Telemedicine in Ireland: Policy and Applications

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Abstract

The monograph is prepared at a time of significant structural reform in the Irish health system. It addresses the status and advances in telemedicine in Ireland from the dual approach of (a) reviewing the main relevant health policy and strategic level developments over the past five to seven years and (b) identifying the level and variety of telemedicine applications on the ground.

The findings show a high volume of health policy and strategy docmentation, but an inconsistent inadequate policy treatment of telemedicine in the various health agency service planning and in strategic reports, such as, on primary care and mental health. In attempting to rectify this position the government commissioned a strategy report on telemedicine and telecare which was completed in 2005. Action on it is awaited. On the application side, a rich variety of telehealth activities, mainly at early or piloting stage of development were uncovered. Some twenty outline descriptions of the activities, some very innovative, are provided under the categories of clinical, pre-clinical and research, tele-educational and special telemedicine services initiatives.

The discussion highlights positive early evaluations and the resonance with similar international experiences, the use and features of models of the telemedicine service development process and the important of a guiding framework of service development. Some concluding observations include, the positive patient response to the telemedicine service experience, the need to integrate telemedicine into all strategic planning for health services, the possible acceleration of service development through a Telemedicine Innovation Fund and a core message on the urgent agenda – transform and perform!

Key words: Telemedicine, Telehealth, Health Policy, Applications, Ireland.

Introduction

This monograph is prepared at a time of significant structural reform of the Irish health system. It is widely acknowledged that the performance of the Irish healthcare system over the last decade or more has not matched the rising expectations of Irish citizens, particularly patients. Overcrowded Accident & Emergency (A&E) Depts., patients on trolleys, long waiting times and lists, lack of modern facilities and treatment overseas, are some of the symptoms of a sector whose urgent agenda reads – perform!

This challenge is notably happening against a backdrop of national economic success and unprecedented international technological change, particularly within information and communication technologies (ICT) that enable health telematics and telemedicine. While mainstream information technologies look to provide ehealth solutions, the question is: where is telemedicine as an emerging service option on urgent agenda?

The terms telehealthcare, telehealth, telemedicine, and telecare are defined elsewhere in greater detail[1,2,3] but for this profile they are treated as interchangeable generic terms to describe the use of telecommunications to deliver healthcare services at a distance. It is not new; as it was practiced over telegraph, radio and in more recently times over telephony. The focus here is on advanced digital telecommunications networks and of applications that go beyond the use of traditional telephony. Services can be categorized in the broad terms of the activities in the health sector, such as, clinical, laboratory, educational, research, technical and administrative services.

The primary objective of this monograph is to provide a brief overview of the advances in telemedicine in Ireland by examining activities (i) at the national policy and strategic level and (ii) at the operational service level and providing illustrative examples of Irish telemedicine applications. The secondary objective is to contribute to the broader exchange of information on advances in telemedicine.

The context of Republic of Ireland is that of a small nation in western Europe, a member of the European Union, with a population of some four million, of which one million live in Dublin the capital city and 40% live rurally.[4]

The current Section – Introduction, serves to set the objectives and the background to the paper. The Section -Method and Materials, outlines the process involved. The Section -Results, states the findings and the Section -Discussion, reviews the findings.

Materials and Methods

The report relies on: (i) literature research for the discovery of relevant published material and (ii) on direct telephone and email with health organisations and various clinical, administrative and technical contacts, to identify studies, surveys, projects, services and health policy and strategy activities. The findings were not expected to be treatable in a uniform and rigorous scientific manner given the diverse nature of the enquiry. The twin focus on policy and applications is perceived as yielding important evidence of the top-down and bottom-up components in the cycle of progression. The findings provide a basis for commentary and serve to promote awareness of the status and advances in telemedicine in Ireland.

The aim was to report in an adequate manner, yet real constraints existed, so no claim to being fully comprehensive is made. Again, it was a conscious decision to exclude the several EU healthcare research projects with Irish involvement, conducted under the different European Community Framework Programmes of research and technical development that are well documented elsewhere. They are nevertheless additional activities of significance to the Irish health system which can stimulate new thinking and lever catalytic action.

