Emergency departments in The Netherlands

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ABSTRACT

Emergency medicine in The Netherlands is faced with an increasing interest by politicians and stakeholders in health care. This is due to crowding, increasing costs, criticism of the quality of emergency care, restructuring of out-of-hours services in primary care and the introduction of a training programme for emergency physicians in 2000. A comprehensive search was conducted of published research, policy reports and updated Dutch websites on acute care. Publications were included in this review if these referred to emergency care, including emergency departments (ED), general practitioner (GP) cooperatives and emergency medical services in The Netherlands and were written in English or Dutch. The literature search identified 14 eligible papers. The manual search identified 11 additional papers. Seven reports and two PhD theses were also included. Given the lack of relevant empirical research the review was liberal in its inclusion, but the analysis focused on research when available. ED in The Netherlands are in different stages of development. However, it is obvious that the presence of emergency physicians is increasing and more ED will be staffed by emergency physicians. Although this seems an important step, it does not necessarily imply a good position of the emergency physician in the ED. What the characteristics of the future patient of the Dutch ED will be is dependent on the development of different ED levels of care and GP cooperatives. The lack of empirical research also points out the need for research on quality of care in Dutch ED.

Emergency medicine in The Netherlands is faced with an increasing interest by politicians and stakeholders in health care. This is due to crowding, increasing costs, criticism of the quality of emergency care, restructuring of out-of-hours services in primary care and the introduction of a training programme for emergency physicians in 2000. Emergency care in The Netherlands is currently provided by four healthcare providers: (1) Emergency departments (ED), where patients can present on their own initiative (self-referrals) or arrive by ambulance or after general practitioner (GP) referral. More ED have been staffed with emergency physicians since the start of a training programme for emergency physicians. (2) GPs who have reorganised out-of-hours primary care from small practices into large GP cooperatives. They have a telephone triage performed by nurses and GPs doing centre consults and home visits. In recent years, an increasing number of co-locations of GP cooperatives with ED are seen. The most important aim of this co-location is to remove most of the self-referrals from the ED. (3) Ambulance services, which have also undergone a transition, changing from multiple small private organisations to large regional ones with a national training programme and implemented national guidelines. (4) The mental health service, which will not be discussed in this paper. In this review we aim to describe the development and current structure of emergency medicine in The Netherlands, focusing mostly on ED. When possible we use empirical research, but as emergency medicine as an ED specialty is a recent, ungoing development in The Netherlands, we have complemented this by experience-based knowledge.

METHODS

For this paper, we performed a comprehensive search of published research and policy reports. We searched Sumsearch, Cochrane library and Pubmed for relevant papers, which had to be published between 2000 up to 2010. We used the following medical subject headings: emergency care, emergency medicine, emergency medical services, emergency hospital service and the additional keywords: 'department', 'Dutch', 'Netherlands', 'patient', 'characteristics' and 'emergency care system'. We limited our search to papers published in English or Dutch. In addition, we performed a manual search in three Dutch journals (*Nederlands tijdschrift voor Geneeskunde*, *Medisch Contact* and *Huisarts en Wetenschap*). In February 2011 we searched on a continuously updated Dutch website on acute care (http://www.acutezorg.nl/). To make sure we had the most recent data, we also used official organisational websites. Finally, we selected national policy reports of the Ministry of Health, the Inspectorate of Health and the Dutch Society of Emergency Medicine (NVSHA).

Publications were included in this review if these referred to emergency care, including ED, GP cooperatives and emergency medical services in The Netherlands. Given the lack of relevant empirical research, we were liberal in our inclusion, but in our analysis we focused on research when available. A narrative review was made, focusing on the following themes: the development of emergency medicine past, present and future; how the ED fits in the overall system of emergency care; which patients present to the ED and how it is staffed. We also looked at the interaction between the ED specialist with primary care specialists and hospital specialists.

RESULTS

The literature search identified 14 eligible papers. The manual search identified 11 additional papers. We also included seven reports and two PhD theses. The majority of the research papers fell into two categories: the changes of patient characteristics after GP cooperatives were founded, and about emergency physicians after the implementation of their training programme.

