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Background Paper

Developing a research agenda for patient safety in primary care. Background, aims and output of the LINNEAUS collaboration on patient safety in primary care

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KEY MESSAGE:

- The four main areas of patient safety in primary care are diagnostics, medication, communication and organization.
- The objective of the LINNEAUS collaboration was to build capacity through engaging primary care researchers and practitioners in identifying some of the key challenges in this area and developing consensus statements.

ABSTRACT

This paper is an introduction to a supplement to *The European Journal of General Practice*, bringing together a body of research focusing on the issue of patient safety in relation to primary care. The supplement represents the outputs of the LINNEAUS collaboration on patient safety in primary care, which was a four-year (2009–2013) coordination and support action funded under the Framework 7 programme by the European Union. Being a coordination and support action, its aim was not to undertake new research, but to build capacity through engaging primary care researchers and practitioners in identifying some of the key challenges in this area and developing consensus statements, which will be an essential part in developing a future research agenda. This introductory article describes the aims of the LINNEAUS collaboration, provides a brief summary of the reasons to focus on patient safety in primary care, the epidemiological and policy considerations, and an introduction to the papers included in the supplement.

Keywords: Patient safety, primary care, review, research agenda, LINNEAUS collaboration

INTRODUCTION

The LINNEAUS-Euro PC collaboration was a unique initiative funded by the European Community's Seventh Framework Programme FP7/2008–2012 (under grant agreement no. 223424) primarily because of its exclusive focus on primary care. It is, therefore, appropriate that its outputs are disseminated in *The European Journal of General Practice*. We have written the outputs in a way that will make them accessible to clinicians working in primary care, whether they are general practitioners, nurse practitioners, practice nurses or pharmacists. The outputs will also be relevant to primary care researchers who want to identify the current gaps in the research and understand the current state of the art. Our aim has

been to provide an overview as well as practical guides and tools for practitioners who need to understand why the focus on primary care is important.

This introductory paper introduces the LINNEAUS collaboration to readers, sets out the case for why primary care is important in relation to patient safety and provides the policy context for current developments.

THE LINNEAUS COLLABORATION

The LINNEAUS collaboration involved researchers and practitioners from the UK, Denmark, the Netherlands, Germany, Austria, Poland, Greece and Spain. It represented a coalition of researchers and practitioners from

countries where patient safety initiatives are relatively well developed (UK, the Netherlands, Denmark and Germany) to countries where there is virtually no infrastructure to support practitioners and researchers working in primary care (Austria, Poland, Greece). Additionally, we engaged with a wider group of researchers to disseminate our findings in Romania, Croatia, Lithuania, Albania, France, and Sweden. In effect, the LINNEAUS collaboration represented a large coalition of researchers in Europe working on patient safety in primary care. Our aims in the LINNEAUS collaboration are shown in Box 1.

WHY PRIMARY CARE?

Readers of this supplement would probably agree that primary care in the European context is a large and growing sector. They would also agree that based on their own practical experience, adverse events do occur though their intuitive assessment would be that most of these adverse events are not serious and certainly too few to warrant any specific or system-wide action. Although patient safety is recognized internationally as a major health quality issue, and there is increasing knowledge about the delivery of safe health services, there is still a high incidence of adverse effects related to health interventions. Irrespective of the nature of the health care system, hospital based studies suggest that as many as 10% of hospital admissions may result in death or significant morbidity due to error (1,2). We have less information on primary care and part of the driving force for the creation of the LINNEAUS collaboration was our belief that consideration of patient safety in primary care always occurs as an afterthought. Our aim was to redress the balance so that proper consideration was given to the problem of patient safety in primary care.

There has been an explosion of interest in patient safety in the last decade-and-a-half with many governments

Box 1. Aims of the LINNEAUS collaboration on patient safety in primary care.

- Support the development of a European classification of adverse events and errors.
- Identify the best clinical practices with regard to patient safety in diagnostic decision-making, use of laboratory tests, and prescription of medication.
- Achieve consensus on the measurement of safety culture and develop agreement on indicators.
- Enhance existing knowledge from quality improvement techniques and apply these to learning cycles for improvements in patient safety.
- Build collaboration and gain experiences in countries with emerging awareness of patient safety in primary care.
- Build up a pan-European network on patient safety in primary care, for exchange of knowledge and experience, and for collaboration in future research on interventions through large-scale trials.

responding with major initiatives as described below. An analysis of citations shows that the vast majority of research focusing on patient safety—whether it is on issues of epidemiology, on psychology or sociology or more rarely on interventions—is focused almost exclusively on hospital/specialist care (3). There are several reasons for this. First, there is a perception of primary care as a low technology environment where safety is not a problem and, therefore, engenders a lower profile than the acute sector. Second, primary care is much more heterogeneous in its organizational arrangements. In virtually all European countries, the organizational arrangements between primary and secondary care are different and complex and there are a multiplicity of sites where primary care is carried out (the clinician's office, by telephone and the patients' home). Third, the interfaces between primary and specialist care are hugely important and vary widely among European countries, making the study of patient safety at the interface problematic. Fourth, consultation and interpersonal skills are critical to the delivery of primary care and exploring issues related to patient safety in this area raises specific challenges.

