TO ASSESS THE REQUIREMENT FOR CAPTURING PERFORMANCE INDICATORS (PI) FOR GENERAL PRACTITIONERS IN PRIMARY CARE

Iolanda Herron

A Dissertation submitted to the University of Dublin, in partial fulfilment of the requirements for the degree of Master of Science in Health Informatics

2010

DECLARATION

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work, and has not been submitted as an exercise for a degree at this or any other University

Signed: _____

Iolanda Herron

Date: 3rd September 2010

PERMISSION TO LEND AND /OR COPY

I agree that the Trinity College Library may lend or copy this dissertation upon request

Signed: _____
Iolanda Herron

Date: 3rd September 2010

ACKNOWLEDGEMENTS

The author acknowledges and wishes to thank the following without whom this dissertation would not have been possible

To my supervisor William Grimson for his guidance, support and patience throughout the completion of this work

To Dr. Lucy Hederman for her professional excellence and energetic enthusiasm in co-ordinating this course, and for her support throughout the entire Health Informatics Programme

To my fellow students, for your camaraderie during the past two years

To my work colleagues in Diageo Medical Centre, and especially Dr. Brendan McCarthy, Chief Medical Officer, for the support, advice and encouragement throughout the two years of study and research

To Lauri Hogan who at the outset was the first to realise the benefits of this course for Practice Management in Diageo Medical Centre

To all the 80 GP's who so painstakingly completed the twenty two pages of the survey questionnaire

Finally and most importantly to my partner Arnaud, and my children Michaela and Charlotte who encouraged and supported me while Ì completed this course

TABLE OF CONTENTS

Appendices:

1. Request for access to the ICGP membership Database
2. Sample cover letter
3. Information Sheet
4. Consent Form
5. Abbreviations
6. Glossary Terms
7. Conceptual framework for primary care organisations
8. Obesity Rates among adults in all OECD Countries, OECD Health Care Quality Indicators Data 2009(http://www.oecd.org/health/healthdata)
9. Prevalence estimates of Diabetes, adults aged 20-79 years, 2010, International Diabetes Federation (IDF) (2009), "Diabetes Atlas, 4th edition
10. Five-year relative survival rates in all OECD Countries, OECD health Care Quality Indicators Data 2009
11. Diabetes acute complications admission rates, population ages 15 and over 2007, OECD Health Care Quality Indicators Data 2009
12. Perceived Health Status in Ireland, 2007, Central Statistics Office – EU Survey on Income and Living Conditions
13. Deaths by Principal Causes, Percentage Distribution, 2008, European Health for all Database, WHO Regional Office for Europe
14. Ethics Approval from Trinity College Dublin
15. Survey Questionnaire

TABLEOF FIGURES

TABLE OF TABLES

Chapter 1: INTRODUCTION AND BACKGROUND

Chapter 1:

1.1 OVERVIEW

Clinical and prescription errors in Health care are on the increase and have led to public disquiet. Mistrust of both the medical professional and the systems that underpins them calls for greater openness in the way care is provided. In the wake of recent publicity relating to medical errors not only here in Ireland but worldwide, there has been a tremendous amount of global research on both the implementation and application of Performance Indications (PI's) across the broad spectrum of Healthcare and related services. Performance Indicators enable healthcare trends to be measured and translated into quantitative measures of quality.

Primary care in Ireland is mainly driven by the Private sector, as such there is minimal performance monitoring or regulation except that which comes under the umbrella of the Medical Council relating to professional misconduct or negligence. The complexity, and non-standardisation of GP work practices, together with a large number of GP's working in single-handed practices, creates great difficulty in relation to performance bench-marking. There is also an absence of automatic performance reporting in GP Patient Management systems with virtually no inbuilt alerts except for medication contra-indications and allergies and diary reminders for patient oriented tasks. For the purpose of this thesis, the role of GP's within a broad definition of a Primary Care Team is being studied. Both private and public practices are included, and thus may be both unregulated as in a Private entity or regulated as in the HSE PCC structure. The contributory role of GP's towards quality improvement both across the whole continuum of Primary Care services, is of wider and greater importance. Quality in Health Care, Patient Safety, and Health Spending, are the factors that are driving change in a challenging environment of both economic recession and medico-legal changes and challenges.

1.2 BACKGROUND

Primary care, and especially the GP sector has the enormous advantage over secondary care, being 98% computerized, and thus there is a readymade platform for the introduction and use of PIs with the resulting monitoring of data quality.
But the level of integration of computerization within GP Practices is poor and there are also problems and constraints surrounding data access and collection. *There may be variations between practices in their level of computerization, use of (READ) coding, ability to access meaningful data, and experience in auditing their own clinical practice.*[1] The issue of poor quality and un-coded data has long been established through extensive research. Poor data quality is an obstacle for accurately analysing care and service quality within Primary Care.

The success of a monitoring system is determined by various factors such as *the input requirements of the system must fit the capabilities of the health care organisations involved…, organisations must be able to provide the data input for the monitoring systems.* [2]

GPs are the gatekeepers to a vast range of expensive allied Primary care services and secondary care referrals, so more evidence based practices should help to reduce unnecessary referrals with the associated benefits of cost reductions to the state and to the individual. To enable more comparability more standardisation of protocols and systems is required.
One of the main barriers to PI implementation is the fact that 53% of GP's in Ireland work in single- handed practices, and thus are not able to benefit from a multi-

[1] Alaistair McColl et Al, *Clinical governance in primary care groups: The feasibility of deriving evidence-based performance indicators,* Quality in health Care 2000;9:90-97

[2] Jan Luiysterburg et al (2008) *Towards Performance Indicators for the Health Care Sector*, Tilbury University, Netherlands, Page 170

disciplinary team approach that addresses patient's health care from a wider inclusive point of view. A team approach also provides better monitoring and communication regarding a patient's health care. This is especially enhanced when all team members share equal access rights to a patient's electronic health record (EHR). Another barrier is the absence of a unique patient identifier (UPI) for medical records nationally, and this is an obstacle for a PI framework to be rolled out on a National networked basis. However, the use of PIs at local level in the interim, would assist towards national and perhaps international integration at a later date. *Work on quality indicators can be used for international comparisons.* [3]

When the UPI comes into operation following HIQA's current expert work in this area, there will also be the advantage that with this UPI, Patient Management Systems and other existing systems, such as Healthlink could feed into a national PI Framework.

Health care, including preventative action, is one of the determinants of health status outcome. Health status is the measure of the extent to which an individual functions socially, mentally and physically. Health status in turn has implications for care consumption, cost and quality. Therefore Health status information is both qualitative and quantitative. Performance in Hospitals is managed under the auspices of the Joint HSE Department Performance Information Group that was established in 2008. Health Stat, an application that is used to measure performance in hospitals and Local Health Offices (LHO), only measures access, integration and resources of services, and does not measure quality of care. It is very much designed as a quantitative approach. *There is an absence of a specialized group to manage the performance of GP's within the arena of Primary Care. Thus, there is no platform that provides data analysis that can be used to reference quality of the service delivered and we do not have reliable and reportable data to accurately assess quality.*[4] There is much debate on other uses of PI's such as monitoring the practice of clinicians, lowering costs and the use publicly as a means of informing patient choice and availability of services offered. The financial

[3] Sveren Mattke et al , International Journal for Quality in Health Care, Sept 2006), *The OECD Health Care Quality Indicators Project*: *History and Background,* .International Journal for Quality in Health Care, Sept 2006: pp 1-4

[4] Jan Luiysterburg et al (2008) Towards Performance Indicators for the Health Care Sector

burden of poor quality of care has long been documented, and this is accentuated in the absence of a UPI. Duplication of procedures such as lab testing and diagnostic imaging, and medication errors are one of the many contributing factors in this regard. This increases the cost of public health spending. The Organisation for Economic Cooperation and Development [5] (OECD) figures show that during the period 1997 – 2007, the per capita health expenditure annual average real growth has increased by 6.7% in Ireland and may not be sustainable.

1.3 DEIRDRE MADDEN'S REPORT

Dr Deirdre Madden report for the Department of Health and Children, "Building a culture of Patient Safety", published July 2008, highlights governance shortfalls in the Irish Health system that compromise safety and quality. One of the four distinct components of Accreditation as per Deirdre Madden's report is *preparation and self-assessment undertaken by the organisation,*[6]and that *standards communicate the levels of performance.* [7]Optimum Performance can emanate from a platform of good governance. Governance can be applied to Administrative, Clinical and Data issues. This in turn provides a framework for safety and quality to enhance patient care and focus. The GP Survey, which is part of this thesis, serves to address issues in these three areas. Deirdre Madden's report will be dealt with more fully in Chapter 6.

1.4 OBJECTIVES OF THIS STUDY

- To define the science of Performance Indicators and analyse how PI's fit into the concept of care quality and patients safety, as per peer-reviewed literature
- To provide an overview of data recording problems
- To establish best practice internationally regarding PI initiatives and usage

[5] Appendix 8: Health at a Glance 2009, OECD Indicators, *http://www.oecd.org/health/healthataglance*
[6] Department of Health and Children Report of the Commission on Patient Safety and Quality Assurance, *Building a Culture of Patient Safety,* (July 2008) Page 107
[7] Department of Health and Children Report of the Commission on Patient Safety and Quality Assurance, *Building a Culture of Patient Safety,* (July 2008) Page 108

- To conduct a GP survey to assess the need for PI collection for GP's in Primary care
- To analyse survey results with reference to International standards
- To make recommendations based on these results for future development in this area

1.5 METHODOLOGY

1. Outline both the theory behind the science, and the factors that influence Performance Indicators.
2. Review existing methods and platforms in use internationally to capture PI data referencing peer reviewed literature
3. Investigate the existing National Framework, for capturing PI's in General Practice, referencing relationships, communication, health network structures, patient safety and medical research, in Public and Private Institutions.
4. Referencing points 1 to 3 above, formulate survey questions that reflect key factors that influence quality and safety outcomes in general Practice.
5. Send out survey to 250 randomly selected GP's
6. Do both qualitative and quantitative analysis of the GP Survey results
7. Assess the need for PI's by benchmarking findings against agreed International Standards for Safety and Quality in Primary care
8. Make recommendations for Performance Indicator implementation

CHAPTER 2: PERFORMANCE INDICATORS

"The ultimate goal is to manage quality, but you cannot manage it until you have a way to measure it, and you cannot measure it until you can monitor it "
(Florence Nightingale)

2.1 Science of Performance Indicators

A study that occurred from 1995 to 2005, on the experiences of US Veterans Health Administration in relation to making performance indicators work, found that *One of the most important decisions in facilitating change was to invest heavily in auditing electronic medical records,* [8]and also the experience of the administration of this study found that *the valuable role that well constructed and clinically detailed measures of performance can have on improving quality of care, even without large monetary incentives for individual doctors* . [9] Performance Indicators are built on a foundation of quality that is measurable. They show trends in Healthcare and highlight factors pertaining to these trends. *Performance Indicators are in essence a quantitative measure of quality.* [10] Based on performance output figures, decisions can be made at political level to ensure the health service is founded on optimum quality of care.

The USA Institute of Medicine defines quality as "*The degree to which health services for individuals and population increase the likelihood of desired health outcomes and are consistent with current professional knowledge"*. Performance indicators are thus developed to measure how far health services go to meet this goal. Indicators must be evidence based as regards their usefulness and validity in this regard. The increased interest in the quality of care has been the main driver behind Performance Indicator (PI) development. The Quality and Outcomes Framework, April 2004, in the UK introduced standardised PI's across the country and linked them to GP's income. This Framework covers the areas of Clinical, Organisation, and Patient interaction. The results from the QOF [11]are available publicly, being accessible on-line.

[8] Eve Kerr and Barbara Fleming, *Making Performance Indicators work: Experiences of US Veterans Health Administration*, BMJ 10 November 2007, Volume 335, Page 973
[9] Eve Kerr and Barbara Fleming, *Making Performance Indicators work: Experiences of US Veterans Health Administration*, BMJ 10 November 2007, Volume 335, Page 973
[10] Ibrahim J.E. *Performance indicators from all perspectives*, International Journal of Quality in Health Care (2001) 13: 431 – 432
[11] www.qof..ie.nhs.uk

The most recognised and expert way of developing indicators was devised by RAND +UCLA[12] in California and it combines scientific evidence with expert opinion. This method is now used extensively both in UK and USA in Primary Core, and HIQA are advocating its adoption in Ireland.

According to Arah, *the science of measuring performance in the care sector is still very much under development,* [13] data on a particular topic is weighted in accordance with pre-defined factors that reflect an outcome. This outcome is the Indicator that can then be statistically analysed. These indicators can then be used to follow trends and make comparison at local, national, and international levels, being the bench markers for Healthcare Performance. Indicators also form the basis of Health Policies and help analyse the effectiveness of policies providing impetus for reform. At international level, due to the diverse complexity of Healthcare systems and processes, comparisons are difficult. *Assessing the performance of a national Health (care) system varies among countries depending on the conceptual frameworks that a national government uses to assess Health Care Performance.* [14]

As illness is interpreted as a multi-causal process being related to both physical, social and lifestyle determinants, it is important that PI's reflect all of these in a scientific way. Figure 2 shows the broad scope of performance indicators inter-dependences.[15] *There are factors other than providers and the healthcare system that will influence health outcomes. A framework that is unduly narrow and clinical in its focus will miss this larger picture and interpretation*.[16] The tensions and conflicts between the personal responsibility for ones health on the one hand, and the use of indicators for monitoring and control on the other have caused many debates. But certainly freedom of choice can be in part directional through PI's being available in the Public domain with accessibility to figures and facts regarding Health service providers.

---

[12] www.rand.org
[13] Arah,O :*Performance Reexamined. Concepts, Content and Practice of Measuring Health System Performance (thesis).* Amsterdam: Uva, 2005
[14] Tawfik-Shukor et al, 2006
[15] Figure 2: *Performance Indicator Relationships*
16 ARAH et al: *A Conceptual Framework for the OECD H.C.Q.I. Project* , (2006) Page 12

Health care performance assessment covers a wide range of indicators relating to many aspects of care. The American National Inventory of Quality Measures has indicators for the following:

- Treatment appropriateness
- Treatment continuity
- Accessibility of care
- Co-ordination of care
- Detection
- Prevention

Many papers have been written regarding relevance and reliability of Indicators and compliance of actors. Jan Luijsterburg et al, (2008), *Towards Performance Indicators for the Health Care Sector*, [17] identified the following factors as influencing the success of external reporting of Healthcare organisations:

- Validity of the PI's
- Reliability of the PI's
- Compliance of Healthcare Providers to provide data
- Relevance of the PI's (on the domain and focus of the HC organisation)
- Quality of the system that collects the data between the organisations
- Reliability of the data stored internally (local)
- Availability of the data
- Accessibility of the data
- Definitions and specifications of the data

[17] Jan Luiysterburg et al *Towards Performance Indicators for the Health Care Sector* (2008)

2.2 Defining Performance Indicators

An indicator is an item of care relating to some aspect of a structure, process or outcome, which is measurable. It shows both the quality of care being provided and the variation in that care. Donabedian[18]defined quality as having 3 dimensions [19]

1. STRUCTURES (Personnel, Equipment, financing)
2. PROCESSES (Consulting, Referral, Prescribing)
3. OUTCOMES (Health Status, User assessments)

Donabedian states that quality is a property that medical care can have in varying degrees, and he defines the degree of quality as *the extent to which the care provided is expected to achieve the most favourable balance of risks and benefits*.[20]

John Ovretveit in his book, "Health Service Quality", defines quality as *fully meeting the needs of those who need the service most, at the lowest cost to the organization, within limits and directives set by higher authorities and purchasers.* [21]

He proposes three dimensions to health service quality. These are:

1. Client Quality
2. Professional Quality
3. Management quality

[18] Donabedian, A. *Explorations in quality assessment and monitoring Vol 1: The definition of quality and approaches to its assessment*, 1980, Michigan: Health Administration Press, Ann Arbor. (Pages 3,5)
[19] Figure 5: Donabedian A. *Explorations in quality assessment and monitoring Vol 1: The definition of quality and approaches to its assessment*, 1980, Michigan: Health Administration Press, Ann Arbor, (Page 90)
[20] Donabedian, A. *Explorations in quality assessment and monitoring Vol 1: The definition of quality and approaches to its assessment*, 1980, Michigan: Health Administration Press, Ann Arbor, (Pages 3,5)
[21] Ovretveit, John, Health Service Quality: *An Introduction of Quality Methods for Health Services*, Blackwell Science Ltd, (1992)

He outlines five steps in the quality management cycle [22](QMC) as follows:

1. Select quality features
2. Formulate standards (for client quality, professional quality, and management quality
3. Measure and document performance
4. Analyse performance data
5. Take action (congratulatory or corrective)

Performance Indicators must capture the areas of medical care where according to Evidence Based Medicine (EBM) the quality can and must be improved. The area of workflow processes needs to be defined by Indicators also, as this can contribute to enhanced safety of patients. Whilst there are diverse areas and multi inter-relationships that can be monitored for performance, this thesis is only concerned with workflow processes, clinical guidelines, patient safety and quality of data and how that can in part be managed within IT systems.

The areas where PI's are most commonly applied within IT systems are as follows:

- Evidence Based medicine (adherence)
- Practice Guidelines
- Clinical Indicators
- Local peer-review improvement policies
- Certification/Accreditation
- Practices Policies for example, for complaints, Infection control, medication policies
- Quality IT Systems

Performance Indicators should be implemented for monitoring how clinicians relate and interact with both the IT system on the one hand, and how they relate clinically with patients using best practice protocol, guidelines and EBM on the other.

[22] Figure 4: Ovretveit, John, *Health Service Quality: An Introduction to Quality Methods for Health Services, Page 91, fig 6.1: The Quality Management Cycle.* Blackwell Science Ltd (1992)

To assist the required improvements across the (health) system, there are a number of key enablers that need to be supported, without which the transformations, and behavioural changes will not succeed. These include Performance Management [23] and *establishing the necessary health information technology infrastructure that will provide us with the transparent information required to deliver a modern, high quality health and social care system.* [24]

Standards how data is compiled and documented are urgently required, together with Health Information Systems which can inter-operate is also seen as essential. John Ovretveit defines a standard as *a specific expectation of staff, described in terms of an activity or outcome against which their actions can be measured. The expectation is specified in terms of a level of performance to be achieved on a defined measure or indicator.* [25] The HSE Corporate Plan also states that Performance should be measured by using *a combination of resource, input, output and outcome indicators.* [26]

2.3 Benefits of Performance Indicators

Benefits of PI's can be seen in the areas of Quality and Safety, Co-ordination of Care, Cost and Research. Factors pertaining to each area can be sub-divided as follows:

2.3.1 Quality and Safety

- A tool to monitor and improve Primary Care services
- To demonstrate that GP's are providing quality and safe care that used evidence-based practice and interventions

[23] "Safer Better Care" HSE Corporate Plan 2008 – 2010
[24] "Safer Better Care" HSE Corporate Plan 2008 – 2010
[25] Ovretveit, John, *Health Service Quality: An Introduction to Quality Methods for Health Services, ,B*lackwell Science Ltd (1992) Page 100
[26] "Safer Better Care" Corporate Plan 2008 – 2010, Page 37

- Reducing variations in healthcare across practices
- Improve Healthcare quality and the appropriateness of that care
- Improve Health outcomes
- Standardization of data recording and retrieval
- To encourage discussion regarding areas that require quality improvement focus
- Public accountability of care
- Professional accountability
- A way of auditing the practice and giving a mandate and scope for further investigation
- Highlighting areas to be improved
- A “non-blame” monitoring tool

2.3.2 Co-ordination of Care

- An improved co-ordinated team approach to decision making
- To reduce inequalities in access to effective Healthcare
- Change management of practice and practice development
- Informs patient’s choice

2.3.3 Cost

- Identify areas of significant Healthcare gain
- PACT – prescribing analysis and cost data (Indicators of prescribing trends and costs)
- Highlights relationships between quality of care and resource levels

2.3.4 Research

- Benchmarking, locally, nationally and Internationally
- Affords increased availability of evidence regarding medical effectiveness
- League tables of practice performance
- Allocating resources by identifying areas of need
- An aid to research into variances in medical practice in primary care, nationally and internationally

- A research data collection tool
- A data mining tool
- Benchmarking/comparisons between individuals and Practices

2.4 Problems of Performance Indicators

- Fragments an otherwise “Holistic” profession
- Poor quality data difficult to assess
- Case complexities and severities difficult to match to quality of care levels
- GP’s ethos of professionalism infiltrated with consumerism
- Information Technology does not have the readymade infrastructure to capture data, hence often manual extraction is required, and this is time consuming
- No perceived cost benefits
- Defocus on areas of care not assessed
- Encourages data manipulation
- Loss of public confidence if poor results published

2.5 Criteria for Performance Indicators

- Valid
- Reliable
- Acceptable
- Feasible/Measurable
- Sensitive
- Must cover a broad range of and aspects of care

CHAPTER 3: Data

3.1 Introduction

The change from paper based to electronically stored medical records presents a fundamental change to health professionals as to how they manage their clinical information. In Ireland, however, the benefits of having quality data within a patient's Electronic Medical Record within primary care has not been fully realised or exploited. These benefits include good clinical governance, quality improvement, research and administration, as well as associated cost reductions and savings. *Clinical governance depends crucially on the availability of high quality clinical information.* [27]
Clinical and administrative data is used as the basis for evaluating and monitoring the quality of healthcare. Electronic Medical Record Systems (EMRS) store a huge amount of this information. This data is invaluable for health policy makers and clinicians, and also for research purposes. However, one of the major obstacles is the accessibility of this data. *Inclusion of evidence-based performance indicators into the EHR will likely improve the quality of care measurably.* [28]

But not all Primary Care Practices are computerized, and the ones that are often have an unstructured way in which they store and collect data, and this presents problems for extraction for research and other purposes. Gaps in data placed in incorrect fields and non-standard work practices can also hinder accurate evaluation. Therefore, the completeness and correctness of the system data must be assessed prior to any evaluation *Data are usually collected and stored in an unstructured way, and not easily accessible for research purposes.* [29] In Ireland, none of the patient management systems have automatic data extraction tools as part of the software, so that the data within the EMRS can be analysed with ease. Data can neither be exported smoothly to a stand- alone reporting module to be analysed in either spreadsheets or other statistical programs. In the UK such a tool is MIQUEST[30] software and it is widely used there.

---

[27] Krish Thiru et al, *Systematic review of scope and quality of electronic patient record data in Primary Care*, BMJ Volume 326, 17th May 2003
[28] West et al: *Reflections on the use of Electronic Health Record Data for Clinical Research,* Health Informatics Journal 2009, Vol 15(2): 108-121
[29] *Towards Performance Indicators for the Health Care Sector*, Jan Luiysterburg et al (2008)
[30] www.clinical-info.com.uk/miquest.htm.

