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Scand J Public Health 2012 40: 309

DOI: 10.1177/1403494812450372

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ORIGINAL ARTICLE

Acute admissions to a community hospital: Experiences from Hallingdal sjukestugu

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Abstract

Aims: Acute admissions to anywhere other than general hospitals are uncommon in Norway, but at Hallingdal sjukestugu, a community hospital in a rural district, this has been practiced for years. This article presents experiences from this practice. **Materials and methods:** Hallingdal sjukestugu is a decentralized, specialist healthcare service, under the administration and funding of Ringerike sykehus, the nearest general hospital, which is 170 km away. General practitioners under telephone supervision of the hospital specialists run the inpatient department. Six municipalities with 20,000 inhabitants make use of the community hospital. Statistics were obtained from the patient administration systems and from manual statistics continuously registered in 2009–10. **Results:** In 2009–10 the inpatient department, an intermediate care unit with 14 beds, had an average of 605 admissions a year, with a mean length of stay of 6.3 days. There were 455 acute admissions to Hallingdal sjukestugu. Forty per cent of these patients were younger than 67 and 36% were older than 80 years of age. Half were admitted for observation and half for treatment. The main diagnostic groups were infections, injuries and palliative care. Seventeen per cent of the acute admitted patients were later transferred to the general hospital for further work-up or treatment; 70% were discharged to their homes. **Conclusions: The experiences from Hallingdal sjukestugu indicate that it is feasible to give a selected group of patients an alternative to acute admissions to a general hospital.**

Key Words: Acute admissions, community hospital, general practice, health authorities, municipal health care services, public health, specialist health care services, the Coordination Reform

Background

In Norway a new national Coordination Reform has highlighted the fact that patients' needs for coordinated services across the health service levels are not being sufficiently met [1]. The healthcare system in Norway is divided into two levels. The state has the responsibility for the specialist health services including public hospitals, outpatient services and ambulance services. The municipalities have the responsibility for the primary health services including emergency care, general practice, home based care and nursing homes.

The Coordination Reform also points to the importance of alternatives to hospital admissions [1]. In most Western countries there are efforts to reduce acute hospital admissions and the duration of hospital

stays [2–5]. Today, acute admissions to anywhere other than general hospitals are uncommon in Norway. In the rural area of Hallingdal, however, this has been practiced for years. Selected patients in need of acute medical care are admitted to Hallingdal sjukestugu (HSS), a community hospital, instead of Ringerike sykehus (RS), the local general hospital. In addition, patients can be admitted to municipal nursing homes. General practitioners (GPs) in Hallingdal thus have the choice between three different levels of acute admissions: the general hospital, the community hospital or municipal nursing homes.

Aims

The Coordination Reform gives guidelines to Norwegian municipalities to develop healthcare

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(Accepted 9 May 2012)

© 2012 the Nordic Societies of Public Health
DOI: 10.1177/1403494812450372

services before, instead of, and after hospital care [1]. Garåsen has shown the usefulness of intermediate care after hospitalization [6]. The main purpose of this article is to share experiences from HSS regarding acute admissions before and instead of admissions to RS, contributing to a necessary debate about alternatives to general hospital admissions.

Materials and methods

Hallingdal is a valley in the middle of southern Norway consisting of six municipalities and 20,323 inhabitants (1.1.2011). It is the largest tourism region in Norway with approximately 10,000 tourists per day in the area throughout the year.

HSS is a decentralized specialist healthcare service located in the municipality of Ål, 170 km from RS, the nearest general hospital. HSS is funded and administered by RS, which in turn belongs to the Vestre Viken Hospital Trust. In the course of 30 years, the specialist healthcare services at HSS have gradually been developed and today include outpatient psychiatric and somatic services, somatic daycare, a somatic inpatient department, pre-hospital ambulance and air ambulance services.

The inpatient department at HSS is functioning as an intermediate care unit with 14 beds. In 2009–10 the department had on average 605 admissions per year with an average length of stay of 6.3 days. The patients can be divided into three almost equal groups: acute admissions, rehabilitation, and follow-up treatment after hospitalization. The inpatient

department is run by general practitioners (GPs), filling 1.8 positions.

