OBSTACLES TO THE IMPLEMENTATION OF A NATIONAL CHRONIC DISEASE MANAGEMENT SYSTEM FOR CARDIOVASCULAR CARE.

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

2008

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.

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Abbreviations

ABPM	-Ambulatory Blood Pressure Measurement, (usually 24hours)
ADAPT	-Arterial Disease, Assessment, Treatment and Prevention
AHA	-American Heart Association
AHM	-Active Health Management (Singapore Govt. Initiative)
BHIP	- Behavioural Health Intervention Programmes
BHS	-British Heart Society
BMI	-Body Mass Index
BP	-Blood pressure
BPU	-Blood Pressure Unit
CABG	-Coronary Artery Bypass Graft
CHD	-Coronary Heart Disease
CSO	-Central Statistics Office, Ireland.
CV	-Cardiovascular
CVD	-Cardiovascular Disease
DLP	-Data Loss Protection
DM	-Diabetes Mellitus
DOH&C	-Department of Health & Children, Ireland
DOH&C DOTT	-Department of Health & Children, Ireland -Department of The Taoiseach, Ireland
DOH&C DOTT DPC	-Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland.
DOH&C DOTT DPC EFPC	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care
DOH&C DOTT DPC EFPC EHR	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record
DOH&C DOTT DPC EFPC EHR EHN	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network
DOH&C DOTT DPC EFPC EHR EHN EC	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network -European Commission
DOH&C DOTT DPC EFPC EHR EHN EC	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network -European Commission (formerly the Commission of the European Communities)
DOH&C DOTT DPC EFPC EHR EHN EC ESC	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network -European Commission of the European Communities) -European Society of Cardiology
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network -European Commission of the European Communities) -European Society of Cardiology -European Society of Hypertension
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH EU	 -Department of Health & Children, Ireland -Department of The Taoiseach, Ireland -Data Protection Commissioner, Ireland. -European Forum for Primary Care -Electronic Health Record -European Heart Network -European Commission of the European Communities) -European Society of Cardiology -European Society of Hypertension -European Union
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH EU FOI	 Department of Health & Children, Ireland Department of The Taoiseach, Ireland Data Protection Commissioner, Ireland. European Forum for Primary Care Electronic Health Record European Heart Network European Commission of the European Communities) European Society of Cardiology European Union Freedom of Information
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH EU FOI GDP	 Department of Health & Children, Ireland Department of The Taoiseach, Ireland Data Protection Commissioner, Ireland. European Forum for Primary Care Electronic Health Record European Heart Network European Commission of the European Communities) European Society of Cardiology European Union Freedom of Information Gross Domestic Product
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH EU FOI GDP GPIT	 Department of Health & Children, Ireland Department of The Taoiseach, Ireland Data Protection Commissioner, Ireland. European Forum for Primary Care Electronic Health Record European Heart Network European Commission of the European Communities) European Society of Cardiology European Society of Hypertension European Union Freedom of Information Gross Domestic Product General Practice Information Technology (GPIT) Group
DOH&C DOTT DPC EFPC EHR EHN EC ESC ESH EU FOI GDP GPIT HCP	 Department of Health & Children, Ireland Department of The Taoiseach, Ireland Data Protection Commissioner, Ireland. European Forum for Primary Care Electronic Health Record European Heart Network European Commission of the European Communities) European Society of Cardiology European Society of Hypertension European Union Freedom of Information General Practice Information Technology (GPIT) Group Health Consumer Powerhouse

HSE	-Health Service Executive
ICGP	-Irish College of General Practitioners
ICT	-Information and Communication Technology
IMO	-Irish Medical Organisation
IMT	-Irish Medical Times
INDC	-Independent National Data Centre
ISH	-International Society of Hypertension
IT	-Information Technology
MI	-Myocardial Infarction
MRN	-Medical Record Number
MS	-Microsoft
NCIS	-National Cardiovascular Information System
NHIS	- National Health Information Strategy
NHP	- National Health Portal, Singapore
NHS	-National Health Service (UK)
NPCRDC	-National Primary Care Research and Development Centre (UK)
OBP	-Office (or clinic) blood pressure
OBPM	-Office (or clinic) blood pressure measurement
PHC	-Primary Health Care
PI	-Principal Investigator
PSI	-Pharmaceutical Society of Ireland
PTCA	-Angioplasty (Percutaneous transluminal coronary angioplasty)
PN	-Practice Nurse
PPSN	-Personal Public Services Number (alternative use: PPS Number)
QOF	- Quality and Outcomes Framework, UK.
RHASP	-Study: (Reduction of Heart Attack and Stroke through Prevention)
RPSGB	- Royal Pharmaceutical Society of Great Britain
SRH	-Self-Rated Health
THOP	-Treatment of Hypertension Based on Home or Office Blood Pressure
TIA	-Transient Ischeamic Attack / Transient cerebral ischaemia
UEMO	- European Union of General Practitioners
VFM	-Value for Money
WHO	-World Health Organisation
WWW	-World Wide Web

CHAPTER 1

INTRODUCTION AND BACKGROUND TO THE STUDY

'While identifying a general interest or topic is fairly straightforward, it is much more of a challenge to design an effective project with a clear, relevant and intellectually worthwhile focus to explore your topic' (Mason 2007)

1.0 Introduction

In Ireland it is generally perceived that the management of cardiovascular disease is adequately controlled and especially more so when in the care of a consultant in the secondary care system. Cardiovascular disease (CVD) is a huge problem worldwide, and in fact the care provided is generally very inadequate. Research has shown that if CVD is managed aggressively then substantial drops in the rates of morbidity and mortality can be achieved.

This has led to a group of clinicians developing a model for cardiovascular disease management across the primary-secondary care divide. This system, developed here in Ireland, is the RHASP /dabl[®] model and has proved to be very successful in achieving goals in risk reduction and associated morbidity and mortality, whilst providing good value for money.

1.1 Motivation

The writer worked in the Blood Pressure Unit (BPU) at Beaumont Hospital for a number of years. Being involved with local and international research into blood pressure levels, hypertension, cardiovascular disease, shared care and disease management systems, the writer has a high interest in the particular field. Cardiovascular disease and its management is as stated a huge problem globally and the writer has often wondered at how such inertia to the problem can exist.

1.2 The Research Question

Now that we have an excellent tool in the form the RHASP /dabl® model comprising of the dabl® software and an associated system of management to go with it, the pace has still not picked up. Even the recently published government DOH&C document on tackling chronic disease, (DOHC 2008b), has seemed to do little in shifting the inertia. It is this reason the writer decided to undertake a study to look at what are the obstacles that seem to be preventing the implementation of this system and starting to tackle CVD.

1.3 Methodology

The research for this study was conducted over 3 phases.

- The first phase was the research done when the writer participated in the successful RHASP pilot study. Documentation, reports and outcomes as well as analysis of that research was available for the writer.
- The second was extensive literature search to describe where we are today with regard to cardiovascular care.
- And the third was the semi-structured interviewing of General practitioners involved with the RHASP study as well as non-structured interviews with a number of experts in the field

1.4 Presentation

Briefly, this dissertation is presented in 5 chapters

- Chapter one provides an introduction to the study. The background to the concept for the study is presented and its significance is identified. It states the aims and objectives of the study.
- Chapter two presents a review of the literature on the topic. It includes a review of the way we measure blood pressure and assess CVD today. It also looks at what other systems are in use internationally.

- Chapter three describes the process by which the writer conducted the study. This includes details on the research design, data collection methods and data analysis.
- Chapter four presents the study findings. This includes an analysis of the interviews, their extractions and any demographic information of note.
- Chapter five discusses the study findings. The findings are compared with existing knowledge. The legitimacy of the findings and their impact is looked at. The limitations and strengths of the study are considered. To conclude the implications of the study findings on the future of hypertensive disease management in Ireland.

1.5 Background - Scope of the Problem

Chronic Disease

Chronic diseases are long-term conditions, lasting more than 6 months, are noncommunicable and involve some functional impairment or disability and are usually incurable.

Cardiovascular disease

Cardiovascular diseases (CVD) are the number one cause of death throughout the world. An estimated 17.5 million people died from cardiovascular disease in 2005, representing 30 % of all global deaths. Of these deaths, 7.6 million were due to heart attacks and 5.7 million due to stroke. If current trends continue, by 2015 an estimated 20 million people will die annually from cardiovascular disease. (WHO 2008).

In Europe, cardiovascular disease causes over 4.3 million deaths and over 2.0 million of these deaths are in the European Union (EU). It is the cause for almost half of all deaths in Europe (48%) and in the EU (42%). CVD is the main cause of the disease burden (both illness and death) in Europe (23% of all disease burden) and the second main cause in the EU countries with low mortality (17|%) (EHN 2008a)

In this context the statistics for Ireland are no better. Cardiovascular disease, which is composed of high blood pressure, coronary heart disease (CHD), stroke and arterial disease, remains a leading cause of death and disability in Ireland. Ireland has one of the highest death rates from heart attack and stroke in the world with over 10,000

deaths per year, In Ireland, 41% of all deaths in 1999 were due to CVD. This comprised of coronary heart disease 21%, Stroke 9%, and other circulatory diseases 11%. By comparison, deaths due to cancer were 26% of the total (DOH&C 2001b).

In fact, more people die from CVD in Ireland than from cancer, suicides and road accidents combined.

Deaths from CVD in Ireland have actually been declining in recent years but are still high at a rate of (176/100,000) compared to an EU average of (108/100,000) (Cairns 2005).

Over one-fifth of all deaths in Ireland in 1992 were of people aged less than 65. This is premature mortality and much of it is preventable. While good .progress has been made, there is still room for improvement. (DOHC 1994)

For Irish men under the age of 65, CVD is the main cause of death. In women, it's the second highest cause death after cancer. At age 65, life expectancy for men and women in Ireland is the lowest across all the EU countries. Studies have shown that people in Ireland have high levels of risk factors for heart disease and cardiac investigations and interventions are also low compared to other countries (DOH&C 1999).

Hypertension is now recognised as the major risk factor for stroke. Hypertension, in Ireland affects some 30% of the adult population. This increases to 50% for those aged over 50 and 70% in those aged 70 and over.

Ireland's ageing population profile is also likely to result in a large increase in not only the prevalence of high blood pressure but also the number of people with cardiovascular disease in the future. In 2001 it was estimated that 11% of the total population was aged 65 years or over. All recent demographic projections anticipate significant growth with the over 65 years population growing to around 14% of the general population by 2011. The inevitable consequence of increased longevity is the burden of CVD will increase and ironically this burden will be further accelerated by interventional improvements and pharmacological advances in the treatment of CVD. The incidence of strokes could be reduced by at least 50% if high BP was controlled, but it is estimated that only about half of people on treatment in Ireland, (and most European countries), for high BP have adequate blood pressure control. It follows that there is a deficit in the management of high blood pressure in Irish society, which if corrected could lead to significant reduction in stroke, heart attack and other cardiovascular diseases.

The financial and societal advantages of such a strategy are enormous and if implemented could serve as a model for other countries as well.

Morbidity

Any decline in mortality rates does not necessarily suggest that the overall population burden of disease has decreased. Reduced fatalities and improved survival may result in lower death rates but it also results in an increased prevalence of the disease.

Data on morbidity are more limited but it would appear that CVD accounts for approximately 10% of all hospital admissions. Also, patients with vascular diseases require on average more bed days than patients with any other group of diseases. It is estimated that patients with a diagnosis of CHD occupy 435 beds on a continuous basis in our acute hospital system.

In terms of drugs costs, cardiovascular drugs make up the highest component of the national drugs bill under both the General Medical Services (GMS) Scheme and the Drugs Payment Scheme. In 2002 there was a 22% increase in cardiovascular drugs costs under both schemes. However, this was most likely due to the increased management in risk reduction by GPs and patients.

Economic Burden

An analysis of the economic costs of CVD in Europe reveals staggering numbers at just under \notin 192 billion per annum. Broken down, 57% of this is for health care costs, 21% is from lost productivity and 22% due to informal care of people with CVD (EHN 2008a). The direct health care costs alone cost each resident of the EU \notin 223 per annum. The cost of inpatient hospital care for people with CVD accounted for approximately 54% of these costs and that of the drugs for another 28%. The methodology used in obtaining these statistics appears to be a very complex issue using aggregate data on morbidity, mortality hospital admissions, disease related costs and other health related indicators across the 27 countries of the EU. In fact it was the subject of its own separate publication (EHN 2008b).

A survey of European Politicians in 2000, across 13 EU member states, found that politicians in the national parliaments gave top priority to prevention of disease. However it was also perceived from the comments given by politicians that prevention seems to fall behind in competition with treatment. This is because politicians feel the demand for curing the already ill much more strongly than the pressure for a preventive approach. Also many countries struggle with solving the more immediate problems, particularly in the hospital sector. Issues such as waiting lists, medical staff shortages, poor organisation of hospital services etc.. Inevitably and understandably (?) their actions become focused on the short term. And as a result prevention tends to be postponed until "it can be afforded", even though several of the respondents stated that "prevention offers the best value for money" (EHN 2000).

The state of cardiovascular disease in Ireland.

Ireland presently has almost the highest mortality from cardiovascular disease in the European Union. In the words of Brian Cowen, when he was Minister for Health & Children, "Irish rates for premature cardiovascular deaths and illness (morbidity) are not defensible... At a time of unprecedented economic growth and prosperity, it is wholly unacceptable to have such high rates of premature death and illness from a disease which is largely preventable." (DOH&C 1999)

Whose responsibility is prevention? Geoffrey Rose, the great pioneer of preventive cardiology believed: "Eventual action rests with the public, both individually and through government. But it is the general practitioners who have the best opportunity to identify those at special risk and to advise and supervise them; and cardiologists and physicians are the opinion formers, guiding and stimulating general practitioners, public and governments." (Rose 1978)

Examination of the Irish statistics indicates that the extraordinary high rate of cardiovascular morbidity and mortality from stroke and heart attack in Ireland is due to the high prevalence of a number of risk factors, which include hypertension, dyslipidaemia, diabetes and smoking.

To reduce the mass occurrence of these cardiovascular events requires the participation of the whole society. We do however, have a methodology that Geoffrey

Rose did not possess, and that is the ability to amass and stratify data for a large population in one central database using computer technology.

The World Health Organisation has recently estimated that in developed countries, chronic diseases are predicted to increase by 10-15% over the next decade and that this will reduce GDP by an order of 1%.

Results

Many obstacles were expected to arise over the proposed implementation of this system within primary care on a national scale. After all the significant statements were extracted and the 3 categories that emerged were of

A very surprising observation to the writer was how deep the divide was between the General Practitioners and the Department of Health & Children (DOH&C) & the Health Service Executive (HSE).

Addendum

When referring to the title, "Obstacles to the implementation of a national chronic disease management system for cardiovascular care", in this research study, the system in question is the RHASP /dabl® system. This study is discussed in much more detail throughout the dissertation. The system is an online /hosted system held on a central server and accessed via internet technology. It uses the internet but is not on the internet or WWW (World Wide Web). The clarification in the title, (apart from making it even more of a mouthful to say), is not given with the included terms 'online' or 'hosted' as they can be misleading and misconstrued as something that it is not. Online implies easy access to anyone with a browser and hosted has a commercial overtone to it that the writer did not want to infer on the system. So whilst the system in reality is both, for simplicity, neither classification is given in the title.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

A systematic review of the literature was conducted. This review outlines the ongoing commitment and change to cardiovascular care, specifically with regard to Blood pressure (BP) and Ambulatory blood pressure measurements (ABPM). It follows through from the historical methods of care right up to current evidence-based, best clinical practice. It includes a review of examples of the type of system being trialled in other countries and what systems are currently available and being developed for the health care system here in Ireland.

This particularly focuses on the study in which the writer was involved for a number of years called the RHASP (Reduction of Heart Attack and Stroke Prevention) Study. This study, the methodology for care it developed and the software that drives it, is the chronic disease management system that the writer is concerned with in this particular study. Thus, there follows a full description of this study, its origins, aims, and outcomes. Also to fully inform the reader, the writer also has researched and included information on all the different aspects (including the disease itself, its treatment and the current best practice guidelines, the specialised software, the key personnel, the stakeholders and more), that have to come together for such a system to be developed successfully.

2.1 Literature search

A review of the databases CINAHL, Medline, and PUBMED from 1981 – 2007 was conducted to search for articles relevant to the study. Internet search engines, Google, Google scholar and cuil.com were also used to expand the search to articles beyond those published in the traditional journals. Because a large part of this study involved a look at the evolving process including pilot studies in Ireland, this formed the initial basis of the search. The search was then widened generally to look at Ambulatory

Blood Pressure Measurement (ABPM) in primary care, ABPM guidelines, other studies involving shared care, ABPM databases, cardiovascular disease management cardiovascular disease prevention and key words used to guide this search included: blood pressure, ABPM, hypertension, cardiovascular disease (CVD), CVD prevention, primary care, shared care, self blood pressure measurement, shared care, General Practitioners and shared care, and also specific references to the RHASP pilot study, and dabl[®], the disease management system used in the pilot.

A number of articles originated from the United Kingdom, with a smaller number originating from Ireland, Australia, the United States, Spain, France and Canada. Additional articles were sourced by manually searching through relevant journals, publications and news media.

2.2 Cardiovascular Diseases

Cardiovascular diseases (CVD) include coronary heart disease (i.e. heart attacks), cerebrovascular disease (strokes), raised blood pressure (hypertension), peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure. The major causes of cardiovascular disease are tobacco use, physical inactivity, and an unhealthy diet.

2.3 Hypertension

Hypertension is a high prevalent risk factor for cardiovascular disease in the industrialised world.

Making decisions on the management of hypertensive patients should not only take blood pressure levels into consideration but should also include the presence of other CVD risk factors, target organ damage and associated clinical conditions.

2.4 Blood Pressure (BP)

The technique of obtaining a single or conventional BP measurement has been around now for over a century. Despite evidence proving it to be a grossly inaccurate measurement technique, it is still widely used and is one of the few areas in medical practice where patients in the 21st century are assessed almost universally using a methodology developed in the nineteenth century (Floras 2007).