Development of emergency medicine: past, present and future

Emergency care in The Netherlands is referred to as the chain of acute care, although coordination between different providers is limited. Within this chain, ED, GPs and ambulance services play a role.

Emergency departments

Historically, Dutch ED were staffed by young, inexperienced physicians, who received supervision from a medical specialist who was not always physically present in the ED.[1 2] In 1996 there was no medical head of staff in 65% of the ED and no physician in the ED received specific training in emergency medicine. Only 12% of physicians in ED had followed an advanced trauma life support course.[3] The awareness of lack of experienced doctors in ED led to a cascade of changes in The Netherlands. In 1999 the NVSHA was founded and the first international conference organised; Emergency medicine: who cares?[4] Also, in 1999, a small hospital in the east of The Netherlands started a 2-year training programme. This was followed by a 3-year training programme in 2000 by four major hospitals in different parts of the country. The young doctors who followed the training programme also developed it, together with a few medical specialists, mostly surgeons. They also received guidance from experienced American and Australian emergency physicians, who came to The Netherlands and worked as training directors in these hospitals.[5]

Because the NVSHA consisted mostly of young doctors and the development of emergency medicine needed more power, the Society for Training in Emergency Medicine was founded in 2004. This was initialised by the medical directors and medical specialists of four major hospitals. Their main goal was to come to a nationally recognised training programme for emergency medicine. This goal was supported by a report of the Inspectorate of Health in 2004 stating that the level of care provided in Dutch ED was suboptimal.[2] In particular, it concluded that ED had insufficient expertise in handling unstable patients, that the development of specialised trauma care was going too slowly, and that there was an unacceptable variation of quality of care and access to ED. In 2008 the training programme for emergency medicine was recognised by the national board of medical specialists.[4] However, at the present time emergency medicine continues to remain unrecognised as a specialty. At the end of 2009 58.8% of Dutch ED were staffed by at least one emergency physician. There are still many hospitals that do not work with emergency physicians and when they do, there is a big variety in how the emergency physicians work and what autonomy they have been given by the hospital.[6] Therefore, the impact of the emergency physician is still unknown, and evidence varies, although there are indications that they indeed have a positive impact.[7–9] In 2010 the training programme for emergency medicine was provided by 27 out of 105 hospitals with ED in the country. At that time there were 208 registered emergency physicians. The Ministry of Health had calculated that 400–700 emergency physicians are needed to staff every ED in The Netherlands.[10] The future of emergency medicine as a specialty looks positive. Training programmes are constantly improved and there is a prominent place for the emergency physician in official reports from the Inspectorate of Health, the Ministry of Health and other stakeholders.[11–14]

Primary care

In 2006 there were 8500 practising GPs in The Netherlands; one GP for every 2347 people.[15] GPs are obliged to organise a 24-h care system of availability, in which both regular and acute care is given during office hours and only acute care after hours. GP after-hours care has changed dramatically over the past 10 years, transforming from solo practices into large GP cooperatives.

There were 131 GP cooperatives and 56 local GP services available in 2006. Together they have approximately 3.5 million patient contacts a year. Almost 70% of GP cooperatives are located in hospital grounds and there is a trend towards working in close relationship with ED. More than half of all the GP cooperatives have plans to integrate with an ED and a few have already done so.[16]

Ambulance services

Ambulances are operated from regional despatch centres and play an important role in the chain of urgent care with respect to the coordination and transportation of acutely ill patients. To ensure good quality patient care, nurses and drivers are specifically trained to provide ambulance care. In the early 1990s, many small private organisations changed into large regional ones with a national training programme and implemented national guidelines in 1992. In 2009 there were 695 ambulances available, making a total of approximately one million despatches per year, of which over 60% were considered to be acute care.[17]

How do ED fit in the overall system of emergency care?