Acute admissions to HSS follow procedures approved by RS. Unlike a general Norwegian hospital HSS is not obliged to accept acute admissions and the admission must be approved by the specialist on call at RS. Legally, the patient is under the general hospital's professional responsibility. The main admission criteria is that "the patient needs equipment or expertise which is not available on the municipal level; at the same time the patient does not need equipment or expertise at the general hospital level." Diagnoses and clinical settings eligible for admission to HSS are compiled and agreed upon by the medical staff at RS and HSS (Table I).

The GPs at the inpatient department work daytime hours but can be consulted by telephone during evenings and weekends. The staff at the inpatient department can also consult the inter-municipal medical emergency service situated in the same building. The GPs at HSS are supervised by the hospital specialists. This is done by phone, via telemedicine or in person when the specialists are working at the outpatient clinic at HSS.

Information has been obtained by structured interviews and discussions with the staff at HSS regarding patient satisfaction, the department's organization, procedures and cooperation with municipal and specialist health care. To get a representative description of the activity at the inpatient department, we compared data from two sources and over a period of two years, 2009–10. The analysis is

Table I. A section from the admission criteria at the intermediate department at HSS.

Sample collection and clarifications

- Observations
 - Light concussion (unconsciousness < 5 min., no focal neurological findings, Glasgow Coma Scale 14-15 and without special risk factors); this according to the Scandinavian guidelines where CT is not available
 - Fractures and injuries where it is appropriate to take X-rays in the HSS or where further admission to hospital has to be clarified
 - Intoxication (alcohol) after treatment at municipal emergency unit. Deliberate self-harmers should be hospitalized
 - Observation of other causes where hospitalization is not necessary
 - Treatment and medical follow-up
 - Infection patients who do not meet the SIRS criteria for sepsis. If so, the patient will be assessed for hospital admission in consultation with the specialist on call
 - Chronic obstructive pulmonary disease exacerbations where treatment has been clarified
 - Dehydrated patients who require intravenous fluid therapy
 - Hyperemesis
 - Nutritional deficiencies
 - Blood transfusions
 - Adjustment of ongoing medical treatment
 - Diabetes, both tablet and insulin regulation. Hyperglycaemia and the risk of diabetic coma or patients with ketoacidosis must be sent to RS
 - Heart failure
 - Palliative and terminal care especially concerning complex conditions and younger patients
 - Emergency deliveries
-

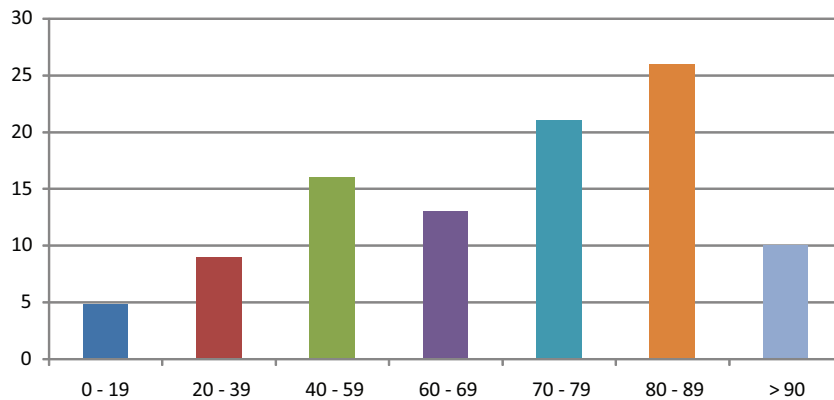


Figure 1. Percentage age distribution – acute admissions to Hallingdal sjukestugu 2009–10 ($n=455$).

partially compiled from the patient administration systems in Vestre Viken Hospital Trust (DIPS and NIMES), and partially from manual statistics, which were continuously recorded by the ward nurses at HSS. Data related to acute admissions in nursing homes were obtained directly from the municipalities in Hallingdal.

Admissions to HSS with duration of less than four hours are not included in the hospital's statistical systems. We have, however, included these patients in the material to demonstrate this function at the HSS. Cancer patients with an "open return" are registered in the statistics system, but are missing in the manual statistics because a doctor did not refer the patients. These patients are not excluded from our material. Births at HSS (12–15 per year) and at RS; children; and admissions to the gynaecological department at RS are excluded from the material. Other than this we have near complete datasets of all acute admissions to the relevant health facilities of Hallingdal during this period of time.

