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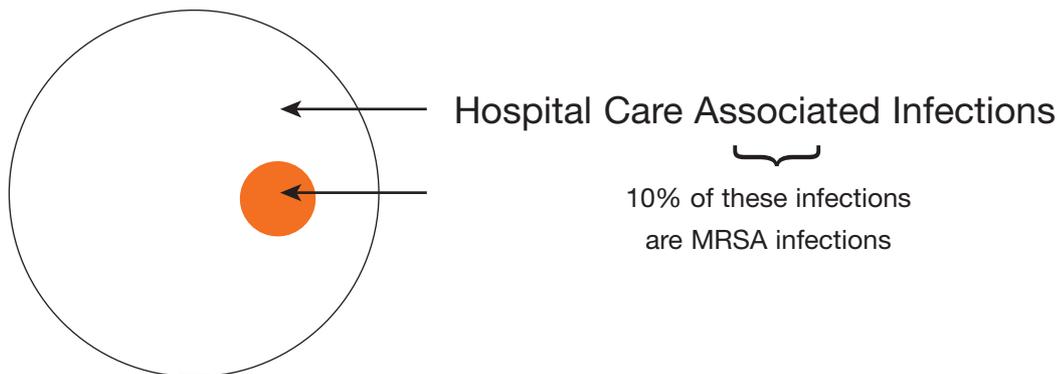
The prevention and control of Health Care Associated Infections in Ireland

Background Briefing | March 2007

Introduction

When a person contracts an infection while receiving medical treatment in a hospital, an outpatient clinic, nursing home or other health care setting, it is known as a Health Care Associated Infection (HCAI).

There are a number of different types of Health Care Associated Infections; MRSA is one type of Health Care Associated Infection. About 10% of all Health Care Associated Infections are MRSA infections.



While antibiotics can be used to treat the majority of Health Care Associated Infections, they are less effective against some bacteria such as MRSA, which is a type of Staphylococcus Aureus; hence its full name Methicillin Resistant Staphylococcus Aureus.

MRSA's resistance to antibiotics is the result of Ireland's above EU average level of antibiotic prescribing and pattern of prescribing broad spectrum antibiotics. These are the primary reasons for the recent increase in MRSA infections.

To reduce Health Care Associated Infections, and particularly MRSA, the health service, and people who come into contact with it, must focus on:

1. Reducing the spread of infection; and
2. Reducing and altering antibiotics usage.

This document, 'No to Infection', outlines the HSE's Infection Control Action Plan.

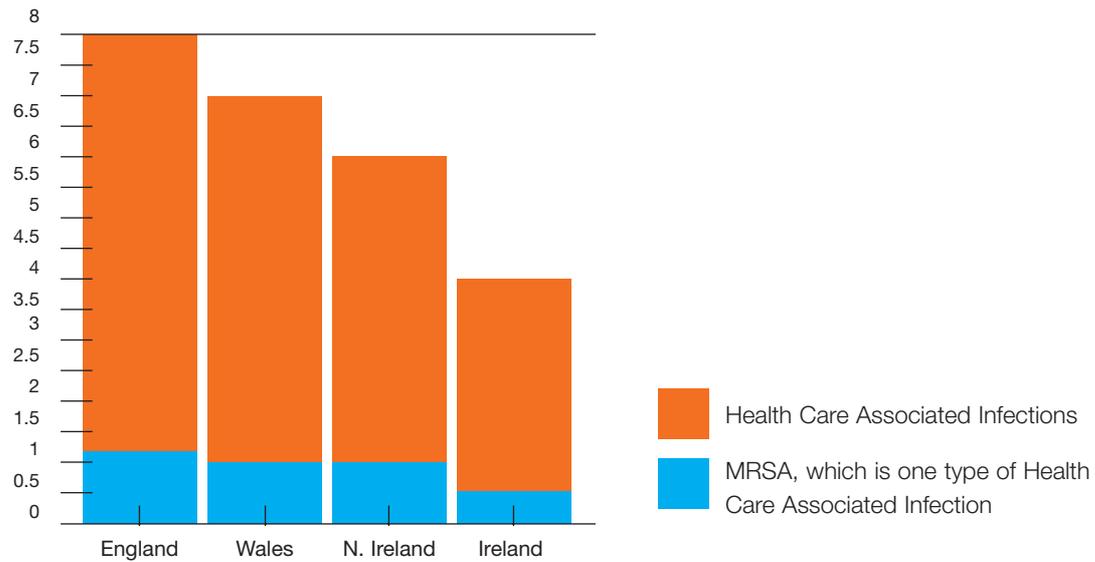
The plan's 5-year objectives are:

1. To reduce Health Care Associated Infections by 20%;
2. To reduce MRSA infections by 30%; and
3. To reduce antibiotic consumption by 20%.

