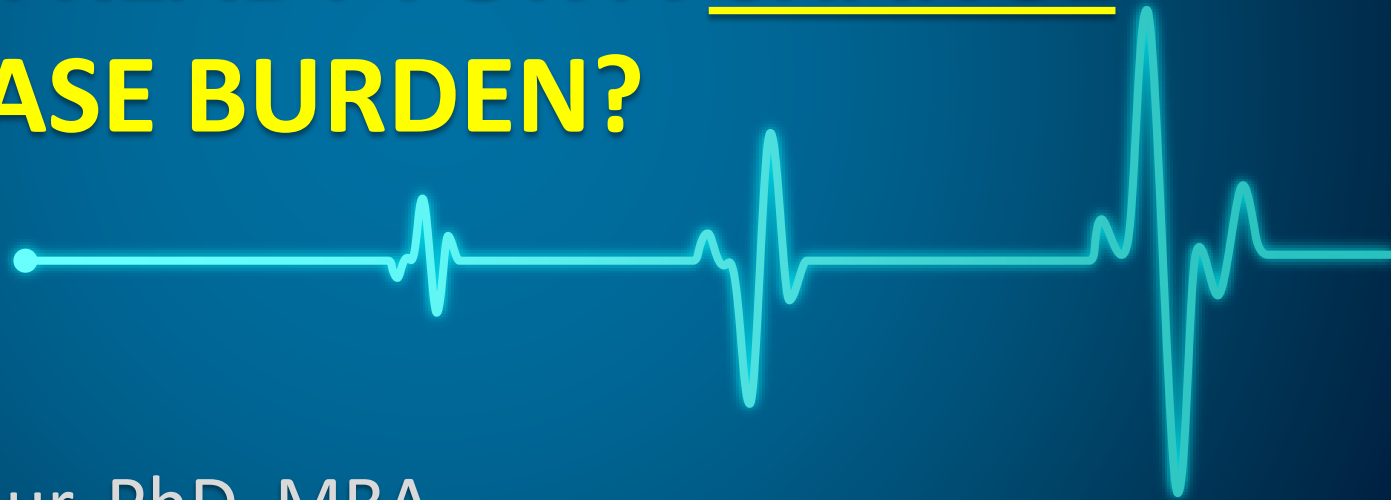


Drugs and Vaccines Discovery: **IS INDIA READY FOR A CHANGE IN DISEASE BURDEN?**



Akash Mathur, PhD, MBA

Chief Executive Officer, Bal Pharma Ltd.

