



Article

Inpatient migration patterns in persons with spinal cord injury: A registry study with hospital discharge data

Elias Ronca^{a,b}, Anke Scheel-Sailer^c, Hans Georg Koch^d, Stefan Metzger^c,
Armin Gemperli^{a,b,*}



^a Swiss Paraplegic Research, Nottwil, Switzerland

^b Department of Health Sciences and Health Policy, University of Lucerne, Lucerne, Switzerland

^c Swiss Paraplegic Centre, Nottwil, Switzerland

^d Swiss Paraplegics Association, Nottwil, Switzerland

ARTICLE INFO

Article history:

Received 8 October 2015

Received in revised form

8 April 2016

Accepted 8 April 2016

Keywords:

Spinal cord injury

Patient migration

Health services accessibility

Health care utilization

Inpatient hospital care

ABSTRACT

This study investigated and compared patient migration patterns of persons with spinal cord injury, the general population and persons with morbid obesity, rheumatic conditions and bowel disease, for secondary health conditions, across administrative boundaries in Switzerland. The effects of patient characteristics and health conditions on visiting hospitals outside the residential canton were examined using complete, nationwide, inpatient health records for the years 2010 and 2011. Patients with spinal cord injury were more likely to obtain treatment outside their residential canton as compared to all other conditions. Facilitators of patient migration in persons with spinal cord injury and the general hospital population were private or accidental health insurances covering costs. Barriers of patient migration in persons with spinal cord injury were old age, severe multimorbidity, financial coverage by basic health insurance, and minority language region.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Persons with spinal cord injury (SCI) experience a higher prevalence of chronic health conditions (e.g. heart disease, stroke, diabetes) than the general population (Bauman & Spungen, 2008; Myers, Lee, & Kiratli, 2007; Wahman et al., 2010; Wu et al., 2012) and are at high risk of severe secondary conditions such as pneumonia, pressure ulcers or urinary tract infections (Cardenas, Hoffman, Kirshblum, & McKinley, 2004; Chiodo et al., 2007). They were found to consult medical specialists more often than the general population (Dryden et al., 2004), which was thought to lead to better management of the disease (Smith, 2002). Maintaining the long-term health status of persons with SCI requires ongoing access to both general and specialist services. Because of the nature of their condition, persons with SCI are likely to experience problems with access to needed services (Beatty et al., 2003; Kim, Nam, Hwang, & Shin, 2014).

The World Health Organization (WHO) has recognized the need to improve healthcare access for individuals with disabilities. The respective WHO Action Plan presumes a profound understanding of

the barriers that individuals with disabilities face in regards to accessing healthcare services (World Health Organization, 2014). Hospital discharge data, which is readily available in many countries (OECD, 2015), can be used to study three dimensions of access to healthcare services defined by Penchansky and Thomas (Penchansky & Thomas, 1981). Those are (1) availability, (2) accessibility, and (3) affordability of services. Availability is the relationship of the volume and type of existing services to the clients' needs. Accessibility is the relationship between the location of supply and the location of clients and, affordability is the relationship of prices to the clients' income, and existing health insurance.

The European Spinal Cord Injury Federation promotes the centralization of care as the SCI population is a small group of people with a diagnosis that demands the highly-specialized knowledge of a wide range of medical, clinical and counseling personnel over a long period of time (European Spinal Cord Injury Federation, 2008). Studies showed that persons with SCI bypass closer general hospitals to visit specialist SCI centers which are further away (LaVela, Smith, Weaver, & Miskevics, 2004). The concept that people reside in an area that is different from the area where they receive healthcare services is described as "patient migration" (Nante et al., 2004). Previous studies on access to healthcare services have shown that the patients' selection of distant hospitals was related to higher severity of illness (Adams,

* Correspondence to: Swiss Paraplegic Research, Guido A. Zäch-Strasse 4, CH-6207 Nottwil, Switzerland. Tel.: +41 41 939 66 30; fax: +41 41 939 65 79.
E-mail address: armin.gemperli@paraplegie.ch (A. Gemperli).

Houchens, Wright, & Robbins, 1991; Basu & Mobley, 2007; Welch, Larson, & Welch, 1993), higher complexity of treatment (White & Morrissey, 1998), younger age (Adams et al., 1991; Tai, Porell, & Adams, 2004) and being male (Buczko, 1992; Hogan, 1988). These findings suggest that persons with SCI are more likely to travel than the general population in order to reach suitable healthcare services. However, mobility impairment or other factors related to the comprehensive impact SCI has on person's life, may present obstacles to reaching these specialist healthcare services.

Switzerland has a universal healthcare system with health insurance compulsory for everyone and supplementary accidental insurance mandatory for the working population, provided by private companies (Daley, Gubb, Clarke, & Bidgood, 2007). Basic insurance benefits are determined by law and are consistent among all insurance providers. Delivery and funding of healthcare falls into the jurisdiction of the 26 cantons of Switzerland. The current study examines inpatient hospitalizations for the years 2010 and 2011. These are the two years before the introduction of a new hospital financing system with diagnosis-related group (DRG) system in Switzerland in 2012. At that time basic health insurance generally covered inpatient hospitalizations within the canton of residence (Crivelli, 2007; Wiedenhofer & Keppler, 2014). Treatments outside the residential canton were covered only if the treatment could not be adequately provided within the canton, in medical emergencies, or when a supplementary, optional insurance coverage was purchased. Accidental insurance covers health-related costs regardless of canton of hospitalization. Each canton of Switzerland is equipped with a general hospital that can deliver routine treatments; but only five of the 26 cantons, those with large urban centers, have hospitals that offer a fuller range of services. For initial care following SCI, there are four specialist centers that are designated for rehabilitation. These centers also provide yearly check-ups and treatment of secondary conditions that commonly occur in individuals with SCI.

