

Orthopedic diseases and trauma in Finland

Trends in consumption of health services 1970-1985

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From 1970 to 1985, the total number of hospital admissions in Finland increased by 36 per cent, the number of admissions due to musculoskeletal disorders by 121 percent, and the admissions due to trauma by 38 percent. The combined share of musculoskeletal disorders and trauma in hospitals

will grow to an estimated 18 percent of all the admissions by the year 2000.

Of all the early pensions granted by the Social Insurance Institution, the share of musculoskeletal disorders as the main cause increased from 16 percent in 1970 to 25 percent in 1985.

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The aim of this survey is to scrutinize the consumption of hospital treatment and other health services in Finland during the 15-year period 1970-1985, with emphasis on the role of musculoskeletal diseases and trauma.

Material and methods

Data on the use of hospitals were collected from the files of the National Board of Health (NBH). Nationwide, the NBH compiles monthly basic data on patients discharged from all the hospitals in Finland. The diagnoses in the files are coded according to the *International Causes of Disease*; between 1969 and 1985, the eighth edition was used, providing comparable statistical data for the present study. Four years (1970, 1975, 1980, and 1985) have been selected for presentation, with special attention to changes regarding diagnoses and numbers of admissions in

subgroups XIII (musculoskeletal diseases) and XVII (injuries due to external causes).

Data on the consumption of outpatient health services were compiled from a recent survey by the Economic Planning Center, Ministry of Finance (Parkkinen and Järviö 1988). The annual numbers of new pensions granted were ascertained from the annual reports of the National Social Insurance Institution, Helsinki.

Results

Hospital admissions

From 1970 to 1985, the total number of admissions to hospitals increased by one third (Table 1). Of these, the number of admissions due to musculoskeletal disorders increased by 121 percent and the number of admissions due to trauma by 38 percent. During the same period, the total number of hospital beds increased in the country by 44 percent, mainly due to an increase in the number of beds assigned to primary health care. In relation to all the admissions, those due to musculoskeletal disorders and trauma increased from 12 percent in 1970 to 16 percent in 1985.

Table 1. Hospital admissions in Finland due to orthopedic disorders and trauma in 1970, 1975, 1980, and 1985

| | 1970 | 1975 | 1980 | 1985 |
|---|------|------|------|------|
| All hospital admissions (thousands) | 720 | 771 | 865 | 963 |
| Admissions per 100,000 inhabitants | 1.49 | 1.59 | 1.78 | 1.97 |
| Hospital beds per 100,000 inhabitants | 637 | 687 | 783 | 859 |
| Musculoskeletal disorders, percentage of all admissions | 4.6 | 5.2 | 7.1 | 7.6 |
| Trauma, percentage of all admissions | 7.8 | 8.0 | 7.5 | 7.9 |

Orthopedic disorders

The overall increase in the number of hospital admissions from 1970 to 1985 due to musculoskeletal disorders was more than three times the average increase in hospital admissions in the country during the same period (Table 2). Derangements of the knee, caused predominantly by injury to the menisci,

Table 2. Hospital admissions due to orthopedic disorders in Finland in 1970 and 1985