Data is used to define Health Indicators for performance. *EMRSs are a rich source of information for evaluating healthcare interventions including policy reforms and greater use should be made of this resource.* [31]

Due to weakness in data quality, evaluation of a practice can be difficult. The degree of both the correctness and the completeness of data in the EMRS are very important. *These measures are viewed as complementary; both measures are necessary for a complete understanding of accuracy in a system*[32] Both coding omissions, non-standardization of coding, and coding errors can give an incorrect assessment. *While greater standardization of coding should improve data quality, differences among physicians in diagnosing disease will continue.* [33] Proper coding can also significantly reduce the cost of data collection. In a study for assessing diagnostic data quality in practice for COPD carried out in the Dept of Primary Care informatics, St. Georges Hospital Medical School in 2004, the following were the principal findings: *Incorrect coding was as big a problem as was coding omissions. There were also problems of data inaccuracy and incompleteness*. [34] This also presents a problem for disease management, statistics and research. *Data are usually collected and stored in an unstructured way, and not easily accessible for research purposes.* [35] Health Promotion, for example, needs the backup of Life Style data, but this is rarely completed within the EMRS. Lifestyle data should be extractable from health education programmes. This currently is poorly completed. *Health education programmes endeavour to reduce life-style and environmental risk factors deemed responsible for specific diseases.*[36]

---

[31] *Using electronic medico records to evaluate health care interventions,* Health Informatics Journal 2001: 7, 96

[32] Hogan et Wagner, *Accuracy of Data in Computer-based Patient Records,* J Am Inform Assoc. 1997:5:342-355

[33] L.L. Roos et al : *Data quality in an information rich environment: Canada as an example,* Canadian Journal on Aging Vol: 24, suppl.1 (2004), Page 164

34 Faulconer, E, de Lusignan S, An eight-step method for assessing diagnostic data quality in practice: chronic obstructive pulmonary disease as an exemplar, Informatics in Primary Care 2004;12:243-53

[35] "Towards Performance Indicators for the Health Care Sector" Jan Luiysterburg et al (2008)

[36] David Buck et al, *Performance indicators and health promotion targets* The University of York, Discussion Paper 150 (1996), Page 9

3.2 Electronic Health Record Data

The electronic Health Record consists of both structured and unstructured data. Structured data, is present in medications, diagnostic tests/results and problem lists, if coded. Unstructured data is such things as GP notes, radiology results that are recorded in free text. The usability of this unstructured data in terms of research is limited. The variations in how the EHR is constructed vary across the different software providers. In different health care settings, needs and information varies also in accordance with the service provided. *The quality of data in general within practice clinical information systems varies enormously. This is apparent in the difficulty in automating the audit process and in comparing aggregated data from different practices.* [37] The GP Summary component of the NHS Summary Care Record (SCR) in the UK has recommended standards and the data contained therein must have the following attributes:

- Accuracy
- Completeness
- Timeliness (up to date)
- Safety
- Relevance
- Consistency, that is, medication lists and clinical diagnoses should be compatible
- Appropriateness

Health data is dynamic and needs to be constantly reviewed and updated.
To facilitate comparisons of data quality across sites and systems, it is essential to have a reference standard. [38]

[37] Thiru Krish, et al, *Three Steps to Data Quality,* Informatics in Primary Care (2003) 11: 95-102
[38] Krish Thiru, Alan Hussey,Frank Sullivan: *Systematic Review of Scope and Quality of Electronic Patient data in Primary Care,* BMJ: May 17, 2003;Page 1072

3.3 Data Categories

Data can be divided into the following categories:

- Diagnostic data
- Prescription data
- Clinical measurements
- Risk Factors

3.4 Usage for Data Categories

Diagnostic Data

- Prevalence and incident rates of diseases
- Epidemiological Studies
- Clinical Trials

Prescription Data

- Validation of diagnostic data
- Primary pharmaco-epidemiology studies
- Assessing disease severity

Clinical Measurements

- BP, Weight, Height, BMI – data useful for clinics, for example for BP Control

Risk Factors

- Smoking, Alcohol, Family History, Age, Sex etc, are all important variables for interpreting research findings

How recently data is updated is a measure of its timeliness and is more likely to reflect a more accurate state of that person's health

CHAPTER 4: International Bodies and Research Projects

4.1 WORLD HEALTH ORGANISATION (WHO)

WHO published its World Health Report 2000 which assessed health system performance in 191 member countries, outlining evolution, goals and functions of these systems, then proposed and developed a performance framework to help member states to measure their own performance. The WHO Health System Performance Assessment Framework was established with the main goal of health improvement through quality and fairness delivered responsively. WHO launched the World Alliance for Patient Safety in 2005, under the auspices and collaboration of the 'Joint Commission' and the 'Joint Commission International'. In its May 2007 statement on patient safety the WHO spoke of *good process design to support systems that will minimize risks and promote patient safety and prevent medical errors.* [39]

4.1.1. Enhancing Health Systems Performance Initiative (EHSPI)

The Enhancing Health Systems Performance Initiative [40] (EHSPI) was established in 2001, under the auspices of the WHO to improve and manage performance. It has both global and national objectives. It aims to bring countries, research institutes and other International organisations together for policy debate to have a better understanding of health system performance. One of its 6 sub-functions is performance assessment, and developing systems to monitor performance that would link in to Health Information Systems. It will also provide an evidence base to assist countries in improving their health system.

4.2 Organisation for Economic Co-Operation and Development (OECD)

The Organisation for Economic Co-Operation and Development was established in Paris on 14th December 1960). The OECD while adopting many aspects of the WHO Health System Performance Framework has 3 main goals:

[39] World Health Report 2000: *Health systems: Improving Performance*, Geneva: World Health Organisation 2000)
[40] www.who.int/health-systems-performance

- Health Improvement and outcomes
- Responsiveness and Access
- Financial Contribution and Health Expenditure

The frameworks 4 main dimensions of performance are:

- Health Improvement and outcomes
- Responsiveness
- Equity (health outcomes, access, and finance)
- Efficiency

The OECD sees Performance Indicators as being related to Health outcomes and expresses this is a measure of effectiveness. The processes that are to be measured are highly outcome correlated, covering such things as morbidity rates, vaccination and screening rates. A database is linked intra-country so that factors influencing poor performance can be identifiable, investigated and analysed thus providing benchmarking for global improvements. Performance of Health systems within the areas of quality, policy-making, and technology, will hopefully go some way towards standardisation of concepts and definitions that are at present highly fragmented.

Both the WHO and OECD frameworks encourage international comparability, but the non-medical determinants of health are not well reflected in either the WHO or OECD frameworks. The OECD did, however, undertake a structured review in 2008 of all surveys carried out from 1997 by EU and OECD member countries, regarding patient experiences and satisfaction relating to healthcare. Such surveys are seen as having an important contribution to the analysis and comparison of health care quality internationally. Ireland has not participated in many of these surveys unfortunately, but was included on one such survey in 2004 regarding Primary care. This survey was conducted by NIVEL[41] , Netherlands Institute for Health Services Research, Utrecht. The objective of this survey was to compare healthcare quality in Primary Care across

[41] Wienke G.W. Boerma, *Profiles of General Practice in Europe: An international study of variation in the tasks of general practitioners.*(2007)

12 countries. 'Profiles of General Practice in Europe', an International study of the variations of tasks of General Practitioners, was also carried by NIVEL in 2007. This study looked at the role of general practice. It also reviewed the quality of care from the patient's point of view, and through data analysis assessed the actual care given.

4.3 Health Care Quality Indicators Project (HCQI)

Launched in January 2003, HCQI is a Health Care Quality Indicators Project with 23 OECD countries involved, and is in partnership with the WHO, European Commission, and expert organisations such as the International Society of Quality in Healthcare (ISQua), and the European Society for Quality in Healthcare (ESQH), and several universities. Its aim is to develop and implement quality indicators at international level that target the quality of care across member states. Ireland is one of the participating countries. What was also considered in this project was the financial and administrative burden of collecting data for the purpose of influencing quality through performance management. Also the technical process of Clinical Primary Care was a focus for this project, and was considered to be an area that needed to be developed.

4.4 European Society for Quality in Family Practice (EquiP)

EQuiP[42] is one of the organisations attached to WONCA (Europe). [43] The European Association for Quality in General Practice/Family Medicine, aims to identify methods already used to improve quality of care in General Practice and to develop scientific valid methods to fulfil this task. It provides a trans-Europe forum where expertise and methodology can be shared. It promotes projects that are concerned with the performance improvement of General Practitioners through the setting of targets that reflect good clinical practice that is patient centered. EQuiP is also involved with developing quality indicator tools such as the Europep, European Practice Assessment (EPA), and the International General Practice maturity Matrix (IGPMM). EQuiP aims to make these and other tools available to GP's.

[42] www.equip.ch
[43] http://www.woncaeurope.org

4.5 European Practice Assessment Project (EPA Project)

This was another project [44]that was carried out with international collaboration and under the management of EQuiP. It won the "European Health Award 2009" presented at the European Health Forum Gastein (EHFG). The EHFG was founded as a discussion forum for stakeholders involved in healthcare within the EU and WHO countries. It was launched in 1998 with financial support from the European Commission. The six countries involved in the EPA project, along with the UK, were Belgium, France, Germany, Netherlands and Switzerland. The project started in 2002 and finished in 2004. Its aim was to produce a set of quality indicators for assessing both the quality and management of primary care services but more specifically of General Practices. The objectives were to evaluate both the feasibility of collecting the information required for quality indicators, and to access their validity across countries, comparing performance within each country. An international usable tool was finally developed to help practices identify areas for improvement and thus this would enable cross-country comparisons. The current version contains 199 quality indicators that would assist the management of quality in medical practices throughout Europe. One of the five elements specified is the 'Evaluation of Performance', and the indicators associated with this are as follows:

- Self-assessment
- Staff questionnaires
- Patient questionnaires (EUROPEP – Instrument)
- Practice Inspection
- Interview with practice manager and/or GP done by the Visitor

This EPA Instrument is being further developed and tested in the areas of Cardio-vascular Prevention and Risk Management within European Primary Care.
In the Netherlands, the EPA indicators are part of the national accreditation programme for GP's. In Germany about 900 practices use these indicators. The 'TOPAS-Europe Association' was founded in 2005 by the countries participating in the pilot study. Its

[44] www.ru.hl/topas.europe/index.php)

aim is to promote the use of the EPA Instrument by coordinating all associated EPA data collection and publications, and also to exchange experiences from users.

4.6 International General Practice Maturity Matrix (IGPMM)

An international version of the tool originally developed in the UK, this had been developed under the auspices of EQuiP and the Scientific Institute for Quality of Healthcare (Radboud University, Nijmegen. Its main function, being to assess and promote organisation development within primary care practices. There are 7 dimensions used for benchmarking practice development, and scoring is on a six- point scale. The 7 dimensions are as follows:

- **Using Information**
  Use of journals, guidelines, latest evidence and the communication of this to other staff members

- **Using patient data**
  Managing patient information, how it is stored, coded, retrieved and analysed

- **Managing staff**
  Recruitment, training, appraisals

- **Working as a team**
  Engagement, commitment, openness, communication

- **Listening to patients**
  Patients' complaint handling process, analysis and use of this data

- **Improving the practice**
  Use of projects to improve care process, audits and practice standards

- **Operating procedures**

  Documentation and observation of practice procedures

4.7 EUROPEP Instrument

This instrument was developed during 1995 to 1998 by researchers and General Practitioners working under the auspices of EQUIP. It is used in 20 countries to measure quality of general practice care from the patient's view- point. It consists of 23 items to measure patients' evaluations using a standard that is internationally validated.

4.8 European Union Network for Patient Safety (EUNetPaS)

This is a project funded and supported by the EU within the 2007 Public Health Programme. It was devised by the HAS, the French Health Authority. Its purpose is to promote and encourage patient safety within the 27 member states. Ireland is involved in 2 projects – medication safety and education and training, through its quality-monitoring agency HIQA. EUNetPaS was launched in Feb 2008 in Utrecht, bringing together the medical community (doctors, nurses, pharmacists, hospital managers, patients' associations etc) with institutional representatives (for example, members of national bodies and health ministries), it aims at a cross pooling of expertise and experiences.

Its main objectives are:

- A European curriculum of continuing and higher education based on the criteria of patient safety
- A database of all reporting and learning systems in member states
- Medication Safety – best practice guidelines

4.9 Primary Health Care Activity Monitor for Europe Project (PRAMEU)

Organisations and Institutes from ten EU member states make up this project that is run under the auspices of NIVEL (Netherlands Institute for Health Services Research) and funded by the European Community under the Public Health Action Program (2003-2008). The PHAMEU project is operating from 1 November 2007 until 1 November 2010.The project aims to monitor and get information about, all Primary Health Care

systems across the 27 EU member states, one EU candidate country (Turkey), three members of the European Free Trade Association (EFTA) (Iceland, Norway and Switzerland), 31 countries in all. Data will be collected twice, measured and compared, to ascertain both the drivers of good primary care, and the state of development of Primary Care across the member states. Experts from institutes across the member states will develop indicators for monitoring Primary Care in 31 European countries based on this data.

4.10 Care and Health Analysis in Real Time (CHART)

This is software used in UK to help practices to identify areas for improvement and development. It analyses data on their clinical software systems.

4.11 Primary Care Information Services (PRIMIS +)

Primis + is part of the NHS Information Centre. It is a free service to Primary Care Organisations in the UK to help them improve patient care through the effective use of their clinical computer systems. It also provides analytical tools and national data analysis services so that completeness and consistency of data can be assessed. It provides training on the use of data, together with support to improve data quality.

4.12 Morbidity Information Query and Export Syntax (MIQUEST)

This is a software tool used in the UK for collecting data from GP Computer systems. Data is collected via a query language. As part of the requirements for Accreditation for General Medical Practice Computer systems, GP Clinical systems must incorporate a MIQUEST interpreter. No such accreditation criteria exist for GP practice systems used in Ireland.

CHAPTER 5: PERFORMANCE INDICATORS
An overview of six countries

5.1 UK

5.1.1. Introduction

The UK has a 'managed care' system like Ireland, *a philosophy in which the goal is a system that delivers quality, cost effective health care by monitoring and recommending utilization of services, and controlling cost of services.* [45] GP's are the 'gatekeepers' to secondary care. Since the 1980's there has been more emphasis on Primary Care. The introduction of a new GP Contract in 1990 made GP's more accountable to the family Health Service Authorities (FHSA), and the District Health Authorities (DHA). Screening and Preventative Services targets were monitored through reports that GP's had to produce annually. Payment incentives were offered where performance was improved. The average size practice consists of 3-4 GP's with 45% of GP's work in groups comprising 5 doctors or more. Approximately 8% of practices are single-handed unlike 62% as is the case in France.

However, in relation to Performance Indicator initiatives, the UK is quite some years ahead of Ireland. The UK first developed PI's in 1982 – 1983. PI's were first introduced for Administrative and Hospital Data. The UK's system went from basic data presentation to the form of league tables, which eventually went into the public domain, and then were regulated by newly created institutions. Financial incentives were offered to meet targets. During the 1990's PI's were extended to GP's. Between the years 1997 and 2002, new plans were instigated for a National Framework for Performance, assessment, management, accountability and quality of care, with the introduction of Primary Care Trusts (PCT) in 2002. At the present time the NHS Performance Assessment framework (PAF) is a unified system of measurement, assessment and reward for Primary Care. Their PI's set are continually updated and improved. PI's embrace, effectiveness, appropriateness and timeliness of care that complies with agreed standards. They are measures of processes and/or outcomes, using the SMART paradigm of Specific, Measurable, Achievable, Relevant and Time-limited.

[45] McGraw-Hill Concise Dictionary of Modern Medicine , *Managed Care* (2002)

Other support UK healthcare agencies operating at present are:

- National Patient Safety Agency
- National Clinical Governance Support Team
- General Medical Council
- National Clinical Assessment Authority
- National Benchmarking Service

Organisations that are under performing are inspected biennially, and the published performance information is accessible by the public.

5.1.2 Primary Care Groups

The introduction in 1999 of Primary Care groups in the UK was brought in with the following statement from the UK Government: *Primary Care groups will need to demonstrate that they have a systematic approach to monitoring and developing clinical standards in Practices.* [46] McColl et al (2000) defined the relationship between PI's and clinical governance in a paper, *Clinical Governance in Primary Care Groups: the feasibility of deriving evidence-based performance indicators.*[47]

One of the functions of these groups is to monitor performance. The relationship between clinical governance and performance indicators to monitor and safeguard standards has long been recognised, and thus promoting the use of interventions that are evidence based in order to improve quality. This brought GP's and Community Nurses together with the objective of improving health. One of the many functions of these groups is to monitor and improve performance. This was to be achieved not only through better care co-ordination across services and practices, but also through more close involvement with the Health Authority's health improvement

---

[46] NHS: White Paper: The New NHS Primary Care Groups, Primary Care Act Pilots,(1997) **5**:5.34:9-10

[47] McColl et al, *Clinical governance in primary groups: the feasibility of deriving evidence-based performance indicators*, Quality in Health Care 2000;**9**:90-97

programmes. Since then, the UK Government is developing National Service Frameworks to improve the quality of care.

In November 1998 and May 1999, fifteen GP Practices took part in a qualitative study regarding their views on the use of evidence-based performance Indicators in Primary Care. Mixed views emerged, with the most common concerns being as follows:

- Increase in workload
- Reductions in professional autonomy and trust
- Financial penalties based on performance in areas beyond the control and scope of their profession
- Short term expectations of improved quality in care

The perceived advantages included:

- The capacity to monitor important areas of care
- Improved efficiency
- Facilitating up-to-date clinical practice [48]

Computer related difficulties and data handling and entry problems also came out as being of high level concern. Problems such as loss and corruption of data, inconsistency in recording data, variations and non-standardised computer use, were noted within the practices. Coding problems together with poor computer skills and minimal training also proved to be the trigger for non-compliance. Both gaps and non-uniformity in data recording highlighted areas where the quality of care could be improved and also areas where patient safety was compromised. This study also showed that *better computerised practices are in a more advantageous position to improve their data systems, or may simply be more motivated to do so.* [49]

[48] www.qualityhealthcare.com page 170
[49] www.qualityhealthcare.com page 173

The Healthcare Commission published its third set of ratings for Primary Care Trusts (PCT) on 16th June 2005. This focussed in Access, Death Rates, Screening, Vaccination, Immunisation, the Patient Experience, Patient surveys, Risk Management, Sexual Health.

5.1.3 National Primary Care Research and Development Centre

The National Primary Care Research and Development Centre [50](NPCRDC) was established in 1995. It is run by a joint collaboration between the universities of Manchester and York. It carried out research relating to quality of care in general practice, and reviews deficiencies also in clinical and policy agendas that form part of their health system, being concerned mainly with issues pertaining to quality, organisation, workforce and self-management. It has done much research into the development of indicators for use in Primary Care. One such project undertaken between 1982 and 2006 was carried out with joint collaboration with researchers from the Dutch Centre for Quality of Care Research (WOK) at Nijmegen University. Using 139 Clinical Indicators extracted from 70 Dutch National Guidelines, consultation data was extracted from an electronic records system and its adherence to these indicators was examined. Thus measures of quality were extracted under various subheadings such as Prescribing, Referral etc, and duly rated. This project mainly looked at secondary care, though Primary Care was also looked at. The study sought to look at the development of performance systems within the healthcare systems.

In 2003 another joint project "Measuring General Practice" was commissioned by the Nuffield Trust, and RAND, Santa Monica, CA. USA. Its purpose was to develop and test a set of Primary Care Quality Indicators. A US set of indicators was tested on 1600 randomly selected patients' records in 16 general practices.

[50] www.npcrdc.ac.uk

Data was manually extracted from paper and electronic records. The following findings were noted:

- In terms of availability and accessibility, data was of poor quality, and this was an obstacle to quality assessment
- It was noted that transferring primary care quality indicators between countries should firstly be subject to tailoring for that countries particular health system, clinical practices and cultures
- Quality indicators have an important role to play in performance management, but issues such as access and inter-personal care should also be addressed
- Information systems and technology needs to be updated to produce assessment that is reliable and valued

Other areas need to be represented such as:

- Quality of inter-personal care
- Primary Care relationships with other services
- Patients experiences of care (survey)
- Organisation and delivery of services
- Cost effectiveness

The NPCRDC were amongst the first to assess the actual success of PI's in the NHS and argued that *"the imposition of PI's had resulted in favourable results*".

5.2 NETHERLANDS

5.2.1 Introduction

GP's unlike in France are the gatekeepers to specialist care, with 6% of all contacts referred to specialists. The Nivel report, "Profiles of general practice in Europe" found

relatively low scores for disease management (by GPs) in the Netherlands. [51] Prescriptions are issued in only two thirds of contacts.[52] GP's are assessed every 5 years for their continued registration, and both their continued professional education, and their experience, is taken into account. Netherlands, although the formalised concept of PI's was not in place as early as UK, still had regulated competition introduced in some form from 1988 to 1994. From 1996, there was a requirement to have quality management systems in place following a critical report published in 1999 by the Dutch Audit office. This led to the development of PIs. These were first published in 2003, and have been updated every year since. These PI's are to be used across every sector of healthcare to include patients, insurers, GP's and hospitals. It is intended that a further 500 PI's would be developed by 2013

5.2.2 Dutch Health Care Performance Report

The Dutch Health Care Performance Report (HCPR), submitted in draft form to the Minister in May 2006, an example of performance measurement. The underpinning catalyst for this report was to support a new Health Care system that promoted *quality, accessibility and affordability.* [53] This report outlined the main challenges facing the health care sector as being *to provide the government and other actors involved, plus the public, with a transparent picture of the quality of care.* [54] The report in its section, "Insight into the Quality of Care", went on to say "*many obstacles associated with the development and application of PI's remain to be overcome*", and "*much remains to be done before the Indicators concept can be optimally applied for the assessment of performance in the Netherlands' Health Care system*", and more importantly it states, *" It is certainly no longer acceptable NOT to measure performance"*

51 Wienke G.W. Boerma, *Profiles of General Practice in Europe, An international study of variation in the tasks of general practitioners.* NIVEL, (2003)

52 Krish Thiru, Alan Hussey,Frank Sullivan: *Systematic Review of Scope and Quality of Electronic Patient data in Primary Care,* BMJ: May 17, 2003;Page 1071

53 Care for Health, *The 2006 Dutch Public Health Status and forecasts Report* (A.E.M de Hollander, N. Hoeymanss, J.M. Melse, J.A.M. Van Oers, J.J.Polder, executive editors

54 Care for Health, *The 2006 Dutch Public Health Status and forecasts Report* (A.E.M de Hollander, N. Hoeymanss, J.M. Melse, J.A.M. Van Oers, J.J.Polder, executive editors (page 18, Lines 1-2)

During the period 1999 – 2003, Health Care spending rose by almost 10% p.a., but GP Care only absorbs 3.7% of this budget in the Netherlands.

The report outlines obstacles for the application of Performance Indicators. These are:

- Data that is neither standardised or comparable
- Data not of sufficient quality
- Considerable financial implications
- Administrative Implications

An e-charter gives service users the right to access performance information.

5.3 CANADA

5.3.1 Introduction

The healthcare system is primarily publicly funded and privately delivered. Doctors are organised in private units run by independent health professionals on a contractual basis, as they are in the UK and the Netherlands. Health expenditure rose from 9.2% of GDP in 1998 to 10.7% in 2008.

5.3.2 Accreditation Canada

Accreditation Canada,[55] it is a not-for-profit organisation. It was formerly the Canadian Council on Health Services Accreditation (CCHSA) founded in 1958. It officially became Accreditation Canada (AC) on 8th May 2008.It is responsible for ensuring that standards, indicators and instruments are kept up-to-date, and reflect evidence based knowledge and practice. It forms a bridge between healthcare suppliers, users and providers with the Canadian ministries of Health. ISQUA standards are upheld and it is committed to improving the quality of healthcare. Qmentum, a new accreditation program was launched in 2008 by Accreditation Canada. This program can evaluate

[55] www.accreditation.ca

and measure performance of clinicians and administration staff against national standards. It also has quality improvement initiatives and self-assessment on-site survey processes incorporated. It is in partnership with other healthcare agencies such as "The Canadian Patient Safety Institute", and "The Institute for Safe Medication Practices". Twenty five "Required Organizational Practices" (ROP) were developed to enable Health Care organisations to make patient safety improvements. There is also a Canadian Adverse Event Reporting and Learning System (CAERLS). Accreditation Canada is also developing a new International accreditation Program, Qmentum International, and has a pan-global advisory team to support this venture. Qmentum International is an on-line accreditation application tailored for the use of international clients. It is performance, service, and client focussed. It was developed through consultation with an advisory group representing the Middle East, the Caribbean, South America, and Europe. This Primary care services standards focus on *"maintaining accessible and efficient clinical information systems"* and *"monitoring quality and achieving positive outcomes*". Standards are due to be published in 2010 and put into use following a pilot testing of the draft set. Accreditation Canada sees the need for a more widespread implementation of medication reconciliation so that an accurate list of medications follow the patient at every point along the healthcare journey and process so that medication errors can be reduced.