2.5 Ambulatory Blood Pressure Measurement (ABPM)

This has resulted in considerable research into techniques for assessing BP away from the medical environment, particularly Ambulatory Blood Pressure Measurement (ABPM). This technique is now generally accepted as being indispensible to good clinical practice (O'Brien 2003b, Pickering et al 2006, Mancia 2007, O'Brien et al 2003a). ABPM as a technique has a number of advantages which may be summarised by the following:

- The technique gives more measurements than conventional BP and so is a more accurate measurement of real BP due to the repeated measurements.
- Provides a BP profile away from the medical environment allowing for the identification of syndromes such as 'white coat response' (Verdecchia et al 2003).
- Can reveal different patterns of BP behaviour that may be relevant to clinical management (Owens et al 1998).
- Can assess the efficacy of anti-hypertensive medication and duration of effect over 24 hours. (Staessen et al 1997, Redon 1998)
- Is a much stronger predictor of cardiovascular morbidity and mortality than conventional measurement. i.e. ABPM identifies patients who are at risk of future cardiovascular events (Dolan 2005, Kikuya 2005)

The use of ABPM is recommended by several national and international guidelines for the management of hypertension (WHO 1999),

2.6 Experience of ABPM in Primary Care

One of the first studies of ABPM in primary care showed that measurements of office or clinical BP (OBP) made by doctors was higher than those using ABPM. This led the authors to the conclusion that maybe it is "time to stop using high BP readings documented by general practitioners to make treatment decisions". (Little et al 2002) Another study using ABPM in primary care showed that nearly a third of patients were incorrectly labelled from office BP as having poor BP control and were likely to be recalled for unnecessary follow-up and intervention. ABPM showed that these patients actually had White Coat Hypertension. (Lorgelly 2003)

White coat hypertension or the white coat response is a form of conditioned reflex and may best be defined as BP that is high in the clinic or surgery but significantly lower or normal at home or on the 24-hour ABPM. This phenomenon is significant in as far as it may be present in about 20% of all people diagnosed as hypertensive by routine clinical BP.

An Irish study in primary care showed that only 12% of patients achieved target BP with OBP compared with more than a third of the patients assessed with ABPM This was the RAMBLER study, (Uallachain 2006). Furthermore:

- 38% of the patients had a change in their medication as a result of the ABPM
- 32% had a new medication started and
- 14% with high OBPM were not started on medications because their ABPM was normal.

2.7 Primary Health Care

In the Alma Ata declaration, the World Health Organization defined primary health care as "essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally available to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" (WHO 1978). It provided the blueprint for Primary Healthcare for All by the year 2000. The statement of the Ottawa Charter for Health Promotion developed by the WHO followed this Declaration and is internationally accepted as the guiding framework for health promotion activity (WHO 1986).

Primary health care can be viewed as "a strategy to integrate all aspects of health services" The philosophy behind PHC is based upon:

- holistic understanding and recognition of the multiple determinants of health
- equity in health care
- community participation and control over health services
- focus on health promotion and disease prevention
- accessible, affordable, acceptable technology
- health services based upon research method

2.8 Shared Care

Shared Care has been defined as: The joint participation of hospital consultants and general practitioners in the planned delivery of care for patients with a chronic condition, informed by an enhanced information exchange over and above routine discharge and referral notices (Poulter et al 2001)

For shared care models to be successful, family doctors need to view such programmes as an improvement from usual care in general practice, rather than as a downgrade from hospital practice.(Maher 2003)

Whilst it is sometimes mistakenly thought of as a new approach to healthcare, especially when announced in the latest government or European plan of reform for the next generation, shared care has in fact been a long established approach to the management of patients across primary and secondary care systems. The only differences now, are the renewed emphasis on and push for primary care and the methods by which shared care is practised.

A study of shared care in the UK in the mid 90s, (Hickman 1994), concluded that despite the substantial variation in the way shared care is operated, shared care schemes can be classified broadly into six different methods.

- 1. Community Clinics, where the specialist undertakes a clinic in general practice.
- 2. Basic, where communications are comprised of the regular exchange of letters and standardised record sheets between the hospital and GP.

- 3. Liaison, where the GP and the hospital team meet to discuss and agree upon the best management of the patients under shared care.
- 4. Shared care record cards, where the exchange of information is made through a 'booklet' or 'record card', usually carried by the patient between centres.
- 5. Computer-assisted shared care, where a record of information is established between the GP and hospital specialist based on data collected at each patient visit and mediated through computer-generated summaries.
- 6. Electronic mail, where hospital specialist and GP both have access to the same data on the patients shared between them.

Shared care approaches have been applied within health systems around the globe. They have been used to improve care for people with diabetes, cardiovascular disease, mental health problems, functional impairment, renal disease, arthritis, hepatitis, HIV/AIDS and has has also been widely applied in the areas of maternity and palliative care. The broad-based acceptance of shared care approaches can be attributed to the value that shared care adds to patients, the healthcare providers, (GP's Consultants & nurses) and to the health care system. Positive outcomes and contributions of shared care are well documented and include the following:

- Defines tasks, activities and responsibilities of all providers who contribute to patient care, as well as the inter-relationship between providers.
- Promotes understanding and respect among health providers. Providers learn to value the unique skills, strengths and approaches of each discipline participating in patient care.
- Facilitates strong lines of communication between GP's, practice nurses, hospitals, specialist clinics and community groups. As such, shared care strengthens linkages between primary, secondary and tertiary care.
- Encourages knowledge transfer and the dissemination/ sharing of best practices.
- Promotes the application of new and evolving information and communication related technologies.
- Facilitates appropriate targeting of care. Based on patient need, shared care delivers the suitable level of care at the appropriate time. For example, if the patient can be managed by the GP or if higher risk, whether they need to move on to secondary care.
- Increases access to health care services, especially in rural and remote areas.

- Applies clinical tools, like disease management systems that support and advance evidence-based, quality care.
- When home-based, it increases the length of time patients remain in their own home, better prepares patients for hospital stay, and increases understanding and communications between family members and doctors. Additionally, shared care supports active participation by parents in children's health care and decision making.
- When community-based, it improves communication between all involved with respect to referral, feedback, assessment, and issues of privacy and confidentiality; and reduces the public perception that services operate in isolation of each other.
- Is based on a "whole-person" approach that considers the physical, social, emotional and spiritual needs of the patient/family.
- Encourages and reinforces patients' understanding of their disease, sense of control over their condition, and self management and ability to cope. As such, shared care promotes a positive perception of the overall health care system.
- Can lead to increased job/ professional satisfaction among all involved in the process of care delivery.

Presently in Ireland, current HSE publications, such as the HSE Transformation Programme 2007- 2010, (HSE 2007), and the DOH&C published Statement of Strategy 2008-2010 (DOH&C 2008), would suggest it is clearly still government policy to expand and improve primary care services in Ireland. The six identified transformation priorities of the HSE Transformation programme are seen in Table 1, and the seven High Level Objectives of the DOH&C Strategy can be seen in Table 2. Both in Appendix 1.

2.9 Nursing

Nurses today play a central role in patient care in PHC in Ireland and internationally. Future developments include plans for nurses in PHC to undertake a wider range of roles determined by the needs of patients and the community (DOHC 2001a). Nurses are employed in the PHC setting through many different pathways. These areas include not only practice nurses, but public health nurses, midwives, palliative care nurses, psychiatric nurses, mental health & intellectually disabled nurses, school nurses and other specialty nurses. These different nursing groups all provide a nursing service within the community, which incorporates prevention, treatment and rehabilitation. (DOHC 2001a).

2.9.1 Practice Nurses

Practice nurses (PN) are employed by GPs to provide clinical nursing in the general practice setting. In addition their role increasingly involves significant health promotion and disease prevention activity. While primary care continues to evolve PNs are taking on elements of care that were generally performed by the GP. As a result the role of the PN has advanced, in many instances to that of a clinical nurse specialist (CNS) status and advanced nurse specialist (ANS) (Sherlock 2003) Nurse led services in general practice have emerged, including breast & cervical screening, family planning, hypertension, immunisation, women's and men's health and so on. These services provided by nurses include comprehensive patient assessment, development, implementation and management of the plan of care and clinical leadership. (NCNM 2007)

2.9.2 Nurse-led patient management

Part of the disease management system implemented with RHASP, involved nurse led clinics by just such practice nurses. All patients in RHASP underwent an initial comprehensive assessment in nurse-led clinics in the general practices, which included: a cardiovascular history of the patient and first-degree relatives; current medication; lifestyle assessment; height and weight; conventional blood pressure (BP) measurement; ambulatory blood pressure measurement (ABPM)); non-fasting biochemistry, lipid profile, glucose, HbA1c, creatinine and liver function tests.

Follow-up assessments took place at two-monthly intervals with investigations being determined by uncontrolled risk factors and interventions at the previous visit. A final assessment was undertaken six months after the initial assessment when a repeat comprehensive cardiovascular risk factor assessment was performed.

The GP then prescribed appropriate medication and a further guideline advised as to how drug treatment should be adjusted according to the response of serum lipids and blood pressure so as to achieve optimal control. Following initiation of medication, lifestyle advice was provided by the nurses. Finally, a comprehensive report was provided to the patient, general practitioner and hospital physician.

This role by nurses in the primary care clinical setting is very well documented in the literature, and to just give one example, a study in the UK (New 2003), concluded that in patients with diabetes and high blood pressure (BP) or high cholesterol, nurse led hypertension or hyperlipidaemia clinics were more effective than usual care for achieving target BP's and lipid levels.

2.10 Rule of Halves

As stated, cardiovascular disease (CVD) including heart disease, stroke and related diseases is the single largest cause of death in Ireland and accounts for over two in five (43%) of all deaths. Internationally, Ireland has one of the worlds highest rates of mortality from CV disease. A serious problem, and we do not even know the risk status of our population. The rule of halves estimates that:

- Only half of the people with hypertension are aware of it.
- Half of those diagnosed with hypertension are on medications
- Half of those on medications are actually well controlled.

In other words, we are not applying evidence-based treatment to the Irish population.



Figure 2.1

2.11 ASCOT Study

The ASCOT study was a major trial run over 10 years in 7 different countries (including Ireland) and had a study sample of some 20,000 patients. It was a study aimed at looking at different types of blood pressure lowering regimes. Overall the study showed BP lowering of 30% and risk factor control of greater than 30%.

It also had a major sub-study looking at lipid lowering, in other words to bring down cholesterol levels. This sub-study had such remarkable findings that on ethical grounds it had to be stopped with all patients to be put on a Statin. (Statins, form a class of hypolipidemic drugs used to lower cholesterol levels in people with or at risk of cardiovascular disease). The cohort on the lipid lowering arm had overall reductions of events. Likely occurrence of a heart attack was reduced by 36% and stroke reduced by 27%. (Dahlof 2005)

In conclusion, this study showed that with correct medication and optimal care, there was potential to reduce cardiovascular events by more than 50%.

2.12 ADAPT Clinic

At around the same time as the ASCOT study was getting underway, so was the setup of a specialised clinic in Beaumont Hospital, through the Blood Pressure Unit, called the ADAPT (Arterial Disease, Assessment, Treatment and Prevention) Clinic. The ADAPT clinic was conceived to coordinate the management of arterial disease, irrespective of the specialty through which the patient was referred in the hospital. The ADAPT clinic was proposed, therefore, as a clinical response to the increasing burden of arterial disease in a variety of specialties, such as: transient cerebral ischaemia (TIA) and stroke in neurology; coronary heart disease (CHD), hypertension, and dyslipidaemia in cardiology; renal artery stenosis in nephrology; aortic aneurysm, and peripheral-vascular and carotid-arterial disease in vascular surgery; ischaemic colitis in gastroenterology; hypertensive and diabetic retinopathy in ophthalmology; and diabetic vascular disease in endocrinology. (O'Brien 1998)



Figure 2.2

The logical role for the ADAPT clinic was to provide a common strategy for all patients, irrespective of the target organs involved, that would complement the referral source and allow the patient to return to it for specialist treatment.

Patients referred to the ADAPT clinic are first interviewed by a nurse who enters the patient's name, address, age, sex, personal and family history, height, weight, bodymass index, and current blood pressure into the database (dabl®) designed specifically for the management of cardiovascular patients. The nurse arranges various investigations (panel) that have pre-booked times, the results of which are entered on to the database before the patient sees the doctor. The database incorporates a feature that permits classification of patients as high-risk, medium-risk, or low-risk according to risk factors, such as smoking, body mass index, blood pressure, and lipids, and the presence or absence of target-organ damage or arterial disease. Initially high-risk patients are selected for aggressive collaborative management. There are two goals in the treatment of high-risk patients: coordinated and stringent modification of identifiable risk factors, and prescription of drugs, such as statins and antiplatelet therapy, that may benefit the arterial organ or improve haemostasis. For risk modification, the familiar risk factors, such as smoking, obesity, excessive alcohol, dyslipidaemia, hypertension, & glucose intolerance, are addressed.

The ultimate objective of ADAPT was to provide all patients with arterial disease with a long-term strategy of prevention of further risks and the most scientific approach to treatment of their vascular disease with efficient management and treatment of the entire arterial organ to delay or prevent progression of the disease. The ADAPT Clinic soon became extremely busy and as a consequence the burden on the resources within the hospital, and particularly the Blood Pressure Unit grew

exponentially. This led to the question being asked, if it were possible to achieve this level of care in a specialised centre, why not also in Primary Care? This led to the concept and proposal for the RHASP Pilot project.



Figure 2.3

2.13 The RHASP Study

The RHASP project (Reduction of Heart Attack and Stroke through Prevention) was based on the premise that if such effective management was possible in a specialised unit, why not also extend this benefit to patients in primary care? If evidence-based drug management of high risk patients could be agreed and achieved between a specialised centre and primary care, then a model would be available for an innovative national approach to the management of cardiovascular disease.

2.13.1 Objectives of RHASP

The primary objectives of the RHASP project were:

- To provide a means to reduce cardiovascular morbidity and mortality through a collaborative venture with local general practices utilising computer assisted assessment and management of cardiovascular risk factors.
- To affect and maintain a reduction of clinic blood pressure of 12/8mmHg and a reduction in serum cholesterol of 0.8mmol/l. Reductions that might be expected to halve coronary event rates in high risk patients.

2.13.2 Initial Pilot study

Before the pilot study could proceed the following essential infrastructural steps had to be put in place:

- Six general practices in the Beaumont Hospital catchment area were selected on the basis of them having at least basic computer facilities, a practice nurse, the willingness to adhere to evidence based protocols of management for drug treatment and an agreement to provide advice on risk factor management.
- A nurse-led team had to be established consisting of a specially trained nurse coordinator in the Blood Pressure Unit at Beaumont Hospital, and a nurse practitioner in each of the six practices. This would ensure that the agreed protocols were implemented, thereby allowing a uniform policy of management for cardiovascular disease between the Blood Pressure Unit at Beaumont Hospital and the selected general practices.
- The existing computer facilities in each of the general practices had to be assessed and upgraded where indicated.
- Broadband communication also had to be established between the Blood Pressure Unit and each general practice so that the nurses (and doctors) in the general practices and the coordinating nurse and supervising doctor in the Blood Pressure Unit could utilise the dabl[®] Cardiovascular' program. (dabl[®]

Cardiovascular has been certified to meet the national GP software certification standard.) See section on dabl® on page 37. In accordance with Hospital policy at that time VPNs (virtual private networks) were set up between each individual practice and the hospital.

• Each practice was also provided with a 24-hour ABPM device (In the pilot this was a Meditech ABPM device, though any validated device is acceptable and compatible with dabl[®].) The data from the ABPM device was uploaded to the shared system & the nurse received an immediate electronic report, which interpreted the ABPM recording.

2.13.3 Methodology

Assessments were made comparing patients receiving optimal care through the RHASP clinics (recently discharged from hospital (post event) and attending their GPs against those receiving 'Usual Care' from non-RHASP involved GPs. Twenty patients from each practice with one or more risk factors were also assessed.

Initial assessment

A detailed cardiovascular and family history, current medication, lifestyle, height & weight, OBP, ABPM, non-fasting biochemistry (lipid profile, glucose, HbA1c, creatinine, liver function tests) and ECG (electrocardiography) were entered into the dabl[®] Cardiovascular (dabl[®] CV) software system and printed on the dabl[®] flow chart, allowing a summary report to be automatically generated.

		First	Latest		History	
	Targets	12.07.00	10.01.02	13.07.01	23.01.01	11.10.00
Clinic BP mmHg	< 140 / 90	170/96	146 / 86	156 / 92	174/92	180 / 104
White-Coat BP mmHg		187 / 124	158/93	160/110	170/114	176/111
Daytime BP mmHg	< 135/85	164 / 131	131/80	147/91	155 / 100	155/101
Night-time BP mmHg	< 120 / 70	152 / 102	108/62	114/68	121 / 74	140/86
ABPM Plot					the second	
Smoking	Ni1	20 Cig/d	Ex Smo	Ex Smo	10 Cig/d	20 Cig/d
Alcohol units per week	< 21	24	15	10	15	20
Weight kg	< 80	90	76	84	90	91
BMI kg/m [≠]	< 25	30	23	27	30	30
Salt – use of salt cellar	None	Moderate	Moderate	Moderate	Moderate	Moderate
Cholesterol mmol/L	< 5.0	6.9	5.0	6.2	7.4	6.8
Triglycerides mmol/L	< 2.0	1.7	1.2	1.5	1.8	1.6
LDL mmol/L	< 3.0	5.4	3.1	4.0	5.2	4.8
HDL mmol/L	> 1.0	0.9	1.6	1.3	1.4	1.5
Glucose mmol/L	< 6.5	4.4	4.1	4.1	4.0	4.3
HbA1C %	< 7.5	4.2	4.0	3.8	4.0	4.3
Modifiable Risk Indicator						

Figure 2.4

Any initial deviations from optimum management were immediately evident to the nurse, who could then instigate appropriate blood pressure, lipid lowering and antiplatelet treatment as well as any recommended lifestyle modifications.