Results

The results are presented below in Section Telemedicine Policy and in Section Telemedicine Applications.

Telemedicine Policy

The process of reviewing the health system over the past 5–10 years has led to the generation of a significant volume of documentation of a policy or strategic nature. Nevertheless, the evidence is that both the recognition and policy treatment of telehealthcare, telemedicine and/or telecare is inconsistent and patchy at best.

Telemedicine is entirely absent from some key reports, such as, primary care strategy. It features in limited segments of other vertical sectors, such as, mental health policy. Disappointingly, within the key horizontal activity of ICT strategy and action plans its treatment is surprisingly inconsistent, if not absent. Encouragingly, the results show that in the last 2–3 years the focus on telemedicine is sharpening with the completion of (a) a first dedicated report specifically on "telemedicine and telecare strategy" for government and (b) evaluative research of emerging telemedicine services and the policy context.

By way of the actual references found to be relevant to the health policy and telemedicine, the sources are listed under the following sub-headings:

1) The Irish Government's socio-economic National Development Plan 2000–2006 was published in 1999. It briefly recognises the potential role of telemedicine – *to deliver services at the most appropriate locations, to access various centres of excellence with their professional expertise and to share diagnostic imaging and laboratory data.*[5]
2) The current Irish health services policy document of 2001 entitled, "Quality and Fairness: A Health System for You. Health Strategy" approved by Government and published by the Department of Health & Children.[6] It contains five references to telemedicine which, inter alia, recognise "*telecare and telemedicine has the potential to bring specialised diagnostic and clinical expertise closer to people, especially those in remote locations, making the health service more accessible and responsive*". ICT policy was stated as falling largely into the remit of the pending Nation Health Information Strategy, which would frame the best use of such technologies. Crucially, a new statutory agency the Health Information & Quality Authority (HIQA) would have a central role in implementing the Information Strategy.
3) The follow-up Action Plan Progress Report 2003 on the health services policy implementation.[7] It makes no mention of telemedicine.
4) The follow-up Action Plan Progress Report 2004.[8] It makes no mention of telemedicine.
5) In 2004 the Dept of Health & Children also published the delayed "Health Information: A National Strategy".[9] Chapter 14 is entitled "Information and Communications Technology". It briefly recognises the potential of telemedicine. Its Action Plan (Chapter 17) was to deal inter alia with "telehealth solutions". This it fails to do.
   The HIQA, designated to have a central role in ICT strategy implementation was set-up on an interim basis (iHIQA) in early 2005 pending the enactment of its statutory mandate.[10] Its enactment is awaited and a central role in ICT policy and telemedicine is unfulfilled.
   The new nationwide Health Services Executive (HSE) has been in place since 2005. Its ICT Directorate is currently working to the HSE Corporate Plan 2005–2008 and Service Plan 2006.[11] Establishing a unified National Health Network for countrywide systems and services is a 2006 priority.
6) To assist the above transition to HSE the Health Boards Executive (HeBe) developed and published in 2004 a strategic ICT report on "Embedding the 'e' in Health: A Strategic Framework for the Irish Health System".[12] It however makes no explicit mention of telemedicine, although various regional Health Boards had been incorporating telemedicine in their and prior services plans and supportive ICT strategies.[13,14] Indeed the Southern Board articulated a strong integrated ICT strategic vision, for which it won a Public Service Excellence Award in 2004 in Ireland In addition it had in 2001 been the first healthcare agency in Europe to receive the eGovernment Award for "Best Practice and Recognized Excellence in eService Delivery" in Brussels.[15]
7) The Dept of Health & Children and HeBe commissioned a Steering Committee and Project Group to undertake a "Telemedicine & Telecare Strategy" Report which was completed in October 2005.[16] The main purpose of the study was to put telemedicine and telecare firmly "on-the-map" for those charged with the modernization of the health services. It recommended a composite strategy of eight strands be adopted to advance telemedicine and telecare, namely; (1) a formal administrative framework (2) central telemedicine support infrastructure (3) virtual national medical services (4) undergraduate & post-graduate education (5) proactive support for enthusiasts (6) seeking its application to amenable priority services (7) awareness and promotion and (8) develop a legal framework. This has as yet to be acted upon and incorporated into strategy and action plans for services and ICT.
8) Researchers at the Department of General Practice, National University of Ireland, Galway, published two directly relevant studies; (a) an evaluation of five early stage telehealthcare services in the western and northwestern regions (2004) and (b) an assessment of the evolving policy context for telemedicine services (2006) based on resonance of the Irish data with international experiences using a model for service normalisation. The studies are believed to be the first evaluative studies conducted in Ireland. Both outcomes were very supported of building the momentum behind telemedicine and identified the key policy issue of nurturing "enthusiasts", namely, the essential leadership by clinical and technical innovators.[17,18]
9) A number of individual Ministerial and Government statements all supportive of telemedicine were uncovered from public events, such as, announcements on the All-Ireland Cancer Consortium, the Children for Children Fund and the British-Irish Council Summit, that focused on telemedicine in May 2005.[19,20]

