



Identifying research priorities for Zoonoses research in India (2010–2015)

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Roadmap to Combat Zoonoses in India
A multisectoral initiative for 'integrated' prevention and control of zoonoses



BACKGROUND & OBJECTIVES



Need for research agenda



* Public Health Foundation of India (2008) Roadmap for Combating Zoonoses in India: Report of Brainstorming Meeting: New Delhi, 13 June 2008.

** Schmidt CW (2009) Swine CAFOs & novel H1N1 flu: separating facts from fears. Environmental health perspectives 117: A394-401.

*** Dandona L et al. (2009) Trends of public health research output from India during 2001-2008. BMC medicine 7: 59.





METHODS

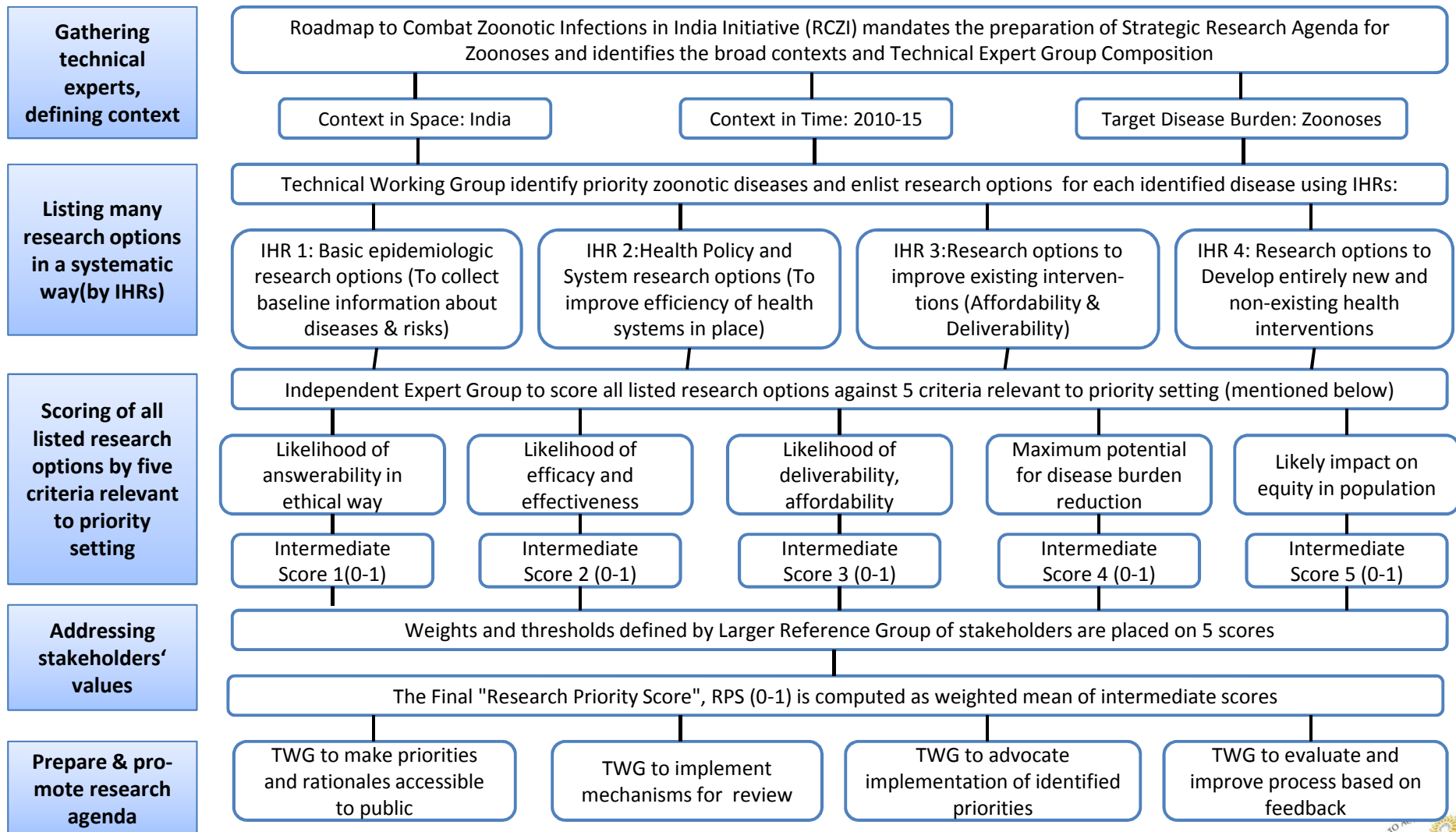


Our methods

- Methodology developed by the Child Health and Nutrition Research Initiative (CHNRI)
- Two advances in CHNRI
 - That the process should create research options geared toward actual health impact
 - That the priorities should reflect the values of the community in which they are to be implemented
- Two advances over CHNRI
 - Diverse constitution of technical experts who were interviewed by the research team
