The Magic Bullet’s Toll

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Down To Earth
New Delhi

FROM CURE TO KILLERS
The shocking story of millions of people who have diseases that cannot be treated as they have become resistant to antibiotics
Who are we?

• India’s leading science and environment fortnightly magazine

• Published by the Society for Environmental Communications

• We have a legacy of public spirited journalism spanning development, environment and health
Print, web, multimedia, books

• DTE English: Launched in 1992

• Gobar Times: For children, launched in 1998

• DTE Hindi: To reach India’s heartland, launched in 2016

• DTE Web: More than 2 million page views/month

• DTE books: Perspective and reportage on environmental challenges to a general audience

• Multimedia: animation, documentaries
We practice research based journalism

• We believe that communication is a tool for change. We create public pressure. We ask people to be vigilant

• We do not write articles but we write stories about people

• No magic. No jargon. It is learning to say what you know

• To people who do not want to hear. To people who need to hear
• Fills a critical information gap

• Presents timely news, research, analyses, insight on grassroots-based environmental struggles

• Critical connect between local and global: Reporting from farm, forests and factories

• Continues to invest heavily in ground-level reportage

• Bridges the yawning gap between science and policy; between decision makers and practitioners

• Supplements research, analyses and documentation of its sister organization, Centre for Science and Environment
CSE: Background

- Set up in 1980. A public-interest research institute
- Policy research and public awareness
- Looking for solutions, strategy that works.
- Key is to bring forth credible information. To demonstrate that it works and why
Antibiotic residues

- 2010: We wrote about antibiotics in honey. Standards were set
- 2014: We did a cover story on presence of antibiotics in chicken.
- 2016: Use of antibiotics in aquaculture
- 2017: We reported that poultry farms are reservoirs of multi-drug resistant bacteria
- 2019: Story on use of antibiotic in agriculture
Why is AMR dangerous?

• 10 million deaths each year and USD100 trillion economic loss in 2050

• Consumption increasing: by 2030, consumption is estimated to go up by 200 per cent (in terms of defined daily doses)

• No new major antibiotic being developed, weak pipeline for antibiotic agents, declining private investment
Revenge of the bug

• Out of the 10 million TB cases reported globally in 2018, 130,000 were drug-resistant. Another 8,000 cases were extensively drug-resistant or XDR TB

• E. coli is resistant to 6 antibiotics in India. The pathogen causes UTIs, pneumonia and diarrhoea. Similarly, Acinetobacter baumanii is resistant to 8 antibiotics
The aftermath

AMR will derail 10 sustainable Development Goals

• Eradicate poverty (SDG 1)
• Spur economic growth (SDG 8 and 12)
• Reduce inequality (SDG 5 and 10)
• Improve global public health (SDG 3)
• Reduce hunger (SDG 2)
• Protect the environment (SDG 6, 14 and 15)
SPREAD OF RESISTANCE

Asia and Africa will account for 88.8 per cent of AMR deaths

Source: Natural and bioinspired nanostructured bactericidal surfaces. July 2017, Advances in Colloid and Interface Science
THE MAGIC BULLET’S TOLL

What if a saviour turns into a killer? After 80 years of use, overuse and abuse of antibiotics—termed magic bullets—microbes have become resistant to them. Antibiotic resistant diseases are undoing the great strides in modern treatment. **VIBHA VARSHNEY** exposes a growing public health crisis

**BY 2030**

126 BILLION
defined daily dosages of antibiotics*

200% more than in 2015*

**BY 2050**

10 MILLION deaths/year**

More than those killed in the Rwandan genocide

**BY 2050**

$100 TRILLION economic loss**

Which is over 15 times of Africa’s GDP

With reportage by

AGATHA NGOTHO | KENYA

ENGELA DUVENAGE | SOUTH AFRICA

PROSPER K KUORSOH | GHANA

VINCENT YUSUF | NIGERIA

VIOLET NAKAMBA | ZAMBIA

JENIPHER ASIMWE | UGANDA

ALOK GUPTA | CHINA
What have we done?

Reporting from

• 6 countries in Africa
• China
• India
The questions…

• What is the status of antibiotic resistance in your country?

• What is the government doing to tackle the problem

• Is it working?

• What problems did you face while reporting on antibiotics?
Learning

• It is a global problem
• Every country is doing something that is working and also something that is not working
• This information has to come in public domain
• Journalists play an important role in this
**How to Reduce Consumption of Antibiotics**

- **Consume probiotics**
  - Including probiotics in diet can help. It was seen that when infants and children consumed foods rich in bacteria like Lactobacillus and Bifidobacterium, they were 29 per cent less likely to need antibiotics.

- **Stop smoking**
  - Cigarette smoke makes Methicillin-resistant Staphylococcus aureus (MRSA) cross-resistant to antibiotics and makes it more invasive and persistent. Exposure to cigarette smoke increases the rate of mutation in microbial DNA, resulting in microbes that are resistant to antibiotics.

- **Promote breastfeeding**
  - Breast milk boosts immunity. It has been observed that infants breastfed for at least six months had lower resistant bacteria in their gut than babies who were breastfed for a shorter period or not at all.

- **Support safe pregnancies**
  - Antibiotics should be avoided during pregnancy. It has been observed that number of antibiotic-resistant bacteria in an infants gut are higher if their mother consumed antibiotics during pregnancy. Even breast milk of these mothers had resistant bacteria which can be passed on to the child.

- **Embrace new technology**
  - New technologies that can help reduce exposure to antibiotics are being developed. For example, tiny amounts of antibiotics embedded in corn-based nanoparticles help reduce the amount of antibiotic required. This also protects the microbiome in the intestines.

- **Embrace prophylactic foods**
  - High-fiber foods like whole grains, beans, fruits and vegetables help the growth of healthy bacteria in the gut. They should be eaten after taking antibiotics. As a precaution, these high-fiber foods should not be consumed while taking the antibiotics as this reduces the absorption of the drug.

- **Consume foods that have natural antibiotics**
  - Some foods like horseradish, garlic, mushrooms, cranberries and spices like turmeric have antibiotic properties and should be consumed regularly to reduce the chances of getting sick. Molecules derived from cranberry fruits is said to increase the sensitivity of pathogenic bacteria to antibiotics.

- **Avoid foods that reduce the activity of antibiotics**
  - Fruit juices, dairy products or alcohol reduce the body’s ability to absorb drugs. Do not forget to maintain a gap of up to three hours eating these and antibiotics.

- **Get vaccinated**
  - Vaccines can reduce the chances of contracting bacterial diseases and reduce the need for antibiotics. Where efficacy is proved, such vaccines should be used.

Source: Body Runion: Antibiotic Resistance, 2019, D16/DSE