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Incorporating Teaching in Global Child Health into Irish Medical School Curriculum

Sir,

The medical profession is confronted by inequality in access to health care worldwide. There is an ethical responsibility that this be addressed during the training of new doctors. We examined the baseline interest in international child health among medical students in an Irish University and we looked at the impact of a clinical approach to global child health education on their interest and knowledge. We developed a global child health module with a clinical focus and incorporated it into the paediatric curriculum. Two questionnaires were developed to determine student's perceptions of the relevance of international child health and their knowledge of core topics in international child health pre and post taking the module. 100/130 questionnaires were completed.

The module was structured around contributors to under five mortality; pneumonia, neonatology, malaria, diarrhoea and malnutrition.¹ Real case examples from the field were used and students were divided into groups to discuss diagnosis, management and possible preventative strategies. The module was delivered during the academic year 2012/2013 to fifth year medical students in a University in Dublin. The surveyed students were 51% male and 49% female and came from the following countries; Ireland (38%), North America (24%), Middle East (20%), South East Asia (10%), Other European (4%) and Trinidad, Australia and South Africa (3%). Prior to undertaking the module the majority of students stated that international child health was either relevant (40%) or very relevant (25%) to their career. Students were asked to self rate their knowledge of core topics in global child health. The topics were; Pneumonia, Malnutrition, Malaria, Diarrhoeal disease, Neonatal care and Immunisations. The majority rated their baseline knowledge as poor, fair or satisfactory in all core topics. This improved in all topics post module. 63% of students stated that they plan to work in the developing world at some point in their career. 41% had either already done or plan to do a developing world elective during university. Students were asked how the module affected their interest in international child health. Interest increased in 58% of students, was unchanged in 39% and decreased in 3%.

Global health education has been increasingly incorporated into medical curricula in the last decade.² In a survey of 100 paediatric residents global health training was found to be an important factor in residency selection and one third of residents had plans to work in the developing world.³ 63% of our students indicated plans to work in the developing world once qualified, however self rated baseline knowledge in contributors to under five mortality was low. This educational gap needs to be met. It is important that medical schools adapt to the increasing interest in working in developing nations and equip students with the necessary clinical knowledge and skill set to work in these settings.

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In this Month's IMJ

Patients accessing ambulatory care for HIV-infection: epidemiology and prevalence assessment:

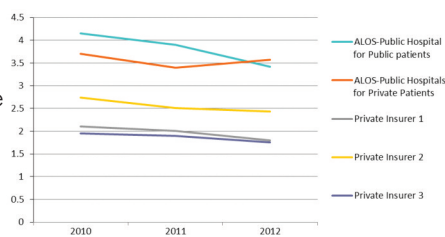
Tuite et al report that 3254 HIV-infected adults attended one of the 6 specialist HIV centres in the 12 month period 2009 – 2010. More than half (56%) were men, and 56% were Irish. The HIV diagnosed prevalence rate is 1.09/1000 nationally, and 2.25/1000 in Dublin for 15-19 year olds.

Table 1 Estimated HIV diagnosed prevalence rates for patients accessing specialist HIV care in Ireland (3098/3254 contributed to analysis - not all counties presented as numbers too small.)

County	Number (Age 17-78)	Population 2011 census data (17-78)	Crude prevalence rates/1000 population (17-78)	Number (Age 15-59)	Population 2011 census data (15-59)	Crude prevalence rates/1000 population (15-59)
Total	3254	3,349,200	0.97	3134	2,854,483	1.09
Dublin	1924	961,906	2.00	1872	832,823	2.25
Cork	202	379,732	0.53	189	322,202	0.59
Galway	123	184,230	0.67	114	157,681	0.72
Kildare	81	149,419	0.54	80	133,404	0.6
Meath	81	128,972	0.63	80	113,735	0.7

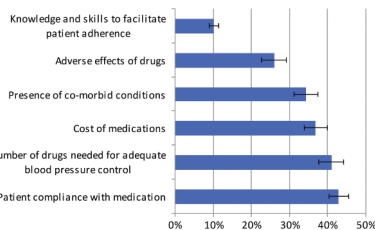
Breaking barriers to successful implementation of day case laparoscopic cholecystectomy:

Reynolds et al state that 19,214 laparoscopic cholecystectomies were performed in Ireland in a 3 year period. The procedure reduces post-operative pain, and shortens stay in hospital. Day case surgery is feasible and is 21.9% of cases in the public sector. The authors point out that in order to improve day case rates, hospitals need a dedicated day surgery ward and allocated time in theatre.

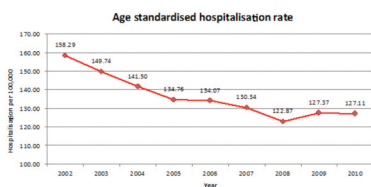


A survey of GPs awareness and use of risk assessment tools and cardiovascular disease prevention guidelines:

Byrne et al report on a cross-sectional study involving 213 GPs. While almost all were aware of at least one risk assessment tool (e.g. systolic blood pressure, total cholesterol, smoking) only 32.4% reported frequent use. The barriers include time constraints, confusing guidelines, and lack of knowledge on how to facilitate patient adherence.



Temporal trends in hospitalisations for heart failure:

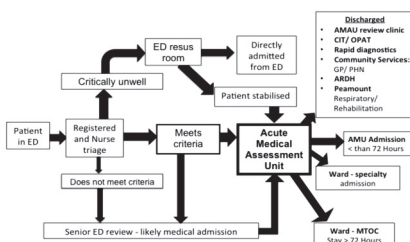


Irish hospitals. Between 2002 and 2010 there was a 19% reduction in the overall hospitalization rate but rates increased in the subgroup >85 years.

Characteristics and outcomes of older patients attending an acute medical assessment unit:

Fallon et al describe the management of 3071 patients attending an AMAU. The admission rates for patients >65 years was 60.5% compared with 32% in those <65 years.

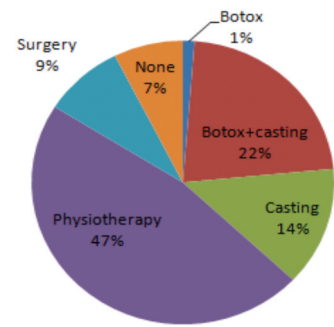
Advisory external defibrillator



availability in general practice: Barry and Bury in a survey of 110 GPs found that 74 had one or more AEDs. Among those who did not have an AED, cost was the commonest explanation. The authors state that cardiac arrest is not a frequent event in general practice but over time many GPs will encounter a case. Cost supports are urged particularly for rural areas.

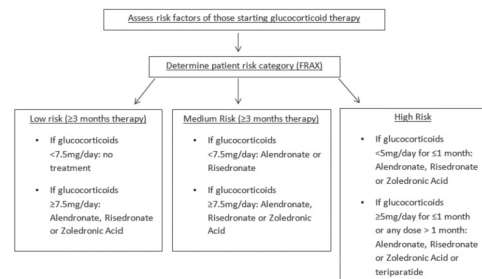
Idiopathic toe walking: a gait laboratory review:

O'Sullivan and O'Brien state that toe-walking is a normal variant in children up to 3 years and after that age the diagnosis of idiopathic toe-walking (ITW) must be considered. Among 102 children referred with a diagnosis of ITW, the gait laboratory analysis concurred in 79.4% of cases. The treatment includes physiotherapy, casting, botox, and surgery.



Guideline promotion increases prescription of bone protection with steroids in hospitalized patients:

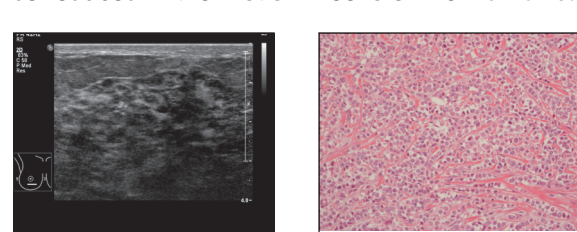
Harty et al describe the effectiveness of bisphosphonate (BP) guidelines. Prior to their introduction, among patients receiving steroids Ca and Vit D were given to 17% and 3% received BP. Following the adoption of the guideline, those administered Ca and Vit D increased 35% and 20% received BP.



A rare case of BRCA2-associated breast cancer in pregnancy:

Leidhin et al describe a case of symptomatic breast cancer at 35 weeks gestation. A BRCA2 mutation was identified. Labour was induced and the infant delivered at 38 weeks. Following the birth she was treated with mastectomy, axillary clearance, adjuvant chemotherapy, radiation and hormonal therapy.

Neonatal discharge planning: could unscheduled reviews be reduced in the first six weeks of life:



analysed the pattern of unscheduled attendances among infants under 6 weeks. With better health information, many of the visits could have been prevented. Almost half of the cases related to benign variants or feeding problems.

Table 1 Reasons for unscheduled review

INDICATION REVIEW	GP (n=6)	Paediatric ED (n=70)	Rotunda (n=69)
Benign Neonatal Variant*	33.3% (n=2)	34.2% (n=24)	34.7% (n=24)
Feeding Problem	33.3% (n=2)	14.3% (n=10)	14.4% (n=10)
Respiratory	33.3% (n=2)	20% (n=14)	2.8% (n=2)
?Sepsis		18.5% (n=13)	10.1% (n=7)
Other**		12.8% (n=9)	37.7% (n=26)

Promoting Paediatric Research

The executive summary of the Nuffield Council on Bioethics Report on Children and Clinical Research states that 'the time has come to protect children through research, not from research'. It is always easier to say no and not make the effort to undertake paediatric research. A negative, unsupportive attitude towards research does children a disservice. There are countless children suffering from incurable or partially incurable conditions who are dependent on the paediatric research community being able to achieve new advances on their behalf. Evidence based on research undertaken on adults is not sufficient, because disease affects children differently due to their unique and immature physiology. Clinical research that involves children, is necessary in order to improve the understanding of childhood diseases, and to inform on how best to manage them. It needs to be more widely known that many medicines prescribed to children have not been tested in children. The evidence available as to how children may respond to medications, and the most appropriate dosages, are necessarily limited. Without well-conducted research, there is no prospect of improving healthcare for children now or in the future, and there is a real risk that children will be harmed by procedures and medicines that are ill-adapted for children. The Working Party takes as its starting point the view that scientifically valid and ethically robust research, addressing questions of importance to the health of children and young people, should be seen as intrinsically good.

The Nuffield Report indicates that the research culture in the UK is weak and that in the last 3 years there has been a further 8.3% reduction in academic consultant paediatricians. Less than 2.5% of the 2 million children admitted to NHS hospitals annually are enrolled in research studies. Most newly appointed consultant paediatricians have little or no research skills and are unlikely to be able to foster research among the next generation of trainees. The current situation is disappointing because a modern paediatric service should have research at its core. It is pointed out that research is not perceived as 'core business' in the NHS.

There have been gains and successes from clinical paediatric research. Childhood leukaemia is an outstanding example. The ten-year survival now stands at 81% compared with only 27% in the period 1971-5. The driver for improvement was the UKALL trials, which were open for all children with leukaemia to be enrolled in. In addition there was greater sharing of the US and UK data.

The improved management of childhood anorexia is highlighted. In the 1960s and '70s when therapies were first introduced, the management consisted of inpatient admission and individual psychological therapy. Following research undertaken at the Maudsley, the management was changed to family based therapy (FBT). This has resulted in a better outcome for adolescents with anorexia nervosa.

In the 20th century, between one and two million children under 5 years old died annually from Malaria. A series of studies from the 1980s onwards demonstrated that bed nets impregnated with insecticide protects children from Malaria. The widespread introduction of this process has in part been responsible for the 54% reduction in Malaria related deaths in children. In the period 2012-2014, 400 million impregnated bed nets have been distributed in Africa.

The downside of not undertaking research is well demonstrated with a number of key examples. The first is the use of Chloramphenicol in newborns resulting in the 'grey baby syndrome'. The impaired metabolism of the antibiotic in young infants led to the toxic accumulation and fatal cardiovascular collapse. The second is the previous standard advice given to all parents to place their babies prone. Subsequent research in the 1990s showed this to be incorrect and positioning infants supine resulted in at least 50% reduction in Sudden Infant Death Syndrome cases. The third example is the use of Cisapride in the treatment of gastro-oesophageal reflux in infants. The drug was eventually withdrawn from use in children because of cases of fatal or near-fatal cardiac arrhythmias.

In the Report a number of research work streams are outlined. The first are studies examining the relationship between health related behavior and conditions such as obesity. The second stresses the importance of normal child development and how it is altered by neurological disorders. The third stream underlines the patterns of diseases and how they evolve. The fourth discusses the value of studying the prevalence of childhood conditions. The fifth stream is about research that examines how a new treatment or intervention may work. The sixth group is research into how a medical condition affects the child's life. The seventh category consists of studies and questionnaires into the patient/ service user experience of the healthcare that they've been provided.

There are 19 recommendations in the Report. Many of them are about getting research established and fostering a productive research environment. The paediatric 'input' on hospital and national research ethics committees should be encouraged and expanded. The committee, while maintaining high standards, should be helpful and encouraging to clinical investigators. The characteristics that make a good investigator are trustworthiness, openness, and courage. While the first two virtues are self-explanatory, the third one refers to the courage needed by investigators in carrying out difficult research, when they could have taken an easier option. On the other side of the table, professionals and lay people who act as members of a research ethics committee, should receive greater recognition and appreciation for their services. Their role is crucial to the scientific effort.

There should be greater incentives for those willing to undertake studies on medicines in children. Ethically based co-operation between investigators and the pharmaceutical can be beneficial for children both in the understanding how a drug works and determining the optimal dose. Phase 1 trials are the first human studies that are undertaken in a small group of volunteers in order to check safety. Phase 2 trials determine how effective the drug is in a controlled environment and involves approximately 100 people. Phase 3 trials study the efficacy of the medication compared with another drug or a placebo. Phase 4 trials take place after the drug has received a license. They are undertaken to check safety, effectiveness, and safety. Phase 1 and 2 trials are mostly carried out on adults but Phase 3 and 4 trials can be undertaken in children. It is to be hoped that more of the latter studies will be performed on children in the future.

The dual roles of both the child and the parents must be included in the research process. The 2014 RCPCH document states that the child's active affirmative agreement should be sought from 7 years onwards. Children must be treated as individuals irrespective of their age. Parental consent to research should be based on their confidence that participation in the proposed research is compatible with their child's immediate and long-term interests.

It is important to get the right balance between the 3 key considerations- the scientific and clinical benefits that research may bring, the role of children and young people themselves in research decisions; and the proper protection of those taking part in studies.

The Report is 221 pages long. It is very detailed, and it is only possible to scratch the surface on a first read. It strikes an encouraging note. It is supportive of research in children and of those who undertake the research. It will be an important leader and driver for paediatric research over the next 5-10 years.

JFA Murphy
Editor

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Changing Paradigms for Oropharynx Cancer: Swinging of Pendulum Back Towards Surgery

The oropharynx, extending from the soft palate to the level of the epiglottis, and containing the palatine tonsils and base of tongue (BOT), is a common site for Head and Neck cancer. Squamous cell carcinoma (SCC) comprises the overwhelming majority of cases. Traditional aetiological factors for oropharynx SCC (OPSCC) are smoking and alcohol consumption. In recent years, human papilloma virus (HPV) type 16 has emerged as the major cause of an ever increasing number of cases¹. Over the last two decades, there has been a dramatic surge in the incidence of OPSCC. Figures obtained by the Irish National Cancer Registry show an increase from 50 cases per year in 1994 to over 100 cases per year in 2012. This recent rise in OPSCC incidence is almost exclusively related to an increase in HPV related cancers. In the United States, between 1988 and 2004, HPV related OPSCC showed a 225% increase, while HPV-negative OP SCC showed a 50% decline, attributed to decreased prevalence of smoking¹.

The last two decades have also been notable for major shifts in treatment approaches for OPSCC. Traditional surgical treatment with open resection usually required lip split and mandibulotomy, and had a high incidence of major complications including wound breakdown, pharyngocutaneous fistula, and non-union or malunion of the mandible, with little apparent oncological benefit over primary radiotherapy (RT)². This set the stage for a major shift towards non-surgical management from 2000 onwards, which was largely driven by the publication of several landmark trials demonstrating superiority of concurrent chemoradiotherapy (CRT) over RT alone for OPSCC^{3,4}. However, CRT is associated with a significantly higher incidence of major toxicity than RT alone³, including higher incidence of long term swallowing problems, and a high incidence of gastrostomy tube dependence. Thus, enthusiasm for chemoradiotherapy has been tempered of late by concerns regarding increased toxicity and poor functional outcomes.

More recently, our understanding of OPSCC has progressed further with the realization that HPV-related OPSCC has a more favourable biology than HPV-negative OPSCC, and carries a significantly better prognosis⁵. Thus, given the recent marked increase in incidence of HPV-positive OPSCC cases, simultaneous with the increased use of CRT as primary treatment modality, it would appear that much of the excellent reported results for CRT are accounted for to a large extent by a high proportion of HPV-positive cancers. This realization has raised concerns that current CRT protocols with attendant high toxicity may represent overtreatment. However, even though CRT has not been compared with RT alone specifically for HPV-related cancer, the documented superiority of CRT in older trials has led to understandable reluctance by clinicians to withhold chemotherapy from fit patients with advanced stage OPSCC undergoing non-surgical treatment. The present decade has witnessed the development and refinement of new surgical techniques for removal of selected OPSCCs by a completely transoral approach using either laser or robotic assistance, which has offered an alternative approach to OPSCC^{6,7}. Transoral laser surgery (TOLS) or transoral robotic surgery (TORS) avoids most of the morbidity of traditional open surgical resection, with much faster recovery of swallow function. These techniques would also appear to have advantages over primary CRT, including reduced toxicity and avoidance of need for routine gastrostomy tubes.