2.13.4 Interventions

All patients received treatment according to agreed protocols and appropriate lifestyle advice and counseling. They were issued with a healthy lifestyle booklet followed by discussions on diet in relation to calories, fat and salt. Discussions were also held on the subject of alcohol intake and exercise. Patients who were smoking were referred to a smoking cessation officer and if BMI was greater than 30 kg/m2 referral to a dietician was also arranged.

2.13.5 Follow-up assessments

Follow-up assessments occurred at two monthly intervals in the blood pressure unit or the patient could attend the GP at any time. Investigations were dependent on uncontrolled risk factors and the interventions of the previous visit. Six months after the initial assessment all patients underwent a repeat comprehensive CV assessment similar to their initial assessment. If at this stage, patients had persistent sub-optimal control of risk factors, they were offered referral to the appropriate specialist risk factor clinic at Beaumont Hospital, (Hypertension, Lipid or Diabetes), (OBrien 2002).

2.13.6 Results

Blood pressure and lipid control

There were significant reductions in OBP and ambulatory blood pressures between the first and last visit. There was also reductions in total and LDL cholesterol

Drug prescribing

There was substantial improvement in the numbers of patients receiving medication in which if sustained should lead to a significant reduction in stroke and heart attack.

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Life style modification

Only modest improvements in lifestyle risks occurred between baseline and the end of the study, especially in relation to alcohol, salt consumption & participation in exercise.

2.13.7 IT considerations

In all instances, the computer assessment carried out in each of the practices prior to commencing of the RHASP pilot indicated that though there was use of information technology within the practices, this was sub-optimal. The overall outcome of the RHASP assessment was a general improvement in the standard and application of computer technology in these general practices.

2.13.8 Electronic sharing of data

The establishment of connectivity between each of the six general practices and the dabl[®] Cardiovascular system at Beaumont Hospital permitted the practice nurses to perform ABPM by uploading data from an ABPM monitor and receiving directly a computer generated interpretive report from the dabl[®] Cardiovascular system within Beaumont Hospital. Once familiarity with the procedure of accessing and receiving information on their patients using a remote system via the internet had been established, the practice nurses were then able to familiarise themselves with, and apply the risk factor stratification facility to adjust the quality of control according to the pre-agreed protocols.

2.13.9 Financial aspects

The financial support for the RHASP pilot provided not only for a detailed assessment of computer facilities in the practices but also for a contribution of $\in 6,500$ towards provision of the necessary IT hardware for the project. This sum was in lieu of any direct fee for patient treatment. The direct cost per participating practice, (training, a dabl[®] Cardiovascular' licence, hardware & software upgrades), was approximately €16,000. The total cost of the pilot study came to just under €390,000, which, when balanced against its achievements and the potential for significantly reducing stroke and heart attack, has been judged as good value for money.(Cairns 2005)

2.13.10 Lessons learned

Many lessons were learned from the RHASP pilot study and these can be summarised as follows:

- It is possible to establish electronic links between general practice and a specialised hospital centre, with the potential to go national covering all hospitals and GPs.
- The standard of IT in general practice is generally in need of improvement / upgrading, but there is a strong willingness to update hardware and to make efficient use of innovative management systems.
- It is feasible to implement the use of shared evidence based protocols thereby ensuring that high risk patients receive the most appropriate management and treatment and lower risk patients don't put further pressure on secondary / hospital resources.
- RHASP achieved its primary objectives by increasing evidence based prescribing of cardio-protective drugs to bring about and maintain a reduction of blood pressure and cholesterol with the potential to halve the occurrence of stroke and heart attack. On this basis, it may be estimated that if 20,000 high risk patients in the Eastern Regional Health Authority (now the HSE Eastern Region) were managed within the RHASP program over a 10-year period, this would result in the prevention of over 1,000 heart attacks and 500 strokes.
- RHASP has also shown that it is possible to implement evidence based research in primary care within a remarkably short time. The results of the lipid lowering arm of the ASCOT study showing the high reduction in stroke and heart attack in patients receiving a statin were published in the Lancet in 2003, (Sever 2003), and were implemented into primary care within one year, whereas it usually takes several years to bring the results of scientific research into practice.

- One of the unanticipated lessons from RHASP was the feasibility of conducting a virtual consultation between a hospital specialist and a GP sharing common data on the patient using the dabl[®] Cardiovascular program. This leads to the concept of establishing virtual clinics for the management of cardiovascular disease. An eventuality that could have far-reaching managerial and financial implications for healthcare delivery in the future.
- Another benefit was the potential, by default, to the creation of a national database of blood pressure and cholesterol levels and to what extend they are being controlled within Ireland.

2.13.11 Virtual Clinics / Consultations.

The sharing of data using a common database, which the RHASP Project has initiated, facilitates the interactive consultation between a hospital specialist and general practitioner (by telephone or e-mail) without the necessity of referring the patient from one location to another. The next logical step is to establish interactive clinics. A report in Medicine Weekly summarises the preliminary findings of the RHASP study (Obrien 2004).

The RHASP pilot project was further independently audited, (Cairns 2005) and was deemed to be a success. Recommendations were also made to extend the model of the RHASP project to other computerised practices, possibly utilising the Heartwatch infrastructure. And also that consideration should be given to applying the model to other cardiovascular diseases such as heart failure and diabetes.

Since publication of this audit in 2005, and despite agreement by the DOH&C of its merits as a successful pilot, the continuation of the project is to date still on hold awaiting further decision.

2.13.12 RHASP – Final words

"We don't need more data. We don't need more drugs. What we do need is vision. We need to implement evidence-based knowledge, including correct prescribing. We need electronic links between hospital and primary care, we need to invest substantially in it and we need a national database for CV disease."

Prof Eoin O'Brien (HISI Conference 2004)
"It is my feeling that involvement in the RHASP project has had a profound impact on the management of our hypertensive patients...

....There have been wider benefits to the practice in the sense that the treatment goals used by RHASP are now widely recognised within the practice and have been adopted by all members of our team, in dealing with patients at risk of cardiovascular disease. The benefits are not confined to the patients directly involved with RHASP."

Dr George Roberts, GP (Roberts 2004)

2.14 The dabl® System

Data Entry and Presentation

Designed to integrate with numerous systems and devices, dabl® Cardiovascular will automatically upload patient information and investigations and present the information in a very user-friendly format for both patient and medical team. View and edit formats incorporate timesaving features, which are essential for busy clinics. It is fast and efficient in producing results for medical teams whilst providing a secure and easily traceable patient record.

Lifestyle and Risk Factors

Lifestyle factors such as family history, smoking, alcohol consumption, weight, salt intake, activity, etc. can be entered and later incorporated in risk factor stratification. Investigations, such as the lipid profile that contribute to risk factor stratification can be entered. Dabl screenshot and sample printout in Appendix 2.

Blood Pressure Assessment

dabl® Cardiovascular incorporates the internationally acclaimed dabl® <u>ABPM</u> which has special features designed to provide comprehensive evaluation of Ambulatory Blood Pressure Measurement. dabl® <u>ABPM</u> will automatically upload data from a range of ABPM devices and display the results in this unique graphic display. dabl® <u>ABPM</u> also generates comprehensive printed reports for the medical team.

Target Organ Assessment

Target organ involvement, such as ECG voltage criteria or echocardiographic criteria for left ventricular hypertrophy, fundal change, microalbuminuria, biochemical abnormalities, arterial tonometry and other measures of target organ involvement as seen to be appropriate can be entered and are incorporated in the total cardiovascular risk assessment.

Risk Stratification



dabl® Cardiovascular assists the physician in the interactive

assimilation and presentation of the variety of data now being generated for patients with cardiovascular disease. Based on the best evidence from the major epidemiological studies dabl® Cardiovascular indicates cardiovascular risk based on the general risk factors presented, such as smoking, weight, cholesterol and blood pressure and indicates by means of dials if the patient is at high, medium or low risk.

This risk assessment is then combined with the target organ indicators to give a global indication of total cardiovascular risk. Relevant data is transformed and combined to produce an indicator so that an overall picture is presented in a standardised and visually unambiguous manner. In this regard they serve to remind the managing doctor of the severity of risk, while also providing a useful means of demonstrating to the patient an estimate of risk and the beneficial effect of risk factor modification.

Disease Management Reporting

dabl® Cardiovascular can generate a series of comprehensive reports in natural language. Acknowledged by users as the most comprehensive and user friendly for both medical team and patient.

Letter Generating Facility

Another special feature, with considerable time saving implications, is a semiautomatic letter writing facility. The consultant can generate a fully comprehensive letter using drop-down menus, without the need for typing skills, from information already in the patients file and from clinical information entered at the clinical assessment.

2.14.1 Advantages of dabl® Cardiovascular

The use of dabl[®] Cardiovascular allowed a radical change in outpatient management in the Blood Pressure Clinic (BPU) at Beaumont Hospital, which resulted in waiting lists for attendance being halved and reduced to no more than 6 to 8 weeks, which is the maximum that patients with high blood pressure should have to wait before receiving expert advice. This was achieved by establishing a nurse-led facility in the BPU to which newly referred patients were directed for enrollment in the dabl[®] Cardiovascular database, following which pre-booked investigations were performed. Within two weeks the patient was seen by a consultant, who was then able to make both a diagnostic and management decision at one consultation by virtue of having a comprehensive database containing all relevant information on history, risk and target organ status. This contrasts with standard outpatient practice, which depends on referral directly to a consultant, who makes a provisional diagnosis and then refers the patient for investigations after which the patient returns at some future date for a second consultation where a management decision is made.

2.14.2 Other advantages

Other advantages of the dabl[®] Cardiovascular management system were:

Risk factor categorization: allowing patients to be classified as high, medium and low risk. Incorporation of another simultaneous database that includes a pharmacopoeia based on the British National Formulary with an alerting system for drug interactions.

Scheduling of future appointments:

The automatic generation of a letter for both patient and general practitioner, as well as a flow chart, a prescription, and a dabl[®] ABPM report. [Fig 1 & 2]

The experience from applying the dabl[®] Cardiovascular management system to managing a busy outpatient clinic demonstrated that computer systems can improve outpatient management and reduce waiting lists. Unfortunately, clinicians have not previously accepted computerised methodologies in health care with enthusiasm (Benson 2002a, Benson 2002b). See section, Secondary Care Obstacles in Chapter 4.

There is a serious misconception among clinicians that software programs designed for disease management can simply be installed in a computer and thereby bring about order and beneficial change. Clinical medicine is too complex and its management origins too inflexibly rooted in tradition to permit the ready application of computerisation to solve its many problems and procedural change must precede the introduction of innovative computer programs.

2.15 Research Benefits of a central database

'The analysis of data on clinical outcomes has undoubtedly led to many local improvements, but such analysis is inevitably limited by three issues: small samples, lack of detailed knowledge of what others are doing, and paradigm paralysis. These issues can be partially overcome when multiple health care organizations work together on focused clinical quality improvement efforts. Through the use of multiorganizational collaborative groups, literature reviews, expert panels, best-practice conferences, multiorganizational databases, and benchmarking groups, organizations can effectively pool data and learn from the many natural experiments constantly underway in the health care community. A better understanding and wider use of collaborative improvement efforts may lead to dramatic breakthroughs in clinical outcomes in the coming years.' (Plsek 1997)

2.16 Risk factor management

Ireland is not alone in failing to cope with risk factor modification in CVD. The ASPIRE study in the UK and the EUROASPIRE Studies I and II have shown that risk factor management in Europe is currently very poor. Furthermore, EUROASPIRE II has shown that traditional methods of influencing risk are ineffective.

(Synopsis: The EUROASPIRE studies looked at lifestyle and risk factor management and use of drug therapies in coronary patients from 15 countries including Ireland.) In ASPIRE, assessment of the care of almost 2500 cardiac patients attending specialist units, showed that risk was simply ignored in many patients, (smoking was unrecorded in 17% of patients, BP in 25%, lipids in 60% and blood glucose in 30%). Risk factor modification six months after a cardiac event was even worse, (18% of patients continued to smoke, 25% had poorly controlled BP, 75% had elevated cholesterol, 75% were overweight and 10% had high blood glucose (Bowker 1996). The EUROSPIRE studies also fared badly with the prevalence of hypertension, obesity, smoking and diabetes almost unchanged in the five years between the two studies. As well, these risk factors were unrecorded as risks in almost 1/3 of the patients being discharged from hospital, and BP, cholesterol and weight was not mentioned in over half of discharge letters to GPs (Euroaspire 1997, EuroaspireII 2001).

As primary care physicians are strongly influenced by hospital recommendations, this failure of cardiologists to ensure patients receive adequate risk factor advice is possibly further perpetuated in primary care.

In contrast, the North Karelia project in Finland, in which significant declines in BP, cholesterol levels and smoking were associated with a 57% drop in cardiovascular mortality rates for middle aged men over a 20 year period. (Puska 2002)

2.17 Guidelines and Recommendations

One key area in which dabl[®] could progress is in the direction of decision support with recommendations or suggestions being given to the doctor as to the best form of management for this patient based on the current findings and using current evidencebased best care. However, a major obstacle to this development lies in the many different guidelines that exist including (but not exclusively):

- Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). 2007 Guidelines for the Management of Arterial Hypertension (Mancia 2007)
- The 2003 World Health Organization (WHO)/ International Society of Hypertension (ISH) statement on management of hypertension.
- Recommendations for blood pressure measurement (in humans and experimental animals): Part 1: blood pressure measurement in humans: a statement for professionals from the subcommittee of professional and public education of the American Heart Association (AHA) council on high blood pressure research (Pickering 2005).

- Practice guidelines of the European Society of Hypertension for clinic, ambulatory and self blood pressure measurement (Obrien 2005)
- British Hypertension Society (BHS) Guidelines for hypertension management 2004 (BHS-IV): summary. (Williams 2004)
- The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report. American Medical Association (AMA) (Chobanian 2003).
- Antihypertensive Treatment Based on Blood Pressure Measurement at Home or in the Physician's Office. (THOP) Trial Investigators (Staessen-2004)
- Canadian hypertension society guidelines for ambulatory blood pressure monitoring (1999).
- First International Consensus Conference on Blood Pressure Self-Measurement. Development of diagnostic thresholds for automated selfmeasurement of blood pressure in adults (2000).

An exhaustive list, and this does not even include guidelines that can exist at state level in some countries, local health area practices, even policies and procedure guidelines within individual institutions and hospitals.

How then can any decision support exist without unification. There have been calls for a generic hypertension guideline (Staessen 2007).

2.18 Secondary Prevention of Cardiovascular Disease

There exists in Ireland another disease management system for cardiovascular care. The Heartwatch Programme. On initial appearance Heartwatch may appear to be much the same as the RHASP concept discussed throughout this dissertation. It may also appear to the reader that this writer was remiss in not analysing both systems, however, as described below, they are different and as such to investigate both systems would have been to extend the research into a much broader field covering two distinct areas of cardiovascular disease. In the interests of the reader and to not leave any questionable doubts or gaps in the research approach of the writer, a brief outline of Heartwatch is given. The Cardiovascular Strategy (DOH&C 1999) made over 55 recommendations for general practice and primary care's involvement in promoting, preventing and treating cardiovascular care. One of these recommendations stated that secondary prevention for most patients with cardiovascular disease should be provided in the general practice setting. It also proposed that there should be guidelines for the shared care of patients between general practice and hospitals for patients with coronary heart disease (CHD) and that a nationally agreed structured approach to the ongoing care of such patients be put in place in general practice. The outcome of these recommendations was the Heartwatch Programme.

2.19 Heartwatch Programme

Heartwatch was a major initiative involving some 480 GP's (20% of a total of 2400 Irish GP's) at a cost of \in over years. The parties involved in setting up Heartwatch were ICGP - National Programme Centre, Independent National Data Centre, Irish Heart Foundation, Department of Health and Children, Irish Medical Organisation (IMO) and the Health Boards. It principle features were:

- 1. Aim of reducing morbidity and mortality due to cardiovascular disease.
- 2. To be based in general practice
- 3. Envisaged a key role for practice nurses
- 4. Involved considerable emphasis on use of computerised systems.

In practice Heartwatch and RHASP are almost identical in their ideology for implementation and share a similar data cycle.

However they differ in two very important aspects:

1. Heartwatch is focused on cardiovascular patients who have been treated in hospital. (Have had a previous Myocardial Infarction (MI), Angiography (PTCA), or Coronary Artery Bypass Graft (CABG)). RHASP on the other hand was directed at patients of varying risk levels, including high risk patients with or without a previous event. The primary goal of RHASP was to reduce cardiovascular morbidity and mortality by facilitating the prevention of cardiovascular events.

2. The methodology is also different in that Heartwatch is directed at primary care, whereas RHASP is focused on share-care between general practice and a specialised hospital centre, with management being implemented in both settings, according to evidence-based protocols.

Despite their unique features and approach, it is acknowledged that both Heartwatch and RHASP have a contribution to make and that a possible future joint venture, with the agreement and involvement of the National Cardiovascular Information Systems (NCIS) Steering Committee (NCIS 2005), could synergise into a system that encompasses all aspects of cardiovascular disease and benefits Irish healthcare as a whole.

Using a Standard Protocol

The programme employs a standardised approach as called for in the National Strategy. It adheres to internationally recognized cardiovascular prevention guidelines ('Prevention of Coronary Disease in Clinical Practice 1998' Second Joint Task Force of European and other Societies on Coronary Prevention.)

The guidelines are used:

- To determine the risk factors to be used in follow up.
- To determine the interventions to be used to achieve control.
- To determine the clinical events to be monitored for the purpose of evaluating progress

Findings

The second report of Irish College of General Practitioners (ICGP) Heartwatch programme published in 2006 found that the 20% of Irish practices involved had managed to prevent 81 deaths in the first two years (Heartwatch 2006).

Favourable results were also shown for certain risk factors such as control of blood pressure and cholesterol with little change in areas such as weight and exercise levels.

