

**Literature review to examine the impact of  
isolation and rurality on patient safety in  
primary health care settings in Europe.**

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***August  
2012***

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## Literature review to examine the impact of isolation and rurality on patient safety in primary health care settings in Europe

### 1.0 Background

This literature review was commissioned by the University of Manchester in collaboration with EURIPA (European Rural and Isolated Practitioners Association) to address questions on patient safety issues in rural primary care arising from the EURIPA 2<sup>nd</sup> Rural Health Forum Conference on “Quality in Rural Practice” in Romania (May 2011).

EURIPA is the representative organization founded by family doctors to address the health needs of rural communities in Europe, and the professional needs of those serving them (EURIPA 2012)

EURIPA, EQUiP (European Association for Quality in General Practice/Family Medicine), the Linneaus PC Collaboration (Learning from International Networks about Errors and Understanding Safety in Primary Care) and the European Patient Safety Network are working together to establish a European initiative on patient safety in rural primary care.

An initial brief literature review on patient safety issues in rural primary care was carried out in May 2011 and the findings were limited: only one paper out the six identified originated in Europe and only three studies focused on primary care/general practice.

There was a recognition that a more extensive literature review needed to be undertaken to inform the direction of the initiative.

### 2.0 Introduction

The issue of patient safety has become recognised globally as of fundamental importance in the development of effective and high quality health care systems. In 2002, the World Health Assembly challenged the World Health Organisation to develop global norms and standards to support efforts by Member States to develop patient safety policies and practices and to this end the World Alliance for Patient Safety was launched in 2004. Since then the World Alliance for Patient Safety has developed a conceptual framework for the International Classification for Patient Safety (ICPS), with the intention of providing a common language and understanding of patient safety concepts and a method of organising patient safety data so that it can be compared and analysed across borders between organisations and across disciplines (WHO 2009). In 2009, the LINNEAUS EURO-PC2 project was formed to review existing classification systems and develop a patient safety incident classification system for European primary care (Klemp 2009).

A number of additional classification systems have been developed to describe patient safety incidents in primary care settings (Makeham et al, 2007, O’Beirne et al, 2011, Westfall et al 2004).

A patient safety incident in primary care is any unintended event or hazardous condition resulting from the process of care, rather than due to the patient's underlying disease, that led or could have led to unintended health consequences for the patient (Klemp 2009)

In several reports the lack of understanding of patient safety issues and quality of care in rural settings is acknowledged (WHO 2010, Singh 2007, Wakefield 2002).

In the UK, an adverse event is experienced in 1-2% of primary care consultations with estimates of adverse events being as high as 8% (The Evidence Centre, 2011). Most adverse events are minor but there is always the potential for serious harm.

Any understanding of patient safety issues is only as good as the system for monitoring the errors and incidents that occur. There is no compulsory or widespread reporting of errors in primary care (O'Beirne, 2011) and voluntary reporting systems have been more successful in some settings than others, with the number of incidents submitted varying from less than one report per clinician or staff member per year to eight per doctor per year (O'Beirne 2011). The likelihood of reporting is influenced by level of injury, with near misses less likely to be reported (Thomlow 2008).

This literature review focusses not only on the issue of medical error arising through patient contact with the primary care organisation and professionals, but also the broader picture of the influences of the rural environment that may harm the patient through impacting on their likelihood or ability to access all of the care they are entitled to or would benefit from. The influence of the organisation of primary care in different European countries is also considered from a patient safety perspective.

### **3.0 Methodology**

#### **3.1 Research questions:**

The purpose of this literature review is to:

- Provide a greater understanding of the patient safety agenda and its inter-relationship with rural practice (across a broad spectrum of rural primary care provision)
- Identify the geographical, economic, political and socio-cultural factors associated with rural practice that combine to present challenges in terms of patient safety
- Review accessible, relevant secondary data sets (for health care) as per geographic coverage (distinguishing urban/rural), availability, and comparability (across regions) to indicate the existence and suitability of such data to inform the proposed study
- Outline the broader healthcare policy context, addressing, directly or indirectly, patient safety and quality of care, and the engagement with, and relevance of, these agendas to rural practice
- Outline examples of programmes and initiatives (worldwide) designed to prevent errors and adverse effects to patients and to appraise the cognisance of, and applicability to, rural practice of such measures

#### **3.2 Literature Review**

Several electronic searches of Medline, CINAHL, BNI and HMIC were carried out during July 2012 using different combinations of the keywords *patient safety, rural, error, general practice and primary care* for papers from 2000 onwards. In total seven papers were identified and included from this process:

Database used: BNI, CINAHL, HMIC, Medline Search terms	Results	Discarded as not relevant (hospital based / duplicate / USA / not primary care / pre 2000)	Included in review (additional to previous search)
"patient safety" AND "primary care" AND "rur*"	11	7	4
"error" AND "primary care" AND "rural"	20	15	2 (+ 3 already identified above)
"safety" AND "general practice" AND "not urban"	5	4	1
"family medicine" AND "rural" AND "patient safety"	0		
Total identified:			7

Specific additional searches of the World Health Organisation, Institute of Rural Health, EURIPA, WONCA, Rural & Remote Health, Centre for Rural Health, BMJ Journal of Quality & Safety and Linneaus websites were carried out for information about rural patient safety-related reports and research (published and unpublished). Reference lists of the retrieved studies were also searched to complement the final list of articles. There is a wealth of patient safety related literature but very little based in primary care that has a specific rural focus.

Much of the rural patient safety research identified was carried out in the USA (often in small rural hospitals) and Scotland (mostly with a particular focus on the impact of rurality on access to services and health outcomes). The American small rural hospital research papers were scanned and some were relevant for inclusion here because their research focus concerned the issue of rurality rather than just hospital processes. An additional number of papers were identified which had included 'rural practices' within their sampling frame, but the issue of rurality was not the focus. These papers were not included in the review as they did not discuss patient safety in relation to rurality.

The reviewer was limited to using only English language research, which was a disadvantage considering the European focus of this review. The study by Rechel et al (2010) offered a glimpse of the challenging issues facing the delivery of children's health services in Bulgaria but was an isolated example of a research article from Eastern Europe.

The predominance of UK / USA / Australian research papers identified for this review will not be a true reflection of the patient safety agenda across Europe

It is apparent that patient safety issues have a very specific local focus: what is an issue in the UK may not be an issue in another country due to differences in the organisation of primary healthcare or funding arrangements.

#### **4.0 Primary Care in Europe**

##### **4.1 The social, demographic and economic context of Primary Health Care in rural areas of Europe**

*Population:* In 2006, approximately 56% of population of the 27 countries in the European Union lived in rural regions. The greatest shares of rural population are found in Sweden, Finland, Bulgaria, Slovenia and Ireland. At the other extreme the most urbanised countries are Belgium, Netherlands, Denmark, Germany and the UK (European Commission 2006).

*Migration:* "Counter-urbanisation" is contributing to rising rural populations in many parts of 'well-developed' Europe as the urban lifestyle is rejected in favour of residence in accessible rural areas (European Commission 2006). This has resulted in the 'geriatrification' and 'gentrification' of some rural areas (Farmer et al 2001). It is not clear as to whether this group of incoming rural dwellers may reflect a more affluent and educated population with different, more urban patterns of health seeking behaviours than those of the traditional rural inhabitant. The rural exodus is now restricted to the remoter and less prosperous regions, and mainly involves young people, who are still attracted to cities as they set out on their careers (European Commission 2006).