TOLS or TORS is generally performed under high magnification using an operating microscope or endoscope. In the case of TOLS, resection is effected using carbon dioxide (CO₂) laser delivered by a fiberoptic cable. This allows complete transoral resection of tumours which would not be feasible using traditional

instruments due to anatomical constraints, e.g. due to location of tumour "around the corner" from the surgeon, which is a particular issue for tumours involving the BOT. Concomitant or delayed neck dissection is generally required to deal with metastatic neck disease, or to exclude occult metastases in the case of patients with radiologically negative necks. For many patients, postoperative RT will still be required due to advanced stage neck disease (N2+), positive margins, or other adverse pathological features, however, this is generally a lower dose than given for primary CRT, and in most cases, chemotherapy can be withheld. For patients without adverse features, RT can be withheld altogether, and excellent oncological and functional outcomes anticipated. The oncological outcomes of TOLS/TORS would appear to be at least as good as the best reported results for CRT. Typically reported local control rates range from 91-98%^{6,7}, with overall survival reports of 86% at 3 years, and 85% at 5 years⁸.

Where TOLS/TORS may offer significant advantages over CRT is with respect to functional outcomes. Even in cases where postoperative RT is recommended, the dose can usually be reduced compared to that given with primary CRT, and chemotherapy completely withheld, with reduced RT dose to constrictor muscles and avoidance of chemotherapy-related toxicity leading to better swallowing outcomes. This supposition would appear to be supported by the excellent reported functional outcomes of OPSCC patients treated by TOR, with normal swallowing achieved by most patients within 3 weeks, and rates of long-term gastrostomy dependence of 0-9%^{6,7}, which compares favourably to long-term gastrostomy dependence rates of 26-29% after CRT⁹. Furthermore, although prospective data comparing TOLS/TORS to CRT are lacking, there appears to be growing retrospective data suggesting a benefit for TOLS/TORS in swallowing outcomes and quality of life measures¹⁰.

In the future, it is possible that further improvements in functional outcomes may emerge if the dose of postoperative RT can be further de-escalated in patients without adverse histological parameters. This is the subject of a currently ongoing randomized controlled trial (ECOG 3311). In conclusion, TOLS or TORS for treatment of suitable OPSCCs would appear to offer excellent oncological outcomes with superior functional outcomes compared to primary CRT, and thus should be considered as primary treatment option in appropriate cases.

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Towards Improved and Safer Care, For Patients and Doctors

Allegations are increasing, that doctors fail when obtaining consent, to ensure that the patient understands the information. Obtaining consent is central to the patient doctor relationship. In the USA, doctors write the acronym "PARO" in medical notes to demonstrate they have discussed "procedure" (what it entails), "alternatives" (including nothing), "risks" (of the procedure and the alternatives) and "questions" (invite questions from the patient)¹. *Birch v University College Hospital (UK)*² case, exemplifies the importance of above. The doctor was found negligent, because although he informed the patient of the risks of catheter angiography which led to her stroke, he did not discuss the comparative risk of magnetic resonance imaging.

There should be dialogue between doctor and patient, encompassing ten points. Any intervention conducted by a doctor on a service user requires consent. Information imparted should include diagnosis, prognosis, purpose of intervention, potential complications including failure, alternatives or taking no action. Consent should be obtained in a private and appropriate location using comprehensible language and with an interpreter if required. There should be plenty of time to discuss consent with the patient and it should never be rushed. Where possible, consent should be obtained weeks prior to the elective procedure in outpatient clinic and re discussed closer to the event. Information should always be given in a clear, understandable manner. Leaflets, where available are useful, but they never replace discussion with individual patients. Patients must be acting voluntarily and be mentally competent to make a decision for consent to be valid. Sixteen³ years is the age one can give consent to surgical, medical or dental treatment without requiring consent from parents.

Sokol, (barrister and medical ethicist), reminds doctors of an important point which lawyers actively consider in clinical negligence cases⁴: it is "not enough just to impart information, doctors must do so in a manner that the patients will understand". He illustrates this with the case of Mrs Lybert⁵ who after a sterilisation procedure became pregnant. Although the consultant had documented in his notes "not 100%", the judge concluded the warning was not sufficiently "clear and comprehensible". He found that had an appropriate warning been given, contraception would have been used and pregnancy likely avoided. As doctors, we are advised to take "reasonable and appropriate steps" to ensure our patient understands the information. In addition to inviting questions, offering leaflets, some suggest considering recording the consultation and providing a copy to the patient.

The legal outcome in the Geoghan versus Harris case in 2,000 in Ireland highlighted that, regarding informed consent, a doctor must discuss "what a reasonable patient would want to know". Interestingly, 15 years later, the UK Supreme Court in the *Montgomery V Lanarkshire Health Board* 11th March 2015 has concurred: medical paternalism is no longer. Nadine Montgomery, with diabetes was not informed of the risk of shoulder dystocia to

her baby who subsequently developed cerebral palsy⁶. Documentation is critical. A careful, legible note, while time consuming, is worthwhile. I think Sokol's suggested statement is worthy of consideration: "procedure, alternatives and risks explained in clear terms. Questions invited but none asked. Patient appears to understand. Leaflet provided. Patient advised to read"⁴. This aims to benefit both patients and doctors.

Atul Gawande, surgeon and New York Times bestselling author, learned from the aviation and construction industries giving us his invaluable, Checklist Manifesto⁷, which provides some protection against failure. Our ever changing world of modern medicine challenges us with ~13,000 diseases, ~6,000 drugs and ~4,000 surgical procedures. We are reminded that to rescue a critically sick patient, 178 tasks must be carried out correctly each day of critical care management⁷. Failure to perform these correctly may lead to a patient safety incident and later litigation. Because routine tasks in medicine and surgery have become more complicated, Gawande teaches that mistakes of some kind are virtually inevitable, so we need aids to assist. He recommends we practice as humble experts, who have the humility to concede that we need help. In medicine, errors of ineptitude are more common than those of ignorance: the former being mistakes made because we do not make proper use of what we know, the latter, mistakes because we do not know enough.

Don Berwick's, (previous President and Chief Executive Officer of the Institute for Healthcare Improvement), guiding principle for those working in the healthcare system is to ensure quality of patient care and patient safety are paramount adding that "this, by the way, is your safest and best route to lower cost"⁸. Similar to all international healthcare systems, the Heath Service Executive wants to achieve the triple aim of "better care, better health, at lower cost". While Berwick's mantra is "patient centred care" by "engaging, empowering and hearing patients", he equally emphasises the need to foster and protect that other vulnerable group, healthcare staff. He advocates the "growth and development of all staff, including their ability and support to improve the processes in which they work". He advocates an "all teach, all learn and no blame" approach and a culture where measurement is not a threat, but a resource; defects are seen as opportunities and curiosity abounds. Provonost⁹ argues that to improve quality and safety, health care systems should establish a system wide governance structure and accountability process, define and communicate goals and measures while building an infrastructure to support peer learning.

Transparency is crucial. While Open Disclosure to the patient or family member when something has gone wrong, is mandatory in some countries, it is not yet in Ireland. Legislation here, to protect the apology, is awaited. In Ireland, we have progress to make. In 2014, the State Claims Agency received 610 new clinical claims¹⁰. While maternity services related claims accounted for

23% of all new clinical claims in 2014, they account for 61% of the outstanding estimated liability of all new claims. Earlier identification and prevention of risk, should result in less adverse events and safer care for our patients.

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Patients Accessing Ambulatory Care for HIV-infection: Epidemiology and Prevalence Assessment

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Abstract

This study describes the demographics and treatment status of HIV-infected adults accessing ambulatory care in the Republic of Ireland and estimates diagnosed HIV prevalence rates. 3254 HIV-infected adults attended 1 of the 6 specialist HIV centres in the 12-month period 1st July 2009 to 30th June 2010. 2023/3254 (62%) were male, 1761/3133 (56%) Irish and 1048/3133 (34%) African. 1924/3098 (62%) resided in the Dublin area. The mean age was 39.8 years (SD 9.3); probable route of acquisition was available for 2898/3254 (89%); heterosexual acquisition accounted for 1442 (50%), MSM 777 (27%) and IDU 598 (21%). 2574/3202 (80%) were on highly active antiretroviral therapy (HAART). Of these 87% had HIV-RNA levels < 50cpm and 94% < 500cpm. The HIV diagnosed prevalence rate is estimated at 1.09/1000 nationally and at 2.25/1000 in the Dublin area for 15-59 year olds.

Introduction

Highly active antiretroviral treatment (HAART) has reduced the morbidity and mortality associated with Human Immunodeficiency Virus (HIV) infection; it can also prevent onward transmission when HIV RNA level is suppressed.^{1,2} At an individual level disease management aims to diagnose infection at an early stage and engage patients in specialist care. At a societal level the focus is to provide timely disease surveillance and prevent onward transmission by an expanded HIV test and treat approach.³ In Ireland, the Health Protection Surveillance Centre (HPSC) collates demographic data on newly diagnosed HIV infections and reported 344 new diagnoses during 2013 bringing the cumulative number reported as newly diagnosed to 6979 since the early 1980s.⁴ This information is valuable, however the demographics and clinical status of patients living with HIV infection in Ireland have not been previously described. This contrasts with the United Kingdom (UK), where Public Health England carries out an annual Survey of the Prevalence of HIV-Infections Diagnosed (SOPHID).⁵ SOPHID, soon to be replaced by the HIV and AIDS reporting system (HARS), informs each primary care trust of their diagnosed HIV prevalence rates and reports regular demographic data. Such data and prevalence rates in Ireland were previously unknown. In 2008, in an effort to reduce the number of late presentations the UK HIV testing guidelines were published; HIV diagnosed prevalence rates informed the cut-off at which routine

testing for HIV in healthcare settings was recommended.⁶ In areas of high diagnosed HIV prevalence (> than 2/1000 of population aged 15-59) it is assumed that there is a corresponding high undiagnosed prevalence rate; audit data from the United Kingdom have reported it as high as 28%.⁷ In these circumstances US data has shown the introduction of opt out screening in healthcare settings is cost effective.⁸ This study was undertaken to describe the demographics and treatment status of HIV infected adults accessing ambulatory care in the Republic of Ireland and to estimate the diagnosed prevalence of HIV.

Methods

There are six sites for specialist adult (17 or over) HIV care in Ireland, three in Dublin: St James's Hospital, Mater Misericordiae University Hospital and Beaumont Hospital and three outside: Cork University Hospital, Galway University Hospital and Limerick Regional Hospital. All newly diagnosed patients are referred to one of these centres for care. The primary objective was to retrospectively identify the number of patients accessing specialist ambulatory care for HIV-infection in Ireland (PACHI) over a 12-month period from July 2009 to June 2010. Secondary objectives included: to record demographics; to record the attendances of each patient over the 12-month period; to collect antiretroviral treatment (ART) data; to evaluate virological suppression in those on ART and using Irish 2011 population census data estimate

diagnosed prevalence rates for people living with HIV in Ireland as a whole and by region. Ethical approval was sought at each individual centre. Data were pseudonymised and collated on an encrypted laptop provided by the HPSC. Pseudonymisation created a unique code for each individual using initials and date of birth to allow comparison across sites and prevent potential duplication. Consent was not obtained from individual patients as all information gathered was from existing data sources and no individual patient identifiers were retained. Cases were retrospectively identified using existing primary clinic datasets. Patients who attended at least one HIV specialist outpatient appointment (physician-led) at one of the 6 centres from 1st July 2009 to 30th June 2010 met the inclusion criteria. One investigator carried out all the data collection to maintain the reliability of the process. Demographics (gender, age, county of residence, country of birth, probable route of acquisition) and the number of outpatient attendances in the 12-month period were retrospectively manually extracted from primary clinic datasets, the hospital administration systems or electronic patient records wherever the data was available. Most recent CD4 count and HIV RNA level were extracted from primary datasets or computerized laboratory systems depending on the centre. Pharmacy data were extracted from either paper records or pharmacy datasets depending on the site. An encrypted database was created for each site; the data collection process had to be customised at each site due to the differing Information Technology systems in existence across the 6 different hospital sites. A data dictionary was used from the initiation of the study.

On completion of the study the 6 databases were merged into SPSS for analysis. HIV diagnosed prevalence rates for Ireland and each county were estimated using 2011 population census data⁹ as a denominator. Data were primarily descriptive. Independent samples T test was used to compare mean ages of males and females. Further analysis was performed looking at numbers on antiretroviral treatment and viral suppression rates defined as HIV RNA level < 50 cpm. For categorical variables: gender, country of origin and probable route of acquisition chi square analysis was performed and for parametric variables: mean age and mean recent CD4 cell count analysis was performed using independent samples t test. The number of outpatient visits were analysed using the Mann Whitney U test.

Results

Demographics

Over the 12-month period 3254 patients were identified as accessing specialist ambulatory care for HIV infection in Ireland. 2642 (81.1%) accessed care in Dublin: St James's Hospital 1745 (53.6%), Mater Misericordiae University Hospital 538 (16.5%), Beaumont Hospital 359 (11.0%), whilst 612 (18.8%) accessed care outside: Cork University Hospital 365 (11.2%), University College Hospital Galway 170 (5.2%) and Limerick Regional Hospital 77 (2.4%). 2023 (62.2%) were male. Country of origin was available for 3133 (96.3%): 1761 (56.2%) were Irish; 1048 (33.5%) African; 133 (4.3%) from Eastern Europe; 107 (3.4%) from Western Europe; 36 (1.2%) from Asia and 48 (1.5%) from another region. Probable route of acquisition was available for 2898 (89.1%): heterosexual acquisition accounted for 1442 cases (49.8%); men having sex with men (MSM) 777 cases (26.8%) and injecting drug users (IDU) 598 cases (20.6%). (Figure 1).

Age

Overall the mean age was 39.8 (standard deviation, SD 9.3); the mean age for males was 41.5 (SD 9.7), which was significantly older than the mean age for females of 37 (SD 8.1). (P value < 0.001, 95% confidence interval (CI) 3.8-5.1.)

Prevalence

Using 2011 population census data for ages 17-78 (age range of this cohort) and ages 15-59 (age range reported internationally) as denominators, HIV diagnosed prevalence rates are estimated by county. In the Republic of Ireland the overall HIV diagnosed

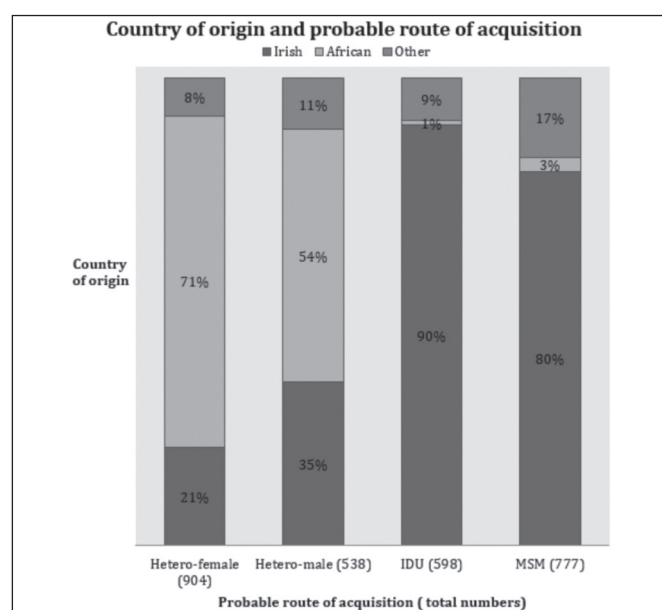


Figure 1 Country of origin and probable route of acquisition for patients accessing specialist HIV care in Ireland (2817/3254 contributed to the analysis)

prevalence rate is estimated at 0.97/1000 and 1.09/1000 for ages 17-78 and 15-59 respectively. County of residence data were collected on 3098 cases and in the Dublin area the HIV diagnosed prevalence rate is estimated at 2.0/1000 and 2.25/1000 for ages 17-78 and 15-59 respectively (Table 1).

Table 1 Estimated HIV diagnosed prevalence rates for patients accessing specialist HIV care in Ireland (3098/3254 contributed to analysis - not all counties presented as numbers too small.)

County	Number (Age 17-78)	Population 2011 census data (17-78)	Crude prevalence rates/1000 population (17-78)	Number (Age 15-59)	Population 2011 census data (15-59)	Crude prevalence rates/1000 population (15-59)
Total	3254	3,349,200	0.97	3134	2,854,483	1.09
Dublin	1924	961,906	2.00	1872	832,823	2.25
Cork	202	379,732	0.53	189	322,202	0.59
Galway	123	184,230	0.67	114	157,681	0.72
Kildare	81	149,419	0.54	80	133,404	0.6
Meath	81	128,972	0.63	80	113,735	0.7

Outpatient Department (OPD) Attendances

The median number of OPD attendances per patient in the twelve-month study period was 4 (Interquartile range IQR 2). 569/3251 patients (17.5%) attended OPD 6 or more times in the twelve-month period. 94/777 (12.1%) of MSMs, 81/538 (15.1%) of male heterosexuals, 147/598 (24.6%) of IDUs and 187/904 (20.7%) female heterosexuals attended 6 or more times.

Antiretroviral Treatment (ART)

Accurate ART data was available on 3202 (98.4%) patients. 2574/3202 (80.4%) were on ART. Those on ART were older; 40.7 v 36.2 years $p < 0.001$, and their median number of OPD visits was higher; 4.0 v 3.0 $p < 0.001$ (Table 2).

Viral Load Responses

HIV RNA values were available on 2528/2574 (98.2%) of patients on ART; 2208/2528 (87.3%) had HIV viral load responses of < 50 copies per ml (cpm) and 2384/2528 (94.3%) < 500cpm. Those who were virally suppressed (defined as VL < 50cpm) were older; 41.1 v 37.8 years, $p < 0.001$ and had a higher CD4 count 541 cells/mm³ v 421 cells/mm³, $P < 0.0001$ (Table 3). For viral loads < 50cpm multi-variate analysis showed that only age remained significant with an odds ratio of 0.94 (95% CI 0.93-0.95).