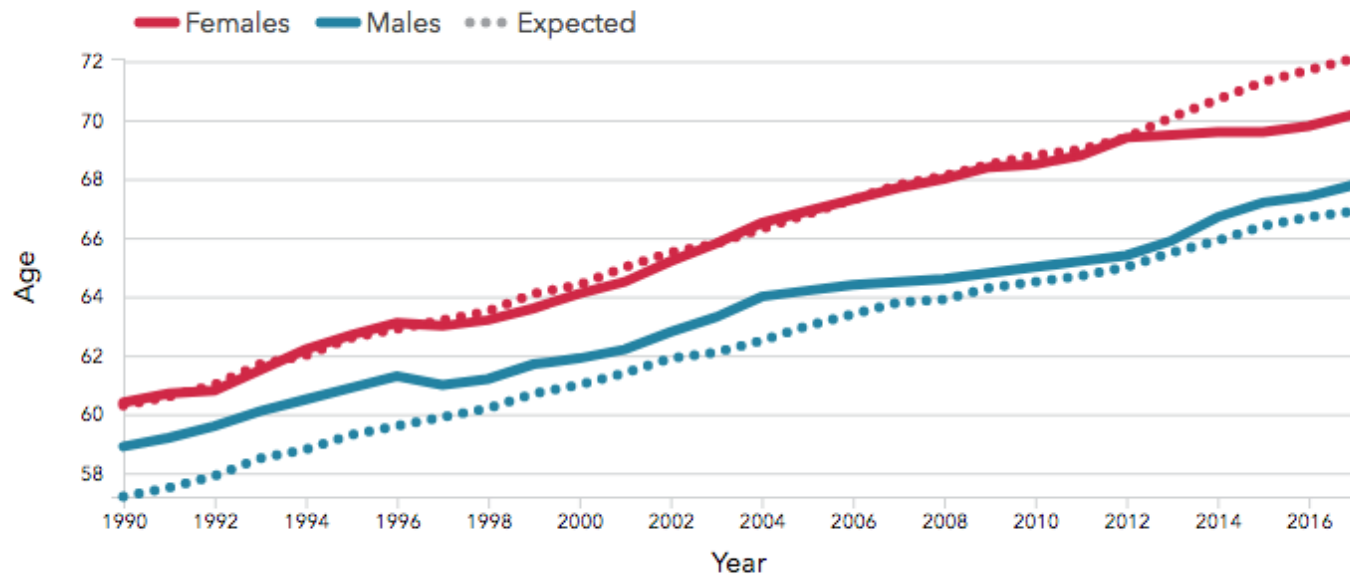
India and Her Health

- 70 year old
- Population growth 4x in 70 years
- Concentrated Population –
 - Karnataka 14% of state's population occupies 1% of the land area

- Forest Cover : Reduced by approx 20%
 - Effective Forest Cover?
- Agricultural land area
- Fresh water bodies
 - Bangalore 142 at independence
 - About 7 today
 - Ramgarh?? Galta??