Results

Four hundred and fifty five acute medical care patients were admitted to HSS in 2009–10, representing 38% of all admissions to the intermediate department. Acute admissions occupied 20% of the bed capacity during the year. Sixty three per cent of the acute admissions came from the municipal emergency services, and the remainder came from the doctors' offices during normal working hours; 379 of the 455 patients were residents of Hallingdal (83%). These 379 patients make up 12% of the total number of 2,995 acute care admissions at RS and HSS for residents of Hallingdal. In terms of admissions per 1,000 population per year, this corresponds to 72 admissions to RS and 10 to HSS.

Women made up 55% of the 455 acute admissions. Age distribution is shown in Figure 1. Forty per cent of the patients were under the age of 67 and 36% were older than 80 years.

The average length of stay for acute care patients was 3.8 days, and 217 (48%) patients stayed one day or less. Among the 14 patients with an inpatient period of less than four hours, five were forwarded to RS after an observation period and nine patients were discharged after treatment at HSS. Of the 455 acute care patients discharged during these two years 319 (70%) were discharged to their homes and 40 (9%) to nursing homes or other municipal care services. Seventy nine (17%) of the acute admissions at HSS were transferred to general hospitals within two days, and 17 (4%) died at HSS after terminal care.

More than 75 different diagnoses were used by the admitting GPs (Table II). About half of the patients were admitted for medical treatment, the other half for observation. Some patients belonged to both groups and for some the purpose of admission changed during the course of their stay. The table should thus be taken as an indication of the clinical problems at the time of admission. The main diagnostic group was infections (19%), including pneumonia as the most frequent single diagnosis (11%). Eighty two admissions (18%) were due to injuries, with concussion as the second most frequent single diagnosis (9%); 14% of the patients were admitted for acute palliative or terminal care.

Acute admissions to municipal nursing homes assumed that the nursing home had the availability and the competency to take care of the patient. Data obtained from the nursing homes indicated that acute admissions varied between municipalities, with an average of five admissions per 1,000 inhabitants per year.

Table II. Main diagnoses of acute admissions to HSS 2009–10 ($n=472$, including 17 patients who were admitted to HSS, but because of a research project were randomized for admission to RS).

Diagnosis /diagnostic area	Number	Percent	Details
<i>Observations</i>			
Concussion	41	9	
Injuries, fractures	41	9	Pelvis (9), back (7), hip (6), upper arm (3), ankle (3), dislocations (3), ribs (3), wounds (3), others (4)
Pain	37	7	Abdomen (12), back (9), sciatica (5), urolithiasis (3), gallstones (2), migraine (2), others (4)
Heart and vascular diseases	23	5	Atrial fibrillation (9), hypertension (5), transient ischaemic attack/stroke (4), angina pectoris (4)
Dizziness / syncope	23	5	
Impaired general condition	13	3	
Observation – other causes	43	9	Alcohol intoxication (9), allergy (6), respiratory tract diseases (5), epilepsy/convulsions (4), urinary retention (3), epistaxis (2), anaemia (2), nausea (2), med. intoxication (2), others (8)
Total	221	47	
<i>Medical treatment</i>			
Pneumonia	51	11	
Urinary tract infections	12	3	
Other infections	24	5	Erysipelas / skin infections (8), generalized infection (7), gastroenteritis (6), others (3)
Palliative and terminal care	66	14	
Heart failure, chronic obstructive pulmonary disease (COPD), diabetes	40	8	Heart failure (16), COPD (15), diabetes (9)
Dehydration	21	4	
Others	17	4	Blood transfusion (10), Herpes zoster (3), MS (3), others (1)
Total	231	49	
<i>Psychiatry</i>			
Anxiety, instability, depression	15	3	
Confusion / dementia	5	1	
Total	20	4	
TOTAL	472	100	

Discussion

The model of community hospitals

In the Norwegian healthcare system there are no other institutions like HSS. The closest is the “sykes-tue” (cottage hospital) model in Finnmark [7,8] and several local medical centres under development [9]. In England there has been political decisions emphasizing the development of intermediate care [10]. This has led to renewed interest in community hospitals (CH) or GP hospitals [11]. A literature review from 2006 indicated this to be an area characterized by beliefs and opinions rather than research [12]. At the turn of the millennium major differences were identified among 471 English CH [13].

