



Healthcare associated infections (HCAI) and Antimicrobial Resistance (AMR)

Information for healthcare workers

What is infection?

Infection means that a microorganism (bug) has invaded a person's body. We often do not even know that there is an infection because the body's defence (immune) system works so well that the bug causes no harm. Sometimes the immune system take a few days to kick in properly. People may have a temperature or feel unwell for a few days until the defence systems are back in control. Serious infections which cause major harm or death and which need antibiotic treatment are not common in most adults and children who have good general health.

What is a healthcare associated infection (HCAI)?

Healthcare associated infection means infection that is in some way related to a person receiving healthcare. It can happen if a person is hospital, a residential care facility, or any setting that health care is delivered. People who need a lot of healthcare are often more vulnerable to infection; partly because our immune system is weaker because of the illness or because the treatment for the illness weakens the immune system (for example chemotherapy).

Why is HCAI a bigger problem now than in the past?

Most of us are living much longer than we did 50 years ago. Although most older people are in good general health many people may reach a stage where their immune system is not as good as it was. This can make them more open to infection.

In addition, we now have good treatments. These treatments are sometimes very complicated and weaken the immune system. The treatments can help many people to live longer and to live better. However, during these added years of life the person can be more at risk of infection.

These changes mean that hospitals, residential care facilities and places where healthcare is delivered look after people with more complicated diseases and weaker immune systems than they did 20 years ago. At the same time and in the same building where they are also looking after people with infections that can spread easily from person to person.

What can be done to prevent healthcare associated infection?

It is difficult to completely stop bugs from spreading in hospitals, residential care facilities and where healthcare is delivered and to prevent all healthcare associated infection. There is no country in the world that has a perfect system for doing this.

The following are some things that can reduce healthcare associated infection:

1. Make sure that people spend as little time as possible in hospitals, residential care facilities and other healthcare facilities.
2. Help the people that we care for by:
 - a. keeping people mobile
 - b. helping people maintain a good diet and take plenty of fluids
 - c. giving vaccines like flu, COVID-19 and pneumococcal vaccine to reduce illness
 - d. avoiding antibiotics that are not needed (they do more harm than good if you don't need them)
 - e. keeping people free of tubes and needles (urinary catheters, intravenous drips) as much as possible
3. Make it harder for bugs that cause disease to spread from one person to another. Stopping bugs from spreading in any healthcare facility is very hard to do. We know that hand hygiene works very well most of the time. Every time you perform hand hygiene you are protecting

people we care for. However, it is hard to remember to perform hand hygiene 100% right all of the time. Just one mistake – forgetting to perform hand hygiene when you rush from one patient to help another patient can put weeks of good work at risk.

4. People we care for and their visitors can also help to prevent spread of infection by washing hands or using hand rub before and after they visit patients or residents. Remember hand rub is only suitable for hands that look clean. If there is any dirt on the hands or under the fingernails, then you need to clean with soap and water.

What is antimicrobial resistance (AMR)?

AMR is resistance of a bug (bacteria) to an antibiotic that used to work to treat people with infections caused by that bug. The AMR bugs are able to withstand attack by antibiotics; this means standard antibiotic treatments no longer work for some infections.

A common misunderstanding is that a person's body becomes resistant to antibiotics. The change that causes AMR happens in the bugs not in our bodies. The bugs that have changed to become AMR bugs can spread easily to other people. They can even spread to other people who may not have taken any antibiotic. This spread of antibiotic resistant bugs from person to person makes the problem of resistance become more common.

Before the discovery of antibiotics in the 1940s, a blood stream infection was often the cause of serious illness and death. Our ability to do major surgery was very limited because of the risk of infection. In the days before antibiotics, we had no hip replacements, no cancer chemotherapy and if you had a major accident, you were very likely to die of infection. Antibiotics changed the way we provide health care; they helped us to live for longer. Antibiotics allow health care workers to provide a huge range of new treatments to patients that allow them to live healthier and longer lives.

Antibiotic resistance has been called one of the world's biggest public health problems. Antibiotic resistance is already harming people every day in Ireland. Infection with antibiotic resistant bacteria make people sicker, it makes them stay in hospital for longer and for some patients an antibiotic resistant infection on top of their other health problems may shorten their lives. If antibiotic resistance continues to get worse at the present rate, we will see more suffering, shorter lives and a lot more expense for the health care services.

What do we need to do to control AMR?

There are two key things we need to do:

- 1. Use less antibiotics**
- 2. Get better at stopping bugs that are antibiotic resistant from spreading from person to person and between people, animals and the environment.**

Doing these two things well all the time means big changes in the way we use antibiotics in medicine, animal health and changes in how we care for the environment. We have to get a lot better about cleaning up after ourselves in hospitals, farms and in the general environment.

How do we use fewer antibiotics? No one wants to stop using antibiotics. When antibiotics are really needed they prevent suffering and death from infection in people and in animals. However, we have got into a bad habit of using antibiotics for many infections where they do no good at all. This might well cause you harmful side effects such as diarrhoea, thrush and skin rash. We need to change this. Sometimes we also use antibiotics for longer than we need to or we use the wrong

antibiotic or we use too much antibiotic. We need to change all of this. Although the EU has banned the use of antibiotics as animal growth promoters, we still use many antibiotics in animal food production. There are good examples from other countries of how to rear healthy animals with a lot less antibiotics that we use now.

How do we stop the bugs spreading?

One of the important things about cleaning up after ourselves is that these bugs are so small that you can fit millions of them on head of a pin. Even something that looks clean – a tabletop, a book, your hands - may not be clean enough to be free of bugs. This is especially important in healthcare settings like hospitals and nursing homes and in particular for health care workers' hands.

Hands that look clean can carry millions of bugs. A nurse or a doctor may have to clean their hands up to 10 times an hour to stop bugs spreading if they are treating many patients. Performing hand hygiene by the approved method almost all the time protects the nurses and doctors as well as protecting the patients and residents. However even one minute of forgetfulness can put all the care that you and others have taken with that patient at risk. Performing hand hygiene properly all the time is not easy and no place in the world does this perfectly. In Ireland, we certainly are doing better than we were 10 years ago but we need to do better still.

For more information on antimicrobial resistance and healthcare acquired infection check www.hse.ie/hcai