

CPE – A Public Health Emergency

What does this mean for general practitioners?

CPE is a superbug resistant to most or all antibiotics. The director general of the World Health Organization has emphasised that antibiotic or antimicrobial resistance is a global crisis we cannot ignore. Ireland is responding to this issue, in a real and tangible way, at a national level, through the work of the National Public Health Emergency Team (NPHE) on CPE. NPHE will oversee and provide expert advice, guidance, support and direction for the overall national response to contain CPE.

Dr Nuala O Connor, ICGP Lead advisor on Antibiotic resistance HCAI AMR, asked Professor Martin Cormican, HCAI AMR Lead on the Public Health Emergency Team, some questions to inform GPs on what they need to know about CPE.

Why was a public health emergency called?

The minister highlighted that we have seen a rapid and worrying increase in the incidence of CPE in Ireland, with a significant increase in numbers of cases of CPE in recent years. Known outbreaks have occurred in 8 healthcare facilities resulting in high costs and bed closures. International experience indicates that CPE and antimicrobial resistance (AMR) need to be tackled at a national level. This is why the minister convened NPHE and activated the National Public Health Emergency Plan.

What is CPE (Carbapenemase Producing Enterobacteriaceae)?

CPE means a type of bacteria that lives in the gut and is resistant to almost all antibiotics. If CPE stay in the gut they are mostly harmless. This is called colonisation and this should not be treated with antibiotics. Even if CPE gets into urine or leg ulcers, they are mostly harmless and should be left alone (colonisation). CPE is not like MRSA. There is no known effective way to clear the colonisation but it might go away or at least reduce to a very low level over time especially if the patient does not take antibiotics for a long time. The fewer antibiotics a CPE person gets the better but of course sometimes antibiotic treatment is needed.

How does CPE spread?

CPE is in faeces. It comes out the back passage of people who carry it and it spreads when tiny traces of this faeces is swallowed by other people. So it is the responsibility of all health care workers to stop the faeces of one person being swallowed by another person. That may sound easy but it is not. Faeces is very sticky and gets into all sort of cracks and creases on hands and equipment, and in the environment. Even when things look clean, there is often still enough faeces to carry CPE to another person. We probably have to accept that it may be impossible to stop all spreading of CPE so it is important not to feel that efforts are wasted if there are occasional cases of spread. If we can make sure that on average people with CPE spread the bacteria to less than one other person in their lifetime then we are slowly winning. This is a marathon, not a sprint. We also need to allow for the fact that there will be people who carry CPE but we don't know that they have it. One of the reasons CPE is so important right now is that it is still fairly uncommon. This means that there is still time to stop it becoming so widespread that we no longer have any hope of controlling it.

Are there concerns that patients known to be colonised with CPE might be stigmatised?

A CPE colonised person has the same right to access health and social care as everyone else and should not be made suffer significant delays in transfer between home, nursing homes and hospitals

simply because they are colonised with CPE. Anything that is practical should be done to limit the spread of CPE (and other bacteria) in all health care settings while respecting the need of patients for dignity and privacy.

Does CPE cause diarrhoea?

CPE does not cause diarrhoea. If a patient who is carrying CPE has diarrhoea this is most likely caused by norovirus, *C. difficile* (foul smell/recent antibiotics) or one of the other common viruses or bacteria that do cause diarrhoea. Although CPE does not cause diarrhoea, diarrhoea in a patient carrying CPE greatly increases the risk that they will spread CPE.

What if I have a patient known to be colonised with CPE and they become unwell (fever, malaise, cough, etc.)?

If a person with CPE gut colonisation develops clinical evidence of infection, more often than not, the infection will not be caused by the CPE. For example, upper respiratory tract infection, bronchitis, pneumonia, sinusitis, skin infection and cellulitis are very unlikely to be caused by CPE, even in a person colonised with CPE. In a person colonised with CPE, just as in everyone else, these are most likely due to viral infection (upper respiratory tract and bronchitis) or the usual bacterial suspects for pneumonia (pneumococcus) and cellulitis (*Staphylococcus aureus* or Group A *Streptococcus*). If the infection is viral, then antibiotics are more likely to do harm than good.