Table 2 Patients on anti-retroviral treatment (ART) versus those not on ART (3202/3254 contributed to the analysis)

Variable	Group (number)	ART (%)	No ART (%)	P values
Total	(3202)	2574	628 (19.6)	
Gender	Total male (1988)	1616	372 (18.7)	
	Total female (1208)	954 (79.0)	254 (21.0)	P = 0.11 ¹
Probable route of acquisition	HS (1419)	1125	294 (20.7)	
	MSM (762)	608 (79.8)	154 (20.2)	
	IDU (592)	501 (84.6)	91 (15.4)	P < 0.0001 ¹
Country of origin	Irish (1738)	1456	282 (16.2)	
	African (1034)	817 (79.0)	217 (21.0)	P < 0.0001 ¹
		Mean (SD) on ART	Mean (SD) no ART	P values, 95% Confidence intervals (CI)
Mean Age	(3188)	40.7 (9.3)	36.2 (8.7)	P < 0.0001, 95% CI = 3.7-5.3
Mean CD4 (Cells/mm3)	(3152)	525.5 (266.2)	504.1 (221.7)	P = 0.065, 95% CI = -1.3-44.1
		Median (IQR) on ART	Median (IQR) no ART	P values
Median OPD visits	(3125)	4.0 (2.0)	3.0 (2.0)	p < 0.0001 ³

1 = chi square analysis; 2 = independent samples t test; 3 = Mann-Whitney U test

Antiretroviral Regimens

ART regimen was recorded for 2488/2574 (96.7%) of patients on treatment. 1065 (42.3%) and 1073 (42.9%) were on a nucleoside/nucleotide reverse transcriptase inhibitor backbone (NRTI) with a non-nucleoside reverse transcriptase inhibitor (NNRTI) or protease inhibitor (PI) regimen respectively.

Table 3 Patients on ART with HIV-RNA < 50cpm versus >50cpm for patients accessing specialist HIV care (2528/2574 contributed to the analysis)

Variable	Group (number)	n (%) < 50cpm	n (%) > 50cpm	P value
Gender	Male (1581)	1401 (88.6)	180 (11.4)	
	Female (943)	803 (85.2)	140 (14.8)	P = 0.011 ¹
Country of origin	Irish (1427)	1246 (87.3)	181 (12.7)	
	African (808)	699 (86.5)	109 (13.5)	P = 0.271 ¹
Probable route of acquisition	HS (1111)	994 (89.5)	117 (10.5)	
	MSM (594)	545 (91.8)	49 (8.2)	
	IDU (488)	385 (78.9)	103 (21.1)	P = 0.0001 ¹
		Mean (SD)	Mean (SD)	P value, 95% CI
Mean Age	Mean age (sd) (n=3129)	41.13 (9.3)	37.77 (8.6)	p < 0.001, CI 2.28-4.45 ²
Mean CD4	Mean CD4 (sd) (n=3088)	541 (264)	421 (254)	P = < 0.0001, CI 88.56-151.1 ²
		Median (IQR)	Median (IQR)	P value
Median OPD visits	Median OPD visits	4 (2)	4 (3)	P = 0.561 ³

Discussion

We present, for the first time, a descriptive profile of HIV-infected patients accessing care in the Republic of Ireland. These data describe a cohort of patients who are successfully accessing antiretroviral therapy. 80.4% of patients attending clinics are on

ART and of these 87.3% have reported HIV RNA levels of < 50 cpm. However caution is needed as these data also highlight risk groups where barriers to treatment and compliance with treatment, reflected by viral load suppression, when started is an on-going issue; notably in younger patients and injecting drug users. Overall these data support the current model of specialist led regional HIV clinics in Ireland with additional resources being required for higher needs patients. 3254 patients were identified as accessing care showing a discrepancy with the number of new diagnoses ever reported to the HPSC since reporting began (6979). Notwithstanding the limitations of this study along with natural attrition due to reported deaths of 505¹⁰ and emigrations, there remain a large proportion of patients unaccounted for. This potentially highlights a group that may have been lost to follow up and are no longer linked to specialist care. This is also reported as a concern in other cohorts internationally, who report that 25%-44% of HIV-infected individuals are entirely lost to follow-up in many settings.^{11, 12} This study was a retrospective, cross sectional study relying on outpatient clinic databases and patient attendances to identify adults living with HIV. Patients who did not receive outpatient care, because they are not engaged in care or who only accessed inpatient care, were not included. There is a small possibility of duplicate data, however the author reviewed the final database to identify and remove same using the unique identifier of initials and date of birth for each individual. Further limitations include: the collection of potentially incomplete data due to the utilisation of multiple source documents; recall bias due the retrospective nature of the study and that the year of diagnosis and thus duration of diagnosis was not collected. Lastly the absence of mortality data during the 12-month period mean it is difficult to ascertain outcome data, despite the high ART use.

The data presented here are as a result of a valuable collaborative process between all 6 specialist HIV centres in Ireland and the HPSC. It is the first study of its kind in Ireland to estimate prevalence of HIV and despite its limitations will serve as a platform to initiate regular collation of these data. A crude national HIV diagnosed prevalence rate amongst 15-59 year olds is estimated at 1.09/1000 and in the Dublin area this rate reaches 2.25/1000. This study shows that Dublin is an area of high, diagnosed HIV prevalence and routine opt out testing for HIV in healthcare settings should be considered with the aim of improving timely diagnosis where HIV status is unknown.

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Breaking Barriers to Successful Implementation of Day Case Laparoscopic Cholecystectomy

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Abstract

Laparoscopic cholecystectomy is a common procedure performed in both emergency and elective settings. Our aim was to analyse the trends in laparoscopic surgery in Ireland in the public and private healthcare systems. In particular we studied the trend in day case laparoscopic cholecystectomy. National HIPE data for the years 2010-2012 was obtained. Similar datasets were obtained from the three main health insurers. 19,214 laparoscopic cholecystectomies were carried out in Ireland over the 3-year period. More procedures were performed in the public system than the private system from 2010-2012. There was a steady increase in surgeries performed in the public sector, while the private sector remained static. Although the ALOS was significantly higher in the public sector, there was an increase in the rate of day case procedures from 416 (13%) to 762 (21.9%). The day case rates in private hospitals increased only slightly from 29 (5.1%) in 2010 to 40 (5.9%) in 2012. Day case laparoscopic cholecystectomy has been shown to be a safe procedure, however significant barriers remain in place to the implementation of successful day case units nationwide.

Introduction

Laparoscopic cholecystectomy is one of the most frequently performed procedures in both the emergency and elective settings with over 700,000 of these operations taking place each year in the USA¹ and over 6,000 taking place each year in Ireland. Laparoscopic cholecystectomy has been shown to be safe, associated with a reduced hospital stay, a quicker return to work and improved post-operative pain in comparison to open cholecystectomy²⁻⁵, furthermore a Cochrane Review has shown that day case laparoscopic cholecystectomy (DCLC) is as safe as overnight surgery⁶. Day case surgery offers patients the opportunity for early discharge and frees up hospital beds as well as accident and emergency departments. However, it seems as if there has been a delay in keeping up with the evidence for laparoscopic cholecystectomy in Ireland with average length of stay in public hospitals still exceeding 72 hours. Private hospitals in Ireland also continue the practice of overnight stay for the most part, although with an average length of stay just over 48 hours they are proving themselves to be more efficient than public hospitals. In this study we analysed the trends in laparoscopic cholecystectomy in Ireland in the public and private settings. In particular we focused on the day case rates in Ireland and compared our rates to the UK. We describe some of the barriers to implementing the routine practice of day case laparoscopic cholecystectomy in Ireland.

Methods

A retrospective review of National Hospital Inpatient Enquiry (HIPE) data for the years 2010 – 2012 inclusive was performed. Similar datasets were acquired from the three major private health insurers in Ireland, Aviva, Laya and VHI. The reported data from

the private insurers has been anonymised due to potential commercial sensitivities in reporting these data. Data on number of procedures, average length of stay (ALOS), and rates of day case procedures were compared. This allowed us to demonstrate the difference in ALOS between public and private hospitals as well as the trend in the number of procedures performed as day cases during the three year time period. Statistical analysis was performed as appropriate using GraphPad Prism version 6.03 (GraphPad Software Inc).

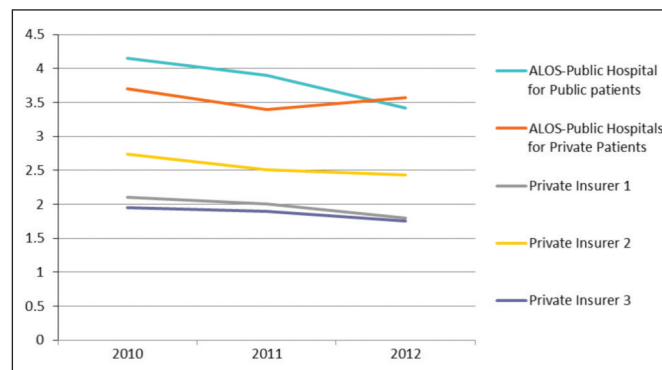


Figure 1 ALOS 2010-2012

Results

Over the 3-year period from 2010-2012, there were 19,214 laparoscopic cholecystectomies performed in the public health system or covered by the three major health insurance providers. 5,489 of the total number of procedures were carried out in

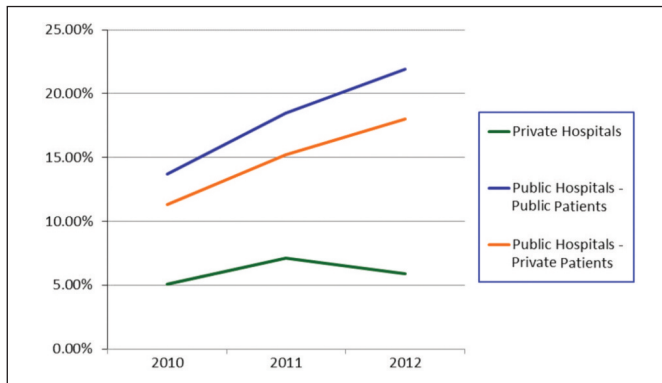


Figure 2 Day Case Rates 2010-2012

private/hi-tech hospitals and a further 4,063 were carried out on private patients in public hospitals. This leaves 9,662 public patients having laparoscopic cholecystectomies in public hospitals over the 3-year period. Of note, the number of procedures performed per year increased by over 400 during this time period, in spite of significant cutbacks to health expenditure. In addition, the proportion of procedures funded through insurance fell from 51% to 47.7% from 2010 to 2012, reflecting the reality that patients may be abandoning private health insurance. Average length of stay (ALOS) reduced significantly in the public sector over the course of the study, with a reduction in length of stay from 4.0 days to 3.46 days ($p=0.01$). ALOS decreased for each of the private insurers over the same time period. The ALOS was significantly shorter for each of the private insurers as compared with the public sector in each of the years studied ($p<0.05$ in each case). Rates of day case surgery were low in all healthcare

	Public patient in public hospital	Private patient in public hospital	Private patient in private hospital	Total
2010	3035	1385	1802	6222
2011	3152	1359	1840	6351
2012	3475	1319	1847	6641
Total	9662	4063	5489	19214

	Public patient in public hospital	Private patient in public hospital	Private patient in private hospital
2010	13.7%	11.3%	5.1%
2011	18.5%	15.2%	7.1%
2012	21.9%	17.5%	5.9%

Discussion

There has been a significant increase in the burden of gallstone disease in Europe in recent years, and given increasing life spans and aging populations, it is likely this trend will continue⁷. Reflecting this pattern, the rate of laparoscopic cholecystectomy increased over the three-year period in our study. The total number of procedures performed increased year-on-year, although the number of procedures performed in the private sector remained static. There was a corresponding increase in the number of procedures performed as day cases in the public system in the three years studied, which almost entirely accounts for the increase in volume in the public system. This suggests that in spite of financial challenges, there has been increased efficiency in the public hospital service, mostly through increasing utilization of day-case beds. It has been estimated that an efficient day surgery unit can save up to €1,000 per patient⁸. Based on this estimation, if day-case rates of 60% were achieved as recommended by British Association of Day Surgery (BADS), the

potential direct cost saving would be in excess of €1,000,000 per annum. The demands being placed on hospitals for beds is forcing them to consider shortening the length of stay after elective procedures, with this day case surgery is looking more and more like the solution. From the above results it is clear that public hospitals have been making steps towards increasing the number of laparoscopic cholecystectomies performed as day cases with an increase from 13% of the total number of laparoscopic cholecystectomies in 2010 to 21.9% in 2012. Unfortunately for those cases not performed as day cases the average length of stay still remains quite long with a small decrease from 3.9 days in 2010 to 3.5 days in 2012. However, it is easy to criticize this ALOS without looking at the reasons why it remains so long. Important factors to be assessed include patient co-morbidity, number of previous attacks and duration of cholecystitis, hospital infrastructure or surgeons concern.

The rates of laparoscopic cholecystectomy performed in the private system remained relatively static over the study period. This is true both for private patients in public hospitals and for those in private hospitals. Of more interest however is the comparison between day case rates for private patients on each pathway. There was an increase in day procedures in those treated in public hospitals to a level similar to that seen for public patients. However, the rates of day case procedures in the private system remained low and static. We can speculate that this may be due to a lack of surgical trainees in the private system providing pre-operative and post-operative care to patients and a lack of emergency departments to facilitate the rare cases where re-admission is required. However, this should not be an impediment to discharging on the day of surgery. A recent study from Graham et al showed that nurse-led discharge following laparoscopic procedures is safe, with low re-admission rates⁹. The increased demand on surgical beds in public hospitals may also account for the increased number of private patients undergoing day case laparoscopic cholecystectomy in public hospitals.

BADS has recommended that 60% of all laparoscopic cholecystectomies can be carried out as day cases. The data from this study has shown that in 2012 the day case rates in public hospitals were 21.9% and 17.5% for public and private patients respectively. The day case rate in private hospitals in 2012 was only 5.9%. This forces us to ask, how do we compare to other health systems and what are the barriers that are stopping us from reaching day case rates of over 60%? The issues that come to mind are; is the correct infrastructure in place? What are the attitudes of healthcare staff and patients towards day case surgery? What can hospitals do to ensure the changes they make are effective and continue to improve? The day case rates for laparoscopic cholecystectomy in the U.K. have been estimated by the BADS. The national median is 39% and the top 25% of hospitals have a day case rate of 54% with the top 5% of hospitals having an impressive day case rate of 65%. In order to provide an effective day case service appropriate infrastructure needs to be in place. Hospitals must have a dedicated day surgery ward and allocated time in theatres for these procedures. Pre-assessment clinics are vital to ensure that only patients who are suitable for DCLC are selected and their preoperative work up is completed prior to their admission. Hospitals must have a discharge plan for patients, as mentioned above nurse led discharge has been shown to be safe. Patients should be discharged based on parameters such as vital signs, pain scores and ability to wash and dress as opposed to strict time limits. Patients should have access to a phone help line and rapid access back to the hospital in cases where there are complications. Along with infrastructure a care pathway for those who need cholecystectomy has been shown to help improve the day case rate¹⁰.

Changing attitudes is the next most important step in implementing a successful DCLC service. Surgeons need to be aware of the importance of patient selection for DCLC. Selecting

only those patients who are suitable will reduce the rate of unexpected admission and hence improve service planning and provision. There still remains understandable doubt amongst many surgeons about the safety of DCLC. The Cochrane review mentioned above has shown that day case surgery is as safe as overnight surgery and as the rate of day case procedures increases surgeons may become more comfortable with making earlier discharges. The attitude of other staff in the hospital towards DCLC is also a factor that can determine success. All ward and theatre staff involved in the care of these patients should understand the goals that are trying to be achieved. Patients should be admitted and taken to theatre in a timely fashion so that they have an adequate recovery period before their discharge in the evening. Patients are the final group whose attitudes need to be addressed. This can start in the outpatient clinics and pre-assessment clinics and patients may even need reassurance right up to the time of their discharge. Patients should also be provided with information leaflets well before their admission for surgery to help them understand the process. In order to maintain high rates of day case surgery each unit needs to continuously monitor and audit their performance. Regular feedback to all those involved is vital to ensure that the service continues to run efficiently.

DCLC has been shown to be as safe as overnight surgery. In the current financial climate there is increasing pressure being placed on hospitals to increase their rate of day surgery. While Irish hospitals have shown an increase in day case rates in recent years we still lag behind our counterparts in the U.K. Improved infrastructure, changing attitudes and continuous audit are vital components required to implement a successful day surgery unit.

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A Survey of GPs Awareness and Use of Risk Assessment Tools and Cardiovascular Disease Prevention Guidelines

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Abstract

Cardiovascular disease (CVD) is the leading cause of death worldwide. This study aimed to benchmark awareness and use of CVD risk assessment (RA) tools and prevention guidelines in Irish general practice. 493 (18%) Irish general practitioners (GPs) were invited to participate in a cross-sectional study in 2011. 213 (43%) GPs responded with most being male (n= 128, 58.2%) and aged ≥45 years (n=124, 56.8%). While 197 (92.5%) GPs were aware of at least one RA tool, only 69 (32.4%) GPs reported frequent use. 187 (87.8%) GPs were aware of one or more CVD prevention guidelines with 115 (54.0%) GPs reporting frequent use of at least one guideline. No age or gender difference observed. Barriers to implementation of CVD prevention guidelines were lack of remuneration, too many CVD guidelines and time constraints. Most Irish GPs were aware of RA tools and CVD prevention guidelines with half reporting frequent use of guidelines.

Introduction

Cardiovascular disease (CVD) remains the leading cause of death throughout the world including Europe.¹ Although the major risk factors for CVD are well established, the continuing high prevalence of cardiovascular disease may be due to insufficient knowledge and application of evidence based CVD prevention guidelines among primary care physicians and general practitioners (GPs).² To successfully implement CVD prevention guidelines it is important to identify patients who are at high risk of developing the disease. Identification of high risk patients is aided by the use of standardised risk assessment (RA) tools for cardiovascular disease which take into account risk factors such as age, sex, systolic blood pressure, total cholesterol and smoking status in estimating the 10 year percentage risk of a patient

having cardiovascular event or death.^{3,4} The SLAN 07 study found that a significant proportion of Irish people at high risk remain unidentified with 34% and 62% respectively unaware of having raised blood pressure and raised cholesterol.⁵ While European studies have documented the level of knowledge and use of risk assessment and guidelines⁶⁻⁹ there is no data for Irish GPs. Consequently the Irish Heart Foundation's Council on Prevention undertook a baseline study as part of addressing the implementation of the European Society of Cardiology guidelines on CVD Prevention in Clinical Practice in Ireland. The aim of this study was to benchmark the awareness and use of RA tools and CVD prevention guidelines along with barriers to their use among a sample of Irish GPs.

