AMR IN THE ENVIRONMENT

Health Care Without Harm

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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.

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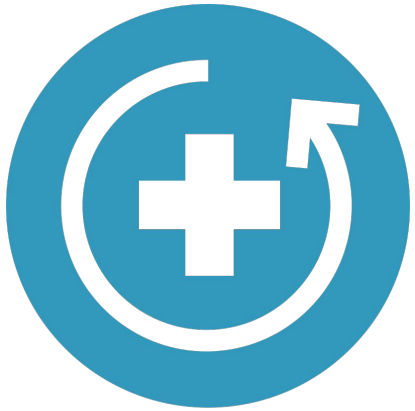
OUR PROGRAMMES

CLIMATE-SMART HEALTHCARE



CIRCULAR HEALTHCARE

SAFER PHARMA

AMR AND THE ENVIRONMENT, A COMPLEX LINK

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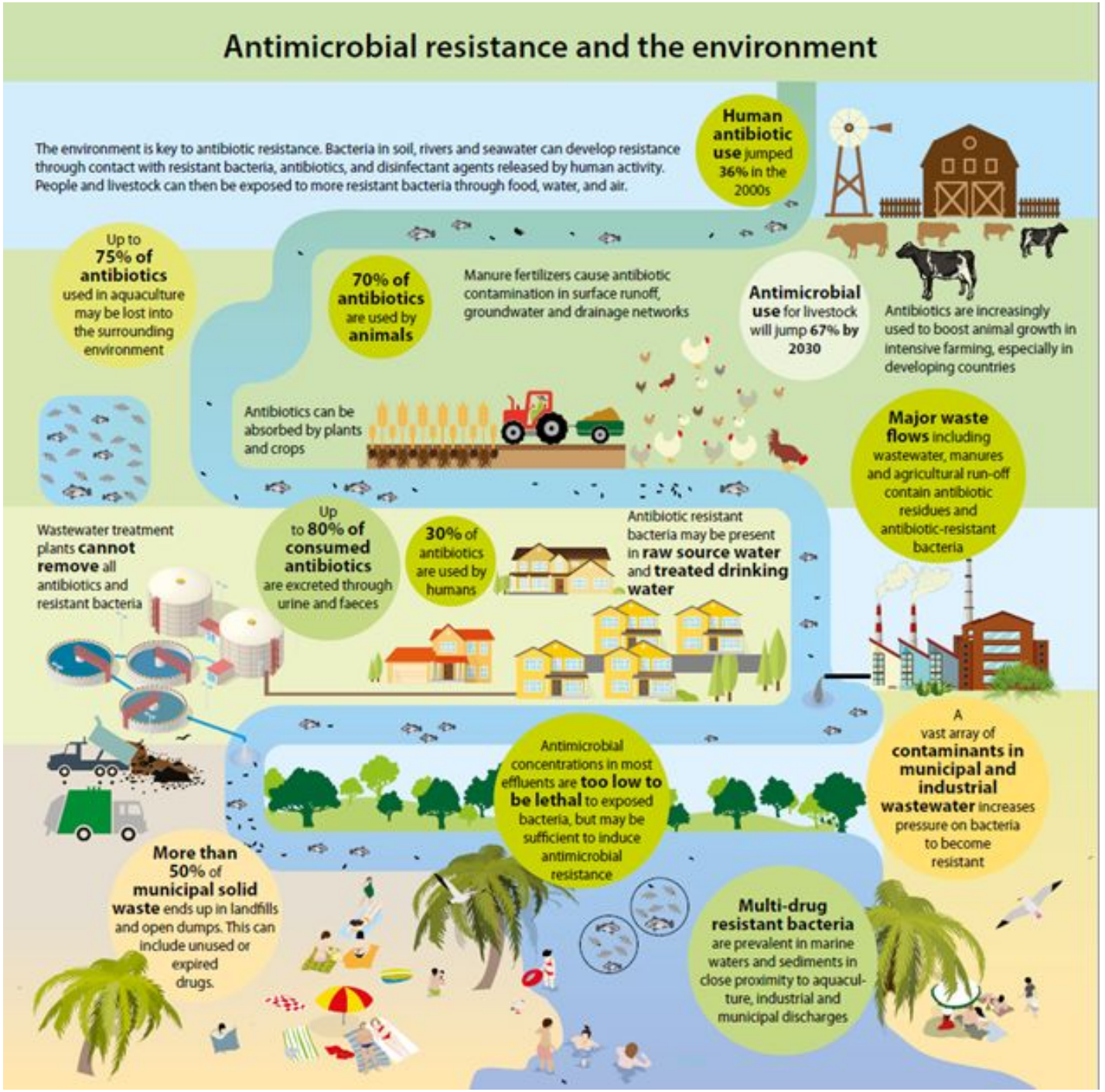

