Medicines Management: a better pill to swallow?

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- Patients
- Proliferation of the use of medicines
- Professions
- Positive messages
Three Paradoxes

- Medicine has never before been able to do so much for patients but the health service is still criticised and some people are unhappy.

- Society has never spent so much on health care but health care is still short of resources.

- People have never lived so long but the prevalence of disease and disability has never been higher.
Over the past decade, Ireland has achieved a rapid and unprecedented improvement in life expectancy, which has increased by a full four years since the year 2000 and has been consistently higher than the EU average.

Much of this increase in life expectancy is due to significant reductions in major causes of death such as circulatory system diseases.

The overall mortality rate has reduced by 22% since 2003.
Growing Up in Ireland

- 73% of children were reported to be *Very Healthy*: 25% were *Healthy* with a few minor problems.

- Prevalence of chronic illness or disability among nine-year-olds was reported at 11%, with 7% of the children with a chronic illness or disability being reported by their mothers to be severely hampered in their daily activities.

- 19% overweight: 9% obese.
“Our Bill of Health” 2011 census

- 595,335 people in Ireland have a disability (increase 9% from 2009)
- 13% of the population

- 9.7% - Intellectual Disability
- 23% - Difficulty with learning, remembering or concentrating
- 41.1% - Difficulty with basic physical activities
- 16.1% - A psychological or emotional condition
- 8.7% - Blindness or a serious vision impairment (13,513)
- 15.5% - Deafness or a serious hearing impairment
- 46.2% - Other disability, including chronic illness
“Profile 8 Our Bill of Health – Health, Disability and Carers in Ireland” 2015

- 56,087 disabled people aged 65 and over lived alone
- 187,112 people, 4.1% of the total population were providing unpaid care assistance
- People living in the suburbs of the five major cities had the best overall health, 92.1% having good or very good health compared with only 88% in cities.
- 96,004 people, 2.1 per cent of the population, had a psychological or emotional condition
- 274,762 people, 6 per cent of the population, had a disability connected with pain, breathing or another chronic illness or condition.
Older people

- Ireland not only has the second highest proportion of people aged 65 years of age but also of older residents in nursing home and hospitals (Eurostat, 2011)

- It is estimated that 6% of older people are in nursing homes (22,906 beds)

- Older people use four times more medicines than other age groups. Elsewhere in Europe older age groups take 2.3 times more (Barry et al, 2006). Inappropriate prescribing is a major challenge to overcome in the care of nursing home residents

- HIQA National Quality Standards for Residential Care Settings for Older People in Ireland July 1st 2016
Irish National Audit of Dementia Care in Acute Hospitals, 2014

- 42% of people over the age of 70 being admitted to acute medical care are people with dementia, and these admissions are often unplanned and unnecessary (UK Audit of dementia care, 2010)
- 35% of people with dementia who were admitted from home were discharged to long-stay care: average length of stay 59 days
- 41% administered an antipsychotic medication at some point
- 46% admitted from a nursing home and 19% admitted from home were already on antipsychotic medication
- 16% were given a new prescription for antipsychotic medication
Polypharmacy and excessive polypharmacy in older people with intellectual disability

- Cross sectional observational nationwide study (O’Dwyer et al., 2016) n=753 people >40 years
- People with ID present with older age conditions at a younger age
- People with intellectual disabilities are likely to be exposed to multiple medicines to treat a multiple chronic conditions
- 20% of participants used >10 medicines
- >30% used between five and nine

Medicines use in maternity services

- 90% women take at least one medication during pregnancy and 70% take at least one prescription medication. Over the last 30 years, first trimester use of prescription medications has increased more than 60% (CDC, 2011).

- OTC medications are taken by most women at some point during pregnancy, mainly paracetamol 65%, ibuprofen 18% and decongestants 15% (Werner et al, 2005).

- 4.5% of women reported using an antidepressant three months before becoming pregnant or during the pregnancy (Alwan et al 2011). 29.7% of women reported using antibiotics three months before becoming pregnant or while pregnant.
Emergency medicine

- Medicines a key source of admissions to the ED.