The inpatient department at HSS has patients with diagnoses covering several medical disciplines. The GPs’ broad medical knowledge and training appears to be an appropriate professional background for staffing the department. It would be preferable to also have a geriatric specialist linked to HSS, but this is unrealistic given the shortage of

these specialists in Norway. During interviews the GPs at HSS emphasized the importance of developing close cooperation with the specialists at the local general hospital.

Admissions

For the intermediate department to have legitimacy in relation to municipal health care, the health services given at HSS must be in addition to and not instead of the local nursing homes. Although our data do not allow the assessment of individual patients, it is our firm impression that acute admissions to nursing homes generally represent a level of care with little need for professional medical follow up.

It appears that the distance to the specialist health-care services has been an important factor in establishing both HSS and the cottage hospitals in Finnmark [7]. The Coordination Reform does not emphasize distance when it expects the municipalities to develop health services for treatment both before and instead of hospital treatment [1]. We

think, however, that distance will be an important factor in future discussion. This will include discussions about the distances in rural districts and questions about the need for an alternative acute department in municipalities hosting the general hospital.

Patients older than 80 years constitute one third of acute admissions. As a group they appear to favour the community hospital. Feedback to the staff indicates that the elderly patients prioritize closeness to family, friends and local community. There are, however, increasing professional objections to acute admissions of elderly patients to outside general hospitals, due to their major medical challenges with multiple diagnoses, vague symptoms and multi-pharmacy, needing specialist care [14,15]. At the same time the expert report considers sub-acute illness with progressive impairment to be relevant for observation and further diagnostic clarification at the intermediate level [14]. The National Board of Health and Welfare in Sweden considered that 10% of acutely hospitalized patients older than 80 years could just as well have been offered an alternative to hospitalization [16]. A comparative study among elderly, acute care patients at CH in England showed no reduction in quality of life after six months compared with a similar group admitted to a general hospital [17]. The discussion on medical safety, patients' priorities and admissions among elderly patients needs further elaboration before conclusions can be drawn.

Diagnoses

Discussing treatment before hospitalization and instead of hospitalization, the Coordination Reform gives several examples; palliative care and medication adjustments in chronic diseases, observation and treatment of pain conditions, impaired general conditions, chronic obstructive pulmonary disease, infections, nutritional deficiencies and psychiatric disorders [1]. The intermediate department at HSS takes care of a wide variety of acute medical conditions, not unlike those found in an English CH study [18]. The present intermediate care meets most of the intentions of the Coordination Reform.

In the Coordination Reform little or no attention is placed on surgical issues when discussing the intermediate units [1]. Experiences both from Finnmark [7] and HSS show that injuries constitute a large part of the admissions, with concussion being the most frequent trauma diagnosis. The admission criteria to HSS allow patients with a light concussion to be admitted, in accordance with the Scandinavian guidelines [19].

Abdominal pain, back pain, sciatica, urolithiasis and gallstones are examples of pain conditions observed and treated at HSS. An outpatient follow up by the specialist can often be arranged after the pain has subsided. Hospitalized patients with abdominal pain usually tie up many resources on surgical wards. One recent study found that 48% of patients acutely admitted to a surgical ward due to abdominal pain did not require treatment beyond observation and symptomatic relief [20].

Infectious diseases dominate the acute admissions to HSS. Pneumonia, a condition often requiring intravenous antibiotic treatment, was diagnosed in more than one of every 10 patients. For patients receiving palliative care it is of particular value to get as much as possible of this care in their local, familiar environment [21,22]. The staff at HSS has made it a target to focus on quality in palliative and terminal care.

Patients with chronic illness like chronic obstructive pulmonary disease, diabetes and heart failure often require frequent hospitalizations and are examples mentioned in the Coordination Reform as chronic diseases where patients can benefit from admission to intermediate care [1]. At HSS this group of patients amounts to 8% of the acute admissions.