Methods

GPs ($n = 493$) in one region of the Health Services Executive (HSE) in Ireland, were invited to participate in this descriptive, cross sectional study in May 2011. Approximately 18% of Irish GPs were included. The sampling frame was the list of GPs making claims for services to patients. A study instrument was developed, piloted and mailed to GPs with one reminder sent. The instrument employed 19 questions in four domains: demography, risk assessment, CVD guideline use and the perception of barriers to use of RA tools and CVD guidelines. Data entry was quality assured, with analysis undertaken using SPSS version 21. Potential barriers to risk assessment, implementation of CVD prevention guidelines and optimal management of CVD risk were captured by asking respondents to rate a series of statements using a 5-point Likert scale. The study instrument was informed by questions made available to us, with permission, by the authors of the EUREKA and REACT studies. Age was analysed in two age groups (< 45 years & ≥ 45 years). Missing data was $< 7\%$ for the main data items. The study was approved by the ICGP Ethics committee.

Table 1 Demographic characteristics of responders ($n=213$)

Demography	Number (%)
Age	
< 45 years	89 (34.7%)
≥ 45 years	124 (56.8%)
missing values	18 (8.5%)
Gender	
Male	124 (58.2%)
Female	88 (41.3%)
missing values	1 (0.5%)
Practice location	
Urban	117 (54.9%)
Rural	29 (13.6%)
Mixed	66 (31.0%)
missing values	1 (0.5%)
Practice size (number of GPs)	
Single-handed	42 (19.7%)
2-3	96 (45.1%)
>3	72 (33.8%)
missing values	3 (1.4%)
Software use (number of GPs)	
Yes	198 (93%)
No	15 (7%)

Table 2 Awareness and use of risk assessment tools and CVD prevention guidelines among Irish GP cohort

	Risk Assessment Tool ($n=213$)			CVD Guidelines ($n=213$)		
	Yes	No	Missing	Yes	No	Missing
Awareness	197	16	0	187	12	14
	92.5%	7.5%	0%	87.8%	5.6%	6.6%
Frequent use	69	128	16	115	94	4
	32.4%	60.1%	7.5%	54.0%	44.1%	1.9%

Results

Demography

In total, 213 GPs responded to the survey giving a response rate of 43%. Most respondents were male (58.2%), aged 45 years and over (56.8%) (Table 1).

Risk Assessment tools - awareness and use

Almost all respondents (92.5%) were aware of at least one RA tool with no significant association with age or gender (Table 2). However, only a third of GPs frequently used RA tools (32.4%) with no significant difference between gender ($X^2 = 0.45$, $p=0.50$) or age < 45 years (v) ≥ 45 years ($X^2 = 1.27$, $p=0.26$). There was a higher awareness (94.9% v 60.0%, $p<0.001$), but no difference in frequent use (34.9% v 37.5%, $p=0.88$), of RA tools among practitioners who had practice management software compared to those who had none (Table 1). Practice size was not associated with greater use of RA tools ($p=0.32$). The RA tool most used was the SCORE calculator either exclusively (39.0%), or as one of a number of calculators used (45.5%). 32.4% of respondents used CVD risk calculation frequently while another 40.4% used it occasionally. Reasons cited for using CVD risk calculation were: to motivate patient lifestyle change (66.7%), to educate the patient about risk (64.8%), to help decide who to treat with medication (59.6%) and to help decide treatment goals (28.6%).

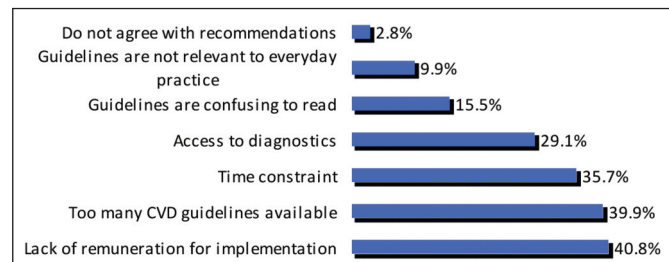


Figure 1 Barriers to Implementation of CVD Prevention Guidelines in Irish GP cohort

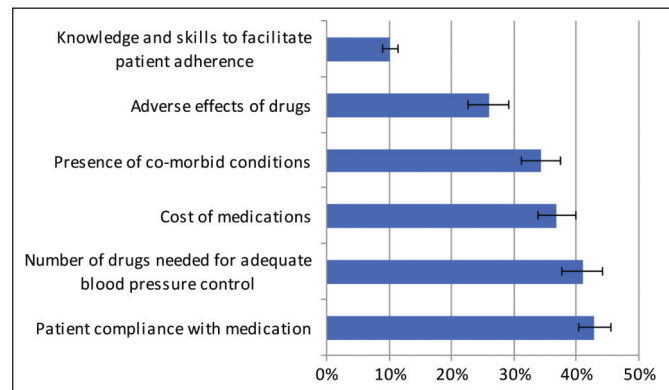


Figure 2 Barriers to optimal management of CVD risk

CVD Prevention Guidelines in General Practice – awareness and use

Most GPs (87.8%) were aware of one or more CVD prevention guidelines with no age or gender difference. (Table 2) However, self-reported frequent use of at least one of these guidelines was lower at 54.0% with no statistical difference between age groups ($X^2 = 0.26$, $p=0.61$) or across gender ($X^2 = 0.53$, $p= 0.47$). Practice size and use of practice management software were not associated with differing use of CVD prevention guidelines. The CVD prevention guidelines most frequently used were NICE (32.4%) followed by the European Society of Cardiology (ESC) (29.6%).

Barriers

The top three barriers to use of RA tools were cited as 1) patients focused on a single risk factor and not global picture (32.9%) 2) time constraints (30.6%) and 3) not used to using a risk calculator (18.4%). Barriers to implementation of CVD prevention guidelines cited by GPs included; lack of remuneration (40.8%), too many CVD guidelines (38.9%) and time constraints (35.7%) (Figure 1). Similar barriers were identified by both genders and both age groups. Optimal management of CVD risk in patients was found to be hampered by lack of patient compliance (42.2%), number of drugs needed to adequately control blood pressure (40.3%), cost of medication (36.1%) and the presence of co-morbid conditions (33.3%) (Figure 2).

Discussion

More than 90% of GPs who responded were aware of at least one RA tool and of at least one or more CVD guideline, though less than a third of GPs frequently used RA tools and just over half regularly used CVD guidelines in their daily practice. These results were consistent in both sexes and both age groups. GPs with practice management software were more aware of RA tools but no more likely to use them than colleagues without software. Neither practice size nor the use of practice management software had an impact on the awareness or use of CVD guidelines. Barriers to use of RA tools and CVD guidelines included; patients focused on single risk factor, time constraints, lack of remuneration and too many guidelines. GPs cited patient compliance, number of medications required and medications costs as major barriers to optimal management of CVD risk in

patients. While awareness of RA tools and CVD guidelines is very high in our survey, regular use was much lower. Similar results were reported in the USA where more than 90% of family physicians and cardiologists were aware of two out of three CVD prevention guidelines identified but only 50% incorporated the guidelines into their practice.¹⁰ The use of RA tools varied internationally. Our report that 32.4% of GPs frequently used a RA tool in 2011 is an increase on the finding of 13% regular use in a multicentre survey of GPs in 2001.⁹ While higher levels of use (53%) were documented in Spain⁸ and in the multi-country EURIKA study (69%) both studies included a mix of hospital specialists and family physicians.^{7,8} The frequent use of CVD guidelines in our study of GPs (54%) appears at the lower end of a range when compared with international studies - the REACT study of 2001 reported 60% moderate use of CVD guidelines⁹ and later a large multicentred European study showed that any guideline use varied from 60-97% across 6 countries.⁸ More recently, another multi-centred trial found that 85% of hospital physicians and family doctors reported using at least one CVD guideline.⁷ However, German (~50%) and Swiss (23%) studies had much lower rates of guideline use.^{6,11}

Age of practitioner was not a significant factor in awareness or use of RA tools or CVD guidelines in our study in contrast to an American report which identified that guideline adherence was inversely proportional to the number of years the physician had been in practice.² It is possible that the division of age of physician into two age groups in our study may have masked a similar result. Also our study did not include GP registrars or GPs who do not receive payment for services from the HSE, who are likely to be younger. We found that gender was not a significant factor in awareness or use of RA tools or CVD guidelines and we point to the dearth of published literature on gender disparity in practice. While the presence of practice management software did not influence results in our study, the development and incorporation of relevant software tools into existing packages may be important. This was demonstrated in a New Zealand study that found the addition of system changes to primary care management software dramatically increased cardiovascular risk assessment rates and facilitated targeted intensive cardiovascular prevention measures in primary care.¹² These system changes included identification of patients eligible for cardiovascular screening and RA tools.¹² Time constraints were identified as a barrier to RA tool and CVD guideline use in this study and in studies internationally. While lack of remuneration is identified as the most common barrier to CVD guideline use (40.8%) among Irish GPs, this barrier is not as dominant in multi-country studies such as REACT or EURIKA.^{7,9} While this may reflect the population of physicians studied or the year of the study, it may also point towards different payment structures for primary care services across Europe or financial incentives to GPs who achieve key results in patient management such as the Quality and Outcome Framework in the UK.¹³ The existence of too many CVD guidelines was also mentioned as a significant barrier to CVD guideline use in Ireland as in other European countries.^{7,9} Another important barrier identified in the study is patient compliance. This barrier is multi-factorial and is well-recognised in previous studies.^{2,8-10}

A strength of this study is that this data was collected in an Irish setting. The structure of general practice in Ireland is unique and consequently it can be difficult to translate international results to the Irish setting. While 43% may be considered a limitation, achieving higher response rates is known to be difficult in GP surveys with similar surveys yielding response rates of 32-49%.^{11,14} Significant attempts to improve the response rate included attention to questionnaire design and layout, piloting of questionnaires and sending second questionnaires.¹⁵ Lastly the actual number of GPs responding (n= 213) in our study is higher than the number in individual countries participating in multicentre surveys (range 30 – 150). The self-reporting nature of the questionnaire by GPs with lack of validation is recognised as a

limitation of the study. Furthermore as the questionnaire was anonymous we are unable to characterise non-responders. Awareness of RA tools and CVD guidelines is high among Irish GPs but their use is much lower. Our study has identified a number of barriers to use of these tools. These barriers are similar to those documented in previous studies suggesting that these barriers are universal. Solutions must be identified to overcome these barriers. The development of time-efficient tools to assist in the CVD risk assessment consultation is important. Continuous medical education sessions illustrating the benefits of RA tools and guidelines and techniques to improve patient compliance should be introduced. Further formalisation and incentivising of chronic disease management should be considered to encourage CVD risk assessment of all patients and appropriate evidence-based management of identified risk factors.

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Temporal Trends in Hospitalisations for Heart Failure

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To receive CPD credits, you must complete the questions online at www.imj.ie.

Abstract

Heart failure (HF) is the most common cause for admission in patients over 65 and hospitalisations account for almost 1% of the health care budget in Ireland. A need to understand the epidemiological data in relation to hospitalisations for HF plays an important part in the planning and distribution of heart care services. The aim of this study was to analyse the temporal trends in hospitalisations for HF and look at potential areas for improvement. Cross sectional data was obtained from the Eurostat database. Data was extracted with the ICD 10 code for heart failure (I-50). The years 2002-2010 were analysed between the ages of 0-105. Between 2002 and 2010 there were 51369 admissions for HF in Irish hospitals. Of these, 54.7% were males and 87% were older than 65 years. The age standardised hospitalisation rates decreased from 157.5 per 100,000 to 127.2 per 100,000, a relative decrease of 19.2% ($p=0.02$). There was an increase in HF hospitalizations for those aged >85 from 17.9% to 26.7% ($p=0.001$). There was no significant change in length of stay (12.0 days in 2002 and 12.4 days in 2010). This study of epidemiological surveillance data on Irish HF hospitalisations has shown a 19% reduction in hospitalisations between 2002 and 2010. Although this study shows an overall successful reduction in HF admission rates, the challenges remain in ensuring we manage the burden of those >65 years, in particular those >85 years.

Introduction

Heart failure (HF) is a major public health problem in Ireland with an estimated prevalence of 2% in Irish adults increasing to 10% in those over 75; it is a leading cause of admission to hospitals and accounts for almost 1% of the health care budget in Ireland¹. In the early 2000s it was felt that HF hospitalisations could reach endemic proportions in Ireland and in 2002 the Irish Heart Foundation produced a positional document¹ which called for a cohesive strategy in an attempt to provide a framework for combating the rising HF hospitalisation rate. There is a need to understand epidemiological data in relation to hospitalisations for HF as it can play an important part in the planning and distribution of heart care services. The ability to observe temporal trends has the potential of indicating particular groups of the population that are vulnerable and could potentially benefit from targeted preventative efforts. It also can help determine the impact of health care programs and policy implemented. Analysis of HF hospitalisations has been published in the US^{2,3}, Canada⁴, UK⁵ however currently there is no published Irish data examining trends in hospitalisation. The aim of this study was to analyse the temporal trends in hospitalisations for HF and look at potential areas for improvement in HF hospitalisations.

Methods

Cross sectional data was obtained from the Eurostat database⁶. Eurostat is a Directorate-General of the European Commission located in Luxembourg. It has responsibilities to provide statistical information to the institutions of the European Union (EU). Data can be freely accessed on the website, in which the data is hierarchically ordered in a navigation tree. Statistics can be extracted using an interactive tool. Data was extracted in Microsoft Excel and then subsequently to Statistical Package for the Social Sciences (SPSS) for analysis. Data was extracted with the ICD 10 code for heart failure (I-50). This code covers left ventricular failure, systolic congestive heart failure, systolic (congestive) heart failure, diastolic (congestive) heart failure, combined systolic (congestive) and diastolic (congestive) heart

failure and heart failure unspecified. The years 2002-2010 were analysed with an age range of 0-105. Data was extracted on number of hospitalisations (male and female) and length of stay. Age standardisations rates were standardised to the European population and were calculated using the direct method. The annual Irish population was obtained via the Eurostat database. Since data is anonymised and freely available on the Internet, ethical approval was not required.

Results

Between 2002 and 2010 there were 51369 hospitalizations for HF in Irish hospitals for patients between 0-105 years. Of these 51369 hospitalisations 28116 (54.7%) were males and 23253 (45.3%) were females.

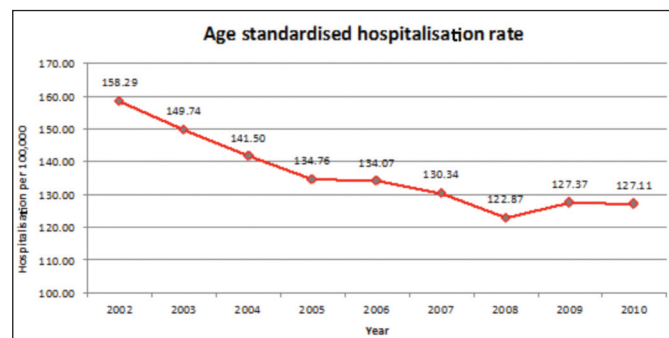


Figure 1

Hospitalisations Temporal Trend

The national HF hospitalisation rate declined significantly from 2002 to 2010 (Figure 1). In 2002, there were 6173 hospitalisations for HF (54.7% males, 45.3% females) equating to 158.29 per 100,000. In 2010, there were 5679 hospitalisations for HF (55.6% males, 44.4% females) equating to 127.10

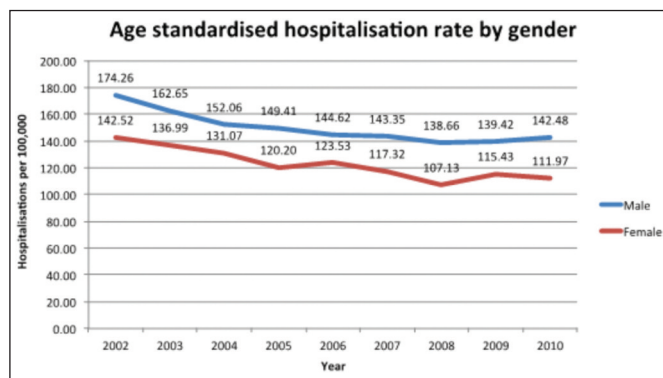


Figure 2

hospitalisations per 100,000. This was a relative decrease of 19% ($p=0.02$).

Gender

Sub-analysis of hospitalisations by gender showed there was a statistically significant decrease in number of hospitalisations for females and males over the 8 year period (Figure 2). A similar decline was observed in both genders. For males in 2002 there were 174.26 per 100,000 hospitalisations, which decreased to 142.48 per 100,000 in 2010, a relative decrease of 23% ($p=0.002$). For females there were 142.52 per 100,000 hospitalisations, which decreased to 111.97 per 100,000 in 2010, a relative decrease of 28% ($p < 0.0001$).