As well as the deaths that have been prevented or postponed, more than 500 life-years have been gained over the first two years of the Heartwatch programme, according to the report. Other significant findings include:

• Substantial improvements in reducing the levels of the three main risk factors:

smoking, (ii) cholesterol and (iii) blood pressure

- Important improvements in the prescribing of secondary preventive therapies
- Little or no improvements in BMI, waist circumference and exercise
- Improved screening and uptake of treatments in patients with diabetes
- The cost of the programme was found to compare favourably with the costs of other preventive services
- Higher prescribing rates of secondary preventive therapies for GMS patients in the Heartwatch programme when compared with all GMS patients with CHD registered with Heartwatch GPs, but not actually in Heartwatch

Professor John Feely, Chair of the Heartwatch National Steering Committee stated, "With the enthusiastic co-operation of patients, it shows how collaboration between those charged with the delivery of care - practitioners and nurses, Project Directors and Unit Managers working with planners - can deliver a national health strategy in a seamless manner." (Heartwatch 2006).

2.20 GPIT

Summary of Project

The Health Service Executive and the Irish College of General Practitioners have come together to restructure and reactivate the National General Practice Information Technology (GPIT) Group. There are two parts to the group, an educational section headed by Dr Brian Meade with 12 GPIT facilitators around the country and a projects section with Dr Brian O'Mahony as project manager.

Education

The GPIT computer network has been re-formed to provide support, training and advice to GPs with ICT issues. It is to provide much needed help to practices about to get started or are hoping to make progress along the road to the development of a fully computerised practice.

The focus of the new GPIT training programmes will be on practice based support, and will attempt to get them to develop and increase the role of information technology in their practices.

Projects

The projects section includes the following activities:

- To maintain the practice management system accreditation process.
- To facilitate further development of the accreditation process to advance ICT within general practice.
- To provide guidance and support to general practice on ICT infrastructure requirements.
- To support the national GPIT coordinator and facilitators.
- To establish working links with all appropriate agencies involved in the provision of Primary, Community and Continuing Care.
- To ensure an integrated approach to ICT development in Primary Care.
- To ensure value for money from the investment in ICT with general practice.

2.21 Previous Studies

Throughout the review of the literature, no studies within Ireland or internationally was found, relating specifically to the writers research question.

References were found in various papers and publications addressing different issues of implementation, whether political, financial, organisational or professional barriers, but no specific study per say looking at this particular phenomenon. In light of this it seems timely to contribute to filling this gap by conducting this study.

2.22 International

Whilst researching into the linking up of primary care to a central system, two other countries were found to have implemented this already with regard to clinic (or office) blood pressures (OBP), and more specifically, 24hour ambulatory blood pressure measurements (ABPM). Neither country was linked to a disease management system such as that of the RHASP / dabl® model, but both have realised not only the significance of ABPM in the treatment of hypertension (HYPERTENSION) and cardiovascular disease (CVD), but also of the role general practice can play in combating this disease in primary care. The Spanish study created

a central repository or national registry of BP and ABPM data. The UK model is a pay-for-performance type scheme where GPs are paid for achieving targets.

2.22.1 Spain

The Spanish Hypertension society has recently developed a nationwide project based on electronic transfer of data to promote the use of ABPM in primary care. The study involved 1126 GPs compiling more than 20,000 ABPM records. ABPMs recordings and all corresponding clinical records were sent to a central database via <u>www.cardiorisc.com</u>. To date, this is the largest study on ABPM in primary care. The study demonstrated that there was a wide discrepancy between OBPs and ABPM, particularly in patients with severe office HYPERTENSION. High risk patients also had the most unfavourable ABPM level when compared to low-moderate risk patients (despite receiving much more antihypertensive treatment) and high risk patients also showed a prevalence of a nocturnal non-dipper pattern.

These advantages of ABPM have led to the extension of this programme nationwide in Spain (Banegas 2007). These observations support the recommendation of a wider use of ABPM in high risk hypertensive patients (Gorostidi 2007). Parati et al (2007), in an editorial commentary of this study, urges the wider use of ABPM to gain more accurate risk classification of patients in the community and to obtain a more accurate estimate of the community control of BP. As in the Irish study, BP control was better assessed with ABPM than with OBPM indicating that BP in the community is possibly being underestimated by conventional measurement.

2.22.2 United Kingdom (UK)

Quality and Outcomes Framework

The quality and outcomes framework (QOF) in the UK represents the largest pay-forperformance scheme in the world. General Practices receive financial resources /remuneration by earning points for achieving set targets when providing services. This framework is not just for tackling cardiovascular disease. It is across a number of different clinical areas, the number of which is growing. A key feature of the Quality and Outcomes Framework is the encouragement of appropriate and high quality clinical care for patients with chronic diseases.

Problems with performance related pay in primary care

With regard to the BP/ cardiovascular targets there has been much criticism in the UK. Some targets (and therefore financial rewards) for controlling cardiovascular disease can be met by simply measuring the required proportion of patients achieving, for example, set blood pressure targets (<150/90mmHg).. However, this does not represent good management. Many practices achieve near maximum points for blood pressure control, despite therapeutic inertia – that is, failure to increase current or start new medication when control is poor. By earning the maximum number of performance indicator "points," an average sized practice can earn about £125 000 in addition to its usual sources of income. Currently, 15% of all payments (estimated to be worth £Stg200m across the ~11 000 general practices in the UK) can be achieved simply by measuring and recording cardiovascular risk factors.

Guthrie and colleagues show how general practices can earn many points and extra payments without this necessarily indicating a reduction in the risk of cardiovascular disease (Guthrie 2007). For example, a practice could receive nine points (each worth about £125) for generating a list of patients with hypertension. An extra 30 points would be earned if 90% or more of such patients have a record of risk factors (blood pressure and smoking history) in their notes, and 56 more points would be earned if 70% or more of such patients have a record of pressure lowered to below specified target values.

They argue for increased incorporation of treatment information into outcome indicators. This makes sense, because it is the treatment of risk factors that reduces risk, not their measurement. Performance indicators should not be based on the measurement of risk factor levels, people who receive effective preventive treatment, in addition to encouraging sensible dietary and lifestyle measures (such as smoking cessation).

Also, although the completeness and accuracy of these lists might be subject to external audit, there is no real evidence available that these targets (e.g. BP) are actually met. A quick BP check by a GP gives no hard copy or tangible medical evidence. This is another advantage to using a centralised disease management system/ database such as dabl®, because all BP readings are downloaded directly

from the 24hour ABPM device. This eliminates a lot of the problems associated with audit and the administrative workload as well.

Whether or not doctors should receive financial incentives for providing medical care is also debateable, Should police officers be paid extra for catching criminals?) The treatment and prevention of cardiovascular disease is becoming a series of isolated tasks predicated on financial rather than clinical value and linking each task to the receipt of money means that it is money rather than medical judgment driving practice. (Wald 2007).

"The resources currently used to fund the management of risk factors and the QOF payments that follow them could be redirected into paying for the drugs used in treatment. The financial element would then be directly linked to treatment and prevention rather than the process. Payments should be based more on treatment and prevention and less on risk factor measurement."

2.22.3 France

A National Registry for Pulmonary Arterial Hypertension has also been initiated in France (Humbert 2006). This has nothing to do with cardiovascular disease or hypertension as it is what can be described as an 'orphan disease'. (It is characterised by the remodelling of the small pulmonary arteries, has a very low prevalence rate and can be idiopathic, familial or associated with other diseases such as congenital heart disease, HIV, exposure to toxins, drugs etc. The trend is to treat with management in a few designated centres with multidisciplinary teams working in a shared care approach.) However the aims of the registry were to describe the clinical and hemodynamic parameters of the condition and to provide estimates of its prevalence and treatment according to standardised definitions and protocols. Like the Spanish Hypertension Society database, this is another example of a model for hypertension and cardiovascular disease that other countries could follow to develop their own national registries through programs like the RHASP/dabl® system.

2.22 Summary

This literature review focused on cardiovascular disease, the significance it has on world health, and the ways that various European, local government and other regulatory bodies are attempting to combat it. It also looked at the current emphasis on shared care and primary care as a major part of the future in healthcare and what is being done to assist them in this role, for example the research and the development of software tools in disease management. And finally, having been hailed as a success what are the obstacles or barriers to the implementation of this software based system.

2.23 Conclusion

This literature review provided the writer with information on cardiovascular disease, and its significant impact on world health. More than this however the writer gained a valuable insight into the Primary Care sector and its importance in the overall Irish and indeed most countries, healthcare systems. This knowledge was useful during the conduct of the interviews and assisted the writer in drawing information from the participants about their views and experiences. It also highlighted the potential themes/ obstacles that the writer expected to come to light during the interview process and allowed to writer to be prepared.

The writer felt that the literature review strengthened the case for proceeding with the study to explore the potential or perceived obstacles to implementing a national chronic disease management system to combat cardiovascular disease.

The next chapter will look at the methodology for further data collection in the analysis of the research question. The writer will look at the different types of research methods, quantitative and qualitative, the reasons behind the method chosen and how it was used in the context of this particular research project.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This section describes the research methodology used in this study. The section begins by identifying the research question and the overall purpose, aims and objectives of the study. The research design best suited to this question is then discussed. The study population is identified. The sampling method used, the collection method and the technique for analysing the data is discussed.

This study set out to discover what were the obstacles that are preventing the uptake of a successfully proven cardiovascular disease management system that not only was of benefit to patients, primary and secondary care, but also represented good value for money (VFM) as well. The RHASP /dabl® system or model of care.

This is an issue about which little was known to the writer. Qualitative research is often undertaken when the phenomenon is poorly understood and the writer wishes to develop a rich, comprehensive and context-bound understanding of the phenomenon (Polit et al 2001). Furthermore qualitative research methods are based on data collection methods that are flexible and sensitive to the social context in which they are produced. Therefore it was decided that a descriptive qualitative methodology was the most appropriate means by which this issue could be researched.

3.1 The Research question

The research question has a very important function in a study as it guides the research method. (Polit et al 2001). In qualitative research the research question tends to be broad in focus to allow for discovery of the meaning of the phenomenon being explored.

The concept for this inquiry came about as a result of the writer's previous involvement in a pilot study, The RHASP (Reduction in Heart Attack and Stroke Prevention) Study, which was co-ordinated by the BP research unit where the writer was previously employed in the capacity of IT support to the GP practices involved. This pilot study was a collaboration between a group of general practices, the Blood Pressure Unit at Beaumont Hospital and the Department of Health & Children, with an aim to reduce cardiovascular mortality and morbidity in a cost effective manner by facilitating the prevention of cardiovascular events in the community using computer assisted assessment and management of cardiovascular risk factors. A full description of this study and the resultant disease management system developed is given in Chapter 2.

3.2 Purpose, Aims and Objectives of this study

The purpose of this study was to identify the reasons behind the apparent slow uptake and almost nonchalant attitude towards such a worthwhile system.

The research aims are the specific accomplishments the researcher hopes to achieve by conducting the study and helps to give focus to the study (Polit et al 2001). The research objective may be broader and in this case, can include making recommendations to assist in any obstacles found in the study findings. (Polit et al 2001).

The primary aims in conducting this study are to describe the experiences and opinions of the subjects interviewed, about the RHASP /dabl[®] system that was developed and to consider the implications of the findings in the future of such a system.

The primary objectives in conducting this study are:

- Describe the experiences and educated opinions of those who were involved with the RHASP / dabl® study.
- Identify what they think the obstacles are and why they think the system has not become the solution to the problem it was intended to be.
- Explore the potential solutions to overcoming these obstacles.

3.3 The Research Design

The purpose of the research design is to provide a plan for answering the research problem. The research design guides the researcher during the conduct of the study and in the analysis and evaluation of the data. In this section the writer will briefly outline the differences between qualitative and quantitative research.

Qualitative research is the most appropriative for this study, thus the philosophical and theoretical underpinning of this method will be very briefly identified and discussed as well. This will be followed by a short discussion on the various qualitative research methods available and a more detailed discussion on the phenomenological method which was identified as the most appropriate method for this study.

3.4 Quantitative and Qualitative Research

Medical research utilises both quantitative and qualitative methods of research. Quantitative research is a formal, objective and systematic process, whereby data is used to gain information about the world. This approach is used to describe variables and to examine relationships between variables. By contrast, qualitative research seeks to understand the whole of the human experience and to gain insight into human behaviours. It is a systematic, interactive approach used to describe life experiences and give them meaning.

Qualitative research represents a diverse set of techniques and philosophies that underpin research practice in the human sciences (Silverman 2000, Mason 1996).

3.5 Rationale for Qualitative Research

Having decided on the main question to be addressed in this research project, the writer initially had planned on doing a quantitative study. The initial idea was to draw up a questionnaire that could be distributed to the GP population of Ireland (n~2400). This questionnaire would start at the level of computerisation within the GP practices, their experiences and thoughts on Shared Care, the role of Primary Care within the Irish Healthcare system and their attitudes to a national chronic disease management system, specifically for Cardiovascular Disease. However due to the writer's previous experience and with the current prevailing pressures on the time and resources of GP's it was felt that the response rate would probably be quite poor giving little information from which to make any meaningful statistical analysis. The writer then decided that a qualitative, as opposed to a quantitative approach would be far more beneficial.

3.6 Qualitative Research

'Techniques and procedures, however necessary, are only a means to an end. They are not meant to be used rigidly in a step-by-step fashion. Rather their intent is to provide researchers with a set of tools that enable them to approach analysis with confidence and to enhance the creativity that is innate, but often undeveloped, in all of us.' (Straus-Corbin 1998)

Qualitative research is a field of inquiry that cuts across disciplines and subject matters. Qualitative researchers aim to gather an in-depth understanding of <u>human</u> <u>behavior</u> and the <u>reasons</u> that govern human behavior. Qualitative research relies on reasons behind various aspects of <u>behavior</u>. Simply put, it investigates the why and how of <u>decision making</u>, not just what, where, and when. Hence, the need is for smaller but focused <u>samples</u> rather than large <u>random samples</u>, which qualitative research categorises data into patterns as the primary basis for organising and reporting results. Qualitative researchers typically rely on four methods for gathering information:

- 1. participation in the setting,
- 2. direct observation,
- 3. in-depth interviews,
- 4. analysis of documents and materials

3.6.1 Paradigms

Quantitative and Qualitative Research may appear quite different, but in practice both have a valuable contribution to make. The choice of method then must take into account the paradigm that underpins that method. A paradigm is a world –view, a set of propositions that explains how the world is perceived. Hence, the paradigm informs the researcher as to what is important (Annells 1999). Two broad paradigms often used in medical research are:

• The Positivist Paradigm. This is regarded as the traditional social research paradigm and is characterised by its claim that science provides us with the

clearest possible idea of knowledge. That there is a reality out there that can be studied and measured. Personal beliefs and biases are kept in check and orderly disciplined procedures are used to test the ideas. Quantitative research methods are thus associated with this paradigm.

• The Naturalistic Paradigm. Qualitative data lies within the naturalistic paradigm. Reality is not considered a fixed entity and there is a belief that there are multiple interpretations that exist in peoples' minds and that there is no process by which the ultimate truth (or falsity) can be determined. It aims to understand the human experience as it is lived, by the collecting and analysing of narrative, subjective materials. (Polit et al 2001).

This study sets out to gather and analyse the opinions and experiences of those involved in the RHASP / dabl® study. Studies that seek to describe the human experience are addressed through qualitative research methods. Thus the naturalistic paradigm underpins this study.

3.6.2 Philosophical Underpinnings of Qualitative research

All systems of investigation are founded upon a number of assumptions, which can be classified according to four levels of understanding. (Maggs-Rapport 2001). These are:

- Ontology: What is reality? It is concerned with the subject matter.
- Epistemology: What counts as knowledge of the real world?
- Methodology: how understanding of the nature of reality might be gained.
- Methods ± How can evidence be collected about reality?

3.6.3 Types of Qualitative Research

Once a qualitative analysis approach was decided upon, the first obstacle the writer encountered was to choose which method of qualitative analysis to use. Embarking on a quest to learn about the different methods available became a major task that could have easily become a dissertation in its own right, such is the magnitude of information available. There are many methods by which qualitative research can be conducted, including ethnographic, phenomenological and the grounded theory, method. All of which had some legitimacy in being suitable for this study.

- Ethnography, which has been described as both theory generating and a holistic approach to data (Polit et al 2001) With its origins in social anthropology, it emphasizes the natural environment of the research participants and the relationship between research participants and cultural world. An ethnographic study demands extensive periods of time `in the field', and total immersion in the research participants' way of life. Immersion through participant observation makes the ethnographer the instrument of research collection. Though the writer was 'in the field' in a sense for the RHASP/ dabl® study being an active participant in the role of IT support and also as a member of staff at the Blood Pressure Unit, Beaumont Hospital, he was not actively involved with the use of the system and the patients it helped.
- The Phenomenological method. This is popular particularly within nursing research. The approach enables the researcher to acquire meaning and understanding from the perspective of participants living the reality, rather than from the researcher's perspective. It is based on the belief that the way in which people experience their world is grounded in their life experiences, through what they hear, see and feel (Polit et al 2001).. In phenomenology, data analysis occurs concurrently with and after data collection. (Colaizzi 1978). Colaizzi's framework for data analysis can be summarised as these 7 stages:
 - 1. Read each transcribed interview in order to improve understanding and gain a feel for what is being said.
 - 2. Significant statements and phrases relating to the phenomenon under investigation are extracted from each interview.
 - 3. Meanings are formulated from each significant statement.
 - 4. Significant statements are organised into clusters of themes
 - 5. Collectively, the themes are used to provide a description of the phenomenon.
 - 6. Reduce the exhaustive descriptions to an unambiguous statement of the fundamental structure of the phenomenon

7. Final validation is sought by returning to participants with results of analysis.

Initially this seemed a suitable method, and was the writers first choice, as the writers research was to involve the extraction of reasoning's from GP's and expert sources on what they thought the obstacles to the take up of this new cardiovascular management system were. However a major issue with this method was the seventh and final stage as the writer would probably not be afforded the opportunity to return to the participants with results of the analysis to seek validation. In the case of the experts, the writer felt privileged to be granted an interview in the first place and so felt that to ask for a follow-up interview would be considered inappropriate and so not an option. With regards to the GPs, the writer also felt that, whilst those interviewed were happy to do so once, to be approached a second time would not have been so well appreciated.