5.3.3. Canadian Health Information Roadmap Initiative Indicators Framework

Health system performance is part of the Canadian Health Information Roadmap Initiative Indicators Framework. (CHIRIIF) The domains covered in this Framework are as follows:

- Acceptability
- Accessibility
- Appropriateness
- Competence
- Continuity
- Effectiveness
- Efficiency

- Safety

5.3.4 Canadian Council on Health Services Accreditation

Canadian Council on Health Services Accreditation (CCHSA) – its aim is to stimulate the integration of the PI Framework.

Achieving Improved Measurement (AIM) is an accreditation program run by CCHSA that enables benchmarking between organisations.

5.4 AUSTRALIA

5.4.1 Introduction

The health service is organised through a mix of funding that is both public and private. In 2003, two new bodies were established to provide direction on information management and technology in healthcare. These are the Australian Health Information Council (AHIC), and the National Health Information Group (NHIG). In Australia 86% of GP's are computerized according to a report by Western et al (2003). The Practice Incentive Program (PIP) gives financial assistance towards the implementation of information technology systems as a means of improving quality and accountability. As a result of this, the number of GP practices who were computerized rose to 95% by December 2004. However, two-thirds of GP Practices are solo practices. In 2001 -2002, Service Incentive Payments (SIP) were introduced to target chronic diseases such as asthma and diabetes. The enhanced Primary Care (EPC) scheme introduced in 1999, improves the delivery of chronic disease care through a co-ordinated multi-disciplinary approach. The health service is organised through funding that is a mix of both public and private.

5.4.2 Quality and Safety Organisations

Quality and Safety is managed by various organisations that are responsible for delivering and monitoring for improvement. These are:

- National Health Priority Action Council (NHPAC)
- National Institute of Clinical Studies (NICS)
- Australian Council for Safety and Quality in Health Care (ACSQHC)
- Australia Council on Health Care Standards – This is a non-profiting making, independent organisation that undertakes performance assessment and Accreditation. The Quality Improvement Council does likewise.

5.4.3 National Health Performance Committee

In 2000 National Health Performance Committee (NHPC) commenced work on the new Australian Health Performance Measurement Framework, which they adapted from the Canadian Roadmap (CHIRIIF).

This framework has three tiers:

1. Health status and outcomes
2. Determinants of Health
3. Health system Performance

Performance of health systems is based on 9 dimensions in Australia:

- Effectiveness
- Appropriateness
- Efficiency
- Responsiveness
- Accessibility

- Safety
- Continuity
- Capability
- Sustainability

It should be noted that sustainability is not included in the Canadian list of dimensions.

Criteria employed for the selection of PIs is that they must be:

1. Comprehensible
2. Actionable
3. Relevant
4. Timely
5. Collectable
6. Reportable

Financial Incentive schemes for National Initiatives are in operation.

5.5 USA

5.5.1 Introduction

Health system is operated with mostly private funding with state and federal regulation. Development, analysis and reporting of PIs have been in existence for some time now within the healthcare networks. There is no actual national performance indicators framework, and what is in situ are still in the development phase. One widely used indicator set but non-national is Health Employer Data Information Set (HEDIS). HEDIS was developed by the 'National Committee for Quality Assurance' (NCQA). HEDIS have developed a set of care effectiveness indicators, and these are widely used for reporting on PIs. It is also used for accreditation purposes in USA. PIs are used both as a public accountability tool and as an economic accountability tool. The Institute of Medicine (IOM) has proposed a framework for national system improvement categorized under 6 headings:

1. Safety
2. Effectiveness
3. Patient-centeredness
4. Timeliness
5. Efficiency
6. Equity

5.5.2 Institute of Medicine

The National Quality Measures Clearinghouse maintains a national repository of Indicators (NQMC) that is kept up to date by the agency for Healthcare Research and Quality.

5.5.3 RAND

RAND is the leader in the field of measurement technologies for the past 30 years. It is a non-profit institution that has developed a set of clinical quality indicators for use in the USA. Its aim is to improve health policy and decision making through research and analysis.

5.6 FRANCE

5.6.1 Introduction

The Health system in France is non-competitive based and with strong central government. In 2000, the healthcare system of France as ranked by the WHO as being the best in the world, but due to its non-competition base, France has had a slower reform pace compared with other EU countries.

Doctors delivering Primary Care are self- employed but practice within the framework of national agreements signed for 4-5 years. Health centres in France account for a very

small part of the healthcare supply market. Only 39% of Doctors are involved in group practices, compared with 30% in the early 1980's, and these practices are mono-specialist, that is, they carry out the same discipline without the support in the practice of other types of medical specialists. Just over half of these doctors have only one partner. 25% of their work is home visits. Each GP sees 1,400 different patients and carries out 4,800 consultations per annum. As patients are free to consult any doctor, the medical records, as a result, tend to be rather dispersed and fragmented. No referral from a GP is required to see a consultant. In April 1996 following on from the Juppe plan which gave more resources to the evaluation of the quality of care, the National Agency for Accreditation and Health Care Evaluation [56](ANAES) was formed. This is responsible for clinical practice evaluation. It publishes recommendations and practice guidelines (RMO), to which Doctors must comply. There are 200 recommendations for GP's alone in areas that include prescribing behaviour and continuous medical education (CME), known as FMC in France. Doctors attending CME courses are paid an allowance. It was made compulsory to attend these courses since 1996 unlike in Ireland where legislation has only just been passed in April 2010. In 2002, with the Act on Patients' Rights and Quality of Care, the evaluation of professional practices was introduced.

Results published for Frances's V2 Accreditation, a program that accredits Healthcare organisations, showed that problems with treatment plans, risk management and drug management were areas in need of attention. Improvements were also required with patient records, continuity of care, and the management of logistic and support functions.

5.6.2 ACC

In 2004 ACC (Targeted Clinical Audit) was introduced. This is a tool to manage quality and competencies. It represents a potential to improve clinical practice and for improved patient safety. ACC is a method of improving the overall quality of care.

[56] www.anaes.fr

5.6.3 HAS

On 1st January 2005 the HAS (Haute Authorité de Santé) was established. The mission of HAS mirrors that of NICE, UK (National Institute for Health and Clinical Excellence) and QEIG, Germany **(**Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen). Two-thirds of the listed chronic conditions had guides for Doctors published by the end of 2007, and are available on-line. HAS also publishes guides for patients with chronic conditions such as anxiety disorders, MS, Schizophrenia, Parkinson's Disease, Viral Hepatitis B and C, Epilepsy, Types 1 and 2 Diabetes, Coronary disease, Stroke, Asthma and others.
It is responsible for:

- Accreditation of Healthcare Organisations
- Chronic condition and clinical practice guidelines
- Development of quality indicators V2010, a new accreditation procedure
- Continuing Professional Development (CDP). This focuses on continuous quality improvement (CQI)

The main aims of HAS are:

- Quality to be part of Healthcare system regulation
- Improved quality of care and safety for patients
- More patient involvement in their own care

Once areas are identified that need improvement, HAS then incorporates indicators that make assessments based on guidelines. Appropriate CPD programs are also put in place to promote improvements. There is also a scheme for certifying hospital doctors, and this includes the reporting and analysis of 'near-misses'. HAS also co-operates with other national regulators such as HIQA (Health Information and Quality Authority),

NBH (National Board of Health) in Denmark, and AHTAPOL (Agency for Health Technology Assessment) in Poland.

SIAM is the French system for the certification of doctors and medical teams to improve quality of care and clinical practice. The HAS contains a special department dedicated to "Practice Assessment and Improvement" and one to the "Development of Accreditation" both reporting to its "Division for the Improvement of Quality and Safety of healthcare" (DAQSS). HAS stated in its 2007 report that *practice appraisal measures are needed to promote the safest possible care* [57]

Medical Sales representatives in France also have to be certified and need to comply with a certain code of practice for all activities in the Primary Care sector. Drug companies must use a set of benchmarks when appraising the practice of medical sales representatives.

5.6.4. EUNetPas

The EUNetPas project was devised by the HAS, and accepted in the EU in December 2007. The HAS is now in charge of co-ordinating and running this project. A national contact point (NCP) was set up in each member state. The scope of this project covers:

- Patient safety
- CME (Continuing Medical Education)
- Database on reporting and learning systems in member states
- Medication safety

5.6.5 INSERM

INSERM (French National Institute for Health and Medical Research) is in partnership with EUNetPas regarding communication of the results of this project.

[57] HAS Report 2007

CHAPTER 6: Ireland

6.1 Introduction

In the 10 years between 1995 – 2005 Ireland's Health Expenditure per capita was 7.2%. This is very much in excess of the EU average of 4.0%. Ireland spends 7.5% of its GDP on healthcare compared with the OECD average of 9%. The Central Statistics Office (CSO) forecasts that the number of persons aged 65+ will rise from 462,400 in 2006 to almost 1,434,400 in 2041 due to progressively increasing life expectancies. It is also forecasted that during the same period the number of people over the age of 85 years will raise five fold. This, of course, will put extra pressures on the health service. The aim is to make Ireland's health system more Primary Care driven. There are approximately 96, 000 people employed in the private health sector. There is a shift in focus of healthcare from the acute to Primary Care settings. According to the 2007 census, 60% of people over the age of 60 years have a long lasting health condition or disability many of which can be treated within the primary care environment. Other EU comparable statistics do not show Ireland in a favourable position regarding healthcare delivery. In 2006, for example, Ireland had the highest death rate from female breast cancer in the EU15. Ireland also had the highest death rate from all respiratory diseases in the EU27. Ireland also has the third lowest rate of child immunization against measles, with only 86.2% of children were vaccinated in 2006. According to the "EU survey on Income and Living Conditions – 2005", Ireland's alcohol consumption is one of the highest in the EU. One of the high-level objectives for the Dept of Health and Children 2005 – 2007 is "*supporting wider government programmes and International Health Policy", that is, representing Ireland's interest when health policy is formulated globally.*

6.2 Publications

6.2.1 Primary Care – A New Direction (2001)

Primary Care – A New Direction "Quality and Fairness – a Health System for you Health Strategy, was published in 2001 by the Department of Health and Children). In this report, Primary Care is documented as being *" a key component of the government's health strategy"* and "*the government plans to strengthen Primary*

Care so it can contribute further to the health of the population". It also acknowledges the central role of Primary Care for future development of Ireland's Health services with the following desired characteristics:

- Inter-disciplinary team based approach
- Improved access for all
- Improved links between Primary and Secondary Care
- Importance of disease prevention in Health Promotion

Some of the inadequacies, identified as being key challenges for the Primary Care system, were listed throughout the report as follows:

- Weak capacity for prevention and health promotion
- Limited team working
- Lack of quality assurance framework
- Limited information from Primary Care for planning, development and evaluation
- Electronic health records were to be developed as a platform for improving communication and the flow of information

It is these 5 points that will be addressed with more emphasis in the survey questionnaire to GPs.

It is estimated that there are 15-16 million consultations per year in General Practice, according to the report ' Primary Care, A new Direction'. It goes on to say that *there will be considerable investment in information and communications technology infrastructure. This will include the development of electronic health record based as a unique client number. The future aim is to bring some services such as aspects of specialist care such as diabetes mellitus, high BP Management, Hypertension, Asthma, out of the specialist area and into Primary Care.*[58]

[58] Primary Care, A new Direction, Page 24

The aims outlined in this report are as follows:

- Reduce hospital admissions
- Improve Efficiency
- Promote more rational prescribing

The information and communications technology that is required to support this objective needs to be invested in as a prerequisite to the roll-out of the model.[59] A National Primary Care Task Force is to be established according to this report to give leadership in *co-ordinating the development of quality initiatives in Primary Care* and *evaluating progress including an annual report on implementation, on the basis of an agreed set of performance indicators.* [60]

Most importantly, point 17 (page 39) states that *a framework for quality assurance in Primary care will be developed to provide for appropriate monitoring and evaluation of effectiveness and outcomes.* [61] This was to have been developed and agreed by the end of 2004. Also reference in this report is made to shortcomings in the present system of Primary Care, stating there is a weak capacity for prevention and rehabilitation, together with a lack of quality assurance framework. There is also a need to use the potential of ICT to effect all requirements for changes and improvements.

A comprehensive international evidence base is now available to assist in policy, planning and improvement of clinical care through the development of quality standards and accreditation in Primary Care.[62]

6.2.2 Department of Health and Children Annual Report 2008

The mission statement regarding improving the health and well being of people in Ireland was that high performance was the key. The mandate referred to,

[59] Primary Care, A new Direction, Page 32
[60] Primary Care, A new Direction, Page 34
[61] Primary Care, A new Direction, page 39
[62] Department of Health and Children Annual Report 2008

Evaluating the performance of existing policies and service delivery, and *to develop and refine a system of performance evaluation that helps the minister to assess the performance of the Health System.* Also *ensuring the fullest possible involvement by Ireland in the work of the EU and WHO and other international bodies in the area of Health and Children.*[63]

6.2.3 Deirdre Madden Report "Building a culture of Patient Safety" (2008)

This report was commissioned by, 'The Commission on Patient Safety and Quality Assurance'. It sets out to provide recommendations for a framework of patient safety and quality and to provide *clear accountability and reporting relationships with best practice led by international and national evidence.*[64]

Proposals included in this report included the following:

- All public and private healthcare providers to be licensed
- Patient safety incidents to have an open disclosure policy
- Clinical audit to be introduced for all clinicians working within both the public and private health care settings
- Focus on the area of patient safety by research education and training
- More patient involvement in planning and reviewing factors pertaining to the Health service and their care
- National quality and safety standards to be developed by HIQA and applied across ALL healthcare sectors
- National guidelines for Evidence Based Care to be developed and Implemented

The report states, *Performance Evaluation is a cornerstone of the improvement and more efficient delivery of health services.*[65]

[63] Department of Health and Children Annual Report 2008, Page 6
[64] Report of the Commission on Patient Safety and Quality Assurance, Building a Culture of Patient Safety (2008) Page V
[65] The Commission on Patient Safety and Quality Assurance (August 2008) Page 7

The report also points out, *most adverse events are a combination of both system and individual error*.[66] The Commission recommends involving *Patients, carers and service users as partners in healthcare.* It advocates the importance of having knowledgeable patients and to have *open communication with patients following an adverse event.* It is therefore important to have a policy in place within a GP practice to both capture and document this information and allow patients a forum to communicate and report on adverse events, and for adequate reporting structures to be put in place and monitored.

The main areas outlined in this report as needing to be addressed were:

- **Risk management**
  Frameworks required for lessening the likelihood of errors occurring

- **Participation of patients**
  Lack of structured incident reporting systems

- **Audit**
  There is an absence of an auditing procedure/process

- **Quality assurance systems**
  Required to monitor and evaluate care

- **Licensing**
  For both public and private health care facilities

- **Clinical governance and leadership**
  Insufficient regulation/weak governance structures

[66] Primary Care, A new Direction, Page 24

- **Evidence based practice**

- **Collaboration between healthcare regulators**

- **Medication safety**

- **Use of Information Technology**

A system needs to be put in place to monitor performance and evaluate care outcomes.

Clinical effectiveness includes establishing clinical standards, guidelines and indicators that enable healthcare professionals to monitor performance nationally using international parameters for comparison.[67]

Chapter 6 of the report 'Organizational and Professional Regulatory Framework' proposes that both public and private healthcare providers must be licensed with enforceable inspection and sanction imposition if necessary. Standards on safety and quality to be developed by HIQA to ensure that Heath Care providers not only adhere to these standards, and also they must be monitored in this regard.

The process of licensing would also include participation in systems of quality improvement and information management with mechanisms for patient participation and feedback. Participation in audit and adverse event reporting systems would also be a requirement. Risk management will also form part of this licensing process.

A framework of governance is proposed to audit issues of Access, Processes, Quality and Outcomes for patients. The report speaks out strongly for a standards based approach to Health Information Technology (HIT) with coding/classification, messaging and Electronic Health Record (EHR) high on the agenda - in the light of *significant system, management and clinical failures*.[68] The Deirdre Madden report

[67] Report of the Commission on Patient Safety and Quality Assurance, Building a Culture of Patient Safety (2008) Page 11

[68] Report of the Commission on Patient Safety and Quality Assurance, Building a Culture of Patient Safety (2008) Page 39

states that *Good management practice suggests that the performance of individuals and groups needs to be reviewed at regular intervals.*[69] The report also states *It is acknowledged that there are serious deficiencies in our current health system that must be dealt with.*[70]

"To Err is Human" Report (2000), from the American Institute of Medicine, concluded that medical errors are caused by faulty systems, processes and conditions. All three were highlighted in the Deirdre Madden Report.

6.2.4 HIT Report (2009)

The HIT Report (Health systems in Transition) Volume 11 No 4 2009, *Ireland Health System Review,* [71] was published by the European Observatory on Health Systems and Policies who work in partnership with the WHO and other international bodies and governments. It is commented on Page 104 of this report under the section Quality Assurance and Accreditation, that the 2001 Health Strategy had identified a number of weaknesses in the system including *inadequate and poorly integrated information systems to support the measurement of inputs and outcomes on a quantitative or qualitative bases within the health system.*[72] It further highlights inadequacies as being a *lack of an overriding national structure responsible for the development, dissemination and evaluation of the impact of agreed national quality protocols and standards.* [73]

[69] Report of the Commission on Patient Safety and Quality Assurance, *Building a Culture of Patient Safety* (2008) Page 67
[70] Report of the Commission on Patient Safety and Quality Assurance, *Building a Culture of Patient Safety* (2008) Page 47
[71] HIT Report (Health systems in Transition) Vol 11 No 4 2009, *Ireland Health System Review*, published by the European Observatory of Health systems and Policies, Page 104
[72] HIT Report (Health systems in Transition) Vol 11 No 4 2009, *Ireland Health System Review,* published by the European Observatory on Health Systems and Policies, Page 104
[73] HIT Report (Health systems in Transition) Vol 11 No 4 2009, *Ireland Health System Review,* published by the European Observatory on Health Systems and Policies, Page 105

6.2.5 An Integrated Workforce Planning Strategy for the Health Services (2009 – 2012)

This report outlines the *Reconfiguration of Services towards Primary and Community Care*.[74]

Two goals included in its recommendations are:

A health workforce based on the four principles of

- Patient/client focus
- Sustainability
- Availability
- Flexibility

Provide the tools and data systems to support a workforce planning function for

- Information Systems requirements
- Robust data collection systems

6.3 Governing Bodies

6.3.1 HSE

HSE was established on 1st January 2005. It has three areas of responsibility:

- Primary, Community and Continuing Care (PCCC)
- National Hospitals
- Population Health (promotion, prevention, immunization, infection control, environmental health)

The HSE implemented a performance information and improvement system called HealthStat. HealthStat gives detailed monthly results of performance information obtained from 29 teaching, regional and general hospitals and 32 Local Health Offices

[74] An Integrated Workforce Planning Strategy for the health Services (2009 – 2012), Page 5

(LHO). The results are published online on the HSE website. It measures performance under the heading of Access (waiting times for services), Integration (whether these services are patient centered) and Resources (use of staff and finance). There are no statistics included for GP's and the quality of Primary Care delivered in the private sector.

6.3.2 HIQA

HIQA was established on 15th May 200 under the provisions of the Health Act 2007. It replaced the Irish Health Services Accreditation Board that operated since 2001 as a quality assurance monitoring body using a voluntary process of Accreditation to achieve its objectives. Its functions are the following:

- Setting standards in Health Care that are meaningful, measurable, and deliver high quality and safe standards of care
- Monitoring Health Care quality and seeing that standards are met through investigative processes where required
- Social Services Inspectorate
- Health Technology Assessment
- Health Information

HIQA in its 2008 report stated that the overall picture of our Health service is one of :

- Fragmentation
- Lack of standards
- Has critical gaps

The report stated that [75]*Standards are required to support the interoperability of health information systems in order to facilitate efficient sharing of health information across the sector.*

[75] HIQA 2008 Report

A plan is in place to introduce a NHI (National Health Identifier). HIQA has established a national steering group to address shortcomings in Information standards. One of the areas being researched is Key Performance Indicators. The project will develop quality indicators and Key Performance Indicators for use in general practice in Ireland. It is stated in the HIQA report that where feasible, benchmarking will be carried out against international standards.

6.3.3 Medical Practitioners Act 2007

This act puts a statutory obligation on medical Practitioners to participate in competence assurance schemes that includes peer review and clinical audit.

6.3.4 Medical Council

The Medical Council was established by the Medical Practitioners Act 1978. The main function of the Medical Council is to maintain the registers of Medical Practitioners, and to review programs of education and training in order to ensure the professional competency of Medical Practitioners. They are also responsible for matters relating to medical ethics

CHAPTER 7: SURVEY

7.1 Introduction

A UK study in May 1999 showed that *better computerised practices are on a more advantageous position to improve their data systems.*[76]
To measure performance, policymakers and researcher need to form a clearer image of what it is they want to measure, and the key goals of Health Policy.[77]

A health performance framework covers all the inter-relationships between health, health care and non-health care factors. This is distinguishable from a healthcare performance framework that is concerned only with the delivery of care. Therefore, it is with the former model that my survey questions have been constructed.

It is proposed to rate the GP survey responses in the conclusion under the OECD headings of dimensions of Healthcare Performance which are as follows:

- Effectiveness
- Safety
- Responsiveness/Patient Centeredness
- Accessibility

The dimension of cost/expenditure is outside the scope of this project, but it is nevertheless recognised that cost reductions are a proven outcome of performance monitoring through an indicators framework. *Although it is still controversial, many have argued that well selected and effectively complemented quality improvement interventions can reduce costs by making the delivery of care more efficient.*[78]
International research was undertaken to ascertain which indicators for Primary Care were proven to have both health outcomes that were feasible and meaningful, and interventions of proved efficacy that were evidence based. Some of these interventions have a considerable impact on population health. For example, according to the BMJ

[76] Alastair Mccoll, Paul Roderick, John Gabbay, Helen Smith, Michael Moore, *Performance indicators for Primary Care Group: an evidence based approach*, (BMJ Volume 317: 1354, 14 Nov 1998)
[77] ARAH et al , *A Conceptual Framework for the OECD Health Care Quality Indicators Project* (2006)
[78] Leatherman S., Berwick D. Iles d. et al. *The business case for quality: case studies and an analysis*, Health Aff 2003; 22(2): 17-30)

website, 146 deaths for every 100,000 eligible people receiving flu vaccinations can be prevented. Indicators must be based on focusing data collection that is meaningful and also linked to interventions over which GP's have substantial control. They must also be proven to improve health outcomes.[79]

Risks and benefits of the indicators according to International evidence were also considered. The use of performance indicators by themselves as a method to improve the effectiveness of healthcare in Primary Care groups is unlikely to succeed. They must be part of an accountability structure linked into a comprehensive accreditation/audit process that is monitored by an independent Health and Quality organisation such as HIQA here in Ireland. Also there should be standardization guidelines in place for the inputting and retrieval of data, and this also should be monitored and audited. This survey sought to achieve evidence that factors which lead to improved health outcomes are used in a robust and systematic manner. Poor quality of data highlights the need for PI's in General Practice, and identifies areas for their implementation. The questions were selected based on the ease of obtaining responses from the GP's and also for their ease of translation into meaningful interpretations of health outcomes that are evidence based according to International peer reviewed articles. Other questions sought to define problems of a *workflow and operational nature within GP Practices as a means of observing the essence of clinical behaviour through the dimension of a multi-faceted approach*.[80]

The Performance Indicators for the UK Primary Care Trusts (PCT) (UK Healthcare Commission 16th June 2005), was also examined for benchmarking and comparison and also the OECD Health Care Quality Indicator Project was studied.

