

| Author Year Country Research Design PEDro Score Sample Size | Methods | Outcomes |
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| <p>Sippel et al. 2018 USA Observational N_{initial}=180, N_{final}=125</p> | <p>Population: Mean age: 63±12.5yr; Gender: male=121, female=4, Level of injury: paraplegia=39, high tetraplegia=15, low tetraplegia=31; Severity of injury: AIS A=35.2%, C=20%, D=19.2%, E=3.2%, unknown=12.8%. Intervention: No intervention. Retrospective review of Spinal cord injury home care program (SCIHCP) on health care utilization and mortality in patients with SCI. Outcome measures: VA North Texas Health Care System (VANTHCS) hospital admissions, LOS, Emergency Department (ED) visits, mortality.</p> | <ol style="list-style-type: none"> 1. No significant changes in number of ED visits, number of hospital admissions, or LOS were observed (p>0.05). 2. Increased home care visits and mental health comorbidities significantly predicted more hospital admissions (p<0.05). 3. Older patients and those with more mental health comorbidities were more significantly likely to experience increased LOS (p<0.05). 4. Prediction models were significant after adjusting for injury level, age, race, time since SCI and number of medical comorbidities. 5. More home care visits were significantly associated with lower likelihood of mortality post-enrollment (p<0.05). |
| <p>Jakimoversuska et al. 2017 Norway Observational N_{initial}=165, N_{final}=147</p> | <p>Population: Mean age: 50±9yr; Gender: male=120, female=27, Level of injury: tetraplegia=53, paraplegia=94; Severity of injury: AIS A=99, B=11, C=11, D=18, E=5. Intervention: No intervention. Retrospective review of health-status/psychological distress and self-reported utilization of healthcare services in patients with SCI (interviewed in 2004/05). Outcome measures: Health service use and satisfaction, General Health Questionnaire-20 (GHQ-20).</p> | <ol style="list-style-type: none"> 1. Most participants received SCI follow-up health services at least once after their initial rehabilitation; 34% were satisfied, 51% neutral, and 18% not satisfied with services received. 2. 34 cases of psychological distress were identified using the GHQ-20. These cases did not significantly differ from non-cases in terms of demography, time since injury, cause of injury, injury severity, marital status or employment status. |
| <p>Amsters et al. 2014 Australia Observational N_{initial}=270, N_{final}=193</p> | <p>Population: Mean age: 43yr; Gender: male=159, female=34, Level of injury: paraplegia=87, tetraplegia=106; Severity of injury: AIS A=83, B=20, C=16, D=74. Intervention: No intervention. Analysis of general practitioner (GP) utilization patterns in individuals with SCI, over a 5yr period. Outcome measures: General Practitioner use.</p> | <ol style="list-style-type: none"> 1. Compared to the general population, young men with SCI used GP services significantly more (p<0.05). 2. Individuals with paraplegia used GP services significantly more than individuals with tetraplegia (p<0.05). 3. There is a need for specialist SCI outreach teams. |
| <p>Noonan et al. 2014 Canada Observational N=1549</p> | <p>Population: Traumatic SCI; Mean age: 48.3±13.3yr; mean time since injury: 18.5±13.1yr; Gender: male=806, female=331, Injury group: tetraplegia, AIS A/B=229; tetraplegia, AIS C/D=301; paraplegia, A/B=361; paraplegia, C/D=184; unknown=62. Intervention: No intervention. Community survey of people with SCI living in Canada. Outcome measures: Health care utilization (HCU), categorized into three groups: group 1, did not receive needed care and/or rehospitalized; group 2,</p> | <ol style="list-style-type: none"> 1. 26.1% of all participants reported being rehospitalized at least once in the last 12 months (with an average length of stay 23.5±46.7 days). 2. Most participants (89.4%) reported seeing at least one health care professional (HCP) in outpatient setting in the previous 12 months. The mean frequency of HCP contact was 32.7±62.0 times, with a mean of 3.5±2.7 different types of HCPs seen. 3. The most common type of HCP seen was a general practitioner (79.5%), followed by an allied health professional (57.6%). Among |

