All India Services & Central Civil Services Officers Special Foundation Course Dr MCR HRD Institute, Government of Telangana

Nachiket Mor, PhD[1]

[1]Banyan Academy of Leadership in Mental Health

October 27, 2025

Table of Contents

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Table of Contents

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Canonical View of the Organisation of Economic Activity

- Markets stabilise at a competitive equilibrium with a price at which supply equals demand.
- Markets produce Pareto-optimal / efficient outcomes, i.e., where there is no waste (Mock, 2011).
- These outcomes may not be socially optimal (**Why?**).
- An initial lump-sum transfer of wealth could help correct that.
- **Taxes can be used to effect these transfers**.

No Pareto Optimality in Healthcare

- Most healthcare is a private good, and markets can be competitive (that is, there is a market-clearing price).
- However, markets do not generate Pareto-optimal / efficient outcomes in healthcare (Ashraf and Nambiar, 2022).
- There is an excess supply of (& demand for) hospitals with low price elasticity (Thanakijborisut, 2014).
- Inadequate supply of (& demand for) primary care with a very high price elasticity (Dupas and Miguel, 2017).
- **In such a situation, tax transfers to the poor could exacerbate the problem (why?)**.

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Possible Reasons for Why Markets Fail in Healthcare?

- Information asymmetry.
- Behavioural biases.
- Very high volatility of expenditures.
- Consequently, the market price is no longer a *sufficient statistic*.
- As a result, markets fail to deliver Pareto-optimality.
- **As a result, not only the poor, but also the rich do not receive good healthcare**.

The "Control Knobs" Framework

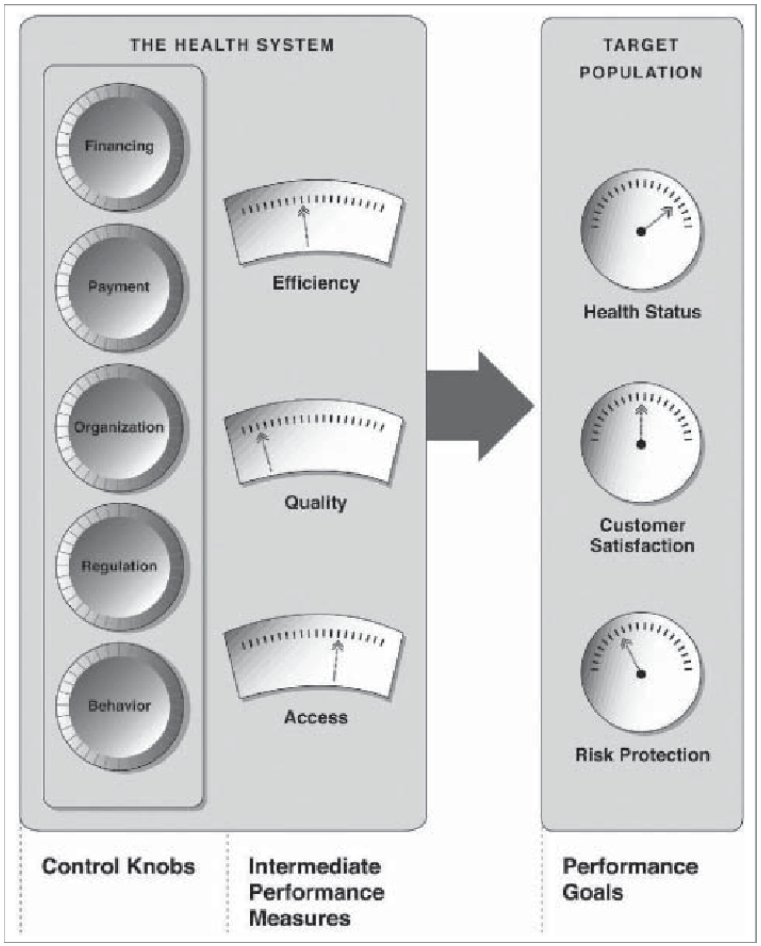


Figure: Control Knobs (Roberts et al., 2004)

