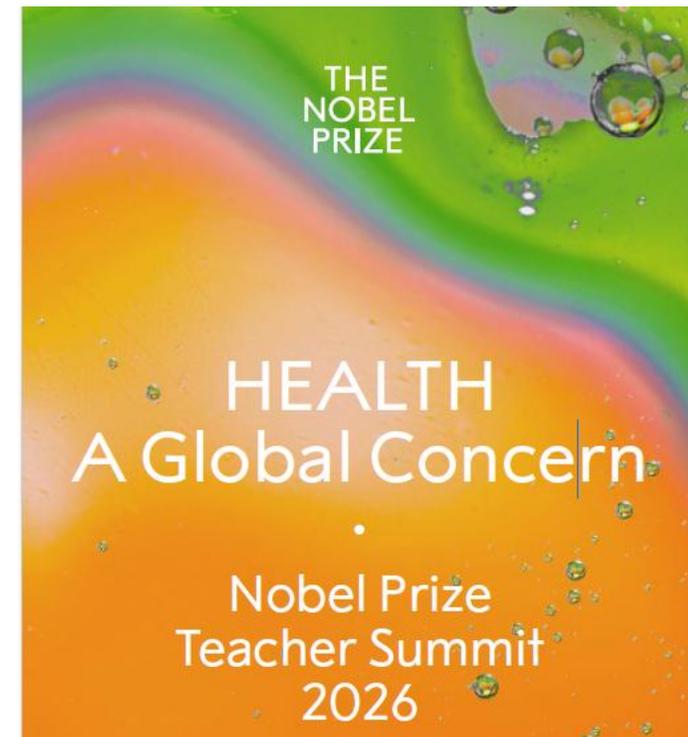


Meeting the challenge of antibiotic resistance

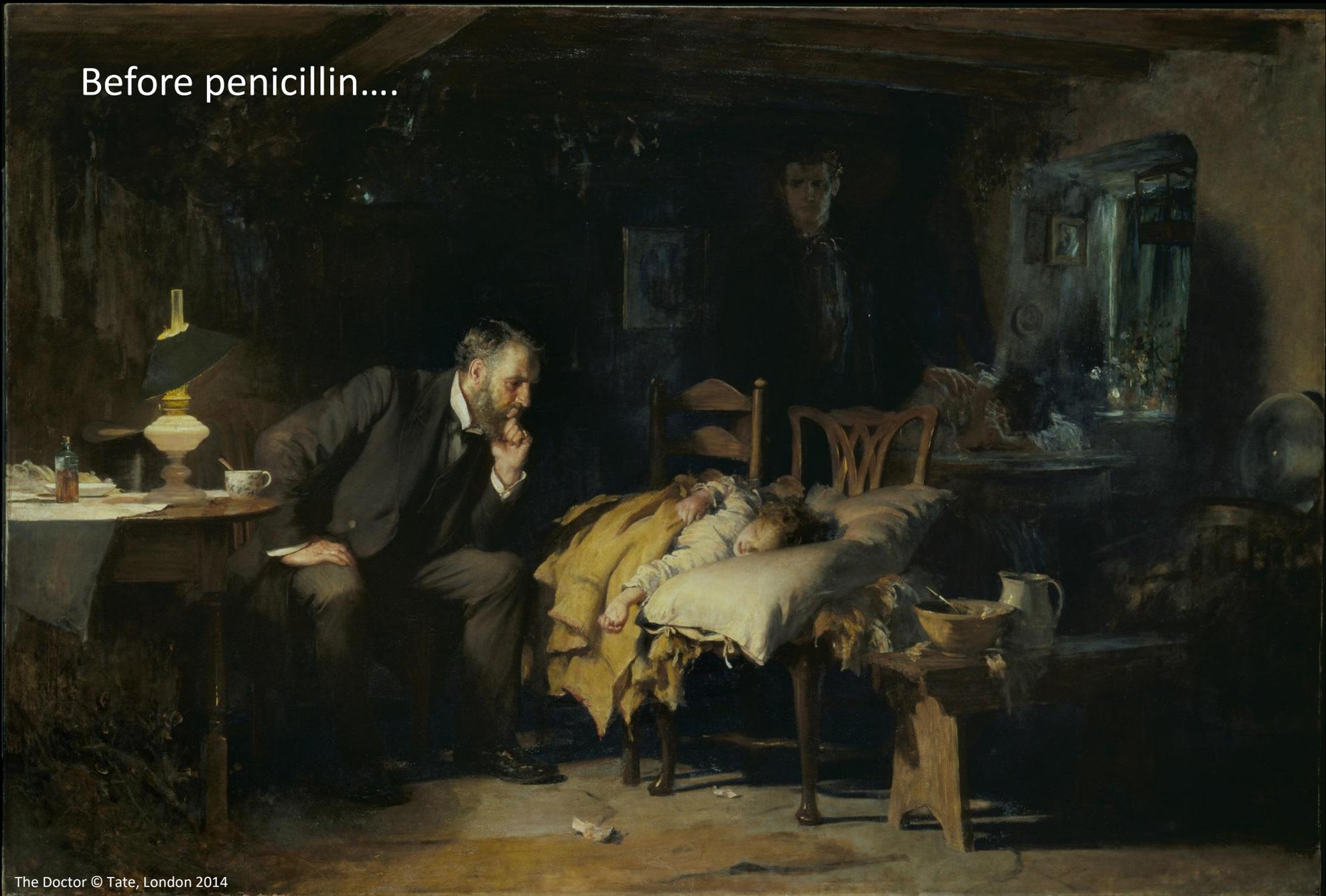
Our collective responsibility

Otto Cars

Professor emeritus, Infectious Diseases
Uppsala University, Sweden



Before penicillin....





Women's ward in the American women's hospital, Djuma, Western Macedonia.
from the book "Certain Samaritans" by Esther Pohl Lovejoy (published 1933, The Macmillan Company, New York)