Qualitative research has been influenced by a branch of philosophy known as 'phenomenology', whose aim is to understand how we came to know the world as we do. The notion that reality changes and develops according to a persons experiences and the social context in which they find themselves is central to this philosophy (Polit et al 2001).

• Grounded Theory uses a prescribed set of procedures for analyzing data and constructing a theoretical model. It is helpful when current theories about a phenomenon are either inadequate or nonexistent. It generally focuses on a process related to a particular topic, with the ultimate goal of developing a theory about the goal.

Method:

- 1. Interviews usually play a major role.
- 2. Observations, documents, historical references, tapes and anything else of potential relevance to the research question may be used.
- 3. The researcher develops categories to classify the data and then goes looking for subsequent data to saturate those categories, and find any disconfirming evidence that might suggest revisions in the categories identified or in the interrelationships among them.

This methodology has the advantages of being versatile, helpful involving phenomenon in which current theories are either lacking or don't exist and provides a

structured and relatively systematic way of reducing down a large body of data into a concise conceptual framework that describes and explain a particular phenomenon (Strauss & Corbin 1998). It also has the disadvantage of potentially predisposing the researcher to identify categories prematurely, (as did happen initially in this study, and is discussed in the results chapter.

Grounded theories are derived from data and are likely to enhance understanding, provide a meaningful guide to action, offer insight and reflect reality (Strauss & Corbin 1998). The emerging theory is based on observations and perceptions of the social scene and evolves during data collection and analyses in the actual research process.

As there was no documented evidence as to the answer of the phenomenon being asked by the writer, and because at the same time he thought he had very definite ideas as to the expected answers to the research question, this approach seemed to fit best.

3.7 Data collection

As well as the interview process, the writer, by virtue of his prior involvement had access to a lot of the documentation and communication from the pilot study and its findings. This was used in the building up and sometimes verification of the data and overall themes that emerged from these interviews.

A series of interviews with different GP's was decided to be the best method of data collection. The writer thought to interview up to six doctors known to have used, (and possibly still using), the disease management system as previously discussed in the RHASP study. Another benefit was that these doctors were known to the writer and so it was also assumed that they would be more willing to be interviewed by the writer. To gain a different perspective the writer was also going to interview another six doctors who were not involved in RHASP. It was presumed that they would have a different outlook on the question being asked having not used such a system. Further thought however, showed this to be a false presumption due to the fact that maybe they had used such a system in a different area of healthcare/ disease management. ie Diabetes or Oncology systems. There would also be issues with the

variability of the GP practices themselves, unlike the RHASP practices, whose similarities included:

- 1. A willingness or previous experience with shared care.
- 2. A high level of computerisation within the practice
- 3. A trained practice nurse to run specialised clinics.

If any one or more of the practices didn't use any form of computerisation or didn't have a practice nurse or indeed had no real interest in being involved with shared care, then it follows that they would have little use, need or want from any sort of centralised system.

Whilst this can and should be considered to be a substantial obstacle to the implementation of such a system, it would add little insight to the question being asked here, because it doesn't give a definitive quantifiable number to indicate how many of the GP's in Ireland are in such a position. So it is suffice to know that this is an obstacle and that there are a number of GP's within Ireland who fall within this category.

It was decided that better more informative data could be garnered from talking to GP's who were at a more technologically or enlightened/ contemporary position with regard to the current and future direction of the healthcare system within Ireland.

3.8 Study Population

As the number of GP's in the RHASP pilot study was of a limited number, it was felt that more research would be required to understand the issues involved with this particular question. Despite extensive research of the literature, both academic and public, and all that it revealed, it was decided by the writer that a more complete overall picture of the current situation within Ireland, the development of a cardiovascular disease management system and the problems and obstacles involved in the creation of a national system could be better obtained by talking to experts in the field.

This became more important when initial projections manifested and only two of the six original RHASP GP's gave consent to be interviewed.

The writer wanted to get as complete a picture as possible and so decided to interview a wide variety of experts covering all the stakeholders deemed to be involved or have a vested interest in this system. In addition to the GP's, this included the government, the Irish Heart Foundation, The National General Practice Information Technology (GPIT) Group and dabl® Ltd (the company developing the software behind the system). The writer also secured time with a former Senior Official to the European Union who has interest with Irish healthcare and eHealth through partnership in an Irish Medical company, Tele Health Services. A request for a formal interview was declined but the writer did manage to obtain some insights and views from a European perspective, that have been incorporated into the research.

A third GP not involved with RHASP, but a user of the dabl® software and National co-ordinator of the GPIT Computer Network was also approached to represent both the GP's and the GPIT group.

3.8.1 Interview

Interviewing the GP's was thought through and a structured approach with predetermined questions was deemed to be the best approach due to the time constraints of the GPs. However there was scope for them to speak ad lib at the end of the interview if they wished to do so.

Because all the experts approached were from differing fields and occupations it was obvious that a structured interview was not going to be feasible. A very casual semistructured interview approach was decided upon with the idea of just a few questions to guide the interview. Then the interview began with an introductory question.

3.8.2 Confidentiality

Confidentiality refers to the protection of and the respect for the information gathered from the participants during the research. In the case of this study, protecting participants identify would have been a futile exercise as they are unique in the their roles within the framework of the system under review. The writer explained his position as a student studying for an MSc in Health Informatics at Trinity College Dublin. He stated his previous involvement with research, cardiovascular disease and with the RHASP / dabl® pilot study. He then went on to explain his research topic, the title of his dissertation and his reasons for interviewing, with the reassurance that the information gathered and scrutinised was purely for research purposes and not for

public or commercial consumption. All participants agreed and willingly gave their names, occupations and consented (verbal) interviews.

3.8.3 Reliability and Validity

Four criteria are suggested for establishing the trustworthiness of qualitative studies. They are credibility, dependability, conformability and transferability.

- Credibility refers to confidence in the truth of the data and the accurate interpretation of the participants' experience. To maximise this credibility all interviews were recorded. Dependability of qualitative data refers to its stability over time and over conditions (Polit et al 2001) Stepwise replication involves the data being reviewed by two people and then comparing results. This was done with a work colleague (medic) and the two extractions compared and discussed.
- Confirmability refers to the objectivity of the data where there is an agreement between two people as to the meaning or relevance of the data. Demonstrated through providing an audit trail, that allows others to examine the researcher's notes and documentation which indicate the researcher's thoughts and decisions about the data. Reflexity (self critical account), in this study was accounted for in the use of a field journal, in which notes were documented throughout course of the study. Including interviews and transcripts, notes and reflections after interviews and the extracted significant statements and phrases.
- Transferability is the extent to which the findings in the data can be transferred to other settings. Descriptions of time place and context of this study as recommended by Polit et al (2001) to allow for evaluation of applicability of the data to other settings. Indeed the writer would infer that the findings of this study would be very relevant to research into the obstacles in the systems of other chronic disease systems.

All interviews were recorded digitally to MP3 files and then transcribed into MS Word documents. Both sets of data are included on the CD inside the back cover.

3.9 Sampling

Qualitative studies use small, non random samples and unlike quantitative research, sampling in qualitative research is not concerned with generalisability but rather with achieving an in-depth holistic understanding of the phenomenon of interest (Polit et al 2001). In this study the whole population (n=6) was sampled.

As is common with qualitative research, smaller sample sizes were used in this study. This can pose a threat to the trustworthiness of the study, as results may not be representative of the wider population. Having said this, the purpose of qualitative research is not to generalise the findings, but to seek situational representativeness. (Horsburgh 2003)

3.10 Data Analysis

The purpose of data analysis is to organise, provide structure to and elicit meaning from research data. Qualitative analysis involves an inductive approach whereby generalisations are developed from specific observations, thus the analysis begins with a search for themes or recurring regularities in the data. (Polit et al 2001). The analysis takes place during data collection and thereafter, with the researcher processing the data as it is received and making judgements in relation to pursing themes that are emerging during the analysis process. This process of analysis allows the researcher to gain understanding and insight into the phenomenon of interest within the study.

The use of a structured analysis framework in qualitative data analysis gives validity to the research.

3.11 Conclusion

In this chapter the writer has described the chosen research methodology and the philosophical underpinnings that shaped the choice of that methodology. The study population was outlined, and the procedure for data analysis discussed. Issues of reliability and validity were addressed. In the next chapter, the findings of the study are presented. Significant statements from the participants' are extracted and through the themes identified, are utilised to support the findings.

CHAPTER 4 RESULTS

4.0 Introduction

This study set out to answer the question. What are the "Obstacles to the implementation of a national chronic disease management system for cardiovascular care." In this chapter the writer will present the findings of his qualitative research consisting of interviews with GPs and experts in the field. These findings will be compared to the preconceived ideas/ answers that were expected, but largely not forthcoming, and also in context to the knowledge that was gathered in the extensive research for Chapter 2. Other obstacles generally outside the scope of the interviews but nevertheless important to the overall question are also given.

The interviewed participants' own comments are used to illustrate their feelings and experiences.

4.1 Categories

On completion of the data analysis, on the extracted significant statements, a number of 'categories' emerged from which the overall theme manifested itself.

These categories were:

- The Experiences of Shared Care
- The Experience of the RHASP /dabl[®] system
- Perceived obstacles.

4.1.1 The experience of shared care.

Emerging from this category was a sense that all were very aware of the benefits of shared care systems. Everybody in the study, doctors and 'experts' all had experience with at least one or two shared care programs. All were positive to the benefits provided by these programs, and all were equalled frustrated and disappointed at the

lack of support given to these systems and by more often than not the withdrawing of the programs or discontinuation from pilot study phase of these programs.

"for patient's who have chronic illness like diabetes, hypertension it's an excellent way of actually managing patients because you have access then to specialist care if you need it." (GP1)

4.1.2 The experience of the RHASP /dabl[®] system.

This category is very similar to the last, and shares all the same thoughts and observations as that one. However, apart from the same benefits and disappointments there were some notable differences in the RHASP /dabl[®] system as opposed to just shared care. And it is to be remembered that the RHASP /dabl[®] used in the RHASP pilot study was more than just shared care. It was a process change. A change to the usual way of doing things. It aimed to provide optimum care to patients through improved current best practice therapies according to constantly updated current recommended guidelines. It provided the tools to do this software and hardware and also involved nursing care more whilst reducing GP workload. Only one GP, (the one who was not in RHASP but is using the dabl[®] software as a standalone system), felt that nursing time was too excessive in shared care and that nursing staff should be diverted from secondary to primary care to offset the workload shift. Certainly the ease of the system and the education it provides and the overall benefits to the patient are all mentioned and commended.

As far as the results and the independent audit of the study go, again all are in agreement that it was a very successful and worthwhile scheme that has been wrongfully put on hold.

"We now try and run our management of hypertensive patients and patients with risk factors according to the RHASP protocols... our experience of the RHASP project was so positive that we incorporate it now in our ordinary work...... We had we had a dedicated nurse ran most of the service and it taught us a lot about the actual management of cardiovascular disease, all the attentive risks associated with it"(GP2)

4.1.3 Perceived obstacles.

The last category and also the significant category to emerge is that of the perceived obstacles. This category is in actual fact is the fundamental basis for the one emerging theme from this whole research project. The previous two categories and their described disappointments and frustrations really are just side effects from this one. Every participant agreed that the single biggest problem or obstacle to implementation lies with the government. The government is perceived to be sole reason this system is not still in place and being rolled out nationwide. Disillusionment, frustration, anger, disappointment and lack of trust all came through in the interviews. All diected at the DOH&C and the HSE.

"we find that as GP's very frustrating that everyone wants a primary care strategy since 2001 and they haven't even started to implement it.... when we approached the Government for funding all sorts of things were promised in the media but nothing was forthcoming." (GP1)

"..frustrating when you prove clinically and financially and organisationally, everybody saw the benefits and it was very, very unfortunate that it wasn't rolled out" (Director, dabl® Ltd)

4.2 The emergent theme

From all the possibilities that the writer foresaw and thought might be raised, (see Section 4.2), this was unanimously the obstacle considered by the participants, (including to a point the DOH&C spokesperson), to be standing in the way of progress. The Irish Government or to be more fair, the DOH&C and the HSE.

The issues cited as being the failure or not forthcoming from this administration (and ones past) are principally threefold:

- Financial backing / support
- Management decisions
- Commitment and trust

Financial support, funding, grants, payments, or in whatever form it takes the underlying theme here is that it is all about money at the end of the day. And the other two failures derive from a resistant to the first.

"its down to commitment and fore-planning. The Department of Health have always had a problem with that...GP's are disillusioned with the primary care strategy"(*GP3*)

Whilst it could be considered that the answer to the question ultimately is a shallow one, it did provide the writer with a deeper insight into the experiences of GPs in the healthcare system and where they see their roles within it. The writer also gained insight from the government's stance as well.

These findings are discussed in more detail at the start of Chapter 5.

"The most disappointing this about RHASP was that it was praised by the Minister for Health, by the officials in the department of Health as being an excellent study, an example of a very successful pilot, and in spite of the fact that they had invested an amount of money, in the study that it went no further" (PI RHASP)

4.3 Expected Answers

When preparing this project, the writer did admittedly take for granted the assumption that all of the expected obstacles were going to be from the General Practitioners (GP's). The assumption was that the system was there, government support had been there, policies were there and the evidence of success was there. However, the disproving of this big assumption is one of the findings of the study. Whilst the GP's do provide some obstacles to implementation so does the government through the Department of Health and Children and also the Health Service Executive (HSE), and both it seems for the same reasons.

4.3.1 Perceived obstacles by the writer were:

From this assumption the writer, then extrapolated the following list of expected responses that he was going to receive from both the literature review and the interview process. Below is that list of perceived obstacles:

- Costs. A substantial cost was a real issue to be considered.
 - IT Costs: This included the cost of upgrading the ICT technology of the practice. Computers, broadband connection, and possibly the setting up of an internal network for all members of the practice.
 - Medical Devices: It also includes costs related to the upgrade in medical equipment required. At least one 24-hour Ambulatory Blood Pressure Monitor (ABPM) and a licence to use the necessary management software system.
 - Also the potential employment expenses of a practice nurse to run and manage the extra workload of shared care clinics, if the practice didn't already have one
- Other IT challenges such as: IT support, loss of access to system, training, backup, integration of the new management software with their current GP IT systems etc..
- Changes to work practices.
- Increased workload in /too busy
- Auditing / loss of autonomy / monitoring. Like most people, GP's would not relish the thought of their daily work practices being monitored and perhaps compared to their peers.
- Ownership of system / and data
- General Practitioner / doctor attitudes to shared care. It would be incorrect to assume that all would be supportive of such setups. Not all want to be dynamic, modern technologically aware practices. Maybe older GP's nearing retirement or traditional single GP family practices with no intention of changing their mode operandi.
- Despite the fact, that the traditional way of keeping paper patients charts in folders is not exactly conducive to the following five points, and also the fact that these records become more and more a logistical nightmare and can have

a practice bursting at the seems under the sheer volume, there is still a perceived element of control over the records. A feeling that all, (despite occasionally misplacement), is safely kept within the physical walls of the practice. Even computerised practices have that sense of security, often despite inadequate backups and almost certainly never with an off-site backup. There is a sense that a lot of the following points only become an issue of concern when the practice is expanded beyond its physical walls, when it is exposed to threats unknown and unforeseen.

- o Security and safeguarding of data. Encryption of data.
- o Freedom of Information (FOI) and Data protection
- o Access to data, control of data, use and/or misuse of data.
- Ethical issues with regard to the handling of patient data.
- o Confidentiality, anonymity, and consent of data when 'distributed'.

(On an interesting side-note: One practice involved with the RHASP study did actually have the misfortune of a fire shortly after the conclusion of the study. All the paper and computerised records of all their patients were lost. However records of their cardiovascular and diabetic shared care patients were retrievable due to the fact that the data for them was held centrally on software servers at Beaumont Hospital.)

Apart from the cost and ultimately who was going to pay for it, none of the expected answers above materialised. It didn't take long for the writer to become aware however of the real situation and that allowed plenty of time for the research and semi-structured interview questions to be amended and refocused.

4.4 Other Obstacles

Although the topic under review in this study is of a medical management system in one specific area, i.e. cardiovascular disease, in some respects it is not too dissimilar to a national database/ registry or a simplified model of a national electronic health record (EHR). In fact one of the advantages of the RHASP project would be the default creation of a national database of blood pressure and levels of control (or lack of). Because of these similarities it is reasonable to say that this system was likely to encounter and share similar obstacles.

However, as the dabl® software/ RHASP system, has already been developed, put in place and trialled already, it is also reasonable to assume that these obstacles have already been dealt with. The focus for this research project was why, having overcome these challenges and having put this system in place has it not been adopted much more broadly and on a national scale.

So whilst it is outside the remit of this research project to delve too deeply into the initial obstacles that are faced in implementing national data registries and national electronic health care records, it is still worth mentioning them briefly as part of the overall process of implementation:

1. Lack of a unique patient identifier within the country.

Obviously this issue is still outstanding, but it is planned for the near future. (DOHC 2004b) For a patients health data to follow them across all centres and areas of care, both public and private, this is an absolute necessity. The dabl® software currently generates its own internal unique identifier, but for access to other medical systems relies on the patients' date of birth, name and any other record number that the linked system may use, ie a hospital Medical Record Number (MRN) or GP surgery issued patient number. However the system has been designed with the confidence that a unique identifier will soon exist and is ready to change over as soon as this happens. See breakout box below for an extract from the National Health Information Strategy (NHIS) with regard to the unique identifier. (DOHC 2004b)

1. Lack of a national standardised dataset.

A standardised national dataset must first be developed and all stakeholders in the field of cardiovascular care should agree to collect this standardised information. The interpretation of compiled data requires uniformity of data elements and consistent use of codes.

- Financial indications. Increased funding required for IT (hardware and software), and a team of staff including administrators, database managers, IT staff and quality control staff.
- 3. Collaboration, agreement and compromises between all stakeholders. All involved need to be in absolute agreement for it to work.

