

30<sup>th</sup> April 2021

ONE WORLD - ONE HEALTH

40 years of BUKO Pharma-Kampagne

# INDIA, POVERTY AND ANTIBIOTIC RESISTANCE

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# POVERTY by DIFFERENT ESTIMATES

- Planning Commission released poverty data for 2011-12. The number of poor in the country was pegged at 269.8 million or 21.9% of the population. After this, no official poverty estimates in India have been released.
- Suresh Tendulkar committee has estimated it at 37% in 2009,
- NC Saxena said 50%, and in 2007,
- Arjun Sengupta commission identified 77% of Indians as “poor and vulnerable” in 2009,
- The World Bank’s estimate of Indian poverty was higher than 40% in 2005,
- Asian Development Bank arrived at almost 50% in 2011,
- The UNDP's Multidimensional Poverty Index 2019 finds the proportion of the poor to be higher than 55%.

# India's Poverty Profile

SNAPSHOT 2012

**270,000,000**

Indians are poor

=



1 in 5 Indians is poor

THE 7 LOW-INCOME STATES HOUSE

**62%**

OF INDIA'S POOR

**80%** of India's poor live in rural areas



<https://www.worldbank.org/en/news/infographic/2016/05/27/india-s-poverty-profile>

# COUNTRY OF MASS POVERTY

- Pew Research Center, using World Bank data, has estimated that the number of poor in India (with income of \$2 per day) has more than doubled from 60 million to 134 million in just a year due to the pandemic-induced recession.
- This means, India is back in a situation to be called a “country of mass poverty”.

<https://www.downtoearth.org.in/blog/governance/mass-poverty-is-back-in-india-76348>

The burden of antibiotic resistance in the one million children who die within the first four weeks of life each year in India. Of these deaths, approximately 190,000 are caused by sepsis, a bacterial infection that overwhelms the bloodstream. It's estimated that nearly one-third of these sepsis deaths are attributable to antibiotic resistance.

## The Burden of Antibiotic Resistance in Indian Neonates

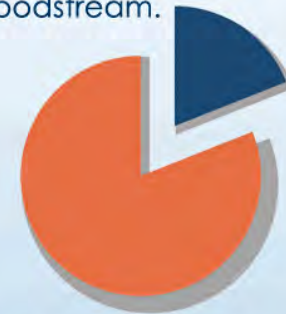
1 million Indian children die in the **first 4 weeks** of life each year...



Of these deaths, **190,000** are caused by sepsis, a bacterial infection that overtakes the bloodstream.



**58,319**, or **just over 30%**, of neonatal sepsis deaths are attributable to antibiotic resistance.



Sources: Sankar, Jeeva M., et al. 2008. Sepsis in the Newborn. AIIMS- NICU protocols. [www.newbornwhocc.org](http://www.newbornwhocc.org).  
Kayange, N., et al. 2010. Predictors of positive blood culture and deaths among neonates with suspected neonatal sepsis in a tertiary hospital, Mwanza- Tanzania. *BMC Pediatrics*, (10)39.