| Diagnosis ICD-8 | 1970 | 1985 | Change (percent) |
|---|---------|---------|---------------------|
| Orthopedic disease | | | |
| 712 Rheumatoid arthritis | 8 354 | 16 554 | +98 |
| 713 Arthrosis | 6 326 | 14 589 | +131 |
| 717 Other rheumatoid diseases | 1 338 | 2 749 | +105 |
| 724 Derangement of the knee | 1 290 | 4 928 | +282 |
| 725 Intervertebral disc disease | 4 217 | 5 259 | +25 |
| 728 Back pain | 3 499 | 8 828 | +152 |
| 731 Tendovaginitis | 730 | 3 551 | +386 |
| 737 Hallux varus et valgus | 1 209 | 4 305 | +225 |
| All orthopedic disease (ICD-8 710.00-738.09) | 33 120 | 73 188 | +121 |
| Trauma | | | |
| 800 Fracture, skull | 1 095 | 797 | -37 |
| 802 facial bones | 1 221 | 1 828 | +50 |
| 805 vertebral column | | | |
| without neural injury | 969 | 1 356 | +40 |
| with neural injury | 551 | 885 | +61 |
| 807 sternum and ribs | 1 052 | 1 339 | +27 |
| 808 pelvis | 698 | 933 | +34 |
| 812 humerus | 1 397 | 2 175 | +56 |
| 813 antebrachium | 1 868 | 2 850 | +53 |
| 820 hip | 3 191 | 6 922 | +117 |
| 823 lower leg | 3 262 | 3 690 | +13 |
| 824 ankle | 2 227 | 4 190 | 88 |
| 831 Shoulder dislocation | 387 | 1 172 | +203 |
| 844 Ligamentous injury, knee | 702 | 3 623 | +416 |
| 845 ankle | 220 | 2 938 | +1235 |
| 850 Brain concussion | 8 206 | 3 716 | -54 |
| 851 Brain contusion | 1 218 | 1 731 | -42 |
| All trauma (ICD 800.00-999.99) | 55 290 | 76 077 | +38 |
| Total orthopedic disease and trauma | | | |
| Admissions to hospitals, total | 720 000 | 963 179 | +34 |

increased by 282 percent. Further, back pain, mostly low back pain, increased as expected (152 percent), whereas the number of patients with a diagnosis of slipped intervertebral disc decreased considerably less than the average.

Trauma

The increase in the number of hospital admissions due to trauma (ICD-8) was 38 percent, corresponding closely to the average increase in hospital admissions (Table 2). The number of patients admitted because of fractures of the skull and injury to the brain decreased, whereas the number of patients with fractures of the facial skeleton rose. The most noteworthy changes in the pattern of injuries treated in hospitals were related to ligamentous injuries of the ankle and the knee; the increases were 1,235 and 416 percent for the ankle and

knee, respectively. Similarly, the number of patients suffering from a shoulder dislocation increased threefold during the period of observation.

The number of fractures of the hip doubled during the 15-year study period; from a position ranking third after brain concussion and fractures of the lower leg, hip fractures rose to the top in 1985.

Consumption of hospital and outpatient services

The total number of hospital days and the consumption of outpatient services were fairly similar in the different age groups (Table 3). The steep increase in hospital services required by the elderly becomes evident when the figures for hospital days and expenditure are weighed against the numbers in the corresponding age groups.

Table 3. Consumption of hospital and outpatients services by age group in Finland in 1986. The figures include public and private health services

| Age | Hospital services | | | Outpatient consultations per inhabitant |
|---------------|---------------------------|------------------------------|---|---|
| | Hospital days, (millions) | Hospital days per inhabitant | Hospital expenditure per inhabitant, US\$ | |
| 0-14 | 1.2 | 1.3 | 200 | 3.11 |
| 15-24 | 0.9 | 1.3 | 200 | 2.59 |
| 25-34 | 1.5 | 1.9 | 292 | 2.79 |
| 35-44 | 1.4 | 1.8 | 272 | 3.87 |
| 45-54 | 1.6 | 2.9 | 447 | 4.81 |
| 55-64 | 2.7 | 5.2 | 802 | 5.28 |
| 65-74 | 4.3 | 11.5 | 1 775 | 4.60 |
| 75-84 | 5.9 | 27.6 | 4 257 | 4.85 |
| 85- | 3.5 | 82.4 | 12 710 | 2.57 |
| Total/Average | 23.0 | 4.7 | 725 | 3.74 |

Table 4. Early pensioning for disability in Finland 1970-1985

| Year | All early pensions | Musculoskeletal disorder | Percentage of all early pensions |
|------|--------------------|--------------------------|----------------------------------|
| 1970 | 172 400 | 27 030 | 16 |
| 1980 | 243 300 | 58 120 | 24 |
| 1985 | 240 947 | 60 968 | 25 |

Sick leave and early pensions

Of all the pensions granted for health reasons, those granted because of musculoskeletal disorders increased from 16 percent in 1970 to 25 percent in 1985 (Table 4). In 1970, musculoskeletal disorders ranked third in the pension statistics after mental and cardiovascular diseases. Half of the group who were granted early pensions because of musculoskeletal disorders suffered from low back pain.