[79] Jan Luiysterbury et al, "Towards Performance Indicators for the Health Care Sector" Jan (2008)
[80] Grol R. "*Beliefs and evidence in changing clinical practice"*, BMJ 1997: 316: 418 – 21)

7.2 Survey Design

A project comprising 21 participating countries, was undertaken in 2006 by the OECDs HCQI Project (Health Care Quality Indicator Project), to select Healthcare Quality Indicators that could be used to assess performance of Primary Care Systems. An international expert panel on Indicators, examined indicators already in use within the member states, and then selected a set of 27. Ireland was one of the participating countries. The aim was to identify indicators that captured what constitutes the actual care within each of 5 groups. The setting where that care took place was not taken into account, as the health system setup varied from country to country. Three functions were eventually identified as being relevant areas for assessment of healthcare systems, being Health Promotion, Preventative Care, and Primary Healthcare. Appendix 6 [81] shows a conceptual model of health promotion, prevention and primary care from the OECD indicators project. The survey questionnaire is constructed and grouped around these 3 key health quality markers, as well as the addition of the groups, Practice Admin Profile, Practice IT Profile, and Risk Management. Questions regarding non-clinical areas such as workflow processes, data management, and patient interaction/participation with the practice and their care, have also been included as these are seen to be important, and were also highlighted as being of concern in the aforementioned HSE report 'Building a Culture of Patient Safety'. The survey questions within these sub-sets reflect indicators that were also selected in the HCQI project. Some nationally relevant questions have also been added. The HCQI indicators had been chosen by the expert group as complying with the US Institute of Medicines criteria as follows:

I. Impact on health status in the specific clinical area
II. Policy relevance and susceptibility to being influenced by the health system
III. Scientific soundness
IV. Feasibility (data being readily available)

[81] OECD Health Care Quality Indicator Project. The expert panel on primary care, prevention, and health promotion: Figure 1 - *Conceptual model of the continuum of health promotion, prevention, and primary care*

When constructing and devising the survey questions the above criteria were used. The validity of the data was of importance it had to represent meaningful aspects pertaining to the quality of care. The cost of data extraction was also a consideration.

7.3 Survey Questions - Group Headings

7.3.1 Practice Admin Profile

ISQua research showed that the co-ordination of care between providers, and guidance to patients on their journey through the health system were also seen as very important functions of Primary Health Care.[82] Therefore, the performance of GP's within the Primary Care setting is not only under study, but it must be seen as a function that inter-relates with other people and services working under the umbrella of that setting for the provision of a patient-centred service **(Question 3).** A patient centred service is also one where patients have open access to the available services. The survey sought to examine this aspect in **Questions 6 – 10.**

The importance of indicators to reflect Practice Management efficiency is also widely acknowledged in Europe. *Practice organisation has the propensity to diminish or enhance the quality of Clinical Care.*[83] Appendix 7 [84] shows a conceptual Framework for Primary Care organisations proposed by Donabedian to meet the quality criteria. The UK in its "Indicators in the Quality and Outcomes Framework" for its latest GMS contract, has 20% of indicators reflecting practice organisation and likewise the Netherlands in its VIP, which is a visitation instrument for Practice Management. The EPA (European Practice Assessment Research Project further developed a set of indicators for Practice management.

---

[82] William Hogg et al "Framework for Primary Care Organisations: the importance of a structural domain", (2007), Oxford University Press, on behalf of International Society for Quality in Health Care (ISQua).

[83] Yvonne Engels et al, " Developing a Framework of, and Quality Indicators for General Practice management in Europe", Oxford University Press (2004)

[84] Appendix 7: Donabedian : A Conceptual Framework for Primary Care Organisations

A paper by William Hogg et al. highlights the importance of incorporating an emerging understanding of the influence of organizational factors on variations in healthcare service delivery. *Collaboration has to do with a process of linkages between different providers within a health care organisation.*[85]

One of the three headings in the report of the Commission (established on the 16th January 2007 by the Minister for Health and Children), on Patient Safety and Quality Assurance is "Knowledgeable Patients". The Report states, *Patient engagement should be advanced as a recognised patient safety solution* and that it is recognised that service users *are no longer accepting the traditional role of the patient as a passive recipient of care*. [86] The commission has also noted the increasing involvement of the Private sector in the delivery of care with *the absence of adequate systems of regulation and protection*. [87] The report went on to stress the importance of having knowledgeable patients who have access to all relevant, accurate and timely information by way of such channels as access to websites and Patient Information Leaflets (PILS). The OECD also highlighted the fact that Ireland needs to improve patient focus and involvement, as the OECD sees this as being "too narrowly defined". 'Patient Interaction with Practice', addresses these issues and relates to assessing the amount of interaction that the patient has with the practice through channels such as websites, surveys, leaflets, and a complaints forum and thus have more of a personal involvement with their care (**Question 11**). *The value of consumer surveys in the process of improving health services can never be underestimated, but the key is the selection of the correct survey methodology.*[88]

---

[85] William Hogg et al, *Framework for Primary Care Organisations: the importance of a structural domain, (2007*), Oxford University Press, on behalf of International Society for Quality in Health Care (ISQua).

86 The Commission on Patient Safety and Quality Assurance Report (2008), R4.10

[87] Health and social Care regulatory Forum, *Framework of Public and Service User Involvement in Health and Social Care Regulation in Ireland*, Dec 2009 (Page 6)

[88] Anjali Patwardhan and Prakash Patwardhan, *Are consumer surveys valuable as a service improvement tool in health services*, IJHCQA (2009) 22, 7, P. 684

7.3.2 Practice IT Profile

Not only is the practice internal structure important, but also how this structure interfaces with the patients and third party providers of medical services. **Questions 1-10** in this section addresses this. Therefore, the degree of computerization of the practice itself is also seen as being important. *The Category 'office infra-structure' recognises the potential of different material and technical elements (such as electronic medical records systems) to influence the delivery of services.* [89] It is also in itself a measure of the accessibility and security of the medical data, and a measure of outcomes. [88]*Outcomes measures can usually be constructed from administrative data.* Figure 3 [90]shows the system hierarchy of human errors in medicine. Here it is shown that causes of medical errors range from the individuals up to the level of National Regulation. [91]One can see also the relevance of how technology interactions with individuals and groups, and is also a contributing factor to quality, as is the issue of communication and work processes.

7.3.3 Health Promotion

Leading causes of death in Ireland relate to chronic preventable diseases that have associated risk factors. These risk factors include:

- Smoking
- Nutrition
- Alcohol consumption
- Lack of physical activity
- High Cholesterol
- High Blood Pressure

---

[89] OECD/HCQI Report Page 11 (DELSA.ELSA.WD/HTP (2004) 16

[90] Figure 3: The System Hierarchy of Human Errors in Medicine

[91] Towards an Action Based Taxonomy of Human errors in Medicine", Jiajie Zhang et al, from Proceedings of 24th Cognitive Science Society)

In 2007 Ireland's population had an obesity rate of 15%, this had increased from its 1998 level of 11%.[92] According to the report of the International Diabetes Federation (2009), Diabetes Atlas, 4th Edition, [93] 5.2% of Ireland's population has diabetes and this organisation also states that the prevalence of chronic diseases such as diabetes is rising globally, due to population aging but also to changes in lifestyle.

Primary Care teams acting as gatekeepers to secondary care have a major role to play as health educators in this regard, and **Questions 1 - 2** sought to investigate the degree of GP involvement with their patients within the area of Health Promotion.

7.3.4 Preventive Care

Indicators for Preventative care selected for the OECD DELSA/ELSA project (OECD Health Technical Papers No16) are included in this section of the survey. The scientific soundness and importance of these indicators for Disease Prevention has already been verified through peer review research by the OECD panel, and therefore will not be reviewed for discussion in this thesis. But the level and scope of preventative care within the practices is under study here.

(**Questions 1 - 6).** Ireland has survival rates for both cervical and breast cancer below the EU average.[94] The OECD in its Health Care Quality Indicators Data 2009, highlighted the fact that too many persons are [95]admitted to hospitals for diabetes complications, and highlighted the need to improve primary care. Ireland had the second highest rate for admissions, after the US, and was double the EU average.

[92] Appendix 8: Health at a Glance 2009, OECD Indicators *Obesity among adults is increasing in all OECD countries.* OECD Health Data 2009
[93] Appendix 9: International Diabetes Federation (IDF) (2009), "Diabetes Atlas, 4th edition
[94] Appendix 10: Five-year relative survival rates, OECD health Care Quality Indicators Data 2009
[95] Appendix 11: Diabetes acute complications admission rates, population ages 15 and over 2007, OECD Health Care Quality Indicators Data 2009

7.3.5 Primary Care

The definition used for the term Primary Care is *Primary Care is best described in terms of a function.*[96] One of the motives for including the group Primary Care is from the evidence that *There is a growing body of evidence of wide variations in the quality of clinical care provided in the Primary Care sector,* [97] and
There is sufficient consensus, particularly on the technical processes of care and a limited set of patient outcomes, to make the quality of Primary Care amenable to measurement and improvement. [98]

7.3.5.1 Disease Management

In 2007 a survey of chronic illness/conditions disclosed that 55.5% of people surveyed reported suffering from a long-standing illness or condition as per the Central Statistics Office, [99] percentage death rates were highest due to diseases of the circulatory system at 35.1% and respiratory diseases accounting for another 7.6%. [100] **Questions 1 to 3** in this section focus on the activities that relate to risk reduction for Disease Management in these areas in particular. The aim was also to assess the degree of hospitalization for avoidable events occurring during the management of these diseases. Admissions for Hypertension, Diabetes, and some mental health diagnosis would be considered as unnecessary hospital admissions that can be effectively managed within Primary Care. Any area where Primary Care alone could not be held accountable was not included, so it would be difficult to assess outcomes and hence apply appropriate indicators. These areas not included were COPD, GI Diseases, Renal Disorders and Pain Management. The approach to questions selected was based on one that would produce outcomes from processes

[96] OECD Health Care QI Project, Expert Panel on Primary Care Prevention and Health Promotion

[97] M. Marshall et al (2006)
[98] M. Marshall et al (2006)
[99] Appendix 12: Perceived Health Status in Ireland, 2007, Central Statistics Office – EU Survey on Income and Living Conditions
[100] Appendix 13: Deaths by Principal Causes, Percentage Distribution, 2008, European Health for all Database, WHO Regional Office for Europe

that reflected a balanced view of the performance of Primary Care. The views of the HCQI group regarding their criteria for Performance Indicator selection was taken as significant in this regard. The criteria being as follows:

- Had to reflect current medical knowledge
- Easy to extract. The 27 Indicators selected by the HCQI group, *has a reasonable chance of being operationally feasible for a sufficiently large sample of OECD countries* [101]
- Primary care was responsible for the outcomes and can be held accountable
- *Performance Indicators should be measures of what the relevant decision makers can reasonably be held to account for* [102]
- The burden of collecting to be kept to a minimum
- The aim is to get a set of questions that would reflect a set of quality measurements that would be both useful and credible.

Continuous quality improvement aims to seek causes of failures in processes that can be improved. [103]

7.3.5.2 Coding

Survey questions regarding coding sought to ascertain the quality of inputted data through the usage of codes. *Greater standardization of coding should improve data quality and differences among physicians in diagnosing disease.* [104] It also sought to examine the degree of integration of diagnostic data from secondary care into Primary Care, (**Question 5)**. *The presence of hospital diagnoses and procedural data have been found to improve the quality of data in Primary Care.* [105] The use of

[101] HCQI Report Page 12
[102] McColl et Al (2000)
[103] Andrews SL.Qausqi: the changing role of quality in Health care, Journal of Quality Assurance, 1991, 13:14,15,38
[104] L.L. Ross et Al, Data Quality in an Information-Rich Environment: Canada as an Example, Canadian journal on Aging 24 (Suppl. 1) P. 164
[105] Krish Thiru, Alan Hassey, Frank Sullivan, Systemic review of scope and quality of Electronic Patient Record Data in Primary Care, BMJ Volume 326 (2003), P1071

different coding systems throughout practices causes problems for data comparison. *To facilitate comparisons of data quality across sites and systems, it is essential to have a reference standard.* [106]

7.3.5.3 Prescribing

Prescribing guideline compliance together with regulating prescribing patterns, has been shown to improve the quality of care, and is also a measure of appropriateness of care. [107] Fatalities from prescribing errors are very high in USA, Australia and Europe, and *it is estimated that errors due to medication errors occur in 10% of hospitalizations, and that half of these could be prevented*. [108] A medication error is *any error occurring in the medication use process. The limited literature of Primary Care error reports suggest a high frequency of medication errors*[109] and *voluntary reporting may prove useful in Primary Care as a basis for quality improvement.*[110] The prescribing question subsets here (**Question 6)** are for the purpose of evaluating what prescribing methods, reporting and auditing in terms of safety and quality of care, exist within GP Practices and to determine what protocols are in place.

7.3.5.4 Investigations/X-Rays

Investigations are used for a multiple of different purposes such as:

- Screening
- Diagnostics
- Monitoring medications

---

[106] Krish Thiru, Alan Hassey, Frank Sullivan, Systemic review of scope and quality of Electronic Patient Record Data in Primary Care,BMJ Volume 326 (2003), P1072
[107] Mossialos et al (2007)
[108] Mossialos et al, 2007).
[109] Bates DW, Boyle DL, Vander Vliet MB et al " Relationship between medication errors and adverse drug events", Journal of General Intern Medicine, 1995; 10:199-2005
[110] Amanda G. Kennedy, Benjamin Littenberg, and John W. Senders *Using Nurses and office staff to report prescribing errors in Primary Care, I*nternational Journal for Quality in Healthcare 2008, Volume 20 Number 4, Page 239

- Chronic Health Problems

Management of test results is a complex process that influences safety and quality in the Primary care setting. [111] It is, therefore, very important that some patient reporting, monitoring and follow up system is in place to manage and track these results. *Serious harm can and has befallen patients by errors in results management,* and *errors in patient notification were predictive of more patient adverse events.* [112] **Question 7** sought to evaluate the procedural context in this regard.

It is estimated that laboratory tests are ordered for between 29% and 38% of GP consultations, and x-rays for between 10% and 12 %. **Question 8** in this group seeks to clarify this.[113]

A study undertaken in the University of Cincinnati isolated two main factors as being important for a quality results management structure:

1. An awareness of safety by having open communication and appropriate policies and procedures in place
2. The adoption of appropriate technology

Question 9 was used to assess GP's opinions on various quality factors relating to results management based on the finding of the Cincinnati study.

---

[111] Elder, Nancy C. et Al, *Management of Test Results in Family Medicine Offices,* Department of Family Medicine, University of Cincinnati, Annal of Family Medicine 2009; 7:P 343

[112] Nancy C. Elder et al *Management of Test Results in Family Medicine Offices,* Annals of Family Medicine, Volume 7 Number 4, (July/august 2009)

[113] Hickner JM, Fernald DH, Harris DM, Poon EG, Elder NC, Mold JW, *"Issues and initiatives in the testing process in Primary care physician offices."* Journal for Quality and Patient Safety. 2005:31(2): 81-89

7.3.6 Risk Management

The aim of this section was firstly to examine whether factors relating to data quality were in use within the Practice. These include Data Audit, adherence to evidence based medicine, clinical guidelines and Legal Governance. *Evidence based guidelines play a role in improving the quality of care.* [114] Secondly, to establish what knowledge GPs had about this area, and to evaluate what importance was placed on factors relating to Data Quality and Quality improvement in general. *Good record keeping concerns every GP, but its utility is not fully appreciated by all.* [115] In the wider context of health care management, data from clinicians within primary, secondary and tertiary care is exchanged during the process of healthcare delivery; therefore it is crucial that data quality is maintained. *In the health sector data move with the patients they refer to, creating reciprocal dependencies between healthcare organisations. This means poor data management in one organization can adversely and incrementally affect other organisations and the quality of care a patient receives.* [116] Self-assessment tools have been proven to improve the quality of medical records, hence the inclusion of this question. S*elf-assessment can help improve general standards of medical record keeping.*[117] The use of clinical guidelines is important for maintaining data quality, *Clinical guidelines are increasingly being used to try and reduce unwanted variation in clinical practice and to help health professionals ensure that their practice is evidence based.* [118]

---

[114] Suzanne l. West et Al, *Reflections on the use of Electronic Health Record Data for Clinical Research,* Health Informatics journal (2009) P. 109

[115] Jean Brami MD and Michel Doumec MD, *Improving general practitioner records in France by a two-round medical audit,* Department of Evaluation, ANAES, Paris, France (2001) P. 180

[116] Karolyn A. Kerr, Tony Norris and Rosemary Stockdale, *The Strategic Management of Data Quality in Healthcare,* Health Informatics Journal, Vol 14 (4) (2008)

[117] Jean Brami MD and Michel Doumec MD, *Improving general practitioner records in France by a two-round medical audit,* Department of Evaluation, ANAES, Paris, France (2001) P. 175

[118] S. Treweek, S. Flottorp and A. Oxman, *Improving the quality of Primary Care through tailored interventions and customized software linked to electronic medical records,* Health Informatics Journal 2000; 6; P212

7.4 Target Audience

Ethics approval was obtained from Trinity College ethics committee, [119] and following this, a request was submitted to the Irish College of General Practitioners (ICGP) for access to the database of GP emails. This was not forthcoming so survey[120] hard copies were sent by post to 250 General Practitioners randomly selected, but covering the cross-section of the 26 counties.

7.5 Response

There was a 32% response from GP's, with 80 surveys returned out of 250 distributed. Only 76 surveys were analysed as 4 of the surveys arrived too late to be included. Several phone calls of interest in the subject were also received from GP's and duly discussed. There were a few question omissions by respondents, partly due to miscomprehension regarding the terminology used. The services available, the patient listing and age profile of the practices varied enormously by virtue of this random selection process, and thus there was no bias towards a certain practice profile type.

7.6 Analyse and Evaluation

7.6.1 Practice Admin Profile (Table 1)

The issue of patient accessibility was analysed in this section. Practice sizes ranged from 480 patients to 33,931. The total number of patients within all of the 65 respondents to the question regarding practice size is 434,419. This made the average practice size 6,683.4, and the Standard Deviation 6,192, with a Median of between 4,000 and 6,300.

[119] Appendix 15: Ethics Approval from Trinity College Dublin
[120] Appendix 16: Survey Questionnaire

The majority of the practices surveyed, opened between 9 and 6, with only 20 practices (29% of the 69 question respondents) opening on a Saturday. 96 % of GP's provide Home Visits, but weekend cover is, in 61.4% of cases not provided by the practice GP's but by a co-operative locum service, and in only 25.7% of practices do the Practice GP's provide this service. Only 17 % of practices have an answering service advising patients how to access the out of hour service.

It was noted that when reviewing practice staff numbers that 60% of practices had a combination of full-time and part-time doctors, with full-time to part-time being in the ratio of approximately 2:1. Only 35 % of practices operated with full-time doctors only. This implies a reduced accessibility to a unique doctor for those patients attending a part-time practitioner. Just over half of the practices operated with only part-time nurses and no full-time ones. Administration staff worked part-time in 32 % of practices.

As regards services available within the 74 practice respondents, only 19% had a Psychologist, Physiotherapist, and Dietician, and 28 % had a Counsellor. Optician, Social Worker, Dentist, Pharmacy and Occupational Therapist services were only available within practices that were HSE Primary Care Centres.

Walk-in appointments were catered for in 79% of practices, with emergency same day appointments in 100% of cases. Routine appointments were available the same day of booking in 47% of cases, with a further 37% of practices providing routine appointments within 24 hours. Only 5 practices experienced an average delay of between 48 and >72 hours for routine appointments. The most common appointment slot time interval was 15 minutes (71%), followed by 10-12 minutes in 39% of practices.

The various questions on Patient Interaction with the Practice attracted between 71 and 73 responses. Facilities for patients proved generally very poor, with only 10 practices having a Patient Interactive website, and only four practices having an on-line repeat medication ordering and 3 having an appointment booking system. Only six practices

have an on-site ‘check-in’ facility, which would have major cost saving opportunities in the admin staff sector. Where patient information leaflets are not provided on line through the practice website (29%), GP’s have stated they convey the appropriate website addresses to their patients. An alarming low figure of 19.2 % of practices carry out patient surveys, and a patient complaints process is only available in 56.2% of practices.

7.6.2. Practice IT Profile (Table 2)

As regards computerization, 3 (4%) Practices were not computerized and 78% of the replies came from users of Socrates, Health One or Dynamic GP, these being the most widely used in Ireland. Almost half of the Practices used an on-line backup system, with 68% using an in-house one. It was interesting to note that 82% of Practices used manual order forms for ordering tests from the labs, but 79% of them got the results back electronically with 34% of practices using a combination of Healthlink, Fax and Post. Usage of electronic referral via Healthlink proved to be very low with the breast clinic being the most popular at only 34% of GP’s using it for this purpose. The main reason for this was due to the fact that Healthlink is not widely available throughout the 26 counties. 94% of GP’s being surveyed, did use computer generated referral letters in general, but of these 25% hand wrote reports also. 99 % of GPs have inter-net access and 90% are using email. Question 7 of the survey sought to ascertain the extent to which Practices were paperless. Unfortunately the margin of error in the question answered was 15.5%, so these were discarded. Of the 62 who answered the question regarding Legal Documentation, 22 practices scanned and then shredded the correspondence, but 39% of Practices scanned and shredded all other medical records.

7.6.3 Health Promotion (Table 3)

In general there were a low number of practices that conducted Health Education Campaigns. Smoking and Alcohol Awareness campaigns were only carried out in 42% and 35% of practices respectively, with Nutrition/Obesity in 54% of practices. 54% of

practices did not engage in Healthy Lifestyle Education programs for their patients. The provision for education regarding Diabetes Awareness was also low at 49% of practices engaging. Only 20 practices provided educational sessions for reproductive behaviour.

Health literature for patients was largely provided via HSE leaflets, but 45 practices used their practice brochure to promote health literature. The practice website was also used by 24 practices as a forum for health literature, and this was often supported by links to Health education web sites.

7.6.4 Preventative Care (Table 4)

Approximately two thirds of the practices carried out most of the Prenatal Care/Screening as per question 1 in this section, but cervical gonorrhoea screening was only carried out by 48% of respondents As regards vaccinations 100% of the practices provided Baby Immunisation, MMR, Influenza, Pneumonia and Hep B, with 97% providing cervical check. But, only 78% of practices had a patient reminder system in place, with only 59% having an awareness campaign or improved access to vaccination. The management of Chronic Disease at Primary Care level is a key factor in reducing congestion in hospital A & E Department and day cases in Hospitals. This should be 100% managed but responses indicated that in only 82 to 84 % of practices is Cardiovascular Disease and Diabetes secondary prevention carried out. Diabetes clinics only existed in 61% of Practices, and Warfarin Clinics in only 65%. Cancer screening, even though it is regarded as critical to prevention, was haphazardly performed 'on-demand', with only one out of two practices providing systematic colon and melanoma of skin screening, the latter being a high cause of death per capita in Ireland (get reference here).