Images: iStock photo, Florida Center for Instructional Technology

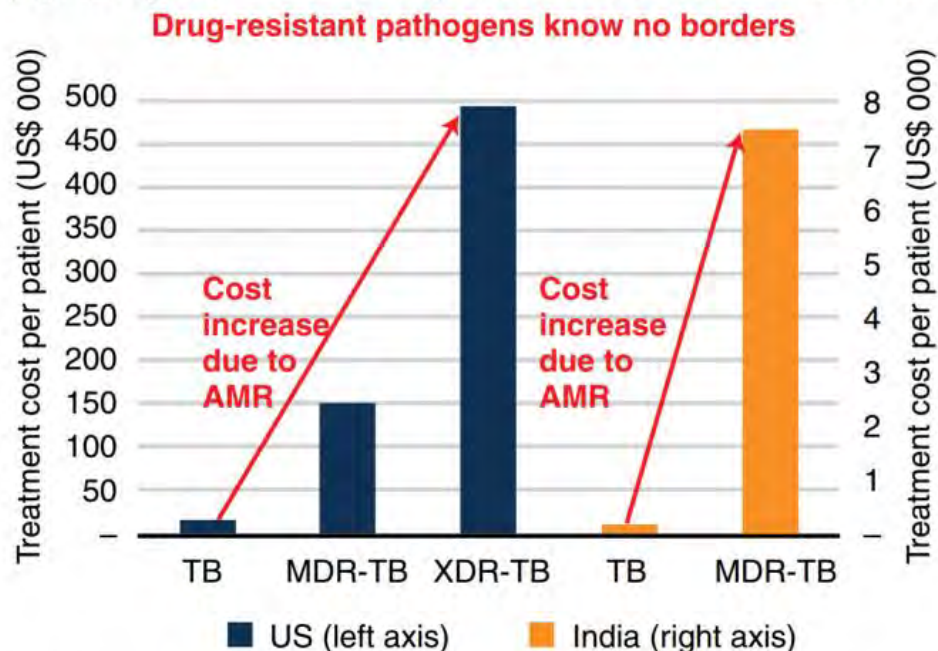
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[www.cddep.org](http://www.cddep.org)

[https://cddep.org/tool/burden\\_antibiotic\\_resistance\\_indian\\_neonates/](https://cddep.org/tool/burden_antibiotic_resistance_indian_neonates/)

# It costs 80 times more to treat one TB patient in the U.S. than in India

**TB treatments costs rise dramatically due to AMR**  
Treatment costs are much higher in HICs than in LMICs  
(e.g., 80x higher for TB—and 20x higher for MDR-TB—in the U.S. than in India)



TB = Tuberculosis (infectious disease caused by bacteria)  
MDR = Multidrug-resistant  
XDR = Extensively drug-resistant; TB caused by bacteria that are resistant to some of the most effective anti-TB drugs

# ANTIMICROBIAL RESISTANCE in India



- “A Roadmap to Tackle the Challenge of Antimicrobial Resistance – Joint meeting of Medical Societies in India”
- 2012, was the first ever meeting of medical societies in the country on the AMR issue.

<http://chennaideclaration.org/>





- “The Chennai Declaration” named after the city where the meeting took place, is the consensus evolved out of the meeting and co-authored by representatives of various medical societies.
- The document is based on realistic goals and objectives, with a deep understanding of the background Indian scenario.
- Medication including antibiotics may be purchased over the counter and/or are prescribed by practitioners from alternative medical branches and healers.

<http://chennaideclaration.org/>

# IMPACT OF Chennai Declaration

- The new rule issued by the Ministry of Health includes 24 antibiotics and 11 ant-tuberculosis drugs in the schedule H1 category.
- This rule is meant to regulate over-the counter dispensing of drugs.
- Pharmacists not only have to insist on a prescription from a registered medical practitioner, but they also need to enter details in a register.
- Drug inspectors will monitor compliance. First-line antibiotics will not come under the strict monitoring as those are excluded from the list, at least initially.
- **The new H1 list is based on a step-by-step strategy of Chennai declaration.**

# Delhi Declaration

19<sup>th</sup> April 2017

Prime Minister noted India's role on the Steering Group of Global Health Security Agenda, and its leadership in the area of antimicrobial resistance

[https://www.who.int/docs/default-source/searo/india/antimicrobial-resistance/delhi-declaration-on-amr.pdf?sfvrsn=bf06d5b9\\_2](https://www.who.int/docs/default-source/searo/india/antimicrobial-resistance/delhi-declaration-on-amr.pdf?sfvrsn=bf06d5b9_2)

# Global Health Security Agenda

- The GHSA is a network of 70 countries, as well as international and non-government organizations, and private sector companies, working to secure global health security.
- Support the Global Action Plan on AMR (<https://www.who.int/antimicrobial-resistance/global-action-plan/en/>) and the associated work of the Tripartite Plus on AMR ([https://www.who.int/antimicrobial-resistance/interagency-coordination-group/Tripartite\\_Plus\\_update\\_info\\_session\\_011018.pdf?ua=1](https://www.who.int/antimicrobial-resistance/interagency-coordination-group/Tripartite_Plus_update_info_session_011018.pdf?ua=1)) through information sharing and capacity building to assist Action Package members in realizing and implementing their associated commitments.