*Age profile of rural populations:* During recent decades, the overall decline in fertility rates in many rural regions has either reinforced the negative effects of out-migration or counteracted the positive effects of in-migration. On average, in the European Union almost 17% of the population of predominantly rural regions is over retirement age, compared with a little over 16% in the significantly rural regions and less than 16% in the predominantly urban regions. In terms of age structure there seems to be a north-south contrast, with southern member states exhibiting the greatest signs of demographic ageing in their rural regions (European Commission 2006).

*Wealth / poverty:* The 2012 WHO report on *Rural poverty and Health Systems in the WHO European Region* finds that in many countries in the WHO European Region, poverty rates are higher and more entrenched in rural areas due to demographic reasons (out-migration and an ageing population), remoteness and the accompanying limited access to infrastructure and services, lower levels and quality of education, lower employment rates and less effective social protection. One study carried out in Ireland comprising a census of general practice (Gabhainn et al 2001) found that rural practices reported fewer private patients and more socio-economically deprived patients (those eligible to free primary care) than those in towns or cities. 39% of rural practices had more than 1000 patients eligible for free care compared to 29% for city practices ( $p=0.001$ ).

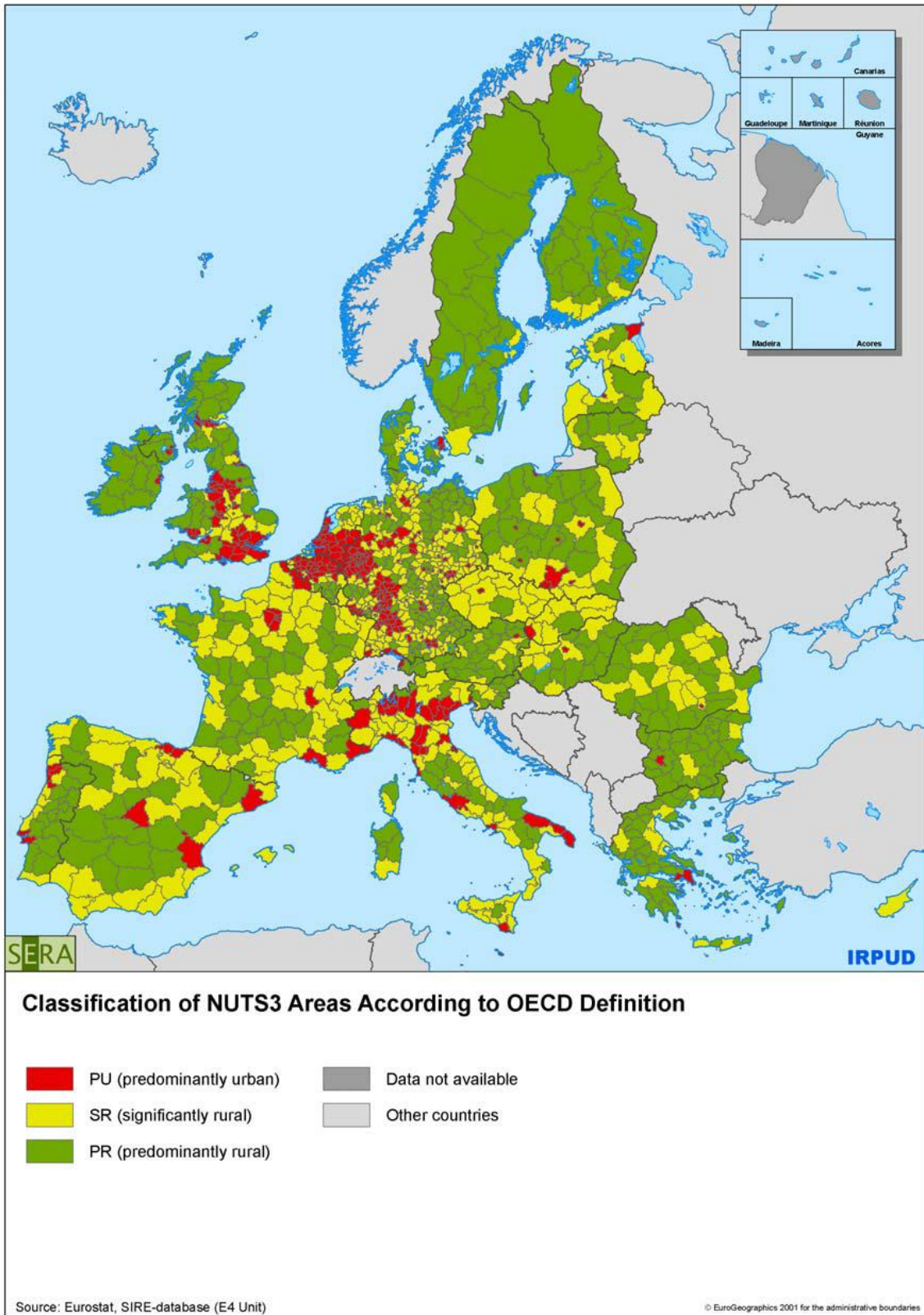
Rural deprivation is the interplay between factors associated with income, social circumstances, access to services and choice. Rural populations tend to be more heterogeneous than urban communities with extremes of wealth and poverty side by side. Deprivation indices using large

routine datasets mask the true picture of rural deprivation as the households with higher incomes average out the effects of those with lower incomes (Farmer et al 2001).

**What is rural?**

In 2004 the UK Department for Food and Rural Affairs (DEFRA) introduced a new grading system to define rural areas based on settlement type (DEFRA 2012):

- *Significant Rural*: districts with more than 37,000 people or more than 26% of their population in rural settlements and larger market towns
- *Rural-50*: districts with at least 50% but less than 80% of their population in rural settlements and larger market towns
- *Rural 80*: districts with at least 80% of their population in rural settlements and larger market towns



**Table 1: Illustration of rural / urban areas of Europe (SERA report, European Commission 2006)**



## 4.2 The organisation of Primary Health Care Services across Europe.

There is a great variation in the coverage and sophistication of primary health services across Europe and there are organisational and funding issues which are of relevance to the patient safety debate.

*Healthcare funding:* Services may be funded from social insurance or from public funds, or may be part of a private practice. Remuneration has traditionally tended to focus on treatment of disease rather than promotion of health (WHO 2012). For reasons of poverty, there are greater numbers of uninsured people in rural areas of Latvia, Romania, Greece, Bosnia and Herzegovina (WHO 2010). In some countries in Europe, informal payments eg cash payments to physicians or payments to secure hospital admissions are common and undermine quality as well as equality of care (Rechel et al 2010). Health sector reforms in the countries of Eastern and Central Europe have often focussed on changing the financing, organisation, and delivery of health care, paying less attention to the quality of services provided (Rechel et al 2010).

In the USA, rural healthcare provision has struggled to remain financially viable due to a combination of a local population with lower incomes and thus greater proportions of uninsured people, and federal reimbursement policies that disadvantaged smaller, lower volume hospitals. (Thomlow 2008).

*Gatekeeping role of the GP:* European countries tend to organise their primary care services in one of two ways:

1. Patients are required to register with a GP and obtain the GP's referral to all or most specialist care (Czech Republic, UK, Finland, Italy, Lithuania, the Netherlands, Romania, Slovakia, Slovenia and Spain). The introduction of this gate-keeping system has been one of the key aspects of health reforms in many countries in Central and Eastern Europe, replacing a system of primary care based specialists working in polyclinics (Rechel et al 2010). In the UK approximately 1 in 20 general practice consultations results in a referral to secondary care (Goodwin 2011).