All these factors make the study of patient safety in primary care difficult. Primary care physician contacts account for more than 75–80% of the health concerns reported to a physician while hospital care accounts for only about 5%. Even if the risk is lower in primary care, the magnitude makes primary care a significant area of concern.

THE EPIDEMIOLOGY OF ERROR IN PRIMARY CARE

Research suggests that adverse events and errors are not uncommon in primary care, and when considered in context, a huge number of interactions may represent a significant problem (4,5). This is because it is important to recognize that in many countries in Europe, access to specialist care occurs through the medium of primary or general care.

Using the UK as an example, 85% of contacts with the National Health Service take place in primary care and there are 300 million general practice appointments each year. This means that nearly 750 000 patient consult their GP each day. In Germany, the contact rates are even higher—approximately 1.5 million visits per day to primary care physicians with GPs and general internists issuing 550 million prescriptions per year (representing more than 73% of all prescriptions issued outside hospital). The simple point that we would make is that primary care is a vast, organized sector for health care with millions of interactions occurring every day throughout the European Union. The potential for adverse events is, therefore, huge but the knowledge base about patient safety in this context is minimal. A literature review of the nature and

frequency of errors in primary care suggested that there are between 5 and 80 safety incidents per 100 000 consultations, which in the UK would translate to between 37 and 600 incidents per day (4). Perhaps a more realistic estimate is provided in a large retrospective review carried out in the Netherlands (6), which suggested that 2% of all general practice consultations resulted in a patient safety incident. However, even with this much lower estimate, the total number of incidents will be very large because of the large number of general practice consultations in any given month or year.

The vast majority of incidents can be categorized into four main areas, covering diagnosis, prescribing, communication between health-care providers and patients, and organizational incidents (administrative problems fall within this category) (7,8). Therefore, although the potential for error is great, our analysis of medico-legal databases suggests that 50% are of no consequence, 20% result in non-clinically relevant delays in diagnosis, 10% result in upset patients, but more significantly 20% of errors could have serious consequences (8). Set within the context of a large number of health care interactions, this becomes a significant problem, even if we accept the limitations of transposing information from studies of medico-legal databases to the generality of care.

The lack of research in primary care has also been found in North America. A recent review of research on ambulatory safety between 2000 and 2010 looked at published literature and private initiatives, government grants, and regulatory and legislative initiatives in the USA. It concluded that major gaps persist in our understanding of patient safety in the ambulatory setting and with virtually no credible studies on how to improve safety (9).

THE POLICY CONTEXT

There is an increasing understanding of the importance of patient safety in the delivery of health care. Landmark studies in the USA, Australia, the UK, Denmark and the Netherlands have attempted to assess the contribution of adverse events causing harm to patients and have resulted in major initiatives for improving patient safety in many countries. However, no country can claim to have fully come to grips with the problem of patient safety. In relation to patient safety in primary care, it remains a significantly under-researched public health and quality issue that does not currently receive the funding and international priority that it warrants.

Both the Luxembourg and British Presidencies of the EU in 2006 identified patient safety as a key theme linked to the improvement of the quality of health care. In 2005, an expert panel of the Council of Europe prepared a recommendation on patient safety, which was adopted by the Committee of Ministers in 2006. The WHO's World Alliance for Patient Safety has also set out the principles

and actions that member states can take to develop a coherent strategy for improving patient safety. WHO has recently produced a consensus statement on the need to address the lack of research on patient safety in the primary care setting (10).

Most initiatives in Europe related to patient safety have been national in nature and typically initiated by governments. The 'Safety Improvement for Patients in Europe' (SIMPATIE) project funded by the EU used a Europe-wide network of organizations, experts and professionals to establish a common European set of vocabulary, indicators and internal and external instruments for improvement of safety in health care (11). One of the activities that it carried out was a mapping exercise, which produced a knowledge repository on patient safety related to legislation, regulation and actions in EU states. It identified varying engagement with patient safety across Europe. The project found that the Ministry of Health (or equivalent) is considered as the principal agent in promoting patient safety in eight countries and national bodies have been set up in only five countries specializing in patient safety.

