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A New Model for Dealing with Patients Who Frequently Arrive Spontaneously at Hospital Emergency Departments Requiring Health Care: A Pilot Study

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Abstract

Background: Patients who repeatedly seek care directly at hospital based somatic emergency departments take up a large proportion of health care resources, at the same time they appear to experience low satisfaction with the care they receive. The purposes of this pilot study were to describe: I) the development of a team model for taking care of frequent visitors to a somatic hospital based ED; II) Eventual changes, over six months, in costs and patients' health care utilization related to pilot testing the model and III), the team's experiences of implementing the model.

Methods: A mixed method convergent parallel design was used.

Results: The development of the model began as a top-down process and later on into a bottom-up approach once the inter-professional team became involved. The new model functioned as a support for all 12 patients included in the study and collectively their visits decreased by a total of 73 visits (55%). Conclusion: The inference quality description is that a management induced project may be accepted and actively applied when those involved experience freedom to structure the project. Increased communication between different professionals within the hospital and between different caregivers such as ED, primary health care and community social- and health-care, increases the possibility for the patients to be cared for in a sustainable and non-fragmented way.

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Emergency nursing, Frequent visitors, Interprofessional collaboration, Team-based practice

Background

There is an ongoing debate in the community in Western countries about what is the right use of hospital emergency departments (ED) and how to best take care of the needs of an increasing proportion of the population who use them. People who repeatedly seek care through ED are engaging a large portion of health care resources and experience greater dissatisfaction with health care than other patient groups. This creates frustration for the staff within the health care and involves suffering for the patient. These patients often present multiple diseases with high grad of mental illness [1-3]. In order to offer an effective and safe treatment in which care is provided at the right level and to avoid repeated visits to the ED a good communication and close collaboration is needed between the hospital specialist care, primary care, community care and informal care [1,4]. General research evidence are lacking for how these people should be taken care of in an optimal way. Some studies, though, show a need for continuity and collaboration between health care providers to avoid deficiencies in the quality and high total cost of care [1-4]. Reasonably this is applicable to various ED care, however little described for frequent visitors to an ED department.

The objective of somatic hospital based ED is to provide highly professional care to patients who are in need of urgent or emergency somatic care at any time of the day. The care provided has to be based on evidence based medical practice as well as on individually based nursing [5,6]. However, during the last decades the function of somatic hospital based ED has gradually changed, mainly due to the characteristics of today's patients visiting ED. For example, studies from Western countries point out that patients nowadays' more often use somatic hospital based ED for reasons that are beyond somatic concerns and are in fact based on psychological and social reasons [3,7,8]. Prior studies has shown that ED frequent visitors are a psychosocial vulnerable group with poor mental health, low level of perceived social support and heavy users of general practitioners and other primary care forms [9-12]. Further groups of frequent visitors

identified elsewhere are those with chronically severe medical problems, [13], or mental and behavioural disorders [14], or suffer from co-morbidity related to somatic concerns, psychiatric illness and substance abuse [15]. These patients engage a large proportion of health care resources while at the same time they appear to experience less satisfaction with the health care system than other patient groups [2,3]. These circumstances create frustration among the staff as well as increased suffering for the patients [1]. The findings have resulted in an ongoing debate among health care providers concerning both the objectives of somatic hospital based ED and how to provide the best practice when taking care of patients who frequently visit a hospital based ED [1,16,17]. Some beneficial results have been found in studies covering the effectiveness of case management (CM). Kumar & Klein [18] showed, in their literature review, that intensive CM reduced the cost and number of ED visits. The content of such a CM programme involved frequent follow-up of patients, availability of psychosocial services and finance entitlements plus a high level of patient involvement in care planning. Although the literature review presented beneficial outcomes in providing intensive CM at somatic hospital based ED, the authors concluded that there was a need for further studies covering how best to take care of frequent visitors to ED. This is a conclusion which is supported by other researchers [8,19-21]. In Sweden and, to our knowledge, no intervention study

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covering models for reducing costs and frequent visits at ED has been published. The purpose of this study was to describe: I) the development of a team model for taking care of frequent visitors in a somatic hospital based ED; II) eventual changes after six months in costs and patients' health care utilization related to pilot testing and III) the team's working experience of the model.

