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## Background Paper

# On a European collaboration to identify organizational models, potential shortcomings and improvement options in out-of-hours primary health care

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### KEY MESSAGE:

- In Europe, GPs predominantly deliver the provision of OOHC
- There are several models of OOHC in Europe, but problems in the provision of OOHC are similar.
- EurOOHnet, a transnational scientific network, has the potential to improve knowledge exchange and to address structural issues in OOHC.

### ABSTRACT

**Background:** Out-of-hours care (OOHC) provision is an increasingly challenging aspect in the delivery of primary health care services. Although many European countries have implemented organizational models for out-of-hours primary care, which has been traditionally delivered by general practitioners, health care providers throughout Europe are still looking to resolve current challenges in OOHC. It is within this context that the European Research Network for Out-of-Hours Primary Health Care (EurOOHnet) was established in 2010 to investigate the provision of out-of-hours care across European countries, which have diverse political and health care systems. In this paper, we report on the EurOOHnet work related to OOHC organizational models, potential shortcomings and improvement options in out-of-hours primary health care.

**Needs assessment:** The EurOOHnet expert working party proposed that models for OOHC should be reviewed to evaluate the availability and accessibility of OOHC for patients while also seeking ways to make the delivery of care more satisfying for service providers.

**Outcomes:** To move towards resolution of OOHC challenges in primary care, as the first stage, the EurOOHnet expert working party identified the following key needs: clear and uniform definitions of the different OOHC models between different countries; adequate—ideally transnational—definitions of urgency levels and corresponding data; and educational programmes for nurses and doctors (e.g. in the use of a standardized triage system for OOHC). Finally, the need for a modern system of data transfer between different health care providers in regular care and providers in OOHC to prevent information loss was identified.

**Keywords:** Out-of-hours care, primary care, European research network for out-of-hours primary health care (EurOOHnet)

### INTRODUCTION

Traditionally, general practitioners (GPs) have provided primary care services during out-of-hours periods (i.e. periods where regular medical ambulatory services were not available). Although patients have been able to go to a hospital Accident and Emergency (A&E) department, nevertheless in most European countries, GPs have been the first point-of-contact out-of-hours

in primary care services. However, in the last 20 years, there has been a rapid growth in primary Out Of Hours Care (OOHC) cooperation and other OOHC service models (1,2) in European countries such as the Netherlands, Belgium, Denmark, Norway, Spain and Switzerland (3–6). In Germany, the national statutory health insurance bodies are currently discussing proposed reforms.

*Different models of OOH in Europe*

There is a great variation in models of OOH health care in Europe. The following main models can be distinguished:

- Individual general family practices
- GP rotation groups
- Primary Care Centres (PCC)
- GP cooperatives
- OOH primary medical care services in the United Kingdom
- Centres d'Urgències d'Atenció Primària (CUAP)
- Accident and Emergency departments (A&E)
- Primary care OOH centres partly integrated into hospitals

Many European countries have implemented organizational models for out-of-hours primary care. These main models are described in detail in the 'web-only' supplement. Health care providers throughout Europe are still looking to resolve current challenges in OOH to relieve GPs especially in rural areas. It is within this context that the European Research Network for Out-of-Hours Primary Health Care (EurOOHnet) was established in 2010 to investigate the provision of out-of-hours care across European countries, which have diverse political and health care systems.

In an earlier paper, members of our research group focussed on the current situation in OOH, the chances, aims and prospects of a European research network within the given context (7).

In this paper, the focus is on the EurOOHnet work related to potential organizational improvement options in OOH.

## MAJOR PROBLEMS IN ORGANIZATION AND PROVISION IN OOH

*Current problems of OOH and improvement options*

Key drivers for the re-organization of OOH in the primary care sector have been largely similar in developed, industrialized nations. This includes workforce issues such as the shortage of GPs (particularly in rural areas), which goes hand in hand with the high workload in OOH; it also includes 'appropriateness of presentation' challenges, in that sub-acute or minor complaints that were triaged as being safe to treat the following day in regular day time. In addition, as the GP demographic profile has evolved and more women work as GPs, there is increasing concern for personal safety in the isolated setting of many OOH services. Such issues have led to recent initiatives for new or alternative models of OOH services in Europe (2).

Current literature on the advantages and disadvantages of different OOH models, reported on economic efficiencies, especially comparing cost effectiveness of primary OOH services in contrast to accident and

emergency (A&E) services, and improving effectiveness measuring patient satisfaction or dissatisfaction with OOH centres, telephone triage procedures in OOH as well as doctors' decisions and motivations (2,8–11).

