NHS
Coventry and Warwickshire
Integrated Care Board

Multi Drug Resistant Organisms (MDRO) Fact Sheet

What are Multi Drug Resistant Organisms (MDRO's)?

When an antibiotic that can normally be used to treat an infection does not work to treat the organism causing the infection, the organism is called "resistant" to that antibiotic. Multi drug-resistant organisms (MDROs) are organisms or microbes that have become resistant to multiple types of antibiotics that are normally used to treat them.

Antimicrobial resistance is the ability of these microbes to resist the effects of the antibiotic – that is, the germs/bacteria are not killed, and their growth is not stopped.

Some examples of Multi Drug Resistant Organisms are:

- **Carbapenem-resistant Enterobacteriaceae (CPE)** - Enterobacteriaceae are a family of Gram-negative bacteria that normally live in the human gut. CPE are Enterobacteriaceae that have developed resistance to last resort antibiotics called carbapenems.

  Please click on the link to take you to our SNTI CPE fact sheets and guides.

- **Extended Spectrum Beta-Lactamase Producers (ESBLs) -** Extended-spectrum beta lactamase is an enzyme (chemical tool) that allows bacteria to become resistant to a wide variety of antibiotics including penicillin's and cephalosporins. Several types of Gram-negative bacteria can produce these enzymes and be classified as ESBLs.
- **Multidrug-resistant Acinetobacter -** Gram-negative bacteria that are resistant to several types of antibiotics.
- **Vancomycin-resistant Enterococci (VRE) -** Enterococci are Gram-positive bacteria that are normally present in the human gut and can sometimes cause infections. When enterococci become resistant to the drug vancomycin, they are called vancomycin-resistant enterococci (VRE).
- **Multi resistant Pseudomonas species -** *Pseudomonas aeruginosa* is a common cause of healthcare-associated infections including pneumonia, bloodstream infections, urinary tract infections, and surgical site infections. Some *P. aeruginosa* are becoming more resistant to even antibiotics of last resort and are described as multidrug-resistant.
- **Any other antimicrobial resistant bacteria**

Multi drug resistant organisms are found mainly in hospitals and long-term care facilities.

They often affect people who are older or very ill and can cause serious infections.

What causes Multi Drug Resistant Organisms (MDRO's)

Multidrug-resistant organisms develop when antibiotics are taking longer than necessary or when they are not needed. At first, only a few bacteria may survive treatment with an antibiotic. The

more often the antibiotics are used, the more likely it is that resistant bacteria will develop. These MDROs can go on to infect people.

When antibiotics are used inappropriately, they can also kill good bacteria that protect the body from infections with bacteria that make you sick. This can allow bacteria that are drug resistant to grow and multiply.

What types of infection do Multi Drug Resistant Organisms (MDRO's) cause?

Multidrug-resistant organisms can cause infections in almost any part of the body, including:

- Bloodstream
- Lungs
- Urinary Tract
- Wounds
- Skin
- Surgical site

A person can either be **'colonised'** or **'infected'** with a MDRO.

- **'Colonised'** means that a person has the bacteria present on the skin, in body openings or in the gut, but has no signs of infection.

- **'Infected'** means that a person has signs of an infection, such as fever or pus from a wound.

Both colonisation and infection are important as either situation could lead to further spread of the organism and colonisation may be followed by infection.

Risk factors for developing Multi Drug Resistant Organisms (MDRO's)

People who are healthy are at low risk for developing Multi drug resistant infections.

The risk factors for acquiring multi drug resistant organisms include:

- An existing severe illness.
- An underlying disease or chronic condition.
- Receiving dialysis.
- Previous use of antibiotics.
- Invasive procedures or the use of medical devices (e.g., urinary catheters, endotracheal tubes, vascular catheters).
- Repeated contact with the healthcare system particularly if the resident has had admissions to healthcare organisations which are known to be high risk for multi drug resistant organisms.
- Previous colonisation with multi drug resistant organisms.
- Advanced age (65 and over).
- Taking immunosuppressant drugs.
- Complex surgeries (e.g., open abdominal and chest surgeries).

- Chemotherapy for cancer treatment.

How are Multi Drug Resistant Organisms (MDRO's) spread?

- By direct contact with an infected person's bodily fluids, such as blood, drainage from a wound, urine, bowel movements (stool), or sputum (phlegm).
- By contact with equipment that has not been appropriately decontaminated.
- Environmental contamination.
- Direct spread via contaminated hands of staff and residents.

Minimising transmission of Multi Drug Resistant Organisms (MDRO's)

Hand hygiene is the single most effective way of preventing the spread of infections.