<https://ghsagenda.org/>

**The cost of private healthcare is about four times greater than the country's public healthcare.**

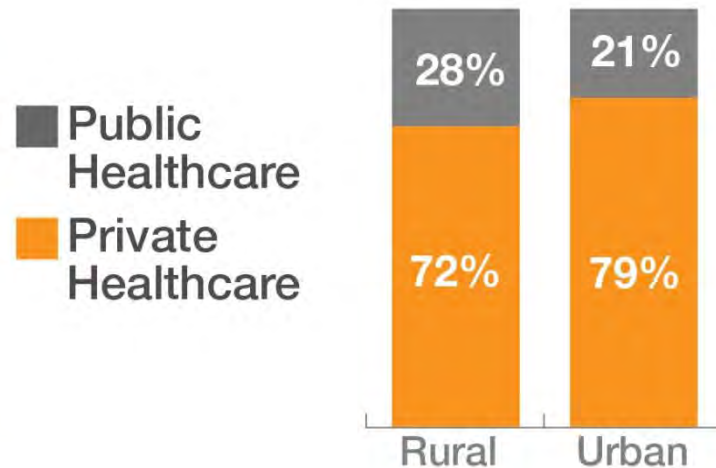
## Public vs private healthcare

Private healthcare in India costs about four times more than the public sector, yet majority of all cases are treated by the private sector.

**How much does each treatment cost on average?**



**Where does the treatment take place?**



Source: NSS 2014, Ministry of Statistics and Programme Implementation

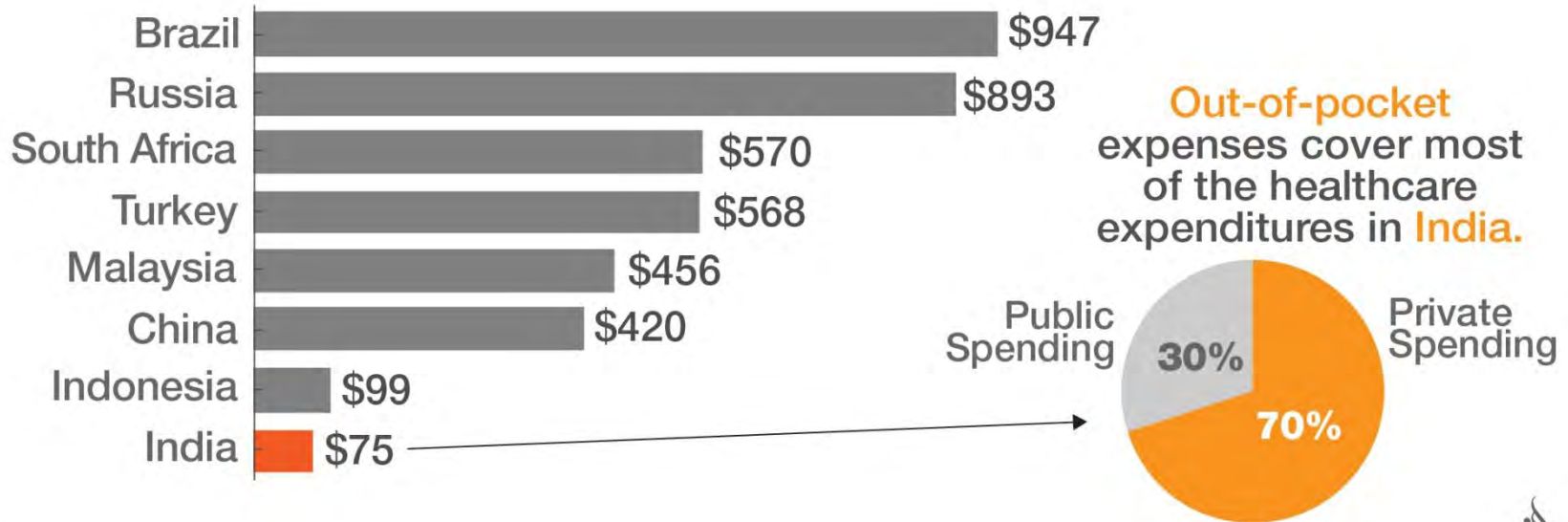
@AJLabs ALJAZEERA

<https://www.aljazeera.com/news/2017/8/31/indias-healthcare-private-vs-public-sector>

# Private health sector generates billions of dollars annually from medical tourism.

## Health expenditure per person

Among the BRICS and other newly industrialised nations, India spends the least on health per capita.