HCAI and MRSA – The Facts

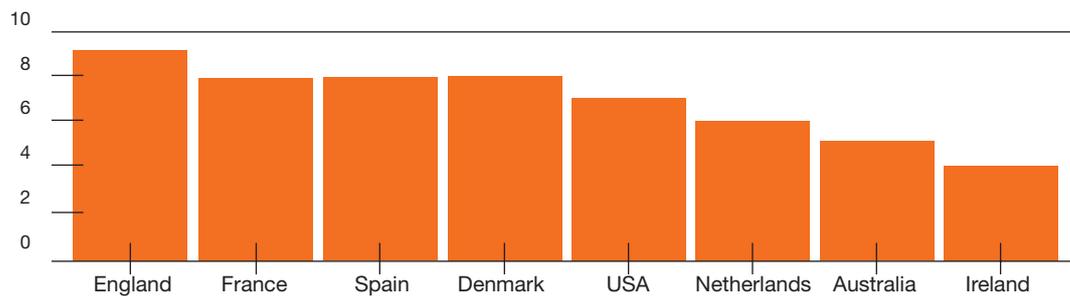
- Health Care Associated Infections are not new. They have always been a side effect of medical treatment, especially in hospitals.
- When compared with rates in England, Wales and Northern Ireland, Ireland has the lowest prevalence rate of Health Care Associated Infections, including MRSA infections.

% prevalence of HCAI and MRSA (Health Infection Society and HPSC 2006)



- When compared to other European countries, USA and Australia, Ireland's Health Care Associated Infection rates are relatively low.

% prevalence of HCAI in Ireland compared with other countries



- However when compared with some European countries, such as Norway, Sweden and the Netherlands, in Ireland a higher proportion of Staphylococcus Aureus infections (which is a type of Health Care Associated Infection) are MRSA infections. This is because in Ireland this MRSA causing bacteria, Staphylococcus Aureus, has built up a resistance to antibiotics and is more difficult to eradicate.

Why do we have Health Care Associated Infections?

There are a number of reasons why Health Care Associated Infections are prevalent:

- While better medical treatments are extending people's lives they can leave patients more vulnerable to infection particularly elderly patients or patients with severe or long-term diseases.
- More patient and visitor movements between hospital wards and other health care facilities.
- Because of the increasing use of antibiotics during the past 30 year some bacteria have built up a resistance to antibiotics. It has therefore become increasingly difficult to treat the infections caused by antibiotic-resistant bacterias such as MRSA.

The likelihood of contracting a Health Care Associated Infection

- Patients who do not have a serious illness and are admitted to hospital for a short time are at low risk of developing a Health Care Associated Infection.
- The more medical care a person requires, the more likely they are to develop a Health Care Associated Infection. These infections are therefore more common among people with serious illnesses or at high risk such as:
 - Patients with large wounds, following surgery, burns or a serious accident.
 - Patients who are on a drip (intravenous line) or other medical devices for a long period of time.
 - Patients with a weakened immune system, such as patients who have been treated for leukaemia or cancer, or who have had an organ transplant.
- In addition to causing discomfort and distress to patients and their families, Health Care Associated Infection interferes with the efficient running of hospitals and can increase costs.

MRSA

Staphylococcus Aureus is a common bacteria that lives harmlessly on the skin or in the nose of about one in three of the population.

Most people who carry Staphylococcus Aureus on their bodies or in their noses don't suffer any ill effects. If it causes an infection it can result in such things as boils, abscesses or infected wounds but they can be easily treated with antibiotics.

However a type of Staphylococcus Aureus has become resistant to a number of different antibiotics and that's where it gets its full name - Methicillin Resistant Staphylococcus Aureus.

So when the Staphylococcus Aureus bacteria is antibiotic resistant, or MRSA, it can cause serious infections such as septicaemia (also known as "bloodstream infection" or "blood poisoning"). It is still treatable but not as easily and requires some very powerful drugs.