The objective of this study was to compare the patient migration patterns for secondary health conditions in persons with SCI with the general population and persons with other chronic health conditions in order to identify facilitators and barriers of access to distant healthcare services. This study focused on hospitalizations for treatments aimed at maintaining the health status in individuals with SCI. Hospitalizations for initial acute care management and acute rehabilitation were excluded. The specific aims were to (1) investigate the likelihood of persons with SCI to be hospitalized outside their residential canton as compared to persons with morbid obesity, rheumatic conditions, bowel disease and the general population; (2) determine socioeconomic, geographical, and medical characteristics associated with obtaining inpatient hospital care outside the residential canton; and (3) compare the effect of these characteristics between persons with SCI and the general population.

2. Materials and methods

2.1. Data sources

This is a registry study with hospitalization records from the Federal Hospital Discharge Statistics (HOST) database maintained by the Swiss Federal Statistical Office (FSO). The database contains a detailed record of inpatient hospital admissions covering 98% of all expected inpatient cases in Switzerland from 99% of all hospitals (Swiss Federal Statistical Office, 2012). Socioeconomic and medical information of 2,708,942 hospitalizations were examined for the years 2010 and 2011. This study was waived by the ethics committee northwest/central Switzerland because of its retrospective nature. A data protection contract was signed with the FSO. The

hospitalization records were irreversibly pseudonymized by the data providers, with IDs unique to identify the patients (Swiss Federal Statistical Office, 1997). Since the pseudonymization procedure is prone to misclassifications, a plausibility check of the hospital records was performed to identify patient IDs with implausibly altering sexes and ages. Hospitalizations that were found inconsistent in patient characteristics were assigned a new patient ID, which resulted in 11,428 new unique IDs. Furthermore records with patient IDs that appeared more than 50 times over the two year study period were deemed implausible and removed (1,772 cases) as well as hospitalizations of patients who were declared 16 years or older but coded as being admitted to hospital at birth (35 cases).

2.2. Study populations

Patient migration patterns of persons with SCI were compared to the general population hospitalized and to other health conditions that are similar to SCI regarding the comprehensive effect they have on a person's life. Comparator health conditions were required to be risk factors for secondary health conditions, have chronic manifestations and an age distribution similar to that of SCI. For that reason morbid (severe) obesity, rheumatic conditions, and bowel disease (celiac disease, Crohn's disease, and ulcerative colitis) were identified in the HOST database via disease codes using ICD-10-GM (German Modification) (Fig. 1). The digestive tract which is affected in bowel disease is often also impaired in persons with SCI. Like in SCI, rheumatic conditions and morbid obesity may lead to mobility impairments. All these characteristics might affect the likelihood of hospitalizations outside the residential canton. However, there were no a priori expectation about the need for specialized services in the comparison populations. For morbid obesity, only cases due to excess calories were included. The ICD-10-GM codes for rheumatic conditions (Thomas, Symmons, Brewster, Black, & Macfarlane, 2003) and bowel disease (Vestergaard & Mosekilde, 2002) were chosen in alignment with previous studies investigating these diseases. SCI hospitalizations were selected in alignment with the inclusion criteria defined by the Swiss Spinal Cord Injury (SwiSCI) Cohort Study, the largest community-survey on persons with SCI in Europe (Post et al., 2011). Acute traumatic hospitalizations of SCI and hospitalizations for first rehabilitation were excluded by removing hospitalizations with SCI coded either as principal diagnosis or as hospitalizations for acute traumatic spinal cord injury (acute injury of nerves and spinal cord; S14.x, S24.x, S34.x). To further shift the focus on treatments aimed at health maintaining, re-hospitalizations of persons with SCI were excluded if they happened within 18 days after an acute hospitalization. The 18 days were chosen in alignment with Swiss DRG guidelines for case consolidations (Swiss DRG AG, 2013). In alignment with the SwiSCI study, hospitalizations of all study populations were excluded for patients younger than 16 years of age and patients not residing in Switzerland. Hospitalizations of persons with SCI were excluded when they suffered from spina bifida, multiple sclerosis, amyotrophic lateral sclerosis or Guillain-Barré syndrome (Post et al., 2011). Admissions by ambulance were excluded, in order to strengthen the focus on persons who autonomously choose their care provider. Patients covering multiple of the studied health conditions (SCI, morbid obesity, rheumatic condition and bowel disease) were excluded from the study populations in order to zero out disease interaction effects.

2.3. Geographical characteristics

The patients' place of residence was recorded at the cantonal level (26 cantons), plus at a subdivision of 705 zones, containing between 3,500 and 10,000 inhabitants, called MedStat regions (Swiss Federal Statistical Office, 2010). For the mapping, a broader

Download English Version:

<https://daneshyari.com/en/article/1092330>

Download Persian Version:

<https://daneshyari.com/article/1092330>

[Daneshyari.com](https://daneshyari.com)