2. Financial incentives are used to encourage patients to register with a doctor and obtain referral to specialist care although it is not a requirement that they do so (Belgium, Denmark, Estonia, France, Germany, Poland). In this situation, the role of primary care as a gate keeper is limited as patients can go freely to a specialist or to a hospital outpatient department. GPs are competing with specialists for patients.

As of 2009, Sweden, Turkey, Poland and Austria were the only European countries without any national system of gate-keeping. (WHO 2012)

In countries without a strong gate-keeping model, the proportion of patients registering with a GP or a primary care centre might vary considerably. For example, in Sweden it ranges from 15% to 98% (Masseria 2009).

## 5.0 Patient safety overview

### 5.1 Threats to patient safety in Europe due to the organisation of primary care

Masseria et al (2009) produced a policy brief for the European Commission *on Primary Care in Europe* drawing on published and unpublished literature and the results of questionnaires sent to 18 'country experts'. The following potential threats to patient safety in European rural primary care organisations have been identified by the author of this literature review from that policy brief:

1. *Lack of continuity of care*: As already described, in many countries the supply of health care is fragmented. Patients are allowed to seek different health care services for each single care episode. There is a lack of coordination between primary care, acute hospital care and long-term care which has the potential to cause harm to patients and wasteful duplication (eg. of diagnostic tests), provision of unnecessary treatments and confusion among patients. Countries with a gate-keeping model are clearly better positioned for guaranteeing continuity of care.

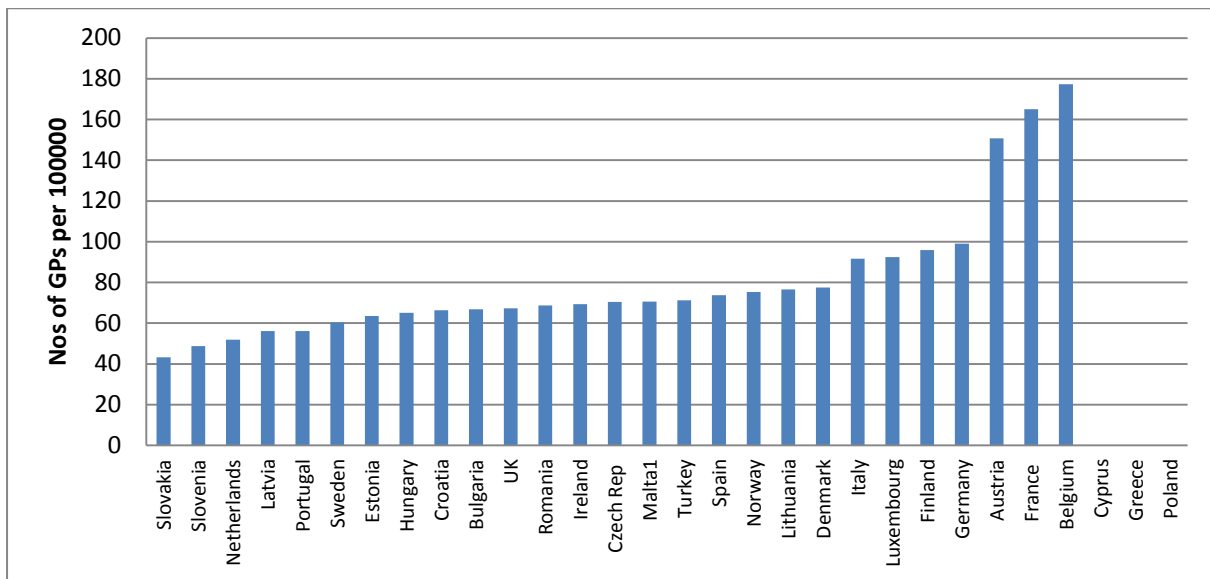
Lack of continuity of care is of particular concern for people with higher needs for care, such as those with chronic conditions and older people and is likely to increase the risk of an adverse event

2. *Sole working v group practice*: There is a trend towards introducing more group practice in Europe, although sole or single-handed practice is still the norm in most countries. Group practice dominates in UK, Lithuania, Spain and Sweden, and GPs work in health centres in Finland, Poland and Slovenia. Some of the patient safety issues for sole practices include: GPs may be not be able to attend professional development training as there are no colleagues to provide cover (Rechel et al, 2008); little or no opportunity for peer review (Hoffman et al 2008); less patient choice and no opportunity for a second opinion (Farmer et al 2006); no cover for providing out-of-hours service resulting in doctors prescribing over the phone (Rechel et al, 2008), specialist services eg. psychiatric services or A&E are often located at a distance and therefore the rural GP needs a broader knowledge and skill set to compensate (Davies et al 2009). This pressure to know everything can be reduced if spread across a number of GPs within a group practice. Checks and audits of care quality may also be more difficult to achieve alone and techniques such as peer review that require discussion with colleagues are not easily available options.

Sole working poses a number of potential risks to patient safety, and in rural areas contributes to professional isolation and lack of patient choice.

3. *Numbers of GPs*: There is a wide variation in the numbers of GPs per 100000 population across Europe (table 2). WHO (2010) report a shortage of primary care doctors in rural area of Georgia, Armenia, Norway, Latvia and Ukraine.

**Table 2: GPs per 100,000 population (WHO Health for All data, 2008)**



4. *Electronic records:* in most of the countries analysed in Masseria’s research (2009), GPs had electronic medical records, but these records are often not linked to other parts of the health care system (e.g. hospitals, laboratories, etc.). Good information between providers is important for continuity of care and for avoiding errors.
  
5. *Health sector reforms in Eastern and Central Europe:* Rechel et al (2010) conducted in-depth interviews with a range of stakeholders (policy makers, health care providers and parents) into the quality of children’s health services in Bulgaria. Many of the respondents did not rate the GPs as adequately trained to deliver care for children compared to the specialist district paediatricians that they had replaced in the health sector reforms. Eight years after the introduction of the reforms, in 2006, only 1.7% of the GPs had achieved their formal general practice qualification. Lack of time and opportunity to attend training in general medicine seemed to be important barriers to GPs gaining this additional qualification. Participants believed that low levels of qualifications and inferior quality of care were more common among health care staff working in rural areas.

## 5.2 Types of adverse event in Primary Care and contributory factors

*Types of injury:* Wallis & Dovey (2011) carried out an analysis of the no-fault treatment injury claims dataset arising from rural and urban primary care settings in New Zealand from 1 July 2005 to 30 June 2009. Of 6007 primary care injury claims, dental treatment caused 16% of injuries; injections and vaccinations combined caused 10%; and venepuncture, cryotherapy and ear syringing combined caused 13.5% of injuries. The most common injury was ‘allergic/adverse drug reaction’ (1334; 35%), followed by wound infection (416; 11%), haematoma (231; 6%) and nerve damage (199; 5%). 75% of injuries were minor. Delay or failure to diagnose caused few injuries overall (2.0%) but a disproportionate number of serious and sentinel injuries (15.0%). Antibiotics caused 59.8% of medication injuries (841), but only 28.2% of the serious and sentinel medication injuries (42).

Steroids (oral and injected) caused 10.4% of medication injuries (146); and anti-inflammatory drugs (NSAIDs) caused 10.4% of medication injuries (146). Twenty-six injuries ended in death. Most deaths related either to delay or failure to diagnose or treat (13; 50%), or to medication (nine; 34.6%). Warfarin was the most commonly implicated drug (three).