What about patients with urinary tract symptoms or urinary catheter?

The urinary tract is very vulnerable to colonisation with gut bacteria including CPE. This is especially so in older people and those with urinary catheters. In patients with urine that is colonised with CPE, just as in other patients, it is best not to send urine samples for microbiology culture unless there is good clinical evidence of cystitis, pyelonephritis or sepsis.

Do not send urine cultures in patients just because they are dipstick positive for nitrite or white cells. Positive urine culture results are common in older people and mostly just mean colonisation. It is best not to treat this because it is more likely to do harm (diarrhoea, thrush, skin rash) than good.

When patients colonised with CPE have clinical evidence of cystitis, pyelonephritis or sepsis, it is important to consider that CPE may be the cause. CPE are sometimes sensitive to nitrofurantoin or fosfomycin, so depending on the particular CPE that the patient is carrying, these drugs may work for cystitis.

In patients with CPE who have clinical evidence of pyelonephritis or blood stream infection, CPE is one likely cause. Oral nitrofurantoin or fosfomycin will not work for pyelonephritis or sepsis. For patients with pyelonephritis or sepsis suspected to be related to CPE, and if it is appropriate in the context of the patient's overall care and expectation of life, such patients should be transferred urgently to an acute hospital.

How can we prevent the further spread of CPE?

It is important to get the basics right in each patient interaction.

Standard precautions, hand hygiene, avoid antibiotics.

These rules should apply to all patients care all the time.

People carrying CPE should not be denied access to health care services because they are carrying CPE. Most people who carry CPE became carriers of CPE in the health care system. It is not their fault and we all have a role in advocating to ensure that are not be made to suffer for it.

1. When doing clinical work, all health care workers should be bare below the elbows (short sleeves), have short finger nails and avoid wrist and hand jewellery or watches (a plain band/ring is acceptable). Nail varnish and false nails should not be worn at work.
2. Everybody caring for patients needs to carry out hand hygiene according to the WHO recommended method including before and after every episode of personal care for all residents all the time. There needs to be enough alcohol hand rub all the time to do this and you need to use enough to properly wet both hands all over. If hands look dirty or the resident has diarrhoea use soap and water.
3. Gloves and plastic aprons should be used only when doing things that involve close personal contact or handling liquids (urine, blood, wet cleaning). You need to take off aprons and gloves and put them in a bin after caring for any patient where you need to use them. You should do this before you go back to sit at your desk. They cannot be reused. You should carry out hand hygiene immediately after you take gloves off before you go back to our desk.
4. Reducing antibiotic use across the board helps to reduce the spread of CPE and related bacteria. If an antibiotic is needed, narrow spectrum agents are less likely to cause side effects (thrush, diarrhoea) than broad spectrum agents. The national guidelines will help. www.antibioticprescribing.ie
5. It is important that floors walls and furniture are cleanable and clean at all times.

Are there particular extra care precautions for known CPE patients?

Yes, these are known as contact precautions. These measures help to stop the spread of most other bacteria also, e.g. MRSA, VRE and ESBL.

The first step is that everyone in the practice who needs to know does know if you have patients colonised with CPE. Most of these patients will simply be colonised so that the CPE is not bothering them but it is still important to know that they are carrying CPE and to take a few extra precautions in your practice to prevent onward spread.

Patients with diarrhoea are the highest risk for spread so if it is possible to provide good care without the patient visiting the surgery this should be encouraged.

Where it is possible and practical, it is helpful if all patients carry out hand hygiene immediately on arrival at the surgery but it is especially important for patients carrying CPE.

If patients carrying CPE have to use the general waiting area, there is no need for them to be segregated/sit apart as this is likely to be upsetting and is unlikely to add anything if they have carried out hand hygiene.

Equipment used in caring for patients with CPE that makes contact with their skin should ideally be disposable but this is often not practical.