- UK 6.5% of unplanned admissions to hospitals have been estimated to be due to adverse drug reactions. Based on UK prevalence estimate (6.5%) this would suggest that approximately 20,000 admissions may be due to an adverse drug reaction.

- Ambulance team “green bag”
- Medicines reconciliation

- Full infrastructure for the safe administration of medicines i.e., is there now a drug administration round?
Self-Perceived Health Status by Age Group in Ireland 2009

Source: Eurostat, Self-perceived health by sex, age and activity status 2011
Polypharmacy

- Common in Ireland
- One-in-five people ≥50 years take five or more medicines
- One-in-two people ≥75 years take five or more medicines (Dublin TILDA, 2011)
- Patients taking two medicines have a 13% risk of adverse drug-drug interactions (an avoidable cause of adverse drug reactions)
- Four medicines = 38% risk
- Seven or more = 82% risk
- Associated with increased risk of adverse drug reactions
- Prescribing cascade
- Falls
- Non-compliance
The 10 most reported conditions by those with polypharmacy (TILDA 2016)

- Hypertension
- High cholesterol
- Arthritis
- Moderate to severe chronic pain
- Diabetes
- Urinary incontinence
- Angina
- Abnormal heart rhythm
- Asthma
- Osteoporosis
Polypharmacy and medicines optimisation
Making it safe and sound (Kings’ Fund, 2013)

- Polypharmacy is an expression that has been commonly used for many years in medicine. It is generally understood as referring to the concurrent use of multiple medication items by one individual.
- The term has been used both positively and negatively. In the past polypharmacy has been considered something to be avoided. It is now accepted that in many circumstances polypharmacy can be therapeutically beneficial.
- In the report, they propose the terms ‘appropriate polypharmacy’ and ‘problematic polypharmacy’. This recognises that polypharmacy has the potential to be beneficial for some patients, but also harmful if poorly managed.
- Appropriate polypharmacy is defined as prescribing for an individual for complex conditions or for multiple conditions in circumstances where medicines use has been optimised and where the medicines are prescribed according to best evidence.
- Problematic polypharmacy is defined as the prescribing of multiple medications inappropriately, or where the intended benefit of the medication is not realised.
The 7-Steps approach to medication review

All patients in residential care aged 50+

Patients who are:
- aged 75 and over (progressing to 65-74 as resources allow)
- On 10 or more medicines one of which is a high risk medicine
- SPARRA score 40-60%

Drug efficacy and applicability table (Number Needed to Treat Chart)
Numbers with <3 long term health conditions is predicted to rise from 1.9 million in 2008 to 2.9 million in 2018.

Care for multiple conditions is complicated because the conditions themselves and their treatments interact in complex ways.

Care fragmented.

Practitioners should stop treatment of limited benefit.

NB NICE guidance for single conditions derived from people without multiple morbidity or polypharmacy.

Focus on two or more conditions.
Individualised management plan for people with multimorbidity who are:

- Frail
- Find it difficult to manage their treatments
- Have long term physical and mental conditions
- Frequently need unplanned or emergency care
- Any age who are prescribed <15 regular medicines
- Considered for people on 10-14 regular medicines
- Fewer than ten but at particular risk of adverse events
Improving the use of medicines is an on-going challenge

- Quality prescribing
- Rational prescribing
- Cost-effective prescribing
- Prudent prescribing
“prescribing is a technically difficult and morally complex issue”

Royal Pharmaceutical Society, 1997
Who prescribes?

- Differs both globally and in Ireland
- Patient
- Doctor, Dentist, Nurse, Midwife
- Pharmacists
- Optometrists, Podiatrists, Physiotherapists, Speech Therapists, Radiographers
- 901 RNPs
- 49 Acute hospitals
- 48 Older People
- 22 Intellectual Disability
- 19 Public Health
- 7 Prison Service
- 7 Specialist
- 114 Clinical Specialities
Nurse prescriber survey

DEMOGRAPHICS OF SAMPLE
A survey on nurse prescribing was emailed to nurses and hosted on the Nursing Standard website; 2,456 responses were received. Of these respondents, 98% were prescribing nurses; 93% were female. Most respondents (99.5%) were on NHS pay bands 5-8, with more than half on band 7 (51%).