 - An independent group of scorers for ensuring objectivity

Ref: <http://www.chnri.org/publications.php>





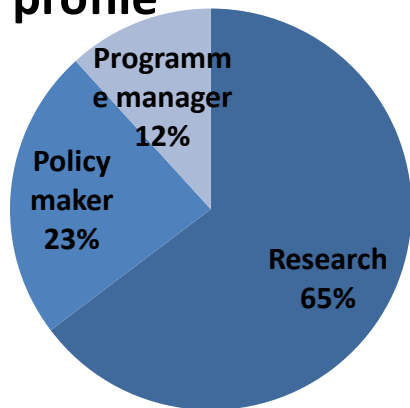
Schematic of different steps used in identification of strategic research options

Adapted from: Igor Rudan, Shams El Arifeen, Robert E. Black. A Systematic Methodology for Setting Priorities in Child Health Research Investments (In A New Approach for Systematic Priority Setting In Child Health Research Investment). Child Health and Nutrition Research Initiative (CHNRI). Bangladesh 2006

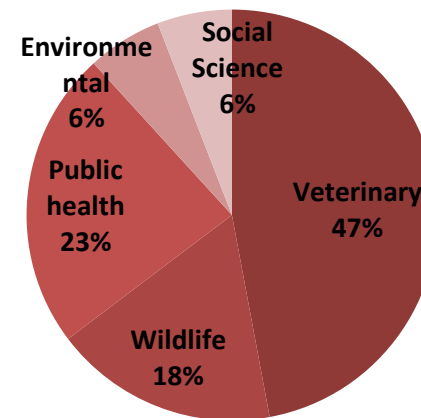


Selection of Technical Expert Group (n=17)

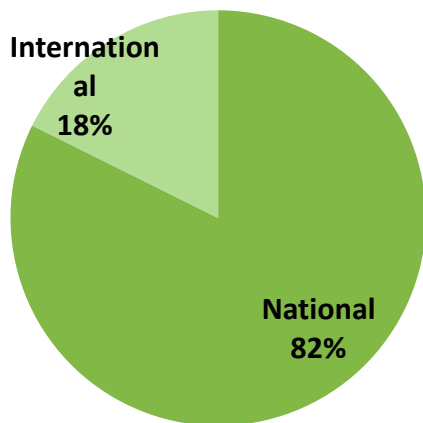
Primary work profile



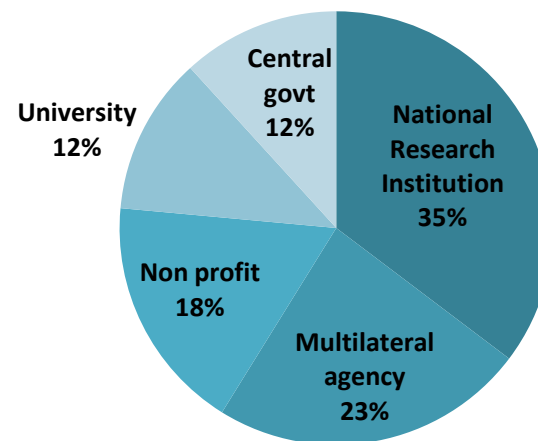
Discipline



Geographical Scope of Work



Institutional Profile



Priority diseases & Research options

- Identification of priority diseases
 - Asked each expert to name 5 priority diseases, in any order
 - Assessed the frequency of each disease
- Generate Research Options
 - Identify knowledge gaps
 - By each type of research (IHR, factors, institution profile)
 - Develop possible options, within the study context, to fill the gaps