Source: World Health Organization

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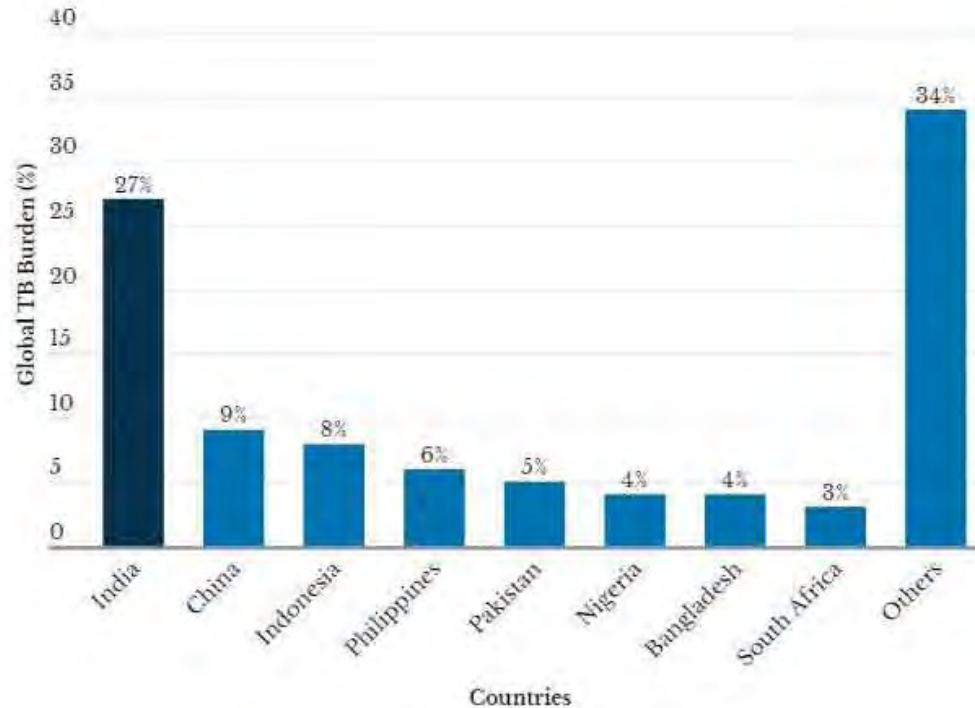
<https://www.aljazeera.com/news/2017/8/31/indias-healthcare-private-vs-public-sector>

# In-spite 2 states – Tamil Nadu & Kerala have done very well with public health



- <https://www.quora.com/Is-privatization-of-health-services-in-India-good-or-bad-Why>

# Global Tuberculosis Burden



World Health Organization, Global Tuberculosis Report, 2018

<https://scroll.in/pulse/909185/in-india-waiting-for-the-drug-bedaquiline-is-a-matter-of-life-and-death-for-tb-patients>