National Health Information Strategy (NHIS)

Action 16

A system for unique identification within the health sector using the PPS Number, will be introduced.

The Health Information and Quality Authority, in cooperation with the Department of Health and Children, relevant health agencies, the Department of Social and Family Affairs, the Reach/eBroker initiative and other groups as appropriate will prepare a plan for a unique identification system that meets the functional requirements of the sector and which is based upon the PPS Number and its supportive infrastructure. Special attention will be given to enabling the identifier to enhance the safety of personal care (such as through the use of the electronic healthcare record) and to promote the quality of service delivery, whilst safeguarding the privacy, confidentiality and security of personal information in line with a robust information governance framework provided for in legislation

It should also be remembered that it is not a national registry in the sense that nobody has to maintain it, or manually input data into it. Its self creating through the automatic uploading of the dabl[®] software.

4.5 Secondary Care Obstacles

The other side of shared care of course is secondary care, i.e. the hospitals and consultants. It would be remiss of this study and the question asked, to not look at the potential obstacles from this side. It can safely be ascertained that all hospitals now are well and truly computerised, with well defined systems being used in clinical management, clinical administration, clinical services and general management. We can then defer to say that all the hospitals have large fully staffed and funded(?) IT departments. These departments not only maintain the software, hardware and server side systems that are in place, but they also develop, implement, maintain and constantly update and evolve all necessary security strategies as required to maintain integrity, security, confidentiality, control and access to all the sensitive data that is generated within healthcare. So no real obstacles are to be found here. However there is some concern with regards to hospital doctors. Some research done in the UK asks

the question, 'Why general practitioners use computers and hospital doctors do not? (Benson 2002a, Benson 2002b) The conclusions reached seem to be that:

- Computing in hospitals was treated as a management overhead with no incentives for doctors to be involved.
- GP leaders worked with government to provide incentives for removing barriers and computerising practices.
- From a technological perspective, it was easier to computerise general practices than large hospitals due to scalability. What works for a small practice oes not work for a big hospital or across the primary-secondary divide.
 - In hospitals many different computer systems need to be linked together, requiring common interoperability standards
 - Protection of privacy is a much greater problem in hospitals
 - The number of potential users in hospitals makes substantial demands on hardware and networks

However, in contrast to this research, it is this writers opinion that this is not the case now and not the situation in Ireland. Development of systems such as dabl® cardiovascular, and the advancement of HL7 (standards for exchanging information between medical applications), SNOMED (The Systematized NOmenclature of MEDicine Clinical Terms standard) and internet technology has gone a long way to overcoming these barriers.

The usual funding issues for new software systems, the resources to implement new work practices and their inter-operability with existing systems, would all be of the same nature as a GP or practice would face, only on a bigger scale.

And the increased use of browsing, email and newer web 2.0 technologies has transformed the way information is disseminated and has bought hospital doctors very much into the use of healthcare technologies.

4.6 Patients as Obstacles

The last mentioned but in fact the most important part of shared care are the patients themselves. The patients are at the centre of the whole concept, and any plan of care obviously has to evolve around the patients and not the other way around. So are the patients an obstacle to this process? It would appear not. Firstly a questionnaire conducted by the DOH&C, as mentioned in the interview with the representative of the DOH&C, specifically asked whether it was an important issue that their GP was computerised or not and the answer was that it wasn't a consideration at all. And according to the Principal Investigator (PI) of the RHASP study in his interview, "the patient's were not an obstacle because the patients actually like computerised systems. At first I thought they mightn't, and that they'd rather resent one putting their data into a computer, but no they quite like it because they recognise the benefits from it" This could certainly be backed up the surge in usage of Web 2.0 on the internet and the almost frenzied rush by people to get information about themselves out in the virtual world. This phenomenon is looked at a bit more in Chapter 5 as the writer looks to see what lies ahead for online healthcare.

4.7 Data Protection, Security and Confidentiality Issues

Despite, from the interviews, the lack of apparent concern by two of the three GPs beyond requiring a reassurance that 'safeguards' would be in place, the writer feels that this is probably not necessarily the case. If a system such as the RHASP / dabl[®] system was to be implemented on a national scale, the writer is reasonably sure that the issues of Data Protection, Security and Confidentiality would be considered very important to the GP's. The writer certainly remembers concerns over these issues when installation of the system was initiated in the pilot study. There were concerns as to the data 'being set free' beyond the secure 'brick' walls of the practice. This despite some very insecure paper filing systems such as the one pictured below.



Figure 4.1
High profile news stories of government laptops going missing, of which there were many, didn't help either. Some example stories, (Independent 2008, Silicon.com 2008, eWeek 2007a, eWeek2007b, WashingtonPost 2006, silicon.com 2008).

Despite the fears for storing data on a central server or as is becoming more common, hosted online, it is in fact a very secure method to preventing the loss of data that can arise when data is kept on local desktop PC's and mobile devices including laptops, Blackberry's, USB memory keys and disks. A stolen or lost laptop can put the personal data of hundreds or even thousands of people at risk. Bad luck or carelessness can put the identity of others in the wrong hands.

Pointing this out to the GPs at the time did go some way to alleviating their initial concerns.

The writer feels that these issues, as well as the others not brought up as expected were again secondary to the far bigger concern of costs and funding. Once the issue of money is removed from the process, then a lot more of these concerns will be raised. Further research talking to these GP's, once they are actually in the process of using or starting to use an online disease management system, would probably yield a different set of responses. These would also be interesting to look at.

4.8 Conclusion

In this chapter the writer has first described the preconceived answers that were expected, and then through transcription, significant statement extractions and the ensuing theme, showed what the actual answer was to the initial research question.

What are the obstacles that are preventing the uptake of a successfully proven cardiovascular disease management system that not only was of benefit to patients, primary and secondary care, but also represented good VFM as well? Money, it would seem.

The writer also draws attention to some other potential sources of obstruction within the shared care framework. Namely the secondary care centres and the patients themselves.

In the next chapter, the writer discusses the answer to his question, and how it fits into the Irish healthcare system as it stands today. Current Government policies and a confirming survey of GPs is looked at, and it concludes with a quick overview of some of the future developments.

CHAPTER 5

DISCUSSION

5.0 Introduction

In this final chapter, the writer gives a brief discussion on the findings and looks at both sides of the great divide that seems to exist. There follows sections on value for money (VFM) healthcare policies and the GMS scheme. This followed by two very recent and timely publications. One on a new 'Tackling Chronic Disease' strategy published by the DOH&C and the other a GP survey on satisfaction with the health system and shared care.

Finally, the writer looks briefly to the future and what events may arise and render this whole issue over the funding of a national chronic disease management system as redundant anyway.

5.1 A look at the results

The writer, from many years working in the healthcare system, being involved in research and through participation of the RHASP pilot study was keenly aware of the issue of money. The Financial problems of the Irish healthcare system is not a new phenomenon or a revelation by any means, and it has been a very prominent political issue over the past few years. From the huge increases in the overall budget, currently running to \notin 15billion annually, (29% of the GDP), to the huge wastage that was PPARS (The controversial health service payroll system that had many problems not least of which was massive budget overruns from \notin 8 million to over \notin 195 million estimated by end 2006). (AudGen 2005)

Despite this, it did not occur to the writer that this would be perceived as the only factor to the implementation of such a system or any other system for that matter. The general portrayal is that of a government spending a little money to be seen to be doing something by funding a pilot study, which takes the pressure off them for a few years and allows the stalling of a decision until such time that the media attention has

moved on and perhaps some of the key drivers behind the project. At this stage success or failure there is no need for the government to make any commitments or management decisions. Just accept credit for the initiative and the success and file it away.

"Government see that a pilot study at least shows action, it satisfies their critiques when they say oh, we are looking at that, we have a study going on ... and we are looking very carefully at this & we will examine the outcome from these studies and then two or three years later when the studies are successful, they just put them on the shelf " (PI RHASP)

It is this attitude by government, the money driven procrastination and perceived lack of backbone, decision and commitment that has the GPs off side. Its all a part of the bigger picture where as stated they feel disillusioned, frustrated, disappointed and fed up. Any real trust has been shattered by too many broken promises.

Perception is the key. GPs are under the perception that they are not respected. Not seen as an integral part of, not just primary care but the overall healthcare system. This because, despite repeated government policies and strategies talking of the importance and increased reliance on primary care and shared care services, the follow through with financial backing is perceived to be not forthcoming. GPs feel they are taking up the strain of the system, helping the government out with their increased shared care workload and not being compensated.

The government however also has its own perception. They feel that between GMS, and development grants and part funded nurses and of course the granting of money for research projects that the GPs are well compensated for their public patients. And there is truth to both sides of this.

"I would say that some of the facts and figures is that each year you can see a list of earnings of GP's under the Medical Card Scheme and that I think would be objective evidence that GP's are doing very well and I think you also have to see that they have private patients as well. But I think that if you simply look at the amount of money that's paid out to GP's under the scheme, and GP's will argue that it's not all income that some of it is development grants, nonetheless it is money paid by the State to GP's and its available, it's published each year and its very very high. Certainly if you were to compare it with the UK you would be left in no doubt."(DOH&C participant)

"On the official side the perception probably is that GP's have done very well. On the GP side the perception is GP's have been treated badly. I think it's hard when you have those perceptions for two sides to come together." (DOH&C participant)

Which, when all boiled back down to the level of the RHASP /dabl[®] system and its implementation as discussed in this dissertation, then it is hard to see how such projects will ever get an approval beyond the pilot stage, unless it is very high profile and has some sort of extraordinary head-lining results.

There are possibilities that implementation of such systems could be incorporated into the GMS systems. Without raising the contentious issue of the GP contract renewals, there exists the possibility that GMs payments be based on the usage of such systems (similar to UK pay model discussed in Chapter 2) or in lieu of a percentage of the GMS payment. If GPs are serious about their vocation and not the bottom line, then this opportunity to help progress their practices and help their patients is one that should be looked at.

The perception of the public as well, is not that favourable towards the government. Despite the abolition of the health boards, the public perception continues that the health service remains a bureaucratic structure with wasteful practices. Fine Gael has described the HSE as a "bloated bureaucracy", criticising the layers of management in the HSE. The government's agreement that existing managers would retain their positions in the new structures did not inspire confidence, and the lack of transparency at the top level has not allowed for an independent analysis of the efficiency of the new structures.

Not in any official form, but nevertheless an opinion from a former Senior Official to the European Union, also gives a perspective from the outside in. The official the writer met had very definite views & opinions on the role the Irish government played in the overall healthcare plan for the European Union. He was very scathing in his remarks, which is probably why he declined any formal interview. "The Irish government has been seen from an EU point of view to be on top of their healthcare reforms and strategies and in compliance with EU recommendations, and this is true, but that is the extent of it. The policies are there, the guidelines, the strategies, but no substance, no follow through, no actual progress. The money spent is on the publications themselves and their new world designs" (This quote is not verbatim and only part of the overall discussion but is as close as the writer could recall afterwards)

5.2 Value For Money

Value for Money (VFM) is an essential part of public reporting and accountability. In the health system, value for money focuses not just on the economy of expenditure and the efficiency of activities but also on more fundamental issues relating to the extent to which improvements in the health status of the population are being achieved.

If you are a local politician or doctor, they're called 'cutbacks'. If you are a manager in the Health Service Executive (HSE), they're the 'realignment of service levels'.

5.2.1The Demand for Health Services

"The fundamental problem facing the health services in Ireland and elsewhere is the growth in demand and Health Care costs. This demand is driven by a range of factors including public expectations, demographics, the availability of new diagnostic and therapeutic approaches to care, and significant technological developments in medicine, including drugs. From the point of view of government, in a system where 80% of the total cost of health is borne by the taxpayer, this places enormous demand on available resources. In Ireland, the position is further exacerbated by a significant level of under-funding of services in the 1980s. The health services throughout the 1990s have therefore been grappling with two fundamental problems in meeting the public's expectation; one is the need to make up the investment deficit of the 1980s, the second is the cost of those higher service levels and new procedures."

This was a statement from the Value for Money Audit of the Irish Health System conducted by Deloitte & Touche in 2001 for the Department of Health and Children (Deloitte & Touche 2001). Despite all of the improvements that have been achieved in the health service since and in all the new strategies, from 1994s 'Shaping a Healthier Future (DOH&C 1994) to all that have since been published, is the system any different today? Has the under-funding of the 1980s been replaced with significant infrastructural and ICT funding? Have all the ideals of primary care becoming a major part of the health system been realised? More evaluation and another VFM audit of the Irish Healthcare system is probably due, and maybe if significant improvements have been made then this may help to get GPs back on side and to rebuild (or just build) some trust between them and the government.

One of the challenges for health services throughout the world is the recognition that the current growth in public funding of health funding is unsustainable and change is essential. The development and application of specialised software programs to the management of patients with cardiovascular disease offers a potential solution to Ireland's unacceptable burden of cardiovascular disease. The provision of on-line facilities whereby a centrally hosted system in Dublin can be accessed by doctors around the country (and by doctors in other countries) via a secure web link will permit not only effective management of patients with cardiovascular disease but also facilitate collaborative research.

The RHASP Study has shown that by electronically linking primary care with a specialist centre it is possible to apply a common evidence-based approach to the management of cardiovascular disease that results in improved management and drug prescribing with the potential for reducing the occurrence of stroke and heart attack by more than 50% by rigorous drug treatment of hypertension and dyslipidaemia.

An external independent evaluation of RHASP concluded that the RHASP project was not only good value for money but that it supported the prevention, treatment and management of cardiovascular disease in the appropriate healthcare sector, and that RHASP was a working example of a positive collaborative venture between primary and secondary care that utilises service provider skills, healthcare resources and drug treatments to optimum effect. [Cairns 2005]

Heartwatch doesn't have the same struggle as the cardiovascular disease management system discussed in this dissertation. Heartwatch was offered free to approximately 480 GPs (20% of the total GP population) and is still funded thereby maintaining that level of use throughout the country. However it cannot increase and is not available to anyone else because there is no allocation of resources to expand the service. Dabl® , on the other hand is currently operating in around 12.5% of GP practices in Ireland, but because of the suspension of the RHASP project, there is no incentive or financial support coming from the government. So again there is no possibility for expansion, but also no funding to the initial pilot practices either. This means that to take a more active role in Shared care with regard to the prevention and management of CVD, GPs need to shoulder the costs. Which from the perspective of the GP's, means they feel they are paying to help the government save money in reducing the financial and load pressures of secondary care. Whereas, they should feel that they are being supported for sharing this burden. As is quoted often as an informal policy:

'The money should follow the patient'

5.3 Healthcare Policy

Changes in demography and a reorientation towards disease prevention and health promotion have resulted in a shift in focus from secondary to Primary Health Care (PHC). These changes have resulted in the development and restructuring of PHC services in Ireland and internationally (DOH&C 2001a).

The central focus of The Health Strategy *Quality and Fairness –A Health System for You* is that of population health. It places a significant emphasis on the development of PHC services and has set out a new direction for PHC (DOH&C 2001b). These proposed developments were to result in a vast expansion of the of the existing PHC service. The PHC setting which is to play a more central role as the first and ongoing point of contact for people within the healthcare system. To provide an interdisciplinary, team-based, user-friendly set of services to the public and to enhance capacity for disease prevention, rehabilitation and personal social services (DOH&C 2001b). These two strategies as well as envisaging a central role for general practice in building a better health service aim to facilitate an improved value for money (VFM) return on healthcare investment. This approach was supported by the National Health Information Strategy 2004 which highlighted the importance of innovation and better information management. (DOHC 2004b)

The Health Service Executive (HSE), which came into existence on 1st January 2005, following the the enactment of the Health Act 2004 (DOHC-2004a), has a clear agenda for improving and developing PHC services as set out by the 2001 Health Strategy. Its'commitment to developing PHC services include, a complete review of the Implementation of the Primary Care Strategy to date and a three-year plan to develop PHC. It plans to continue improving access to diagnostic services for GP patients and to develop and provide a range of home and community services for the elderly. Its work in developing services for areas such as mental health, disability, palliative care and child & adolescence are continuing. These changes will no doubt impact on personnel employed within the PHC service (HSE 2005).

Prior to this general focus on PHC, in 1999, the Building better Hearts strategy was launched with the aim of proactively tackling CVD in Ireland. One of the foundations to this strategy was the enhancement of the role that general practice / PHC could play in the prevention and management of CVD in Irish healthcare. This combined with innovative approaches to linking primary and secondary care (DOH&C 1999a). This strategy had been identified as a priority in the Government's *Action Programme for the Millennium* (DOH&C 1999b) and built on the Shaping a Healthier Future (DOH&C 1994) which set a medium term target to reduce the CVD death rate (in the under 65 year age group) by 30% in the next 10 years.

Two relevant key priorities from the *Action Programme for the Millennium* (DOTT 1999) include:

• to implement fully the new National Cardiovascular Strategy which tackles in a comprehensive manner one of the major killers facing Irish society today.

• to carry out a review with a view to extending and strengthening the role of primary care.

5.4 General Medical Services Scheme

The general medical services (GMS) scheme, which is more commonly known as the medical card or choice of doctor scheme, was introduced in 1971 to provide general practitioner medical and surgical services to eligible people and replaced the previous dispensary system.

Today approximately 30% of the population is covered under the scheme with approximately 1,900 GPs contracted to provide services to people holding medical cards and GP visit cards.

Under the GMS scheme, general practitioners hold one of two contract types — the fee per item contract, which was first introduced in 1972; or the capitation contract, which has been effective since 1989. These contracts reflect the agreed outcome of negotiations between the Department of Health and Children and the GP representative body, the Irish Medical Organisation. Both contract types contain provisions which were agreed between the parties on a range of issues. These contract types are contracts for service rather than of employment. GPs who provide services under their GMS agreement to medical card and GP visit card holders, are also entitled to provide services to persons attending their practice in a private capacity.

A review of the contractual arrangements for the provision of services under the GMS and other publicly-funded schemes commenced in October 2005. To date the this review has not been finalised.