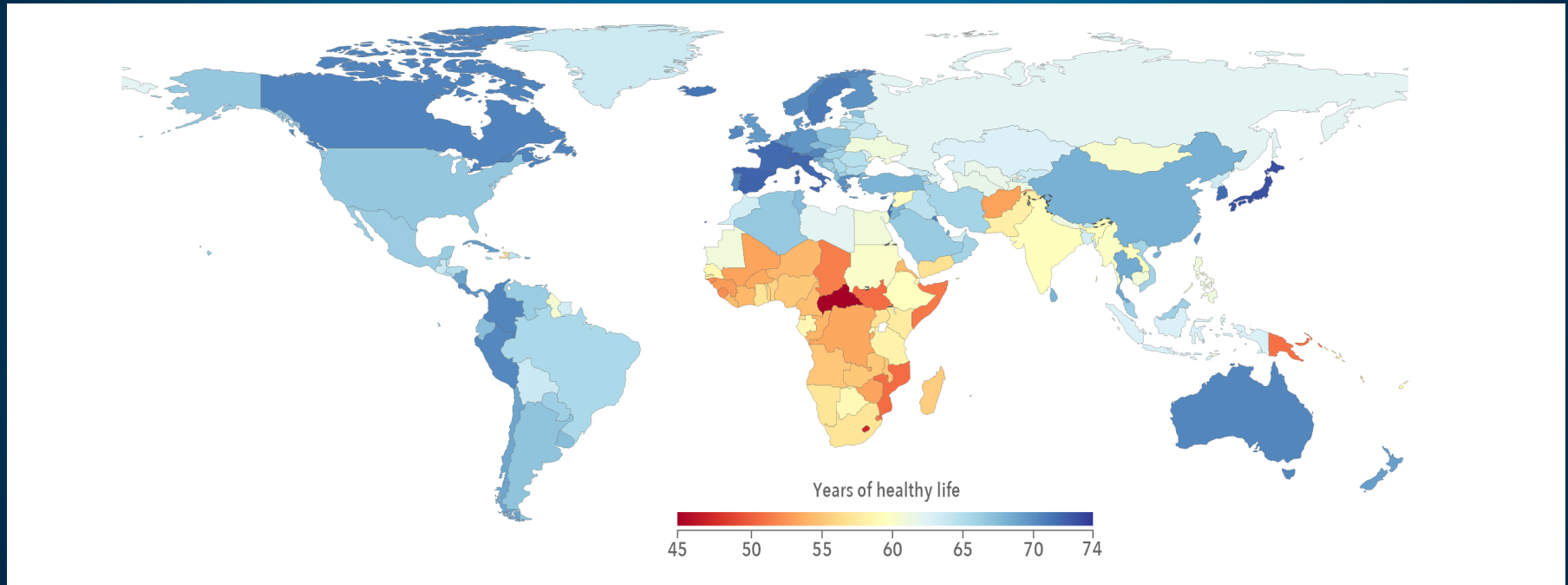
Good News – Age Expectancy

How long do people live?



	Expected		Observed	
	1990	2017	1990	2017
Females	60.3	72.1	60.4	70.2
Males	57.2	66.9	58.9	67.8