Burden of the those >65 years

Of the total 51,369 hospitalisations during the 8-year period, 87% of the hospitalisations were aged 65 years and older, with the 75-84 year old age group accounting for the largest share of this (42%). The percentage change in hospitalisation rate from 2002 compared to 2010 showed that those under the age of 65 decreased by 15%. There was also a decrease in those aged 65-74, 75-84 (34.7%, 17.9% respectively). However the rate of hospitalisations increased in those aged 85 and over by 27%. Analysis by gender (Figure 3), highlights that the hospitalisation rate in males declined by 22.29% for those <65 years old, 30.44% for 65-74, 10.03% for 75-84 and increased 36.23% in

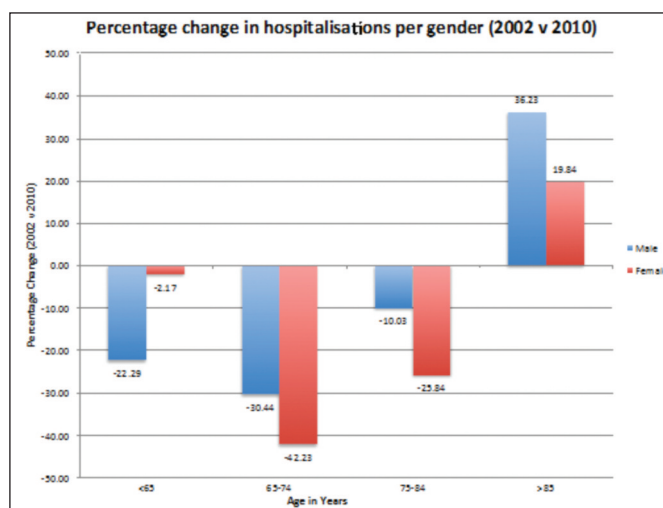


Figure 3

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Age <65	11.91	10.28	10.43	8.73	8.95	11.01	10.49	11.25	9.24
65-74	11.3	10.85	10.95	10.85	11.45	11.15	11.45	10.75	11
75-84	12.15	12.15	13.1	12.65	12.65	12.75	11.85	13.05	12.65
>85	12.8	13.4	12.3	12.4	14.8	13.6	13.6	13.4	13.0

those >85. A similar pattern was observed in females, a decline of 2.17% for those <65 years old, 42.43% for 65-74, 25.84% for 75-84 and an increase of 19.84% in those >85.

Hospital Length of Stay (LOS)

The total observed mean length of stay slightly increased from 12.0 days to 12.4 days, a relative increase of 3.2% over the 8-year period ($p=0.08$). There were no significant differences according to gender. When analysed per age group, there was no discernible trend, with all age groups trending similar length of stays with limited change over the 8 year period.

Discussion

This study is the first reported epidemiological analysis of temporal trends in hospitalisations for HF in Ireland from 2002-2010. The main results of this study show a 19% decrease in age-standardised rates of hospitalisation for HF over the 8-year period ($p=0.08$). This translates to a 2.4% average annual decline. The overall reduction in number of admission is remarkable when you consider the trend for improved survival with HF⁷, which could potentially enable more hospitalisations. The other major findings of this study are a similar decline in hospitalisations for males and females while length of stay in hospital did not decline. Our study also illustrates that challenges remain ensuring we deal with the burden of those over the age of 65, in particularly the increasing hospitalisation rate of those aged 85 and older. The reduction in HF hospitalisations observed was similar with other international studies. A recent America study reported a reduction by 29.5% from 1998 to 2007³, similarly a Canadian study which showed 27.2% reduction⁸. Studies from Sweden, Scotland, Australia, and New Zealand have also reported that HF hospitalization rates started to decline in the 1990s⁹⁻¹². We hypothesize that the decrease in HF hospitalisations in Ireland is complex and multifactorial. Firstly, there has been a general shift away from inpatient care with more focus on specialist HF units, primary care education and community programs such as 'Community HF management program' (CHaMP)¹³. These programs provide GPs with direct access to diagnostics, including BNP testing and mobile echocardiography service, as well as the ability to refer directly to specialist HF units. The successful gradual development and implementation of HF units across Ireland has enabled HF patients to be followed closely post discharge as well as providing easier access to specialists.

This has ultimately led to the development of the National Heart Failure Programme¹⁴, which was launched national in 2011. With further expansion and commitment to this programme we hypothesize that there will be a further reduction in hospitalisation rates as experienced by other programs through the introduction of heart failure units¹⁵⁻¹⁷. Secondly there has been a decline in the incidence of HF^{18,19} largely due to a decrease in the incidence of ischaemic heart disease – the leading cause of heart failure¹⁹. Irish data²⁰ suggest that between 1985 and 2000, the mortality from IHD halved, with 48% of this decrease attributed to a reduction in major risk factors, particularly smoking and cholesterol levels. There has been significant improvements in primary prevention such as a reduction in smoking rates since the introduction of the smoking ban²¹. This contributed to the reduction in HF hospitalisations as highlighted in data from the Irish HeartWatch Programme²² which reported an absolute increase in prescribing ACE inhibitors of 7%, 4% in beta-blockers and 11% in statin therapy over the first two years of the programme. In addition it has been reported that 8% of the reduction in CHD mortality between 1985 and 2006 could be attributed to improvements in HF therapy uptake²³. Improvements in primary and secondary prevention, has led to a reduction in the major risk factors for IHD^{20,23}, which undoubtedly has led to a reduction in the incidence of heart failure.

The observed mean length of stay did not decrease over the 8 year period but slightly increased from 12.0 days to 12.4 days, a relative increase of 3.2% over the 8-year period. Although not

statically significant it did show a general trend ($p=0.08$). Interestingly, our study also showed that the LOS had minimal change over the 8 year period when analysed by age group. However trying to account for the lack of decline will likely focus on the hospitalisation of more complex patients due to efficient HF management in the community, as well as social reasons (nursing home, social supports). There still needs to be significant inroads made into those aged >65 , who account for a large majority of the hospitalisations with particular attention focused on those aged >85 as there was a significant percentage increase in the number of hospitalisations for this age group, 36% increase for males and 19% increase for females. There are a few considerations and limitations to this study. We examined the burden of HF hospitalisations using ICD 10 diagnosis codes not clinical confirmation so there was no discrimination between first time and recurrent hospitalisations. As data is taken from an administrative database there is no unique patient identifier, therefore we are unable to study hospital incidence and 30 day readmission rates. With a lack of patient identifier we lacked the ability to gather further demographic data such as race and region specific data within Ireland, as well as clinical data which would enable us to determine the severity of the HF and type of HF (systolic, diastolic or preserved EF). This should hopefully change in the near future with the introduction of the health identifiers bill 2013, which will provide patients with a unique identifier number across the country. Lastly the change in ICD coding in Ireland in 2007 from ICD 9 to ICD 10 may have some impact upon the coding of the patients and subsequently on our calculations of hospitalisation rates.

This study of epidemiological surveillance data on Irish HF hospitalisations has shown a reduction in hospitalisations between 2002 and 2010 of 19%. Similar reductions were observed in both males and females. Possible reasons for the reduction include a shift towards greater outpatient care, focused GP education and community campaigns helped by increased uptake in primary and secondary prevention. Although this study shows an overall successful reduction of HF admission rates challenges remain in ensuring we manage to reduce the burden of those >65 years, in particular those >85 years. With the introduction of the National Heart Failure Programme there should be a further reduction in hospitalisations for HF in Ireland.

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Characteristics and Outcomes of Older Patients Attending an Acute Medical Assessment Unit

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Abstract

The care of older persons accounts for an increasing proportion of the unscheduled care workload for acute hospitals. The recent development of acute medical assessment units (AMAU) has provided an alternative model for acute unscheduled care for all medical patients. Screening instruments have been developed to capture the higher levels of clinical complexity and medical comorbidities that older patients present with. The aim of this study was to report on the characteristics and outcomes for older patients reviewed in the AMAU of a tertiary referral university teaching hospital. Data on 3071 patients attending the unit over one year was prospectively collected and information on characteristics and outcomes for older patients retrieved. Older patients represented over one third (1066/3071, 35%) of those attending AMAU, and had an admission rate of nearly twice that of younger patients (60.5% vs 32%), highlighting the increased complexity of this group. Gerontologically attuned AMAUs have great potential to enhance care for frail older patients from the time of their acute presentation to hospital.

Introduction

The care of those aged 65 and older accounts for an increasing proportion of the unscheduled care workload for acute hospitals. Older patients are likely to have a greater number of comorbidities than their younger counterparts, and often have a more complex presentation^{1,2}. Those aged 65 and older represent 20% of acute hospital attendances and up to 40 – 50% of medical admissions to hospital³. This trend is likely to continue as the ageing population increases. The Acute Medicine Programme Report (AMP), 2010 recommended the establishment of acute medical assessment units (AMAUs) throughout the country. The aim of these units is to provide an alternative model of access to acute unscheduled care to the traditional emergency department (ED) route. Such units had been previously established in the UK and Australia where they were shown to improve outcomes for patients⁴. Key quality targets recommended by the AMP 2010 include patient assessment by a senior clinician within one hour of their attendance and discharge from the unit within 6 hours of arrival. The report recognised that older patients account for a large proportion acute hospital attendances and admissions and taking this into account it was recommended that a large number of consultants working in AMAUs should be consultant geriatricians. Further recommendations were made to enhance care for older patients specifically including the development of initiatives around the most common presentations in this patient group, appropriate and early MDT involvement and improved communication between the hospital and community care.

There has been a rapid expansion of AMAUs throughout Ireland since the AMP report was released. To date over half of consultants appointed to these units have been geriatricians. The demographics of the South Dublin population, a large part of the Tallaght Hospital catchment area, has changed in recent years with the number of those aged 65 and older increasing by 191% between 2006 and 2011⁵. This has been reflected by an increase in the proportion of those aged 65 and older attending the hospital year on year. In 2009, this group represented 10.42% of patients attending ED and 19.35% of admissions to the hospital. By 2013 13.85% of attendances and 25.02% of those admitted were aged 65 and older. The AMAU in the hospital opened in July 2012 and is now an integral component within the acute medical care patient flow pathway (Figure 1). The majority of patients attending the AMAU are initially reviewed by a triage nurse in the emergency department (ED), and referred following assessment if deemed suitable. All AMAU attendances are through urgent care pathways and there are no elective referrals. Previous studies have characterized the profile and outcomes for all older patients⁶ and nursing home residents⁷ attending the ED in this tertiary referral university teaching hospital. The aim of this study was to report on the characteristics and outcomes of older patients presenting to the AMAU over a one year period.

Methods

Data on all patients attending the AMAU of a tertiary referral university teaching hospital from January to December 2013 was prospectively collected using symphony® electronic data systems. Information on demographics, patient experience times, and details of the presentation and discharge outcomes were retrieved and analysed. Clinical complexity and urgency was assessed examining the Manchester Triage System categories (MTS) and triage risk screening tool (TRST) scores on patients at presentation. The MTS is a triage classification system scored from 1-5, where category one patients require immediate care, and category five patients are non-urgent.⁸ The TRST is a simple six-item triage risk screening tool (TRST) to identify older ED patients at risk for ED revisits, hospitalisation, or nursing home placement within 30 and 120 days following ED discharge.⁹

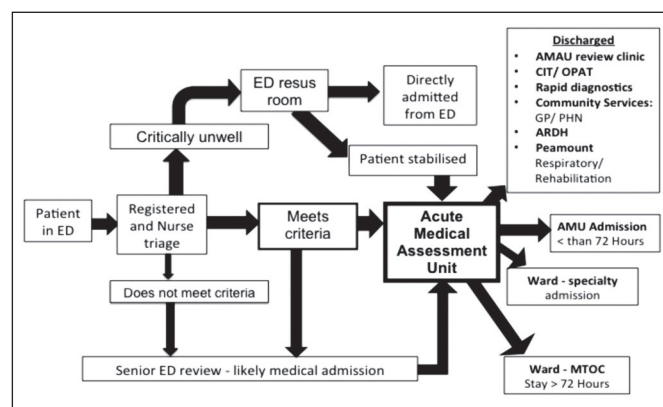


Figure 1 Patient Flow through Tallaght AMAU

Abbreviations: ED – Emergency Department; AMAU – Acute Medical Assessment Unit; CIT – Community Intervention Team; OPAT – Outpatient Parenteral Antimicrobial Therapy; GP – General Practitioner; PHN – Public Health Nurse; ARDH – Age Related Day Hospital; MTOC – Medical Team On Call. Criteria for AMAU: Manchester Triage Category 1 – 3; primary complaint appears medical; not critically unwell requiring stabilising in ED resus (patients are accepted once stabilized); not requiring isolation.

Results

A total of 3071 patients were assessed in AMAU in 2013 and one third (1066/3071, 34.7%) of these were aged 65 and older. The majority of these patients were referred directly from ED triage (2086/3071, 67.9%) where they had either self presented or been referred by their GP. Relative to their younger counterparts older patients presented more acutely unwell with 404/1067, (37.9%) vs 497/2005, (24.7%) categorized as Manchester triage category 1 and 2 on presentation. The most common presenting complaint, as recorded at triage, was breathing difficulty (316/1067, 29.6%) followed by chest pain (180/1067, 16.8%). Further common presenting complaints

recorded included the "collapse" (71/1067, 6%), "dizziness" (39/1067, 3.6%) and confusion (32/1067, 2.9%). 6.4% (68/1067) were recorded presenting as generally unwell. Despite being recommended in all older patients, only 314/1067 (29.4%) of older AMAU patients had a TRST assessment completed in ED triage. Of these, 196/314, 62.4% were identified as being "at-risk" of an adverse outcome. The mean time from arrival at AMAU to clinician assessment was 18 minutes in the 990 patients in which it was recorded. 96.1% were seen reviewed within the one-hour target time. Almost two-thirds of older patients (60.5%) were discharged from the AMAU, either through admission to a hospital ward or discharge home, within the 6-hour target time, the mean time to discharge being 6.4 hours. Their admission rate (644/1067, 60%) was double that of younger patients. Many older patients discharged home had follow-up arranged in the daily (Mon-Fri) AMAU review clinic (174/1067, 16.3%), or the age-related day hospital (87/1067, 8.1%).

Discussion

Older patients account for a large proportion of activity in AMAUs (35%) relative to ED activity (approximately 16%). This proportion is likely to continue to increase, as the ageing population of the catchment area continues to grow⁵. Older patients are more likely to be admitted than younger patients and though less than one third underwent risk assessment at triage, the majority of those screened were found to be at risk of an adverse outcome using the TRST. This highlights the importance of early assessment with regards the need for a comprehensive geriatric assessment and intervention in all older patients in the acute setting. The majority of those aged 65 and older were seen by a senior clinician within one hour of AMAU attendance, as recommended in the AMP Report. A number of care guidelines and bundles have been developed for common age-related clinical presentations (falls, cognitive impairment, delirium, transient loss of consciousness). Existing age-attuned transient ischaemic attack/ stroke, chest pain, and chronic obstructive airways disease care protocols have been implemented also, with support from nurse specialists available to help facilitate discharge of suitable patients.

60.5% of older patients left the department (Discharged home or admitted to a ward) within 6 hours. While this is a reasonable performance a number of factors were noted which necessitate patients remaining in the department for longer than six hours. Patients referred after processing through the traditional route of ED doctor review are already "in the system" for several hours ahead of assessment in AMAU, and therefore may not meet the target time. These are frequently patients which ED staff would identify as potentially benefiting from further medical review after triage processing. Other factors which limit timely care are challenges in accessing inpatient beds and certain critical diagnostic tests in a timely fashion. The admission rate for older patients is 60%, compared with an overall admission rate of 41.9% and an admission rate of 32.18% for those aged less than 65 years. Given the degree of medical complexity, early discharge for older patients is not always appropriate.² However, this admission rate is considerably lower than that for older patients referred to medical teams "on-call" before the AMAU was established. At that time 97.3% of medically referred older patients were admitted to hospital. A gerontologically-attuned AMAU is of great benefit to all older patients and Ireland has been unique in its recommendation that a large proportion of AMAU consultants be qualified geriatricians. Those patients who are likely to remain in hospital for 72 hours or less remain under the care of the Acute Medical team on the adjacent short stay unit. There is a consultant geriatrician working in the unit along with a designated multidisciplinary team. This allows specialised geriatric care to be provided from the time of admission, something previously not always possible through the traditional admission

route under a medical team on call through ED. AMAU review clinics operate five days a week in order to help to reduce admission rates and facilitate early discharge of patients. There is a geriatrician led clinic twice weekly and older patients with specific needs are selected to attend on these days. The AMAU can also refer patients directly to outpatient clinics and services, including the Age Related Day Hospital.

In the future, it would be of benefit to look at individual characteristics of older patients and to do deeper clinical phenotyping. It has been shown that cognitive and functional status have substantial impact on patient outcomes,¹⁰ as has the severity of acute illness, and pre-morbid frailty.² A number of clinical screening instruments which take these factors into account are currently being developed implemented via the symphony electronic data system for the AMAU and ED setting. These screening instruments will be completed for all patients aged 70 and older. They will assess baseline functional status, polypharmacy, co-morbid illness, a history of dementia, and the acute illness severity and will direct the need for comprehensive geriatric assessment and onward referral for assessment by relevant allied healthcare professionals. Education, training, and resourcing are important factors in ensuring the successful implementation of such screening instruments, and from discussion with nursing staff are the main reasons why less than a third of older patients reviewed in our study had a TRST completed. As AMAUs evolve they have enormous potential to provide enhanced gerontologically-attuned medical care to increasing proportions of frail older patients presenting to the acute setting.

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Advisory External Defibrillator Availability in General Practice

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Abstract

This study aimed to describe the availability of advisory external defibrillators (AEDs) in Irish General Practice. The study utilised a computer generated random sample of Irish general practitioners and involved a postal questionnaire, with telephone follow up of non-responders. The cohort of GPs already known to possess an AED (via participation in the Merit Project) was excluded. 115 valid paper survey responses were received representing a response rate of 59%. 5 of the responding GPs identified themselves as Merit project participants and were excluded from data analysis. 74/110 GPs (67%) reported having one or more AED(s) available for use at their practice. 41/77 GPs (53%) who had not responded to the paper survey but were contactable by telephone had an AED available. When AED availability was examined by practice setting a higher proportion of rural and mixed settings had AEDs available than in urban and city areas. Cost was reported as the most common reason for not having an AED.

Introduction

There are approximately 2,000 sudden cardiac deaths in Ireland annually¹. In up to 80% of cases, sudden cardiac death is related to coronary artery disease² with the commonest mechanism of death being due to ventricular fibrillation (VF)³. VF is a sudden onset of chaotic disturbance of the heart's electrical rhythm, which stops the output of blood from the heart⁴. An AED (Advisory External Defibrillator) is a small, portable piece of equipment that can deliver an electric shock in order to convert VF to a sustainable or usual rhythm (defibrillation)⁴. Survival rates following cardiac arrest are directly related to time to defibrillation. Each minute of delay between cardiac arrest and defibrillation reduces the probability of survival to discharge by 10–12%⁵. In Ireland in 2013 a discharge from hospital rate of 6% was reported following out of hospital cardiac arrest¹. Ireland's population of 4.6m⁶ is served by approximately 2,600 general practitioners (GPs)⁷ who provide comprehensive primary care in the community. More than 70% of GPs now work in-group practices⁸ and most participate in out-of-hours co-operative care arrangements⁹. In Ireland GPs are well placed to deliver early care in many communities; however the question of whether GPs are likely to have an AED available has to date been unanswered. The University College Dublin MERIT Project¹⁰ is a prospective observational study of cardiac arrest with resuscitation attempts by GPs in Ireland. In 2013, 495 Merit sites (representing around one third of Irish general practices) reported survival rates of 18% for patients in cardiac arrest treated by a GP¹¹. This study explores the availability of advisory external defibrillators (AEDs) amongst GPs not already involved in the Merit project (Merit GPs are by definition already equipped with an AED).