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Source. UNEP 2020

ENVIRONMENT NOT ALWAYS DETERMINANT AT POLICY LEVEL

- Human health and animal health actions prioritised
- UNEP joining tripartite (now quadripartite) organisation
- Environmental organisations more present in global networks (AMR SN, FAO MSP, OHN…)
- Bracing for superbugs report

MAIN CONTRIBUTORS TO AMR IN THE ENVIRONMENT

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1. PHARMACEUTICAL MANUFACTURING

The pharmaceutical industry is considered largely an unregulated sector in terms of environmental pollution (1)

Untreated discharge – levels of antimicrobial mixtures in exposed surface waters (2, 3)

Studies have confirmed antibiotic residues in effluents, municipal wastewaters, surface waters, and groundwater around the pharmaceutical manufacturing sites (4, 5)

There are limited proven treatment options for pharmaceutical wastewater before release to the environment

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(1) UNEP (2023) Bracing for superbugs report
(2) Graham, D.W. et al. (2011). Antibiotic resistance gene abundances associated with waste discharges to the Almendares River near Havana, Cuba.
(1) Larsson, D.G.J.et al. (2007). Effluent from drug manufactures contains extremely high levels of pharmaceuticals
(2) Tong L, et al (2020). Antibiotic resistance gene profiling in response to antibiotic usage and environmental factors in the surface water and groundwater of Honghu Lake, China
(3) Deschamps, E. et al. (2012) Management of Effluents and Waste from Pharmaceutical Industry in Minas Gerais, Brazil.

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)

2. HEALTHCARE DELIVERY

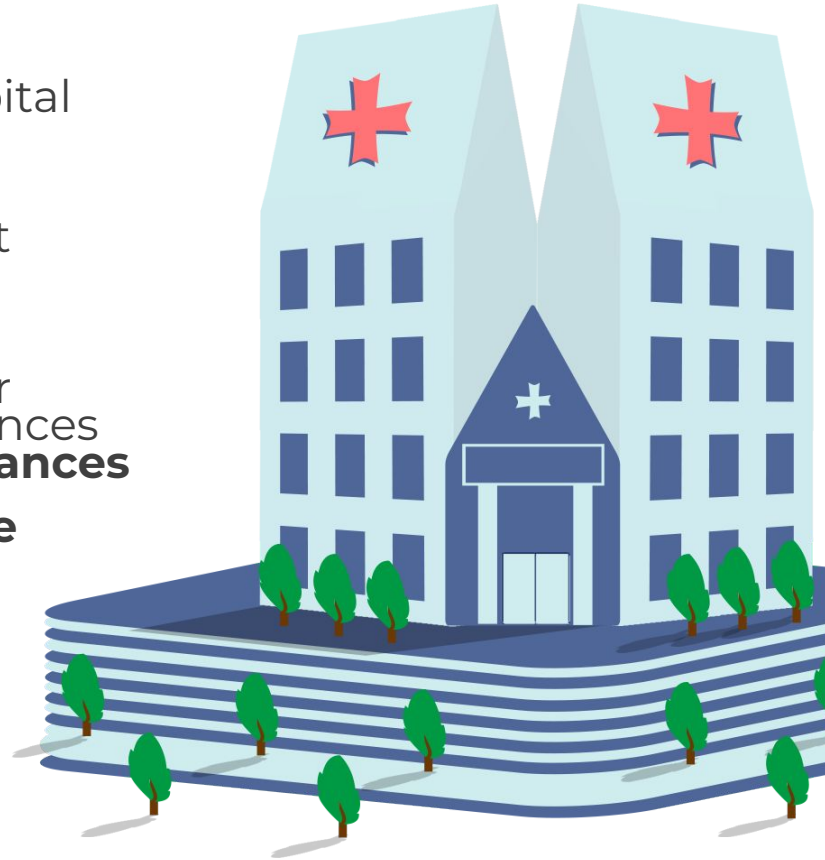
It is estimated that 30%-90% of orally administered pharmaceuticals are excreted into wastewater as active substances in the faeces and urine of patients (6)

20%-30% of inpatients receive an antibiotic treatment during their hospital stay. (7)