Penicillin: The miracle drug that changed the world

98 years ago



FIG. 30 (from Fleming, 1929). A photograph of the original plate on

80 years ago





iStockphoto © LionHector

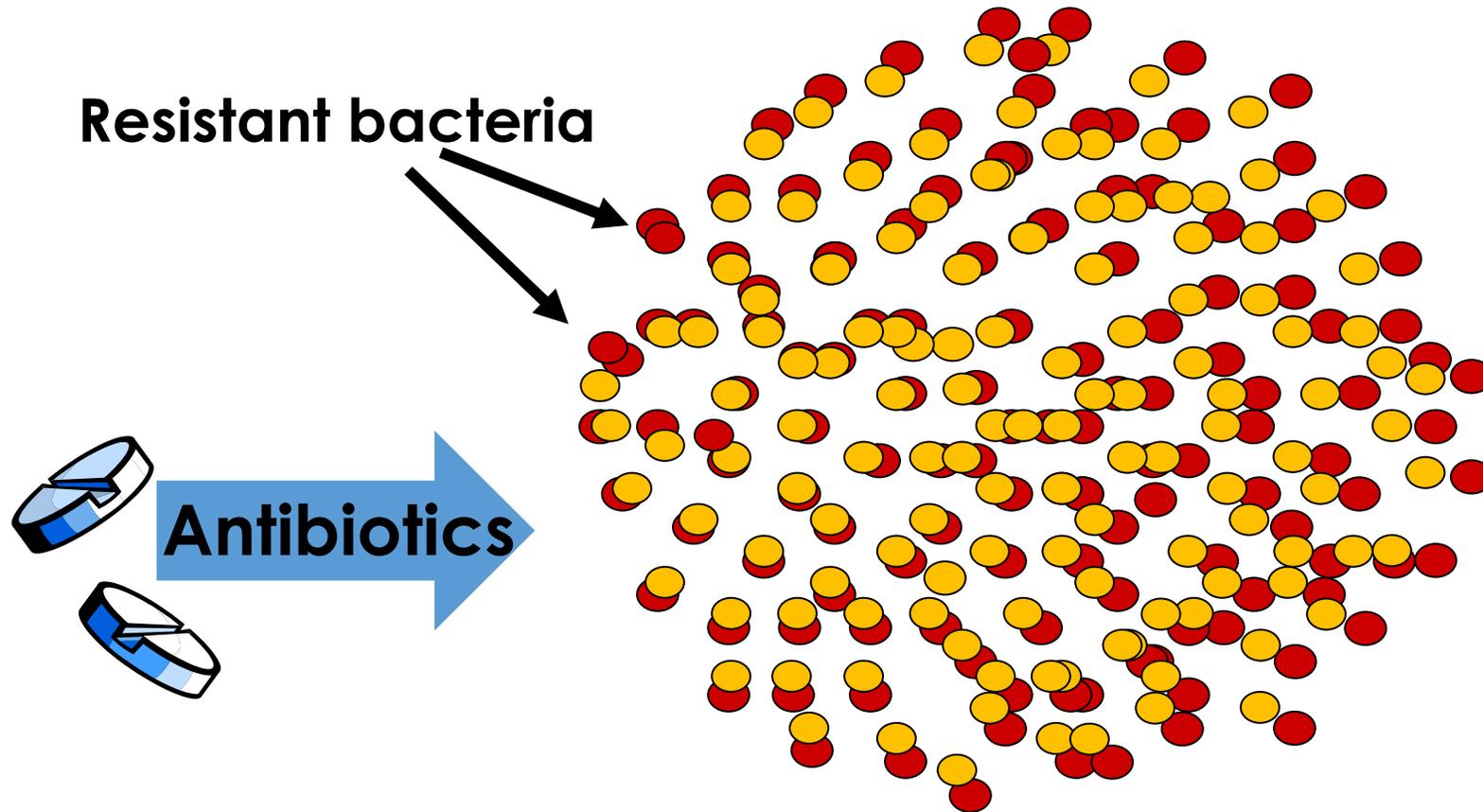


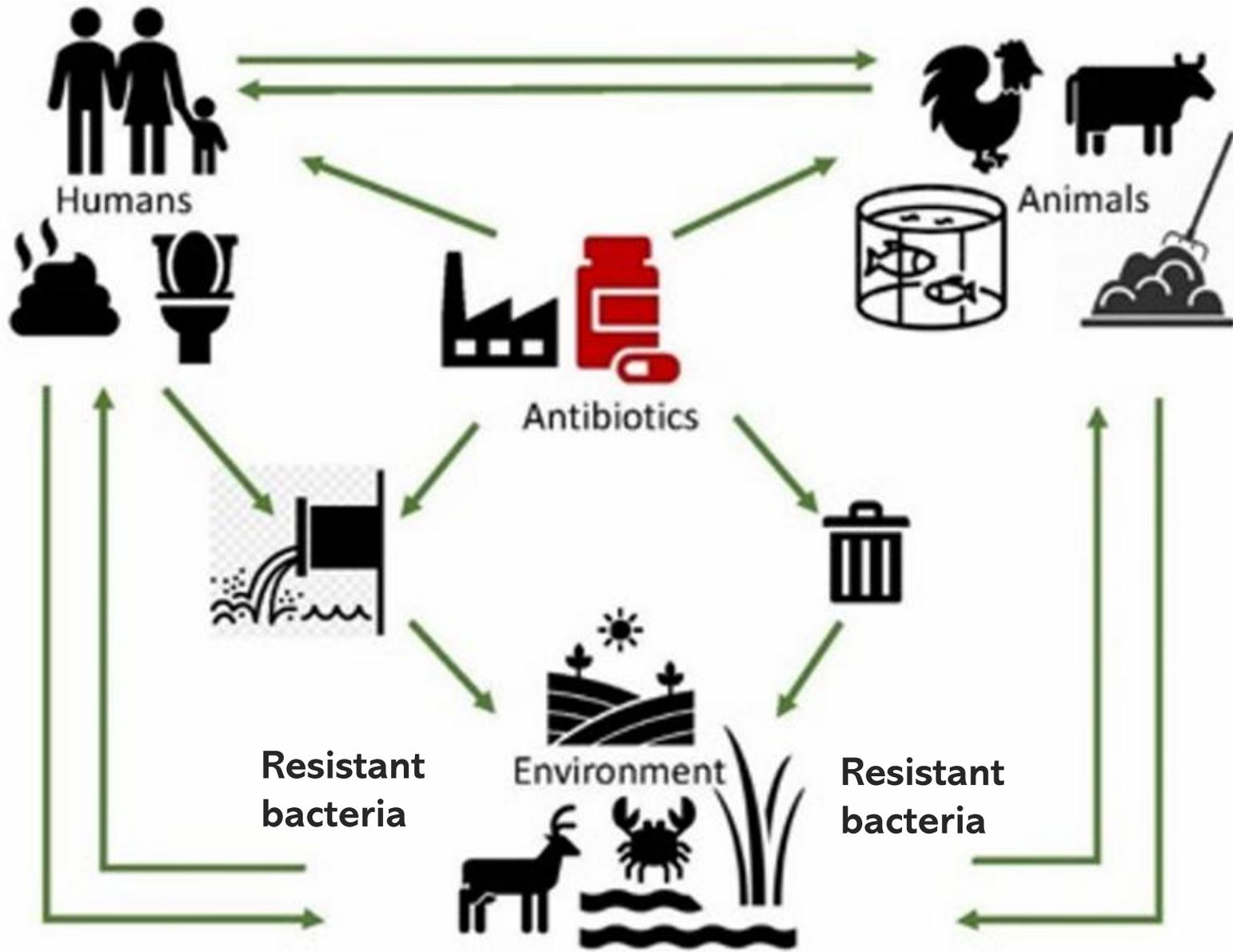
© 2010 Anil Gulati, Courtesy of Photoshare