Age Expectancy – India and Global



Current Disease Load

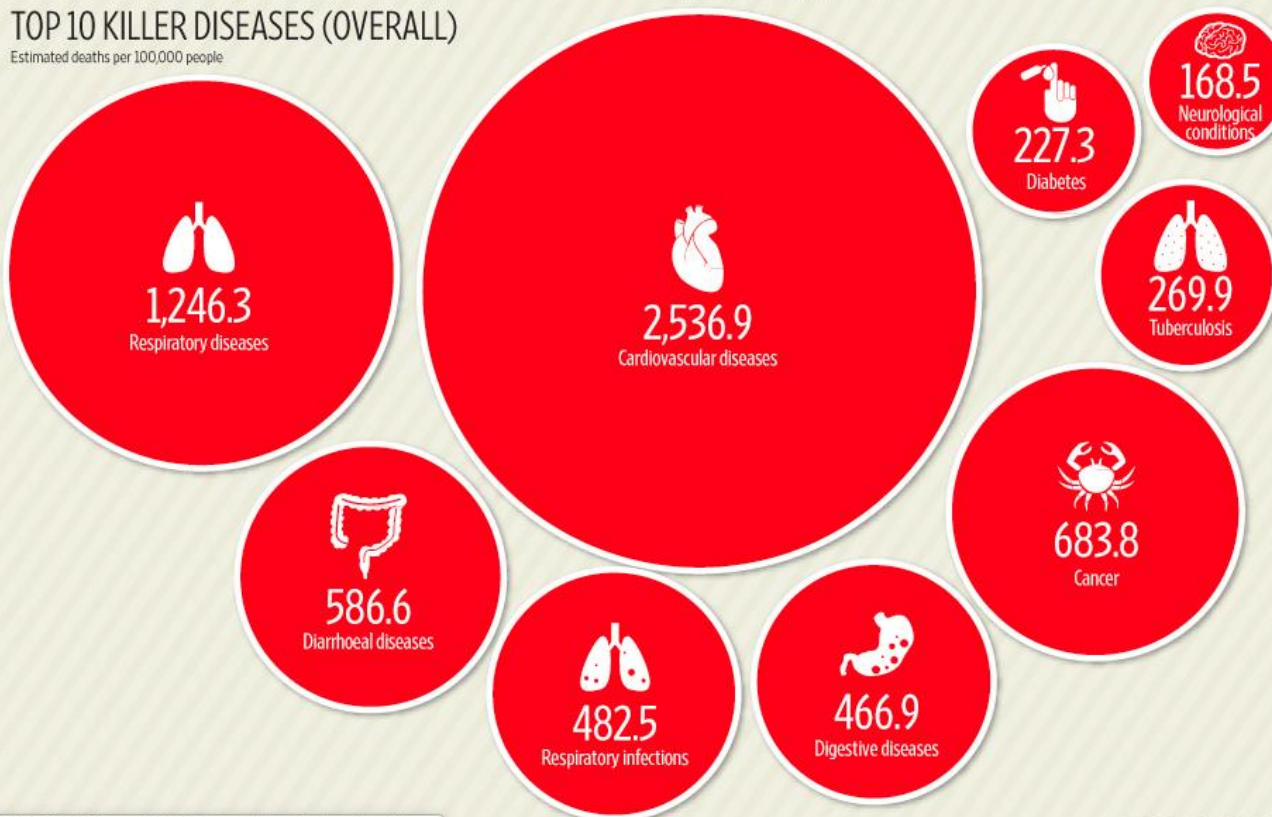
WHAT'S KILLING INDIANS

Heart diseases are the leading cause of death in India, as it is the case in most other countries. But unlike the rest of the world, respiratory diseases are the second biggest killer in the country, which is home to some of the most polluted cities in the world, according to recent reports. The health and family welfare ministry has projected that India will have more than 60 million people with coronary heart diseases by 2015, and 40 million people suffering from diabetes. Meanwhile, a recent report revealed that India has emerged as the world's largest consumer of antibiotics. The use of antibiotics in India grew 62% between 2000 and 2010. Mint reviews the top 10 killer diseases in India, and the drugs most consumed by Indians.

Data compiled by Nikita Mehta/Mint

TOP 10 KILLER DISEASES (OVERALL)