This dataset has some limitations based, as it is, on claims for compensation. Older people are under-represented, as are late /misdiagnoses, due to under-claiming. Near misses and errors not resulting in injury are also not included, nor is there any understanding as to whether the error was preventable. Furthermore there was an incentive to claim for injuries requiring remedial treatment towards which the patient has to contribute payment in New Zealand. However in spite of these factors, the no-fault system encourages openness and an insight into the kinds of injuries suffered by patients.

Wholey et al (2004) in the paper 'Environmental Context of Patient Safety and Medical Errors' suggested the following differences in errors between urban and rural small hospital settings:

- Rural health care settings will experience a greater proportion of errors associated with the elderly than urban areas
- Rural healthcare settings will have a greater proportion of errors associated with lack of expertise due to low condition-specific volumes.
- Rural healthcare settings will have a greater proportion of errors associated with assumed shared knowledge about patients.
- Rural healthcare settings will have a greater proportion of errors associated with triage-and-transfer decisions than will urban hospitals.

*Why do adverse events happen?* The three most common factors contributing to adverse events in primary care are medical complexity, system failures and human factors, (The Healthcare Foundation 2011), with system failures being shown in repeated studies **in both** primary care and hospital settings to have the most significant cause (Wakefield 2002, Kohn 1999, Westfall et al 2004, O'Beirne 2011, Makeham et al 2007, Rosser et al 2005, Rechel et al 2010). Research from the USA suggests that missing clinical information may cause as much as 15.6% of reported errors in primary care although this occurs less often in rural practices, probably due to more stable local populations (Smith et al 2005).

The Australian Threats to Patient Safety (TAPS) Study analysed 525 reported patient safety events in General Practice (Makeham et al, 2007) according to their own taxonomy and found that the majority of the reported events related to the processes of providing healthcare (69.5%) rather than deficiencies in knowledge and skills of health professionals (30.5% of errors). Overall, errors involving medication accounted for 31.3% of the total of which 10.9% related to knowledge of their use and 20.4% related to systems problems in their provision.

Research carried out by O'Beirne (2011) reviewed 264 patient safety incidents in primary care settings in Alberta Canada, and found that the top four categories for incident types were documentation (39%), medication (29%), clinical administration (18%) and clinical process (16%). Most incidents were reported to have no severity of impact on the patient (57%), while 24% had a

mild impact and 9% had moderate or severe impact. Another Canadian study reported physician errors in primary care (Rosser, 2005) where harm was considered somewhat serious or very serious in between 5.8% and 7.1% of error reports. In O'Beirne's research (2011), 93% of incidents were deemed to be preventable.

In another study from the USA, specifically focussing on error reporting in rural and frontier communities (Westfall et al 2004) found that out of 97 reported events, 20% were coded as a 'medication event', 17% as a 'diagnostic or lab event' 33% involved 'delay in testing, treatment or care' and 72% involved a 'communication event'. The researchers suggest that the high percentage of communication events relative to other research is probably likely due to the coding system that was developed here.

It is not possible to develop any understanding of the differences in error rates and types of errors between rural and urban practices from the identified research given the different classification systems, the different communities involved (and in different countries) and the fact that most primary care research on errors does not include denominator data thereby preventing calculation of relative risk rates (Wallis & Dovey 2011).

**Systems failures** such as loss of patient records, results going missing, patients not being flagged up if they don't ring for their results and so on are major causes of patient safety incidents in primary care

If one approaches the subject from the patient's perspective, psychological harms leading to breakdown in relationships with clinicians may be more prominent medical errors than technical errors in diagnosis and treatment. In research conducted by Kuzel et al (2004) thirty-eight in-depth anonymous interviews of adults from rural, suburban, and urban localities in Virginia and Ohio were conducted to solicit stories of preventable problems with primary health care that led to physical or psychological harm. The 38 narratives described 221 problematic incidents linked to 170 reported harms, 70% of which were psychological, including anger, frustration, belittlement, and loss of relationship and trust in one's clinician. Physical harms accounted for 23% of the total. There was no differentiation between urban and rural findings in the results.

*Medication errors:* In the UK medication errors in primary care occur in up to 11 per cent of prescriptions, mainly due to errors in dosage (Sanders and Esmail 2003) and there is evidence to suggest that inadequacies in patient monitoring within general practice account for around one-quarter of preventable medication related hospital admissions (Goodwin et al 2003). Elderly patients are particularly at risk with some studies suggesting that 51% of medications for elderly patients might be overused and that up to 90% might be misused (Taylor et al 2003).

Failure to follow procedure often precedes a medication error, so why are procedures not followed? Variables that have been shown to influence the likelihood of a medication error include: lack of knowledge, access to reference material, workload, attitude of colleagues and managers, and degree of compliance with best practice guidelines (McKeon et al 2006). In 2002, McKeon et al collected quantitative and qualitative data by questionnaire from 627 nurses working in rural areas of Queensland, Australia and found that the two main predictors of nurses not following procedure were: level of knowledge, with better knowledge associated with fewer violations, and the expectations of the doctor, where violations were more likely if it was believed that doctors endorse the behaviour. In rural areas where there may be just one doctor spread across a large geographical

area, nurses can find themselves acting outside of their authorised role, both to protect the overworked doctor (for example, by not calling him in the middle of the night) and because they feel that it is in the best interests of the patient to provide some treatment as quickly as possible and without waiting for a doctor. The lack of availability of a doctor was a particular constraint faced by the rural nurses who were expected to carry out procedures without approval. This piece of research highlights the importance of considering local working conditions and how they contribute to drug errors, rather than punishing the people who committed the error. Changing the system, in this case, extending the prescribing role of the nurses is advocated as a solution to this on-going staffing problem.

Local working conditions such as having GPs cover wide distances on call while leaving nurses to provide clinic cover, or having to make decisions without being able to consult colleagues, can have a major influence on the likelihood of an error occurring. If a risk assessment were to be carried out, these situations would be deemed to be hazardous to patient safety.

## 6.0 The effect of rurality on patient safety

Some of the challenges to rural health system performance can include a lack of qualified health workers; greater distance to major hospitals; reduced access to specialised services and pharmacies, health promotion and prevention activities; financial barriers linked to lower incomes and insurance coverage, as well as higher costs for transportation and associated lodging; less effective emergency care services; lower quality infrastructure; and potentially greater demands on health workers (WHO Europe 2012). However, not enough evidence from outside the UK has been identified to build a complete picture of how these factors affect communities in rural areas of Europe.

### 6.1 Quality / outcomes

It is often assumed that health care workers in rural environments will be less competent than those in urban environments due to professional isolation and lack of training opportunities. The identified literature provides a complex mix of findings but suggests that issues of quality are often more a factor of the organisation and funding of the local healthcare system than of rurality per se. In addition there will be variation in quality between localities and between individual health care practices (Wakefield 2002, Robertson et al 2004). However the research does suggest that in the UK and elsewhere best practice guidance takes longer to be implemented in rural primary care settings for a number of reasons.