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| | <p>received needed care but rehospitalized; and group 3, received needed care and not rehospitalized. Other measures included multimorbidity (number of 30 comorbidities/ complications); secondary health conditions; Short Form-12.</p> | <p>specialist physicians, seeing a urologist was common (38.6%).</p> <ol style="list-style-type: none"> 4. Multimorbidity was significantly associated with inappropriate HCU (group 1, did not receive needed care and/or rehospitalized) and together these factors were associated with lower health status. |
| <p>Noreau et al. 2014 Canada Observational N_{initial}=1549, N_{final}=1549</p> | <p>Population: Mean age: 49.6±13.9yr; Gender: male=67.2%, female=32.8%, Level of injury: paraplegia=57.8%, tetraplegia=42.2%; Severity of injury: AIS A=36.7%, B=7.5%, C=19.5%, D=20.6%, E=2.4%, unknown=13.3%. Intervention: No intervention. Survey examining the life situation of people with SCI living in Canada. Outcome measures: Community survey examining demographic, health, SCI-specific needs, community participation, employment, quality of life, health care utilization, satisfaction and overall health.</p> | <ol style="list-style-type: none"> 1. SCI-specialized health care needs met in 60% and 65% of individuals with traumatic and non-traumatic injuries, respectively. 2. Some major needs for services to support community living (e.g., equipment and technical aids, health care, transportation, and accessible housing) are met for 75% of a population living with SCI. This proportion decreased to less than 50% for individuals requiring income support, healthy living, emotional counselling or job training. 3. Complications are highly prevalent for some health issues, including pain, sexual dysfunction, spasticity, UTI and musculoskeletal disorders. 4. Extent of community participation varies tremendously among daily activities and social roles based on values and preferences. 5. Some dimensions of quality of life are rated positively (e.g., family life) while others are disrupted (e.g., sex life and physical health). 6. 13.2% of Individuals receiving general care and 14.7% of individuals receiving SCI-specialized care are somewhat or very dissatisfied with the ability of government agencies, community and other organizations ability to meet their needs. 7. These findings varied significantly between people with traumatic and non traumatic lesions (p<0.05). |
| <p>Stillman et al. 2014 USA Observational N_{initial}=108, N_{final}=108</p> | <p>Population: Mean age: 48±14yr; Gender: male=55.6%, female=44.4%, Level of injury: tetraplegia=43.5%, paraplegia=52.8%; Severity of injury: complete SCI=61.1%, incomplete SCI=38%; Time since injury: 18±13yr. Intervention: No intervention. Observational study using an internet-based survey to determine to healthcare utilization and barriers experienced by individuals with SCI. Outcome measures: Health care utilization during the past year, barriers encountered when accessing health care facilities, and receipt of routine care and preventative screenings.</p> | <ol style="list-style-type: none"> 1. All but one participant had visited a primary care provider within the past 12 mo and 85% had ≥1 visit to speciality providers. 2. Accessibility barriers were encountered during both primary care (91.1%) and specialty care (80.2%) visits. 3. The most prevalent barriers were inaccessible examination tables (primary care 76.9%; specialty care 51.4%) and lack of transfer aids (primary care 69.4%; specialty care 60.8%), as well as lack of staff capable of assisting with patient transfers (in about 40%). 4. Most participants had not been weighed during their visit (89%) and had been examined while fully clothed and sitting in their wheelchair (85.2%). 5. A high proportion of individuals did not receive routine and preventive screening tests, including colonoscopy over 50 years of age (40%), mammogram in women aged over 50 years within last year (60%), Pap smear within previous 3 years (40%), or ever had a bone density scan (55%). |