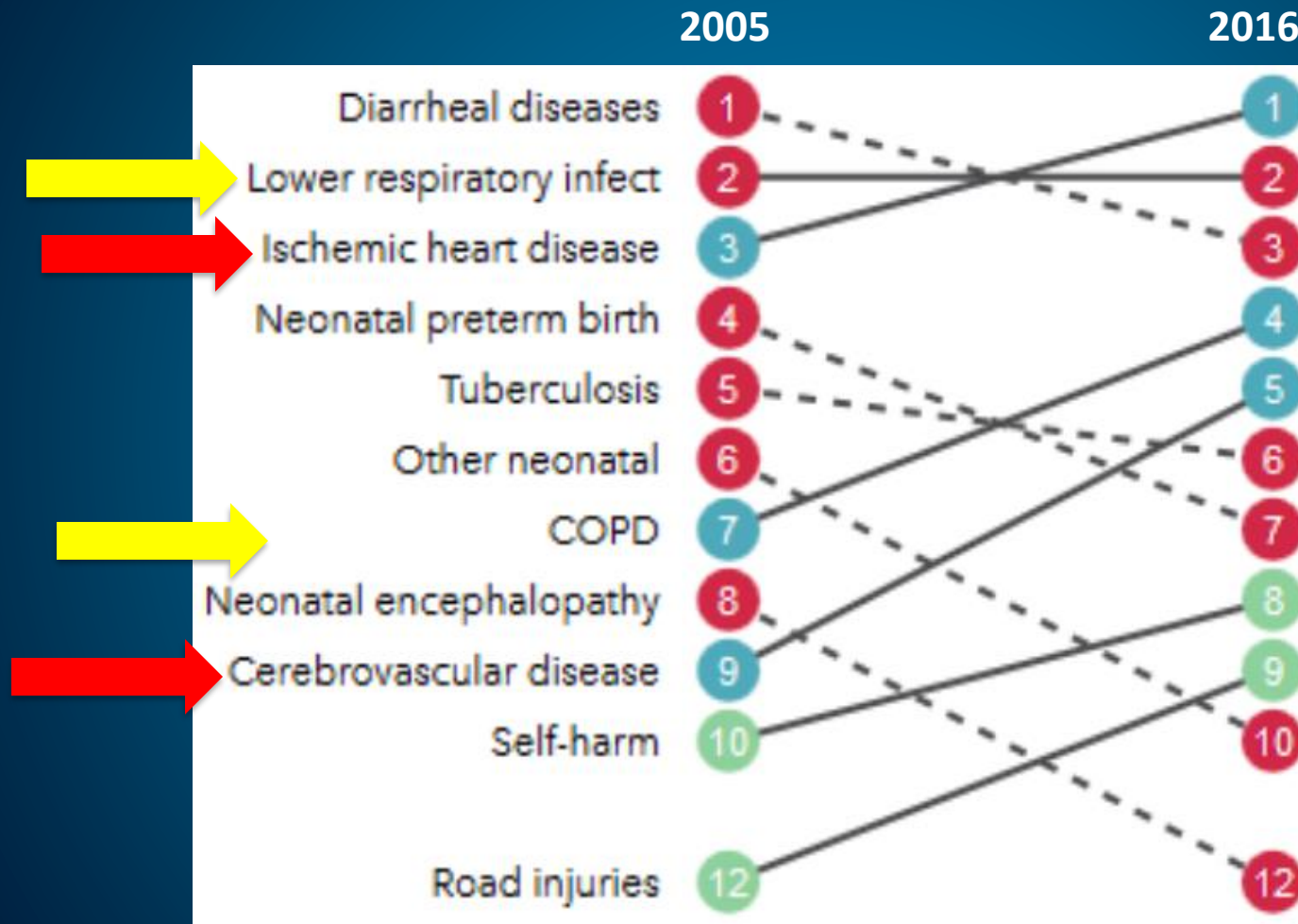
Estimated deaths per 100,000 people



TOP SELLING DRUGS IN INDIA

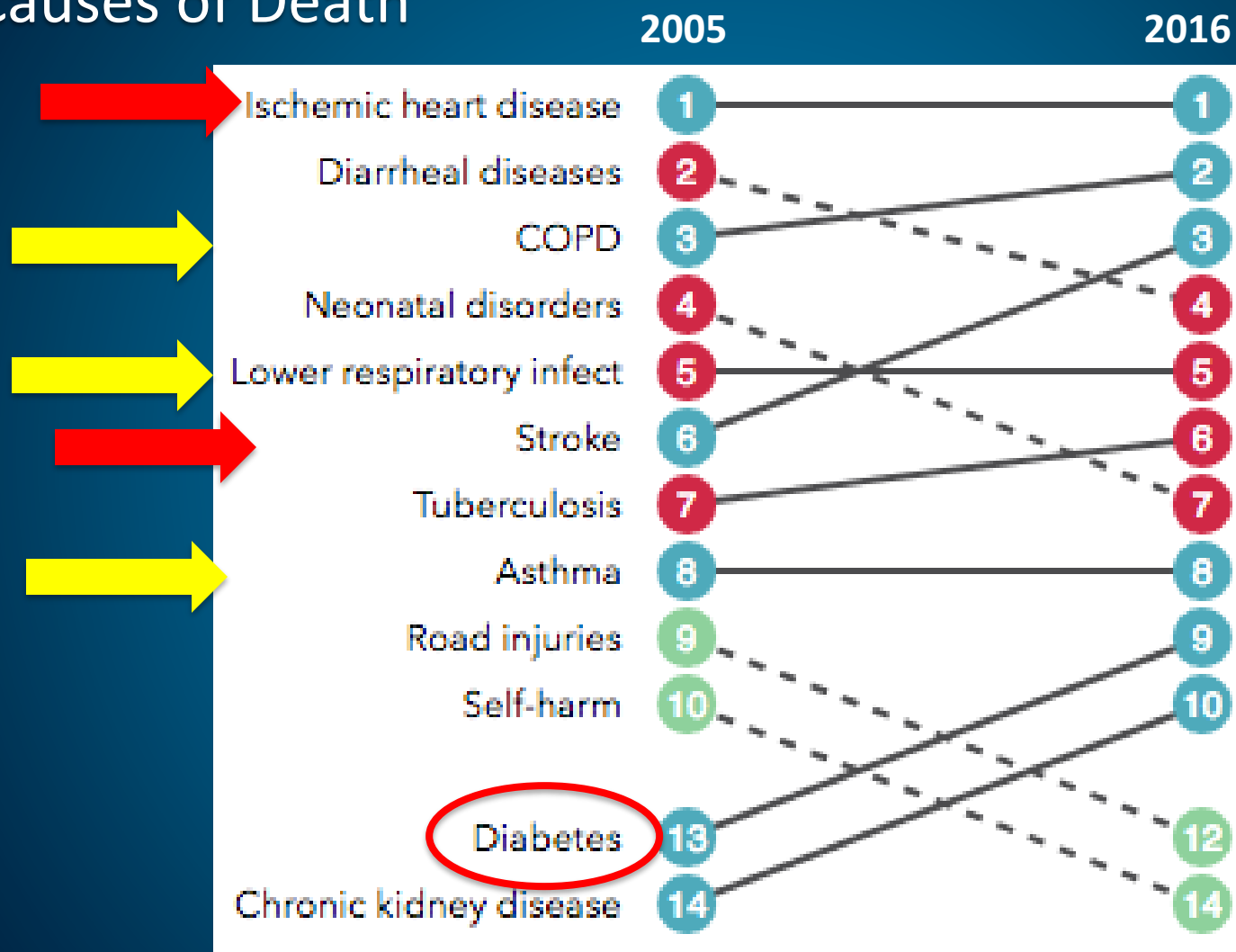
- Augmentin**
Bacterial infections
- Corex**
Cough
- Phensedyl Cough**
Cough
- Voveran**
Inflammatory disorders
- Human Mixtard 30/70**
Insulin
- Monocef**
Typhoid
- Liv-52**
Ayurvedic liver supplement
- Betadine**
Antiseptic
- Dexorange**
Vitamin deficiency