In hospitals and other health care facilities, MRSA may be passed from one person to another on the hands of staff or visitors, by patient care equipment, or by contamination from the hospital environment. MRSA is more likely to spread where there is overcrowding.

The prevalence of HCAI and MRSA in Ireland – The Details

A recent joint study with the UK reported that, when compared with hospital care associated infections rates in England, Wales and Northern Ireland, Ireland was shown to have the lowest prevalence rate of both Health Care Associated Infections and MRSA.

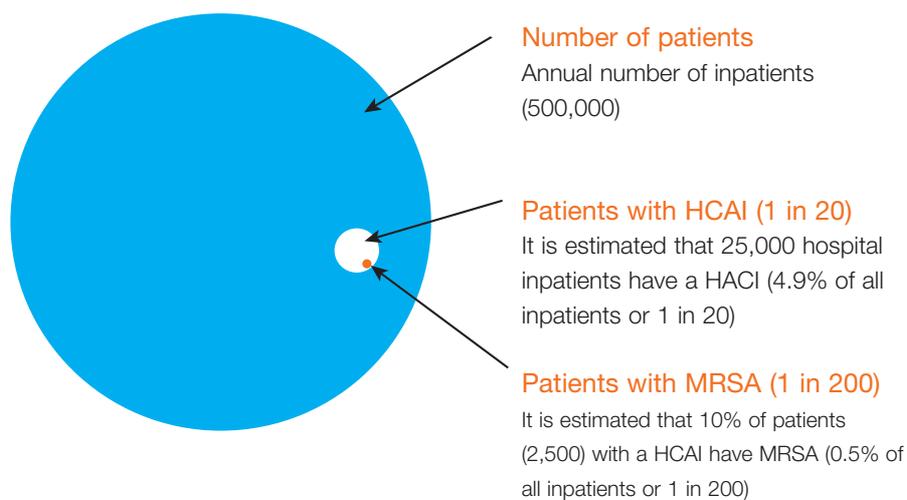
Figure 1: % prevalence of Health Care Associated Infections in England, Wales, Northern Ireland and the Republic of Ireland (Health Infection Society and HPSC 2006) (Figures for Scotland are not yet available.)

% Prevalence Rate	
UK and Republic of Ireland (excluding Scotland)	7.6%
England	8.2%
Wales	6.3%
Northern Ireland	5.5%
Republic of Ireland	4.9%

The study showed that in Ireland 4.9% of hospital inpatients (1 in 20 inpatients) have at least one infection, contracted solely as a consequence of being a hospital patient. The study also found that, of the patients who had a Health Care Associated Infection, 10% had MRSA; this represents 0.5% (1 in 200) of hospital inpatients.

Figure 2: % prevalence of MRSA in England, Wales, Northern Ireland and the Republic of Ireland (Health Infection Society and HPSC 2006)

	UK & Rep. of Ireland	England	Wales	N. Ireland	Rep. of Ireland
% prevalence of MRSA Infection	1.2%	1.3%	0.9%	0.9%	0.5%
% of HCAIs that are MRSA-associated	15.2%	15.7%	13.6%	15.6%	10%



When compared with other European countries (see Fig 3), Ireland's Health Care Associated Infection rate, at 4.9%, is at the lower end of the scale. However, when looking specifically at antibiotic resistance (which can result in MRSA infections) Ireland's rates are high when compared to European countries such as the Netherlands, etc.

Figure 3: % prevalence of HCAI in European countries, USA and Australia

Country	% Prevalence of HCAI	Country	% Prevalence of HCAI
Australia	6%	France	6-10%
Norway	7%	Netherlands	7%
England	9%	Spain	8%
USA	5-10%	Denmark	8%

Source: *Winning ways—working together to reduce healthcare associated infection in England (Department of Health, 2003)*