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| <p>Ullrich et al. 2013 USA Observational N_{initial}=448, N_{final}=286</p> | <p>Population: Mean age=53yr; Gender: male=97%, female=3%; Level of injury: T2-S4/S5=49%, C5-T1=38%, C1-C4=13%; Severity of injury: not reported. Intervention: No intervention. Standardized psychological evaluations were reviewed from 2005 to 2008 to examine comorbid pain and depression in patients with SCI at a specialty care centre. Outcome measures: Medical and demographic information, depression scale, pain scale.</p> | <ol style="list-style-type: none"> 1. Approximately 20% of the sample showed elevated pain and depression at one yr. 2. Patients with elevated pain and depression showed higher scores on those measures than patients with either pain or depression alone. 3. Pain scores were stable over time. 4. Depression scores improved over three years, however, patients with more pain and depression showed less improvement on depression scores than those with depression alone. 5. Presence of pain and depression and pain alone were associated with significantly more inpatient admissions to a SCI specialty centre than for depression alone or neither condition. 6. Presence of pain and depression and depression alone were associated with significantly more outpatient and psychology visits to a SCI specialty centre than for pain alone or neither condition. |
| <p>Guilcher et al. 2013 Canada Observational N_{initial}=1515, N_{final}=1217</p> | <p>Population: Mean age=49.5±19.1yr; Gender: male=912, female=305; Level of injury: cervical=773, thoracic=277, lumbar=127, other=40; Severity of injury: not reported; Time since injury: 6yr period following injury. Intervention: No intervention. Retrospective analysis of administrative data sets from 2003-2009 to determine the patterns and characteristics of emergency department visits (ED) in individuals with SCI. Outcome measures: Number of emergency department (ED) visits by year post-injury, acuity level, timing of visits, reasons for visits.</p> | <ol style="list-style-type: none"> 1. The total number of ED visits over 6-yr period was 4403, 1443 (33%) as low acuity and 2208 (50%) as high acuity. 2. Of the total number of visits, 752 (17%) were classified as potentially preventable, with the majority of these related to UTI (51.2%), followed by pneumonia (12.1%). 3. The majority of individuals, regardless of acuity level, did not see a primary care practitioner on the day of the ED visit. 4. The number of visits was higher in the first year following injury, with 110 visits per 100 persons (45.3% of sample visited the ED), and remained substantially high up until 6 years following injury (34.5% of sample 6yr post-injury visited ED). 5. Differences in ED patterns were observed based on the rurality index, as higher ED use was noted for individuals living in rural areas compared with those in more urban settings. |
| <p>Guilcher et al. 2010 Canada Case Control N_{initial}=1562, N_{final}=1562</p> | <p>Population: Non-traumatic (n=1002) and Traumatic (n=560) SCI; Age at admission: 46.9±17.3 and 61.6±15.8yr; Gender: males =75.4% and 52.2%, females =24.6% and 47.8%; Level of injury: Paraplegia =38.6% and 39.5%, Tetraplegia =47.1% and 18.6%, Other =14.3% and 41.9%. Intervention: Retrospective analysis (population-based) of cases of traumatic SCI between 2003-2006 from 3 administrative healthcare databases (Province of Ontario). Outcome Measures: Health care utilization collected over a 1yr period following rehabilitation discharge. Predictors of health care utilization included length of stay in rehab, FIM score, rurality index, comorbidities (Charlson Index), Socioeconomic Status.</p> | <ol style="list-style-type: none"> 1. Mean number of overall physician visits was 31.2 and 29.7 for non trauma and trauma respectively. 16.5 and 17.0 for specialist visits. In both cases there was no significant difference in number of visits between non-traumatic and traumatic although there were differences in the types of physicians being visited. 2. Individual factors with highest likelihood (i.e., highest odds ratios) of ≥ 30 physician visits included: lowest quartile FIM @ discharge (OR=1.83), urban (OR=1.59), comorbidities (OR=1.56), ≥ 60 yr old (OR=1.54). 3. Individual factors with highest likelihood (i.e., highest odds ratios) of ≥ 20 specialist visits included: comorbidities (OR=2.05), urban (OR=1.92), paraplegia (OR=1.53), lowest quartile FIM @ discharge (OR=1.51). |