India and Her Health - Change in Disease Burden



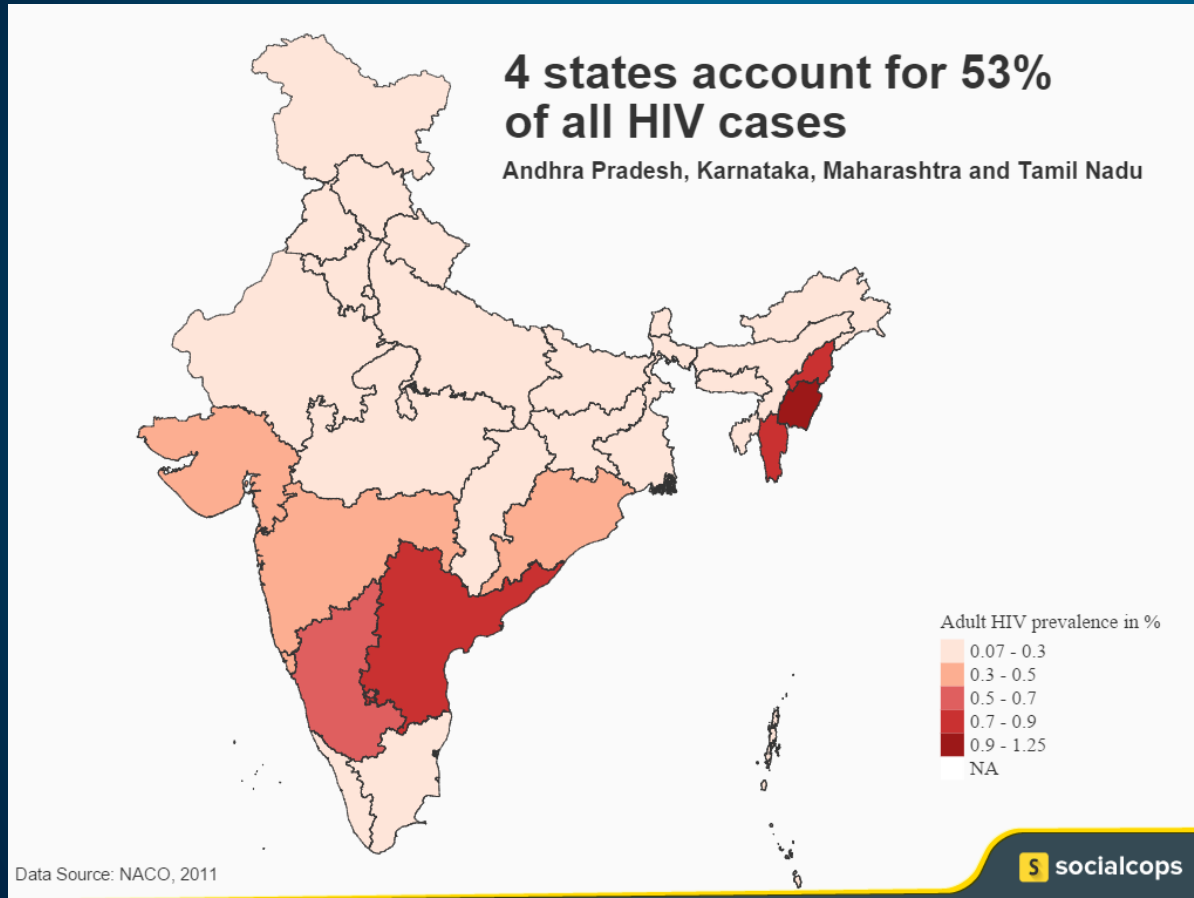
India and Her Health

Causes of Death



India and Her Health

The Silent Killer of Rural / Suburban India



Indian strain is not lethal currently

It exposes to secondary infections and cancer

India and Her Health

- Is India Ready for Change?

- How Do we Bring about the change?

India and Her Health - Disease Patterns

Anti-infectives

	Preventive	Curative	Post-Event
TB / Diarrhoea		++	
CVD / Diabetes	++	++	++

Atorvastatin
Rosuvastatin
Ensure
Low Carb Alternates

Intense Statins, Blood
Thinners

Gliclazide, Glimipiride,
Glipizins

Narayan Hridayalaya,
Fortis, Apollo

Gliclazide, Glimipiride,
Glipizins

India and Her Health – Value Chain Analysis

One time intense
therapy

	Preventive	Curative	Post-Event
TB / Diarrhoea		++	
CVD / Diabetes	++	++	++

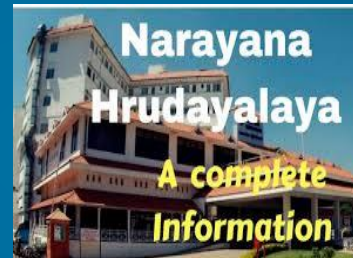
Pharma – bulk
production of cheap
drugs

Insurance Coverage
Predictive – data
management
Patient Monitoring

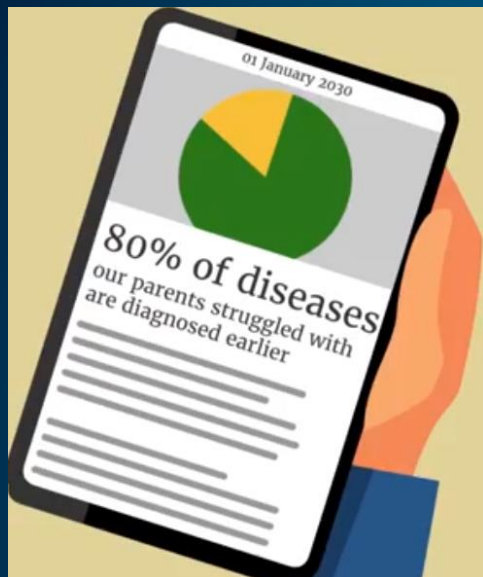
India and Her Health – Market Segments

	Masses	Middle Class	Upper and Upper Middle Class
TB / Diarrhoea	++++	++	
CVD / Diabetes	??	++	++++++

India and Her Health – New Era



India and Her Health – New Era



India and Her Health – Management

- Startups playing a major and dominant role
 - 50 of the top 250, and even about 7 of the top 50 pharma companies are less than 7 years old
- FDI available
- Exit by listing has encouraged investment

As domestic private equity major ChrysCapital is set to pick up a 10% stake in Mankind Pharmaceuticals, with GIC of Singapore and CPPIB of Canada, for \$350 million, the UK's AstraZeneca has announced its plans to invest \$90 million in India over the next five years.

