes definitions would indicate that in most cases, the F17.1 and F17.2 diagnoses codes are the more appropriate codes. However, they can only be used when a relationship between the condition and smoking is documented; as a result, the codes 272.0 and 286.43 are only to be used where insufficient information is available. However, as our analyses display, 272.0 and 286.43 are the default codes used in most cases. This may indicate a lack of information by medical personnel in the medical record, thus preventing the coder from using the most appropriate code as per coding guidelines. Either way, there should be an emphasis placed on using...
the most appropriate codes for the purposes of quality improvement. The level of under-reporting of tobacco use among patients in Irish hospitals is difficult to determine due to the fact that we cannot quantify the numbers who never-smoked, there are no codes in the ICD-10 classification for never smoked. Therefore, we cannot distinguish between the proportions of those who never smoked, and an under-reporting of tobacco use on HIPE.

Continued efforts should be made to improve the quality of the coding of tobacco use on HIPE, by the medical personnel in documenting a relationship between the patient's condition and smoking, thus enabling the coders to use the most appropriate codes as per coding guidelines. Smoking is currently the largest avoidable cause of premature mortality and disability in the world, and helping smokers to quit is the most cost-effective intervention. However, unless these patients are identified on occasions such as a hospital admission, they may not receive the necessary treatment and support to help them stop smoking. Efforts should be made to ensure that smoking status of all patients is ascertained at all health encounters as recommended by international clinical guidelines, and in particular patients with a smoking-related condition.

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References


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