10) The 2001 Primary Care Strategic Report "Primary Care: A New Direction".[21] An ICT strategy assignment to underpin primary care was commissioned in mid 2004. The ICT Strategy and Action Plan for this primary community and continuity care initiative, published a Phase 1 report "Outcome from Workshops" in early 2005 with ICT Implementation priorities.[22] It contains no mention of telemedicine.
11) The 2006 Mental Health Policy report "A vision for Change".[23] The only direct mention of telemedicine is in relation to a single sub-area of neuropsychiatry services. It recommended that facilities for video-conferencing and telemedicine should be considered, to extend the multi-disciplinary expertise, located in the two major neuropsychiatry centres in Dublin and Cork to enable them to become a consultation and training resource.

Telemedicine applications

The results of research into the status of telemedicine applications found four main sources of information on telemedicine activities in the Irish health system. Additional applications were uncovered in this review.

1) A national audit of telemedicine projects was conducted by the Health Board Executive (HeBe) a co-ordinating body for the Health Boards in the 2003–2004 period. Replies from the regional entities and seven major hospitals listed some 57 entries. The results of the audit have been taken into account in the strategy report to DoHC.[24]
2) A national survey to assess the use of telemedicine was undertaken of 187 hospitals – as part of the ongoing development of oncology services. Activities were reported in 40 hospitals of 157 (84%) hospitals replied. The main applications in the 40 hospitals were (i) tele-radiology 53% (ii) tele-conferencing (video-conferencing) 30%, (iii) tele-pathology (13%) and paediatrics (13%).[25]
3) A presentation given to the American Society for Telehealth Providers in 2002 listed an inventory of activities.[26]
4) An evaluative study of two western regions of the country, but did not purport to cover the national scene.[17,18] However, five of the eleven services listed were found to be dormant at the time of its analysis.

However, taking the above into consideration as well as additional applications, it was not possible to readily synthesis the findings into a single coherent list. For example, the different entities naturally list the same shared telemedicine service in which they each participate. Thus tele-radiology, co-ordinated by Beaumont Hospital links with 19 hospitals and would then appears in a number of hospital returns. It could be classified as 20 services or as one. Again, the same systems and networks could be used for multiple applications. Some applications were at different stages of development or dormant or abandoned. Again, the major initiative of the Children for Children and Adult Care Foundation which installed telemedicine systems in every paediatric ward and maternity hospital through 2005, added considerable momentum if uncertainty to a coherent set of statistics.

In the absence of an established system of nomenclature for telemedicine, an appreciation of the current level and breadth of activities is offered by way of representative examples of the different telemedicine applications uncovered. They are outlined under the headings of (1) Clinical (2) Pre-Clinical & Research (3) Tele-Educational and (4) Special services.