Admissions due to psychiatric diagnoses are not in accordance with the admission criteria at HSS. The department has nevertheless allowed admission of some of these patients in order to relieve the municipal emergency care. Patients with suicidal tendencies were not admitted to HSS.

An alternative to hospitalization

If an intermediate department is to be a viable alternative to a general hospital, the health services given at the department have to be instead of and not in addition to those of the hospital. In a social perspective this assessment should contain a health economic evaluation. In a patient perspective, the question will be whether the patient would have been admitted to a hospital if the intermediate department did not exist. Furthermore, the patient's perceived quality of the alternative must not be lower than the perceived quality of the care given at the hospital. In a professional perspective the treatment has to be considered medically secure.

The historical data on which this article is based do not provide sufficient basis to assess these questions. The HSS administration states that the cost for stays per day is about half that of the hospital's daily rate. In addition the ambulance cost is lower because there is less transportation to the hospital. In a health economic assessment, however, this must be

analyzed further and weighed against the differences in average length of stay at each place and differences in health and economic consequences during a follow-up period.

In structured discussions the medical staff at the inpatient department state that, in their view, there are very few patients presently admitted to HSS where the alternative would have been nursing homes or no admission at all; they would have been admitted to the general hospital. Our patient data can neither confirm nor refute this. In an ongoing study the GP admitting a patient to HSS is asked to name an alternative to the admission. Preliminary results indicate that about 90% of the admissions would have been to the general hospital (personal communication).

The present data do not provide a basis for assessing patients' experience of quality at HSS. In a recent national survey monitoring somatic inpatients' experiences, RS was in the top layer of all Norwegian hospitals [23]. When comparing the patients' experience of quality between the different departments of RS, HSS is at the top (local administrative data).

In 82% of the 455 acute care admissions the medical situation was resolved at HSS, indicating that the intermediate care department has a function instead of the local hospital. However, almost every fifth patient is transferred to the hospital after first having been admitted to HSS. This is not all unwarranted. HSS acting as a filter for hospital admissions can be viewed as a buffer effect. The hospital will not be exposed to unnecessary admissions, and those in need of further diagnostic work or treatment will be forwarded. For the hospital, it is better to accept admissions during the day, when the patients can be part of the normal patient care handled by the day staff. For emergency preparedness, it is important to schedule transportation so not all ambulances are occupied at the same time. And for the patients, it is often inconvenient to be transported all the way to the hospital in the middle of the night if this does not have therapeutic consequences. Transfer to the general hospital had been decided at the time of admission to HSS for about one third of the patients forwarded to the hospital, using the intermediate department as a buffer.

About 10% of the 455 acutely admitted patients were later transferred to the hospital due to unresolved medical issues. Compared with direct admissions to a hospital, the patients filtered through HSS have a delay in their trajectory. In our material we have no data to assess whether this delay has a negative effect on a patient's illness. The Finnmark study evaluated this aspect, concluding that the negative effects caused by a temporary stay in a GP hospital are uncommon [24]. A study from England

compared a cohort of elderly acute care patients at five CH with a similar group admitted to a general hospital and found no difference in quality of life six months after discharge [17].

The Appropriateness Evaluation Protocol (AEP) is an American tool developed to retrospectively evaluate the appropriateness of medical admissions [25]. This instrument has since been adapted and used in several countries including Denmark and Sweden [26,27]. Using the AEP or similar tools, several surveys have indicated that about 20% of patients could have been offered an alternative to hospitals [26–28]. In our study we have looked at one such alternative; admission to a lower level than the hospital. We have found that 12% of the acute admissions that would otherwise have gone to RS received adequate care at HSS. In theory, at the hospital, this has liberated a bed capacity equivalent to 2.4 beds for alternative use.

Conclusion

The experience from HSS indicate that it is both feasible and relevant to give a selected group of patients an alternative to acute hospitalization, in accordance with the intentions of the Norwegian Coordination Reform. This article presents data and experiences based on local, established practice. Whether such a model is feasible on a national or international level requires further medical, quality of life and health economics research.

Acknowledgements

The authors are thankful to Helge Garåsen for inspiration and support.

Funding

This work was supported by Helse SørØst RHF, Vestre Viken HF, Ringerike sykehus and the municipality of Ål.

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