A scanning electron micrograph (SEM) showing a vast field of rod-shaped bacteria, likely Bacillus subtilis, densely packed together. The bacteria are oriented in various directions, creating a complex, textured surface. The lighting highlights the three-dimensional structure of the cells, showing their cylindrical shape and some surface details.

40 000 000 000 000

Natural Selection





- Over one in five healthcare facilities don't have clean water inside the facility.
- Hand hygiene can prevent up to 50% of infections acquired while receiving healthcare.



A pharmacy in a Middle Income Country

Photo: Otto Cars



Medicines sold for sore throat over the counter without diagnosis or prescription in a southern EU Country

Photo: Private

One third of the human global use of antibiotics (corresponding to 13.000 tons) is estimated to be inappropriate. Mulchandani R, et al. *BMJ Public Health* 2025

Every year over 600.000 children under 5 dies from pneumonia

Many of these deaths could have been prevented with timely access to effective antibiotics

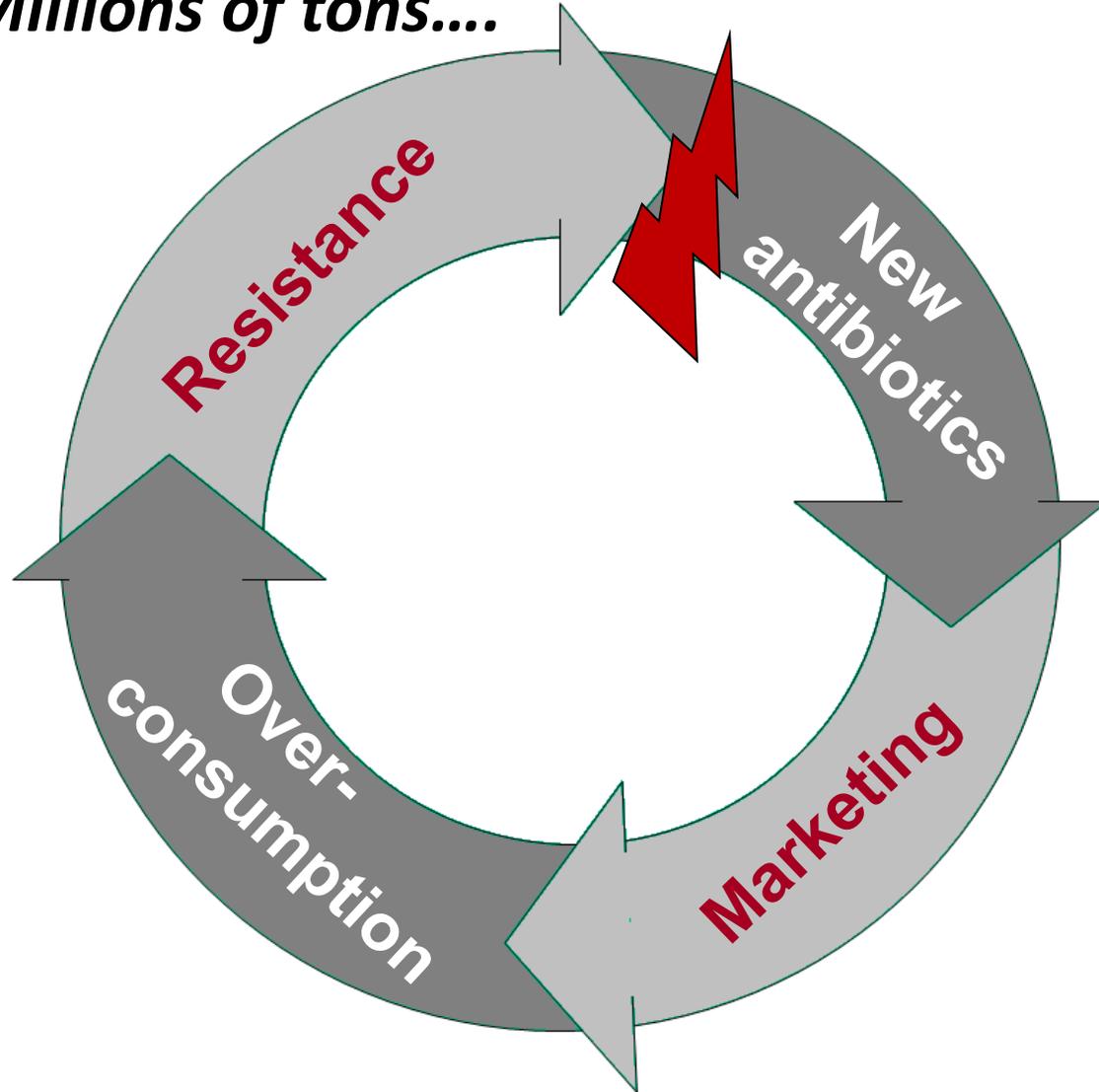
[American Thoracic Society | Forum of International Respiratory...](#)