Clinical Services

1) Tele-Radiology

   This is the largest established telemedicine service in Ireland. As an emergency neurosurgical tele-radiology system it was initially installed in the mid 1990's in two referring hospitals to transmit images to the neurosurgical department in Cork.[27] Beaumont Hospital in Dublin is now the National Centre for Neuroscience. Its Neurology Department provides the national teleradiology service to 19 hospitals. The service enables distance clinicians to transfer CT scans and obtain second opinion from consultant staff at the Centre.
2) Tele-Cardiology

   The Crest Directorate, St James Hospital, a major tertiary hospital in Dublin, links with the Consultant Cardiologist, Sligo General Hospital, for tele-consultations on digital angiograms of heart patients. Audio-conferencing with data-conferencing is involved. The batch of pa-

tient data is transmitted prior to each consultation. Synchronized playing of the patient's digital angiograms on workstations at both locations was identified as the key initial need in 2001 for successful conferencing. The innovative system was developed and was implemented during 2003.

In the first year some 438 diagnostic angiograms were performed at SGH and 185 images transferred for cardiothoracic conferencing, 70% within 24 hours of their angiogram. The service has received high degrees of satisfaction from patients and clinicians leading to better and quicker clinical decisions, reduced waiting times, shorten hospital stays and less travel.[28]

The service continues and its wider national roll-out is progressing through 2006 to Tullamore hospital and other regional hospitals.

3) Tele-Oncology

Linking of the Medical Oncology team at Sligo General Hospital (SGH) in the northwest of Ireland commenced in 2002 to expedite patient cases on a Multi-Disciplinary Team meetings (MDT) basis with specialists in St. Luke's and St. Vincent's University Hospitals (SVUH). Multi-site conferencing with General Hospitals in Letterkenny and Mullingar followed as multi-point bridging permitted. The results of the first 35 patient cases under MDT format after an 18-month period confirmed the potential benefits of telemedicine were being realised.[29,30]

4) Tele-Clinics: PrimaryCare-Surgical

Killybegs Community Hospital (40 beds) in the northwest of Ireland. From its Telehealth Unit regular video-consultations are carried out between (a) patients and the primary care team and (b) a general surgeon in Letterkenny hospital some 75 Km away. In reviewing the first 60 patients, benefited 90% from avoiding travel, reduced waiting times and faster decision-making. The G.P's and primary care liked it as they could speak direct to the specialist. There is potential to apply this model on a national basis to community hospitals for delivering telehealthcare services.[31]

5) Tele-Pallative Care

Weekly video-based case-conferencing takes place between the palliative care consultant, at a HSE run hospice in Letterkenny, Co. Donegal and the nursing care support team members throughout the county.

6) National Healthlink Project

The objective of the Healthlink project is to implement a prototype healthcare communications network with specific reference to Primary Care Practitioners and acute Hospital and agency relationships, and data exchange. It is a web-based messaging service which allows the secure transfer of patient information over the internet. The message types available in the Healthlink Online system include:

Laboratory and Radiology results, Appointment updates and others. They integrate with the practice management systems. It is now backed by 14 hospitals nationwide.[32]

7) Nurse Conferencing in Clinical Setting

In the northwest region nurses and midwives are currently using webcam-based conferencing for a number of applications in a clinical setting including inter-clinic specialist meetings, document sharing and collaboration, administrative meetings and educational session delivery. It has proved particularly useful for groups within the clinical nurse specialist field and within the managerial team.[33]

8) Assistive Technology: Service Tele-Rehabitation, Tele-physiotherapy, Tele-Technical Support

The Assistive Technology (AT) service in the north west piloted video-based services regionally and centrally with the Central Remedial Clinic (CRC), Dublin. Services vary from wheelchair seating adjustment and Gait Lab, to tele-physiotherapy and AT support, saving difficult travel for clients with impaired mobility and families. The CRC now offers tele-services to its national centres.

Pre-Clinical & Research Services

1) Tele-Oncology

The high incidence of cancer in Northern Ireland (N.I), the Republic of Ireland (IRL) and in the United States (US) has led to the formation of a tripartite international partnership between the three countries called the Ireland-Northern Ireland-NCI Cancer Consortium.

In 1999, this five year agreement was signed under an inter-government Memorandum of Understanding (MoU).