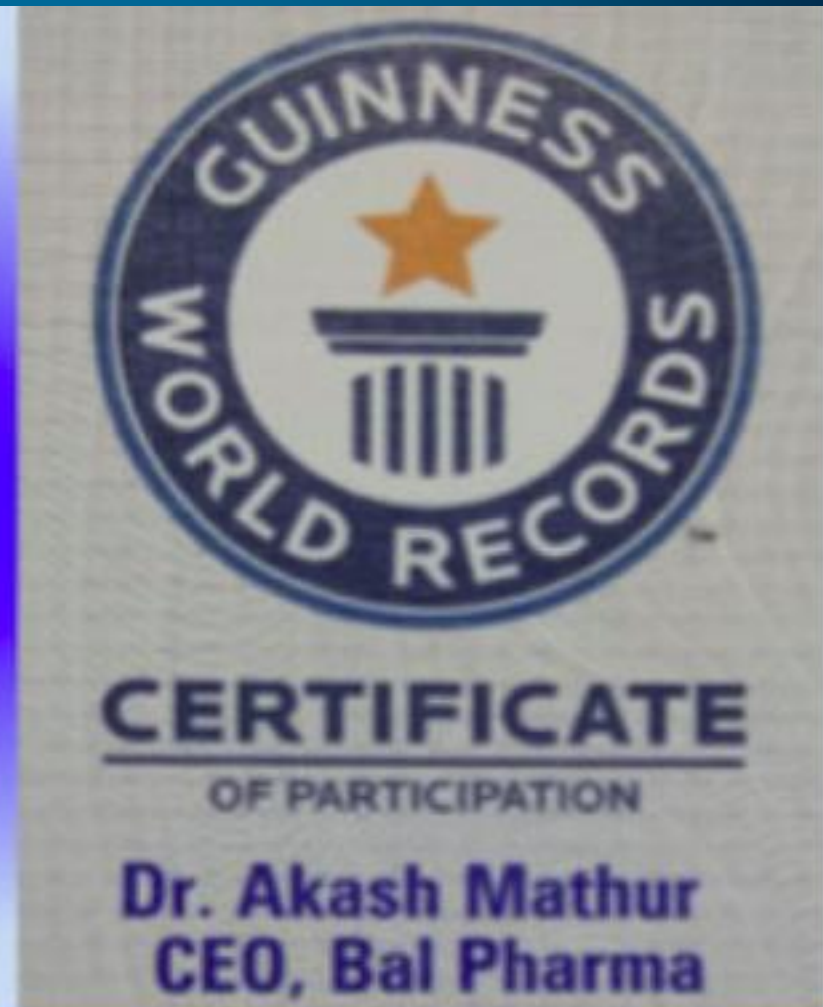
Fosun International, the Chinese conglomerate known to be aggressive on the international M&A circuit, is the latest entrant to join a bidding war to take control of India's second largest healthcare provider, Fortis Healthcare.

India and Her Health – Role of Education

- Diabetes and CVD require knowledge to manage
- AHA and ADA - HbA1c reduction by change in diet, no medicine
 - Can medicine work without change in diet?
- Program was started in Jaipur 3 years back
- Prominent Drs participating
- First Phase – Educating Drs



India and Her Health – Role of Education



Conclusions

- Health Burden has changed
- Ecosystem has changed
- Start-ups are playing greater role
- Education has definite role
- We are expanding our education program