However, to support rational decision-making in the field of OOH, further evidence is needed in terms of reason for encounter including the appropriateness of presentation and severity of illness. In addition, evidence is needed on the quality of telephone triage, the quality of medical care considering the country's guidelines, the collaboration with A&E departments, the desirable size of OOH districts and skill mix in OOH medical staff. Moreover, the role of GPs in OOH centres and the information flow between regular primary care service providers and OOH centres needs to be assessed in more detail.

Beyond the background that the diagnostic scope (12) as well as general problems in OOH is similar in many European countries, a structure enabling a systematic and continuous collaboration between interested scientists and health care providers was established in 2010, key experts in out-of-hours services from 11 different countries established the European Research Network for Out-of-Hours primary health care (EurOOHnet). This background paper corresponds to the paper of Huibers et al. (7), published in 2013, entitled 'EurOOHnet—the European research network for out-of-hours primary health care.' Even if there are a couple of thematic similarities, the focus of both articles is different. Huibers et al., present background information about networks' history, general aims and specific projects. Herein, we report on the EurOOHnet work related to OOH organizational models, potential shortcomings and improvement options in out-of-hours primary health care based on the collaboration within this European research network.

*Is there a 'best' organizational model?*

One of the most important questions, discussed by EurOOHnet experts, is which of the described models is most promising within a particular context and whether it makes sense to have several models operating side-by-side. In the UK, it is evident that the variety and wide availability of primary care OOH services did not result in cost savings. In fact, too many choices and too many service offers for patients has become part of the problem (13). The rather complex and even rapidly changing organization of OOH in the UK has led to patient uncertainty as to what is the best way to get help in OOH periods. Although the new NHS '111' telephone service is an effort to give health care advice and direction as to which of the local services may be the best, there is room for improvement concerning staff training and telephone triage. Perhaps, therefore, patient attendances at emergency departments and other urgent care centres increased from 15.3 million first attendances

(2003–2004) to 20.7 million (2010–2011) in the UK with possibly increasing emergency hospital admissions rates), despite the available range of OOHc options (14).

Germany faces similar challenges in OOHc. Key aims of German OOHc strategies include sharing the workload between different health care providers as well as reducing 'inappropriate presentations' to OOHc services. As in the UK, Germany introduced an OOHc telephone number '116117' last year in all federal states.

In recent publications, it has been reported that the cooperation in OOHc has led to increased job satisfaction for GPs. These new models reduced workload and had better acceptance than local rotation groups as found in rural areas of different countries (3,15,16). The object of these established OOHc centres, no matter whether they were organized from GP practices or nearby hospitals, has been to reduce potentially unnecessary utilization of A&E departments. To reduce unnecessary face-to-face contacts, education programmes to increase patients' awareness regarding first point-of-contact telephone support and advice in cases of minor complaints also need to increase. This has not been achieved yet (15).

Currently, the integration of GP-cooperative OOHc services into A&E departments of hospitals exists in several countries, but in various organizational models and with different levels of interaction. Results of several studies point in the direction that the cooperation of these two providers of OOHc could be a hopeful attempt to solve the mentioned weaknesses in the OOHc structure. Further research is necessary to evaluate these models and develop accordingly appropriate hypotheses (17).

Owing to the complex and rapidly changing OOHc models in the different European countries, mixed methods could be an expedient research option as the most important evidence often comes from qualitative studies running alongside large quantitative evaluations.

#### *Use of OOHc and economic aspects*

One of the challenges discussed by several EurOOHnet experts is the provision of out-of-hours services in rural areas. From the patient's perspective, these services should be offered during day-and night-time. However, there are financial constraints and a shortage of GPs in isolated regions. In Norway, a country with large rural areas, the organization of primary OOHc is changing from municipal-based to larger intermunicipal cooperation staffed by regular employees and already showing improved competence (4).

Expanding OOHc districts to improve cost-benefit ratios is also being discussed in Germany. It has to be investigated whether great distances between OOHc service centres and patients' homes would reduce face-to-face contacts and/or whether they would increase home visits and telephone contacts (18,19). Economic

consequences as well as patient safety aspects have to be verified very carefully.

It is necessary to think about the workload of OOHc centres in rural and urban regions to assess the efficacy and effectiveness of these services. If it is taken into consideration that the least use of OOHc is at night from 10:00 pm onwards to 7:00 am, particularly in rural areas, it may be a more cost-effective option to centralize OOHc services for these periods (20). This adds weight to the argument to place OOHc centres in cities near hospitals or integrate them into hospitals.

#### *Quality of care in OOHc*

Variation in quality in OOHc in terms of appropriate health care provision can be observed in some European countries. Moreover, a decreased willingness of GPs to work in OOHc centres and insufficiently trained medical staff is reported. Patient surveys highlight quality issues such as unclear diagnosis or inadequate medication/prescriptions and long waiting times. This largely accounts for the poor performance ratings of these services (21–23). In 1995, Dale et al., showed that primary OOHc consultations provided by emergency medical staff or by specialists who worked temporarily in primary OOHc centres resulted in a greater utilization of investigative services in comparison to OOHc consultations provided by GPs (24). Campbell et al., argue that GPs have to lead OOHc services because of their generalized skills and experiences. Patients' satisfaction with OOHc increases, if they are treated by GPs (13). If it would be possible to employ physicians with such generalized skills in OOHc, the quality of care especially patients' safety and the patients' satisfaction with primary OOHc-centres probably could be improved.

