AMR in the environment - the impact of healthcare facilities

Erik Ruiz - Health Care Without Harm Europe
ABOUT US

We are a network of thousands of hospitals, healthcare leaders, and healthcare professionals, with members across Europe and partners across the globe.

Together we prove that it’s possible to deliver the highest quality of care in a way that’s sustainable environmentally and financially.
OUR PROGRAMMES

CLIMATE-SMART HEALTHCARE

CIRCULAR HEALTHCARE

SAFER PHARMA

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Pharmaceutical pollution and its contribution to the development of antimicrobial resistance (AMR) is minimised.
OUR ACTION NETWORKS

GLOBAL GREEN and HEALTHY HOSPITALS

Nurses Climate Challenge EUROPE

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THE HEALTHCARE PROVIDERS AT THE HEART OF OUR ORGANISATION

153 members in 24 countries across the WHO Europe region
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WHAT’S THE MAIN CAUSE OF THE ACCELERATION OF ANTIMICROBIAL RESISTANCE?
Antimicrobial resistance and the environment

The environment is key to antibiotic resistance. Bacteria in soil, rivers and seawater can develop resistance through contact with resistant bacteria, antibiotics, and disinfectant agents released by human activity. People and livestock can then be exposed to more resistant bacteria through food, water, and air.

- Up to 75% of antibiotics used in aquaculture may be lost into the surrounding environment.
- 79% of antibiotics are used by animals.
- Manure fertilizers cause antibiotic contamination in surface runoff, groundwater, and drainage networks.
- Antibiotic use for livestock will jump 67% by 2030.
- Antibiotics are increasingly used to boost animal growth in intensive farming, especially in developing countries.
- Major waste flows including wastewater, manures and agricultural run-off contain antibiotic residues and antibiotic-resistant bacteria.
- Wastewater treatment plants cannot remove all antibiotics and resistant bacteria.
- Up to 80% of consumed antibiotics are excreted through urine and feces.
- 30% of antibiotics are used by humans.
- Antibiotic-resistant bacteria may be present in raw source water and treated drinking water.
- More than 50% of municipal solid waste ends up in landfills and open dumps. This can include unused or expired drugs.
- Antibiotic concentrations in most effluents are too low to be lethal to exposed bacteria, but may be sufficient to induce antimicrobial resistance.
- A vast array of contaminants in municipal and industrial wastewater increases pressure on bacteria to become resistant.
- Multi-drug resistant bacteria are prevalent in marine waters and sediments in close proximity to aquaculture, industrial and municipal discharges.

Source: UNEP 2020
WHAT’S THE IMPACT OF HEALTHCARE FACILITIES?
WHERE DO PHARMACEUTICALS END UP?

It is estimated that 30%-90% of orally administered pharmaceuticals are excreted into wastewater as active substances in the faeces and urine of patients (1).

Removal rates in wastewater plants range from 0%-97% (2).

Wastewater treatment plants primarily designed to eliminate biodegradable substances and nutrients – not able to completely remove pharmaceutical substances.

Residues discharged via effluent into surface waters – Enter water cycle.

20%-30% of inpatients receive an antibiotic treatment during their hospital stay. (3)

**High-risk point sources:** The proportion of resistance genes or resistant bacteria is usually higher in hospital wastewater than in household wastewater – last resort (4)

Aarhus University Hospital in Denmark is testing peracetic acid as a tool to neutralise ciprofloxacin-resistant bacteria. (5)

5. Stenuick, J. (2021) PHARMACEUTICAL RESIDUES IN HOSPITAL WASTEWATER. Five case studies from european hospitals
DO HEALTH PROFESSIONALS KNOW?

Only 22% of the respondents had in their curricula the links between human health, animal health and the environment.

357 medical students studying at 83 medical schools or universities across 28 countries.
No easy fix...

1 Improve antibiotic prescription: Canisius-Wilhelmina Hospital in Nijmegen, The Netherlands reduced prescriptions of last-resort antibiotics by 25% and saved €40,000 in costs one year after introducing an antibiotic stewardship programme.

2 Green procurement practices.

3 Establish protocols to safely dispose pharmaceutical waste... and follow them

4 We need dedicated guidance for healthcare professionals on their impact on environmental health.
WHAT ARE WE DOING TO ADDRESS THIS?
TRAININGS FOR HEALTHCARE PROFESSIONALS

- +4,000 health professionals trained in 7 EU countries
- Training on antimicrobial prescription, antimicrobial waste and patient empowerment
- Videos, app, podcasts...
RECOMMENDATIONS TO PROCURERS OF PHARMACEUTICALS

5 cases studies

1. Environmental requirements for pharmaceuticals (Norway)
2. Sustainability criteria for medicinal products (Sweden)
3. Carbon footprinting health products (France)
4. Sustainable Procurement Index for Health (UNDP)
5. Responsible Antibiotics Manufacturing Platform (RAMP)