Methods

This study was performed using a convergent parallel mixed method approach [22] involving the collection and analysis of quantitative and qualitative data.

Quantitative data concerning patients' characteristics were collected with regard to their gender, age, housing situation, social, work and economic situation. Also information regarding who had initiated the patient's contact with ED, the method of their transportation to ED, any previous support from the municipality and whether or not a previously planned care appointment had been fulfilled.

To identify changes in patients' search patterns from the ED data were collected from the hospital. The data consisted of patient records and statistics about patients' health care utilization. Data, such as the number of visits, was compared from six months prior to the patient's inclusion in the study to six months after. An economic evaluation was conducted using the hospital's standardized cost calculation for a patient visit to the ED.

Qualitative data was collected by interviewing staff included in the Executive inter-professional team and the project manager, either individually or in groups. The interviews focused on the staff's experience of working with the model, their experience of professional collaboration and the strengths and weaknesses of the new approach.

Setting

The study was performed at a Central Hospital in southern Sweden, serving a catchment area of about 180 000 inhabitants. A survey of health care utilization made 2009 (12 months) revealed that18 875 patients aged 20 years or older sought care through the ED and met a physician. Of these, 906 patients (4.8%) sought and received care four or more times during 12 months. The group accounted for 4 742 visits, representing 16.8% of the total number of emergency clinic visits. Later estimations revealed that about 4000 persons per month visit the ED at the hospital where this study was performed and about 3000 persons meet a physician and about 1000 came into contact with the newly implemented function of a triage nurse [23]. This estimation resembles other Swedish studies showing that about 5% of patients account for 20% of the visits [1,24].

To describe the development of the model, a researcher, the first author (LP), participated in the steer group and the working group. Specific questions were put to the collected data such as; how did the process of change began, how were the groups formed and what mandate did they have, and which individuals were included in the groups.

Sample and measures

Patients participating in the study were from the Kristianstad Municipality, age over18 years old, who had sought care at the ED, where this study took place, four or more times during 2012 and who had met a physician. Excluded were patients who had only met the

triage nurse and patients with self-injurious behavior. The reason for their exclusion was that they were already included in the system and that they would perhaps profit from ED care.

During the 3 month period March to May 2012 patients were included consecutively. In total, 180 people sought care at the hospital ED and met a physician, more than four times counted from January 2012. Of these, 92 patients met the inclusion criteria, however, only 25 were asked to participate in this study, 12 accepted, three declined and 10 patients wished to be contacted later. The remaining 67 patients, who met the inclusion criteria, were not invited to participate for various reasons. The most common reasons where the emergency nurse's shortage of time (n=40) as she was the key person in the team, then patients with separate diagnosis (e.g. gallstones or kidney stone) (n=22) and other causes (n=5).

When the patient was admitted to the ED, the emergency nurse contacted them to ask for their informed consent to partake in the study. Patients who already were discharged were contacted by phone. For collecting data about the patients a standardized questionnaire was applied, with questions complementing patients' records and the assessment of patients' status. The Prime MD (Primary care evaluation of mental disorders) was used to evaluate mood, anxiety, somatoform, and alcohol and eating disorders [25,26] The form was further complemented with four questions regarding physical and psychological abuse.

To evaluate the staff's experience of the model qualitative interviews were conducted [27], either individually or in groups, focusing on their own experience. The interviews were tape recorded and analyzed using conventional content analysis [28]. The data analysis began with reading the transcribed interviews repeatedly, using an open mind, in order to get a feeling for the whole. In a second phase the researcher made notes of her first impressions, thoughts and made an initial analysis. As this process continued code labels emerged which became the initial coding scheme. The codes were then sorted into subcategories and categories based on how they were related and linked.

Ethical consideration

The patients included in the study gave their written informed consent to participate. Patients seeking ED frequently can experience integrity problems if subjected to questions about their care in a way that goes beyond the 'normal' procedure as their total life situation would be examined in the study and not just simply their reason for coming to the ED. The team dealt with this by offering the degree of help that met the patients' needs in a longitudinal aspect rather than just here and now. The study was approved by the Ethical Committee of Lund University D.nr 2012/733.

Findings

The development of a new model for dealing with patients who frequently arrive spontaneously at hospital emergency department requiring health care.