High-risk point sources: The proportion of resistance genes or resistant bacteria is usually higher in hospital wastewater than in household wastewater – last resort (8)

Removal rates in wastewater plants range from 0%- 87% (9). 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**



(6) Lockwood, S. et al. (2016) Options for a strategic approach to pharmaceuticals in the environment.
(7) Hocquet, D. et al. (2016) What happens in hospitals does not stay in hospitals: Antibiotic-resistant bacteria in hospital wastewater systems.
(8) Paulus, G. K. et al. (2019) The impact of on-site hospital wastewater treatment on the downstream communal wastewater system in terms of antibiotics and antibiotic resistance genes.
(9)Deblonde, T. et al. (2011) Emerging pollutants in wastewater: A review of the literature.

PHARMACEUTICAL RESIDUES IN HOSPITAL WASTEWATER

The report, explores how hospital **wastewater contributes to the pharmaceutical load released** into the environment.

The report features five case studies illustrating how European hospitals, from Belgium, Denmark, Germany, the Netherlands, and the United Kingdom, are dealing with pharmaceutical residues in their wastewater. It also looks at resistant bacteria because of their potential link with antibiotic residues in hospital effluents.

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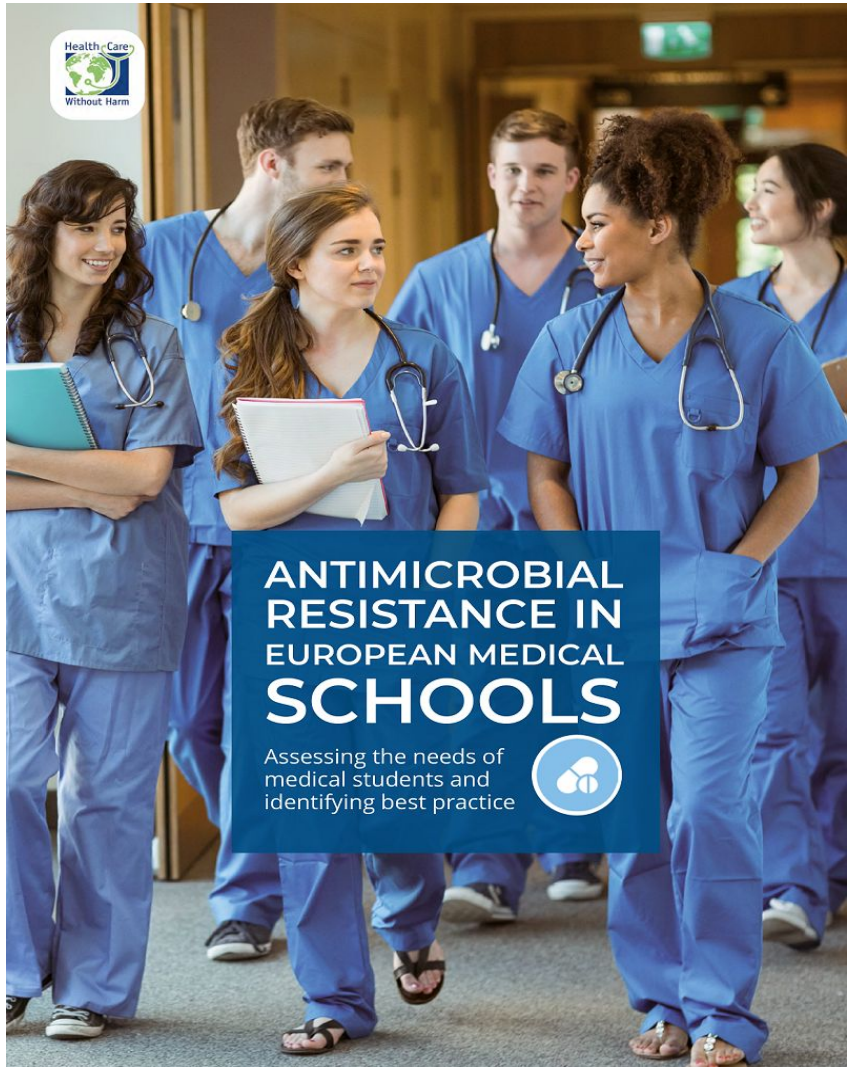
DO HEALTH PROFESSIONALS KNOW?