The "CK+4" Framework

Tool	Definition	Appropriate Use
Financing	Raising & pooling	Financial protection
Payment	Paying providers	Incentivise
Organisation	Structuring & delivering	Improve accessibility
Regulation	Laws, standards, oversight	Correct market failures
Persuasion	Change behaviour	Increase uptake
One Health	Human, animal, environment	Zoonosis, Climate
CEH	Cultural beliefs	Behavioural change
Public Health	Population-level	Reduce disease burden
SDOH	Non-medical factors	Structural barriers

What value does pooling add?

- Risk compression (volatility)
- Prepayment (behavioural bias)
- Agent-of-customer role (from "perfect" market to oligopsony, information asymmetry)
- Friend-of-customer role (information asymmetry, behavioural bias)

Pooling Reduces Variability (Risk Compression)

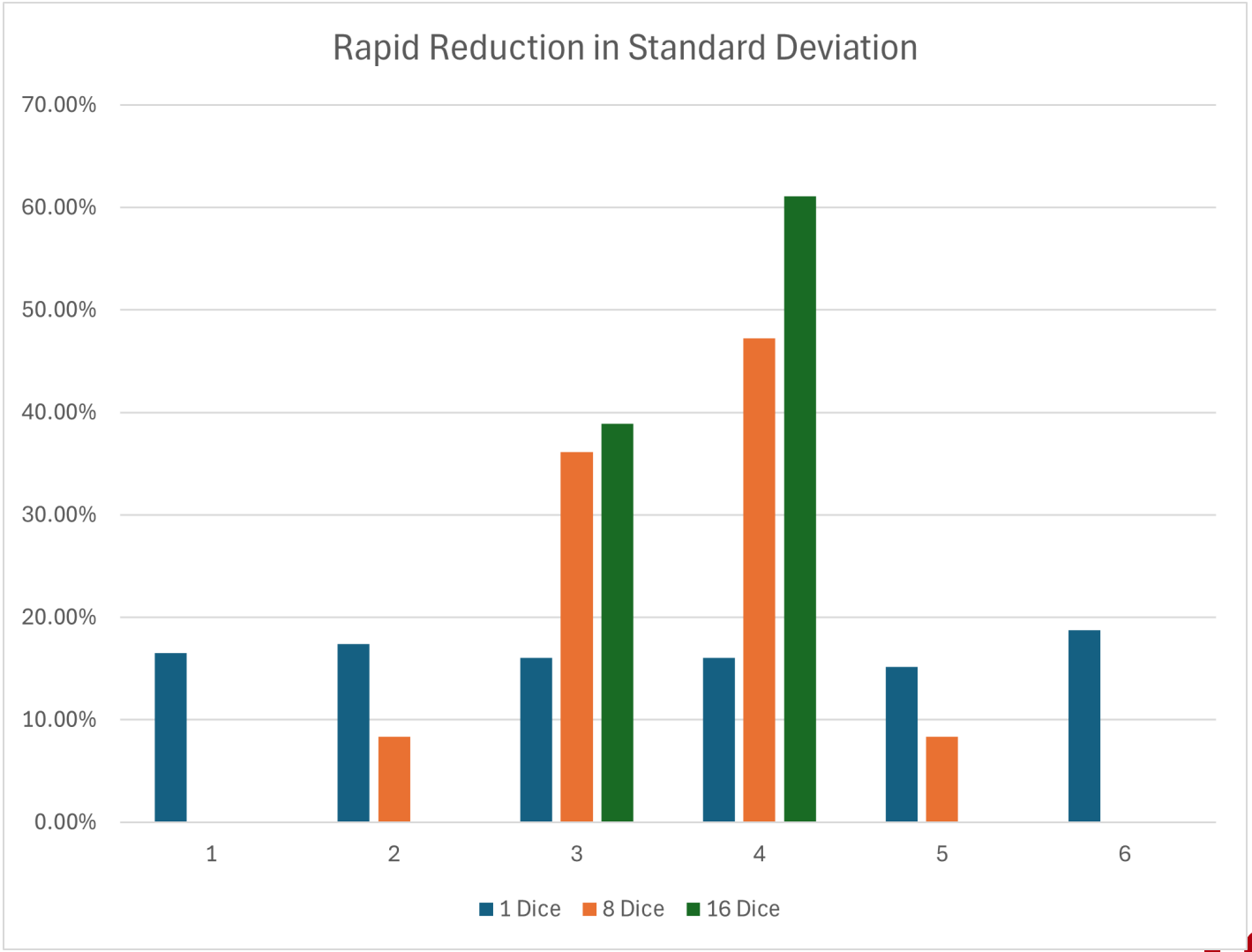


Figure: Distribution of Average Value

Organisation

- Primary Care
- Secondary Care
- Tertiary Care

Essential Characteristics of Primary Care

- Routine.
- Low complexity.
- High diversity.
- Low cost.
- **Pooling not required**.
- **Prepayment is often considered**.
- Potential channels: 4^{th} stage Community health workers (Mor, Ananth, et al., 2023), pharmacies (FIP, 2019; Mor, Sen, et al., 2023), existing solo primary care providers, primary care clinic networks like Basic Healthcare Services in Rajasthan (BHS, 2020), schools (HealthBasix, 2021), faith healers, families.

Essential Characteristics of Secondary Care

- Emergency.
- Medium complexity.
- Not very rare.
- Not very expensive.
- Proximity is very important / Collaborative Care.
- **Pooling may or may not be essential**.
- **Prepayment could add value**.

Essential Characteristics of Tertiary Care

- Elective.
- Complex.
- Rare.
- Expensive.
- Proximity is not essential.
- **Ideally suited to pooling**.