The failing machinery....

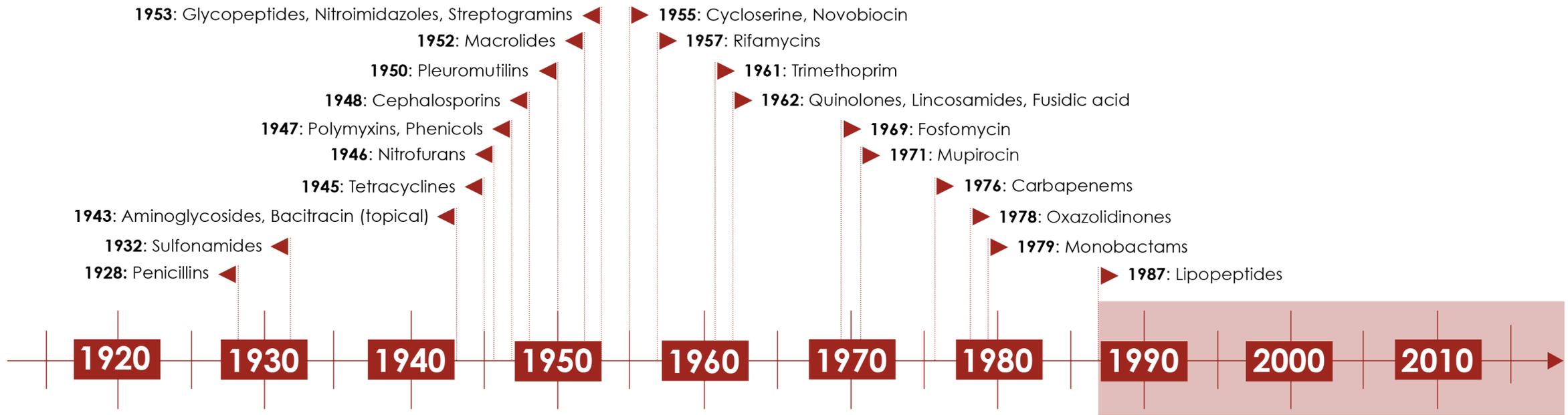
More than 70 years of antibiotic use

Millions of tons....