# TUBERCULOSIS - INDIA

SEP 24, 2020

India's Health Minister says:-

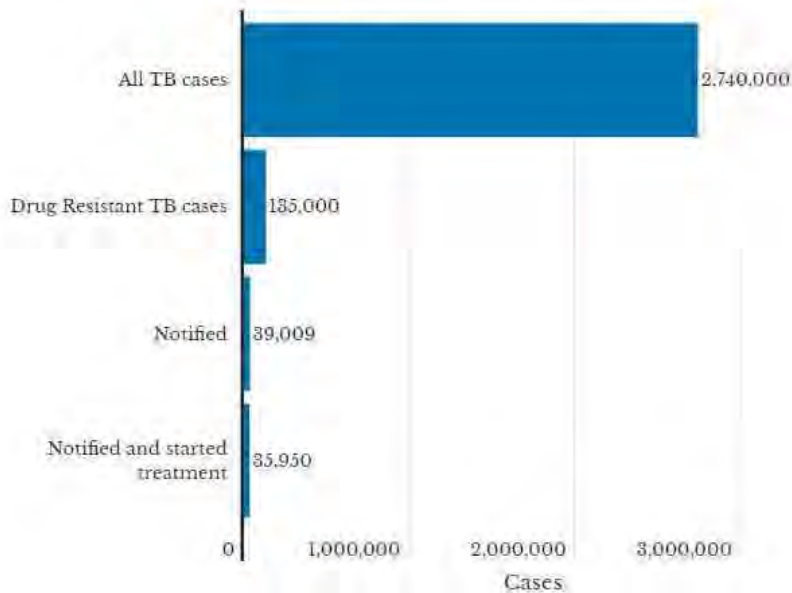
- TB remains the leading infectious killer disease
- India has accorded high priority for ending tuberculosis by 2025, five years ahead of the Sustainable Development Goals (SDG).
- Over 66000 drug-resistant TB patients in 2019.

<https://www.hindustantimes.com/india-news/india-will-be-able-to-end-tuberculosis-by-2025-union-minister-for-health-and-family-welfare/story-VgVv3DUatZ46FlyJNNvwQO.html>

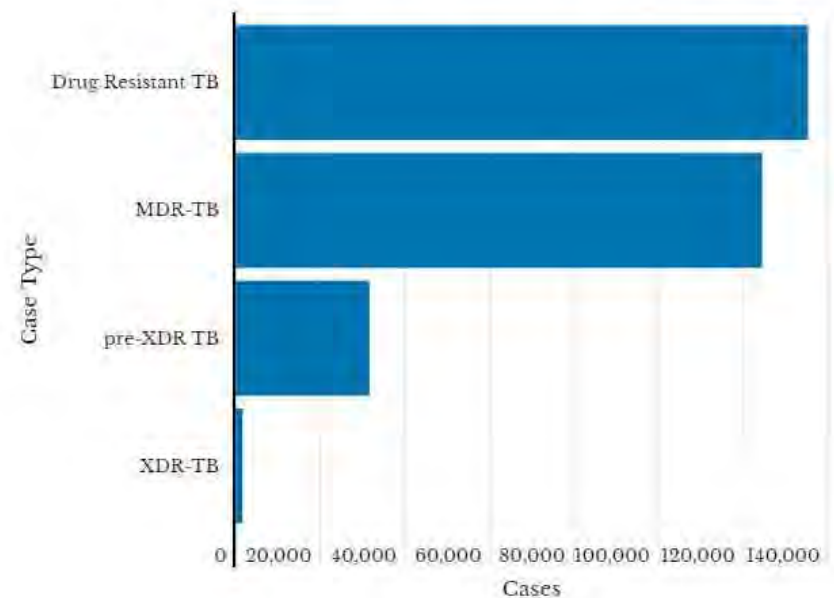
# TB in India - challenges

Source: World Health Organization, Global Tuberculosis Report, 2018

Drug Resistant TB Cases And Notification, 2017



Drug Resistant TB Cases In India By Type, 2017



<https://scroll.in/pulse/909185/in-india-waiting-for-the-drug-bedaquiline-is-a-matter-of-life-and-death-for-tb-patients>

<https://scroll.in/pulse/909185/in-india-waiting-for-the-drug-bedaquiline-is-a-matter-of-life-and-death-for-tb-patients>

# Zoonotic TB estimates

- zoonotic tuberculosis estimated a global prevalence of 147000 human cases, but the actual incidence could be higher and *M bovis* appears to be an inadequate proxy of zoonotic tuberculosis, particularly in south Asia countries.

www.thelancet.com/microbe Vol 1 June 2020

[https://www.thelancet.com/pdfs/journals/lanmic/PIIS2666-5247\(20\)30032-X.pdf](https://www.thelancet.com/pdfs/journals/lanmic/PIIS2666-5247(20)30032-X.pdf)

“A study on zoonotic tuberculosis in selected rural areas of Bagalkot and Belgaum districts of Karnataka state”

by Gopal Dabade and others

Why is zoonotic TB so rampant?