One Health

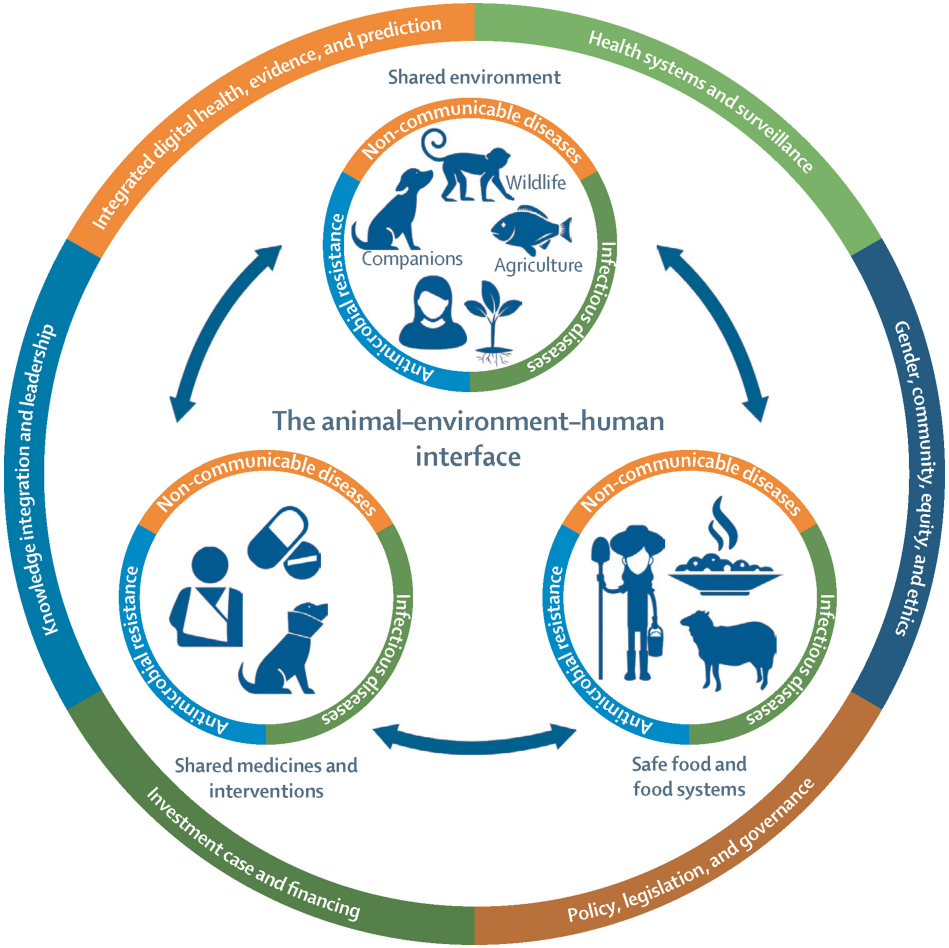


Figure: One Health Dimensions (Amuasi et al., 2020)

Hendra Virus Transmission & Control

Figure: Spectacled Flying Fox (TBH, 2021)

Cultural Evolution of Health (CEH) Framework

Reducing Smokeless Tobacco Use among Women in Bhubaneswar Slums

1. Cultural Dissonance	Make harms visible in local terms (e.g., small babies, pregnancy risks). Use posters and mother testimonies to highlight hidden dependence (early-morning use, cheap packs).
2. Cultural Innovation	Co-design substitutes: 'First-bite swap' with fennel/cardamom mix; 'Craving cards' with quick swaps; household pledge for tobacco-free kitchens during pregnancy.
3. Social Transmission	Leverage VHNDs & immunisation days. 'Maa Sathi' peer champions demonstrate swaps, pledges, and share stories. Use product-specific messaging (paan, khaini, gudakhu).
4. Norm Incorporation	Embed in rituals: baby-shower 'tobacco-free blessing', bead bracelets, 'tobacco-free home' stickers, Anganwadi recognition boards. Use praise & gentle sanction.
5. Accumulated Culture	Refresh rituals annually (child's birthday). Institutionalise: add to VHND checklists, IEC calendars, SHG incentives. Reduce pack sales near Anganwadis.

Social Determinants of Health

Figure: Social & Physical Determinants of Health (HP2020, 2013)

The 63.5 Degree Light Rule

Figure: BBD Chawls Mumbai (Singh, 2018)

Building Codes and Active TB

Figure: Lallubhai Compound Mumbai (Filarski, 2020)