The development of the model began as a top-down process with initiatives from the hospital manager and in which managers, from different organizations and with different professions, were invited to participate. This approach created the necessary legitimacy for developing the new model. The inter-professional team, who should

work with the new model, was appointed later and was not involved in the actual development. Which led to that the inter-professional team then established their own working processes and routines and also formed routines for cooperation with other caregivers. In this phase of the project the developmental process became bottom-up.

The hospital manager gave a directive to design a model for the management of frequent visitors to ED. The focus was to be on improving patients' health and to improve cooperation between hospital, primary- and community- health care and to reduce the burden on the ED. This first part of the project was presented in 2011. The hospital manager then formed a steer group of eleven people. The group included the Chief medical officers from the medicine-surgical- psychiatric- and emergency- clinic, the Head pharmacist, a Healthcare strategist (Chairman) a Care developer (project manager) and the Primary health care director. The group also included the Head nurse (MAS, in Swedish) from the municipality and one researcher (LP). The group's assignment was to develop the new model and to take decisions in order to create engagement and influence in the process of planning and implementation.

A working group was formed, to further design and test the model. The group consisted of eight persons including the Project manager and three other members from the Steer group, one Emergency nurse, an operation manager from the primary care, one Health care planner and one Care manager from the municipality.

The new model was formed and presented to the Steer group who took the decision to test it by making a pilot study during the spring of 2012. The model aimed to identify and monitor patients who had sought and received care at the ED four times or more during the past 12 months. The concept of the model was to form an Executive inter-professional team, attached to the ED, working together to gain thorough knowledge of any patient's current symptoms and past medical history. The Executive inter-professional team consisted of one Emergency nurse, one Occupational therapist, two Social workers and two Pharmacists. A number of physicians from different clinics were consulted depending on a patient's specific problems but were not included in the Executive inter-professional team.

The Emergency nurse identified the patients who met the inclusion criteria, contacted the patient, informed them and obtained their written consent to participate in the pilot project. Patients who agreed to participate were coded consecutively and asked to complete a self-assessment questionnaire to provide an expanded base of the patient's self-perceived problems. The overall documentation was discussed within the Executive inter-professional team and a common assessment was made. The Emergency nurse then discussed the assessment with the patient's physician at the hospital. After the individual care plan was set up and discussed with the patient it was sent to the relevant health care providers in the municipality, the primary health care and/or the hospital clinic. Current caregivers were asked to provide written feedback on the proposals within two weeks.

The pilot study sample, patients and staff

Patient's background characteristics

The patients (n=12) lived in their own homes, had a poor social situation with few social contacts and experienced much loneliness which made them vulnerable. The patients' ages were between

34-89 years old (mean 64) some of them had developmental disabilities. None of the patients were gainfully employed, seven were old age pensioners, two were retired on the grounds of disability and four had income support. All had taken their own initiative to visit the ED, and 10 arrived by ambulance. Six patients had home health care and eight had home help service. Six patients had previously participated in care planning at the hospital and also at home.

Team members background characteristic's

The Executive inter-professional team consisted of one Emergency nurse, one Occupational therapist, two Social workers and two Pharmacists. The physicians did not partake in the team but were consulted.

Changes in costs and patient health care utilization related to the implementation of the team model

Compared to the six months prior to the study, all 12 patients reduced their visits to the ED during the six month study period following their inclusion into the new model compared to the six months before (Figure 1). In total, the number of visits to ED was reduced by 55% (73 visits), from 131 visits to 58, by the end of the study period (Figure 2).

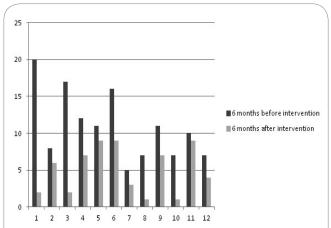


Figure 1: Visits 6 months before intervention resp. 6 months after intervention.

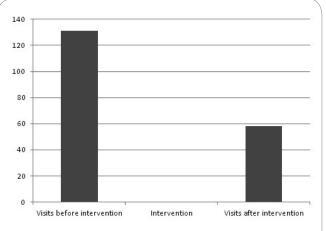


Figure 2: Study group ED visiting frequency 6 months before and 6 months after intervention (n=12).