*Differences in outcome by degree of remoteness:* McLean et al (2007) carried out a cross-sectional analysis of publicly available data of 18 process and intermediate outcome measures for people with coronary heart disease (CHD), diabetes and stroke, to examine if the quality of primary medical care varied with remoteness from urban settlements in Scotland. They found that there were few differences in the quality of care delivered to patients in practices with different degrees of remoteness. The researchers were surprised at the lack of differences in complex process indicators such as foot and eye screening in diabetes, and for treatments that have to be delivered in a specific timeframe such as influenza immunisation, and which would be expected to be affected by access issues relating to remoteness. They concluded that these access issues were successfully overcome in Scotland by the primary care payment system which weighs capitation payment in favour of more rural practices (and other indicators of deprivation).<sup>1</sup>

In contrast, differences were seen in simple process indicators for cholesterol measurement and control that can be done opportunistically or which might be expected to be less dependent on accessibility. One possible explanation was that evidence-based practice is slower to diffuse to more remote and therefore professionally isolated areas where practitioners have less access to continuing professional development. The very remote practices included in this research also had the smallest patient list sizes, the fewest whole-time equivalent GPs, the highest average age for GPs and the lowest proportion of female GPs when compared with urban practices which in previous research had been shown to have a negative impact on the achievement of high scores in the quality indicators.

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<sup>1</sup> More information on the Scottish capitation payments is to be found in a document entitled : GMS STATEMENT OF FINANCIAL ENTITLEMENTS FOR 2004/5  
[http://www.sehd.scot.nhs.uk/gpweb/7/PDFs/SFE\\_Final.pdf](http://www.sehd.scot.nhs.uk/gpweb/7/PDFs/SFE_Final.pdf).

Robertson et al (2004) carried out a study to determine if time from presentation to treatment was longer for colorectal and breast cancer patients living further from cancer centres. Data was collected on 1097 patients with breast and 1223 with colorectal cancer in north and northeast Scotland. Rather than remoteness being a cause of treatment delay, the research found that women with breast cancer who lived further from cancer centres were treated more quickly than those living closer to cancer centres ( $P=0.011$ ). For colorectal cancer, time to treatment was similar for people in rural and urban areas. This goes against earlier research which associated increasing distance from cities with cancer centres with more advanced disease at diagnosis and less frequent treatment at a cancer centre (Launoy et al 1994). An alternative suggestion for the higher incidence of advanced disease reported in these groups may be that these rural groups are presenting to their GP later than urban groups (Robertson et al 2004, Launoy et al 1994).

Wakefield's paper on Patient Safety and Medical Errors (2002), based on a study of rural health services in the USA suggests that the quality of health care (including hospital care) in rural settings generally seemed to be comparable to, or in some cases better than, that found in urban settings, although he cautions that rural communities, populations and health care settings can vary markedly.

Comparisons between rural / urban need to compare like with like: Vartak et al (2010) found that the literature to date on patient safety in small rural and urban hospitals did not differentiate for confounding factors such as size of hospital, teaching status and number of services offered. Vartak et al (2010) compared patient safety indicators across 185 rural hospitals and 107 urban hospitals (with fewer than 100 beds) and having adjusted to take account of important characteristics such as case mix, found that, with the exception of decubitus ulcers (bed sores), there were no significant differences in adverse event rates between rural and urban hospitals.

## **6.2 Older age demographic and the increased risk of errors**

The older age demographic of some rural communities is likely to result in higher risk of injury from medical care not only because of the types of illness and disability affecting them, but for the simple reason that they receive so many more treatments (Wakefield 2002, Wholey et al. 2004, Thomlow 2008, Kralewski et al 2005). Medication errors occur more frequently among frail elderly people taking multiple medications and among people with multiple long term conditions (Goodwin et al 2011) and errors are therefore likely to be more common in rural than urban areas where there is a greater proportion of elderly patients (Wholey et al 2004).

## **6.3 Consultation / health seeking behaviours**

Research from several countries suggests that patients in rural areas consult primary care less than those in urban areas and that this may be associated with poorer health outcomes (Farmer et al 2006). Lower rural consultation rates may be due to better health, unmet need, difficulties in access or independent rural factors (Farmer et al 2006). In poorer rural communities with less developed healthcare services ..... "formal health care is sought more as a last resort for illness care rather than as an on-going source of prevention and health promotion" (Eisenhower 2010) The definition of



what it means to be 'ill' is restricted by poor accessibility and affordability of healthcare for rural dwellers.

There is evidence to suggest that there is a cultural norm of self-reliance amongst rural, older adults who tend to put off seeking formal health care until their health needs are no longer manageable through self-care efforts and the help of family, friends, and neighbours (Davies et al 2009, Eisenhower 2010). Misunderstandings can arise through the health care professionals not understanding the rural cultural context eg. higher status of medical professional, different 'language' spoken by health care professionals and this poor understanding can lead to lack of adherence (Eisenhower 2010)

#### **6.4 Work profile of rural GPs**

Less close access to specialists in rural areas and distance from the local hospital means that the role of the family doctor and the profile of their work can be somewhat different to that of their urban equivalents with rural doctors needing a wider range of skills and competencies especially with regards to minor injuries, obstetrics, monitoring the patient after discharge from hospital and dealing with mental health issues (Davies et al 2009). Access to psychiatric services can be particularly problematic with specialist social workers, psychiatrists and support groups often based far away in towns. This can have an impact on patient safety particularly where GPs are working as sole practitioners without colleagues to turn to for advice if they are unsure as to how to treat a particular condition. Group practices tend to try to train up 'specialists' within the practice thus relieving pressure on the one individual to know it all.

Gabhainn et al (2001) found that rural GPs in Ireland were significantly more likely to work longer hours (mean total hours per average week per GP: 77.95 for city practices and 103.6 for rural), spend more hours on-call, and rely more on inter-practice cover than in-practice cover at evenings and weekends than city practices (suggesting smaller numbers of staff in the rural GP practices).

#### **6.5 Access to services**

Good access to primary care services may influence health outcomes in a variety of ways: early detection of disease, disease and treatment monitoring and uptake of preventative and screening services are all important factors. Distance from services, availability and timing of public transport services and costs associated with travel to services have been identified as barriers for rural people wanting to access preventative services (Lindsay et al 2006, Jones et al 1998, Davies et al 2009).

The amount of time needed to travel to services is a crucial factor: Jones et al (1998) found that the likelihood of ever having consulted a GP due to difficulty breathing decreased with distance from a surgery after controlling for car ownership and smoking status. Lindsay et al (2006) found that people living in remote rural areas were just as likely as urban patients to attend screening for aortic aneurysm if the services were brought to within a 30 minute journey of their home (through outreach). In that study, 8,292 men aged 65 – 74 attending screening for abdominal aortic aneurysm completed a questionnaire. Non-attendees were more deprived in terms of income, employment, education and health.

Farmer et al (2006) carried out a qualitative study into the differences between rural and urban patients' decision making processes around accessing services. They found that patient decisions about using services were not simply dependant on distance, but were also influenced by the relationships that had formed over time between the patient and their GP. They found a 'GP-focus' to rural patients' attitudes towards primary care, which affected access in a number of ways: rural patients, used to their GP service and lacking experience and knowledge of other services further away, may inappropriately turn to their GP in an emergency situation eg with chest pain rather than going directly to A&E; the close relationship that the rural patient feels towards his / her doctor may inhibit their likelihood of accessing services if their condition was embarrassing or seemingly trivial; if the patient doesn't get on with their GP they may put off seeking healthcare and in a small practice situation there may be no other choice of doctor.

Distance from services and the stoical nature of some rural residents can make people less likely to access health services in rural areas. The problem of distance may be overcome through developing outreach services (for which GPs need to be financially compensated).