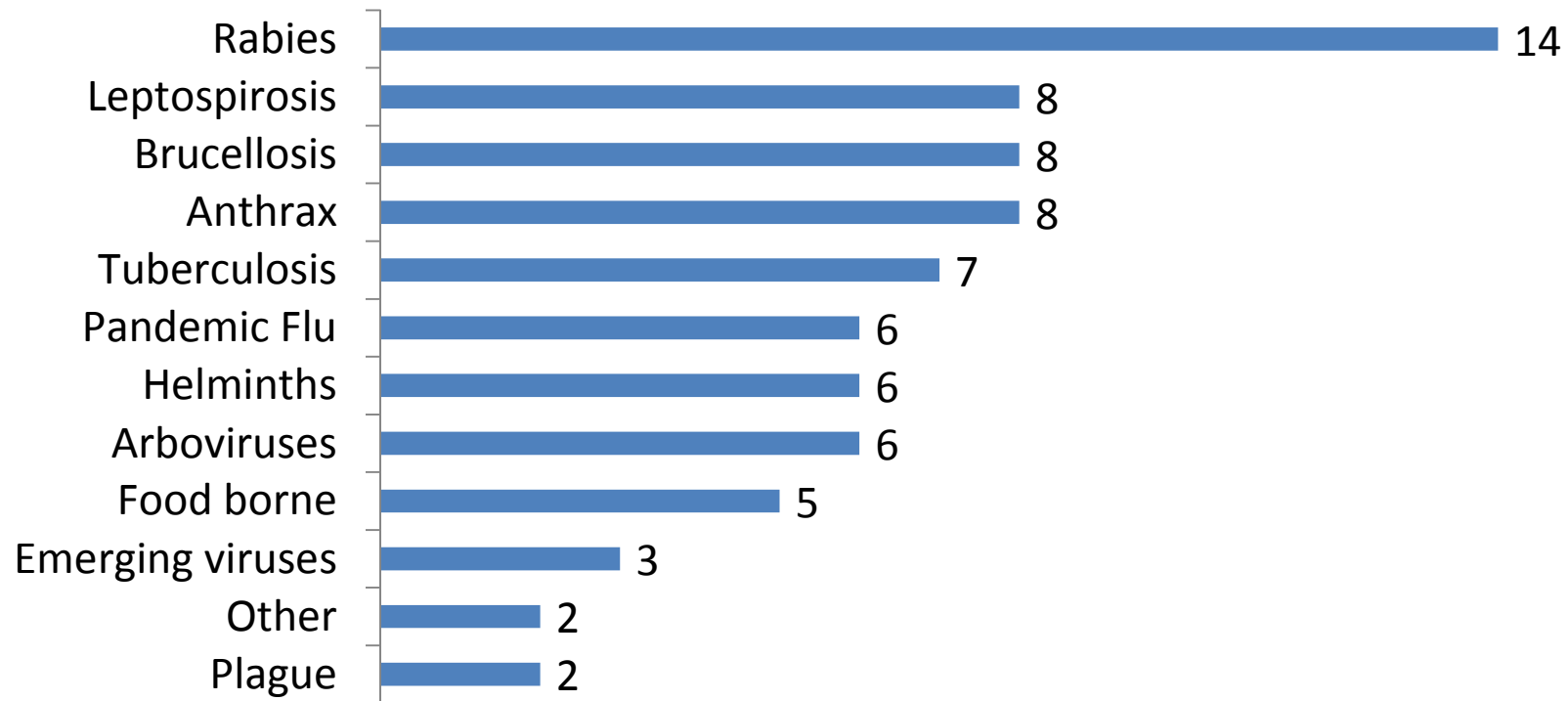


RESULTS



Identified priority zoonotic diseases

Frequency of priority zoonotic diseases as identified by experts



Universal research themes

1. Measure the morbidity, mortality, and economic burden of disease in human and animals

2. Determine the spatial, temporal and directional interactions of transmission between wildlife, humans and domestic animals