- People who are poor have less food not only for themselves but also for their cattle. This may make TB more common in both people and the cattle without there being any transmission between them.

[https://www.researchgate.net/publication/321436593\\_A\\_study\\_on\\_zoonotic\\_tuberculosis\\_in\\_selected\\_rural\\_areas\\_of\\_Bagalkot\\_and\\_Belgaum\\_districts\\_of\\_Karnataka\\_state](https://www.researchgate.net/publication/321436593_A_study_on_zoonotic_tuberculosis_in_selected_rural_areas_of_Bagalkot_and_Belgaum_districts_of_Karnataka_state)

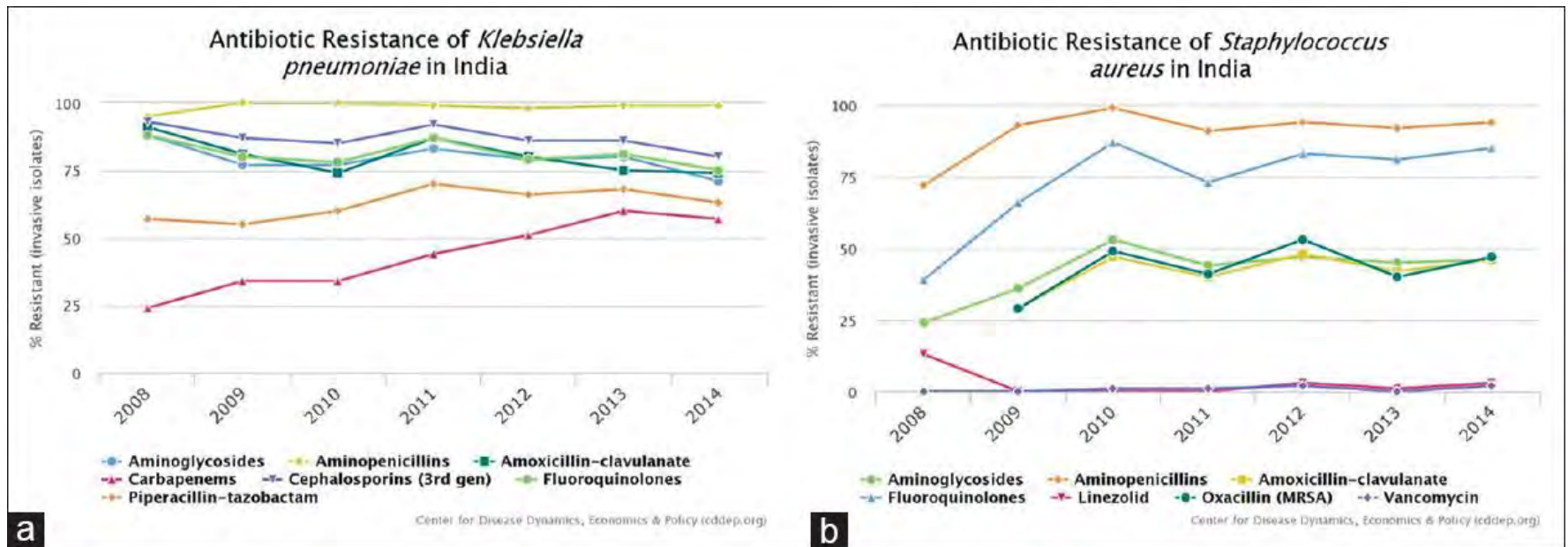
# Man and animal – rural India



# Man and animal – rural India



# Resistance patterns of *Klebsiella pneumoniae* (left) and *Staphylococcus aureus* (right) isolates in India (Blood and cerebrospinal fluid isolates from inpatients collected by a private laboratory network in India with 5700 collection centers nationwide)



[https://www.ijcm.org.in/viewimage.asp?img=IndianJCommunityMed\\_2019\\_44\\_1\\_4\\_253907\\_f1.jpg](https://www.ijcm.org.in/viewimage.asp?img=IndianJCommunityMed_2019_44_1_4_253907_f1.jpg)