Healthy & Unhealthy Layouts

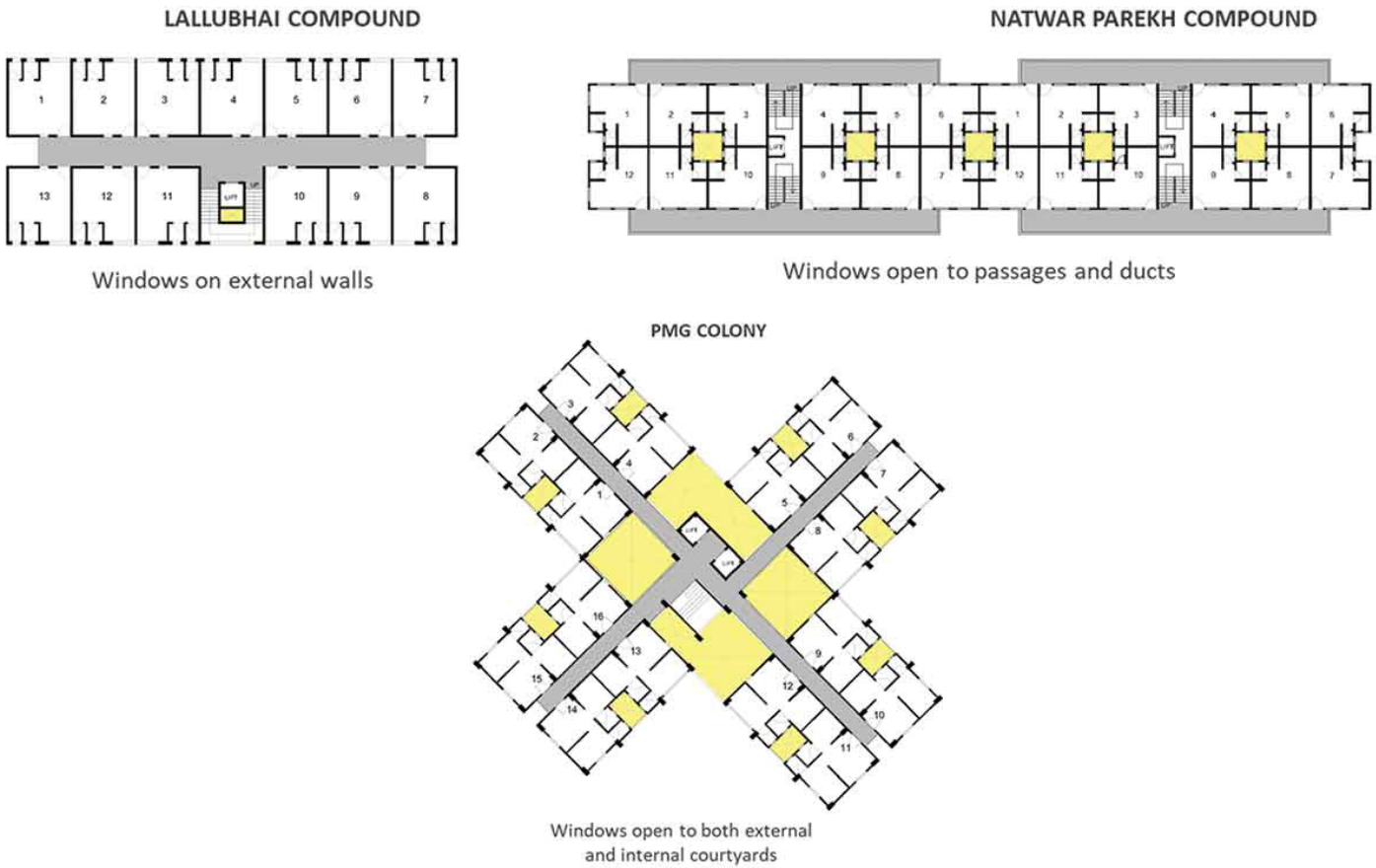


Figure: Slum Resettlement Building Layouts (Pardeshi et al., 2020)

Social Determinants are a "free lunch"

- Housing
  - External light and air (big impact) (Pardeshi et al., 2020).
  - Indoor air (no impact) (Mortimer and Balmes, 2018, p 540).
  - Crowding (some positive & some negative impacts) (Cardoso et al., 2004; Rader et al., 2020; Solmi et al., 2017).
- Infrastructure
  - Ambient air (big threshold effect). (Liu et al., 2019).
  - Dedicated play & exercise areas (no impact) (Lambert et al., 2019); Streets & sidewalks (big impact). (Umstattd Meyer et al., 2019).
  - Sanitation & clean water (limited impact) (Hutton and Chase, 2017, pp 183-184); Closed sewerage systems (big impact) (Minter et al., 2019)
- Transportation
  - Noise pollution (big impact). (Cohen et al., 1973)
  - Public transportation (big impact on motorcycle usage) (Vasudevan et al., 2021)

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Ten Essential Public Health Services