The goals of the consortium are to enhance both cancer research and the quality of patient care on the island of Ireland. It is a collaborative "partnership-in-science" which focuses its work programmes on research, radiation oncology, clinical trials and educational exchanges as well as enabling ICT systems and infrastructure needs. It allows Ireland, north and south, to benefit from CIT and NCI developed leading-edge technologies and world-class expertise in addressing healthcare for cancer and also allows joint collaboration between scientists at all locations.[34,35,36]

Under the Consortium's scientific programme, centres are now established in Belfast City Hospital, St Luke's Hospital, and St James's Hospital, Dublin. It is anticipated that a new five year MoU will be signed in late 2006 to extend the agreement and add further momentum to the work of the cancer consortium.

2) Tele-Paediatrics: Tele-Rheumatology/Tele-Physiotherapy Pilot Service

In November 2004 the tele-paediatrics video-conferencing applications commenced at national tertiary children's hospital, Our Lady's Hospital for Sick Children, Dublin and demonstrated its usefulness when a rare case, a five-year old child suffering from dermatomyositis, was presented via the Telehealth Unit at Killybegs Community Hospital, Donegal, located in northwest Ireland. The scope of the presentations included tele-physiotherapy and tele-rheumatology. The case illustrated major benefits of the telemedicine service: a speedy specialist review of a rare case and the avoidance of arduous long-distance travel by both patients and parents.

3) Tele-Neurophysiology Pilot Service

Clinical Neurophysiology (CN), an underdeveloped specialty in Ireland, illustrates another potential benefit of telemedicine, namely, improved accessibility of services. A study undertaken to determine the needs, expectations and satisfaction with CN services by both patients and referring clinicians, assessed the impediments to access that Tele-neurophysiology might overcome.[37] The results of this study made a good case for a tele-service and approval was given in 2006 to commence a six-month pilot Tele-Neurophysiology service.

4) Tele-Emergency Referral Design

A design study of needs for patient Referral services between an outreach A & E Department and three tertiary Emergency Departments services was completed.

Tele-Educational Services

1) Royal Colleges in Ireland – Surgeons (RCSI)/Physicians (RCPI)

The RCSI in its post-graduate teaching programmes, has several established educational applications with video-conferencing involving its teaching hospitals in Dublin, regional locations in Ireland and overseas. Specialist disciplines, such as, radiologists and ENT have also been involved. The Nursing Faculty as well its administrative and overseas educational interests.

The RCPI has recently opened new video-conferencing facilities in Dublin.

2) Research and Educational Foundation (REF)

The Research and Educational Foundation (REF), Sligo General Hospital, has established and has in use since 1996, a video-conferencing facility for lectures, case-conferencing in Orthopaedics (linking with Cappagh Hospital, Dublin),and also in Surgical, Oncology and ENT disciplines (linking with RCSI) as well as for administrative applications.[38] Workshops in teleconferencing have been held for the hospital doctors under their Core Skills Programme.

3) Rehabilitation Counselling M. Sc. Degree Programme

What is believed to have been the first transatlantic Master's Degree course, combining the use of video and data-conferencing in a innovative teaching model, was conducted over an 18-month period in 1998–1999 between Ireland and the US. The Rehabilitation Counselling degree was operated by the University of Illinois under the auspices of the Tipperary Rural and Business Development Programme, Ireland. Sixteen post-graduate students from throughout Ireland traveled biweekly over eighteen months to Tipperary to complete the degree requirements.[39] Another M.Sc. degree course in Rehabilitation Counselling is scheduled to commence in 2007 using the same teaching model.

4) Ophthalmic Post-Graduate Teaching Programme
The Irish College of Ophthalmologists, the recognized training body for ophthalmologists in Ireland, has, in co-ordination with the Eye & Ear Hospital, Dublin, has operated its post-graduate teaching programme of clinical cases and special topics to regional hospitals for the last three academic cycles. The system is based on a pedagogical model that combines dual conferences namely: (i) audio and video-conferencing and (ii) ophthalmic images and text via synchronized displays with collaborative software that preserves the quality of ophthalmic images.[40]
5) Tele-Hospital-School
Ireland's first interactive school was opened in Cork University Hospital in 2001. With video-conferencing linkage, a child who is confined to hospital for weeks or months can attend virtually in class and see and talk interactively with his/her teachers and classmates.