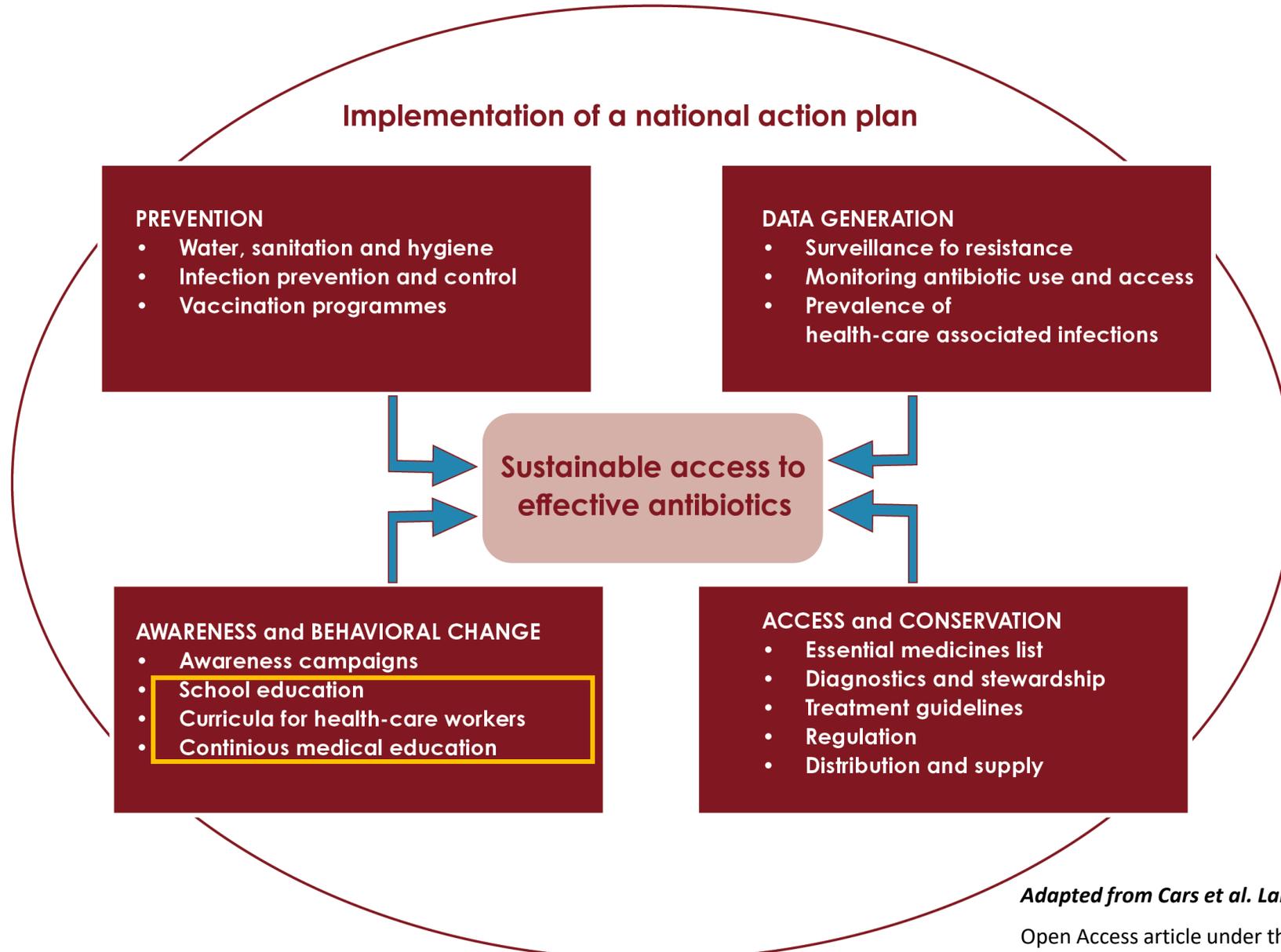
The overreliance on the pharmaceutical industry to produce new antibiotics when older ones have lost their effect