#### *Definition of emergency levels*

At the 2012 meeting in Antwerp, the EurOOHnet experts reported that the variation in 'emergencies' in member countries was broad ranging from 7% in the Netherlands to 40% in Germany (unpublished data of the EurOOHnet questionnaire).

Such a variation of data demonstrates the need for a unique and shared definition of what an 'emergency' is. There is a need for corresponding data to define the 'emergency-levels' to filter minor from urgent symptoms, a precondition for a triage system in full working order. Triage systems, delivering decision support for the urgency assessment of patients' symptoms, are increasingly demanded to make the work in OOHc easier for physicians and nurses. If we shared clear definitions of 'emergency-levels' based on an existing triage system like the Manchester Triage System (MTS), the National Standard for Dispatch Centre Ambulance Care (LSMA) or the computer based Netherlands Triage System (NTS)

OOHC structures could be improved in this way (25,26).

Effective triaging by well-trained nurses and doctors with the relevant generalized skills would enable them to determine quickly the severity of complaints' and treatment priorities. This would perhaps reduce costs and would increase patient satisfaction with the primary care OOHC treatment. To date, the evaluation of the NHS system and other research projects has shown minor positive effects in this regard (27–29).

As a final thought, educational programmes with standardized problem cases in OOHC—perhaps in addition to improved computerized decision support systems—could be helpful to implement a standardized transnational triage system into OOHC-practice (25,30).

#### *Information flow between regular care and OOHC*

EurOOHnet experts could locate very little formal data about the information flow between regular and OOHC care providers and about possible information loss or information delay. The loss of patient-related information between different health care providers is a ubiquitous and transnational problem that is in most cases negatively associated with the quality of care, patient safety and cost effectiveness. Because of information loss, in European countries many diagnostic procedures that would not have been necessary have been carried out. Therefore, it is necessary to define how a modern system of information flow between different health care providers could be planned and implemented. With rapid technological advances (World Wide Web and mobile end devices,) applications could be implemented to allow an access to centralized electronic patient records (EPR). There is no doubt that centralized EPRs have the potential to increase patient safety and notably to reduce costs of health care (31). If, for example, data on a patient's current medication would be available to health care providers in different sectors, medication prescribing errors and the probability of adverse drug reactions could be considerably reduced. However, there are many conceptual challenges that have to be met before it is possible to consider an implementation stage for centralized EPRs such as sophisticated concepts for data protection in general as well as for authorization in different sectors and different situations of health care provision (32,33).

#### IMPLICATIONS OF EUROOHNET-EXPERTS FOR CHANGES IN EUROPEAN OOHC

##### *Definitional and organizational challenges*

The following requirements have been identified: First, the necessity to establish clear and uniform shared definitions of OOHC; second, to gather further evidence to

understand OOHC models in different countries, and third, to conduct robust European research projects to find an OOHC model, which might be the best fit in a variety of different political, socio-economic and health care systems.

The collaboration of primary care OOHC centres with hospital A&Es using a special reimbursement system is a promising model with a potential to optimize the OOHC system in Europe. Future research studies should examine this possibility. Additionally, it should be evaluated whether such an OOHC model could be structured in a way that would compensate for the financial loss by GPs especially during night hours.

An adequate—ideally transnational—definition of 'Emergency'—levels and corresponding data needs to be available to provide an overview about the frequency of urgent and life-threatening cases in OOHC. Based on such data, the triage systems' workflow could be accordingly adapted, and a transnational standardized triage system could be established. Newly developed educational programmes for nurses and doctors would support implementation of such a triage system into OOHC-practice.

A modern system of data transfer between different health care providers in regular care and providers in OOHC should be planned and implemented to prevent information loss. Information of pharmacotherapy should be transmitted from providers of regular care to the providers of OOHC and vice versa. Under consideration of data privacy aspects, the significant risk of disadvantageous pharmacological interactions could thus be reduced.

#### CONCLUSION

Transnational scientific networks—like the EurOOHnet—have the potential to improve knowledge exchange, share resources, address structural issues and tackle data protection problems in OOHC through their collaboration. This exchange of knowledge and experience can be used as a means for reducing healthcare costs and enhancing patient safety in OOHC. The European Research Network for Out-of-Hours Primary Health Care could play a leading role in supporting health policy makers to answer current difficult questions in OOHC.

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## Supplementary material available online

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