In The Netherlands there is a 45-min time limit for the ambulance service to deliver patients to the hospital when they need urgent medical care. This also includes arriving at the patient within 15 min after being despatched. Both targets are reached in over 98% of all cases.[15 17] Regional meetings have been set up to make sure that acute patient care is being guaranteed. ED take part in these meetings.

The Inspectorate of Health has suggested the implementation of different levels of care provided by ED to improve the quality of care. These levels should range from basic care to high specialised care.[1] Implementing these levels of care means that larger ED can provide a higher level of care and will therefore have a greater exposure of high complex patients. Smaller ED are thus more likely to close down, especially in areas where many ED are situated in close proximity to each other.[8] The ED level of care provided also influences the decision of paramedics regarding which ED to go to. The higher the level of care the greater the role of the ED in the chain of acute care.

The development of GP cooperatives also plays a role in the position of the ED. Where they are integrated, the ED will see more complicated patients with a higher urgency, whereas the GP will see the less urgent patients. Patient characteristics in the ED are therefore dependent on whether GP cooperatives will only be open after hours or 24 h round the clock.[18–28]

Therefore, in general the ED is at the receiving end of emergency care, but in close working relationship with the GP and the ambulance services. The place of the ED within the overall system of emergency care can, however, vary with the level of care provided. The literature often refers to 'the emergency department' but up to now it is still unclear what this consists of. Not all ED are open 24 h a day, 7 days a week and there is a difference in diagnostic facilities and expertise of the staff.[9] There are only a few national medical protocols for emergency care and most of the existing ones are local.[29] Finally, we see a great variation in the triage systems that are being used. However, an overall triage system (The Netherlands triage system) for emergency care is available for use in ED, GP cooperatives and ambulance services.[30 31]

Which patients present to ED?

Patients presenting to the ED can be categorised into four groups. They are either referred by their GP, present to the ED on

their own initiative, are brought in by ambulance or are referred from clinics within the hospital. As mentioned before, there is a difference in emergency medicine between office hours and out-of-hours care. In the beginning of 2000, before large GP cooperatives were founded, the self-referred patients formed between 40% and 80% of all patients presenting to the ED. They were mostly young men from the city with minor trauma, of which 4% had to be admitted. The referred patients were older, both traumatic and non-traumatic and had a higher admission rate, namely 41%.[18–28 32] The founding of GP cooperatives for after-hours care has reduced the number of self-referrals to the ED by 4–9% and the total number of patients up to 53%, with the largest shift in patients seen with musculoskeletal problems. Recent years have shown an increase in patients looking for emergency care. These patients tend to be both low complexity patients as well as elderly high complex patients with co-morbidity. The latter is caused by the ageing of the population.

How is the ED staffed?

There is a diversity of professionals working in Dutch ED. All ED employ emergency medicine licensed nurses as well as nurses in training; however, their room to practise independently is more limited than in some other countries in the world. For physicians there is a great variety, depending on the size of the ED. Small ED work with young non-trainees who are being supervised by medical specialists within the hospital. These physicians tend to work at these hospitals to gain experience in emergency care while they wait for a traineeship in various specialties. The bigger ED are staffed by a combination of non-trainees and trainees for the larger specialties, including surgery, internal medicine, cardiology and paediatric care. In almost two-thirds of ED, at least one emergency physician is employed.[5] There are emergency physician trainees in 27 out of 105 hospitals with an ED. Where it has become a common rule that all surgical trainees need to follow an advanced trauma life support course, similar courses for non-surgical trainees are not compulsory. A few hospitals have started to work with physician assistants, but this is a rather new development in The Netherlands.

How do ED specialists interact with primary care and hospital specialists?