The SIMPATIE project identified a huge variation in areas related to reporting, standards, public involvement, training and liability between member states. Even in issues related to definitions, there was a huge variation. For example, 10 Member States indicated that they had a working definition of patient safety; four countries had a definition but with no agreement on what it was. The remaining eight countries did not have a recognized definition. SIMPATIE focused on facilitating the development of patient safety as a health quality issue and provided a useful review of instruments which may be useful in patient safety improvements and developing a consensus approach to health strategy on patient safety. The SIMPATIE project also confirmed that the greatest focus on patient safety in Europe was directed towards hospital and specialist care with little activity in primary or the interface between primary and secondary care.

Whilst there is also an appropriate focus on systems and organizations with an increasing emphasis on safety culture, leadership and clinical governance, much of this activity is again concentrated on hospital and regional organizations and not on clinicians and teams working at the primary care level. This is even the case in countries where there are national organizations responsible for patient safety—for example neither the UK, the Netherlands, Denmark or Germany have developed sustained initiatives that have focused on and developed improvements for patient safety in primary care. There is also currently a lack of synergy between research groups working in this area, and this probably contributes to the relative lack of research related to primary care and the primary/secondary interface.

Primary care does not solely focus on general practitioners or primary care physicians. Community nurses,

community pharmacists, mental health care workers all interact with patients in the primary care setting. Patient safety issues therefore transcend professional boundaries, but more importantly may contribute to problems that occur down the line when the patient enters specialist care. Delayed diagnosis, failures of coordination of care, medication errors are examples of errors that may have their genesis in the primary care setting, but which can have significant ramifications for the patients in more specialized settings. We were cognisant of the need to study some of these interprofessional issues, but at this stage our primary focus has been on general practitioners.

PAPERS INCLUDED IN THE EUROPEAN JOURNAL OF GENERAL PRACTICE SUPPLEMENT

Our collaborators have described developments that would improve our ability to use the electronic record to improve our diagnoses (12). We have also updated a review on the contribution of medication safety to error in primary care (13) that has highlighted the contribution of polypharmacy in the elderly as an important potential cause of error. This has already led to the funding by the European Union Framework 7 programme of an ambitious randomized controlled trial to reduce polypharmacy in the elderly (14). The importance of developing standards for laboratory testing and review of results is addressed by Bowie and colleagues who provide a review of the literature in this area and a consensus statement on standards for this area of interface between primary and secondary care, which is often ignored but which is a frequent source of error (15). Parker and colleagues have provided a useful review of safety culture tools which can be used in primary care. They have also modified through consensus techniques important tools from North America which may prove useful in some primary care settings (16). Within the context of primary care there is still no agreement on indicators that can be used to monitor the effectiveness of patient safety within primary care organizations. Colleagues from Spain have updated the Catalan framework for patient safety indicators using a consensus panel of experts from the LINNEAUS collaboration so that they can be used in a wider European context (17). We also consider the development of a classification and a reporting system that will help researchers and practitioners categorize errors so that they can begin the process of learning from incidents identified in their practice (18,19). Time as a moderator and the way that it may affect patient safety in primary care is discussed by Brami and colleagues in a thoughtful background paper (20). The development of a web-based reporting system based on extensive experience from the UK and Germany provides a mechanism for clinicians to record and analyse patient safety incidents

in their practice. Building on the classification and reporting system, we summarize the current evidence on learning from patient safety incidents and set out a process where physicians can use prospective risk analysis to learn from patient safety incidents (21). Recognizing that a large component of primary care requires working across interfaces, we have provided a template for patient involvement that seeks to minimize patient safety incidents (22). Finally, we show that engagement with the patient safety agenda is not dependent on commitment from national authorities or additional resources (23,24). Using examples from our experience in Greece and Poland, countries where there is virtually no infrastructure to support patient safety initiatives, we show how physicians can use the resources we have provided to start the process of reporting, understanding their culture related to safety and even begin the process of developing a minimum accreditation system for patient safety. In the final contribution, we reflect on our experience gained over the last four years to set out an agenda for future research (25).

CONCLUSION

It is our view that patient safety in primary care is going to be an area where policy makers, clinicians and researchers will have to devote increasing attention partly because it remains relatively under-researched, but also because it will be increasingly important as health care shifts towards primary care and we become more aware of the potential for harm to patients in the primary care setting. The LINNEAUS collaboration represents an important contribution to this developing agenda through the creation of a sustainable network of researchers in Europe and achieving consensus on a range of issues relevant to this area.

It is important that researchers build on this work by using these outputs to develop and test evidence-based interventions, working collaboratively across Europe. There are significant opportunities for obtaining grants both from the European Union and in some cases from national governments. The key to success will be collaboration, building on existing consensus and working closely with clinicians working in primary care. We have shown that even in countries where there is little support from national governments for this agenda, it is possible to address issues related to patient safety, using existing knowledge and research outputs from the LINNEAUS collaboration.

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