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| <p>Dryden et al. 2004 Canada Case Control N_{initial}=233, N_{final}=233</p> | <p>Population: Traumatic SCI; Median age: 34.0yr; Gender: males=176, females=57; Level of injury: Cervical=117, Thoracic, Lumbar, Sacral or Cauda Equina=98; Severity: Complete=43, Incomplete=69, Unknown=121. Intervention: Retrospective analysis (population-based) of cases of traumatic SCI between 1992-1994 from 5 administrative healthcare databases (Province of Alberta). Control subjects registered with the Alberta health system were matched by age, gender and region at a ratio of 5:1). Outcome Measures: Rehospitalization, Health care utilization, mortality and secondary complications followed over a 6yr period post-injury.</p> | <ol style="list-style-type: none"> 57.3% of persons were rehospitalized over the 6 yr follow-up period with a median LOS of 4.0 d/hospital stay. After initial discharge, persons with SCI had 2.6 more hospital visits than matched controls. Persons with SCI had a median # of physician contacts of 22.0 in yr 1, declining to 8.0 by yr 2 and to 4.0 by yr 6. Controls had fewer physician contacts for each year (median =3.0). 20 (8.6%) died during initial hospitalization and 16 (7.5%) died during 6 mo follow-up and this was a greater mortality rate with SCI as compared to controls (p<0.001). Over the 6 yr follow-up 47.6% were treated for a UTI, 33.8% for pneumonia, 19.7% for decubitus ulcer and 15.5% for septicemia. |
| <p>Jaglal et al. 2009 Canada Case Series N_{initial}=559, N_{final}=559</p> | <p>Population: Traumatic SCI; Age: 47.3±18.4 yr; Gender: males=423, females=136; Level of injury: Cervical=350, Thoracic=126, Lumbar=62, Other=21. Intervention: Retrospective analysis (population-based) of cases of traumatic SCI between 2003-2006 from six administrative healthcare databases (Province of Ontario). Outcome Measures: Rehospitalization rates, causes, predictors collected over a 1-yr period following rehabilitation discharge.</p> | <ol style="list-style-type: none"> 27.5% were rehospitalized to acute care in the 1st yr following initial rehab discharge. Main causes were musculoskeletal (23.1%), respiratory (11.5%), gastrointestinal (11.0%), urological (10.5%), cardiovascular (10.3%), psychological (9%) and skin (7.3%) disorders. Factors significantly associated with 1-yr rehospitalization in multivariate logistic regression were longer length of rehabilitation stay, rural residence, >50 outpatient physician visits and >50 specialist visits following the initial admission. Individual factors with highest likelihood (i.e., highest odds ratios) of being rehospitalized included: Total physician visits ≥ 50 (OR=3.69), Total specialist visits ≥ 50 (OR=2.95), rural residence (OR=1.94), presence of comorbidities with Charlson score ≥ 3 (OR=2.08), >70 years old (OR=1.72). Patients with SCI who were rehospitalized had significantly higher healthcare utilization. They had twice as many total physician and visits with specialists than their counterparts who were not rehospitalized. The mean number of total outpatient physician visits was 49.6 for the rehospitalized group (versus 25.8 for the not-rehospitalized group). |
| <p>Munce et al. 2009 Canada Observational N_{initial}=936, N_{final}=559</p> | <p>Population: Traumatic SCI; Age: 47.3±18.4yr; Gender: males=423, females=136; Level of injury: Cervical=350, Thoracic=126, Lumbar=62, Other=21. Severity of injury: not reported. Intervention: No intervention. Retrospective review of physician utilization patterns (family physicians (FPs), specialist and emergency department visits) 1-yr after initial injury in population-based cohort of</p> | <ol style="list-style-type: none"> Mean number of physician visits during the first yr after injury onset was 31.7. Women had significantly more physician visits than men (37.0 versus 30.0, p=0.006) FPs has the greatest number of visits, followed by physiatrists. Women had significantly more visits to their family physician than men (15.4 versus 10.3, p<0.001) Men had significantly more visits to their physiatrists than women (6.6 versus 4.5, p<0.028) |

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| | <p>cases of traumatic SCI between 2003/04-2005/06 from 5 administrative healthcare databases (Province of Ontario).</p> <p>Outcome Measures: Physician utilization (including family physician, specialist, emergency physician, etc.), rurality index, comorbidities (Charlson Index) collected over a 1-yr period following rehabilitation discharge.</p> | <ol style="list-style-type: none"> 6. Individual factors with highest likelihood (i.e., highest odds ratios) of 50 or more physician visits included: >70 years old (OR=3.64), direct discharge to chronic care (OR=3.62), in-hospital complication (OR=2.34), thoracic injury level (OR=1.81), direct discharge to rehabilitation (OR=1.69). 7. Individual factors with highest likelihood (i.e., highest odds ratios) of 50 or more specialist visits included: direct discharge to chronic care (OR=11.52), direct discharge to rehabilitation (OR=2.45), in-hospital complication (OR=1.99). 8. Only rurality significantly predicted two or more visits to the emergency department ($p<0.05$). |