Methods

This observational study involved a postal survey of a computer generated random sample of Irish GPs, excluding those currently involved in the Merit Project. Non-responders were followed up by telephone survey. Ethical approval for this study was sought from UCD's Human Research Ethics committee and confirmation of exemption from full ethical review was received. The Irish Medical Directory⁷ formed the population register for this study. The online version of the Irish Medical Directory was interrogated in November 2013 revealing 2,650 individual general practitioner listings in the Republic of Ireland. A 12.5% computer generated random sample of this listing was taken (331 GPs). GPs who were known to participate in the Merit Project (117 GPs) were excluded from this list. This study aimed to contact only one GP per practice; the addresses of the remaining 214 GPs were therefore examined and where it was clear that two or more GPs were practicing from the same practice premises only the first listed GP was included. The final sample of named GPs (one per individual practice) numbered 201.

A bespoke paper based survey instrument was designed for data collection purposes. This was composed of 36 questions divided into four sections; Demographics, Practice Profile, AED Key

Questions and Practice Defibrillator(s). A survey pack containing a cover letter, the survey, an independently returned stamped postcard and a stamped addressed return envelope was posted to 201 named GPs in mid February 2014. Each independently returned stamped postcard had a number, which enabled an individual GP to be identified as having returned a survey; however since the postcard was returned separately to the questionnaire the exact questionnaire source remained anonymous. 115 completed postal surveys were returned representing a gross postal response rate of 57%. Of the 201 surveys sent it became apparent through return mail or telephone communication that six of the GPs were retired or no longer in active practice. This reduced the valid sample size to 195. Thus a valid sample paper survey response rate of 115/195 (59%) was achieved.

Of the 115 returned paper surveys, five GPs reported that they already participated in the Merit project; these GPs were also excluded from data analysis. The population total for the purposes of data analysis was thus 110. Although 115 completed surveys were received only 100 postcards were returned. This meant that the follow up phone survey would include some GPs who had returned a questionnaire and would potentially be double counted. The phone survey results are therefore presented separately and interpreted with caution. Telephone contact was made with each of the 95 practices that did not return postcards and a member of the practice staff was asked to report on the single issue of whether or not the practice had an AED available for use. It was possible to contact and obtain comment from 77/95 (81%) practices by this mechanism. Data was coded, inputted and analysed using IBM SPSS Statistics version 20. Two separate databases were created; one for paper survey responses and the second for that of the telephone survey. The Pearson Chi-squared test of independence was performed to examine the evidence for a relationship between practice setting and AED availability.

Results

Postal Survey

Of the 110 valid questionnaire responses received 74 GPs (67%) reported having one or more AED(s) available for use at their practice. Of the 74 GPs who had an AED available; 51 (69%) had AEDs that were only available at the practice premises, 14 (19%) had AEDs also available on house calls and 9 (12%) had AEDs available at the practice, on house calls and whilst the doctor was off duty. When AED availability was examined by practice setting (107 respondents provided information), a higher proportion of rural and mixed settings had AEDs available 48/57 (84%) than in urban and city areas 26/50 (52%). A chi-square test of independence was performed to examine whether there was evidence of a relationship between practice setting and AED availability. The evidence for a relationship between these variables was strong: Chi-square = 12.956, df=1, p < 0.001.

Of the 35 GPs who reported not having an AED, 49% detailed cost as a reason, 34% listed proximity to hospital as a reason,

11% felt having an AED was not relevant to the GP role, a further 11% considered maintenance to be a reason, while another 11% considered training issues to be a barrier. (GPs were free to select more than one reason for not having an AED available). Of note one GP reported that they did not know whether or not they had an AED available. 34/74 (46%) of GPs who confirmed AED availability via the postal survey reported that they had used an AED to treat cardiac arrest in the preceding 10-year period. On average those GPs who had used an AED to treat cardiac arrest did so 2.2 times over that period. One GP reported using an AED on 10 occasions. GPs reported using an AED to treat cardiac arrest on 75 occasions in total with survival to hospital discharge reported on 26 occasions representing a reported survival to hospital discharge rate of 35% in cases where an AED was used.

Telephone Survey

As previously stated an attempt was made to make telephone contact with the practices of each of the 95 GPs who had not returned a postcard. 77/95 (81%) were contactable and of these 41 (53%) reported having an AED available, 31 (40%) reported not having an AED, with the remaining 5 (7%) either being unsure or not wishing to comment.

Discussion

The basic issues of GP involvement in cardiac arrest management continue to draw mixed responses; Toon¹² recently questioned the value of Basic Life Support training for GPs, the 2010 RACGP 'Practice Standards 4th Ed'¹³ do not require an AED as essential emergency equipment and in Britain, the Care Quality Commission¹⁴ recommends but does not require general practices to have defibrillators. In Ireland the HSE Primary Care Reimbursement Scheme and Irish College of General Practitioners provide no guidance on defibrillator availability. Despite the above observations this study has demonstrated that a significant proportion of Irish GPs have already equipped themselves with an AED. The paper questionnaire respondents reported AED availability to be in the region of 67% while the follow up telephone survey of non-responders reported AED availability to be 53%. It is possible that GPs with an AED might have been more likely to respond to the postal survey thus biasing the results. The telephone follow up component serves to limit this effect on the overall result. As less GPs returned postcards (100) than returned completed surveys (115) there may be some overlap in responses between the two parts of the study. Thus, it is not possible to aggregate the statistics for overall AED availability; however considering the above figures it is likely that AED availability in this sample of Irish general practices is at least 53%.

If Merit practices (who by definition are equipped with an AED) are considered to represent one third of an estimated 1,500 Irish general practices then this study would suggest that overall at least two thirds of Irish general practices have an AED available at the present time. This observation would compare favorably with published studies of AED availability in other European countries^{15,16}. It is interesting to note that this study found the percentage of general practices with AED availability to be significantly higher in rural/mixed settings than in city/urban settings. This is an important finding in the context of Merit¹¹ data, which illustrated that more cases of cardiac arrest with GP involvement occurred in rural and mixed settings than urban ones. Promoting strategies to insure rural GPs continue to be equipped with an AED might form part of a strategy to provide evidence-based interventions to patients who suffer cardiac arrest in more remote locations with longer statutory EMS response times.

Data from the Merit¹¹ Project suggests that a high percentage of cases of cardiac arrest (47%) occur in the patient's own home. Although GPs perform house calls as part of their day to day work, the data collected in this study demonstrated that AED availability

was primarily at the surgery location (69%) and fewer GPs had AEDs available on house calls (19%) and when off duty (12%). There may be potential to improve cardiac arrest outcomes by increasing GP AED availability outside of the surgery. It is notable that almost half of the GPs who did not have an AED available listed cost as a factor. In a time of significant funding pressures cost is an issue that warrants consideration. The issue of AED cost is not new and has been previously described as a limiting factor in the international literature^{17,15}. The Merit¹¹ study described 36% of practices as having been involved in at least one cardiac arrest with resuscitation attempt over a 5-year period. Although cardiac arrest is not a frequent clinical occurrence in Irish general practice it is likely that over time many GPs will encounter it. This study indicates that although a high percentage of Irish GPs are already equipped with an AED, additional capacity could be developed by focusing on a number of specific issues such as cost supports and prioritisation of remote and rural areas.

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Idiopathic Toe Walking: A Gait Laboratory Review

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Abstract

Idiopathic toe walking (ITW) is defined as one who is neurologically normal but demonstrates a preference for walking on the toes. It is a diagnosis of exclusion so differential diagnoses such as cerebral palsy, neuropathy or myopathy must be ruled out. A review of 102 patients attending a gait laboratory with a presumptive diagnosis of ITW found that gait analysis data agreed with this diagnosis in 81 (79.4%) of cases while the remaining 21 (20.6%) were not typical of this diagnosis. The features found to be significantly different between the groups were Babinski response, fast stretch of the gastrocnemius, knee flexion at initial contact and asymmetry at the ankles during gait. This study highlights that clinical gait analysis can be a useful, non-invasive means of diagnosing idiopathic toe walking and recommending appropriate intervention based on clinical and dynamic assessment of calf tightness.

Introduction

Toe-walking is the inability to heel strike during the initial contact of gait and the absence of full foot contact during stance phase¹. Toe-walking is regarded as a normal variation in children up to 3 years of age². Beyond this a diagnosis of idiopathic toe-walking (ITW) must be considered. Hall et al³ first described a group of 20 neurologically normal patients who presented with tightness of the tendo-achilles and a tendency to walk on their toes. Subsequent reports documented many cases of ITW without static contracture and so the classic presentation of ITW is now described as one who is otherwise neurologically normal, possesses normal muscle strength and selective control, and demonstrates a preference for walking on the balls of the feet⁴. ITW is estimated to occur in 7% to 24% of the childhood population⁵. A review of eighty children with ITW found that 32% had a family history of ITW, 28% were born prematurely and 16% had psychomotor delay⁶.

ITW is a diagnosis of exclusion so other known causes of toe-walking such as mild cerebral-palsy (CP), neuropathy, spinal dysraphism and myopathy must be ruled out before this diagnosis can be assigned⁷. Walking history can be important as generally children with CP begin walking at a later age whereas those with ITW walk at appropriate times⁸. Importantly, toe-walking that begins after a mature heel-toe pattern has been established is not typical of ITW. While walking history can be informative, definitively ruling out the range of differential diagnoses can be difficult and might involve significant investigation. Some investigations such as brain and spine MRI require the child to remain motionless for a significant period of time which may prove difficult. Others such as nerve conduction studies and fine-wire electromyography can be distressing and uncomfortable. Gait analysis (GA) has been shown to be helpful in diagnosing ITW and kinematic, kinetic and EMG features associated with this condition have been described. Kelly et al² report normal sagittal plane knee kinematics in ITW but significant disruption in those with mild spastic diplegia. The ITW ankle pattern was characterised by initial dorsiflexion in swing phase followed by sudden plantarflexion to preposition the foot for toe-contact². Westberry et al⁴ confirmed a normal knee kinematic and found that while there were abnormalities in ankle kinematics and kinetics a diagnosis of ITW can be confirmed by the ability to normalise these deviations. Surface EMG can assist in differentiating ITW from mild CP⁹. On resisted knee extension those with CP demonstrate co-contraction in the gastrocnemius which is absent in ITW. This information complements a complete assessment of the presenting toe-walker. Those not fitting the typical presentation are referred for further investigation and GA serves as a baseline against which deterioration or changes can be monitored.

For those who match the features associated with ITW, gait analysis can help guide intervention based on the degree of calf contracture measured both clinically and dynamically with GA. While it is thought that ITW eventually resolves spontaneously in the majority of children¹⁰ it appears that there may be a relationship between persistent toe-walking and the development of ankle equinus¹¹ and excessive external tibial rotation⁷ and so interventions should be considered to inhibit these progressions.

The original GA acts as a baseline against which treatment outcomes can be measured. In this study we reviewed all patients presenting to the gait laboratory with a presumed or queried diagnosis of idiopathic toe walking over a ten year period. We looked at the characteristics of those felt to be typical of ITW versus those with an atypical presentation.

Methods

A retrospective study of all patients who had attended the Gait Laboratory between 2003 and 2013 was conducted. Criteria for inclusion were a proposed or queried diagnosis of ITW, no previous surgical history and a full barefoot 3-dimensional GA using the CODA mpx-30 system. Application of these criteria produced a study sample of 102. Based on GA, clinical exam and patient history the original gait laboratory report concluded whether the patient was typical of ITW or not. The study sample was subdivided into two groups on this basis. Clinical and dynamic gait variables were retrospectively examined in each group. The variables selected were those relevant to ITW. The clinical variables examined were gastrocnemius length on fast and slow stretch, hamstring length and Babinski reflex. Based on these measurements the presence of spasticity in the gastrocnemius was defined as a difference between a slow and fast stretch of $\geq 10^\circ$. The dynamic gait variables examined were- ankle ground-contact position, knee ground-contact position, maximum ankle dorsi-flexion in stance and maximum knee extension in stance. In addition the degree of asymmetry in maximum ankle dorsiflexion between left and right legs was assessed. Significant differences were examined using a two-tailed t-test with significance level set at $p < 0.05$. Prevalence was tested for significance using a chi-square test with significance level also set at $p < 0.05$.

Results

A total sample of 102 patients was reviewed. The average age of those referred was 7.6 ± 3.2 (range 4-16 years). The majority were male (74 male, 28 female). Gait analysis agreed with a diagnosis of ITW in 81 cases (79.4%) while 21 (20.6%) were felt to be not typical of the diagnosis. Referrals to the gait laboratory were from consultant orthopaedic surgeons, consultant neurologists, consultant paediatricians, general practitioners or physiotherapists. The breakdown of ITW referrals by profession along with how often the gait laboratory assessment agreed with the diagnosis of ITW is summarised in Figure 1. The clinical and dynamic differences between those felt to be typical of ITW versus those who had an atypical presentation are summarised in tables one and two. Clinically, those who were not a typical ITW presentation were more likely to have a positive Babinski response and had a tighter range of movement on a fast stretch of the gastrocnemius. However, neither group was more likely than the other to present with defined gastrocnemius spasticity. Dynamically the non typical-ITW group had a more flexed knee at ground contact and increased asymmetry at the ankles during gait. The recommended treatment for typical ITW is summarised in Figure 2. Conservative management through stretching and/or physiotherapy was the most common recommendation.

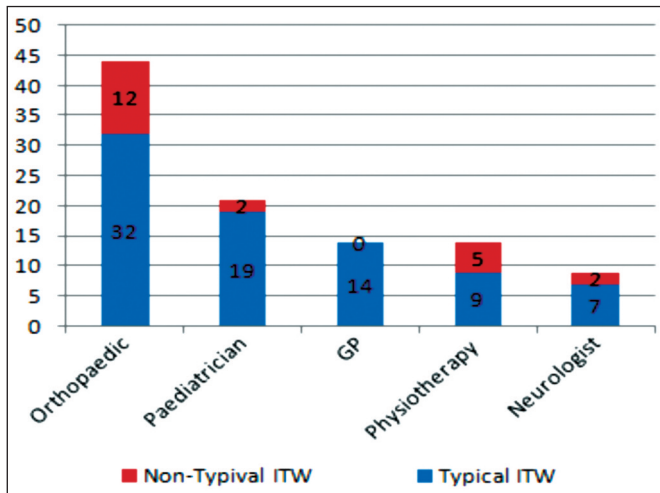


Figure 1 ITW referrals to gait laboratory by profession

	Typical ITW	Non Typical ITW	p-value
Gastrocnemius Range-Slow	93.6±8.7	90.9± 11.3	p=0.098
Gastrocnemius Range- Fast	91.9± 9.3	88.0±11.2	*p=0.021
Hamstring Range	40± 11	40± 13	p=0.870
Positive Babinski Response	4/81 (4.9%)	8/21	*p<0.001
Gastrocnemius Spasticity	5/81 (6.2%)	3/21	P=0.1

*Statistically significant difference

	Typical ITW	Non Typical ITW	p-value
Ankle Ground Contact	-16.6±14	-14.4±9.5	p=0.334
Knee Ground-Contact	6.6±5.5	13.1±9.6	*p<0.001
Maximal Ankle Dorsi-Flexion in Stance	1.1±12.5	4.8±8.0	p=0.066
Maximal Knee Extension in Stance	6.5±5.8	8.5±8.1	p=0.070
Degree of asymmetry in Ankle dorsiflexion	3.8±3.4	6.2±3.2	*p=0.004

*Statistically significant difference

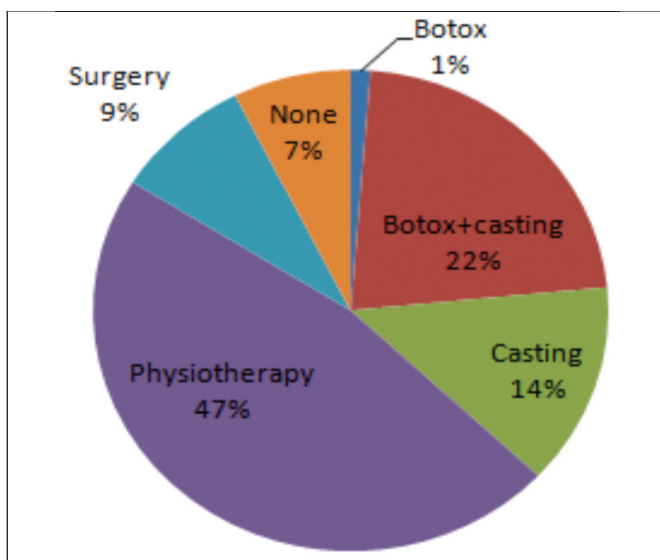


Figure 2 Treatment recommended for ITW

Discussion

The average age and the dominance of males in the study population are consistent with previous studies^{12,13}. The breakdown of those referring potential ITW to the laboratory is probably reflective of the condition and population involved. Treatment of these children often involves stretching or lengthening of the calf muscles so it is not surprising that

orthopaedic and paediatric consultants were the most common source of referrals. The general practitioner is often the first point of contact for parents concerned about their child's walking pattern so referrals from this profession would be expected. There are a number of differential diagnoses which must be ruled out before a diagnosis of ITW can be assigned including neuropathies and cerebral palsy and so neurologists will sometimes be involved in a small number of cases where there are persisting concerns. This is reflected in the lowest over-all referral numbers from neurologists. Gait analysis findings were consistent with a diagnosis of ITW in the majority of those referred (81/102). In this group planning appropriate treatment and monitoring the outcome is the priority. Parents can also be assured that the child presents as a typical ITW and baseline gait data is recorded against which any persisting concerns can be measured.