1. In which specialty do you work?
   - Respiratory: 6.4%
   - Diabetes: 4.2%
   - General practice: 34.8%
   - Dermatology: 1.2%
   - Trauma/orthopaedics: 1.3%
   - Family planning/women's health: 2%
   - Sexual health: 3%
   - Critical care: 1.2%
   - Endoscopy: 0.9%
   - Geriatrics: 1.1%
   - Community nursing: 22.6%
   - Infection control: 0.2%
   - Travel health: 1%
   - Public health: 2.7%
   - Paediatrics: 4.9%
   - Mental health: 5.3%
   - Cancer/palliative care: 8.2%

Most responding nurses were working in general practice (34.8%) or community nursing (22.6%) with a wider range of other specialties represented, including cancer/palliative care, respiratory, mental health, paediatrics and diabetes.

2. What is your age group?
   - 2% or under: 0.1%
   - 26-34: 4.9%
   - 35-44: 20%
   - 45-54: 51%
   - 55-64: 24%
   - 65 and over: 11%

The most common age group (51%) was 45-54 years, with only 5% of respondents aged under 25 years.

3. How many times a week do you prescribe?
   - Once a week: 23%
   - Two to three times a week: 4.9%
   - 51% Less than once a week: 11%
   - Daily: 6.1%

When asked how often they prescribe, most (63%) of the nurses responded that they prescribe on a daily basis. Another 23% said they prescribe once or three times a week, with 5% prescribing once a week and 11% prescribing less than once a week.
2nd Medical Workforce Intelligence Report 2015

- 16,673 doctor registered with the Medical Council
- 62% of doctors under the age of 30 are women
- 361.7 doctors per 100,000 people in Ireland
- General Practitioner (26.9%), Hospital Consultant (25.5%) and Non-Consultant Hospital Doctor in Training (20.9%)
Evidence-based practice

- The integration of clinical expertise, patient values, and the best research evidence into the decision-making process for patient care.
- Refers to the clinicians cumulated experience, education and clinical skills.
- The patient brings their own personal and unique concerns, expectations and values.
- The best evidence is usually found in clinically relevant research that has been conducted using sound methodology.
Prescribing is one of the most dangerous areas for all clinicians and can be particularly hazardous for the inexperienced doctor.
Medical undergraduates knowledge

2,413 25 UK medical schools

- 38% felt ‘confident’ about prescription writing
- 35% had filled in a hospital prescription more than three times
- 74% felt that the amount of teaching was ‘too little’ or ‘far too little’
- 56% disagreed with the statement that their assessment ‘thoroughly tested knowledge and skills’

Factors influencing physician’s prescribing behaviour

- Personal formulary (Robertson et al., 2001)
- 70-90 medicines
- Experience rather than evidence-base (McFarlane et al., 1997)
- Prescribing cascade (Rochon and Gurwitz, 1997)
- Errors occur more frequently with medicines with which prescribers are familiar
Deprescribing

- The article defines deprescribing as the systematic process of identifying and discontinuing drugs in instances where existing or potential harms outweigh existing or potential benefits, within the context of the individual patient’s care goals, level of function, life expectancy, values and preferences.

(JAMA Intern Med 2015; 175: 827-34)
Nursing knowledge

- The amount of time nurses in clinical practice spend on aspects of care related to medication is not reflected by the amount of time devoted to pharmacological teaching (Ashurst, 1993)

- Nurses have a limited understanding of pharmacology (King, 2004)
  Dissatisfaction with graduates knowledge base in pharmacology (Bullock and Manias, 2002)

- Lack of teaching hours in the UK curriculum: 18 DipHE, 26 ANG accelerated nursing for graduates, 28 DCN degree combined with nursing (Morrison -Griffiths *et al*, 2002)

- Nurses are more likely to learn the effects of medications through experiential learning and sometimes through medication errors (*Wolf et al*, 1995)
Adverse reactions

- Adverse drug reactions (ADR) are ranked as some of the major causes of patient morbidity and mortality.
- Spontaneous reporting of ADRs has remained the cornerstone of pharmacovigilance and is important in maintaining patient safety.
- In a survey of 500 nurses, 91% had never reported an adverse reaction. Knowledge, attitudes and practice of nurse regarding adverse drug reaction reporting.