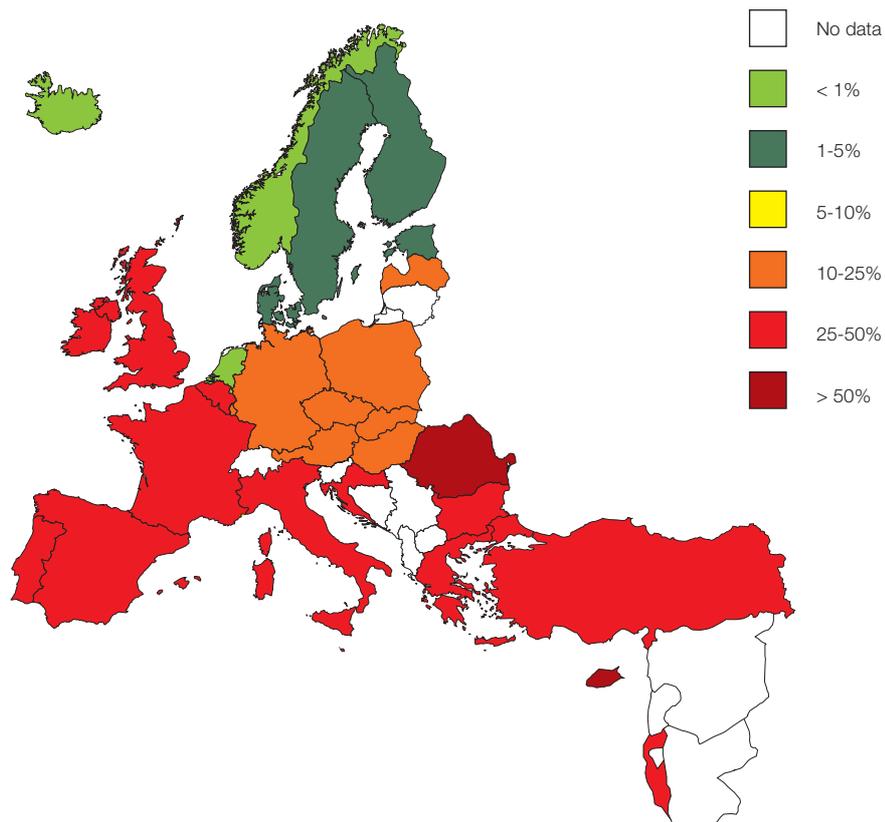
It is important to recognise that the relatively high proportion of Health Care Associated Infections in Ireland that are antibiotic resistant are not solely the result of environmental cleanliness issues. They are predominantly because in Ireland, as in many other European countries, some bacteria have built up a resistance to antibiotics, which leads to new strains of bacteria such as MRSA.

In countries such as Ireland, England, France, Spain, Portugal, Italy and Greece 25%-50% of Staphylococcus Aureus bacteria are antibiotic resistant (see Fig 4) and more likely to lead to MRSA infections.

In countries such as the Netherlands, Norway, Sweden, Finland and Iceland less than 5% of Staphylococcus Aureus bacteria are antibiotic resistant, so as a proportion of Health Care Associated Infections, MRSA is in these countries low.

The reasons for this difference can be tracked back to the early 1990s, when these countries implemented very strict antibiotic prescribing protocols and guidelines both in hospitals and the community. In addition, they also implemented a search and destroy policy for MRSA, i.e. any staff or patient who was a carrier of MRSA was immediately treated to eliminate the infection.

Figure 4: % of Staphylococcus Aureus Bacteraemias across Europe (EARSS) that are antibiotic resistant and therefore are MRSA.



The HSE's Infection Control Action Plan

The HSE's Infection Control Action Plan involves a number of targeted actions that will be delivered across the health care system.

These actions will be based on evidence and designed to:

- Reduce the potential for infections to pass between people when in health care settings;
- Reduce and alter the community's use of antibiotics.

6 key areas of focus:

- **Education:** The public and health professionals will be informed on the steps they must take to reduce the likelihood of infection and encouraged to follow these steps.
- **Standards:** Hygiene and infection control standards will be set and highlighted.
- **Specific Hospital targets:** Explicit targets will be set for all hospitals in relation to surgical site infections (SSI), central venous line associated infections, enhanced bacteraemia surveillance and Intensive Care Unit MRSA surveillance.
- **Antibiotics:** Initiatives will be introduced to reduce and alter the pattern of antibiotic prescribing in hospitals and primary care settings.
- **Facilities:** Facilities improvements will be supported to develop better infection control capabilities.
- **Local Management:** Local infection control Governance and Performance Management will be promoted.

Involving all health care setting

Implementing this action plan will also involve addressing a number of process and structural issues in each health care setting.

The process issues include educating healthcare staff, setting targets and identifying those who are responsible for ensuring that infections are minimised.