The treatment recommended following GA is consistent with published protocols. Treatment typically begins conservatively with stretching of the plantar flexors, casting and/or botulinum toxin and for those who do not respond surgical lengthening of the gastro-soleus complex is often performed⁷. The advantage of treatment recommendations post gait analysis is that intervention can be individualised to the degree of ankle tightness assessed both clinically and dynamically during gait. This avoids unnecessary surgery for those without a significant contracture and conversely identifies those unlikely to respond to conservative management and appropriate intervention can be expedited. It also provides a baseline to assess outcomes of intervention particularly in the case of a return to toe-walking. This is important as outcomes following treatment are variable in the literature and it is reported that, while short-term results may be positive, relapse may occur following conservative treatment¹⁴⁻¹⁶. Identifying those with a typical ITW presentation and those with suggestions of a more sinister differential diagnosis can be difficult in light of the range of potential differential diagnoses and particularly in a busy clinical setting. Diagnosis based on GA is made after careful consideration of clinical exam in conjunction with kinematic, kinetic and surface electromyography. Our clinical data highlights the difficulty of assigning a diagnosis on this basis alone. Both groups were equally tight on a stretch of the gastrocnemius and there was no difference between the groups in hamstring range. The presence of abnormal neurological signs is often assessed using the Babinski response and assessing for spasticity in a muscle (increased tightness on a fast stretch versus slow). While those with non typical-ITW presentations were more likely to have a positive Babinski response, the majority had a normal response suggesting that on its own this sign is not sensitive enough. The non typical-ITW group were significantly tighter on a fast stretch of the gastrocnemius. However, while statistically significant the 3.9° difference is unlikely to be clinically meaningful and the non typical-ITW group were no more likely to present with spasticity.

There were significant differences in the kinematics between the groups. Interestingly there was no difference between the groups in terms of the degree of toe-walking (ankle ground contact, maximal ankle dorsiflexion in stance) though the symmetry of toe-walking was a significant feature. Those with a typical-ITW presentation did so more symmetrically than the non-typical group. The 6.2° of asymmetry would be difficult to appreciate on visual inspection of gait but is readily assessed and apparent on kinematic graphs. The non typical-ITW group had more flexed knees at ground contact compared to typical-ITW. This is consistent with previous work which found that ITW typically demonstrate normal knee patterns whereas those with a differential diagnosis of spastic diplegia were more likely to demonstrate knee flexion². Again the difference between the groups (6.6° versus 13.1°) would most likely be difficult to appreciate on visual inspection. EMG and kinetic features^{4,9} associated with ITW have also been described and these are also considered as part of a clinical gait analysis but are not described in this study. The diagnosis of ITW in this study was established based on GA and clinical data only. A Follow-up study of those

thought to be typical ITW is recommended both to examine long-term outcomes post treatment but also to examine the sensitivity of the initial GA in diagnosing ITW and establish if any subsequent differential diagnoses were made.

This study highlights the contribution clinical GA can make in confirming a typical ITW presentation and recommending treatment based on the degree of ankle tightness on both clinical and dynamic gait assessment. The gait analysis also serves as a baseline against which any future concerns can be measured.

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Guideline Promotion Increases Prescription of Bone Protection with Steroids in Hospitalised Patients

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Abstract

Guidelines for the prevention of glucocorticoid (GC) induced osteoporosis (GIOP) were implemented in a level 5 Irish Hospital with cross sectional audit of inpatient prescribing undertaken before and after. Prior to guideline implementation, elemental calcium (Ca) with Vitamin D (VitD) was prescribed for 11/66 (17%) of patients on GCs with 2/66 (3%) also receiving bisphosphonate (BP) therapy. Subsequent to guideline implementation, Ca with VitD was prescribed for 19/55 (35%) of patients on GCs with 11/55 (20%) also receiving BP therapy, representing a 2 and 6 fold respective increase. Internal promotion of guidelines is an effective strategy for healthcare improvement but needs refinement with or without repetition to achieve better patient outcomes.

Introduction

Therapeutic GCs rapidly decrease bone mineral density, inducing a remodelling imbalance by promoting osteoclast differentiation and activation and by inhibiting osteoblasts. Current guidelines suggest that BP therapy together with Ca and VitD should be given at initiation of GC therapy, as it is known that bone remodelling imbalance occurs early with steroid usage.¹ After auditing existing practice, we circulated these guidelines within our hospital and one year later we sought to measure the efficacy of our intervention by completing an audit loop.

Methods

A cross sectional audit was performed of all adult medical and surgical inpatients in a level 5 hospital. Prescribed GC and concurrent anti osteoporotic medication were noted. Subsequent to the initial audit, guidelines promoting the use of BPs, Ca and VitD when prescribing GCs were advertised on hospital notice boards, in hospital bulletins and prescribing guidelines and also on the hospital website. One year after promoting these guidelines, the audit loop was completed by performing a repeat cross sectional audit.

Results

All in-patient medical records (n=417) were reviewed in Jan 2010. 52% of the inpatients were female and 58% were older than 65. 66/417 (16%) inpatients had been prescribed GC's. Ca with VitD was prescribed in 11/66 (17%) of patients on GCs with 2/66 (3%) also receiving BP therapy. 3% of patients were also receiving post menopausal hormone replacement therapy. Current ACR GIOP prevention guidelines promote BP prescription for all postmenopausal female or male patients > 50yrs on =7.5mg prednisolone per day (see Figure 1). In Nov 2011 one year after guideline publication, all 452 inpatient medical records (n=452) were reviewed. 63% of the patients were female and 60% were older than 65. 55/452 (12%) inpatients were prescribed GC's. Ca with VitD was prescribed for 19/55 (35%) of patients on systemic steroids with 11/55 (20%) also receiving BP therapy. However 65% of patients on systemic steroids continued to receive no bone protection and 80% received suboptimal bone protection from GIOP.

Discussion

Fracture ensues beyond 3 months of initiation of chronic GC treatment in 25-60% patients.^{2,3} Risk of non-vertebral fracture

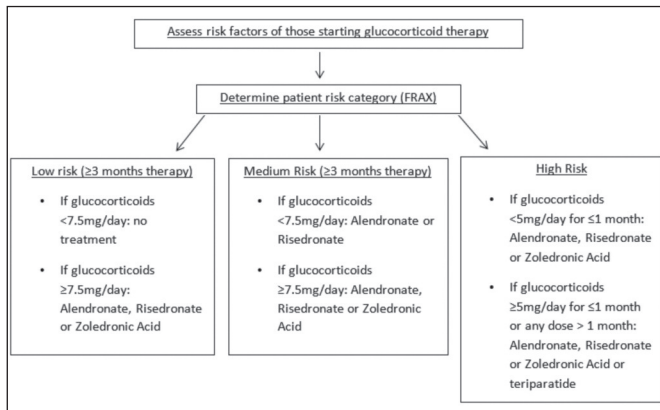


Figure 1 ACR guidelines for postmenopausal women and men age > 50 years initiating or receiving glucocorticoid therapy

has been shown to increase from 1.6/100 person years to 2.0/100 person years within 3 months of GC initiation.⁴ Between 12–16% of our inpatients were prescribed GC's indicating the major clinical significance of GIOP awareness across all medical specialities. GIOP has a rapid initiation phase with up to 15% bone mineral density loss in the first few months of therapy.³ Publication and advertisement of current bone protection guidelines when prescribing GC's resulted in a substantial but suboptimal improvement by hospital doctors in our hospital in the co-prescription of bone protecting drugs to prevent GIOP. In this audit it appears that the majority of prescribers following guideline implementation do recognise the necessity to protect bone health when a patient requires steroids. The resultant improvement in the co-prescription of Ca & Vit. D and BP's with GC's by the order of 2 and 6 respectively can be attributed in part to the circulation of hospital guidelines. However 65% of patients did not receive any bone protection.

Currently it is recommended that both Ca and VitD along with an anti-resorptive agent should be co-prescribed not only from the

time of steroid initiation but also for the entire duration of steroid therapy.¹ Despite significant advances in the understanding of GIOP and the widespread availability of preventative therapies, a substantial proportion of patients receiving GC's, still do not receive appropriate prophylaxis to prevent it.¹ It is our perception that many physicians are not aware that even short courses of steroids reduce bone mineral density and therefore greater efforts must be made to enhance doctor awareness of the necessity for bone protection to be prescribed at initiation of systemic steroids. With this in mind, we have shown that in hospital guideline advertisement improves physician awareness of implemented guidelines. Further improvement is possible with electronic solutions needing to be explored. Electronic prescribing could facilitate appropriate prompting of prescribers. Social media and smart phone applications could increase dissemination of guidelines and both patient education and nurse monitoring services using electronic databases could all increase guideline adherence.

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A Rare Case of BRCA2-Associated Breast Cancer in Pregnancy

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Abstract

A 30-year old woman was referred to our department with symptomatic breast cancer at 35 weeks gestation. Genetic testing revealed a pathogenic BRCA2 mutation. Labour was induced at 38 weeks. Mastectomy and axillary clearance were performed with a view to adjuvant chemotherapy, radiation and hormonal therapy. Multidisciplinary involvement is crucial for management of BRCA-associated breast cancer, especially in the context of pregnancy. Bilateral mastectomy may be indicated given the increased risk of ipsilateral and contralateral breast cancers. Tamoxifen may lower contralateral breast cancer risk in those in whom risk-reducing surgery is not performed.

Introduction

Breast cancer is the most commonly diagnosed cancer worldwide and the second leading cause of female cancer deaths.¹ A deleterious mutation in the BRCA2 gene has been associated with breast cancer rates of 45%.² Pregnancy-associated breast cancer (PABC) is defined as breast cancer occurring during pregnancy, lactation or the first postpartum year. PABC is seen in less than 1/3,000 pregnancies,³ yet accounts for 10–20% of breast cancers in women under 30. Incidence is increasing as more women delay child-bearing.⁴ As the majority of PABCs occur in women less than 40, BRCA mutations are more common in this patient group.⁵

Case Report

A 30-year old woman, at 35 weeks gestation, was referred by her

General Practitioner to our breast clinic with a 2-week history of a right breast lump. Her family history was significant in that her 49-year old mother had recently been diagnosed with breast cancer and been found to carry a pathogenic BRCA2 mutation. Clinical examination revealed a palpable lump in the right breast. Protected mammography demonstrated pleomorphic calcifications spanning 3.8cm. Ultrasonography revealed a 2.8cm area of hypoechogenicity corresponding to the area of clinical and mammographic concern (Figure 1). Core biopsy was performed. Analysis of biopsied tissue revealed grade 2 invasive lobular carcinoma (ILC).

Urgent predictive genetic testing was performed at the patient's request and she was found to carry the familial BRCA2 mutation. Following multidisciplinary case discussion, labour was induced at

38 weeks. Delivery was uncomplicated. Following further case review and counselling, the patient underwent upfront sentinel lymph node biopsy. When this proved positive for metastatic disease, she went on to have a right mastectomy with tissue expander reconstruction and axillary clearance. Histopathological analysis of resected tissue revealed grade 3 ILC extending over 13.4cm, oestrogen receptor positive, human epidermal growth factor receptor 2 negative (Figure 2). Margins were clear. Four of 36 lymph nodes were positive for metastatic disease. Postpartum, the patient was referred to the Human Assisted Reproduction Ireland unit with a view to oocyte freezing prior to initiation of adjuvant chemotherapy. Further treatment will include radiotherapy and hormonal therapy. The patient will continue to have close surgical follow-up with 6-monthly alternate mammograms/Magnetic Resonance Imaging (MRI) scans. A prophylactic left mastectomy will be considered at some time in the future. She will also have 6-monthly CA125 levels and pelvic ultrasounds with a view to bilateral prophylactic salpingo-oophorectomy.

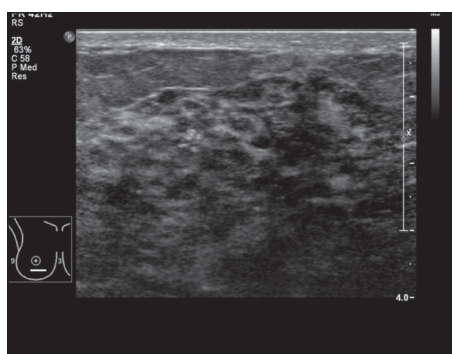


Figure 1

Ultrasonography revealed a 2.8cm area of hypoechoogenicity containing calcifications; this corresponded with the area of clinical and mammographic concern.

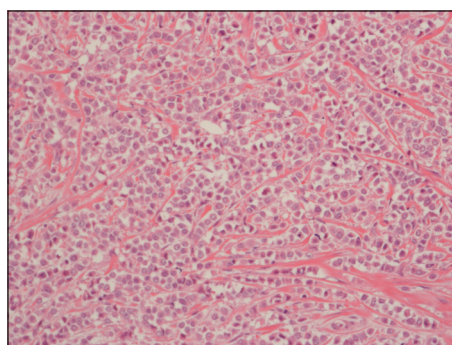


Figure 2

Microscopy revealed grade 3 invasive lobular carcinoma with a total invasive tumour size of 13.4cm.

Discussion

Patients with PABC should be managed as non-pregnant patients, with some modifications to protect the foetus.⁶ In this case, as the patient was 35 weeks pregnant at the time of diagnosis, pregnancy could be expedited and treatment initiated postpartum, without risk of adverse maternal or foetal outcome. This case was further complicated by the discovery of a BRCA2 mutation during pregnancy. Management options for BRCA mutation carriers with breast cancer include: Ipsilateral mastectomy for management of the known breast cancer and bilateral mastectomy with prophylaxis on the contralateral side, given the increased risk of both ipsilateral and contralateral breast cancers.⁷ In this case, given that the patient had T3N2a breast cancer, it was decided that the known cancer be dealt with first and that prophylactic mastectomy be delayed.⁸ In high risk patients in whom prophylactic surgery is deferred, close surveillance with regular clinical breast examinations, annual mammography and breast MRI is indicated.⁸ Tamoxifen may lower the risk of contralateral breast cancer in BRCA carriers with a history of breast cancer.⁹

Pregnancy during or after a diagnosis of breast cancer does not adversely affect survival in BRCA mutation carriers.¹⁰ This case highlights the difficulties associated with management of BRCA-associated breast cancer, particularly in the setting of pregnancy. Optimal management necessitates multidisciplinary involvement.

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Acknowledgements

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Neonatal Discharge Planning: Could Unscheduled Reviews be reduced in the First Six Weeks of Life?

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Abstract

The postnatal period offers an opportunity to provide information and education to new mothers. We analysed factors associated with unscheduled presentations of newborns to local primary care, maternity and paediatric services over a 3 week period to assess whether these could be targeted with discharge planning educational interventions. Data was collected prospectively from electronic databases and manually from patient records in the maternity hospital. Two hundred and seventy six patients under 6 weeks of age presented to the three services. Half of these visits were unscheduled 137 (49%). 40(29%) of those that were unscheduled were felt to represent benign neonatal variants whilst 28 (20%) presented with feeding problems. Eighty one (59.3%) patients were discharged home, and this was unaffected by referrer patterns; GPs 19 (56%), Nurses 13 (57%) or parents 77 (67%). At least 40 (29%) of reviews were felt to be inappropriate and could have been prevented. There is room for cost saving and quality improvement of the service through education.

Introduction

Being discharged home with a baby is daunting for new parents. There are numerous opportunities to provide education and information to families – at discharge, at the public health nurse initial review and opportunistically when infants present to medical practitioners. Discharge planning is increasingly recognised as an important function of any neonatal service. There are currently no clear guidelines on neonatal discharge planning in Ireland. The HSE recommends that all parents receive "Caring for your Baby" booklets at their first Public Health Nurse visit¹, but its efficacy is dependent on many factors including the timing of the visit, parental literacy and English comprehension. The AAP recommends parental education about common neonatal illnesses at discharge, with the aid of a physician checklist^{2,3}. Parents concerned about their newborn baby may seek advice from a number of sources. The family's general practitioner provides the majority of post-discharge care and advice, with scheduled checks at 2 and 6 weeks. Many maternity services provide a 24 hour emergency service during the first two weeks of life, with an additional daytime outpatient service and walk in clinic up to 6 weeks of age on weekdays. Finally, parents may present to the local Paediatric Emergency Department, most of which provide a 24 hour service to all children under the age of 16 years.

The Rotunda hospital provides emergency care for infants delivered in the hospital up to 6 weeks of age. In 2013, there were 3000 paediatric OPD (POPD) patient contacts to the Rotunda POPD (from approximately 9000 deliveries). Current hospital systems do not facilitate data collection on what proportion of these reviews are unscheduled, nor on how many could be avoided. The very large number of patient contacts raised the question as to why they present, and whether interventions such as discharge planning could reduce this workload. In addition, parents and babies may access paediatric emergency departments or their general practitioner for medical assessment and support. Maternity hospitals discharging patients generally do not have access to data on how often and why neonates present to these services. This audit was carried out to identify the volume of reviews that were unscheduled and the key reasons for unscheduled neonatal reviews of babies 6 weeks and younger across three models of medical care in our catchment area: a busy maternity hospital (the Rotunda), a local tertiary paediatric hospital (Children's University Hospital, Temple St) and a representative busy local GP practice.

Methods

Data was collected concurrently over a 3 week period in all 3 health care facilities. It was collected from the electronic database from the paediatric hospital and the GP practice. It was collected manually at each POPD clinic in the maternity Hospital. Data on age, reason for presentation, source of referral and subsequent admission to hospital were obtained.

Results

Two hundred and seventy six patients under 6 weeks of age presented to the three services over a three week period from (24/2/14 – 16/3/14). Almost half of these visits were unscheduled (137/49%), 85% of which were for term babies. Over half of infants with unscheduled attendances to the maternity hospital had been referred by either their public health nurse or their GP, compared with 44% of children attending the Paediatric ED. Very few infants were referred to the paediatric hospital by public health nurses, and none to the GP, although the numbers in this group are small as only 6 babies presented to the GP practice over the 3 week period. The overall admission rate to hospital following presentation to the three medical services was 32/137(23.3%). Seventy two percent (n=23) of these were admitted to the Children's University Hospital and 28% to the Rotunda Hospital. Sixty percent of infants subsequently admitted to the hospital attended the hospital without a primary care review, approximately 1/3 had been seen by their GP and overall, 7% were referred by the public health nurse. As noted previously, the majority of public health nurse referrals were to the maternity service.