5.5 Tackling Chronic Disease

This year, 'Tackling Chronic Disease - A Policy Framework for the Management of Chronic Dieases' was published by the Department of Health and Children, (DOH&C 2008). Below is a transcription from part of that document:

Principles of Chronic Disease Management

Best Practice

In recognition of the emerging evidence from other countries and the best practice developments that are advocated by the World Health Organisation, there are a number of principles which should be applied for effective and efficient care for the management of chronic conditions. These include:

- The national focus on population directed disease prevention and health promotion
- The need to develop structured, planned care for patients with long-term chronic conditions
- The use of information systems and registers to plan and evaluate care for individuals
- with chronic disease
- The requirement to support and strengthen self-care
- The need to develop a model of shared care that is integrated across organizational boundaries
- Provision of supportive clinical decision systems such as guidelines for the management of chronic disease
- Planning care that is delivered in the appropriate setting
- Using multidisciplinary teams in the provision of care
- Providing a monitoring and evaluation framework for chronic disease programmes.

The principles will underpin the new approach to chronic disease prevention and care that is set out in this report.

Figure 5.1

Two further profound statements go on to say:

• Current models of health service delivery are unlikely to cope with future demand.

• And the responsibility for implementing this strategy rests primarily with the Health Service Executive (HSE).

The former, statement has been known for a long time by every single person in the health system, except so it seems the DOH&C until now. And the later statement appears to absolve itself of responsibility and places it into the care of the HSE.

The list of the 14 policy requirements proposed for the future prevention and care of chronic disease in Ireland makes for interesting reading and the writer has listed them (verbatim) in a table as an Appendix 3.

It strikes the writer that everything the government /DOHC is advocating here as the way forward is exactly what everybody involved in research, education, pilot studies etc in the health service in Ireland has been trying to do for many years, but has been hindered by the lack of resources and money to implement the proposals listed above, by the very same government department. Catch22. No beginning, no end?

5.6 GP Survey

A survey of GP's (n=90) undertaken by the Irish Medical Times in July 2008, (and comparisons to a similar survey done in June 2007) are as follows: (IMT 2008)



Figure 5.2



Figure 5.3



Figure 5.4

These answers were qualified with the following remarks:

That primary care was already overloaded: 29%

GP's cannot take on any further work: 22%

Resources are needed: 16%

These results would seem to tie in very well with the general attitudes and responses given to the writer from the GPs interviewed. A general lack of faith and trust in the government, The DOH&C, the Minister and the HSE.

With regard to shared Care, again there appears to be willingness on behalf of the GPs with stated good communications with the hospitals and almost half agreeing to more shared care services. However, at the same time the GPs do feel strongly that if services are to be transferred to primary care, then more resources will be needed, with a third of respondents saying the primary care system was already overloaded.

With regard to shortages of GPs in Ireland, 66% of the GPs see increased GP training as the way to solve this growing problem. Part-time or job sharing was also considered a popular option at 21%.

5.7 Euro Consumer Heart Index

Published by the Health Consumer Powerhouse (HCP) what Exactly is the euro consumer heart index. And why is Ireland ranked only 16th out of 29 countries? (O'Brien 2008b)

"Health Consumer Powerhouse is the leading European provider of consumer information on health care. The Powerhouse is dedicating ideas and resources to the development of consumer empowerment action. We analyse health care and compare the outcomes, designing consumer information tools like health care system and Illnesses indexes, consumer press and education. We are a registered Swedish entity working from Stockholm and Brussels and soon also in Canada." (HCP 2008).

"Do you have a weak heart? Move to Luxembourg if you want to get really good care! And get out of Romania as quick as you can!" (HCP 2008c)

Rather dramatic headlines for their press release and rather frivolous as they state further down that despite European Court of Justice rulings that patients have the right to choose cross border care only one country, Luxembourg, routinely permits this. In fact, as recently as July 2008, as part of the renewed Social Agenda, the European Commission has adopted a draft directive on patients' rights to cross-border healthcare.

"To provide a community framework for safe, high quality and efficient cross border healthcare, by reinforcing cooperation between member states and providing legal certainty over the rights of patients to seek healthcare in another Member state" (EC 2008).

5.8 Where do you want to go now?

There is a sense that events might be overtaking the current situation. As the standoffish type scenario plays out between the GPs and the HSE, the world is moving on. There has been a few developments of late that will become part of the whole scenario in the near future. These developments include firstly, the increasing role Pharmacists see themselves playing in the healthcare system, both here in Ireland and abroad, and secondly the very sudden take off of Web 2.0.

5.9 Pharmacists

Phramacy services in other countries like Scotland and New Zealand adding patient value by using evidence-based approaches in the reform of their services, with the potential to support home care, self care and effective care with low levels of cost and complexity.

IN the UK, the Royal Pharmaceutical Society of Great Britain (RPSGB) as far back as 1997 produced a strategy document, *Building the Future*, which outlined five main areas where pharmacists may make a major contribution to healthcare. One of these areas was was to promote and support healthy lifestyles. This included raising awareness, improving detection, monitoring and treating of high blood pressure. As this is a major contributor to CHD, pharmacists felt that this could make a significant healthcare impact.

An interim Report from the Pharmaceutical Society of Ireland (PSI) examines a range of measures including:

- 1. How the implementation of a National Minor Ailments Scheme through the frontline role of the community pharmacist could benefit the patient, target health service resources, free-up GPs and make savings in the health service.
- How the HSE should reconsider its policy which currently has not identified a role for community pharmacy in chronic disease management even though the evidence base supports the clinical benefits and cost effectiveness of the locally-based route.
- 3. Health screening to also be considered and says it would work well in pharmacies because they are open 50% longer than GP clinics. Conditions such as diabetes mellitus, infectious diseases, cardiovascular disease, depression, some cancers, osteoporosis and chronic obstructive pulmonary disease could all be identified earlier with a coordinated screening approach involving pharmacies & the HSE.
- 4. How the switching of some medicines so that they are more readily accessible to patients through a new legal category of "pharmacist prescribed" would work, though it says it would also require the profession to have access to an integrated patient record system. (PSI 2008)

This process has to some extend begun already, with one pharmacist in Drogheda already providing an ABPM service using the dabl® BP software system. The patient can have the test done and be given the results with interpretation on the spot which they can then take to their GP. From a clinical point of view the pharmacist cannot make a decision on the results or initiate a prescription if necessary, thus the need to still go to a GP. However the benefits to the pharmacy are of a commercial nature with not only being able to increase the number of customers through the door by providing another fee based service but the likelihood that the patient will also come back to that same pharmacy for their script fulfillment as well.

Limited time and compensation are probably the main obstacles to pharmacist led interventions in the management of cardiovascular disease (McConnell 2008).

The real benefits to the patient are the more convenient hours of pharmacy operation and to skip the appointment and waiting times of a GP clinic.

There is a growing trend now with people generally more aware of health issues and of trying to lead a healthier lifestyle. Also, with the growing trend or need by people

for things to be more instantaneous, accessible now, and of a shorter duration, perhaps access to health screening services more in line with "fast-food / take out type services' from pharmacies may become the service of choice.

5.10 Web 2.0

The internet has in the past decade, radically changed the dynamics of health, bringing not only new ways to provide information, but also for communicating and managing health matters on a global scale. New applications, services and information access has altered the relationships between consumers, health professionals, industry and government. Now we have Web 2.0 Possibly another phenomenon of this trend in instantaneousness.

Web 2.0 is a term describing changing trends in the use of world wide web (www) technology and <u>web</u> design, that aims to enhance creativity, information sharing, and collaboration among users. These concepts have led to the development and evolution of web-based communities and <u>hosted</u> services, such as social-networking sites, video-sharing sites, wiki's (Entries into the freely editable wikipedia encyclopedia), blogs, folksonomies (the practice and method of collaboratively creating and managing tags to annotate and categorise content). Although the term suggests a new version of the WWW, it does not refer to an update to any technical specifications, but to changes in the ways software developers and end-users utilise the Web.

With this increasing numbers of patients are seeking out health information on the Internet. Where traditionally professionals have been the 'gatekeepers' of information and of how much should be given to the patient, but now patients are quietly seeking it out themselves. If professionals are not giving them the information they want, they are going out and finding it for themselves.

At this stage however it would seem that neither patients nor professionals yet understand enough about the new options on the internet or how to make best use of it. Web 1.0 had issues around the quality of the information made available. Web 2.0 adds an additional complexity of knowing where the information is before it can be questioned. Discussion boards, wikis, social networking sites, online support groups, instant messaging, blogs etc all add an extra layer beyond the usual online journals and websites of representative and commercial enterprises. There is also a question of cost. If access to some information is at a financial cost and some is made available free of charge. Which is better? Which is more trustworthy? Do you get a lower level of healthcare information if you don't pay for it?

Yet another weakness of research into health information on the internet is the tendency to carry out searches and then only look at the top results. So called 'First Hit' sites An example of research into this practice was conducted in the UK with regard to Heart risk calculators on the WWW and its implications for laypersons and healthcare practitioners (Roberts 2008).

5.10.1 Health 2.0

One of the tenets of Health 2.0 is choice, where consumers take a more active role in their health. Microsoft and Google have both moved into Web 2.0 and now more specifically Health 2.0 or Medicine 2.0. Microsoft (MS) claims this is the technology that will help consumers take control of their healthcare and health information. The two new initiatives are almost identical, with Microsoft s little further ahead on collaboration with a number of hospitals and medical device companies on board. The programs are:

- Microsoft HealthVault
- Google Health

Appendix 4 gives a description of each from their respective web pages.

5.10.2 Online Health Records

Surprisingly Web 2.0 seems to defy all the fears that people have about security, confidentiality data protection, ethics, identity theft etc. It is possible that the success of online banking and other financial transactions has alleviated a lot of the fear and has created a much more at ease approach to online communications. People assume that their personal health records will be as well protected as their financial ones. Time will tell if this is indeed the case. It should be remembered however that financial institutions have always been extremely security conscious as an entity, As their whole existence relies on money and profit they are going to take no chances at jeopardising that. There is every chance that the security of health records however will not be so heavily funded. Apart from the huge amount of research, discussion and

development going into the field of electronic health care records and online health records, web 2.0 is heaving with plenty of discussions and blogs debating the issues. (Cogswell 2008, Pallatto 2008, Weinstein 2007a, Weinstein 2007b)

5.10.3 Singapore National Health Portal

The first government to embrace Web 2.0 and the potential of Health 2.0 is the government of Singapore. A national health survey in 2004 found that an estimated 1 million of its citizens suffer from at least one of the four major chronic diseases of diabetes mellitus (DM), hypertension, hyperlipideamia or stroke. To address this growing burden the government embarked on a strategy to promote the concept of Active Health Management (AHM). Putting emphasis on responsibility for ones own health condition. Part of this strategy is the development of the National Health Portal (NHP) –a personal health information portal 'enhanced with tailed empowerment tools for behavioural change' (Amin 2008). This will deployed over three stages and includes:

- 1. Self entered data (user profile etc)
- 2. Electronic Health Records (EHR) obtained from healthcare providers.
- 3. Relevant Behavioural Health Intervention Programmes (BHIP) and supporting health management tools. (weight management, smoking cessation etc)

Expected implementation time for all 3 stages is by 2011.

5.10.4 Medicine 2.0

"Medicine 2.0 applications, services and tools are Web-based services for health care consumers, caregivers, patients, health professionals, and biomedical researchers, that use Web 2.0 technologies as well as semantic web and virtual reality tools, to enable and facilitate specifically social networking, participation, apomediation (see breakout box below), collaboration, and openness within and between these user groups." (http://www.medicine20congress.com)

5.11 Conclusion

The chronic disease management system for cardiovascular care, (RHASP / dabl[®] system) discussed throughout this dissertation is recognised by all the stakeholders as to its value to patient care. Yet there remains big management difficulties between the stakeholders on who is responsible for the implementation.

Like so many ideas before it, within the healthcare system, it sits dormant. The biggest losers of course remain those at the centre of healthcare, the patients.

"There exists out there a national chronic disease management system for cardiovascular care which unfortunately appears to be married to a national chronic decision making process" (The writer)

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Further Web Resources

Central Statistics Office, Ireland (CSO) http://www.cso.ie/statistics/HealthandSocialConditions.htm

dabl[®] Educational Trust <u>http://www.dableducational.org/</u>

dabl[®] Ltd. Healthcare management systems. http://www.dabl.ie/en/default.aspx

European Forum for Primary Care http://www.euprimarycare.org/

European Union of General Practitioners http://www.uemo.org/

eWeek.com. Healthcare IT Update http://www.eweek.com/c/s/Health-Care-IT/

eWeek.com. Technology Research, Tech News, Product Reviews & Analysis. http://www.eweek.com/c/b/Security/

Google Health https://www.google.com/accounts/ServiceLogin?service=health

Irish College of General Practitioners http://www.icgp.ie/

Irish Medical Organisation http://www.imo.ie/index.php

Microsoft HealthVault http://www.healthvault.com/hvindex.htm National General Practice Information Technology (GPIT) Group http://www.icgp.ie/go/courses/gpit_group

National Primary Care Research and Development Centre (UK) http://www.npcrdc.ac.uk/index.cfm

Pharmaceutical Society of Ireland http://www.pharmaceuticalsociety.ie/

PubMed Central. U.S. National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature. http://www.pubmedcentral.nih.gov/index.html

PubMed. US National Library of Medicine. http://www.ncbi.nlm.nih.gov/pubmed/

Silicon.com. Driving Business through Technology http://www.silicon.com/publicsector/

SiliconRepublic.com. Irelands Technology News Service <u>http://www.siliconrepublic.com</u>

Spanish Society of Hypertension ABPM Registry https://www.cardiorisc.com/index.asp

TARA Healthcare. Innovators in Irish Healthcare. http://www.tarahealth.com

TCH Archives. Ireland's largest free news online archive <u>http://archives.tcm.ie/index.asp</u>

The All-Ireland electronic Health Library (AIeHL) http://www.aiehl.ie/ The Cochrane Library. Evidence for healthcare decision making. http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME

The Competition Authority, Ireland http://www.tca.ie/home/index.aspx

ThePost.ie. The Sunday Business Post online. http://thepost.ie

Wikipedia. The free encyclopedia. http://en.wikipedia.org/wiki/Main_Page

APPENDICES

Appendix 1

Govt policy to expand Primary Care

Table 1: The six identified transformation priorities of the HSE Transformation programme

Where we are today	Our Six Transformation Priorities	Where we will be by 2010
Many services are fragmented, disjointed and difficult to navigate.	Develop integrated services across all stages of the care journey.	My journey into, through and out of the health and social care system will be easy to navigate.
There is inappropriate use and over reliance on acute hospital services which often creates inconvenience for patients and clients and unnecessarily overloads our hospitals.	Configure Primary, Community and Continuing Care services so that they deliver optimal and cost effective results.	I will be able to easily access a broad spectrum of care services through my local primary care team, i.e. conveniently and close to my home.
Accessing high quality acute hospital care can be difficult.	Configure hospital services to deliver optimal and cost effective results.	I will be able to easily and rapidly access high quality acute care through designated centres of excellence.
Inadequate and fragmented services for chronic illness are leading to unnecessary hospital admissions and inconvenience for clients.	Implement a model for the prevention and management of chronic illness.	I can expect high quality care and results from comprehensive and integrated care programmes which will involve my community and designated care centres.
There is limited use of performance measurement as a basis for managing and improving care delivery.	Implement standards based performance measurement and management throughout the HSE.	I will be confident that I receive high quality care measured against transparent standards.
The work of staff can be frustrated by system and process constraints.	Ensure all staff engage in transforming health and social care in Ireland.	My work will have a direct impact in delivering high quality care and contribute to the overall transformation of health and social services.

High Level Objectives	
1. Policy and Corporate Support	To provide policy, performance, legislative, planning and governance support to the Minister which helps to ensure that high quality and effective health and social services are delivered within available resources and in accordance with Government policies in a way which gives people fair access to services and other supports which meet their needs.
2. Children and Families	To promote and protect the health and well-being of children and families.
3. Primary Care	To ensure the provision of a broad spectrum of integrated, locally-based accessible services as the first point of contact for people with the health system which, combined with improvements in income, employment, education and housing, will deliver significant health improvements and reduce health disparities over the longer term.
4. Cancer Control	To reduce cancer incidence, morbidity and mortality relative to other EU countries and to support the provision of quality assured cancer services by the HSE.
5. Acute Hospitals	To ensure that patients who need acute care can access it as rapidly as possible, in the most appropriate setting at local, regional, or national level, that they receive safe care, and that the outcomes are the optimum that can be achieved for such patients.
6. Disability and Mental Health	To help people with disabilities to achieve their full potential including living as independently as possible. To promote mental health and provide appropriate support to, and interventions for, people with mental health problems.
7. Care of Older People	To enhance the quality of life of older people and to support them in their homes and communities and, where this is not possible, to provide them with access to appropriate residential accommodation.

 Table 2: The seven High Level Objectives of the DOH&C Strategy
High Level Objective 3: Primary Care: Key Performance Indicators

No.	Outputs	Performance Indicators
1	Person centred primary care service	Proportion of care needs met in community maximised. Shift from hospital system to primary care setting.
2	Chronic disease management framework	Structured integrated chronic disease management framework (including establishment of an Expert Group to consider feasibility of personal health checks) developed.
3	Tackling alcohol related harm	Effective public health measures to tackle problems caused by alcohol-related harm agreed and implemented in conjunction with other Departments and stakeholders.
4	National policies and strategies	Policies published by 2009: National Nutrition Policy, National Sexual Health Strategy, Men's Health Policy, National Oral Health Policy, New Cardiovascular Health Policy (including stroke). Implementation of existing strategies kept under review
5	Health inequalities	Goals and targets agreed to address health inequalities including those in cancer, primary care, chronic disease prevention and addiction in place.
6	Policy for vulnerable groups	Effective policies developed and monitored.
7	Pandemic influenza planning	Effective plan in place for pandemic influenza.
8	National immunisation/ vaccination programmes	Measured improvement in vaccination uptake to achieve 95% uptake or better by 2010.
9	WHO strategic plan	Target of eliminating measles and rubella by 2010 met.