## **6.6 Recruitment and retention**

Difficulty in recruiting and retaining skilled staff in rural areas has repeatedly been found to create a challenge for the delivery of quality services in rural areas (Wakefield 2002, Straume & Straw 2010).

In 1997, 28% of the primary care doctor positions were vacant in the rural north of Norway. This was identified as a risk to patient safety. Lack of opportunities for professional development was found to be the most common reason for leaving, more common than wage- and workload-related factors (Straume & Straw 2010).

In rural areas of the USA, Wakefield (2002) documents the use of volunteers in providing aspects of health care in areas where staff recruitment threatens the viability of the health service.

## **6.7 Access to professional development / professional isolation**

GPs working in rural areas can find themselves isolated from the support and stimulation of colleagues due to the distances needed to travel to meet them and due to there being fewer colleagues nearby (Davies et al 2009). Rural GPs may be working longer hours making it more difficult for them to attend professional development opportunities (Gabhainn 2001). One of the main problems for rural health staff wanting to get away from the community to attend training and meetings with professional peers is the difficulty of obtaining locum cover (Farmer et al 2001).

A comparative questionnaire survey of midwives in rural and urban settings in Scotland (Hundley et al 2007) was carried out to compare their views of their competence and confidence with respect to core professional 'competencies'. Both groups reported facing barriers to continuing professional development, however more of the rural group had attended an educational event within the last month ( $p < 0.001$ ). Lack of time was the greater barrier for the urban midwife ( $p = 0.02$ ) whereas distance to training was greater for rural midwives ( $p = 0.009$ ). Lack of motivation or interest was

significantly higher in urban units ( $p=0.006$ ). The researchers suggested that the rural healthcare worker may have to develop confidence and competencies that the urban worker doesn't need due to the closer accessibility of back up support and availability of medical technology in urban areas. Hundley et al found that self-reported competence at managing breech delivery was statistically significantly higher for rural midwives however this finding needs to be treated with caution as confounding factors, such as years of experience were not considered.

The participants in Rechel's study (2010) into the quality of children's healthcare services in Bulgaria believed that low levels of qualifications and inferior quality of care were more common among health care staff working in rural areas due to lack of training opportunities and through not seeing a sufficient number of cases of less common diseases. Antibiotic overprescribing in primary care was also identified as a common practice with complications arising as a result of this initial mistreatment.

Lack of access to information about and lack of adherence to best available international evidence based practice is still a problem in many Central and Eastern European countries (Rechel 2010).

## **6.8 Referral practices**

Research suggests that rural location can affect rural referral practices in a number of ways: most simply, less confident GPs will be more likely to refer and more confident GPs will be less likely to do so although it depends on a number of factors which the rural GPs will need to consider, for example, the distance involved in travelling from a rural area to a specialist urban centre and the potential for the patient's condition to deteriorate en route (Wholey et al 2004, Farmer et al 2001, Davies et al 2009).

GPs may try to manage the patient's condition 'in house' out of consideration for the distances that the patient will have to travel to the more specialist service and this may have the effect of reducing referrals from rural practices (Davies et al 2009). The rural patient may refer themselves to their GP, even with complex or emergency conditions which the rural GP may be ill equipped to deal with, while the urban patient may have referred themselves directly to emergency or specialist services. There is the potential for errors to arise through this situation (Wholey et al 2004).

Tucker et al (2003) assessed GP and midwife diagnosis and management of mild non-proteinuric hypertension in pregnancy in rural Scottish general practices against guideline recommendations. They found that most GPs and midwives tended to over-diagnose the condition, in spite of the guidelines, and that there was an association between the distance of the practice from a specialist maternity hospital and professionals' report of intended referral or admission. These were attributed to a poor knowledge base, cautious risk assessment and perceived inflexibility of guidelines for remote situations. Urban GPs and midwives were not included in the research so their diagnosis and management skills cannot be compared with this rural group and therefore guideline adherence may be an issue in both settings. There is evidence to suggest that a significant proportion of referrals made in general practice are clinically unnecessary across a range of settings (Goodwin et al 2011).

## 6.9 Relationship with the patient

Wholey et al (2004) suggest that in rural areas a situation of 'social embeddedness' exists whereby staff often know patients both as patients and as community members, and that there can be associated patient safety issues created as a result: on the one hand the staff may be alerted to an anomaly on the basis of knowing the patient, but on the other, staff may become complacent, for example through not communicating information because they assume other staff members know the patient too, or through information being discounted if it does not fit into stereotypical beliefs about that patient.

The research suggests that rural medical professionals are more isolated than their urban colleagues, find it more difficult to attend training events, need a broader range of skills and knowledge and work longer hours. However, in spite of these challenges, the quality of care provided in rural areas appears comparable to that provided in urban areas.

## 7.0 Practical initiatives to improve patient safety applicable to rural primary care situations

In 2011 the Evidence Centre carried out a comprehensive research scan into evaluations of patient safety initiatives in primary care. Of the 83 studies reviewed, only two related to initiatives in rural primary care settings (that of Singh et al 2007 and Westfall et al 2004).

Taylor et al (2011) suggests that an understanding of context, in this case, the rural context, in patient safety research is in its infancy. They used a 22-member technical team of experts in the field of patient safety to develop a taxonomy of the four main domains that influence the successful implementation of patient safety initiatives:

- 1) safety culture, teamwork and leadership involvement
- 2) structural and organisational characteristics (eg, size, organisational complexity or financial status)
- 3) external factors (eg, financial or performance incentives or patient safety regulations)
- 4) availability of implementation and management tools (eg, training or organisational incentives).

The sections below will consider initiatives that have been implemented within these domains in rural settings, or else from the perspective of their being able to be implemented within a rural context relatively easily. Most of the measures are possible to implement even in small healthcare environments without additional financial resources.

### 7.1 Safety culture

The culture of the organisation and the degree to which it can learn from adverse incidents is very important for patient safety (WHO 2009). A culture of safety will be one that supports and values the implementation of patient safety initiatives (Taylor et al 2011) and makes staff feel that it is safe to admit their mistakes. The two main reasons for staff not reporting errors are firstly if they do not feel that the action will lead to an improvement and secondly if they are fearful of embarrassment and / or punishment (Wakefield M 2002). Therefore an important early step in improving patient safety is to change the traditional culture of blame to one of openness and learning from mistakes without fear or embarrassment (Wakefield M 2002). However how does the organisation know that it has a 'culture of blame'?

**The Manchester Patient Safety Framework** (National Primary Care Research and Development Centre, 2006) is a team-based self-reflection tool designed to stimulate discussion around patient safety culture in healthcare organisations. As staff work their way through the exercises together they can see what value they, and their organisation, place on patient safety and can gain insight into what they do well (towards building a patient safety culture) and what they do less well. This provides an excellent and important starting point for further discussion and action planning around patient safety.

The first step towards improving patient safety is for primary care organisations to understand their own patient safety culture and the attitudes of their staff.

This initial attention to understanding organisational culture is a very worthwhile investment of time prior to embarking on any patient safety initiative as this is the ground on which the seeds for improvement in patient safety are to be sown.

The next step is to set up a system for collecting information about the adverse events that occur, including near misses, in order for the primary care organisation to understand its own patient safety issues. Incident reporting systems systematically collect information on adverse incidents, with the aim of identifying risks and thus enabling healthcare providers to improve quality. To this end they should be ...” non-punitive, confidential or anonymous, independent, timely, systems orientated, responsive and provide expert analysis” (Hoffman et al 2008).