For example each health care setting will need an Infection Control Committee (ICC) and Infection Control Team (ICT), an annual infection control programme, written infection control policies/procedures/guidelines, an annual report and audit of compliance to meet defined local priorities and objectives, in accordance with national requirements.

The structural issues include the availability of high quality facilities, including single rooms, isolation facilities and management of occupancy levels. These issues can be tackled by hospitals using their existing capacity to maximise infection control and prevention, optimise the use of single rooms, (cohorting infected patients where isolation is not possible), managing capacity in line with the Winter Initiative Strategy and ensuring all new builds and/or refurbishments have at least 50% single rooms.

Why this Action Plan?

The various steps that need to be taken to tackle Health Care Associated Infection are based on best practice internationally and the following publications:

- A Strategy for Antimicrobial Resistance in Ireland (2001);
- The control and prevention of MRSA in hospitals and in the community (2005);
- Guidelines for Hand Hygiene in Irish Health care settings (2005);
- The Prevention Of Transmission Of Blood-Borne Diseases in The Health-Care Setting (2006);
- SARI annual reports 2003-2005.

Specific Interventions

The HSE's Infection Control Action Plan will involve a number of specific interventions. They will have targets against which performance will be measured in line with the three core objectives.

1. To reduce Health Care Associated Infections by 20%;
2. To reduce MRSA infections by 30%; and
3. To reduce antibiotic consumption by 20%.

This will ensure accountability and enable above-target performance to be rewarded.

- **Public Education Campaign (Short Term)**
 - National Media campaign;
 - Posters Leaflets displayed in hospitals and health care facilities;
 - Empowerment of patients;
 - Telephone Helpline.
- **Standard setting and audits**
 - Hygiene Audit (Short Term);
 - Infection Control Standards (Medium Term);
 - Hand Hygiene audit (Short Term).
- **Health Care Worker educational/Training programme. (Medium Term)**
 - SKILL Programme;
 - Infection Control training;
 - Information circulated and available to all staff;
 - Induction Infection Control training for all new staff/agency staff.
- **Explicit outcome targets for all hospitals monitored by a National surveillance system for HCAI /AMR (Short Term)**
 - Surgical site infections (SSI);
 - Central venous line associated infections;
 - Enhanced bacteraemia surveillance;
 - Intensive Care Unit MRSA surveillance;
 - Antibiotic use in Hospitals.
- **Initiatives on antimicrobial prescribing**
 - GP prescribing intervention (Medium Term);
 - Antibiotic Liaison Pharmacists (Short Term);
 - Prescribing guidelines (Short Term).
- **Improving Infrastructure and Support for Infection Control**
 - Recruitment of staff outlined with plans in place to complete recruitment by end of 2007 (Short Term);
 - Improved physical environment (Short and Long Term).
- **System of Governance and Performance Management (Short Term)**
 - Infection control is an integral part of clinical and corporate governance;
 - establishment of Infection Control Committees and Teams in each hospital;
 - Identification of person (Clinical Nurse Specialist) in each ward/area with responsibility for overseeing implementation of recommendations of ICC;
 - Regular reporting on progress against agreed plans and set of targets.

Recent developments in relation to tackling HCAI and MRSA

The HSE has been implementing a series of initiatives in relation to Health Care Associated Infections

Surveillance

- Recruitment is underway of key staff including Scientists, 20 Infection Control Nurses, 20 Antibiotic Liaison Pharmacists, and 10 Surveillance Scientists;
- Ongoing surveillance of HCAI and antibiotic usage.

Hygiene

- Publications of Good Practice Guidelines on Control and Prevention of MRSA;
- Hand-Washing Public Information Campaign – “Clean Hands Save Lives” Hand-Washing Week - October 2005;
- Two National Hospital Hygiene Audits with a very significant improvement from the first to the second. A change from 60% being poor to 60% rated good (10% rated poor in second study);
- A National Cleaning Manual has been issued to support hospitals in maintaining good hygiene;
- ISAB has agreed on behalf of the HSE to create a set of standards on Infection Control during 2007 to complement the hygiene standards;
- The Hygiene Services Assessment scheme was officially launched in November 2006.

Antibiotic Stewardship

- The development of an antibiotic stewardship guidance to guide professionals on the appropriate use of antibiotics has started;
- A plan for the development of a GP educational initiative in relation to antibiotic prescribing to run from Autumn 2007 to 2009 has been developed.