7.6.5 Primary Care (Table 5)

99% of Practices detected and managed Hypertension, but only 56 % had organised Blood Pressure Management Clinics in situ, although 89% did re-measure BP within 3

months for those with high levels. The Management of patients within 3 months following a diagnosis of Hypertension was not consistent within the Practices surveyed. The test for protein in the urine was carried out consistently by only 52% of practices with 32% only doing it sometimes. ECGs were always done in only under half of the practices. The response rate for serum creatinine and electrolytes, blood glucose and serum/total cholesterol tests was very good, with most practices always carrying these out within the 3 month diagnostic period. As regards hospitalization for secondary hypertension, 18% reported frequent hospitalization for this and hypertensive renal disease, alcohol psychoses 14%, and hypertensive heart disease 15%. As 42% of practices did not use a coding system for diagnoses and only 29% coded the diagnoses as per consultant reports, it is apparent that the former statistics are largely based on estimates.

Voluntary reporting may prove useful in primary care as a basis for quality improvement.[121] Medication errors can be described as *an unintentional significant reduction in the probability of treatment being timely and effective* or *increase in the risk of harm when compared with generally accepted practice.*[122] Survey research in this area, showed that very little auditing or protocols for prescribing. Although 83% of practices used electronic prescribing, only 14 to 15% did any reports on prescribing patterns or levels, and only 14% had a medication reconciliation process in place for the practice. Only 44% of practices provided the patient with a home medication list with 68% of these practices updating this list. 35% of practices admitted to writing some prescriptions by hand even in cases where it was not legally required. This results in the prescribing data on the computer being inaccurate and incomplete. There are also some medication history admissions, 8% of practices, where non-practice scripts were not transferred to the patients medical record. Inaccurate and incomplete documenting of all of a patient's prescribed medications can result in over-prescribing as well as dose discrepancies and omissions. There appears to be virtually no prescribing protocols in

121 Amanda Kennedy, Benjamin Littenberg, John W. Senders: *Using Nurses and Office Staff to report Prescribing Errors in Primary Care*, International Journal for Quality in Health Care (2008) Volume 20, Number 4: p. 239

122 Amanda Kennedy, Benjamin Littenberg, John W. Senders: *Using Nurses and Office Staff to report Prescribing Errors in Primary Care, International* Journal for Quality in Health Care (2008) Volume 20, Number 4: p. 239

place for managing prescribing and very little adherence to any monitoring systems in place within the practices surveyed. Prescribing during a consultation was reportedly on a frequent basis, with 14% of GP's admitting to prescribing in at least one in every two consultations, and 55% prescribing in between 20 and 40 percent of the time. Only 14 of the 71 responders stated they prescribed in only up to 20% of consultations.

The survey questions tackling the issue of patient investigations came up with the same trend as above. Although 83% of practices received results electronically, only 74% of these managed them electronically. With only 20 out of the 70 practices having written protocols in place for managing results, this resulted in 52 practices (72%) following up unreturned tests only on an ad hoc basis, and 62% of these declaring they had no protocols in place at all to follow up these results. Of the 97% who stated they did recall the patient for re-testing in the event of a sample being misplaced, the low percentage of practices having protocols in place to capture this, suggests that except for results demanded for by patients, it is questionable as to the extent of a practices awareness of which results have been reported on, and which ones have been "lost in the system". Even though 83% of GP's rated the Safety Awareness factor as being High for assessing the quality of test results management, this was not put into practice as 46% did not associate the presence of appropriate policies and procedures nor system built in alerts as having any relevance in this regard. In fact 25% of GP's considered alerts as being of low significance towards test management quality, and put the same level of unimportance against the use of technology to facilitate patient communication (21%).

There was much anomaly and inconsistency as regards x-ray protocol. There was a minimal use of an electronic ordering process for x-ray requests with only one third of practices faxing requests to hospitals, and the other practices giving the request form to the patient to bring to the appointment. Normal tests were reported to patients by only 57% of GP's, with almost a quarter of GP's not reporting them at all, and 63% of GP's relying on patients to ring up themselves for the results. When x-ray results were mislaid, only 68% of GP's recalled the patient for re-testing, 18% did not at all, and

14% only did it sometimes. There was a low figure of 65% of GP's who stated they followed up tests not returned, with the hospital. In view of recent national disclosures in Tallaght Hospital this is an area of concern.

7.6.6 Risk Management (Table 6)

There was generally a poor response to questions regarding attitudes to data quality, analysis and audit, and IT in general, with between 76% and 87% of responders actually answering questions in sections 1 to 3. Comments on the survey forms indicated that this appeared to be from both a lack of knowledge and motivation and also due to concerns as regards purpose of questions that were perhaps seen to collaborating with some intended admonishing process or purpose. The biggest barrier to improving data quality was seen by 68% of responders, to be lack of time and resources, with work flow problems also being a significant problem for 48%. Results from the responders also showed that there was minimal knowledge regarding the whole importance of having good consistent coded data. Just over half of GP's saw problems of actually applying codes as being a significant problem, and 31% saw it as a medium problem, and only 16% regarded it as being low. Even though it was felt by 91% of GP's that the level of unawareness amongst GP's regarding the relevance of data quality was a barrier of high to medium importance for data quality improvement. Any relationship between inputted data quality and computer training and skills was not acknowledged, as computer training and skills was seen to be of high importance for only a small number of GPs, 12-14 approx. Most GP's did not see the legal system as being a barrier to improving data quality, and under half (45%) saw any link to poor data quality with the absence of a National Health Unique Identifier.

There was minimum data auditing or data analysis undertaken within the practices surveyed. An average of only one practice in four conducted any form of data reporting with only 9% auditing outcome data. Ten GP's used a self assessment tool but as there was no disclosure as to what particular software was used, this was perceived as being rather nebulous. Thus, it was also debatable as to how data on adherence to Evidence

Based Medicine was extractable, in the case of 4 GP's, in view of the absence of formal assessment tools being in place.

Survey questions relating to Legal Governance revealed that 90% of responders, that is 60 practices are Data Protected registered, and 64% and 70% have Confidentiality Agreement Forms and Patient Consent Forms respectively. With only 56% accredited and 63% licensed, there was concern as to whether the terminology definition in this section was fully comprehended. Assuming it was, then there appears to be a state of deregulation within the Private GP sector, and this has been already highlighted as being a problem within the Deirdre Madden report.

Twelve of the responders did not answer the question regarding whether the practice had Performance Indicators in place. A very small number of GP's, 19%, used Performance Indicators and there appears to be considerable lack of comprehension amongst GPs in general as to what they are, and as to what purpose they service. A few GPs were concerned as to whether they were "a stick to beat us with!"

Questions in Section 5 were aimed at ascertaining what GPs used as leverage for improving the quality of medical care. Even though 88% said they used Evidence Based Medicine, a question in Section 3 revealed that an audit on adherence to EBM was undertaken by only 4 practices, (6%). Chronic Disease Management Protocols were in place for 81% of practices. How well this was actually managed or operated is arguable. When measured against compliance to universally accepted protocols for Chronic Disease Management as posed in questions 1 and 2 of the Primary Care Section it was not shown in a very favourable light.

Question 6 was included in order to assess the degree of importance that GPs placed on the different areas that were being investigated throughout the survey. Performance Indicators for staff were seen to be of lowest significance, with only 39% of practices placing high importance on them, although another 49% regarded them as having medium importance, implying 88% of respondents had at least some sort of awareness

of them. Only 29 GP's out of the 68 respondents felt that data auditing was of high importance. This is an obstacle for the implementation of technologies to monitor Performance Indicators and presents difficulty in automating the auditing process. T*he lack of consistent and accurate data continues to be the limiting factor preventing the widespread deployment of these technologies.*[123] The Commission on Patient Safety and Quality Assurance established in January 2007 by Mary Harney, published its findings and recommendations in 2008, and one of these included that audit was to be the norm for every Healthcare Professional. 56% or 38 GP's placed high importance on Certification/Accreditation. Although 72% of GPs considered a Quality IT System to be of importance, only 41% had either a Complaints Handling Process or a Legal Governance Policy in place for the practice. Medication policies were regarded as being of high importance for 64% of respondents, and infection control policies for 56% of respondents.

[123] Krish Thiru et al :*Three Steps to Data Quality*, Informatics in Primary Care (2003) 11: 95-102

CHAPTER 8: CONCLUSION, RECOMMENDATIONS AND FUTURE WORK

8.1 Introduction

The US national Healthcare Quality Report (NHQR) measures health care quality across the 4 dimensions of effectiveness, safety, timeliness and patient centeredness. The evaluation of the survey results is based on these four dimensions.

8.1.1 Effectiveness

Electronic Health Records within Primary Care offer a huge potential for research, service/provider integration, for health care quality and Patient safety. The scientific properties of analysed data should also not be underestimated as being a driver for cost reductions. The survey highlighted the fact that this potential is not exploited to its full advantage. Serious shortfalls as to the effectiveness of work processes and data management systems and protocols were found across all GP Practices.
The ability to assemble all clinical information for a patient, including diagnoses, medications, procedures, lab tests and results and radiography information, across all providers is critical for assessing care quality,[124]
Quality data as a resource for assisting organisational policy, and to improve care processes, has also not been acknowledged. Decision making and planning must be supported by the management of good quality data, with on-going quality improvement strategies in place. The path of Data integrity has a three- step process, these being collection, storage and management. This thesis highlights deficiencies at all levels within all practices.

Underlining this was the absence of coding among a large proportion of the respondents, with the relationship between coding and data quality not being fully understood. *To facilitate comparisons of data quality across sites and systems, it is essential to have a reference standard.* [125] This not only is an obstacle for

[124] *Health Informatics Journal (2009) 15:108, Page 119*

[125] Krish Thiru, Alan Hussey,Frank Sullivan: Systematic Review of Scope and Quality of Electronic Patient data in Primary Care, BMJ: May 17, 2003;Page 1072

research, but also creates gaps in the continuum of care across the whole spectrum of Healthcare providers. Clinical care quality can only be measured correctly with reference to coded diagnostic data using a standardized coding system that is easy to apply and that can be mapped to the standard hospital coding system. We are a long way from computerized recording of data, to the aggregation of this data into useful national information resources, partly due to the vast differences that exist in practices in how data stored within GP software system is actually managed. The survey revealed serious shortcomings within the Primary Care system in this regard, with a lack of awareness amongst GP's as to the underlining theory of the essence of data quality. Data management protocols appear to be totally lacking at Primary Care level, exasperated perhaps by the lack of accountability for performance for GP's working in the Private sector. Less than a quarter of all GP's undertook any form of data analysis or audit. Ireland is not very progressive in relation to participating in international health data collection programs within the GP Primary Care arena, nor are there any initiatives in place at national level to form Primary Care research networks. Networks such as these have proven to both benefit research capacity and enhance improvements in data quality monitoring, and to monitor trends in prescribing amongst GP's. *Primary Care research networks have been operating in many countries for a number of years. These research networks have been credited with improving the research capacity of the health sector and establishing data collection systems from which improvements can be monitored.*[126] For quality improvement benchmarking, more participation in European data registration initiatives and research is also required. Development of automated data extraction software programmes needs to be examined as these are of minimal use nationally. Major investment is needed in information systems, which cross all geographical borders nationally.

---

[126] Geoffrey P. Sayer et Al, The General Practice Research Network: the capabilities of an electronic patient management system for longitudinal patient data, Pharmacoepidemiology and Drug Safety (2003) 12: P.483

8.1.2 Safety

There was a high usage rate for GP's using both manual and computer data recording for certain work processes and procedures. This was especially evidence in generating referral letters and in the area of prescribing. Hand writing of prescriptions and non- transferring of non-practice prescriptions to the EMR created inaccuracies in medication histories. This also meant that usage monitoring and contra-indication alerts were being compromised. There was also minimal use of reports on prescribing patterns. This duality was also found in some practices that were selective in what was scanned into the patient electronic medical record. This lack of standardisation of information recording creates gaps in the data integration. Unsafe work practices were also observed in the management of Investigations and X-rays. For the most part, GPs relied on patients to make contact with the practice to obtain results, though the communication of **abnormal** results were, for the most part, initiated by the practice. However, due to the absence of results management and follow up protocols, there is no safety net to capture results that do not return from the lab as this relies mainly on patient intervention. The use of system alerts or technology for patient communication was not regarded as important for managing results.

8.1.3 Timeliness

As regards preventative care, the availability of vaccinations was excellent, but practice input for patient reminders was for the most part lacking. Cancer screening was selective and erratic. Disease management was not consistent, with screening for Cardiovascular and Diabetes (major causes of death in Ireland) although evident in two thirds of the practices was not related to outcomes, hence the effectiveness of this was hard to quantify. High hospital admission rates for chronic diseases can reflect poor management of these diseases at Primary care level. These high admission rates were indicated in 14% to 18% of the survey results.

8.1.4 Patient Centeredness

This survey found that the patient was not fully engaged in the care process. The shortfall of patient involvement manifested itself in a lack of facilities for patients. Access to on-line information/education via practice web sites was largely absence. Practice contact for patients was for the most part via the telephone and there was minimal availability of on-line facilities for patients to interact with the practice. On-line medication ordering and on-line appointment booking were barely an option. Home medication lists were largely not offered to patients. Few practices had a patient complaints process in place, and few conducted patient satisfaction surveys. The availability of out of hour cover was excellent, though the evaluation of this and the degree of integration of these consultations into the EMR does not come under the scope of this thesis. Access to GP appointments was also excellent. Health Education/Promotion for patients as a service within the practice was lacking, and those that did provide it were selective in what they had to offer.

Regardless of whether there is an acceptance by GP's for the introduction of PI's, there is a basic professional responsibility for data to be analysed for audit and research purposes. The public also have a right and need to know information about the quality of the care that they are receiving.

8.2 Conclusion Summary

This thesis showed practices to have poorly structured work flow processes with minimal policies and procedures in place to safeguard the quality of care. The following points can be highlighted as causing major concern:-

- **No safety net in place to capture mislaid results/x-rays.**
- **Too much reliance on patients to drive the follow-up of their care.**
- **A lack of direct patient communication with minimal use of technology for this purpose, plus no recognition of the benefits of IT for this purpose.**
- **Use of system alerts was not only lacking, but was not seen by GPs to be beneficial towards creating a safe healthcare environment for patients.**

- **Unsafe prescribing practices existed as minimal practice protocols were in place to capture medication errors, over prescribing, or patient drug usage. Hence, no safety net existed to capture prescribing errors before reaching the patient.**
- **Inaccuracies in patient medication histories resulting from medication updating omissions.**
- **Lack of awareness regarding the benefits of IT.**
- **There was a complete lack of knowledge regarding what constitutes data quality**
- **The general quality of data in all practices was poor in terms of its capacity for inter-operability across different service providers**
- **Data quality for secondary use such as research ranged from poor to useless**
- **Practices had virtually no use for self- auditing tools**
- **Minimal data analysis or reporting carried out to ascertain disease levels, outcomes or quality levels that would help towards building a safe, interactive and pro-active patient environment.**
- **The connection between service and outcomes, between data quality and technology, and between patient centeredness and communication is not fully understood.**

This thesis concludes that there is an immediate requirement for Performance Indicators to be put in place both to improve and capture the quality and service shortfalls that have been highlighted. Before this can be achieved a “data transport” framework must be rolled out to ensure equal IT and data transfer opportunities for all GPs. Ultimately this can only succeed when a national unique health identifier is put in place. But, shortfalls in GP acceptance and awareness of the importance of the contribution of Performance Indicators in the quality of care, together with differences across patient management software systems, are an obstacle in this regard.

8.3 Recommendations for future work

Further research must be carried out in the following areas before a framework of Performance Indicators is put in place nationally:

- **The role of the GP contract in terms of providing incentives for quality improvement**
- **Impact of financial incentives on Data quality**
- **How to put measures in place to prevent the risk of gaming, that is collecting information in a way that gives false positives**
- **Extracting comparable information from the different Patient Management Systems that are used nationally in order to produce comparable data outputs regarding the measurement of care processes**
- **Education/Awareness programmes to convince GP's of the importance of Performance Indicators**
- **How to engage GP's in quality improvement schemes**
- **Operational issues of PI implementation**
- **Regulation of the performance environment**
- **An internationally accepted set of data coding standards for diagnoses and procedures to be used across both Primary and Secondary Care**
- **Educational support for practice staff regarding data management for PI collection**

Appendix 1.
Requests for access to the ICGP Membership Database for Research Purposes – College Members/Officers only

As of July 2006, the ICGP does not provide open access to its membership database or provide members' names to any other organisation/individual. College members and officers may access the database for ICGP business purposes and may apply for access for research purposes. Such applications are considered on an individual basis by the ICGP Research Committee with regard to the significance and relevance of the topic under investigation, methodological rigour and burden to members.

All requests for access to the ICGP membership must be made using this form – please complete and return this form to: Niamh Killeen, ICGP, 4-5 Lincoln Place, Dublin 2 or niamh.killeen@icgp.ie. Please keep within the space provided in each section.

Applicant Details

Primary Applicant

Surname:Herron **First Name:Iolanda**
Position:Acting Practice Manager, Diageo Medical Centre
Organisation:Diageo Ireland
Address: James's Street, Dublin 8.

Email: iolanda.herron@diageo.com
Office number:01-4712216 **Mobile: 087-2350635**

Other Applicant 1

Surname: **First Name:**
Position:
Organisation:
Address:

Email:
Office number: **Mobile:**

Other Applicant 2

Surname: **First Name:**
Position:
Organisation:
Address:

Email:
Office number: **Mobile:**

Appendix 2.

The Old Schoolhouse
Kilmeague Village
Naas
Co. Kildare

Phone: 087-2350635

GP Name
Address1
Address2
Address 3

Date

Dear Doctor,

I am a final year student in Trinity College, Dublin, completing an MSc in Health Informatics. My research thesis is "Assessing a requirement for capturing Performance Indicators for GP's in Primary Care". This is driven by the recognition, outlined in International research literature, that quality in medical care drives enhanced patient safety and lowers costs, hence the associated importance of performance monitoring. I enclose a survey that will help me profile the Irish GP market in this regard.

I would be most grateful if you could oblige me by completing this survey, and then return it to me in the enclosed envelope. If you could return it to me by the (*Date*) it would allow me time to analyse the results before my thesis submission due date.

I have obtained ethics approval from Trinity College Ethics committee. An information sheet is enclosed for your perusal.

If you require any further information or clarification, please do not hesitate to ring me on the above number.

Thank you for your assistance

Yours sincerely

Iolanda Herron

Appendix 3. TRINITY COLLEGE DUBLIN

INFORMATION SHEET FOR PARTICIPANTS

Assessing a Requirement for capturing Performance Indicators for GP's in Primary Care'.

(Iolanda Herron: MSc Health Informatics, 2nd Year Student)

- This research thesis is based on assessing the requirement for Performance Indicators for GP's in Primary Care. This is driven by the recognition, outlined in International research, that quality in medical care drives enhanced patient safety and lowers costs, hence the associated importance of performance monitoring

- The information contained within this survey will be used solely and exclusively for the purpose of fulfilling the requirements of completing this research thesis

- The attached survey is intended to examine issues of processes and outcomes in General Practice

- Participation is completely voluntary

- The survey will take approximately 15 minutes to complete

- If you choose not to submit the survey at any time during or after the completion process, you will be given that option

- All questions are optional

- A debriefing following participation, regarding the findings of the survey, can be provided on request

- At all times the anonymity of participants and third-party will be preserved in analyses, publication and presentation of resulting data and findings

- It is not recommended that third parties are named in open text boxes

- As the research involves viewing materials via a computer monitor, the researcher takes no responsibility for any resultant risk to Epilepsy sufferers

Appendix 4. TRINITY COLLEGE DUBLIN
INFORMED CONSENT FORM

RESEARCHER: Iolanda Herron

BACKGROUND OF RESEARCH: Assessing a Requirement for capturing Performance Indicators for GP's in Primary Care'.

PROCEDURES OF THIS STUDY: In this study I propose to use the information contained within the survey for further research analysis for the purpose of completing the above research Masters Thesis.

PUBLICATION: Trinity College may lend or copy this dissertation on request

Individual results will be aggregated anonymously and research reported on aggregate results.

DECLARATION:

- I AM 18 Years or older and am competent to provide consent
- I have read, or had read to me, this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way 6hat does not reveal my identity.
- I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights
- I understand that I may refuse to answer any question and that I may withdraw at any time.
- I understand that my participation is fully anonymous and that no personal details about me will be recorded
- As the research involves viewing materials via a computer monitor, I understand that if I or anyone in my family has a history of epilepsy then I am proceeding at my own risk
- I have received a copy of this agreement.

PARTICIPANT'S NAME:

PARTICIPANT'S SIGNATURE:

Date:

Statement of investigator's responsibility: I have explained the nature and purpose of this research study, the procedures to be undertake and any risks involved. I have offered to answer any question and fully answered such questions. I believe that the participant understands my explanation and freely given informed consent.

