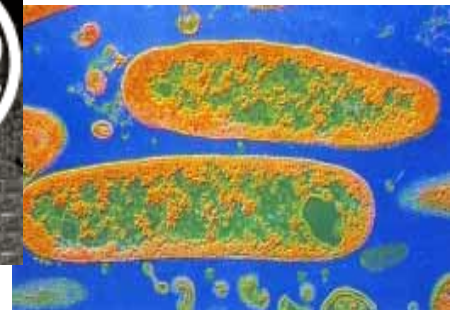
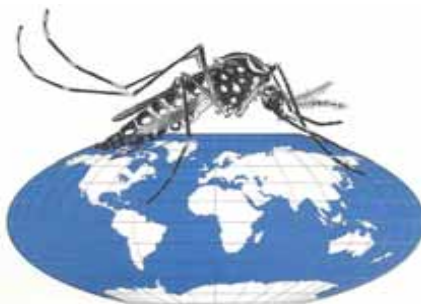


Challenges in Infectious Disease Control in India

Manish Kakkar



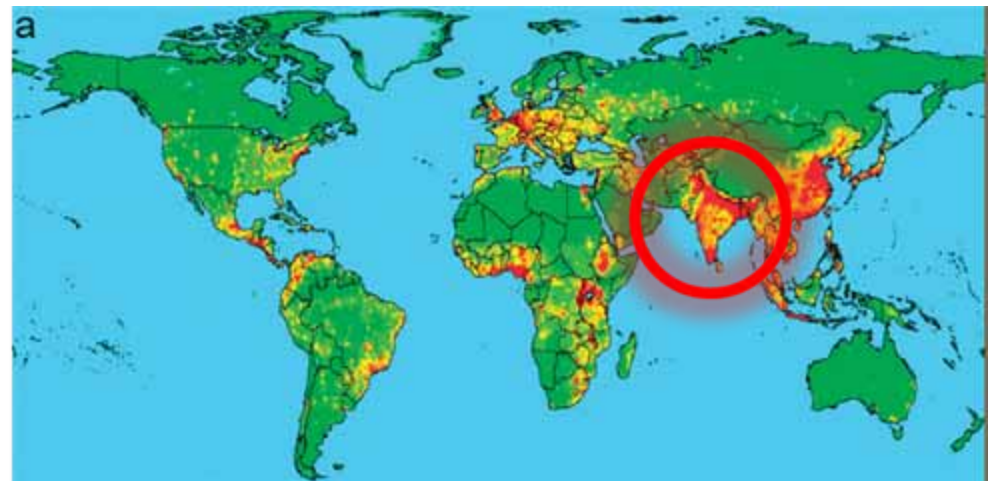
Disease burden

- Infectious disease burden in India (estimated by DALYs lost): 26.9%
- Dual burden of infectious diseases
- Endemic diseases and 'hotspot' for emerging infectious diseases

Pathogens reported by global location via ProMED (2007-08)



Source: ProMEDmail.org



Source: Jones et al (2008)

Emerging/re-emerging diseases in India in recent past *(at least 11 pathogens in 17 years)*

Disease/ agent	Year of emergence/ re-emergence
Vibrio cholerae O139 (West Bengal)	1992
Nipah virus (West Bengal)	2001, 2007
?SARS	2003
Chandipura virus disease	2003 (Maharashtra, Andhra), 2004 (Guj)
Highly pathogenic avian influenza (H5N1)	2006, 2007, 2008, 2009
Chikungunya	2005, 2006, 2007, 2008
Scrub typhus	2003, 2005
Dengue (Sikkim)	2004
Plague	1994, 2002, 2004
Trypanosomiasis (T evansii)	2004
Leptospirosis pulmonary (Mumbai)	2005

Challenges

- Health system challenges
- Human resource capacity
- Public health research
- Inter-sectoral coordination

1. Health system challenges

- a. Decentralized planning processes
- b. Gaps in HMIS
- c. Public health laboratory network



"It's OK, this is a teaching hospital. Some people just have to learn that the hard way."

a. Decentralization

- Need for planning, implementation & accountability at sub national govt. However...
 - Absence of public health department at central and state levels
 - ‘Selective disease control’ through vertical approach
 - TB, AIDS, VBDs, Leprosy, polio
 - Autonomous; no integration
 - Public - private linkages are weak
 - PPM for TB-DOTS showed increase in detection rate by up to 50%; treatment rate >80%
 - NACP III: MoUs with Industries for ART centres
 - Needs to be studied and evaluated

b. Gaps in HMIS

- Data gathering, systems, quality
 - ***Integrated Disease Surveillance Project:***
 - Real time signal-detection through case-based disease surveillance lacking
 - Event based surveillance mainly through media/informal sources
 - Regular surveillance information sharing limited
 - Functional district public health laboratory network yet to be established

State performance ranking – IDSP (June 2008)

(n=15 states)

Indicator	Performance
States reporting >10 outbreaks in a quarter	66%
Percent outbreaks confirmed and documented	2/3 states confirm <50% outbreaks 1/3 states confirm 25% outbreaks
Reporting from PHCs	53% states have <90% reporting 26% states have <60% report
Data analysis and feedback	No state where both state and district provide feedback 20% states only some district give feedback
Full time SSO	53% states 6m-1year 33% states <6m
State Lab Coordinator	80% states NO LAB COORDINATOR
Private sector reporting	Except Goa, all states have <50% reporting 50% states have <25% private sector reporting