*Reporting errors – challenges for rural primary care:*

Encouraging staff or patients to report errors can be a particular challenge for rural primary care for a number of reasons: fewer staff (compared to hospital settings) and close working relationships amongst staff often fostered over many years may have created a culture of everyone knowing everyone else’s business, while traditional power gradients may make staff feel that reporting an incident amounts to ‘breaking rank’ (Wakefield et al 2002, Wakefield et al 2004, Thomlow 2008). In addition, staff in primary care organisations are often recruited by the physicians themselves rather than the organisation (as is the case for hospital staff) and this may make them less likely to report events as they may fear retribution (O’Beirne 2011). GPs working single-handedly have much to lose by way of reputation if they admit to making mistakes and may fear prosecution (Hoffman et al 2008). Patients in rural areas also tend to have a closer relationship with their GP, ‘rich in personal knowledge’, than urban patients who are more inclined to take a detached ‘consumerist’ view of their GP and this may affect their inclination to report an error (Farmer et al 2006).

The establishment of **anonymous** reporting systems for monitoring patient safety events in rural primary care are critical if staff and patients are to be encouraged to report incidents (Westfall et al 2004, Thomlow 2008)

Anonymity can be difficult to guarantee in rural health care settings as everyone knows everyone else (Wholey et al, 2004) although there are ways around this: Westfall et al (2004) suggest establishing a collaborative reporting system involving a group of practices working together, with the additional benefit that this increases the number of events to be analysed and shares the workload.

A focus on ‘system change’ rather than individual failures can help primary care organisations to make this cultural shift from blame to openness. Wakefield et al (2002) recommends the establishment of ‘patient safety committees’ with interdisciplinary representation (including non-clinical staff) at the practice level, to collect data, analyse problems and propose necessary system changes. Feedback from patients is also very valuable: information can be collected from patients by means of ‘exit interviews’ or questionnaires, providing an insight into risky processes and hazards.

### 7.1.1 Teamwork and leadership involvement

*Leadership:* Strong clinical leadership is essential for fostering a clear vision and shared values (Goodwin et al 2011, Taylor et al 2011, Wakefield et al 2002) and for increasing the number of adverse events reported (Westfall et al 2004). Wakefield et al (2010) surveyed 5294 clinical and managerial staff in urban and rural public hospitals in Queensland, Australia on the factors that influence health care workers patient safety behaviours, using behavioural models to identify factors that significantly influenced Patient Safety Behavioural Intent. They argue that the key to effective and broad-based behaviour change strategies to improve patient safety is the influence of credible, clinical leaders that both believe in, and are prepared to model patient safety behaviours. Without this, educating individual healthcare workers to improve knowledge of safety will achieve limited results.

Each GP practice should have a patient safety 'champion' to drive the patient safety agenda. This person needs to have a passionate belief in the value to patient care and wellbeing of being a 'patient safe' organisation.

## 7.2 Structural and organisational characteristics

Systems can be made safer by building in opportunities to check and review the care of selected patients, not as a way of trying to catch out an underperforming doctor, but because sometimes a dispassionate, unhurried review of someone's case can highlight anomalies.

Kralewski et al (2005) examined the structure and culture of medical practices on prescription drug error rates. They focussed on four sets of variables: financial incentives, clinical support systems, physician workload and practice culture. Seventy-eight rural and urban Midwestern USA 'Care Plus' practices were recruited: 'Care Plus' claims data was analysed and practice staff were surveyed to obtain information on structure and culture. Lower error rates were found to be significantly related to: the employment of outpatient case managers to co-ordinate care ( $p=0.02$ ), practice culture that valued physician autonomy (contrary to expectation) and urban location. The research found that the number of prescriptions per patient was highly associated with average errors per patient and errors per prescription. Computerised drug information systems reduced prescriptions per patient by about 16% which had a significant effect on number of errors, and seeing more patients per hour (possibly reflecting a less complicated case mix) and urban location were also associated with fewer prescriptions and therefore fewer errors. Each additional prescription per patient was associated with an increase of 0.035 errors per patient. The possible explanation for the higher rate of errors associated with rural practice was fewer organisational links with specialists and a higher caseload of elderly patients with complex conditions (requiring more prescriptions). They recommended the employment of case managers to oversee the care of patients with complex care needs.

Taylor et al (2003) carried out a study into the effect of a pharmaceutical intervention on the prevention, detection, and resolution of medication-related problems in high-risk patients in a rural community in Alabama, USA. A total of 69 patients at high risk of a medication-related adverse event (eg. through taking five or more medications in a drug regimen) were randomly assigned to a control

group or an intervention group. The mean age was 64 years for the intervention group and 66 years for the control group and the two groups were comparable in terms of education, marital status, clinical measurements, compliance and medication knowledge at baseline. The control group received standard medical care, and the intervention group received pharmaceutical care, including a medical record review, a medication history review, pharmacotherapeutic evaluation, and patient medication education and monitoring over a one-year period. The researchers identified specific clinical endpoints for review at baseline and throughout the study, such as blood pressure, INR (International Normalized Ratio) and cholesterol concentration. After one year they found that within the intervention group medication compliance and knowledge had improved, inappropriate prescribing had declined by approximately 60%, the mean number of prescribed medications had declined significantly (mean 6.3 to 4.7 nos of medications) and disease management outcomes were enhanced while across all these measures there were no significant changes in the control group results.

*Patient reviews:* In the UK, GPs are incentivised to carry out a variety of medication reviews for patients receiving repeat or multiple prescriptions and >94% of practices achieved these standards in 2009/10 (Goodwin et al 2011). Incentives are a useful tool for improving quality as they can ensure that all practices improve their performance, not just the more conscientious or proactive.

Errors in caring for elderly people with complex needs can be reduced through performing regular reviews of their care and / or medication, whether by case managers, 'community matrons', pharmacists, or through review panels made up of a mix of medical, nursing and community staff.

#### *Specialist training programmes for rural healthcare workers*

Australia, Norway, Scotland and Wales have all developed programmes to address the specific training needs of rural healthcare workers, both as a way of attracting and retaining staff, and in recognition of the fact that rural healthcare workers need additional skills to enable them to practice safely and competently in a range of rural settings (Davies et al 2009).

- Norway: In 2010, Straume & Straw carried out an evaluation of the revised postgraduate medical training programme in Norway based on a de-centralised system of in-service training and group tutorials and found that by increasing the opportunities for physicians to carry out their professional training in rural areas, it became possible for trainees and their families to grow roots in rural communities during the training period and the problem of retention was improved. The system of group tutorials was particularly useful for creating a professional network and reducing professional isolation. This system is in marked contrast to that of centralised training and the recruitment of fully trained specialists to fill rural positions, as adopted in many other countries. Similar systems for providing postgraduate training for dentists and doctors in rural Wales have also been established (Davies et al 2009)
- Australia: the *Fellowship in Advanced Rural General Practice* award is a flexible training programme consisting of core and optional educational activities which have a strong practice based focus and is taken in addition to the basic GP training programme that all



Australian GPs must take to qualify for general practice. Advanced rural skills training is available in: anaesthetics, obstetrics, emergency medicine, aboriginal health, child and adolescent health, mental health, surgery, adult internal medicine

- Scotland: The Remote and Rural Healthcare Alliance Group was established in 2008 , on behalf of the Scottish Government and Scottish NHS Boards to develop specialist training courses and practice education networks to support and develop the skills of GPs and nurses working in remote areas (NHS Scotland 2010)
- Wales: the Institute of Rural Health was established in 1997 to inform, develop and promote the health and wellbeing of rural people and their communities through its academic programmes aimed at rural health professionals. Training tends to be run over full days or as residential courses due to the long distances that participants need to travel to attend.