RESEARCHERS CONTACT DETAILS: 087 2350635

INVESTIGATOR'S SIGNATURE:
Date:

APPENDIX 5: Abbreviations

ACC	Targeted Clinical Audit
ACSQHC	Australian Council for Safety and Quality in Health Care
AHIC	Australia Health Information Council
AHTAPOL	Agency for Health Technology Assessment in Poland
AIM	Achieving Improved Measurement (CA)
ANAES	National Agency for Accreditation and Health Care Evaluation (FR)
CAERLS	Canadian Adverse Event Reporting and Learning System
CCHSA	Canadian Council on Health services Accreditation
CDP	Continuing Professional Development
CHART	Care and Health Analysis in Real Time
CHIRIIF	Canadian Health Information Road Map Initiative Indicators Framework
COPD	Chronic Obstructive Pulmonary Disease
CQI	Continuous Quality Improvement
CSO	Central Statistics Office (IRL)
DAQSS	Division for the Improvement of Quality and Safety of Health Care
DHA	District Health Authority
DHCPR	(Dutch) Health Care Performance Report
EHFG	European Health Forum Gastein
EMRS	Electronic Medical Record System
EPA	European Practice Assessment (Project)
EPC	Enhanced Primary Care Scheme (AUS)

EQUIP	European Society for Quality in Family Practice
ESQH	European Society for Quality in Health Care
EUNETPAS	European Union Network for Patient Safety
FHSA	Family Health Service Authority (UK)
HAS	Haute Authorité de Santé (FR)
HCQI	Health Care Quality Indicator Project (EU)
HEDIS	Health Plan Employer Data and Information Set
HIQA	Health Information and Quality Authority (IRL)
HIT	Health Services in Transition (EU Report)
HIT	Health Information Technology
HSE	Health Service Executive (IRL)
ICD	International Classification of Diseases
IGPMM	International General Practice Maturity Matrix
INSERM	French National Institute for Health and Medical Research
IOM	Institute of Medicine (USA)
ISQUA	International Society of Quality in Health Care
IT	Information Technology
LHO	Local Health Offices
MIQUEST	Morbidity Information Query and Export Syntax
NBH	National Board of Health (DK)
NCP	National Contact Point
NCQA	National Committee for Quality Assurance (USA)
NICS	National Institute of Clinical Studies (AUS)

NHI	National Health Identifier
NHIG	National Health Information Group (AUS)
NHPAC	National Health Priority Action Council (AUS)
NHPC	National Health Performance Committee (AUS)
NHS	National Health Service (UK)
NICE	National Institute for Health and Clinical Excellence (UK)
NIVEL	Netherlands Institute for Health Services Research
NPCRDC	National Primary Care Research and Development Centre (UK)
NQMC	National Quality Measures Clearinghouse (USA)
OECD	Organisation for Economic Cooperation and Development
PACT	Prescribing Analysis and Cost Data
PAF	(NHS) Performance Assessment Framework (UK)
PCCC	Primary, Community and Continuing Care (IRL)
PI	Performance Indicator
PIP	Practice Incentive Program
PRAMEU	Primary Health Care Activity monitor for Europe Project
PRIMIS +	Primary Care Information Services
QEIG	Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (Germany)
QMC	Quality Management Cycle
ROP	Required Organisational Practice
SIAM	Système Informationnel de l'Assurance Maladie (FR)
SIP	Service Incentive Payments

SNOMED	Systematised Nomenclature of Medicine – Clinical Terms
UPI	Unique Patient Identifier
VIP	Visitation Instrument for Practice Management
WONCA	World Organisation of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians

APPENDIX 6

GLOSSARY TERMS

PRIMARY CARE

"that level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions and co-ordinates or integrates care provided elsewhere by others"

CARE QUALITY

Donabedian's model of care quality as divided into the elements of structure, process and outcome

HEALTH

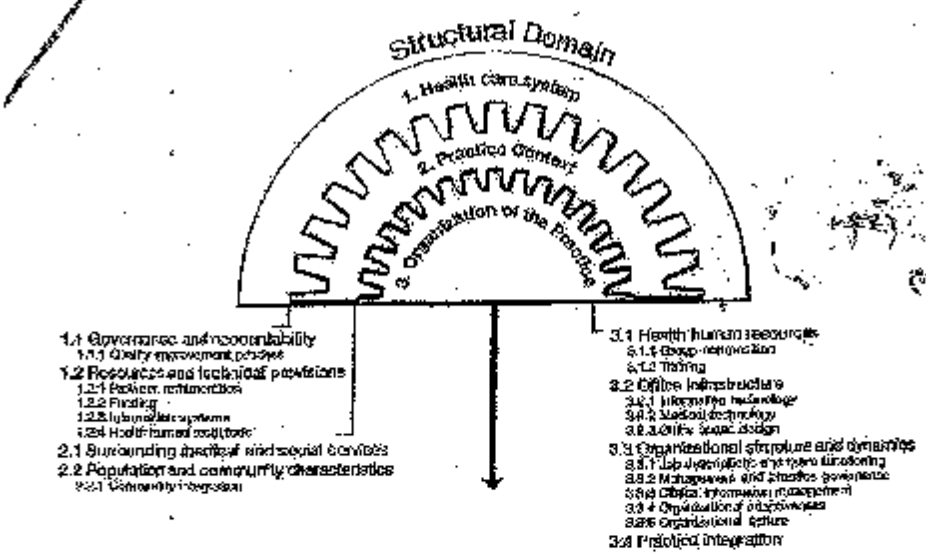
"Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity"

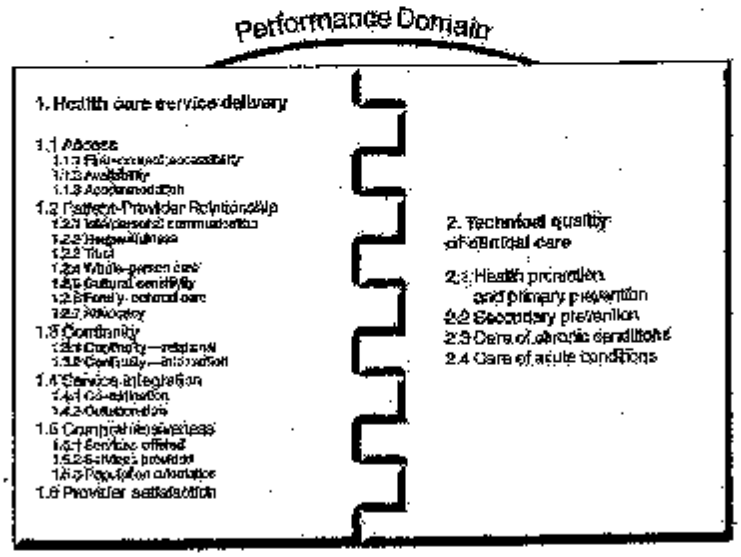
HEALTH PROMOTION

"Health Promotion should strive for the betterment of health rather than a given final goal"

APPENDIX. 7.

A framework for primary care

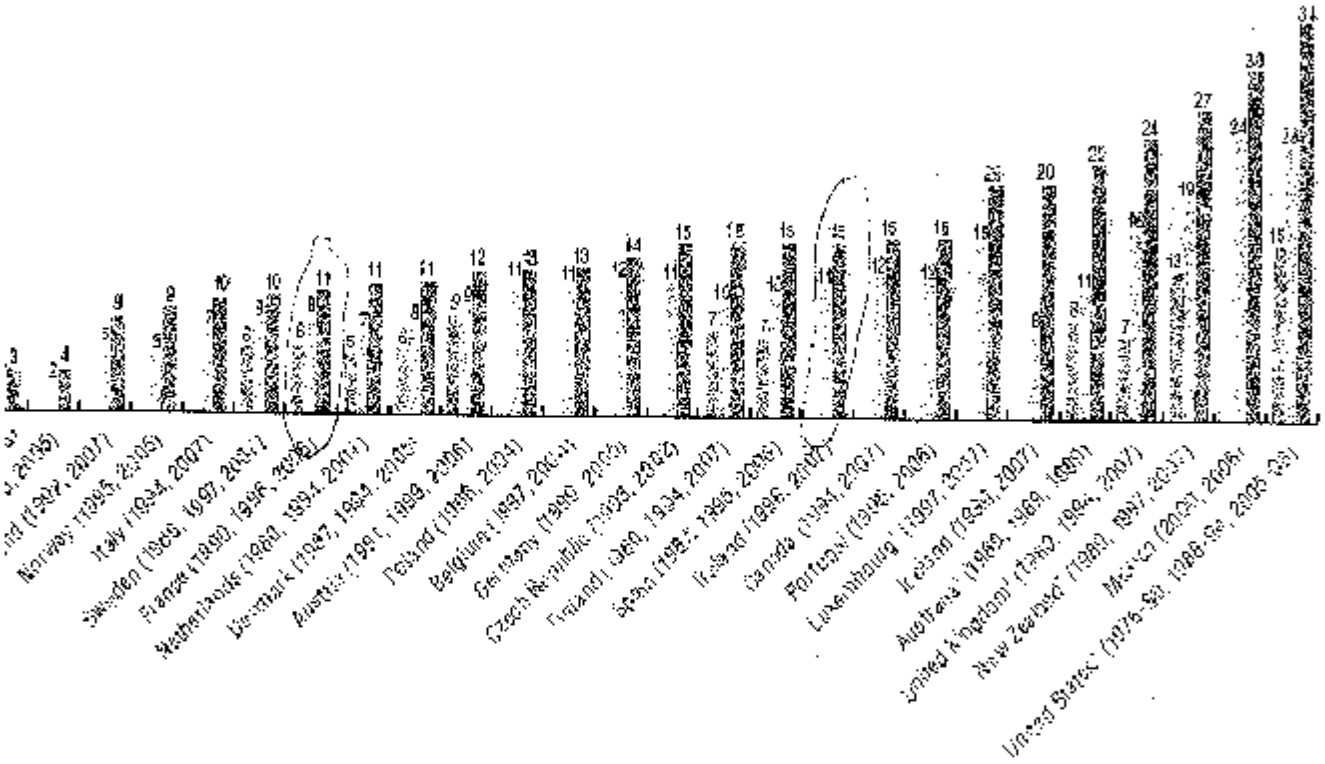




Conceptual framework for primary care organizations.

APPENDIX 8

Obesity among adults is increasing in all OECD countries. More than one in three Americans are obese

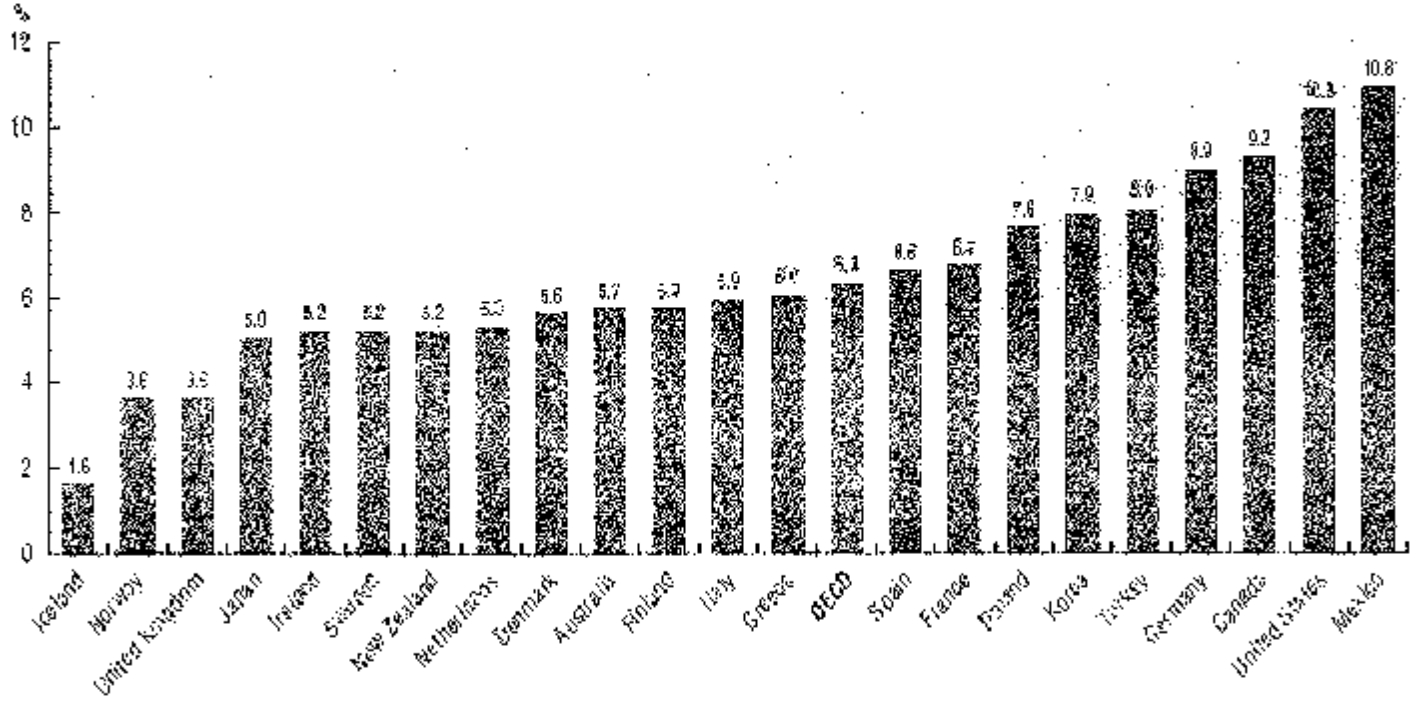


ia, Czech Republic (2005), Japan, Luxembourg, New Zealand, Slovak Republic (2007), United Kingdom and
ates figures are based on health examination surveys, rather than health interview surveys.

APPENDIX 9.

However, the prevalence of chronic diseases such as diabetes is rising, due to population ageing but also to changes in lifestyle

Prevalence estimates of diabetes, adults aged 20-79 years, 2010

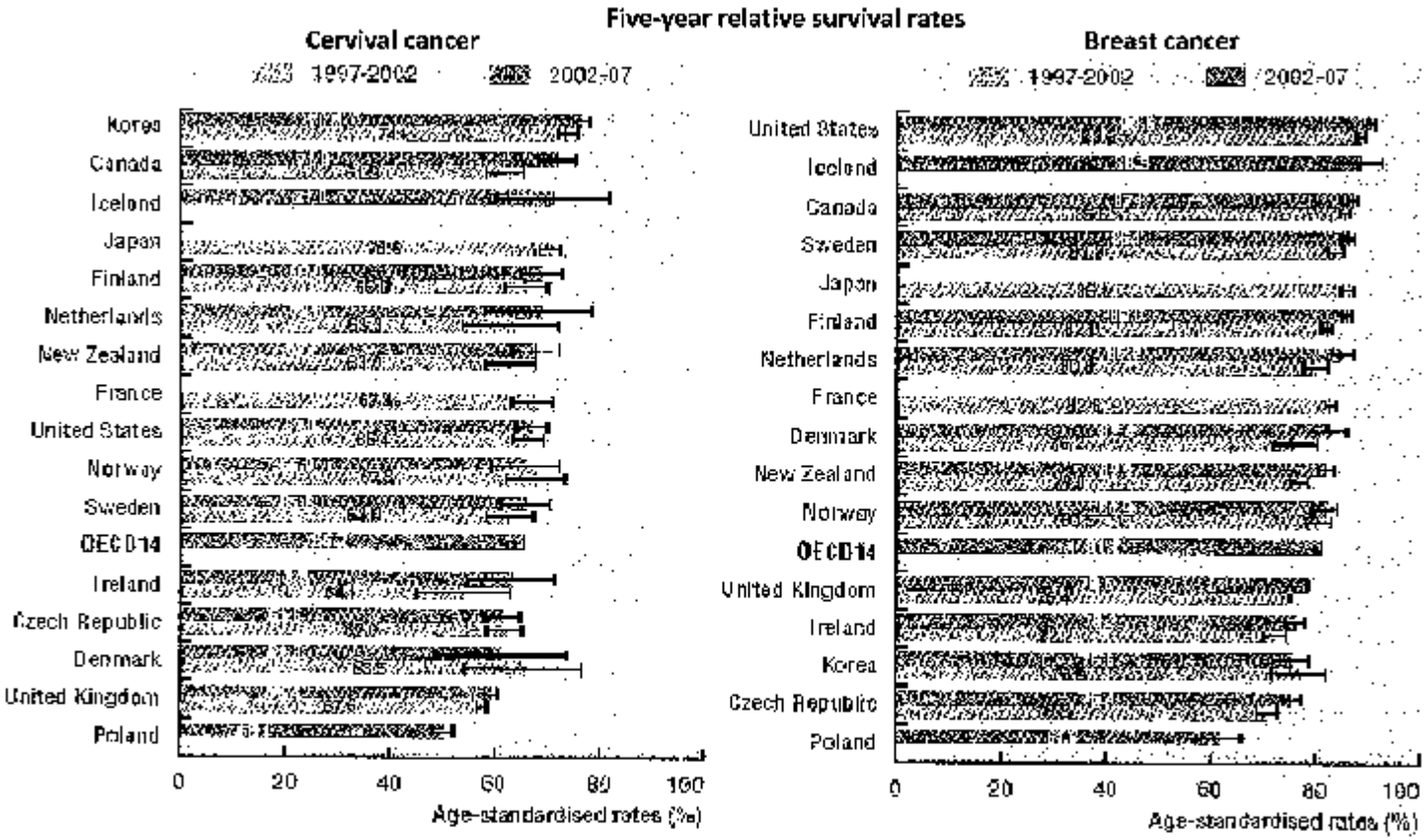


Note: The data are age-standardised to the World Standard Population.

***Source*: International Diabetes Federation (IDF) (2009), "Diabetes Atlas, 4th edition".**

APPENDIX 10.

Cancer survival rates are increasing in all OECD countries

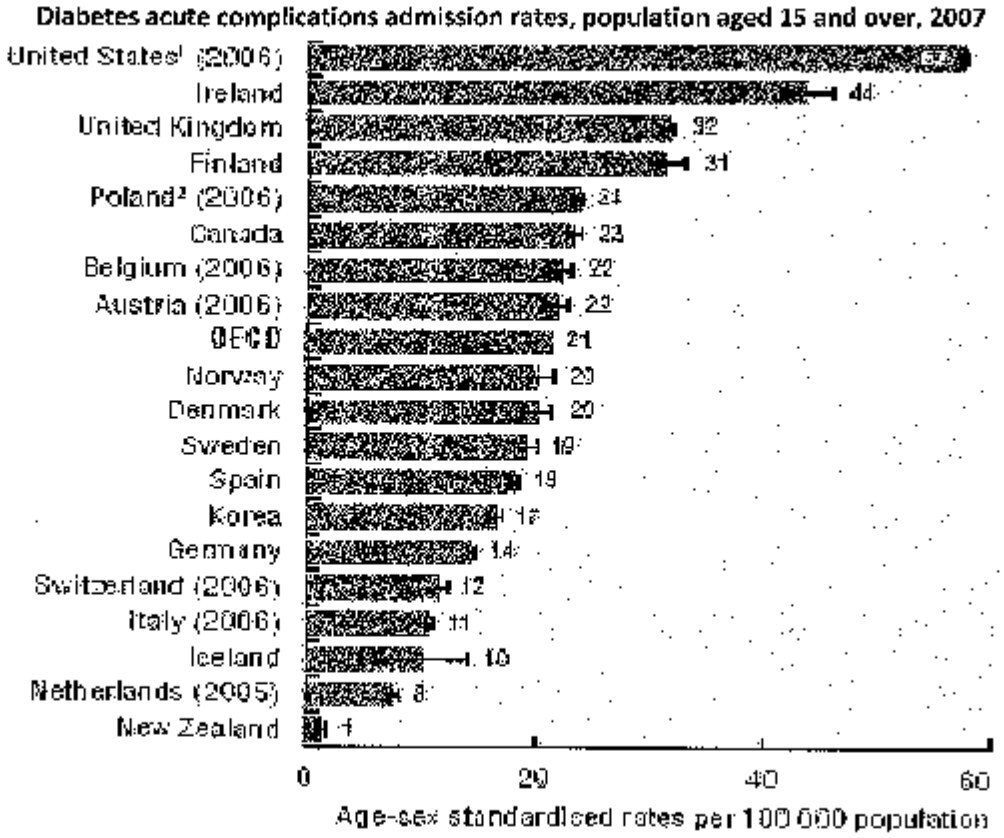


Note: Survival rates are age standardised to the International Cancer Survival Standards Population. 95% confidence intervals are represented by H in the relevant figures.

***Source*: OECD Health Care Quality Indicators Data 2009 (OECD).**

APPENDIX II.

… too many persons are admitted to hospitals for diabetes complications, highlighting the need to improve primary care



APPENDIX 12.

TABLE 2.1
PERCEIVED HEALTH STATUS IN IRELAND, 2007

Age Group	Very Good		Good		Fair, Bad, Very Bad	
	% Male	% Female	% Male	% Female	% Male	% Female
16-24	64.4	64.0	31.0	32.3	4.8	3.7
25-44	56.0	55.2	36.7	36.5	7.3	8.3
45-64	39.0	38.8	37.8	40.2	23.3	21.2
65+	18.1	18.6	42.6	42.7	39.4	38.7
Total	**47.4**	**46.1**	**36.5**	**37.8**	**16.1**	**16.1**

Source: Central Statistics Office - EU Survey on Income and Living Conditions, 2007.

TABLE 2.2
% CHRONIC ILLNESS OR CONDITIONS REPORTED IN IRELAND, 2007

Age Group	Yes		No	
	%Male	%Female	%Male	%Female
16-24	9.0	11.7	91.0	88.3
25-44	14.6	14.0	85.4	86.0
45-64	32.2	32.3	67.8	67.7
65+	54.6	58.9	45.4	41.1
Total	**24.3**	**26.2**	**75.7**	**73.8**

Source: Central Statistics Office - EU Survey on Income and Living Conditions, 2007.

Note: Refers to the percentage of people who reported suffering from a long-standing illness or condition.

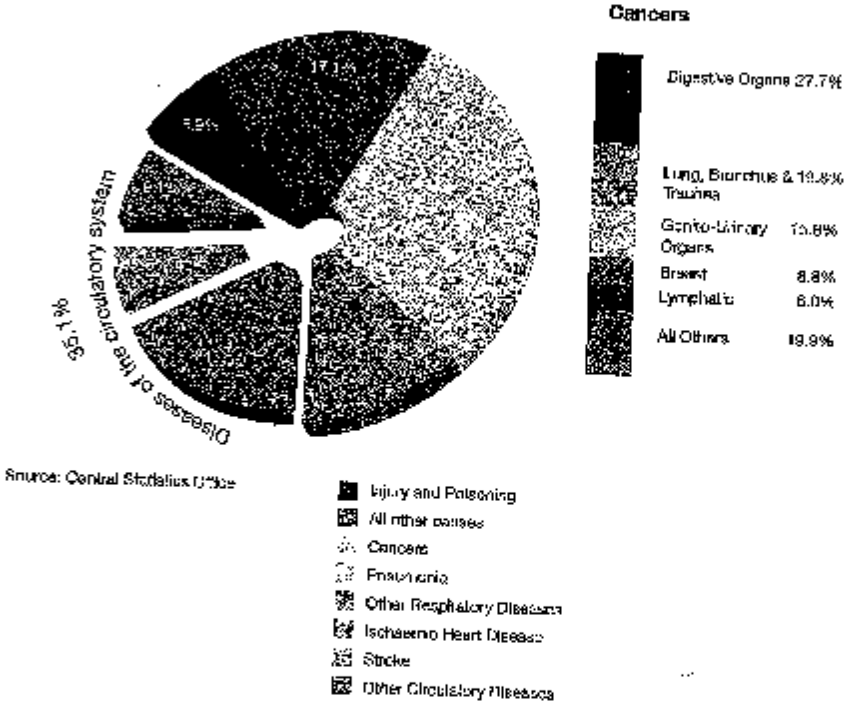
TABLE 2.3
LIMITATION IN ACTIVITIES DUE TO HEALTH PROBLEMS IN IRELAND, 2007

Age Group	Yes, Strongly Limited		Yes, Limited		Not Limited	
	% Male	% Female	% Male	% Female	% Male	% Female
16-24	1.6	1.8	6.3	5.8	92.1	92.6
25-44	3.2	4.0	7.6	7.7	89.2	88.4
45-64	7.4	7.0	15.7	16.0	76.8	77.0
65+	14.1	15.7	28.0	29.5	58.0	54.8
Total	**5.0**	**6.2**	**12.6**	**13.3**	**81.8**	**80.5**

Source: Central Statistics Office - EU Survey on Income and Living Conditions, 2007.

APPENDIX 13.

FIGURE 2.3
DEATHS BY PRINCIPAL CAUSES, PERCENTAGE DISTRIBUTION, 2008



Source: Central Statistics Office

Postgraduate Diploma / MSc in Health Informatics

Appendix 1 Ethics Protocol

School of Computer Science and Statistics
Research Ethical Approval Form

Part I

Project Title: Assessing the Acquirement of Competency Performance Indicators (PI) in Nursing Students

Name of Lead Researcher (student in case of project work): EOLANDA HEGARTY

TCD E-mail: hegartye@tcd.ie Contact Tel No.: 087-2350635

Course Name and Code (if applicable): Health Informatics MSc Year 2

Estimated start date: 25/3/2010 Estimated end date: 30/9/2010

Office Use Only
SCSS Ref No.: ..... Date Received: .....

I confirm that I will (where relevant):

- Familiarise myself with the Data Protection Act and guidelines http://www.tcd.ie/info_compliance/dpt/legislation.php;
- Tell participants that any recordings, e.g. audio/video/photographs, will not be identifiable unless prior written permission has been given. I will obtain permission for specific uses (i.e papers, talks, etc.)
- Provide participants with an information sheet (or web-page for web-based experiments) that describes the main procedures (a copy of the information sheet must be included with this application)
- Obtain informed consent for participation (a copy of the informed consent form must be included with this application)
- Should the research be observational, ask participants for their consent to be observed
- Tell participants that their participation is voluntary
- Tell participants that they may withdraw at any time and for any reason without penalty
- Give participants the option of omitting questions they do not wish to answer if a questionnaire is used
- Tell participants that their data will be treated with full confidentiality and that, if published, it will not be identified as theirs
- On request, debrief participants at the end of their participation (i.e. give them a brief explanation of the study)
- Verify that participants are 18 years or older and competent to supply consent.
- If the study involves participants viewing video displays then I will verify that they understand that if they or anyone in their family has a history of epilepsy then participation is proceeding at their own risk
- Declare any potential conflict of interest to participants.
- Inform participants that in the extremely unlikely event that illicit activity is reported to me during the study I will be obliged to report it to appropriate authorities.