Discussion

It emerges from the survey that during the 15-year period the number of both hospital admissions and outpatient consultations due to musculoskeletal disorders increased more rapidly than the average. These findings are consistent with observations in other countries (Rutkow 1986, Health in Sweden 1987, DIKE 1988). If this trend continues, the requirements for hospital services for musculoskeletal disorders and trauma will reach 18 percent by the year 2000. Correspondingly, the results of population interview studies in Finland indicate a continuous

increase in the demand for health care services; it is estimated that by the year 2000, the prevalence of musculoskeletal disorders will have risen to 20 percent of the population (see Sievers, this issue).

Analysis of the changes in the use of hospital services on a nationwide basis during a 15-year period reveals both alterations in the morbidity of the population and a close relationship between admission criteria and innovations in orthopedic treatment routines. Demographic changes have predictable influences on the pattern of disease, the most important being the aging of the population. It has been estimated that by the year 2030 the number of persons over 65 years of the age will have increased from 13 percent (1986) to 24 percent. In 1985, patients over 65 years of age comprised 26 percent of all the admissions to hospitals in Finland, consuming 59 percent of the total number of hospital days. The orthopedic services will be faced with a steadily growing number of geriatric problems.

There are no firm data indicating a true increase in the prevalence of arthrosis or rheumatoid arthritis in the population, although the total number of joint disorders presented for surgical treatment has increased. Total joint replacements have markedly

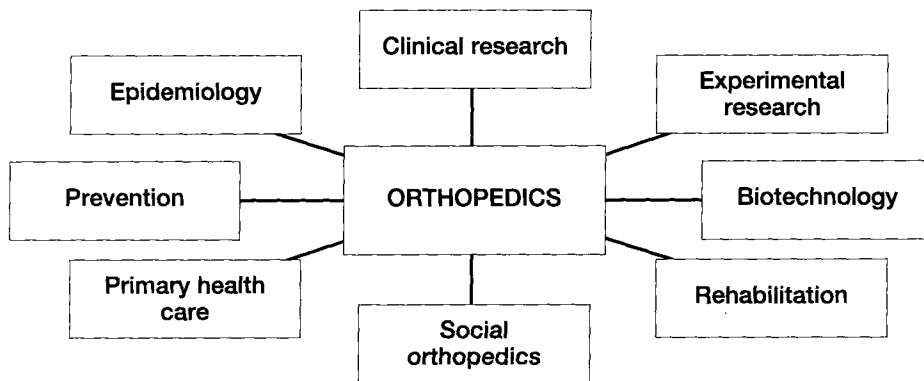


Figure 1. Diagram of the main responsibilities of orthopedics towards the turn of the century.

increased the influx of orthopedic patients to hospitals during the two last decades. Further, it is evident from the present survey that the introduction of knee arthroscopy greatly influenced the profiles of disease referred to orthopedic hospitals. Ligamentous injuries of the knee increased in the hospital records by 416 percent in 15 years and meniscal tears by 282 percent, the increase coinciding with the introduction and boom in arthroscopic surgery.

The influence of working conditions, compensation regulations, and changes in social welfare on the demands of orthopedic services is obvious, but the relationships are still poorly analyzed. The orthopedic problems of the population are reflected by a rapid increase in the recorded number of cases of low back pain and neck-shoulder symptoms. There is a rapidly increasing need for improved diagnostic procedures, better knowledge of the pathology behind the observed changes, and clearer boundaries between health and disease.

Orthopedics, defined as the speciality concerned with the preservation and restoration of the functions of the skeletal system, its articulations and associated structures, will obviously have increasing responsibilities in the health care system towards the turn of the century. The subsets of traditional and new activities within the speciality that need strong support

are depicted in Figure 1. Two main lines in the development of orthopedic services are discernible: First, increasing emphasis on research aimed at improving diagnosis and treatment; and secondly, a growing demand for social orthopedics including clinical epidemiology, intervention studies, and preventive measures—all designed to reduce the prevalence of orthopedic disorders in the community.

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