| <p>Dorsett & Geraghty 2008 Australia Case Series $N_{initial}=53$, $N_{final}=46$</p> | <p>Population: Mean age=32yr; Gender: males =42, females=4; Level of injury: paraplegia=19, tetraplegia=27; Severity of injury: complete=16, incomplete=30.</p> <p>Intervention: 10yr data from those with acute traumatic SCI discharged from the Spinal Injuries Unit of the Queensland Spinal Cord Injuries Service from November 1992 to March 1994 was assessed.</p> <p>Outcome Measures: Mortality, Life situation questionnaire, medical service utilization, hospital admission (including reason for admission) and occurrence of pressure sores collected at discharge, 12mo, 24mo, 36mo and 10yr.</p> | <ol style="list-style-type: none"> 1. 9% mortality rate was seen within 3 yr of study. 2. Life situation questionnaire mean scores remained consistent over the 10 yr. 3. The highest percentage of medical service utilization (10 or more) was at 2 yr, while the lowest was at the 10th yr (only 3) 9%. 4. No significant change was seen in the number of hospitalizations or length of stay over time. 5. Overall 32% of patients were rehospitalized in the first 2 yr and 52% by the 10th yr. 6. Only 11% of individuals required rehospitalization for longer than 28 d. 7. Common reasons for rehospitalization included: pressure sores, UTI, bowel obstructions, pneumonia, surgical removal spinal instrumentation, fractures and renal tract calculi. 8. At 2 yr, reasons for rehospitalization were directly related to SCI, while at 10th yr SCI complications were not related to rehospitalization. 9. Pressure sore occurrence was highest at the 2nd yr, however no significant change in the number of pressure sores occurred over time. Half the patients reported no pressure sores over the study period, while 30% tended to have pressure sores at multiple points of time. |
| <p>Donnelly et al. 2007 United States, Canada and United Kingdom Observational $N_{initial}=373$, $N_{final}=373$</p> | <p>Population: Community survey: Mean age (combined sample)=58.7±9.5yr; mean time since injury=35.9±7.5yr; Gender: males=315, females=56; Injury group: tetraplegia, AIS A-C=130; paraplegia, AIS A-C =160; All AIS D lesions=76.</p> <p>Intervention: No intervention. Cross-sectional study of long-term health following a spinal cord injury, with comparison across three distinct health-care delivery models in Canada, United States and United Kingdom.</p> <p>Outcome Measures: Health Care Questionnaire to measure utilization,</p> | <ol style="list-style-type: none"> 1. Almost all individuals (93%) reported having a family doctor, whereas only two-thirds had a spinal injuries specialist (63%) and 56% had both a family doctor and spinal injuries specialist. 2. About half (49%) of sample saw another medical specialist besides the spinal injuries specialist. 3. The average number of specialist contacts/yr was 1.5. 4. Over two-thirds of individuals consult their family doctor for new problems, spinal cord injury-related problems (such as fatigue, pain, bowel and bladder problems), preventive health services (annual physical, |

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| | <p>access and satisfaction with health services.</p> | <p>female breast exam, blood tests and urine specimen) and personal problems.</p> <ol style="list-style-type: none"> 5. Unique items for spinal injuries specialists are routine rehabilitation follow-up, urinary ultrasound and neurological exam. 6. In more than 75% of participants, issues such as sexual health, alcohol use, community functioning and emotional issues were not addressed by either family doctor or spinal injuries specialist. 7. Significant differences were found in utilization among Canada, United States and UK, with Canadians most likely to receive health care from family physicians and Americans most likely to receive care from specialists. Access to and satisfaction with health services were similar. |