The development of novel antibiotic classes



Discovery void

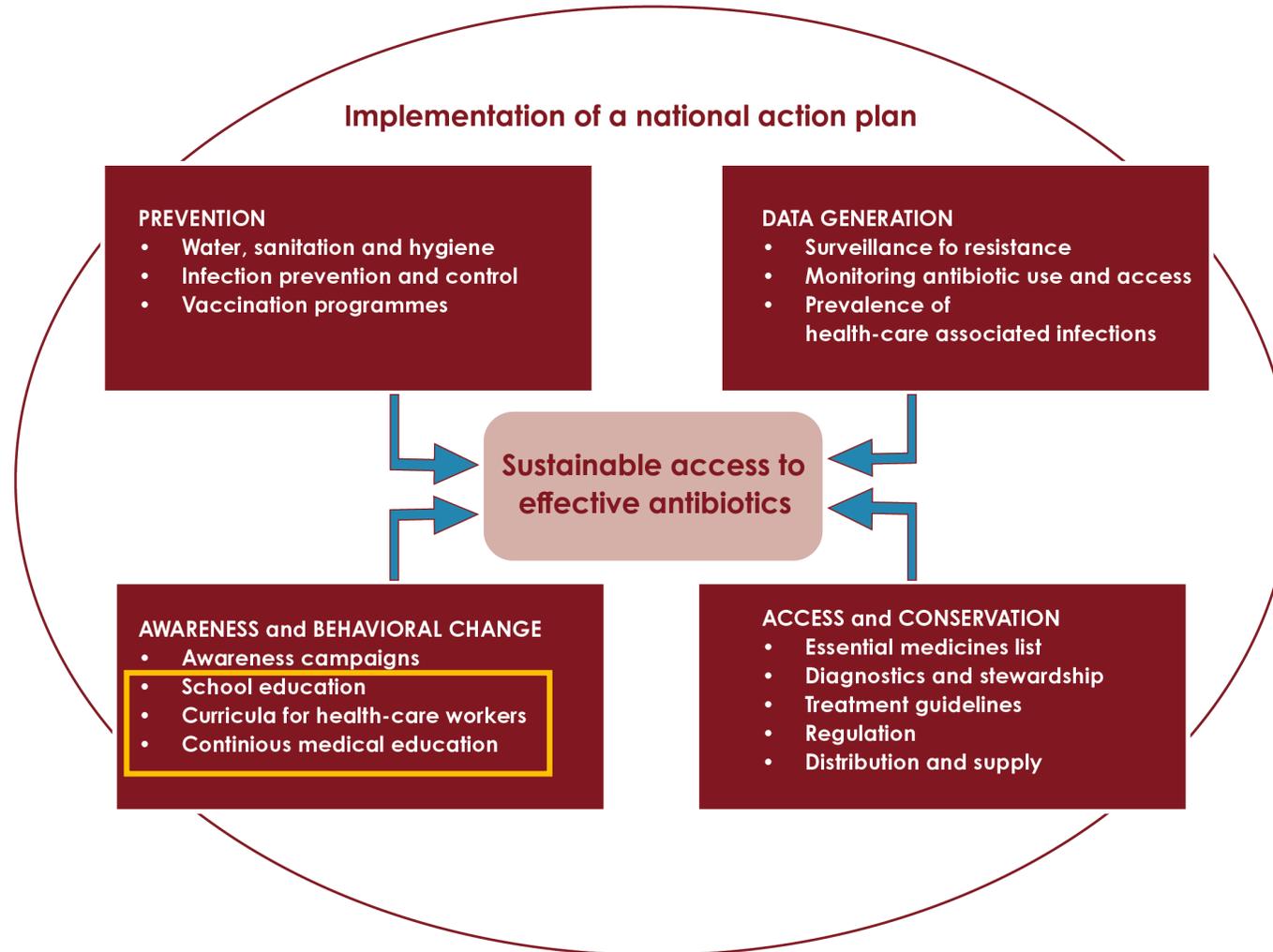
Managing the antibiotic crisis needs engagement of the whole of society



Adapted from Cars et al. *Lancet Glob Health* 2021; 9: e1022–27

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Managing the antibiotic crisis needs engagement of the whole of society



Launch of new
Toolbox page for
youth!

Youth Engagement – Raise Awareness – ReAct



Advancing education to tackle AMR | Fleming Initiative



Student activities in ReAct Africa, ReAct Latin America and ReAct Asia Pacific



Photos: ReAct Africa, ReAct Latin America, ReAct Asia Pacific