Table 1 Reasons for unscheduled review

INDICATION REVIEW	GP (n= 6)	Paediatric ED (n=70)	Rotunda (n=69)
Benign Neonatal Variant*	33.3% (n=2)	34.2% (n=24)	34.7% (n=24)
Feeding Problem	33.3% (n=2)	14.3% (n=10)	14.4% (n=10)
Respiratory	33.3% (n=2)	20% (n=14)	2.8% (n=2)
Sepsis		18.5% (n=13)	10.1% (n=7)
Other**		12.8% (n=9)	37.7% (n=26)

*sacral dimple, small anterior fontanelle, erythema toxicum, "sticky eyes", benign sleep myoclonus.

**prolonged jaundice, crying, constipation, oral candidiasis, paronychia.

Table 2 Source of referral

REFERRER	GP	Paediatric ED	Rotunda
Self	100%	60%	46%
GP	N/A	37.7%	21%
Public Health Nurse	0%	1%	31.4%
Other	0%	1%	1.6%

Discussion

A certain proportion of all unscheduled reviews are thought to be unnecessary. A literature review on the topic reveals very little published data, particularly on term babies. There have been studies done into rates of unscheduled review and readmission of preterm infants. Recently, a neonatal research group reported reduced readmission rates among parents of preterm infants who were more involved in the care of their newborn in the NICU⁴. Other studies have shown associations between readmission rates of late preterm infants and maternal age, maternal smoking and longer hospital stay^{5,6}. In the UK, studies have shown similar risk

factors for presentation of older children to the ED for unscheduled reviews⁷. A survey conducted in a London Paediatric Emergency Department revealed that 19% of patients had no knowledge of their GP's surgery hours and 50% had made no prior attempt to contact their GP⁸. Half of the attendances were felt to be inappropriate for management in an ED⁸. A further study in the US showed that improved access to primary care decreased ED attendances and hospitalisation of children⁹. These studies were performed over 20 years ago indicating that this problem is not new, nor is it confined to our population. A more recent but similar study found that convenience is often a significant factor in the use of the Emergency Department for non-urgent complaints¹⁰.

Among our population, a high proportion of reviews were for benign neonatal variants, and all were discharged following review. Although the majority of unscheduled attendances were self referrals (74/137 or 54%), a significant proportion were triggered by General Practitioners and Public Health Nurses. Fifty six percent of those referred by a GP and 57% of those referred by a nurse were discharged home without formal follow up. The second most common reason for review was feeding difficulties. Overall 16% of infants attending services presented with feeding difficulties. Neonatal sepsis is a potentially life-threatening emergency that needs early paediatric assessment in an emergency department. Only 19% of attendances to the Paediatric ED were due to possible sepsis. 10% of all maternity hospital presentations were due to suspected infection which is concerning as the maternity hospital OPD is not the best place for these patients to receive ongoing care. Unwell infants with suspected sepsis assessed in maternity hospitals often have to undergo transfer to paediatric hospitals, via the Paediatric Emergency Department. Eleven point six percent (n=16) of infants presented with respiratory symptoms. Respiratory disease can be unpredictable and there is often a low threshold for admission. This level of paediatric review may be unavoidable. It is reassuring that the patterns of respiratory presentation seems appropriate, avoiding exposure of in- and outpatient vulnerable neonatal population to infectious viral pathogens.

This study is the first to simultaneously investigate why and how neonates under 6 weeks present to three different healthcare settings. It was decided to look at concurrent presentations, as there is significant seasonal variation in infant presentations for medical review in this cohort. The majority of infants did not present with infectious or respiratory symptoms. Benign neonatal variants and feeding issues comprised nearly 50% of unscheduled presentations to both the maternity and paediatric hospitals. Parents may not be fully aware of the options available to them in seeking medical attention and where it may be appropriate to

bring the infant. There may be a role for increased parental education about normal newborn variants and feeding patterns. It may also be worthwhile to target the infant less than 6 weeks as part of continuing professional education for healthcare workers in the community setting. Most of the conditions identified during this study did not require immediate or emergency review. It is sometimes difficult for practitioners trained in paediatrics to identify the infant who is at serious risk without the benefits of hospital supports. However, many of the presentations identified in this study did not require a hospital review, and a proportion did not present to the most appropriate hospital setting. There is a role for increased information, and possibly education, about how and where best to manage our youngest patients.

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Re: "Is the NHS Best Practice Tariff for Type 1 Diabetes Applicable in the Irish Context?"

Sir

We refer to the IMJ article "Is the NHS Best Practice Tariff for Type 1 Diabetes Applicable in the Irish Context?"¹, we commend the focus of this article, in highlighting the importance of tight metabolic control in the paediatric population, despite the intrinsic challenges childhood and adolescence present in this regard. We too, have recently completed an audit of our service for the year 2013 and have found it to be a worthwhile exercise. The recently published report on the Irish Childhood Diabetes National Register confirms Ireland as a high incidence area of Type 1 Diabetes, with the incidence rate for Ireland lying in the top quartile for Europe. Indeed the incidence of Type 1 Diabetes in the Irish paediatric population has increased substantially from 16.3 to 27.5 per 100,000 per year between 1997 and 2008². The Diabetes Control and Complications Trial and follow up studies indicate that, 5-7 years of poor glycaemic control, even during adolescence can

result in an increased risk of micro- and macro-vascular complications in the subsequent decade. Hence reiterating the importance of intensive control in this population.

There are currently 140 patients with Type 1 Diabetes attending the Paediatric Diabetes Service at University Hospital Galway. Of these we identified 87 who satisfied the audit criteria, of having 12 months of complete data and having been diagnosed for >1 year. Mean age was 12 years with mean duration of diabetes being 5.82±2.95 years. Mean number of outpatient appointments attended was 2.90±1.16, while the mean number of patient-service interactions, including nurse-led appointments and telephone support was 8.82 (range 1-63). The majority were on a Multiple Daily Injection Regimen (85.1%), with 12 patients on Continuous Subcutaneous Insulin Infusion pumps (13.8%) and 1 patient receiving Twice-Daily injections of pre-mixed insulin. We

compared glycaemic control in our cohort with the results of the recent NHS National Diabetes Paediatric Audit 2010-2011, with 6.9% of our cohort achieving the ISPAD recommended optimal HbA1c target of <58mmol/mol, compared to 15.8% of UK patients. While 60.9% of our patients had a HbA1c >58 and <80mmol/mol, and 32.1% had HbA1c >80mmol/mol, compared with 55.5% and 28.7% of UK patients respectively.

These results were obtained with a paediatric diabetes team composed of a <0.25 working time equivalent (WTE) consultant paediatrician with a special interest in paediatric endocrinology, a 0.5 WTE diabetes nurse specialist and a 0.1 WTE dietitian. Despite extreme diligence and commitment from our team, glycaemic control in our cohort remains suboptimal. We, also, find that inadequate resources in particular staffing levels are a barrier to more intensive diabetes management at this centre. It is well documented that increased multidisciplinary team resources correlate with improved glycaemic control³. We therefore must conclude, that in the current context of limited national resources, we find the conclusions of CP Hawkes and NP Murphy to be most pragmatic⁴. While it would undoubtedly be associated with increased requirements for patients to travel, regionalising care for children with type 1 diabetes must be considered.

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The Way Forward for the Refractory Asthmatic

Sir

Ireland has the fourth highest prevalence of asthma in the world. 7.1% of 18+ population and 18.9% of 13-15 year olds have asthma. 38.5% of 13-15 year olds reported wheezing. More than 1 person a week dies from asthma and 29% of asthma patients miss school or work.¹ Despite very safe and effective treatment 5-10% of patients with bronchial asthma do not respond well to their treatment. This group of patients are labelled as refractory asthmatics. Besides compliance, presence of psychogenic and trigger factors and comorbid illness, steroid insensitiveness or resistance may play a significant role in the poorly controlled/responding asthmatics. Type I Steroid resistance is due to lack of binding affinity of steroids to glucocorticoid receptors and may respond to higher doses of steroids while type II steroid resistance is because of reduced number of cells with glucocorticoid receptors, which is very rare and do not respond to even higher doses of systemic steroids and these cases require alternative/novel therapies.²

There has been major advances in the research arena. Eosinophilic inflammation is the most focused phenotype because most novel asthma treatments have targeted T-helper type 2 (Th2) pathway. With the discovery of potential biomarkers such as Fractional-exhaled nitric oxide (FeNO), serum periostin and YKL-40, we can see the management of asthma diverging away from other airflow obstructive diseases. Fractional-exhaled nitric oxide (FeNO) is a new method that represents an eosinophilic airway inflammation with a significant correlation with sputum eosinophilia and asthma severity instead of sputum eosinophil count that easily influenced by corticosteroid therapy. YKL-40 is associated with asthma severity and airway remodeling. Serum periostin is a strong serum biomarker for eosinophilic airway inflammation and an indicator of Th2-targeted therapy and airflow

limitation.³ The most promising agents are targeted against cytokines of Th2 pattern and related receptors. Examples are IL-2 (daclizumab) and IL-13 (lebrikizumab) or IL-5 in patients with hypereosinophilia (mepolizumab, reslizumab and benralizumab). Other potential drugs have as a target TNF- or its soluble receptor (infliximab, golimumab and etanercept) or IL-1 (canakinumab), a cytokine with an important systemic proinflammatory action. Finally, the discovery of increased levels of C5a in the airways of asthmatic patients has led to the synthesis of a specific monoclonal antibody (eculizumab). Further help should come from the identification of biomarkers that can guide in choosing the best treatment for the individual patient, such as IgE for omalizumab or periostin for lebrikizumab.⁴

Reflecting on those advances, we can clearly see that the way forward for the refractory asthmatic is likely to be targeted toward cytokines and bronchial thermoplasty.

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Does the Endometrial Scratch Improve Implantation Rates?

Sir

Implantation is one of the most crucial steps in the process of reproduction. Implantation failure is often due to impaired uterine receptivity. Assisted Reproduction techniques are used in order to overcome fertility problems. The endometrial scratch (ES) is a relatively new technique that is said to improve the probability of a

successful pregnancy in some women.¹ Although the exact mechanism of this process is still unknown², the use of a catheter to cause local injury to the endometrial lining is suggested to initiate a healing process, thereby attracting immune markers and potentially improving implantation rates. The aim of this study is to

assess whether the ES offered randomly to patients attending for ART results in a higher implantation rate in patients that avail of it compared to patients that do not have an endometrial scratch (non-ES).

A total of 60ES patients and 627 non-ES patients in fresh cycles were analysed from the HARI unit database over a 2-year period. A positive biochemical pregnancy was the outcome measured and a $p < 0.05$ was considered significant. To ensure patient groups were comparable, a Mann-Whitney U (MWU) test was carried out. The MWU results for AMH ($p = 0.225$) and FSH levels ($p = 0.994$) showed no statistical significance between the two patient groups with regards to these two parameters; however $p < 0.001$ for age therefore indicating statistical significance. Twenty-two (36.67%) ES patients and 238 (37.96%) non-ES patients had a positive pregnancy. A chi squared test result ($p = 0.836$) indicated no statistical significance when comparing the two groups. Seven (46.67%) ES group patients had a blastocyst transfer and 160 (48.05%) blastocyst transfers in the non-ES group resulted in a positive pregnancy ($p = 0.97$), suggesting no statistical significance. Within age subgroups, < 35 years ($p = 0.580$), 35-39 years ($p = 0.429$) and > 40 years ($p = 0.237$), there was also no statistical significance between the two groups. Results showed that there is no association between ES and pregnancy outcome at any age or in blastocyst only transfers patients. The small sample size of 60 in the ES group and retrospective nature of the study on prospectively collected data were limitations in this study. A statistically significant difference between the mean ages of patients within the two groups was seen, as indicated by the MWU

test. This difference probably occurred as the ES was offered to more people who may have requested it in view of their age or a previously failed cycle. Also other variables e.g. BMI were not taken into consideration.

An inability to conceive naturally causes IVF/ICSI patients to be a fairly anxious patient group. Many new techniques are available to patients, to overcome fertility problems.³ Clinicians have a responsibility to provide treatments based on clinical evidence. The ES is a novel technique that is of no major value in improving implantation rates of women in routine clinical practice or at a specific age however it may be useful in a targeted population of recurrent implantation failure patients. Further studies are required to identify its role within that group of patients.

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Documentation of Allergies on Inpatient Medication Charts

Sir

Medication allergies are common and can result in significant morbidity and mortality, allergic drug reactions have an estimated mortality rate of 0.09 per 1,000 hospital admissions.¹ In Ireland medication allergies accounted for 2% of medication events reported, according to the Irish Medication Safety Network.² Therefore documentation of allergies on medication charts is commonplace in order to prevent or minimise potential adverse reactions due to known allergens. Previous research from an Irish hospital had shown that only 70% (211/300) of charts examined had a completed drug allergy box.³ An audit was carried out with the aim of ascertaining the proportion of medication charts which had medication allergies documented, in addition to details of the allergy and completed prescriber information. All inpatient medication charts in St Columcille's Hospital, Loughlinstown were reviewed on one particular afternoon (25th November 2014). Current medication charts used in St Columcille's Hospital require documentation of any allergy, in addition to the nature of the reaction, whether the agent should be used with caution or is contraindicated and the person should sign, date and provide an identifier (e.g. bleep number, Irish Medical Council registration number). Entries which were illegible were recorded as not documented.

The total number of inpatients was 69, 100% of charts were reviewed. On 96% ($n = 66$) of patients' charts an allergen or "no known drug allergy" was documented. Of the 66 patients who had this information documented, 22 (33%) had an allergy. Of the 22 patients with a documented allergy, the majority were due to antibiotics (55% $n = 12$). 14 (64%) had the nature of the reaction documented and on 14 charts (64%) it had been noted if the medication was contraindicated or could be used with caution. A signature and identifier was present on 64 (93%) charts. Given the importance of allergy documentation it is reassuring that 96% of medication charts had this documented. In comparison with previous studies this is an improvement, from 70% previously reported in an Irish hospital and 84% (211/300) in an Australian

study.^{3,4} However there were still 3 charts (4%) with no documentation, and it cannot be assumed that these patients had no known drug allergies. One third of patients were recorded as having an allergy, which is a significant proportion. This highlights the importance of documenting not only the medication but also the details of the reported allergy. 36% of charts were lacking details regarding the nature of the reaction and if the medication was contraindicated. This information is important and if missing the prescriber would have to assume that the medication was contraindicated and therefore limit pharmacological choices.

In summary 96% of inpatients in St Columcille's Hospital had their medication allergy information documented. However, of the 22 (33%) patients with allergies further information which could aid prescribers was lacking in 36%. An information session has been provided to Non-Consultant Hospital Doctors regarding the audit findings, and importance of documentation. Healthcare professionals should not become complacent with allergy documentation and details, otherwise preventable morbidities and mortality could result.

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Patients Accessing Ambulatory Care for HIV-infection: Epidemiology and Prevalence Assessment

H Tuite, M Horgan, PWG Mallon, SJ McConkey, B Mooka, F Mulcahy, C Walsh, A O'Hora, D O'Flanagan, C Bergin, C Fleming. *Ir Med J.* 2015; 108: 199-202.

Question 1

The number of HIV infected adults in the study was

- a) 3244
- b) 3254
- c) 3264
- d) 3274
- e) 3284

Question 2

The proportion of Irish patients was

- a) 52%
- b) 54%
- c) 56%
- d) 58%
- e) 60%

Question 3

The proportion of male patients was

- a) 56%
- b) 58%
- c) 60%
- d) 62%
- e) 64%

Question 4

The mean age of the patients was

- a) 36.8 years
- b) 37.8 years
- c) 38.8 years
- d) 39.8 years
- e) 40.8 years

Question 5

The heterosexual acquisition rate was

- a) 42%
- b) 44%
- c) 46%
- d) 48%
- e) 50%

Breaking Barriers to Successful Implementation of Day Case Laparoscopic Cholecystectomy

I Reynolds, J Bolger, Z Al-Hilli, ADK Hill. *Ir Med J.* 2015; 108: 202-4.

Question 1

The number of laparoscopies carried out over 3 years was

- a) 19204
- b) 19214
- c) 19224
- d) 19234
- e) 19244

Question 2

In 2010 the proportion of public day case procedures was

- a) 9%
- b) 11%
- c) 13%
- d) 15%
- e) 17%

Question 3

In 2012 the proportion of public day case procedures was

- a) 19.9%
- b) 21.9%
- c) 23.9%
- d) 25.9%
- e) 27.9%

Question 4

In 2010 the proportion of private day case procedures was

- a) 3.1%
- b) 4.1%
- c) 5.1%
- d) 6.1%
- e) 7.1%

Question 5

In 2012 the proportion of private day case procedures was

- a) 5.9%
- b) 6.9%
- c) 7.9%
- d) 8.9%
- e) 9.9%

Temporal Trends in Hospitalisations for Heart Failure

A Sugrue, Y Smyth, S Hennessy, J Crowley. *Ir Med J.* 2015; 108: 207-9.

Question 1

The number of admissions for heart failure between 2002- 2010 was

- a) 51,069
- b) 51,169
- c) 51,269
- d) 51,369
- e) 51,469

Question 2

The proportion of male patients was

- a) 50.7%
- b) 51.7%
- c) 52.7%
- d) 53.7%
- e) 54.7%

Question 3

The proportion of patients older than 65 years was

- a) 85%
- b) 87%
- c) 89%
- d) 91%
- e) 93%

Question 4

The length of hospital stay in 2002 was

- a) 8 days
- b) 10 days
- c) 12 days
- d) 14 days
- e) 16 days

Question 5

The per cent reduction in hospitalisations between 2002-2010 was

- a) 13%
- b) 15%
- c) 17%
- d) 19%
- e) 21%



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