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

- +4,000 health professionals trained in 6 EU countries
- Training on antimicrobial prescription, antimicrobial waste and patient empowerment

AMR EDUCare



357 medical students studying at 83 medical schools or universities across 28 countries

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HOW TO TO REDUCE ENVIRONMENTAL IMPACT OF AMC IN HOSPITALS?

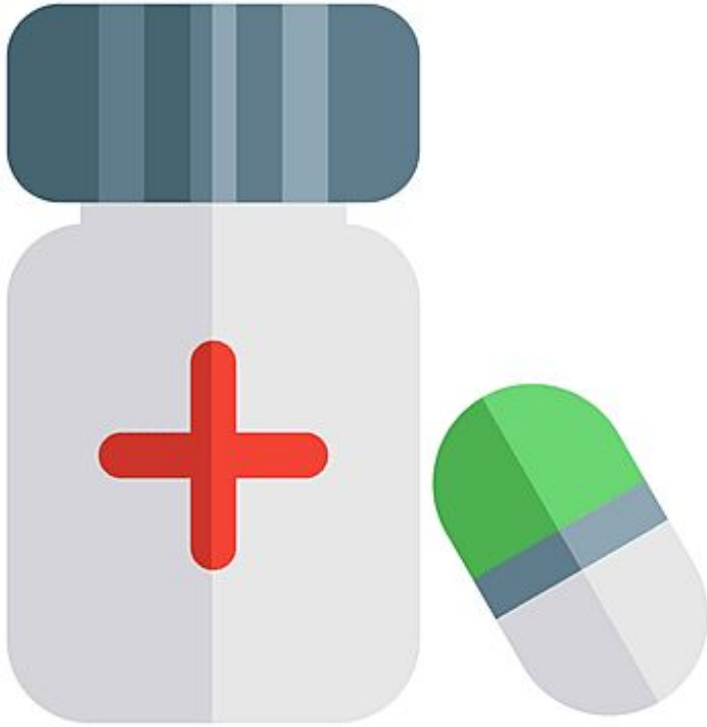
No easy fix...

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.



3. FOOD PRODUCTION

Animals = 73% of the total use of antimicrobials worlwide(10). Way lower in the EU!

HPCIAs – They accounted of 13.9% of antimicrobial sales for veterinary use. Forms suitable for group treatment accounted for 87.7% of the total sales (ESVAC, 2020).

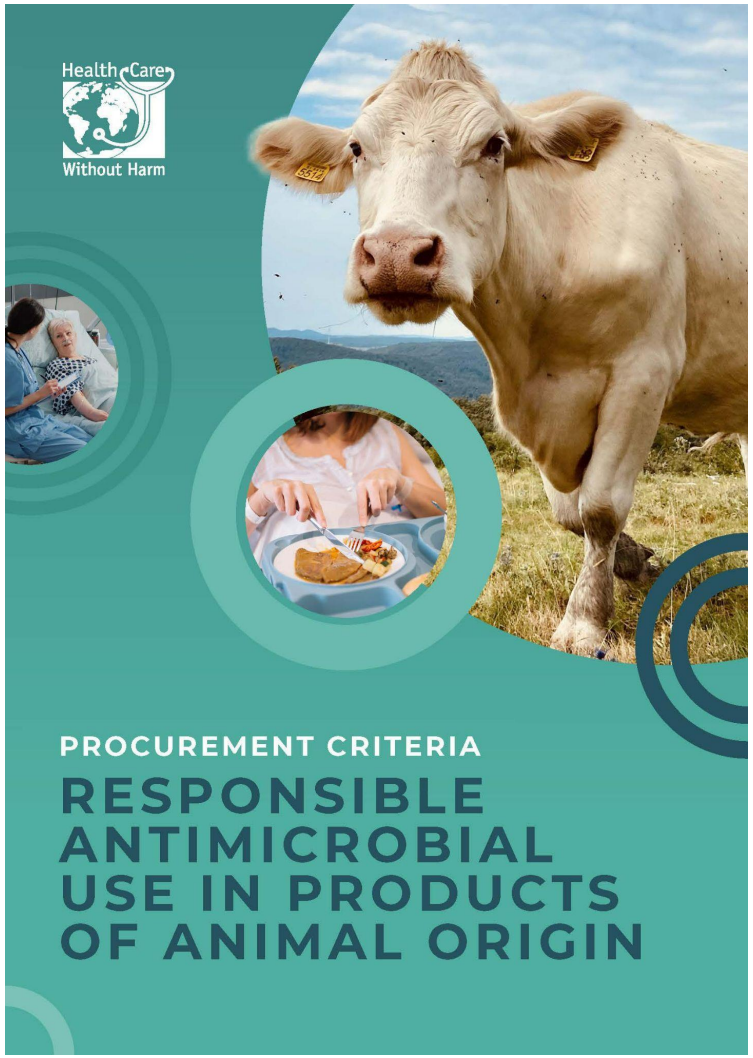
Evidence of drug resistance in waterways near poultry and pig farms and in cattle farm waste (11)