If you need to perform a procedure on a patient with CPE, use a plastic apron and gloves and dispose of these into a bin immediately after use. Carry out hand hygiene before returning to your desk.

Any surface that they are in contact with while undressed should be clean and wiped with a disinfectant wipe after they leave the room and before the next patient comes into the room.

What about home visits/nursing home visits for patients known to be carrying CPE?

Practical tips in preparedness for this are available via the links below.

What are the implications of CPE for me and my practice colleagues and team (including reception staff)?

Regular contact with infection is part and parcel of the life of GPs and all healthcare workers who work in GP practice. Compared to other things we deal with, contact with people who are carrying CPE is not a big risk to staff. The steps outlined in this guidance, especially the basic measures with all patients all the time (hand hygiene, cleaning and gloves and aprons when needed), not only help to stop the spread of CPE between patients, they also help you and your colleagues to avoid picking up CPE (and other things). Otherwise healthy people who pick up CPE are not likely to get sick from it but they might carry it in their gut for some time. It is almost always a bad idea to test healthcare workers for CPE colonisation.

This seems to be an evolving issue. Where can GPs find the most up to date information if they have a patient with CPE?

<http://www.hse.ie/hcai>

This is the dedicated website where you will find the most up to date information on CPE and other multi-drug resistant organisms.

www.antibioticprescribing.ie is the best resource for GPs on preferred antibiotics to use in the community.

www.icgp-education.ie has an e-learning module on infection prevention and control in general practice

Your local microbiologist or public health consultant are good resources to link with too.

Please send comments to hcainational.lead@hse.ie. Please remember that if something is unclear to you, it is probably unclear to many other people and we would like to hear from you.

Thank You Martin for a very clear summary of the important emerging story of CPE.

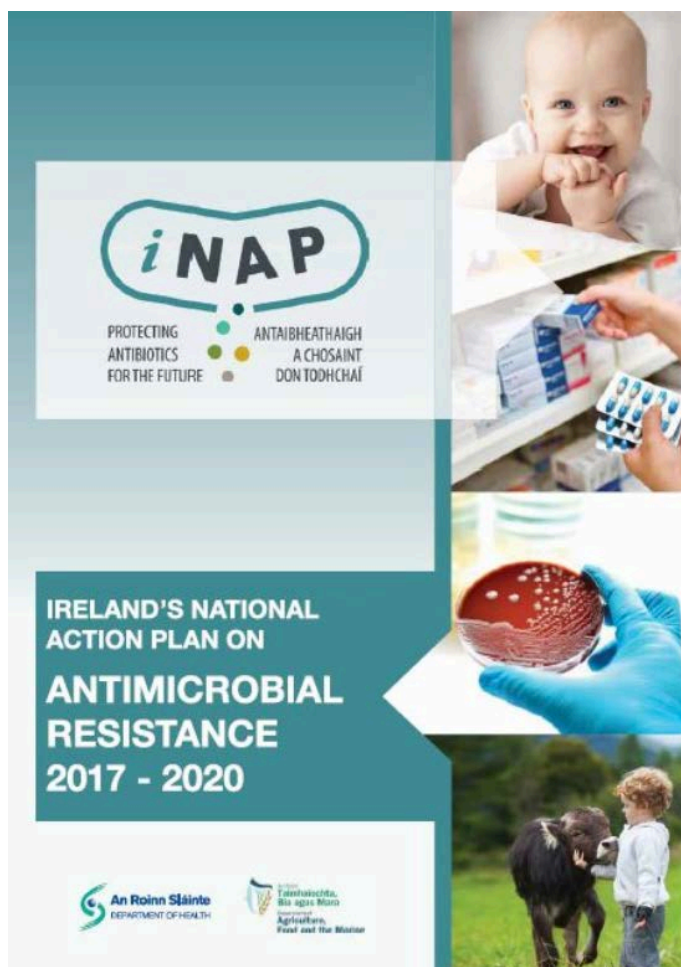


Figure 1: Carbapenemases - Ireland Sept 2012 to Dec 2016 CRE Ref Lab

