Healthcare: Hazards and Risk Factors of Multidrug-Resistant Organisms

What's at Stake?

Multidrug-Resistant Organisms (MDRO) are bacteria and other microorganisms that can lead to an infection developing that does not respond to wide range of antibiotics. If the organism does not die off when treated with antibiotics or antimicrobials, they are said to be 'resistant'. This means that if a person has an infection caused by one of these bacteria, then they are harder to treat and the antibiotics that do work are expensive and often cause nasty side effects. Each year in the US 23,000 people die from infections caused by MDROs.

There are increasing numbers of MDROs worldwide, increasing the risk of people developing one of the infections. The most common are: MRSA – Methicillin/oxacillin-resistant Staphylococcus aureus; VRE – Vancomycin-resistant enterococci; ESBLs – Extended-spectrum beta-lactamases (which are resistant to cephalosporins and monobactams); PRSP – Penicillin-resistant Streptococcus pneumoniae; Multi-drug resistant Tuberculosis (MDR) TB is covered in HealthCare Wide Hazards Tuberculosis.

Also, these organisms are adapting constantly and becoming resistant to even the newer antibiotics.

What's the Danger?

MDROs are widespread within the community with many people being 'carriers' of the MDRO. This means an MDRO has 'colonized' in the person. The person has no symptoms but can pass the MDRO onto other people.

The organisms only cause a problem if they are passed onto someone

who is at risk of developing an infection – immunocompromised due to conditions such as insulin-dependent diabetes mellitus and renal disease, having invasive procedures such as surgery, dialysis or urinary catheters, or being very old and infirm.

Hazards

- Frequent hospital admissions or treatments.
- Severity of illness.
- Not being aware of being a carrier of an MDRO.
- Spreading the MDRO to others.

How to Protect Yourself

4 easy ways to keep yourself safe from MDROs

1. Treat all body fluids from patients as though they have an MDRO
    - MDROs are so prevalent in the community, the chances are someone in your care, a colleague, a family member or you, is a carrier.
2. Follow Standard Precautions during all care interactions
    - Be meticulous about the 5 Moments of Hand Hygiene.
    - Wear gloves if there is, or a risk of there being:
        - Blood;
        - Body fluids;
        - Secretions or excretion.
    - Use gowns, masks, or eye protection if there is a risk of splashing of contaminated liquid or body fluids e.g. :
        - Wound irrigation or catheter insertion.
        - Use all PPE once per care event.
    - Do not wear same PPE between patients.
    - Do not wear same PPE for different procedures even if with same patient.
        - MDRO may be in one site and not another e.g. in wound but not on skin.
    - Remind colleagues to wash hands and follow standard procedures if necessary.

- Educate patients and their visitors about the need for hand hygiene.

3. Use Contact Precautions
    - If a patient:
        - Has a history of being colonized with target MDROs;
        - Is infected with target MDROs.
    - Place patient in a single room-or with a group of others with same MDRO.
    - Give any ‘out of room’ treatments at the end of the day so full clean down of the environment can occur e.g.
        - Treatment room.
        - Operating theater.
    - Ensure patient uses a separate toilet and bathroom that is cleaned frequently.
    - Educate family and friends on what they need to do.
4. Know your patients
    - Check patient records to check if they have MDRO history.
    - Treat hard to manage infections as MDROs until laboratory tests confirm otherwise.

Final Word

MDROs are a significant threat to the health and well-being of the population. If resistance to antibiotics continues, there is a chance that, what were once simple infections to treat, will now become life threatening as there is no treatment for them. Evidence from across the world