### *Building networks*

In areas of rural isolation, getting people together from different primary care organisations to discuss patient safety issues can be a useful way of identifying local solutions and reducing professional isolation (Wakefield et al 2002) and is particularly important in areas where single handed GP practices are the norm (Hoffman et al 2008). Opportunities to share experience and knowledge is fundamental to quality improvement although there are practical issues if practices are disbursed across a wide geographical area (Westfall et al 2004)

Primary care staff benefit from being able to get together with colleagues from other practices for training or staff development events in order to reduce professional isolation and increase job satisfaction. These occasions can be opportunities to discuss patient safety issues and share monitoring

## **7.3 Availability of implementation and management tools**

### *IT systems:*

The establishment of IT systems can be a really important measure for reducing errors (Wakefield et al 2002, Kralewski et al 2005, Westfall et al) and for monitoring errors and progress.

Following a review of adverse events in 14 rural or frontier practices in Colorado, USA (Westfall et al 2004), two areas for intervention initiatives were identified: laboratory errors and prescription errors. The initiatives focussed on office processes that could be monitored and both involved the development of IT systems that could immediately identify errors. The problem of lab errors was addressed through the development of a lab tracker system which tracked all lab tests ordered by the practice and flagged up overdue tests. Some of the practices (perhaps the ones that had identified this as a particular issue for them?) adopted the use of a modified commercially available computerized physician order prescription system which checked for contraindications and clarity and linked directly with the pharmacy. The steering group involved with the project provided forums for clinical and office staff to be involved in interpreting the results, developing guiding principles of practice, and implementing interventions aimed at improving care. The involvement of office staff was considered important given that changes to office processes were a key part of the initiatives implemented.

When considering making changes to office systems, eg. for logging / tracking results, it is important to include office staff in the process both to ensure their 'ownership' of the changes and to make use of their insight into the back office functions of the organisation

However, lack of financial and staff resources may make it harder for rural areas to implement the IT initiatives (Wakefield 2002). Thomlow (2008) reports a 2005 study by Brooks, Menachemi, Burke, and Clawson where rural hospitals in the USA averaged 30% utilization for 10 IT applications installed to reduce medical errors, compared to 48% utilization in urban hospitals.

A number of lower cost management tools can be applied at the individual practice level to help practices analyse what events are happening and why, and also to determine which are the priorities for action.

*Why do errors occur in our organisation?* **Significant Event Audits (SEAs)** are powerful ways for practices to learn from patient safety incidents and 'near misses' and to become more aware of the strengths and weaknesses in the care they provide (NPSA 2008) Guidance on carrying out an SEA is provided by the National Patient Safety Agency and available online through <http://www.nrls.npsa.nhs.uk/resources/?EntryId45=61500>. This is a seven step process that aims to improve the quality and safety of patient care in primary care. An advantage of SEA is that it enables an understanding of the causes of adverse events, unlike some of the other audit systems that monitor adverse events eg. Primary Care Trigger Tool (Goodwin et al 2011).

*What situations pose the greatest threat to the safety of our patients?* **Failure Modes and Effects Analysis (FMEA)** is an approach to prioritising safety issues in rural primary care. Singh et al (2007) surveyed staff in two rural primary care practices in the USA on FMEA, and responses were converted to quantitative hazard scores which were used to rank safety issues. The researchers concluded that FMEA based on staff perceptions can be used to estimate the greatest threats to patient safety in an individual practice to help target limited resources appropriately. However they point out that although only basic analytical skills are required to perform this analysis, this still may be a challenge in some small practices.

*Am I providing the right care?* The development of and adherence to **clinical guidelines** based on best available evidence are necessary for ensuring that primary care patients receive high quality care (Rechel 2010, Tucker et al 2003). Evidence based guidelines support the decision making processes of less confident or less knowledgeable doctors and can prevent diagnostic errors and avoidable referrals to specialist centres. Rural health care providers can often lack access to up to date evidence based care pathways (Wakefield et al 2002) and may end up having to rely on prescribing information supplied by drugs companies and reps (Rechel 2010). To improve patient safety, efforts must be made to ensure that all healthcare providers have access to the latest guidelines and care pathways. One of the most useful ways of supporting clinicians is to provide relevant information at the point of decision-making eg. when writing a prescription through an IT alert, although this must be seen as relevant and reliable otherwise there is the danger that the information will be ignored (Avery et al 2007)

Rural GPs need to be able to access up to date guidelines to support the decision making process particularly with regards to treatment options and knowing when to refer

## 8.0 Initial recommendations

- Given that rural general practice tends to have greater proportions of elderly patients than urban practice and that greater proportions of elderly people on a practice list increase the likelihood of errors occurring, a review of the evidence into what initiatives can improve patient safety for the elderly would be valuable here.
- Practice teams should take time to work through the Manchester Patient Safety Framework tool as a starting point for generating discussion and gaining understanding as to their organisational culture prior to embarking on any initiative. The practice may need to do some work on making its culture more open and less blaming if it wants to be able to implement patient safety initiatives successfully.
- Each GP practice should identify a 'patient safety champion' to lead this agenda
- The whole practice team should be involved in every stage of the process, including office staff, as the efficiency of practice systems often hinges on them.
- The practice needs to be honest with itself as to how likely it is that staff will willingly report adverse events, and look at ways of helping staff to feel safe to be able to do so.
- Each practice needs to study its own risk areas. These will be specific to each organisation as a result of independent factors such as funding, staffing, location, case mix and so on. Likewise, any initiative designed to deal with these risks will need to be tailored to the specific resources available to that primary care organisation.

## 9.0 Conclusion

Rural general practice faces specific challenges that are different to those faced, on the whole, in urban areas: greater professional isolation, a wider and heavier workload, in general a poorer and older practice population and less access to specialists. Each of these has a potential impact on patient safety and while practices can take steps to manage these at a local level, national governments also have a role to play in ensuring that the organisation of healthcare services does not exacerbate the situation.

This literature review has attempted to bring together some of the recent research into patient safety issues in rural primary care. However there are some major gaps: a lack of research identified from less wealthy European nations where primary health care is less well funded and less well established and rural poverty more acute; research being carried out according to different error classification systems (although this problem is being resolved) with the result that the findings from

one piece of research cannot be compared to another and a focus on process rather than outcome with regards to initiatives to improve patient safety.

However the following is clear:

- Patient safety issues vary depending on local structures, funding and organisation of healthcare services and there is no 'one size fits all' solution. This suggests that practices need to spend some time understanding the risks to patient safety within their own organisations before looking for solutions

Singh (2007) suggests that each medical practice can be viewed as "a complex adaptive microsystem; to thrive, such a microsystem needs to identify its own unique set of problems and devise solutions that are tailored to the situation, in light of the current quality status, practice costs, and resources available"

- While IT systems can play a part in reducing errors, low cost interventions at practice level aimed at reviewing errors and reflecting on practice, are just as important. Since most errors are the result of system failures rather than individual incompetence, this reflective practice helps the practice identify what it is about their own workplace that contributes to errors occurring.

Finally, high quality care is safe care and the issue of patient safety in primary care in rural areas deserves attention and consideration.



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