| <p>Paker et al. 2006 Turkey Case Series N_{initial}=56, N_{final}=56</p> | <p>Population: Mean age=35yr; Gender: males=39, females=17; Level of injury: cervical=13, thoracic=27, lumbar =16, paraplegia=44, tetraplegia=12; Severity of injury: AIS: A=29, B=9, C=12, D=6, complete=29, incomplete=27; Time since injury=18.4 mo. Intervention: Patient data was retrospectively reviewed. Outcome Measures: Reasons for rehospitalization.</p> | <ol style="list-style-type: none"> 1. 7.6% of patients were rehospitalized within the same hospital, of these 71% had been hospitalized at other hospitals making the determination of a true rate uncertain. 2. Mean rehospitalization LOS was 72.21 d during the 5 yr period. 3. Cause of rehospitalization was: <ul style="list-style-type: none"> • Spasticity in 25%. • Pressure sores, 17.9%. • UTI, 16.1%. • Spinal surgery, 8.9%. • Urinary tract surgery, 5.4%. • Pain, 5.4%. 4. Rehospitalization due to spinal surgery was significantly related to lower age (p=0.04). 5. Reason for rehospitalization was related to length of stay (p=0.07), ASIA score (p=0.06), mobility (p=0.09). |
| <p>Cardenas et al. 2004 USA Observational N_{initial}=8668, N_{final}=1252</p> | <p>Population: SCI: Level of injury: C1-4, C5-8, T1-S5; Severity of injury: AIS: A-D. Intervention: Retrospective analysis of cases of traumatic SCI for persons with anniversary dates of 1, 5, 10, 15 or 20yr post-discharge occurring between 1995-2002 within the United States Model Systems database. Outcome Measures: Discharge destination, causes for rehospitalization, predictors of rehospitalization.</p> | <ol style="list-style-type: none"> 1. 90% of patients were discharged home from acute rehabilitation. 2. The most common reasons for rehospitalizations included: <ul style="list-style-type: none"> • Diseases of the genitourinary system. • Diseases of skin and subcutaneous tissue. • Diseases of the respiratory system. • Other unclassified diseases. • Diseases of the musculoskeletal system. 3. At first yr follow up the average number of rehospitalizations were significantly higher than other follow-up yr (p<0.001). Rate was 55% in first yr and 36-38% thereafter. 4. Rehospitalization rates were not significantly different among the different age groups. 5. At 1 yr follow-up, rehospitalization was significantly related to: <ul style="list-style-type: none"> • Lower motor FIM scores (p=0.000). • Patients funded by state or federal programs (p=0.010). 6. At 5 yr follow-up, rehospitalization was significantly related to: <ul style="list-style-type: none"> • Lower motor FIM scores (p=0.000). |

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| | | <ul style="list-style-type: none"> Race, with Hispanics ($p=0.009$) and other races ($p=0.027$) were less likely than African Americans. <p>At 10 yr follow-up, only payer remained significantly related to rehospitalization rates ($p=0.004$).</p> |
| <p>Charlifue et al. 2004 USA Case Series $N_{\text{initial}}=7981$, $N_{\text{final}}=7981$</p> | <p>Population: Traumatic SCI: Age $n=3254 \leq 40$ yr, $2908 \geq 41$ yr; Level of injury: All levels; Severity of injury: AIS: A-D.</p> <p>Intervention: Retrospective analysis of cases of traumatic SCI with onset between 1973-1998 from the United States Model Systems database.</p> <p>Outcome Measures: Number and causes of rehospitalization, days rehospitalized, number of pressure ulcers, self-assessed health status and Satisfaction with Life Scale collected at 1, 5, 10, 15, 20 and 25yr post-injury.</p> | <ol style="list-style-type: none"> Rate of rehospitalization was 41% in yr 5 and significantly less (35-36%) thereafter ($p=0.000$) Average number of days rehospitalized was highest at year 5 (6.0 days) and significantly less thereafter in a progressive fashion (from 5.4 days at year 10 to 3.7 days by year 25). ($p=0.002$) Perceived health status and SWLS was generally high and pain scores generally low Both # of rehospitalizations and a greater # of days rehospitalized were predicted by being older at injury, being unmarried, having an indwelling catheter, having a more severe SCI and having been hospitalized 5 years earlier. |