	<b>2008</b>	<b>2013</b>
Carbapenem resistant <i>Escherichia coli</i>	10%	13%
	<b>2008</b>	<b>2014</b>
Carbapenem resistant <i>Klebsiella pneumoniae</i>	29%	57%
	<b>2008</b>	<b>2014</b>
Fluoroquinolones resistant <i>S typhi</i>	8%	28%
	<b>2008</b>	<b>2015</b>
Methicillin resistant <i>Staphylococcus aureus</i>	29%	47%

<https://www.bmj.com/content/358/bmj.j2687.full>



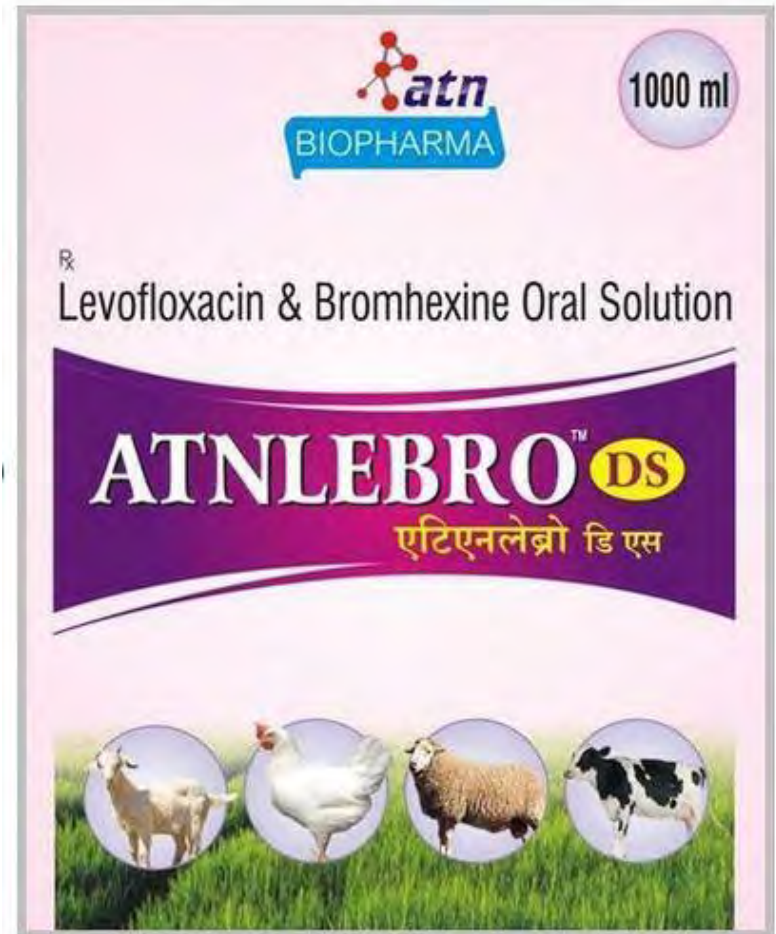
# ANTIBIOTIC ABUSE IN POULTRY

## BUKO and DAF-K study

- The farmers whom I interviewed were mostly ignorant and were totally dependent on the company for the use of antibiotics. There is no educational material in regional language (Kannada).
- Big companies use antibiotics. Poultry has become a big business house and huge money is invested in it by share holders.

# ANTIBIOTIC ABUSE IN POULTRY

- ATNLEBRO-CL<sup>(c)</sup> – a combination of levofloxacin and bromhexine, manufactured by the company ATN Biopharma company (<http://www.atnbiopharma.com/>).



# ANTIBIOTIC ABUSE IN POULTRY

- Enrofloxacin and ciprofloxacin. (both these are broad spectrum antibiotics and belong to the class fluoroquinolones; used for tuberculosis, and for which drug resistance is on the rise).





Meanwhile at the Kumbh...  
Foreigners appalled at how low  
we wear our masks 🙄😜😱

- **THANKS FOR YOUR KIND ATTENTION**