3. Develop field diagnostics for zoonotic diseases

4. Conduct cost-benefit, cost-effectiveness, and affordability analyses of zoonoses interventions

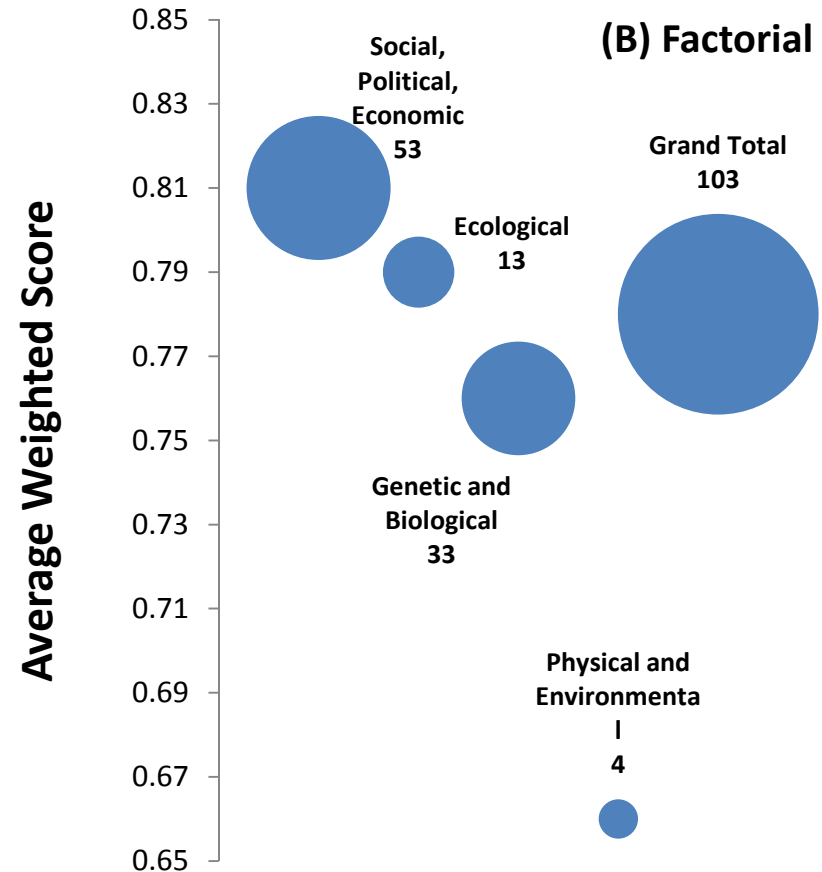
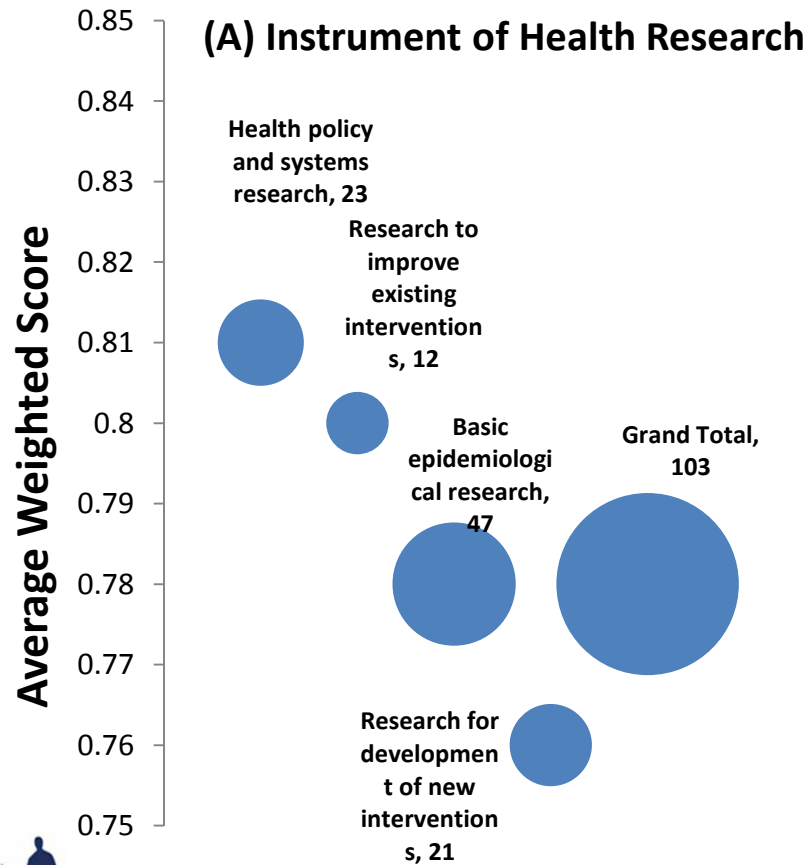


