

Antibiotic Resistance

Kylie Brown

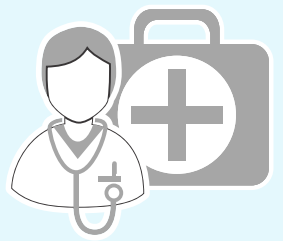
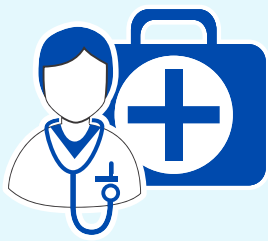
How It Works



Antibiotics target components of bacteria essential for their survival, thus leading to cell death and removing the pathogen that caused an illness.⁷ However, bacteria have a natural tendency to evolve and adapt to best survive in a given environment.⁷



Bacteria with mutated genes that allow them to survive even in the presence of antibiotics reproduce to form **fully antibiotic-resistant bacteria**.⁴



60%

of specialists have seen an **untreatable bacterial infection** within the last year.²

Not a New Issue

Antibiotic resistance emerged shortly after the discovery of antibiotics by Alexander Fleming in 1928.⁴ Scientists dealt with antibiotic resistance by developing new antibiotics, but now bacteria have become **resistant to nearly every existing antibiotic**.²

Why It Matters

Standard practices with low rates of infection could face the possibility of performing the same standard procedure **without any effective antibiotics**.³

Very little has been done to combat this issue due to resistance from both pharmaceutical companies and the general public.



According to the information avoidance behavior theory,⁸ people avoid information when they believe it could make them uncomfortable, even when the information is free and could improve decision-making. In a study of over 1,000 individuals, **39% avoided information concerning antibiotic resistance**, and less knowledgeable people were more likely to avoid information than those individuals who were more informed about antibiotic resistance.⁸

Pharmaceutical companies make very little revenue from developing new antibiotics and therefore **prioritize more profitable drugs**, such as those to treat cancer.⁶

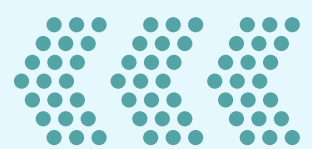
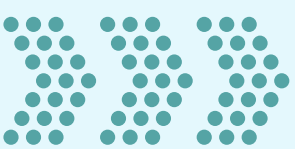


Causes of the crisis

- vast overprescription of antibiotics²
- inappropriate prescribing²
- regulatory barriers that make it difficult to pursue clinical trials to test new antibiotics²

Economic Impact

Antibiotic resistance costs **\$55 billion** annually in the US- \$20 billion in **health service costs** and \$35 billion in **lost productivity**.³



Examples of Solutions

Tackling antibiotic resistance is an ever-growing challenge because new resistant bacteria are constantly emerging. However, there are two categories of policy solutions: **innovation** and **prevention**.

1

Creating new antibiotics can provide alternative treatments when bacteria are already resistant to existing antibiotics. Incentives for pharmaceutical companies to **develop more antibiotics** include extending patents and reducing the cost of creating new antibiotics through increased nonprofit funding.⁶

2

The CDC has created a system to identify the magnitude of resistance and focus on corresponding prevention and monitoring activities to attempt to **manage antibiotic resistance**.⁴



Progress is being made

The simplest way to avoid antibiotic resistance is to prevent infection and thus avoid the need for antibiotics. While it is virtually impossible to avoid all risk of infection, there are simple **steps you can take** to mitigate the problem of antibiotic resistance.⁵



wash your hands

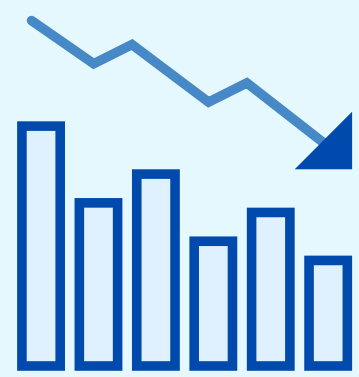


stay up to date on vaccinations



take full dosage of antibiotics

Successful interventions in hospitals have **lowered** rates of antibiotic-resistant deaths by **18%**.¹



Policy Recommendation

While incentivizing pharmaceutical companies may be the best short-term solution to tackling antibiotic resistance, promoting the development of new antibiotics may actually increase unnecessary antibiotic prescriptions and usage.⁶ Therefore, a strict monitoring system will more effectively reduce the incidence of actions that heighten antibiotic resistance, such as inappropriate prescribing, thus reducing the need for new antibiotics.

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