There is a shortage of research, so we report here from clinical experience. The way emergency physicians interact with primary care specialists is dependent on their working relationship. Where GP cooperatives are integrated with ED the communication seems good, with a low threshold for consultation in each direction. This is a result of seeing each other on a regular basis during shifts. Where there are emergency physicians working in ED seeing all patients both referred and self-referred, GPs tend to refer more patients to the emergency physician. In hospitals where there are no emergency physicians working or when they only see self-referrals, there is hardly any interaction with GPs. To our knowledge, there is no research available about the interaction between emergency physicians and hospital specialists. What we know from experience is that this differs between hospitals. In most hospitals emergency physicians are full staff members of the medical board and are seen as colleagues by hospital specialists. This is, however, not the same everywhere.[33 34]

DISCUSSION

Given the lack of relevant empirical research, we based our results also on reports, theses and organisational websites. Because these are mostly based on a small part of the Dutch ED, it is hard to draw general conclusions with this review. It is, however, clear that the organisation of the whole chain of emergency medicine is evolving quickly in The Netherlands. GP cooperatives and emergency physicians play an important role in this.

CONCLUSION

ED in The Netherlands are in different stages of development. However, it is obvious that the presence of emergency physicians is increasing and more ED will be staffed by emergency physicians. Although this seems an important step, this does not necessarily imply a good position of the emergency physician in the ED. In reality, emergency physicians have to show that they are both medically and logistically capable of running the ED. Given the short existence of emergency medicine, this expertise has to develop in the coming years and is likely to differ between emergency physicians and ED. Increasing experience and knowledge can be put into improving the quality of care in the ED and within the whole emergency chain together with GPs and ambulance services. What the future patient of the Dutch ED will be is dependent on the development of different ED levels of care and GP cooperatives. With the different levels of care, we anticipate a decrease in the numbers of ED, each with a larger exposure to highly complex patients. Should the GP cooperative continue to work the way they do, patient populations in the ED will be different during office hours compared with out-of-hours care, more low complex care compared with high complex care, respectively.

The lack of empirical research also points out the need for research on quality of care in Dutch ED. This can lead to nationally based emergency medicine guidelines, which will give emergency physicians the autonomy they need. We also need more research on the interaction in the whole chain of emergency care.

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Contributors All authors have read and approved the paper, have met the criteria for authorship as established by the International Committee of Medical Journals Editors, believe that the paper represents honest work, and are able to verify the validity of the results reported.

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Images in emergency medicine

Physiological striae in adolescence: not physical abuse

Linear red to purple marks (figure 1) were seen on the back of 16-year-old boy brought to the emergency department around midnight with chest pains and palpitations. According to the patient, these marks had been there for a few years and he denied any history of physical injury, but it raised suspicion of bruises (non-accidental injury) to emergency department staff. The patient was later reviewed by a paediatrician who diagnosed these as striae. He was a thin boy and had had quite rapid growth over the last few years.

These striae are also seen in non-obese individuals due to a sudden growth spurt and can cause panic to inexperienced personnel because of the possibility of non-accidental injury. Striae can be associated with obesity, Cushing syndrome, Marfan syndrome, other collagen disorders and with excessive marijuana use. Similar cases have been reported by paediatricians to social services[1] for investigation of child abuse. School nurses have also reported cases to social services seen during screening programmes for scoliosis.[1] Awareness that these lesions are not a manifestation of child abuse will avoid embarrassment and other problems to patients, doctors, nurses and families.

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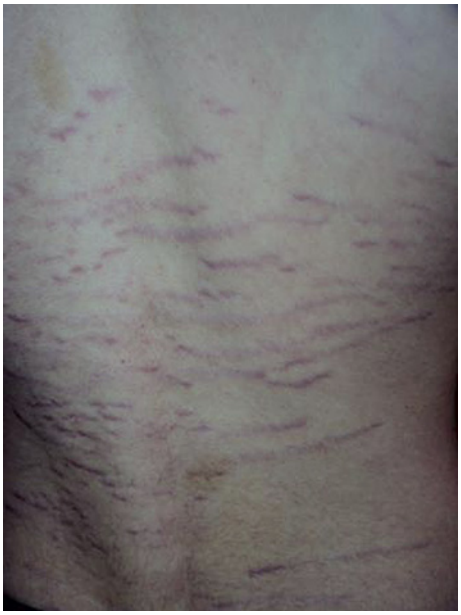

Figure 1 Physiological striae of adolescence on the back of the patient.

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