Research options

- Collected over 300 research options between the 17 experts
- Consolidated to 103 unique research options
- Balance of cross-disease research (48%) and options for specific zoonotic diseases (52%)



Average Score & Frequency of Research Options by



Y Axis represents the average weighted score and the size of bubble represents frequency for each category of research option



Average Criteria ranks
Top 15 research options
Scores by category
Key difference in scores



RESULTS PART 2: DETAILED RANKINGS



Rank	Top 15 Scored Research Options	Weighted Scores
1	Determine the availability and prescribing policies of rabies vaccine at primary health centers and private facilities	0.95
2	Assess communication strategies for decreasing consumption of undercooked meat and promoting safe handling of carcasses to prevent anthrax	0.94
3	Develop and test vaccines for dengue	0.93
4	Define risks and mitigation options of food safety in India	0.92
5	What is the extent and mechanism of helminth drug resistance?	0.92
6	What are differences in risk factors for anthrax transmission in contrasting outbreak-prone areas?	0.91
7	Assess tuberculosis prevalence in human and animal populations in organized farms	0.91
8	Test the clinical efficacy of different antibiotics for leptospirosis treatment	0.91
9	Identify carrier bat species of nipah virus and their seasonal movement patterns	0.91
10	Do slum improvement or livelihood diversification schemes reduce the risk of exposure to zoonotic diseases?	0.91
11	Identify models for inter-sectoral collaboration and economic cooperation across sectors	0.91
12	What is the impact of leptospirosis chemoprophylaxis on antibiotic resistance?	0.91
13	What are the best communication strategies to convey culling decisions to communities?	0.91
14	Conduct a risk assessment to human health from dairy-borne zoonotic diseases using Codex Alimentarius framework	0.90
	Compare existing models for the production, purchase and distribution of rabies vaccines to identify best practices	0.90



RCZI



Score by categories	Frequency	Average Research Priority Score	Minimum Research Priority Score	Maximum Research Priority Score
Instrument of Health Research				
Health policy and systems research	23	0.81	0.64	0.94
Research to improve existing interventions	12	0.8	0.68	0.95
Basic epidemiological research	47	0.78	0.54	0.92
Research for development of new interventions	21	0.76	0.34	0.93
Avenue				
Evaluating existing interventions	8	0.84	0.76	0.91
Research to improve sustainability of existing interventions	6	0.83	0.73	0.92
Public health research	7	0.82	0.79	0.86
Studying system capacity to deliver efficacious interventions	11	0.82	0.71	0.91
Studying system capacity to reduce exposure to proven health risks	12	0.80	0.64	0.94
Research to improve deliverability of existing interventions	6	0.77	0.68	0.95
Understanding risk factors	30	0.77	0.54	0.92
Measuring the burden	9	0.76	0.59	0.91
Clinical research	10	0.74	0.34	0.93
Basic research	4	0.69	0.56	0.83

RCZI

Score by categories	Frequency	Average Research Priority Score	Minimum Research Priority Score	Maximum Research Priority Score
Factorial				
Social, Political, Economic	53	0.81	0.59	0.95
Ecological	13	0.79	0.55	0.91
Genetic and Biological	33	0.76	0.34	0.93
Physical and Environmental	4	0.66	0.54	0.79
Collaboration				
Medium	46	0.80	0.55	0.94
High	37	0.79	0.54	0.92
None	20	0.74	0.34	0.95
Scoring criteria weights				
Answerability	103	0.80		
Efficacy	103	0.87		
Deliverability	103	0.82		
Impact	103	0.67		
Equity	103	0.76		
Total	103	0.78	0.34	0.95





CONCLUSIONS



Conclusions

- Coordinated a synthesis of expert opinions in a systematic method to identify and prioritise key knowledge gaps
- Option scores support the need for collaboration, multi disciplinary and intersectoral approaches, in line with One Health philosophy
- Identified
 - priority zoonotic diseases
 - universal research themes
 - specific research options
- Research on risk analysis over basic epidemiology favored



Recommendations, Next steps

Develop a Strategic Research Agenda

Disseminate findings to key stakeholders including the research community

Establish a research fund

Dynamic process; needs to be updated, evaluated and replicated



Acknowledgements

- WHO India
- UNC Chapel Hill
- RCZI community