Special Services

1) Cooperation and Working Together (CAWT):
Tele-Neurology: Tele-Learning: Tele-Nephrology
Cooperation and Working Together (CAWT), a cross border body, formed in 1992 between the North Eastern and North Western Health Boards in the Republic of Ireland (known as the Health Service Executive as of 1 Jan 2005) and the Southern and Western Health and Social Services Boards in Northern Ireland, agreed to cooperate in an EU-supported programme with a view to improving the health and social well-being of their combined resident populations of over 1 million people.
The CAWT Business Plan 2002–2006 states "Problems of isolation, peripherality and rurality are endemic in the CAWT region. Videoconferencing, teleconferencing and e-mail are technologies now widely available, which can often provide a solution to such issues".[41]
A network of 10 video-conferencing sites in hospitals and centres on both side of the Border has been established. The various health supported applications include:
a) Nine outreach Tele-Neurology Centres across N.I. are linked by video-conferencing to specialist consultations on patients suffering from strokes, epilepsy and severe headaches in the Royal Victoria Hospital, Belfast
b) Tele-education through the Dental Outreach Skills Centre in Strabane N.I. where regional dentists taking mandatory continuous professional development (CPD) requirements from both jurisdictions participate thereby saving much time and travel.
c) Nephrology Network launched May 2006 to improve the quality of care at three N.I. sites and three sites in the Republic for 360 haemodialysis patients with data on a single unified information system.
2) Tele-Paediatrics: Children for Children and Adult Care Foundation
Tele-haemology: Tele-oncology: Tele-cardiology and Tele-educational
In early 2006 the founders of the Children for Children and Adult Care Foundation were honoured for donating telemedicine units to 42 hospitals in the north and south of Ireland. This included all hospitals with Paediatric and Maternity Units.[42,43]
Similar units had been successfully used for several years in St Jude's Hospital, Memphis TN, USA and special transatlantic links exist between that hospital and Our Lady's Hospital for Sick Children (OLHSC) Dublin. Tele-haemology, tele-oncology and tele-educational are prominent in the priority applications.
OLHSC with new video-conference room facility and a roll-about unit now participates in weekly multi-site lectures from St Jude's, regular tele-cardiology case conferencing with Royal Victoria Hospital Belfast and monthly gastrointestinal pathology tele-consultations with Altnagalvin Hospital, Derry, N.I. Also the administration employs the video-conferencing facilities for the overseas recruitment of priority healthcare personnel.
3) Telemedicine Projects: Vodafone Foundation Ireland
The Vodafone Foundation is sponsoring two services (a) a tele-cardiology emergency service with West of Ireland Cardiology Foundation (Croí). The patient's ECG data is transmitted from the ambulance via mobile telecommunications to the hospital emergency team in advance of the patient arrival and (b) an innovative text messaging service with the Irish Blood Transfusion Board sponsoring 500,000 messaging in a year to prompt registered donors to attend their local Donor Days.

Discussion

The results confirm that at the policy level, the awareness of the strategic potential of telemedicine was a largely defective and intermittent in the last 5–7 year period. The commissioning of the Telemedicine and Telecare Report effectively acknowledged this fact and sought to remedy it. Its purpose was 'to put telemedicine and telecare on the map'. While the diagnosis has been late, the remedy is still lacking. A mature policy prescription and implementation is now required.

In the absence of a formally enacted NIQA, the active integration of the telemedicine dimension into DoHC policy-making and HSE strategies in particular, would be beneficial in compensating for the prior underdevelopment of formal telemedicine services. The scholarly evaluative policy research of NUI Galway certainly adds value and weight to the process by building from the evidence-base of innovative pilot services. Its cautionary note of limited sample size is appropriate. Actively promoting new innovative services is essential. One agrees on the identified need for competent "enthusiasts" to champion service development.