The Executive inter-professional team's working experience of the model

Results from the interviews with team members are presented below. Interpreted categories are presented in accordance with Hseih and Shannon' guidelines [28] and, subcategories are supported with citations.

A way to develop together

Examples of subcategories: interact with each other, secure environment, develop continuously and learn from each other.

The composition of the team members was fairly stable throughout the study period. This stability gave the team members opportunities to learn how to cooperate with each other in order to meet the study's objectives. The team developed together by sharing their professional skills which contributed to expanding their knowledge concerning patient's needs.

• It is important to be an intact team, getting to know each other and to confer regarding a specific patient...when listening to each other you can change your image of a situation.

Initially, there were no clear guidelines related to how to work together, however, the team members developed their own practices. Important for developing together was fixed schedules for meetings and that the nurse worked both as a team leader and as a pilot in relation to the patients. This split role functioned as a link between the team and the Steer group as well as between the team and the external care providers and the patient.

Lack of firm support

Examples of subcategories: Shortage of funding, continuous information, lack of time and need of communication.

The team experienced various challenges during the period of coming together. The team felt that there were weaknesses in their cooperation with the Steer group. The first weakness was felt to be a lack of continuity among the participants in the steer group and further that it was the Emergency nurse who was the link between the groups. Other team members felt they lacked contact with the Steer group.

• It's only the nurse who has contact with the Steer group. We (the team) have never been in contact with them (the Steer group). They tell us what to do and we just implement it.

The team members experienced that external health care providers were not fully supportive of the principles of the new multidisciplinary model. Initially, the team members received positive feedback from the external care providers after informing them about the new model. All of the external health care providers they had been in contact with confirmed the need for a new way of working together. Collaboration with some parts of the municipal social care had already begun, meaning that the team had contact persons in the external health care services who were well versed in the model. However, the external health care providers, particularly those professionals, who encounter patients on a daily basis, were not informed.

 As a director for primary care, she finds it difficult to reach out to the operation care. We know she has informed all the other managers...then it has been difficult to reach further to those who meet the patients. Another problem was the shortage of funding. The team members needed more time to meet and talk about the complex needs of patients. It took time to get to know each other; however, by the end of the study common proposals were being reached faster. Furthermore, it was found that the model was not rooted among the physicians working at the ED since they did not participate in the team discussions.

Ambiguity in the patient group

Examples of subcategories: patients own perspective, not feeling comfortable, give responsibility to the patient.

The new model involved the Emergency nurse assessing patients suggested to benefit from the model. The self-assessment questionnaire used was considered to be helpful since it included the patient's own perspective.

• Self-assessment has been helpful. We (the team) may think that they (the patient) are alone but the patient may not think it is a problem but might experience other things as problems.

The team members experienced that some of the patients were not comfortable with the questionnaire since they did not want to be considered as frequent visitors. However, the majority of the patients were positive to being asked to participate and saw it as an advantage since they could call the nurse whenever they wished. The team members also reported that these patients frequently phoned the emergency nurse.

Discussion

The pilot study contributed to an increased understanding of the process of developing and testing a new model for taking care of frequent visitors to a somatic hospital based ED. The pilot study showed a decreasing number of visits after participating in the new model resulting in a reduction in care costs and, showed the experience from the Executive inter professional team members.

It took about 2 years of planning and set up of the frames for the new model. During this time all involved had the opportunity to follow the process, intervene if wanting to and to form the final limitations of the project. The time that elapsed gave a sound base to the project.

Even if the urge of creating a new model for handling frequent visitors came from the Hospital Manager the executive team members experienced freedom to structure the project in detail by themselves. They said to have lacked firm directives in the beginning of the project but this led to that they conducted a way of working and working together in their own way. At after sight this had led to that they had felt responsibility for the project. The inferred quality assumption is that a management induced project (top-down) may be accepted and fostered (bottom-up) under freedom. In this case the freedom led to further steps being taken way beyond the original project limitations, offering an integration of professional knowledge between team members. Interprofessional communication has been shown to increase the quality of care for frail older people [29]. This result is underpinned by Schaik et al [30] who, from a study with inter professional teams, draw the conclusion that organizational change often is chosen from the top but ideally should be chosen by the team to be respected and empowered.