Overall performance: 40% states scored <50%

b. Gaps in HMIS

- Gaps in information gathering and quality
 - ***Central Bureau of Health Intelligence***
 - Information aggregated by states
 - Under reporting
 - Issues with case definition and disease classification

c. Public health laboratory network

- Tertiary level laboratories well equipped
 - WHO CCs: 11 (8 in ICMR)
 - Regional reference: 1 (NIV, H5N1)
 - Global reference labs: 1 (ERC, Mumbai)
 - Accredited labs in private sector (ISO, TUV)
- Limited access at primary and secondary level
 - clinical diagnosis or surveillance; exceptions – peripheral smear & RDT for malaria and sputum smears for acid-fast bacilli
- Quality-assured microbiology laboratory support
 - confined to minority of medical care institutions (CMC network) & vertical programs (TB, malaria, polio, HIV serology)
- Limited convergence between research & public health labs

2. Human resource capacity challenges

- Public Health Cadre (TN, Andhra Pradesh, Gujarat); ?effectiveness
- 'Infectious Disease' not recognized as PG specialty by MCI; nor is MPH/
multi-professionalism
- Field epidemiology capacity
 - MAE (NIE), MPH (FE) (NCDC), 3 m Regional FETP (NCDC)
 - Less than 100 graduates since 2001; current profile
- Regulatory framework for standardization of capacity building and response
- Continuous professional development
- Strategic support expert groups on communicable disease
 - limited to immunization programs (NTAGI, IEAG)
 - Recently Novel Influenza A(H1N1), RCZI for zoonoses, ICECD for EIDs

3. Challenges of public health research

- Good-quality public health research output inadequate
- Driven by ‘biomedical model’ of health and disease; social determinants of Infectious diseases overshadowed
- Minimal secondary analysis done on epidemiologic data collected under IDSP, etc.



Research output in India

- Health papers from India (2002)
- public health publications
 - 4.4% of total health related research papers (68% original)
 - Medical colleges/ hosp: 46%; ICMR institutions: 13%
- Proportion of quality adjusted research outputs for all communicable conditions substantially lower than their share in disease burden
 - Including Respiratory infections, STDs, HIV, Diarrhoeal diseases
 - Exception: TB
- Australia-India ratio for public health research output per unit gross domestic product was 31

4. Challenges of inter-sectoral coordination

- Coordination with Public health engineering and food safety departments reactive
- For diseases of zoonotic diseases, 2 mechanisms exist:
 - National Joint Monitoring Group on avian influenza (MoH, DAH, MoEF)
 - National Standing Committee on Zoonoses under chairmanship of DGHS
 - No effective coordination mechanism at state and district level
 - Recent efforts in IDSP following Avian Influenza (H5N1)



Opportunities for infectious disease control

- **Health system and program implementation**
- National Rural Health Mission(NRHM)

- **Surveillance**
 - Integrated Disease Surveillance Project (IDSP)
 - Involvement of veterinary & wildlife officers at district level in IDSP
 - Livestock health
 - Central & Regional Disease Diagnostic laboratories (RDDDLs and CADRAD)
 - International Health Regulations (2005)

Opportunities for infectious disease control

- **Research**

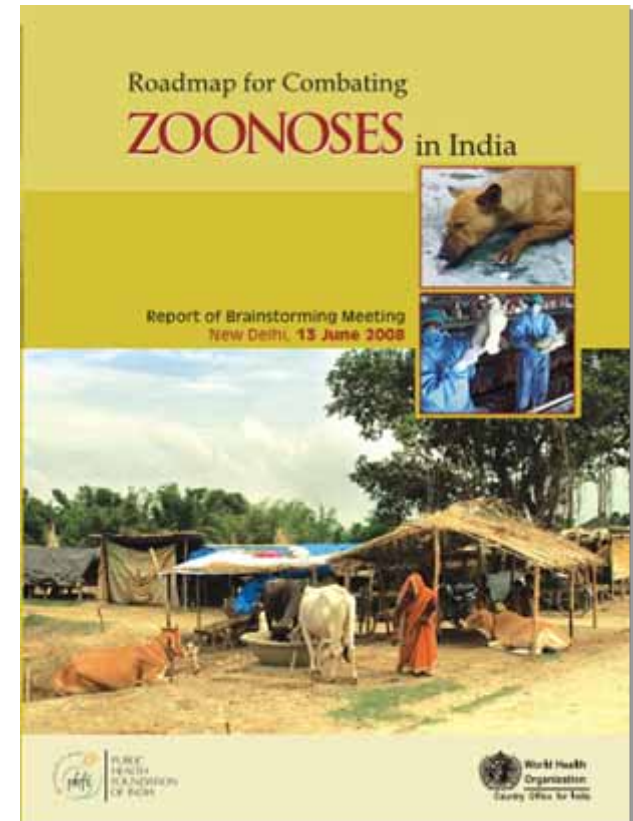
- Network of ICMR (28 centers) and NICD (8 branches), NCDC
- Network of ICAR (78 national centers/ bureaus), agriculture universities (41), IVRI
- Network of Wildlife Institute of India (WII)
- Biomedical labs (DBT, DST, CSIR)

- **Capacity building**

- New District Epidemiologists (600+ districts)
- Field Epidemiology Programs (NIE, NICD)
- PHFI's Indian Institutes of Public Health (7-8)
- Veterinary Schools and WII

Opportunities for infectious disease control

- **Inter-sectoral coordination**
 - National Standing Committee on Zoonoses (GoI)
- ICMR-ICAR Collaboration
- **Road Map to Combat Zoonoses in India (RCZI) Initiative**



In summary

- There are multiple and complex set of challenges to Infectious diseases control in India
- Existing public health systems and newer frameworks are opportunities to further the agenda of infectious disease prevention and control
- As a key step forward, we need to establish partnerships between academic and implementing agencies
 - To advise on creation and fostering of knowledge for informed decision making at all levels
 - Institutionalization of technical advisory bodies

THANK YOU