Appendix 2



On the basis of the data recorded and the available interature, the ABPM suggests white-coat hypertension (175 mmHg / 95 mmHg) with otherwise normal 24-hour systolic and diastolic blood pressure (133 mmHg / 71 mmHg daytime, 118 mmHg / 59 mmHg night-time).

Date/Time	SBP	DBP	HR	Date/Time	SBP	DBP	HR	Date/Time	SBP	DBP	HR	Date/Time	SBP	DBP	HR
15/02/2006				14:35	145	76	47	20:33	131	70	41	02:33	113	54	39
09:10	175	91	50	15:03	138	69	41	21:03	119	66	41	03:03	115	48	41
09:33	169	95	47	15:33	139	70	43	21:33	130	80	41	03:33	121	66	40
10:03	141	79	44	16:03	129	64	40	22:06	134	77	40	04:03	130	68	45
10:33	145	81	43	16:35	146	85	46	23:03	119	61	39	04:33	126	67	40
11:03	140	78	48	17:03	139	78	45	23:33	134	78	41	05:03	121	67	39
11:33	123	76	48	17:33	131	64	43	16/02/2006				05:33	134	68	40
12:05	140	84	46	18:03	120	65	44	00:03	123	68	41	06:03	138	75	40
12:33	127	70	43	18:33	125	64	42	00:33	103	48	42	06:33	130	75	40
13:03	126	69	44	19:03	129	68	43	01:03	106	50	41	07:06	143	76	40
13:33	132	71	47	19:33	132	72	41	01:33	111	52	40	07:33	152	79	47
14:03	124	56	49	20:03	132	67	40	02:03	108	50	39	08:03	134	71	46

Load

Dip %

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dabl® Report



ABC Clinic

dabl® Cardiovascular Flow Chart

Page 1 of 1

Name John Doe		Record Number X123456	Ε	Date of Birth 03.04.1956		Sex Male	
	Targete	First	Latest		History		
	rargets	12.07.00	10.01.02	13.07.01	23.01.01	11.10.00	
Clinic BP mmHg	< 140 / 90	170 / 96	<mark>146</mark> / 86	156 / 92	174 / 92	180 / 104	
White-Coat BP mmHg		187 / 124	158 / 93	160 / 110	170 / 114	176 / 111	
Daytime BP mmHg	< 135 / 85	164 / 131	131/80	<mark>147</mark> /91	155 / 100	155 / 101	
Night-time BP mmHg	< 120 / 70	152 / 102	108/62	114/68	121 / 74	140 / 86	
ABPM Plot							
Smoking	Nil	20 Cig/d	Ex Smo	Ex Smo	10 Cig/d	20 Cig/d	
Alcohol units per week	< 14	24	15	10	15	20	
Weight kg	< 80	90	76	84	90	91	
BMI kg/m ²	< 25	30	23	27	30	30	
Salt – use of salt cellar	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Cholesterol mmol/L	< 5.2	6.9	5.0	6.2	7.4	б.8	
Triglycerides mmol/L	< 1.9	1.7	1.2	1.5	1.8	1.6	
LDL mmol/L	< 4.9	5.4	3.1	4.0	5.2	4.8	
HDL mmol/L	> 1.0	0.9	1.6	1.3	1.4	1.5	
Glucose mmol/L	< 6.4	4.4	4.1	4.1	4.0	4.3	
HbA1C %	< 6.5%	4.2%	4.0%	3.8%	4.0%	4.3%	
Modifiable Risk Indicator							
Creatinine µmol/L	< 121	118	96	102	116	115	
Proteinuria	Neg	Neg	Neg	Neg	Neg	Neg	
µAlbuminuria	< 100	20	Neg	20	20	20	
Sokolow Index mV	< 30	30.3	24.2	25.9	28.4	30.0	
Echo LVM g	< 225	221	205	210	218	220	
Echo LVMI g/m²	< 134	128	119	121	127	128	

dabl® Flowchart

dabl	Search				Reports	Management	Help	Logoff	BPU ENI
		Registration Data: New	Record				Save		Cancel
		Patient ID							^
		Last Name*	Jones	Middle Name					
		First Name*	Michael	Initials					
		Title	Mr	Alias					_
		Previous Last Name		Mother's Maiden Name	-				_
		Date of Birth*	05/05/1955 🔜 (dd/mm/yyyy)	Sex	Male				~
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		MRN	v				_		
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		County	Dublin	Postal Code					
		Country	Ireland 🗸						
		Email							
		Home Phone		Mobile Phone					
		Contact Person							_
		Name		Relationship					~
		Phone							
		Genetics							
		CYP2C9 Genotype	×	Explanation					
		Other Information							
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	Medicat	ion							
1	Cardiovas	cular *	Biometrics						
4	04/06/2	800	Weight*	90 k	kg 💙	Waist		cm	*
	Lifesty	le *	Height*	160 0	sm 💌	Hips		cm	~
	03/06/2	800	Arm Circumference	50 0	m 💌	Body Fat			0/4
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	Urine	*	Alconol	40 units/	week		Alcohol Calculato	r	
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	Geriati	ic *	Exercise	No Deliberate Exercise	~	Exercise Amount		min/week	
	23/05/2	800							
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dabl® Screenshots --input screens

Appendix 3

The 14 policy requirements proposed for the future prevention and care of chronic disease in Ireland, as stated in <u>'Tackling Chronic Disease - A Policy</u> <u>Framework for the Management of Chronic Dieases</u>' was published by the Department of Health and Children, (DOH&C 2008).

1. Chronic disease programmes and initiatives should operate within the overall policy requirements established by the Minister and the Department of Health and Children.

Context

The DOHC has developed policies on cancer, cardiovascular disease and diabetes. A new cardiovascular strategy including stroke is under consideration. The HSE is developing initiatives on chronic disease including cardiovascular disease and diabetes. Chronic diseases are also of relevance in the context of the development of new contracts, in particular those relating to the General Medical Services (GMS) contract. They are also relevant to the consultant contract where the development of shared care models and integrated services is an important requirement.

Action

Quality and Fairness and *Primary Care* – A New Direction set out a policy framework within which strategies and programmes should be implemented. Further policies include the Task Force Reports on Alcohol and Obesity as well as the National Health Promotion policy. Current and future initiatives on chronic disease should be patient centred and operate within the overall DOHC policy framework on chronic diseases established in this document as well as the existing disease policies and those which are under consideration.

2. Department of Health and Children will support the development of intersectoral working to deal with the preventative aspects of chronic disease *Context*

It is acknowledged that chronic diseases and the lifestyle factors which contributed to these, are distributed unevenly across the population. The Programme for Government has set out policy measures to prevent illness and promote health across the population. These will complement the existing initiatives currently being taken on lifestyle factors including tobacco, alcohol and obesity. Structures are currently being put in place to give affect to these actions. The legislative measures on tobacco control have been a success and need to be complemented with further work to reduce smoking in younger adults, especially females. Alcohol and obesity have been the subject of task force reports, where recommendations have identified actions to be taken in other sectors. The HSE is committed to intersectoral action and is involved in a broad range of projects on creating environments that support health and contribute to building health public policy. Many government departments already contribute to the development of measures and actions around individual health and lifestyle issues. Sometimes, this is fragmented and it is important to maximise opportunities for health improvement. A whole of government approach is essential in promoting health and reducing the burden of chronic disease in the population.

Action

The Government has recently agreed to interdepartmental and inter-sectoral collaboration on the prevention of chronic diseases which will address the wider determinants of, and risk factors to health, such as lifestyle (tobacco, alcohol, high blood cholesterol, overweight, low fruit and vegetable intake, and physical inactivity) and social, economic and environmental factors such as poor housing, poor nutrition or poor education. This single interdepartmental structure through which all health improvement actions will be channelled, will build on the work of the senior officials group on social inclusion and will report to Government through the Cabinet Committee on Social Inclusion. A cross divisional group in the Department of Health and hildren will support the interdepartmental work relating to the prevention of chronic diseases. The work programme will be focused and include the collation of existing intersectoral health improvement actions, the identification of priority future actions and the development of screening tools to evaluate the health impact of relevant policy proposals being submitted to government. The working group will report to government on a six-monthly basis.

3. Health service delivery should provide structured and integrated care for patients with longterm chronic conditions.

Context

Management of patients with chronic disease is complex involving self-care, primary care, acute care and rehabilitation. Complex problems often require a variety of health

professional competencies underlining the need for an interdisciplinary effort. At present, there are a small number of specific initiatives which are intended to integrate care across the various settings. Many of these HSE initiatives have been successful including the provision of structured care for diabetes and the management of individuals with chronic obstructive airways disease outside of the hospital setting. However, for most patients with chronic disease, care is fragmented and does not include all of the elements to reduce the burden from the disease for the individual. *Action*

The HSE has identified chronic diseases as a transformation priority and is developing a model for preventing and managing chronic illness. This positive development should be elaborated further through the service planning process in future years. An implementation plan should indicate the resource requirements, the manner in which services are to be integrated as well as how the objectives will be achieved.

4. Programmes should be developed for the major disease groups in the form of *disease management programmes*. Disease management programmes should be evidence based, recognise the nature of the interdisciplinary work concerned and comprise the total course of the disease.

Context

A considerable body of international knowledge has developed around the issue of disease management programmes and their role in improving care and reducing hospital admissions. These programmes set out the organisation and resource requirements and how they should be structured with reference to specific diseases. They set out the roles and responsibilities of different healthcare providers in primary and acute care settings, indicate the interdisciplinary nature of management and operate to disease management protocols for each condition. The HSE is developing this work, starting with Diabetes through its Expert Advisory Group. A further Expert Advisory Group is being established for cardiovascular disease.

Action

The HSE should develop and implement disease management programmes for the major chronic diseases. This will be an iterative process and build on the various initiatives already in existence. It will require research and the development, implementation and quality assurance of disease management programmes which should be supported. Disease management programmes should be quality assured via

performance indicators and reflected in the service planning process. It will require the support of the professional training bodies, HIQA, the Institute of Public Health and other providers who have a role to play in the management of chronic disease.

5. Criteria should be established for the definition, diagnosis and stratification of the major chronic diseases.

Context

Disease management programmes generally operate on the basis of the pyramid of care. Individuals with chronic disease can be categorised into three levels. The low risk category, compromising 75% of people living with a chronic condition are amenable to self-management with some health professionals' support. The medium risk category, compromising 20%, require a higher level of primary care support, either provided by doctors or nurses. The high risk category is often termed case management, involves 5% of people and who are at greatest risk of hospitalisation. These three levels of disease represent a spectrum and people in each level can improve or dis-improve and move between the levels. This depends on exacerbations of the disease and the degree to which complications can be prevented and general care and rehabilitation is provided. Registration of the diagnosis as well as the stage of the disease is therefore, important for implementing an individual disease management plan as well as for the overall monitoring of the quality and efficiency of the programme.

Action

Diagnostic criteria, including the stage of the disease, should be developed for each of the major conditions. This should be agreed by the HSE and the healthcare professionals who provide services. It should form the basis of epidemiological monitoring including monitoring contract service provisions of the various healthcare providers.

6. Clinical decision systems such as guidelines for the management of the major chronic diseases should be developed.

Context

The development of a shared care model will require the support of clinical guidelines for the management of each of the major conditions. Some of these have been developed previously for the management of cardiovascular disease. Clinical guidelines are close to completion for diabetes and describe how primary care and specialist services should provide quality care for people with disabilities.

Action

Disease management programmes should incorporate clinical guidelines for the major conditions. These should be developed and updated on an incremental basis starting with cardiovascular disease, stroke, diabetes and cancer. Other diseases may include asthma, chronic bronchitis and musculoskeletal conditions. This work should be supported by DOHC, HSE, HIQA and the professional training bodies.

7. Models of shared care should be developed within disease management programmes and that describe the nature of tasks between primary care and specialist services.

Background

Shared care describes clinical care which is shared between primary care and specialist services. It is developed jointly in advance, sets out roles and responsibilities, is evidence based and delivers care at the most appropriate level. Much of the care of patients with chronic disease can and should take place in the primary care setting, however, some will require a specialized level of care for diagnosis, establishment of treatment plans or the management of complications. Each condition will require criteria and protocols to determine the pathways of care and the most appropriate setting where patients should be managed.

Action

Disease management programmes should incorporate the existing clinical guidelines, where available such as diabetes and incorporate these into shared care models for each condition. This will require the agreement of medical practitioners, nurses and other healthcare staff in setting out the roles and responsibilities of all concerned. It should acknowledge the partnership role of community groups who make an important contribution in enhancing the health of local communities. It should also include the training and educational requirements, the task requirements and the necessary areas of competence to fulfil these tasks. It will involve the establishment of clinical networks in the primary and acute care settings with the aim of providing integrated and appropriate care for patients with chronic diseases.

8. The primary healthcare sector should play a central role in the care of patients with chronic disease. Primary healthcare should be strengthened to meet the needs of patients with chronic conditions.

Background

Most of the care of patients with chronic conditions takes place within the primary healthcare sector. This includes the diagnosis, treatment and even the rehabilitation of patients with chronic conditions. It includes early detection, assessment and follow-up, comprehensive medical treatment as well as preventive activities including smoking cessation, dietary advice, and support of patients' self-care. Many patients have more than one chronic disease, attend different acute care providers, all of which underlines the complexity involved and the central role that primary care should play in managing and co-ordinating care for patients with chronic conditions. There have been a variety of primary care initiatives for chronic disease such as HeartWatch and structured diabetes care initiatives in recent years. It is important to learn from these initiatives and build on

these where primary care has been successful in delivering high quality, effective and efficient care for patients with chronic conditions.

Action

The overall planning for primary care services in chronic disease should take place within a general framework for the management of chronic disease. This relates to the implementation of the primary care strategy, the rollout of the primary care teams and the development of multidisciplinary team working and integration with hospital services. Future primary care contracts should include enabling provisions with respect to the management of chronic conditions. The roles and responsibilities of general practitioners, nurses and other professional staff within primary care teams should be agreed. This work will need to be supported by clinical protocols and guidelines for the management of the major chronic conditions.

9. There should be an agreed management plan for each patient; whether care is provided in primary care or by a specialist unit.

Background

Patients with chronic conditions should have access to treatment which is appropriate to their needs and access to differing levels of services should be equitable. Under the shared care model, patients should expect to receive high quality care through a management plan which is followed throughout the course of the illness.

Action

Services should be patient centred and individual disease management plans should be prepared for each patient and include the treatment goals. The plan should reflect the stage of the condition, the interventions that are necessary and how these will be provided. The plan should also include the patients' commitments to comply with the achievement of treatment goals. All this should be central to the model of shared care that is described earlier.

10. Patients should actively participate in the management of their condition. *Context*

Patient participation in managing their condition has been demonstrated to improve health outcomes. Examples include self-management strategies in people with diabetes which have been shown to improve blood glucose levels. The patients' understanding of symptoms and knowledge of the disease and its treatment is a requirement for suitable self-care. Knowledge of the disease and its treatment not only improves quality of life but also can reduce the dependency on healthcare services. There are a number of aspects to self-care including general patient education and awareness, self-monitoring and selftreatment. The HSE is developing a model of selfcare for patients with chronic diseases.

Action

The HSE should continue the development of a self-care programme for patients with chronic conditions. This should include disease specific patient education including the skills required for self-monitoring and self-treatment and psychological support as appropriate. Healthcare professionals involved in the care of patients with chronic disease should participate in the development of these programmes. Self-care programmes should comply with the general requirements of chronic disease programmes and, in particular, to fit with the shared care model for chronic disease.

11. Clinical information systems should be further developed to support chronic disease

management programmes.

Context

Patient registration systems are usually condition specific and include registers on diabetes, cardiovascular disease, cancer, asthma and chronic lung conditions, arthritis and renal disease. At present, cancer is the only condition with national registration. There are some local registers on cardiovascular disease and diabetes. The use of these information systems allows access to key data on individuals and populations. They can be used to schedule individuals for clinical care and record information on co-morbidities. They are a key requirement for the effective implementation of chronic disease management in

the primary care and specialist settings.

Action

The development of patient registration systems for the major chronic conditions should continue to be supported. It is recommended that these be developed on an incremental basis starting with diabetes and cardiovascular disease. Development should begin at local level using primary and specialist data where available. These should be subsequently developed into regional and national registration systems. Registration systems should comply with the general ICT policy requirements and the governance arrangements as determined by HIQA.

12. Quality assurance should be established as part of the disease management programmes for chronic diseases.

Context

There is international evidence that quality monitoring frameworks are a prerequisite for the achievement of good clinical outcomes for patients with chronic diseases. Quality monitoring can also achieve efficiency gains and facilitates the efficient targeting of resources towards interventions that are effective in reducing the burden of these conditions.

Action

It is recommended that quality assurance be an integral part of the disease management programme. It is envisaged that HIQA will provide the overall framework within which this will operate. This should include incidence data, hospital utilisation data, clinical outcomes and other quality data including patient satisfaction. These should be followed up systematically at local, regional and national levels.

13. Evidence-based methods and research on chronic disease programmes should be supported.

Context

Much of the research on chronic disease and the development of evidence based methodologies have taken place in an international context in countries with several years of experience in chronic disease management programmes. It is generally accepted that better use could be made of existing knowledge on evidence based interventions and how research could be put into practice more quickly and effectively.

Action

Health service research on chronic disease in Ireland should be strengthened. The Health Research Board should consider how it might support such research. This should include research on health determinants and prevention, health inequalities and clinical interventions to reduce chronic diseases and its complications.

14. Chronic disease programmes should be monitored and evaluated on an ongoing basis.

Context

The international experience shows that some chronic disease programmes have been more successful than others and it is important to learn from these experiences and adapt programmes as necessary. The HSE is committed to identifying key indicator measures relevant to chronic disease so as to enhance performance.

Action

The service planning mechanism provides an accountability framework with respect to the delivery of health services. Chronic disease management programmes should be specified within the HSE service plan mechanism. Each programme should include targets and performance indicators so that progress in achieving the objectives of the programme can be monitored.

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