Signed: Eolanda Hegarty Date: 22/3/2010
Lead Researcher/student in case of project work

School of Computer Science and Statistics
Research Ethical Approval Form

Part II

Please answer the following questions.	*Yes/No*
Has this research application or any application of a similar nature now or ever to this research subject been refused ethical approval by another review committee of the College (or at the institutions of any collaborators)?	No

Will your project involve photographing participants or electronic audio or video recordings?		NO
Will your project deliberately involve misleading participants in any way?		NO
Is there a risk of participants experiencing either physical or psychological distress or discomfort? If yes, give details on a separate sheet and state what you will tell them to do if they should experience any such problems (e.g. who they can contact for help).		NO
Does your study involve any of the following?	Children (under 18 years of age)	NO
	People with intellectual or communication difficulties	No
	Patients	NO

Details of the Research Project Proposal must be submitted as a separate document to include the following information:

1. Title of project
2. Purpose of project including academic rationale
3. Brief description of methods and measurements to be used
4. Participants – recruitment methods, number, age, gender, exclusion/inclusion criteria, including statistical justification for numbers of participants
5. Debriefing arrangements
6. A clear concise statement of the ethical considerations raised by the project and how you intend to deal with them
7. Cite any relevant legislation relevant to the project with the method of compliance e.g. Data Protection Act etc.

Part C

I confirm that the materials I have submitted provided an complete and accurate account of the research I propose to conduct in this context, including any assessment of the ethical ramifications.

Signed: Claudia Hoare Date: 22/3/2010

Lead Researcher/student in case of project work

There is an obligation on the lead researcher to bring to the attention of the SCSS Research Ethics Committee new issues with ethical implications not clearly covered above.

School of Computer Science and Statistics
Research Ethical Approval Form

Part D

If external ethical approval has been received, please complete below.

External ethical approval has been received and no further ethical approval is required from the School's Research Ethical Committee. I have attached a copy of the external ethical approval for the School's Research Unit.

Signed: .....

Date: .....

Lead Researcher/student in case of project work

Completed application forms together with supporting documentation should be submitted in hardcopy to the School's Research Unit, Room F17, O'Reilly Institute, and an electronic copy e-mailed to research-unit@scss.tcd.ie Please use TCD e-mail addresses only.

1. INFORMED CONSENT FORM

1. TRINITY COLLEGE DUBLIN
INFORMED CONSENT FORM

RESEARCHER: Iolanda Herron

BACKGROUND OF RESEARCH: Assessing a Requirement for capturing Performance Indicators for GP's in Primary Care'.

PROCEDURES OF THIS STUDY: In this study I propose to use the information contained within the survey for further research analysis for the purpose of completing the above research Masters Thesis.

PUBLICATION: Trinity College may lend or copy this dissertation on request

Individual results will be aggregated anonymously and research reported on aggregate results.

DECLARATION:

- I AM 18 Years or older and am competent to provide consent
- I have read, or had read to me, this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.
- I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights
- I understand that I may refuse to answer any question and that I may withdraw at any time.
- I understand that my participation is fully anonymous and that no personal details about me will be recorded
- As the research involves viewing materials via a computer monitor, I understand that if I or anyone in my family has a history of epilepsy then I am proceeding at my own

risk

• I have received a copy of this agreement.

☐ I consent and agree with the above

☐ I do not consent nor agree with the above

2. Participant Details (Optional)

NAME

DATE

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

2. PRACTICE ADMIN PROFILE

1. PRACTICE NAME, ADDRESS AND CONTACT DETAILS

GP NAME

PRACTICE NAME

PRACTICE MANAGER

Address 1:

Address 2:

Address 3:

Address 4

County:

Email Address:

Phone Number:

2. PRACTICE STAFF NUMBERS

	DOCTORS	NURSES	ADMINISTRATION
PART TIME			
FULL TIME			

3. PRIMARY CARE SERVICES AVAILABLE WITHIN PRACTICE

- ☐ OPTICIAN
- ☐ PHARMACY
- ☐ COUNSELLOR
- ☐ DIETITIAN
- ☐ PHLEBOTEMIST
- ☐ OCCUPATIONAL THERAPIST
- ☐ PHYSIOTHERAPIST
- ☐ NURSES
- ☐ SOCIAL WORKER
- ☐ PSYCHOLOGIST
- ☐ DENTIST

Other (please specify)

4. PATIENT LISTING (Numbers)

PRIVATE PATIENTS (APPROX)

GMS PATIENTS (APPROX)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

5. AGE PROFILE OF PATIENTS ATTENDING (Percentages)

0 - 25 YEARS	
26 - 59 YEARS	
60 YEARS AND OVER	

* 6. PRACTICE OPENING HOURS

MONDAY	
TUESDAY	
WEDNESDAY	
THURSDAY	
FRIDAY	
SATURDAY	
SUNDAY	

7. OUT OF HOURS COVER

- ☐ PRACTICE GP'S
- ☐ LOCUMS
- ☐ TELEPHONE ANSWERING SERVICE

Other (please specify)

8. GP APPOINTMENTS

	YES	NO
WALK-INS	☐	☐
EMERGENCY APPOINTMENTS	☐	☐
ROUTINE APPOINTMENTS	☐	☐
HOME VISITS	☐	☐

9. APPOINTMENT WAITING LISTS

	SAME DAY	24 HOURS	48 HOURS	72 HOURS	>72 HOURS
EMERGENCY APPOINTMENTS	○	○	○	○	○
ROUTINE APPOINTMENTS	○	○	○	○	○

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

10. DOCTOR APPOINTMENT SLOTS

	YES	NO
5 MINS	☐	☐
7 MINS	☐	☐
10 MINS	☐	☐
15 MINS	☐	☐

Other appointment length (please specify)

11. PATIENT INTERACTION WITH PRACTICE

	YES	NO
PATIENT INTERACTIVE WEBSITE	◯	◯
PHONE IN REPEAT MEDICATION	◯	◯
ON-LINE REPEAT MEDICATION ORDERING	◯	◯
ON-LINE APPOINTMENT BOOKING SYSTEM	◯	◯
ON-LINE PATIENT INFORMATION LEAFLETS	◯	◯
ON-SITE SELF 'CHECK-IN' FACILITY	◯	◯
PATIENT SURVEYS	◯	◯
PATIENT COMPLAINTS PROCESS	◯	◯

Other (please specify)

3. PRACTICE IT PROFILE

This page is intended to ascertain the degree of computerization of the practice, and the use of third party web based IT facilities and software

1. PATIENT MANAGEMENT SYSTEM

- ◯ SOCRATES
- ◯ DYNAMIC GP
- ◯ GP CLINICAL
- ◯ HEALTH ONE
- ◯ HELIX PRACTICE MANAGER
- ◯ GP MAC
- ◯ COMPLETEGP
- ◯ MEDTECH
- ◯ NOT COMPUTERIZED

Other (please specify)

2. DATA BACK UP

	YES	NO
ONLINE BACKUP	☐	☐
IN-HOUSE TAPE BACKUP	☐	☐
TAPE STORAGE ON SITE	☐	☐
TAPE STORAGE OFF SITE	☐	☐

3. SYSTEM USED FOR ORDERING TESTS

	YES	NO
ON-LINE VIA LAB ORDER (HEALTHLINK)	◯	◯
MANUAL ORDER FORMS	◯	◯

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

4. SYSTEM USED FOR OBTAINING TEST RESULTS

	YES	NO
MEDIBRIDGE	○	○
HEALTHLINK	○	○
FAX	○	○
POST	○	○

Other (please specify)

5. USAGE OF HEALTHLINK ELECTRONIC REFERRALS

	YES	NO
BREAST CLINIC	○	○
LUNG CANCER	○	○
NEUROLOGY	○	○
OESOPHAGEAL AND GASTRIC CANCER	○	○
PROSTATE CANCER	○	○
SMEAR CHECK	○	○

Other (please specify)

6. OTHER REFERRAL LETTERS

	YES	NO
COMPUTER GENERATED	○	○
HAND WRITTEN	○	○

Other (please specify)

7. INDICATE IF THE FOLLOWING ARE SCANNED,SHREDDED,FILED

	SCANNED TO MEDICAL RECORD	FILED	SHREDDED
X-RAY RESULTS	☐	☐	☐
TEST RESULTS	☐	☐	☐
CONSULTANT REPORTS	☐	☐	☐
LEGAL DOCUMENTATION	☐	☐	☐

8. DO MEDICAL PROFESSIONALS WITHIN THE PRACTICE OTHER THAN GP'S AND NURSES HAVE ACCESS TO THE PATIENT ELECTRONIC MEDICAL RECORD/PAPER RECORDS?

- ◯ YES
- ◯ NO

If 'YES', please indicate details here

9. INTERNET ACCESS?

	YES	NO
DOCTORS	◯	◯
NURSES	◯	◯
ADMIN STAFF	◯	◯
OTHER MEDICAL PROFESSIONALS	◯	◯

10. EMAIL FACILITY

	YES	NO
DOCTORS	◯	◯
NURSES	◯	◯
ADMIN STAFF	◯	◯
OTHER MEDICAL PROFESSIONALS	◯	◯

4. HEALTH PROMOTION

1. DOES THE PRACTICE CONDUCT HEALTH EDUCATION/OUTREACH CAMPAIGNS ON ANY OF THE FOLLOWING?

	YES	NO
SMOKING	○	○
ALCOHOL	○	○
SUBSTANCE ABUSE	○	○
NUTRITION/OBESITY	○	○
REPRODUCTIVE BEHAVIOUR	○	○
DIABETES AWARENESS	○	○
HEALTHY LIFESTYLE	○	○

Other (please specify)

2. DOES THE PRACTICE PROVIDE HEALTH LITERATURE FOR PATIENTS?

	YES	NO
PRACTICE BROCHURE	○	○
PRACTICE WEBSITE	○	○
HSE AND OTHER LEAFLETS	○	○

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

5. PREVENTIVE CARE

1. PRENATAL CARE/SCREENING

	YES	NO
BLOOD TYPING	○	○
ANTIBODY SCREENING	○	○
HIV SCREENING	○	○
BACTERIURIA SCREENING	○	○
ANAEMIA SCREENING	○	○
CERVICAL GONORRHOEA SCREENING	○	○
Hep B SCREENING	○	○

2. VACCINATIONS ADMINISTERED

	YES	NO
BABY IMMUNISATION	○	○
ADOLESCENT IMMUNISATION	○	○
MMR	○	○
INFLUENZA	○	○
PNEUMONIA	○	○
H1N1	○	○
HEP B (for high risk groups)	○	○
CervicalCheck	○	○

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

3. WHAT INTERVENTIONS ARE IN PLACE TO ENCOURAGE VACCINE TAKE-UP?

	YES	NO
PATIENT REMINDER SYSTEM	○	○
AWARENESS CAMPAIGNS	○	○
MEDICAL EDUCATION	○	○
IMPROVED ACCESS TO VACCINATION	○	○

Other (please specify)

4. CHRONIC DISEASE SECONDARY PREVENTION SCREENING?

	YES	NO
CARDIOVASCULAR DISEASE	○	○
DIABETES	○	○

Other (please specify)

5. CANCER SCREENING?

	YES	NO
BREAST	○	○
CERVICAL	○	○
PROSTATE	○	○
COLON	○	○
MELANOMA OF SKIN	○	○

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

6. WHAT CLINICS OPERATE WITHIN THE PRACTICE?

	YES	NO
OCCUPATIONAL MEDICINE	○	○
TRAVELLER HEALTH	○	○
CRYO	○	○
WARFARIN	○	○
DIABETES	○	○
EYE	○	○

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

6. PRIMARY CARE

1. CHRONIC DISEASE MANAGEMENT

	YES	NO
HYPERTENSION DETECTION AND MANAGEMENT	○	○
BLOOD PRESSURE MANAGEMENT CLINICS	○	○
RE-MEASUREMENT OF BP FOR THOSE WITH HIGH BP (WITHIN 3 MONTHS)	○	○

2. MANAGEMENT OF PATIENTS WITHIN 3 MONTHS FOLLOWING DIAGNOSES OF HYPERTENSION

	ALWAYS	SOMETIMES	NEVER
URINE STRIP TEST FOR PROTEIN	○	○	○
SERUM CREATININE AND ELECTROLYTES	○	○	○
BLOOD GLUCOSE	○	○	○
SERUM/TOTAL CHOLESTEROL	○	○	○
ECG	○	○	○

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

3. HOSPITALISATION FOR AMBULATORY-CARE SENSITIVE CONDITIONS

	FREQUENT	INFREQUENT	NO DATA AVAILABLE
DIABETES MELLITUS	○	○	○
ALCOHOLIC PSYCHOSES	○	○	○
DRUG PSYCHOSES	○	○	○
NEUROTIC DISORDERS	○	○	○
ESSENTIAL HYPERTENSION	○	○	○
HYPERTENSIVE HEART DISEASE	○	○	○
HYPERTENSIVE RENAL DISEASE	○	○	○
ASTHMA	○	○	○
SECONDARY HYPERTENSION	○	○	○

COMMENTS

4. WHAT CODING SYSTEM IS USED IN THE PRACTICE?

	YES	NO
ICPC	○	○
ICD9	○	○
ICD10	○	○
SNOMED	○	○
NONE	○	○

Other (please specify)

5. ARE DIAGNOSES ON CONSULTANT REPORTS CODED ON TO PATIENT'S MEDICAL RECORD?

○ YES

○ NO

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

6. PRESCRIBING

	YES	NO
ELECTRONIC PRESCRIBING	○	○
DIRECT LINK TO A PHARMACY SYSTEM	○	○
GENERIC PRESCRIBING	○	○
TRANSFERRING OF NON PRACTICE SCRIPTS TO MEDICAL RECORD	○	○
HAND WRITTEN SCRIPTS WHERE NOT LEGALLY INDICATED	○	○
REPORTS DONE ON PRESCRIBING LEVELS	○	○
Do patients get a 'Home Medication List' as a reference when ordering medications or upon admission to an outpatient/inpatient service?	○	○
Is there a process in place to update this list as new medications are prescribed?	○	○
Is there a medication reconciliation process to identify omissions when medications are being ordered by a patient?	○	○
REPORTS DONE ON PRESCRIBING PATTERNS	○	○

Other (please specify)

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

7. PATIENT INVESTIGATIONS

	YES	NO	SOMETIMES
RESULTS ELECTRONICALLY RECEIVED	○	○	○
RESULTS ELECTRONICALLY MANAGED	○	○	○
PROTOCOLS TO FOLLOW UP RESULTS NOT RETURNED FROM LAB	○	○	○
FOLLOW UP OF RESULTS NOT RETURNED FROM LAB IS ON AN 'AD HOC' BASIS	○	○	○
ARE PATIENTS RECALLED FOR REPEAT TESTING WHEN SAMPLES OR RESULTS ARE MISPLACED	○	○	○
ARE NORMAL RESULTS REPORTED TO PATIENT AS WELL AS ABNORMAL	○	○	○
ARE THERE WRITTEN PROTOCOLS IN PLACE FOR MANAGING RESULTS	○	○	○

COMMENTS

8. WHAT PERCENTAGE OF PATIENT VISITS WOULD RESULT IN TEST ORDERING?

- ◯ 0-20
- ◯ 20-30
- ◯ 30-40
- ◯ 40-50
- ◯ 50-60
- ◯ 60-70
- ◯ 70-80
- ◯ 80-90
- ◯ 90-100

9. RATE THE FOLLOWING FACTORS FOR ASSESSING THE QUALITY OF TEST RESULTS MANAGEMENT

	HIGH	MEDIUM	LOW
SAFETY AWARENESS	◯	◯	◯
PRESENCE OF APPROPRIATE POLICIES AND PROCEDURES	◯	◯	◯
ELECTRONIC INTERFACE BETWEEN THE PRACTICE AND LABS	◯	◯	◯
USE OF TECHNOLOGY TO FACILITATE PATIENT COMMUNICATION	◯	◯	◯
BUILT IN SYSTEM ALERTS	◯	◯	◯

PERFORMANCE INDICATORS FOR GP'S IN PRIMARY CARE?

10. X-RAYS

	YES	NO	SOMETIMES
X-RAY REQUESTS FAXED TO HOSPITAL	○	○	○
X-RAY REQUESTS GIVEN TO PATIENTS TO BRING TO APPOINTMENT	○	○	○
ARE X-RAY RESULTS NOT RETURNED BY HOSPITAL FOLLOWED UP	○	○	○
ARE PATIENTS RECALLED FOR X-RAY WHEN RESULTS ARE MISLAID	○	○	○
ARE PATIENTS ADVISED OF RESULTS EVEN WHEN NORMAL	○	○	○
DOES THE PRACTICE RELY ON PATIENTS THEMSELVES TO RING PRACTICE FOR RESULTS	○	○	○

COMMENTS

7. RISK MANAGEMENT

TO ASSESS THE QUALITY OF DATA AND THE BARRIERS TO ITS SUCCESS

1. RATE THE FOLLOWING AS REASONS FOR POOR DATA QUALITY

	High	Medium	Low	N/A
GAPS IN DATA DUE TO INCONSISTENCY	○	○	○	○
ABSENCE OF DEFINED RESPONSIBILITY FOR DATA ENTRY WORK	○	○	○	○
POOR COMPUTER SKILLS	○	○	○	○
LACK OF COMPUTER TRAINING	○	○	○	○
CODES NOT APPLIED	○	○	○	○

2. RATE THE BARRIERS TO IMPROVING DATA QUALITY

	High	Medium	Low
FUNCTIONALITY OF MEDICAL INFORMATION SYSTEM	○	○	○
LACK OF TIME AND RESOURCES	○	○	○
RELEVANCE OF DATA QUALITY NOT FULLY ACKNOWLEDGED	○	○	○
DIFFICULTY IN APPLYING DIAGNOSES CODES	○	○	○
WORK FLOW PROBLEMS	○	○	○
ISSUES WITH LEGAL SYSTEM	○	○	○
NO NATIONAL HEALTH UNIQUE IDENTIFIER	○	○	○

3. WHAT DATABASE ANALYSIS AND AUDIT IS UNDERTAKEN IN THE PRACTICE

	YES	NO
DATA ERRORS	○	○
DATA INCONSISTENCIES	○	○
DATA REPORTING	○	○
DATA STATISTICS	○	○
DATA ON OUTCOMES	○	○
DATA ON ADHERENCE TO EBM	○	○
REPEAT PRESCRIPTION AUDIT	○	○
USE OF PRACTICE SELF ASSESSMENT TOOLS	○	○

If a Practice Self-Assessment Tool is used, please specify below name of application used

4. PRACTICE LEGAL GOVERNANCE

	YES	NO
DATA PROTECTION REGISTERED	○	○
CONFIDENTIALITY AGREEMENT FORMS	○	○
PATIENT CONSENT FORMS	○	○
ACCREDITATION	○	○
LICENSING	○	○
KEY PERFORMANCE INDICATORS	○	○

Other (please specify)

5. WHICH OF THE FOLLOWING ARE USED AS A MEANS OF IMPROVING THE QUALITY OF PROFESSIONAL MEDICAL CARE?

	yes	no
CONTINUOUS MEDICAL EDUCATION	○	○
PEER-REVIEW PROGRAMS	○	○
AUDIT	○	○
EVIDENCE BASED MEDICINE	○	○
PRACTICE GUIDELINES	○	○
OTHER GUIDELINES (eg EU and NICE)	○	○
CLINICAL INDICATORS	○	○
CHRONIC DISEASE MANAGEMENT PROTOCOLS	○	○
LOCAL QUALITY IMPROVEMENT PROJECTS	○	○

please give details of any local quality improvement projects

6. HOW IMPORTANT DO YOU CONSIDER THE FOLLOWING FOR QUALITY IMPROVEMENT FOR PRIMARY CARE FACILITIES?

	High	Medium	Low	N/A
CERTIFICATION/ACCREDITATION	○	○	○	○
COMPLAINTS HANDLING PROCESS	○	○	○	○
MEDICATION POLICIES (including for antibiotics)	○	○	○	○
QUALITY IT SYSTEMS	○	○	○	○
PERFORMANCE INDICATORS FOR STAFF	○	○	○	○
DATA AUDITING	○	○	○	○
INFECTION CONTROL POLICY	○	○	○	○
LEGAL GOVERNANCE POLICY	○	○	○	○

8. SURVEY

1. Please indicate whether you wish to submit the completed survey.

- ◯ YES (I wish to submit the completed survey)
- ◯ NO (I do not wish to submit the completed survey)

Figure 1. Conceptual Model of the Continuum of Health Promotion, Prevention and Primary Care

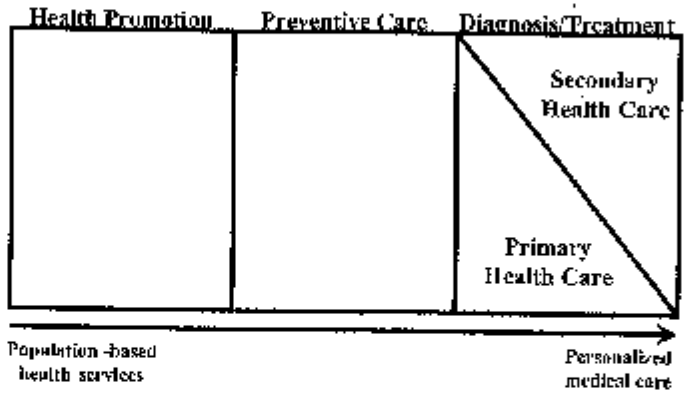
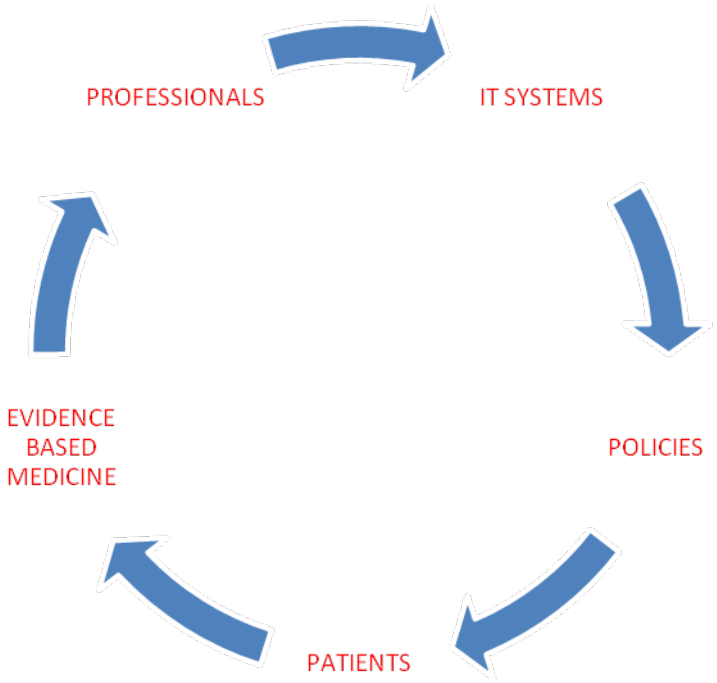


FIGURE 2

PERFORMANCE INDICATORS
RELATIONSHIPS



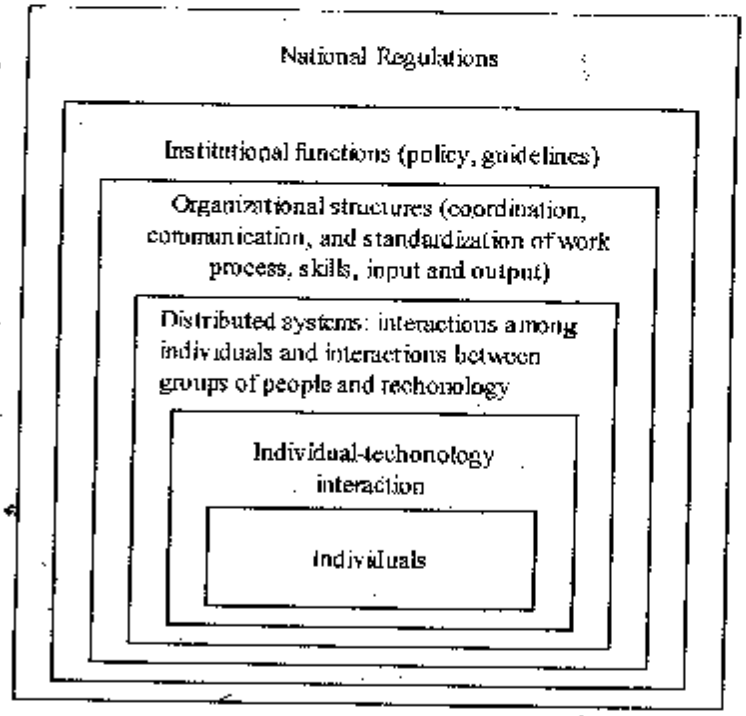


Figure 3. The system hierarchy of human errors in medicine

FIGURE 4.