To realize sustainable professional national services there will generally be the need for a more rigorous path from piloting, patient consent and technical improvements to evidence-base protocol developments, re-skilling and evaluation. The exact phased model adopted will most likely vary and be dependent on the particular service context. A noteworthy consideration in this regard is the four phase model for successful telemedicine system design from which the NCI and CIT technology suite for the Cancer Consortium was derived.[36] It is a good departure point for appreciating how the uncertainty of technical solutions for the clinical environments is progressively reduced. The Consortium's core technologies are built on a rich base of telemedicine research outcomes in collaborative working environments. Again, meeting the needs of mainstream day-to-day clinical oncology services, –as against research services -would most likely include a value-for-money dimension.

At a generic service level the Canadian framework of guidelines for their national telehealth programme is a comprehensive guide for procedures and standards.[44] Again, specific telehealth practice recommendations for diabetic retinopathy were developed by the Telehealth Ocular Group of the American Telemedicine Association to guide that service.[45] Such groundwork can ensure that with telemedicine the quality of care will be equaled if not enhanced.

The challenge for the health services in an age of unprecedented technological changes for healthcare is to establish a culture that reinforces innovative leadership and strengthens service champions for better patient outcomes. To compensate for delays and to accelerate delivery of the recommendations of the telemedicine strategy report, one policy measure could be the establishment of a Telemedicine Innovation Fund for projects. Awards could be on the basis of competitive proposals to selectively seed new service concepts and take existing pilots to the next level in priority area needs and stated strategic plans. Perhaps the unique Telehealth Unit in a small dedicated facility in Killybegs Community Hospital could be replicated onto a larger scale where local leadership exists to realize its use and give value for money. The background evidence from applications is that suitable shared professional conferencing rooms and equipment facilities with adequate broadband connectivity for (i) diverse clinical services (ii) multi-purpose education and training applications and (iii) administrative meetings and interviews, do not exist in most hospitals

It would also appear timely to apply the potential of telemedicine applications to the context of Primary Care Strategy. In turn this can translate into practical timely targets for primary care clinics adopting and equipping for home monitoring, ECG and video-consultations. Again, the Mental Health Policy is a similar case in point.

The results also confirm growing numbers of applications. The examples provided confirm a surprisingly wide variety of applications of telehealthcare services. In addition the growth rate has significantly increased in the last two years. Further, the very rapid growth in recent years of private health centres, clinics and hospitals will undoubtedly see further telemedicine applications in appropriate services where such investments are financially attractive to service both domestic and overseas markets.

While telemedicine services are not a panacea for all situations, achieving both a maturity in strategic thinking and actions and maintaining a high quality clinical care as applications progress are twin key considerations. From the perspective of advancing telemedicine services

towards mainstream sustainability, it is held that a mix of perspectives of top-down strategies and bottom-up applications inter-works to enrich the understanding of both perspectives.
In conclusion, the following observations on the advances in telemedicine in Ireland are offered:

1. Irish evaluative studies support that most patients find telemedicine services acceptable. This is very much in line with international experiences. They want more! That's the good news. In a stated policy era of patient-centric services that should also be good news!
2. While Ireland may be late among nations in coming to the telemedicine table on a large scale, it now has in motion an increasing array of early stage applications.
3. The policy response to Strategy for Telemedicine and Telecare report needs to be firm and bold to place telemedicine on the map -indeed onto the international menu of world-class health services..
4. Telemedicine now needs to be comprehensively integrated into (a) the national health service plans (b) horizontal ICT strategy and action plans, particularly in crises and priority areas, such as, A&E, and better access to under-served communities, (c) vertical segments, such as, mental health and primary care and associated action targets ex. Home monitoring for 25% of appropriate patients in 24 months and (d) into all future policy formulations for specialist services.
5. Innovative telemedicine service development would benefit from dedicated funding, such as, a competitive Telemedicine Innovation Fund, targeted to the priority health services and goals, professional quality shared telehealth facilities and to supporting local clinical and technical leadership and service champions.
6. The real implications of widespread, advanced and rapidly changing ICT technologies on the health services on a strategic timeframe, is probably going to be more radical and disruptive than articulated above.

The refreshed urgent agenda reads-transform and perform!

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