Drug Allergies

Significant number of allergy-related drug errors
What happened?

**Nurse:**
- ✓ Knew of patient’s penicillin allergy
- X Did not know that Magnapen® contained penicillin
- X Administered drug while patient slept

**Coroner:**
- “If each of these three had checked as they should, if the band had been noticed, we would not be here today”

**Family**
- "If the Nurse didn’t know what was in the drug why was she administering it?"
- "If Consultant didn’t have Teresa's notes he should have asked"
Are interventions to reduce interruptions and errors during medication administration effective?: a systematic review

- There is weak evidence of the effectiveness of interventions to significantly reduce interruption rates and very limited evidence of their effectiveness to reduce medication administration errors.
- Policy makers should proceed with great caution in implementing such interventions until controlled trials confirm their value.
- Research is also required to better understand the complex relationship between interruptions and error to support intervention design.

BMJ Qual Saf doi:10.1136/bmjqs-2013-002118
- 5,600 pharmacists, 420 pharmaceutical assistants
- There are over 1,800 community pharmacies in Ireland
- People visit the community pharmacy 19 times a year
- Offer information about treatments, explanations on medication interactions
- Link with other health professionals or community services,
- A range of health services, such as blood pressure measurement, cholesterol testing, smoking cessation service and seasonal flu vaccination.
A formal complaints and fitness to practice system;
New powers of inspection and investigation for the regulator
Formal registration and regulation of retail pharmacy businesses
Pharmacist management structure of superintendent and supervising pharmacists
New registration system for pharmacists;
Statutory Code of Conduct for pharmacists
Mandatory continuing professional development for pharmacists.
Medicines Use Review

Medicines Use Review (MUR) which is an NHS-funded community pharmacy service involving a patient-pharmacist consultation aiming to improve patients’ knowledge of medicines and their use.

To date the evidence for MURs to improve patient health outcomes is equivocal.

GPs are reported to be sceptical about the value of the service.
To understand the contribution of the Medicines Use Review consultation to counseling practice in community pharmacies.

Qualitative study involving ten weeks of observations in two community pharmacies and interviews with patients and pharmacy staff (n=54 observed: n=34 interviewed).

Pharmacists failed to fully realise the opportunity offered by MURs being constrained by situational pressures.

Over-the-Counter Medicines

- July 2014. Health Products Regulatory Authority published a list of 12 active substances that are currently classified as prescription-only but are being switched to over-the-counter sale.

- The decision was taken following examination by the authority of unmet needs in the availability of non-prescription medicines as well as recommendations by an independent consultative panel.
Power of the prescription

- Prescribing is one of the most powerful tools that health professionals can use in tackling disease, and yet it is also an important cause of patient harm.

- To prescribe safely and effectively across all therapeutic groups requires high levels of knowledge and skill, and, even with many years of training, balancing benefits against risks can be a difficult challenge.
Medicines can be grouped as.....

- Those that keep the patient well and improve day-to-day quality of life e.g. analgesics, thyroxine or anti-anginals. In some cases, if these medicines are stopped, the patient may become ill or unable to function. However, some drugs may be able to be stepped down, stopped or used on an as required basis (prn) e.g. a proton pump inhibitor (PPI).

- Those that are used for the prevention of illness in the future e.g. statins, aspirin, warfarin or bisphosphonates. A decision about whether to stop medicines such as these should include consideration of the risks and benefits of treatment for that particular patient, the length of time required for benefit and the life expectancy of the patient.
An apple a day......