Public Education and Patient Empowerment

- Education programmes for Health Care Workers;
- Development of public education programme;
- Initiated a two year national media campaign (television, radio, press) on HCAI and Antimicrobial Resistance;
- Helpline for patients to report instances of poor hospital cleanliness, hand hygiene, infection control;
- Written information for patients;
- The HPSC has good quality easily understandable information for the public on Health Care Acquired Infection on its website;
- 2nd Clean Hospital Summit planned for Spring 2007;
- Meetings have been held with MRSA & Families Groups;
- National Visiting Guidance has been published (Summer 2006).

Figure 5: Outpatient antibiotic use in 25 European countries in 2003 (EASC)

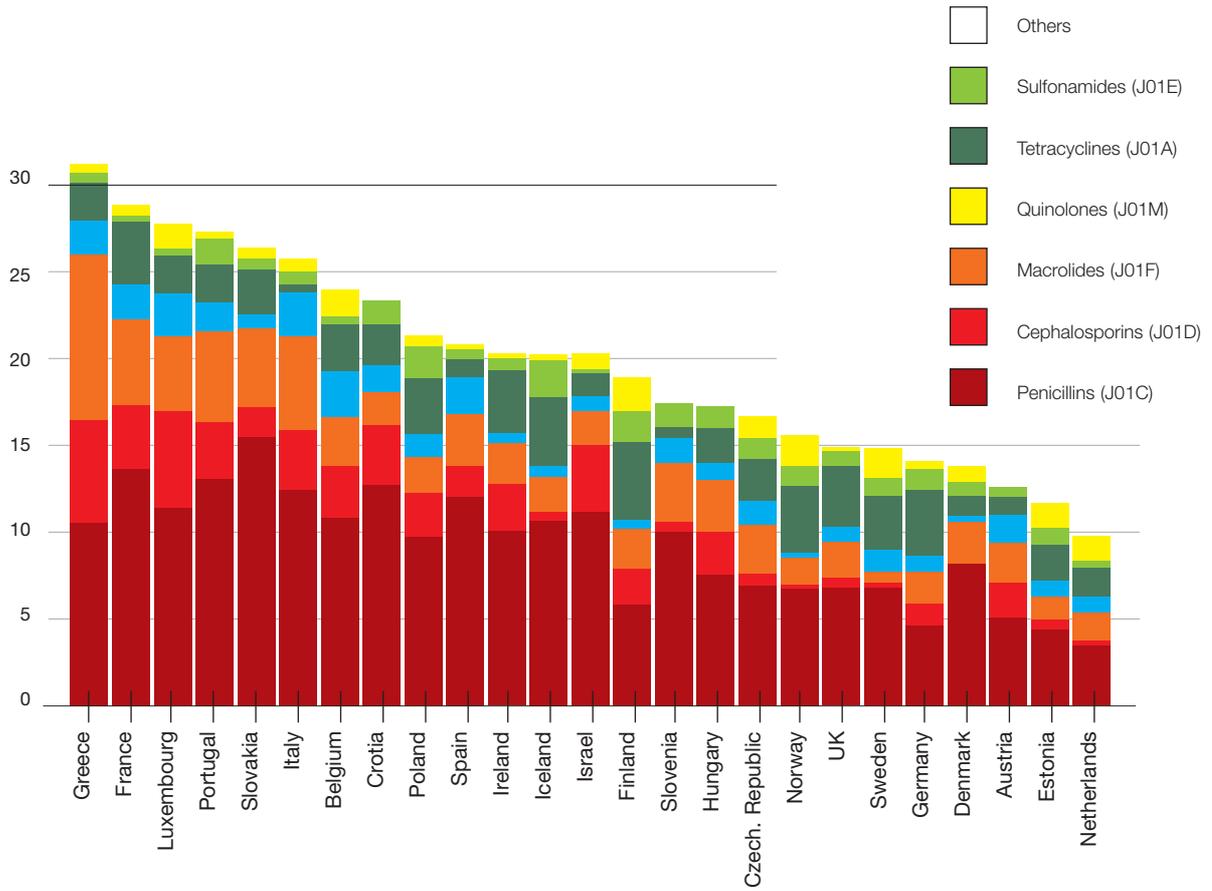


Figure 6: Community Use of Antibiotics in Ireland 1993-2006 (HPSC)