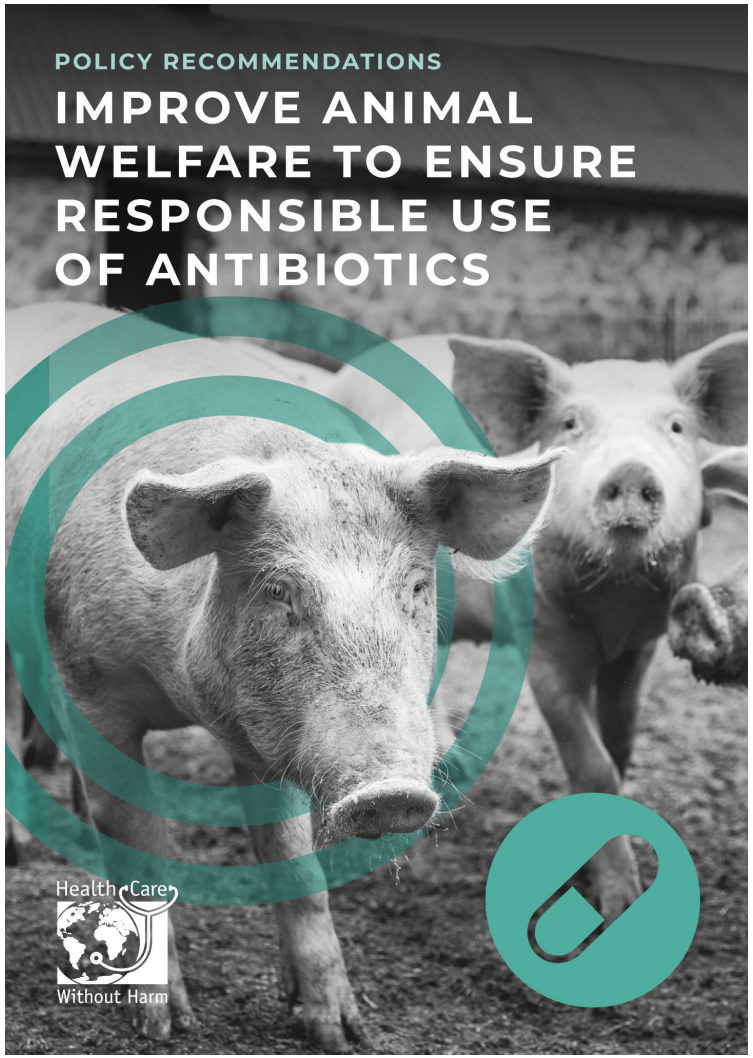
Interventions that reduce antibiotic use in farm animals could decrease antibiotic-resistant bacteria and multidrug-resistant bacteria in animals by 15% and 24–32% respectively (12)

Evidence shows that **increasing animal welfare standards can decrease the need for antibiotics** (13)

(10)Van Boeckel, TP. et al. (2017) Reducing antimicrobial use in food animals.
(11) Alliance to Save Our Antibiotics; WAP (2022)Life-threatening superbugs: how factory farm pollution risks human health
(12)Tang, K. L.,et al. (2017). Restricting the use of antibiotics in food-producing animals and its associations with antibiotic resistance in food-producing animals and human beings: a systematic review and meta-analysis
(13) HCWH. (2023) Improve animal welfare to ensure responsible use of antibiotics

RAISING AWARENESS OF HEALTHCARE PROFESSIONALS AND CREATING GUIDANCE FOR HEALTHCARE PROCUREMENT EXPERTS





KEY TAKEAWAYS

Pharmaceutical manufacturing

- Improve transparency in the supply chain (green procurement)
- Set discharge targets

Healthcare delivery:

- Improve antibiotic stewardship practices and offer guidance to healthcare professionals (Both clinical and non-clinical)
- Establish strong protocols for the management of waste (specially when it comes to wastewater)

Reduce the need for antibiotics in food production

- Great work being done, but so much still to do
- Animal welfare it's key to address AMR
- The use of HPCIAs still a big concern

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