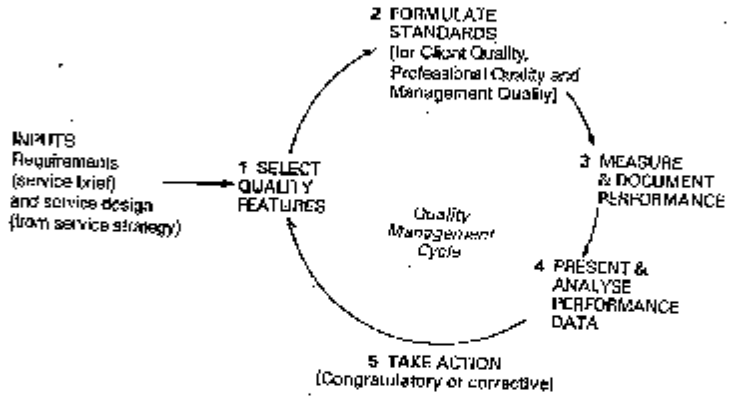


Fig. 6.1 The Quality Management Cycle.

FIGURE 5.

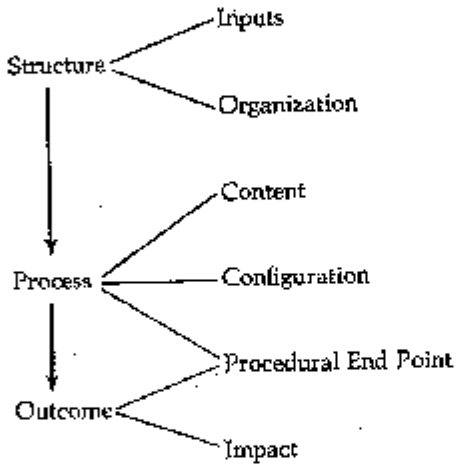

Structure
Inputs
Organization
Process
Content
Configuration
Procedural End Point
Outcome
Impact

TABLE 1.

PRACTICE ADMIN PROFILE

2	Practice Staff Numbers		%	Unanswered	RESPONSES
	Doctors Full time	71	95	1	75
	Doctors Part Time	46	61	1	75
	ONLY Fulltime Doctors	26	35	1	75
	ONLY Part Time Doctors	2	3	1	75
	BOTH PT/FT Doctors	45	60	1	75
	Nurses Full Time	31	41	1	75
	Nurses Part Time	47	63	1	75
	ONLY Full Time Nurses	16	21	1	75
	ONLY Part Time Nurses	38	51	1	75
	BOTH PT/FT Nurses	11	15	1	75
	Admin Full Time	47	63	1	75
	Admin Part Time	58	77	1	75
	ONLY Full Time Admin	12	16	1	75
	ONLY Part Time Admin	24	32	1	75
	BOTH PT/FT Admin	35	47	1	75

3	Primary Care Services in the Practice		%	Unanswered	RESPONSES
	Optician	4	5	1	75
	Psychologist	14	19	1	75
	Social Worker	9	12	1	75
	Phlebotemist	36	48	1	75
	Dentist	8	11	1	75
	Physiotherapist	14	19	1	75
	Counsellor	21	28	1	75
	Dietitian	14	19	1	75
	Pharmacy	10	13	1	75
	Occupational Therapist	2	3	1	75

TABLE 1.

4	Patient Listing (Numbers)			Unanswered	RESPONSES
				10	66
	Smallest Practice	480			
	Largest Practice	33,931			
	Total Patients in All Practices	432,809			
	Average Practice Size				

5	Age Profile of Patients Attending (%)

6	Practice Opening Hours

7	Out of Hours Cover		%	Unanswered	RESPONSES
	Practice GP's	18	24	0	76
	Locums	44	58	0	76
	Telephone Answering	13	17	0	76
	None	1	1	0	76

8	GP Appointments		%	Unanswered	RESPONSES
	Walkins	56	79	5	71
	Emergency Appts	68	96	5	71
	routine	69	97	5	71
	Home Visits	68	96	5	71

TABLE 1.

9	Appointments Waiting Lists	Same Day	24 Hours	48 Hours	72 Hours	> 72 Hours	SD/24 hr	Unanswered	RESPONSE
	Emergency	72						4	72
	Routine Appointments	33	26	1	1	3	6	6	70

10	Doctor Appointment slots	No of Practices	%	Unanswered	Response
	5 mins	1		4	70
	7 mins	2	3	4	70
	10 mins	25	36	4	70
	12 mins	2	3	4	70
	15 mins	50	71	4	70
	10 and 12 mins	7	10	4	70

11	Patient Interaction with Practice		%	Unanswered	Response
	Patient Interactice Website	10	14	4	72
	Phone In Repeat Medication	61	84	3	73
	On-Line Repeat Medication Ordering	4	6	4	72
	On-Line Appointment Booking System	3	4	5	71
	On-Line Patient Information Leaflets	21	29	4	72
	On-site Self 'Check-In' Facility	6	8	5	71
	Patient Surveys	14	20	5	71
	Patient Complaints Process	42	58	4	72

TABLE 2.

PRACTICE IT PROFILE

1	Patient Management System	Yes	%			Unanswered	RESPONSES
	Socrates	20	28			5	71
	Dynamic GP	8	11			5	71
	GP Clinical	4	6			5	71
	Health One	28	39			5	71
	Helix Practice Manager	3	4			5	71
	GP MAC	3	4			5	71
	CompleteGP	0	0			5	71
	Medtech	1	1			5	71
	E-Health Scheduler	1	1			5	71
	Not Computerized	3	4			5	71

2	Data Back-up	yes	% YES	No	% NO	Unanswered	RESPONSES
	On-line Backup	33	49	34	51	9	67
	In-house Backup	46	68	22	32	8	68
	Tape Storage on Site	23	34	45	66	8	68
	Tape Storage Off Site	34	51	33	49	9	67

3	System Used for Ordering tests	YES	% YES	No	% NO	Unanswered	RESPONSES
	On-Line via Lab Order (Healthlink)	18	25	54	75	4	72
	Manual Order Forms	59	82	13	18	4	72
	Both	6	8	66	92		

4	System used for obtaining Test Results	YES	% YES			Unanswered	RESPONSES
	Medibridge	2	3			5	71
	Healthlink	56	79			5	71
	Fax	30	42			5	71
	Post	46	65			5	71
	Healthlink+Fax+Post	24	34			5	71
	Healthlink+Post	6	8			5	71

TABLE 2.

5	Usage of Healthlink Electronic Referrals	YES	% YES	No	% NO	Unanswered	RESPONSES
	Breast Clinic	25	34	48	66	3	73
	Lung Cancer	6	8	67	92	3	73
	Neurology	17	23	56	77	3	73
	Oesophageal and Gastric Cancer	5	7	68	93	3	73
	Prostate Cancer	12	16	61	84	3	73
	Smear Check	12	16	61	84	3	73

6	Other Referral Letters	Yes	% yes	No	% NO	Unanswered	RESPONSES
	Computer Generated	68	94	4	6	4	72
	Hand Written	24	33	48	67	4	72
	Both Handwritten and Computer	18	25	54	75	4	72

7	Indicate if the following are Scanned,Shredded, filed	Scanned/filed	Filed	Scanned/Shredded	Incorrect Info	Unanswered	RESPONSES
	X-Ray Results	15	7	39	11	4	72
	Test Results	13	6	38	13	6	70
	Consultant Reports	16	7	39	10	4	72
	Legal Documentation	28	12	22	10	4	72

8	Access to the PMR by Med Professionals besides GP/Nurse	Yes	% yes	No	% NO	Unanswered	Responses
		42	58	31	42	3	73

9	Internet Access	Yes	% yes	No	% No	Unanswered	Responses
	Doctors	70	99	1	1	5	71
	Nurses	63	89	8	11	5	71
	Admin Staff	67	94	4	6	5	71
	Other Medical Professionals	34	48	37	52	5	71

TABLE 2.

10	Email Facility	Yes	% yes	No	% No	Unanswered	Responses
	Doctors	65	90	7	10	4	72
	Nurses	52	72	20	28	4	72
	Admin Staff	62	86	10	14	4	72
	Other Medical Professionals	26	36	46	64	4	72

TABLE 3.

	HEALTH PROMOTION						
1	Does Practice conduct health Education/outreach campaigns on :	YES	% YES	NO	% NO	Unanswered	RESPONSES
	SMOKING	30	42	42	58	4	72
	ALCOHOL	25	35	47	65	4	72
	SUBSTANCE ABUSE	15	21	57	79	4	72
	NUTRITION/OBESITY	32	44	40	56	4	72
	REPRODUCTIVE BEHAVIOUR	20	28	52	72	4	72
	DIABETES AWARENESS	35	49	37	51	4	72
	HEALTHY LIFESTYLE	33	46	39	54	4	72
2	Does the Practice provide health Literature for Patients?	YES	% YES	NO	% NO	Unanswered	RESPONSES
	PRACTICE BROCHURE	45	62	28	38	3	73
	PRACTICE WEBSITE	24	33	48	67	4	72
	HSE/OTHER LEAFLETS	72	99	1	1	3	73

TABLE 4.

PREVENTATIVE CARE

1 Prenatal Care/Screening?	YES	% YES	NO	% NO	Unanswered	RESPONSES
BLOOD TYPING	47	65	25	35	4	72
ANTIBODY SCREENING	50	69	22	31	4	72
HIV SCREENING	50	69	22	31	4	72
BACTERIURIA SCREENING	47	67	23	33	6	70
ANAEMIA SCREENING	52	73	19	27	5	71
CERVICAL GONORRHOEA	34	48	37	52	5	71
HEP B SCREENING	49	69	22	31	5	71

2 Vaccinations Administered?	YES	% YES	NO	% NO	Unanswered	RESPONSES
BABY IMMUNISATION	71	100	0	0	5	71
ADOLESCENT IMMUNISATION	67	93	5	7	4	72
MMR	72	100	0	0	4	72
INFLUENZA	72	100	0	0	4	72
PNEUMONIA	72	100	0	0	4	72
H1N1	59	82	13	18	4	72
HEP B (for high risk groups)	72	100	0	0	4	72
CERVICAL CHECK	71	97	2	3	3	73

3 What Interventions are in Place to Encourage Vaccine Take-up?	YES	% YES	NO	% NO	Unanswered	RESPONSES
PATIENT REMINDERS	57	78	16	22	3	73
AWARENESS CAMPAIGNS	43	59	30	41	3	73
MEDICAL EDUCATION	48	68	23	32	5	71
IMPROVED ACCESS TO VACCINATION	40	60	27	40	9	67

4 Chronic Disease Secondary Prevention Screening?	YES	% YES	NO	% NO	Unanswered	RESPONSES
CARDIOVASCULAR DISEASE	61	84	12	16	3	73

TABLE 4.

DIABETES	60	82	13	18	3	73

5	Cancer Screening?	YES	% YES	NO	% NO	Unanswered	RESPONSES
	BREAST	59	81	14	19	3	73
	CERVICAL	70	96	3	4	3	73
	PROSTATE	58	79	15	21	3	73
	COLON	40	56	32	44	4	72
	MELANOMA OF SKIN	38	52	35	48	3	73

6	What Clinics Operate with the Practice?	YES	% YES	NO	% NO	Unanswered	RESPONSES
	OCCUPATIONAL MEDICINE	27	38	45	63	4	72
	TRAVELLER HEALTH	49	68	23	32	4	72
	CRYO	57	79	15	21	4	72
	WARFARIN	47	65	25	35	4	72
	DIABETES	44	61	28	39	4	72
	EYE	16	22	56	78	4	72

TABLE 5.

	PRIMARY CARE						
1	**Chronic Disease Management?**	**YES**	**% YES**	**NO**	**% NO**	**Unanswered**	**RESPONSES**
	Hypertension Detection and Management	70	99	1	1	5	71
	Blood Pressure Management clinics	40	56	31	44	5	71
	Re-measurement of BP for those with high BP (within 3 months)	63	89	8	11	5	71
2	**Management of Patients within 3 months post Hypertension Diagnosis**	**Always**	**% ALWAYS**	**Sometimes**	**Never**	**Unanswered**	**RESPONSES**
	Urine Strip Test for Protein	37	52	32	2	5	71
	Serum Creatinine and Electrolytes	61	86	9	1	5	71
	Blood Glucose	66	93	5	0	5	71
	Serum/Total cholesterol	67	94	4	0	5	71
	ECG	32	45	35	4	5	71
3	**Hospitalisation for Ambulatory-Care sensitive Conditions?**	**FREQUENT**	**% FREQUENT**	**INFREQUENT**		**Unanswered**	**RESPONSES**
	Diabetes Mellitus	2	3	60		14	62
	Alcohol Psychoses	9	14	55		12	64
	DRUG Psychoses	11	17	52		13	63
	Neurotic Disorders	1	2	61		14	62
	Essential Hypertension	0	0	62		14	62
	Hypertensive Heart Disease	9	15	53		14	62
	Hypertensive Renal Disease	12	19	51		13	63
	Asthma	1	2	62		13	63
	Secondary Hypertension	11	18	51		14	62
4	**What Coding System is used in the Practice?**	**YES**	**% USING**	**NO**		**Unanswered**	**RESPONSES**
	ICPC	20	27	53		3	73
	ICD9	6	8	67		3	73
	ICD10	15	21	58		3	73
	SNOMED	0	NIL			3	73
	NONE	32	44			3	73
	ICPC AND ICD10	41	56			3	73
	ICPC AND ICD10 AND ICD9	1	1			3	73
5	**Diagnoses on consultant reports coded on to PMR***	**YES**	**% YES**	**NO**	**% NO**	**Unanswered**	**RESPONSES**
	YES	21	29	52	71	3	73
6	**Prescribing**	**YES**	**% YES**	**NO**	**Sometimes**	**Unanswered**	**RESPONSES**
	ELECTRONIC PRESCRIBING?	60	83	12		4	72
	DIRECT LINK TO A PHARMACY SYSTEM?	2	3	70		4	72
	GENERIC PRESCRIBING?	51	74	18		7	69
	TRANSFERRING OF NON PRACTICE SCRIPTS TO MEDICAL RECORD?	65	92	5	1	5	71
	HAND WRITTEN SCRIPTS WHERE NOT LEGALLY INDICATED?	24	35	44		8	68
	REPORTS DONE ON PRESCRIBING LEVELS?	10	14	60	1	5	71

TABLE 5.

	DO PATIENTS GET A HOME MED LIST?	31	44	35	5			5	71
	PROCESS TO UPDATE THIS LIST?	47	68	22				7	69
	MEDICATION RECONCILIATION PROCESS?	28	41	41				7	69
	REPORTS DONE ON PRESCRIBING PATTERNS?	11	15	60	1			4	72
7	**Patient Investigations**	**YES**	**% YES**	**NO**	**Sometimes**			**Unanswered**	**RESPONSES**
	RESULTS ELECTRONICALLY RECEIVED	60	83	4	8			4	72
	RESULTS ELECTRONICALLY MANAGED	52	74	12	6			6	70
	PROTOCOLS TO FOLLOW UP RESULTS NOT RETURNED FROM LAB	27	38	38	6			5	71
	FOLLOW UP OF RESULTS NOT RETURNED IS ON AN 'AD HOC' BASIS	52	72	14	6			4	72
	PATIENTS RECALLED WHEN SAMPLES/RESULTS MISPLACED	69	97	1	1			5	71
	NORMAL RESULTS REPORTED TO PATIENT AS WELL AS ABNORMAL	43	61	15	13			5	71
	WRITTEN PROTOCOLS FOR MANAGING RESULTS	20	29	46	4			6	70
8	**% of patient visits would result in test ordering**	**YES**	**% YES**					**Unanswered**	**RESPONSES**
	0-20	14	20					5	71
	20-30	22	31					5	71
	30-40	17	24					5	71
	40-50	8	11					5	71
	50-60	5	7					5	71
	60-70	4	6					5	71
	70-80	1	1					5	71
	80-90	0	0					5	71
	90-100	0	0					5	71
9	**Rate factors for assessing quality of test results management**	**HIGH**	**% HIGH**	**MEDIUM**	**%MEDIUM**	**LOW**	**% LOW**	**Unanswered**	**RESPONSES**
	SAFETY AWARENESS	58	83	12	17	0	0	6	70
	PRESENCE OF APPROPRIATE POLICIES AND PROCEDURES	31	46	29	43	7	11	9	67
	ELECTRONIC INTERFACE BETWEEN THE PRACTICE AND LABS	38	56	28	41	2	3	8	68
	USE OF TECHNOLOGY TO FACILITATE PATIENT COMMUNICATION	24	35	30	44	14	21	8	68
	BUILT IN SYSTEM ALERTS	31	46	19	28	17	25	9	67
10	**X-RAYS**	**YES**	**% YES**	**NO**	**% NO**	**Sometimes**	**% SOMETIMES**	**Unanswered**	**RESPONSES**
	X-RAY REQUESTS FAXED TO HOSPITAL	24	33	20	27	29	40	3	73
	X-RAY REQUESTS GIVEN TO PATIENTS TO BRING TO APT	46	64	16	22	10	14	4	72
	X-RAY RESULTS NOT RETURNED BY HOSP FOLLOWED UP?	47	65	9	13	16	22	4	72
	PATIENTS RECALLED FOR X-RAY WHEN RESULTS ARE MISLAID?	48	68	13	18	10	14	5	71
	PATIENTS ADVISED OF RESULTS EVEN WHEN NORMAL?	41	57	17	24	14	19	4	72
	DOES THE PRACTICE RELY ON PATIENTS TO RING PRACTICE FOR RESULTS	45	63	10	14	15	21	5	71
	*** PMR=PATIENT MEDICAL RECORD**								

TABLE 6.

	RISK MANAGEMENT								
1	**Rate the following as reasons for poor data quality**	High	% High	Medium	% Medium	Low	% Low	Unanswered	RESPONSES
	Gaps in Data due to Inconsistency	25	38	24	36	17	26	10	66
	Absence of Defined Responsibility for Data Entry Work	17	27	25	40	20	32	14	62
	Poor Computer Skills	14	23	14	23	34	55	14	62
	Lack of Computer Training	12	19	20	32	31	49	13	63
	Codes not Applied	18	31	29	50	11	19	18	58
2	**Rate the Barriers to Improving Data Quality**	High	% High	Medium	% Medium	Low	% Low	Unanswered	RESPONSES
	Functionality of Medical Information System	25	40	24	39	13	21	14	62
	Lack of Time and Resources	46	68	20	29	2	3	8	68
	Relevance of Data Quality not Fully Acknowledged	19	31	37	60	6	10	14	62
	Difficulty in Applying diagnoses Codes	34	53	20	31	10	16	12	64
	Work Flow Problems	31	48	27	42	7	11	11	65
	Issues with Legal system	4	7	22	37	34	57	16	60
	No National Health Unique Identified	27	45	18	30	15	25	16	60
3	**What Database Analysis/Audit undertaken in the Practice**	YES	% YES	NO	% NO			Unanswered	RESPONSES
	Data Errors	16	25	49	75			11	65
	Data Inconsistencies	16	25	49	75			11	65
	Data Reporting	14	22	51	78			11	65
	Data Statistics	17	26	48	74			11	65
	Data on Outcomes	9	14	56	86			11	65
	Data on Adherence to EBM	4	6	61	94			11	65
	Repeat Prescription Audit	19	29	46	71			11	65
	Use of Practice Self Assessment tools	10	15	55	85			11	65
4	**Practice Legal Governance**	YES	% YES	NO	% NO			Unanswered	RESPONSES
	Data Protection Registered	60	90	7	10			9	67
	Confidentiality Agreement Forms	43	64	24	36			9	67
	Patient Consent Forms	47	70	20	30			9	67
	Accreditation	36	56	28	44			12	64
	Licensing	40	63	23	37			13	63
	Key Performance Indicators	12	19	52	81			12	64

TABLE 6.

5	Used as a means of improving the Quality of Professional Medical Care?	YES	% YES	NO	% NO			Unanswered	RESPONSES
	Continuous Medical Education	71	99	1	1			4	72
	Peer-Review Programs	40	56	32	44			4	72
	Audit	39	54	33	46			4	72
	Evidence Based Medicine	63	88	9	13			4	72
	Practice Guidelines	52	72	20	28			4	72
	Other Guidelines (eg EU and NICE)	63	89	8	11			5	71
	Clinical Indicators	45	64	25	36			6	70
	Chronic Disease Management Protocols	58	81	14	19			4	72
	Local Quality Improvement Projects	29	40	43	60			4	72
6	**Importance of following for Quality Improvement for Primary Care Facilities?**	**High**	**% High**	**Medium**	**% Medium**	**Low**	**% Low**	**Unanswered**	**RESPONSES**
	Certification/Accreditation	38	56	21	31	9	13	8	68
	Complaints Handling Process	28	41	33	48	8	12	7	69
	Medication Policies (including for antibiotics)	45	64	22	31	3	4	6	70
	Quality IT Systems	49	72	17	25	2	3	8	68
	Performance Indicators for Staff	27	39	34	49	8	12	7	69
	Data Auditing	29	43	30	44	9	13	8	68
	Infection Control Policy	38	56	25	37	5	7	8	68
	Legal Governance Policy	26	41	27	42	11	17	12	64

SUMMARY

In April 2005, Patient safety was placed on the European agenda for the first time. At the 2nd International Who Conference on PATH (Performance Assessment Tool for Quality Improvement in Hospitals), 4th July 2008, in Vienna, it was declared that "*performance assessment is a cornerstone to quality improvement processes…and should be embedded in its local context.*" As a large proportion of GP practices are computerized, making it an ideal ready-made platform to introduce performance indicators, this thesis sought to examine and assess the need for their introduction. The shortcomings in the quality of care together with the high cost impact within GP practices has been to a large degree due to anomalies in data handling and recording. RAND Europe consultancy has confirmed that over 37 million consultations in the Primary Care setting result in an adverse event in the EU each year.

The science of Performance Indicators (PI) is analysed and how this fits into the concept of care quality and patient safety is examined, as per peer-reviewed literature. Following an overview of data recording issues and criteria, six countries are studied to enable best practice regarding PI initiatives and usage to be ascertained.

A GP survey was carried out to assess the need for PI collection for GP's in Primary care. The results were analysed with reference to agreed international standards. Results showed that the gaps in both data quality and work processes did not promote a safe and quality patient environment, and fell short of international quality protocols.

Recommendations based on these results highlighted not only the need for performance indicators to be introduced, but that the quality of care fell short of acceptable safety standards as confirmed by international research. Further work is required in this area and includes educating GP's regarding data quality and the importance of this for both safety and secondary research, and the contribution of performance indicators as an assessment tool for this purpose.

This thesis highlights serious shortfalls in a highly unregulated framework of Primary Care in Ireland. This framework is open to potential medical errors. Furthermore, the importance of data quality and the contribution of performance indicators towards the former are not fully understood by those providing the care.