| <p>Middleton et al. 2004 Australia Case Series $N_{\text{initial}}=432$, $N_{\text{final}}=432$</p> | <p>Population: Individuals with SCI rehospitalized between 1990-1991, 1999-2000; Traumatic SCI; Gender: males=338, females=94; Level of injury: paraplegia=199, tetraplegia=229, unclassified=4; Severity of injury: AIS: A=206, B=27, C=67, D=132.</p> <p>Intervention: Data from spinal cord injured patients was retrospectively analyzed.</p> <p>Outcome Measures: Causes for rehospitalization, predictors of rehospitalization.</p> | <ol style="list-style-type: none"> 253 persons (58.6%) (≥ 12 months post injury) required rehospitalization for a spinal-related cause on at least one occasion during the 10yr study period (total readmissions =977; 15,127 bed-days; avg length of stay =15.5d; median 5d). ~ 10% were readmitted five times or more. Overall rehospitalization rate in the first 12 mo post discharge =0.64 readmissions per person at risk and decreases to ~0.4 readmissions per person at risk 10yr post acute admission). Average length of stay was significantly longer for those with AIS A, B and C (22.2 – 17.0 d) compared to AIS D (11.3 d). The most common causes for rehospitalization included: <ul style="list-style-type: none"> Complications of the genitourinary system ($n=235$ (24.1%)), (125 persons (28.9%)) Gastrointestinal (GIT)-related ($n=107$ (11.0%)), (69 persons (16.0%)) Skin pressure areas ($n=87$ (8.9%)), (40 persons (9.3%)) Musculoskeletal ($n=84$ (8.6%)), (60 persons (13.9%)) Other causes included Neurological ($n=30$ (3.1%)); Respiratory ($n=44$ (4.5%)); Cardiovascular ($n=47$ (4.8%)); Endocrine ($n=7$ (0.7%)); Psychiatric ($n=66$ (6.8%)); Other ($n=270$ (27.6%)) The costliest cause of readmission in terms of bed-occupancy, were the skin-related complications (pressure sores: 6.6% of all readmissions, accounted for 27.9% of bed-days and average length of stay=65.9 d) Depending on the complication, age and level and completeness of neurological impairment influenced differential rates of |

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| | | <p>readmission; AIS D=43.2%; AIS A, B and C=55.2-67.0% ($p<0.0001$)</p> <ol style="list-style-type: none"> 8. Mean duration to first readmission=46 mo (AIS A-C=26-36 mo, AIS D=60 mo). 9. Overall rehospitalization (and bed occupancy) rates trended downwards over time, yet rates were high in the first 4 yr after discharge (0.64 readmissions per person, 12.6 bed-days) before decreasing to 0.35 (2.0 bed-days) as the 10th yr approached. |
| <p>Franceschini et al. 2003 Italy Case Series $N_{initial}=251$, $N_{final}=146$</p> | <p>Population: All individuals with SCI hospitalized 1989-1994. Mean age =37.8 yr; Gender: males=104, females=42; Level of injury: Cervical=36.4%, Thoracolumbar=63.7%; Severity of injury (Frankel): A=44.6%, B=2.7%, C=13%, D=39.7%; Time since injury=6.1 yr; Traumatic =74.7%, Non-traumatic 25.3%.</p> <p>Intervention: Cross-sectional telephone questionnaire of various rehabilitation outcomes.</p> <p>Outcome Measures: Custom questionnaire including rehospitalization among other things (i.e., state of health, occupation, mobility, autonomy, social and partner relationships, satisfaction with QoL) collected at mean of 6.1 yr post-discharge.</p> | <ol style="list-style-type: none"> 1. 25.3% respondents had been hospitalized once in the past year, most frequently for urological problems (22.9%), spasticity (11.4%) and rehab treatment (11.4%). |
| <p>Savic et al. 2000 UK Case Series $N_{initial}=198$, $N_{final}=198$</p> | <p>Population: Mean age: 57.5 yr; Gender: males =84.8%, females=15.2%; Level and severity of injury (AIS): paraplegic ABC=97, tetraplegic ABC=61, D=40; Time since injury=33 yr.</p> <p>Intervention: Individuals with SCI were interviewed three times 1990-1996 and their medical records were reviewed.</p> <p>Outcome Measures: Readmission rates, reasons for readmission, LOS, FIM score, CHART score.</p> | <ol style="list-style-type: none"> 1. 64% of patients had 1 or more readmissions between 1990 and 1996. 2. Mean length of stay per readmission was 12.03d. 3. Reasons for readmission included: <ul style="list-style-type: none"> • Urinary system complications (40.5%). • Skin problems (17%). • Digestive system (10%). • Musculoskeletal system (8.7%). • Nervous system complications (6.9%). 4. Highest reason for bed occupancy was skin problems. 5. No significant difference in readmission rates was seen in: <ul style="list-style-type: none"> • Level of injury of the patients. • Current age of patients. 6. Patients with Frankel/AIS grade D had significantly shorter LOS than patients with A, B or C grade ($p=0.005$). 7. There was significant difference between hospitalized patients and non-hospitalized patients in: <ul style="list-style-type: none"> • Patients hospitalized were paralyzed for 2yr longer than the non hospitalized group ($p=0.012$). • Hospitalized patients had a lower FIM score than non-hospitalized ($p=0.031$). 8. Hospitalized patients had a lower CHART physical independence score ($p=0.003$) and CHART occupation score ($p=0.001$). |