- Hand hygiene before and after direct contact with a resident is essential.
- Hand hygiene is essential after contact with a resident's surroundings.
- Hands should be cleaned after removing and disposing of personal protective equipment (PPE).
- Staff should observe and practice the World Health Organisation 5' moments for Hand Hygiene'.
- Residents should be encouraged to wash their hands or use skin wipes after using the toilet and before meals.
- Colonisation with MDRO's can be long term, therefore, good hand hygiene practice and 'Standard infection control precautions' (SICPs) should be always followed by all staff, to reduce the risk of transmission.

Standard Infection Prevention & Control Precautions

It is important that staff always adhere to standard infection control precautions (SICPs) for all patients to reduce the risk of transmission of infections. Patient identified as having multi drug resistant organisms may require additional precautions

In certain circumstances using (SICPs) won't be enough to stop an infection spreading and staff will need to use some extra precautions. **These extra precautions are called Transmission Based Precautions or TBPs.** TBPs should be used if a resident has a suspected or known infection or colonisation.

Isolation

In a care setting residents may need to be isolated depending on whether the resident is infected or colonised, the type of microorganism and should include assessment of other factors.

Isolation may be required for some residents who may pose a risk for the transmission of multi drug resistant organism. A risk assessment should be completed to identify if the resident has any history of diarrhoea, draining wounds, incontinence of urine or faeces or copious respiratory secretions.

If the resident has any wounds, they should be covered with an appropriate dressing, as advised by a healthcare professional.

Residents with an active MDRO infection or diarrhoea should be isolated using TBP's until no longer symptomatic.

If they have diarrhoea, they should be isolated until 48 hours symptom free.

Residents colonised with MDRO's can visit communal areas, e.g., dining room, television room and can mix with other residents. They can also socialise outside the care home without restrictions.

If basic good hygiene precautions are followed, residents who are colonised with multi drug resistant organisms are not a hazard to other residents, family members or staff in the care home.

Personal Protective Equipment PPE

Disposable apron and gloves should be worn when providing hands on care.

Long sleeved gowns can be worn where any part of the uniform (work wear) is not adequately protected by an apron for example turning the resident, or where there is a risk of extensive splashing of blood and or other body fluids for example excessive wound exudate, diarrhoea, faecal incontinence.

Face masks and eye protection must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the face and eyes.

Visitors who are not providing direct care, do not need to wear aprons or gloves etc. However, they must wash their hands thoroughly when leaving the room.

Environmental cleaning

Many multi drug resistant organisms can survive for long periods on environmental surfaces in care homes. Cleaning schedules should be in place and environmental cleanliness should be monitored.

When a resident is isolated due to an active MDRO infection or diarrhoea, enhanced cleaning of their room using a general-purpose neutral detergent followed by a chlorine-based disinfectant solution, or equivalent product as per manufacturer's instructions should be undertaken.

Alternatively, a combined '2 in 1' detergent and chlorine-based disinfectant solution can be used.

Particular attention to bathrooms, commodes, raised toilet seat, hoist etc should be taken.

Ensure the resident's care environment is uncluttered to facilitate high standards of cleaning and decontamination

A deep clean of a resident's room should be carried out for all residents who have been transferred or discharged. Deep cleaning should include systematic cleaning of all horizontal and vertical surfaces from high level to low level. All soft furnishing i.e., curtains, bedspreads and cushions should be removed and cleaned appropriately.

Decontamination of Equipment

Processes should be in place to ensure that any communal equipment is decontaminated after each use and stored appropriately to reduce the risk of transmission of microorganisms from one resident to another.

If a resident is in isolation, and they do not have en-suite facilities a commode which is used solely for that resident should be kept in the resident's room.

All equipment should be decontaminated according to manufacturer's guidance.

Laundry

Linen that has been used by a resident who is known or suspected to be infectious and/or linen that is contaminated with blood and/or other body fluids, e.g., faeces should be treated as infectious linen.

Waste

Waste should be disposed of immediately and as close to the point of use as possible. Waste contaminated with bodily fluids should be disposed of as infectious waste as per local policy and in line with the registered waste contractor for the provider.

Transfer of a resident with a Multi Drug Resistant Organism (MDRO's)

Prior to a resident's transfer to and/or from another health or social care facility, an assessment for infection risk must be undertaken. This ensures appropriate placement of the resident.

Residents that are transferred from Hospital to a care setting and vice versa should have their infection status clearly communicated on their discharge/transfer summary.

Residents should have any history of multi drug resistant organisms clearly recorded on their care records.