The number of visits decreased considerably and generated a 55% reduction in the number of spontaneous re-visits. Before the

implementation the number of frequent visitors' spontaneous visits to the ED simply clogged up the system due to the overload of patients' problems to be dealt with by the Emergency duty nurse. Particularly given the fact that spontaneous visitors often had complex problems including psychosocial ones [3,7]. All patients in our study had a complex social situation not suitable for ED practices. Erdem et al. [31] suggests, in a study on readmission rates in medical care at a large hospital in the US, that a large hospital may serve sicker or more complex cases which makes care coordination more difficult. Since the hospital where the study was performed is the largest hospital in the area that might also be true for this hospital. Erdem further argued that broad based interventions are needed to prevent readmission in frail patients with multi morbidity and complex medical condition. Not least is that necessary in view of frequent visitors' repeated use of also other care facilities. In a Swedish investigation the authors found a high risk of 5 or more (OR 3.43, CI 3.10-3.78) primary care visits in frequent visitors [32]. The authors also found an increased mortality rate (OR 1.55 CI 1.26-1.90). The new model for dealing with frequent visitors had considered the issue of care coordination and managed to identify frail patients and thereby made it possible to alert the Emergency nurse and the Executive inter-professional team assigned.

According to interviews with the team members the most important part of the new model was the encounters and discussions between the different professions. During the inter-professional discussions, a wide understanding of patients' problems and patients overall situation emerged. A short coming in the study design was that no physician participated in the team. Instead the emergency nurse consulted the physician after the team had met and formed their proposals into a care plan. However, we can conclude that the results show that the team worked well without the participation of a physician.

Expanded communication was experienced and described as a key result of the new model in a way of increased communication with primary- and community care staff which hindered the care being fragmented. Previous studies have shown the importance of better continuity of care and of collaboration between health care providers to avoid gaps in the quality of taking care of the patients [1,3,4,29]. These results supports our results in that the new approach in the Executive inter-professional teamwork could change patients' everyday living situation in a positive direction. According to the team the major difference for the patients was that someone took the time to listen and ask about other matters besides the direct reason or cause for their visit.

Accumulating information in the Executive inter-professional team was a process of continuous updating. There is still much to be done among the entities involved in order to establish effective and long-lasting cooperation. Differences exist among different regulations, disciplines, explanatory models and forms of organization. Extended interaction requires respect for each model in order to deal with and take advantage of these differences [1, 29]. By having a composite inter-professional team in the emergency department with time to listen and to reveal the patient's underlying problems can create a broader decision base for assessment which might result in offering patients access to the right health care provider and also provide cost effective care.

Methodological considerations

A mixed method was used to manage the realities in the complex situation of developing the model. Convergent parallel design required

that qualitative and quantitative data collection was carried out parallel and, later kept separate during the data analysis and then integrated in an overall interpretation [22]. This was carried out since the researches performed different parts of the data gathering and analysis separately; LP participated in the Steer group, made interviews and took part in data analysis, IF analyzed interviews and took part in data analysis and LJ conducted interviews and took part in data analysis. All authors contributed to study design and report writing. A weakness in a pilot study is, on one hand the low number of participants, on the other hand, it is meant to give directions for managing further investigation, as it did. The pilot study gave a first picture of the model and further investigation is planned.

Conclusion

This study has provided important information for further development of the model in order to increase the knowledge of what is best practice for how to take care of frequent visitors to ED. The Executive inter-professional team acted as a support for the assessment of patients' underlying needs. Making assessments in an inter-professional team requires extended time availability for the staff, however, it can help patients to find the right level of care which in turn offers cost reduction for the healthcare system. Increased communication between different professionals within the hospital and between different caregivers such as ED, primary health care and community social- and health-care, increases the possibility for the patients to be cared for in a sustainable and non-fragmented way. The results of this study will be followed by documented descriptions of patients' experiences of the model together with a longitudinal follow up of staff experiences and cost development.

Declaration of interest

The authors confirm that they have no interests to declare.

Author Contributions

Lena Persson is responsible for the content and for all data collection. Ingela Furenback is responsible for the qualitative analysis of the interviews. Liselotte Jakobsson is responsible for statistical analysis. All of the authors shared the responsibility for the preparation of the manuscript.

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