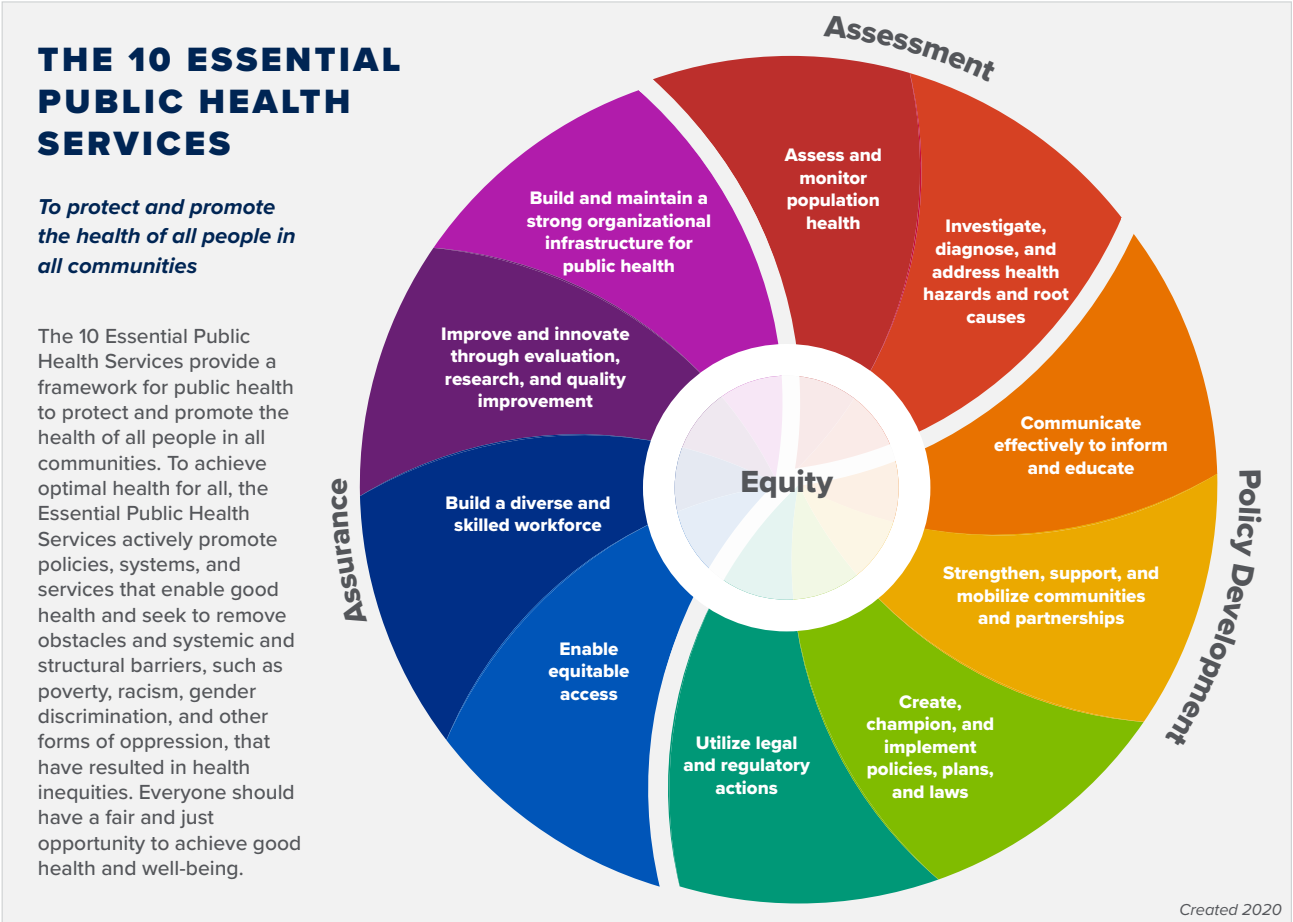


Figure: Essential Public Health Functions (CDC, 2020)

Landscape Epidemiology

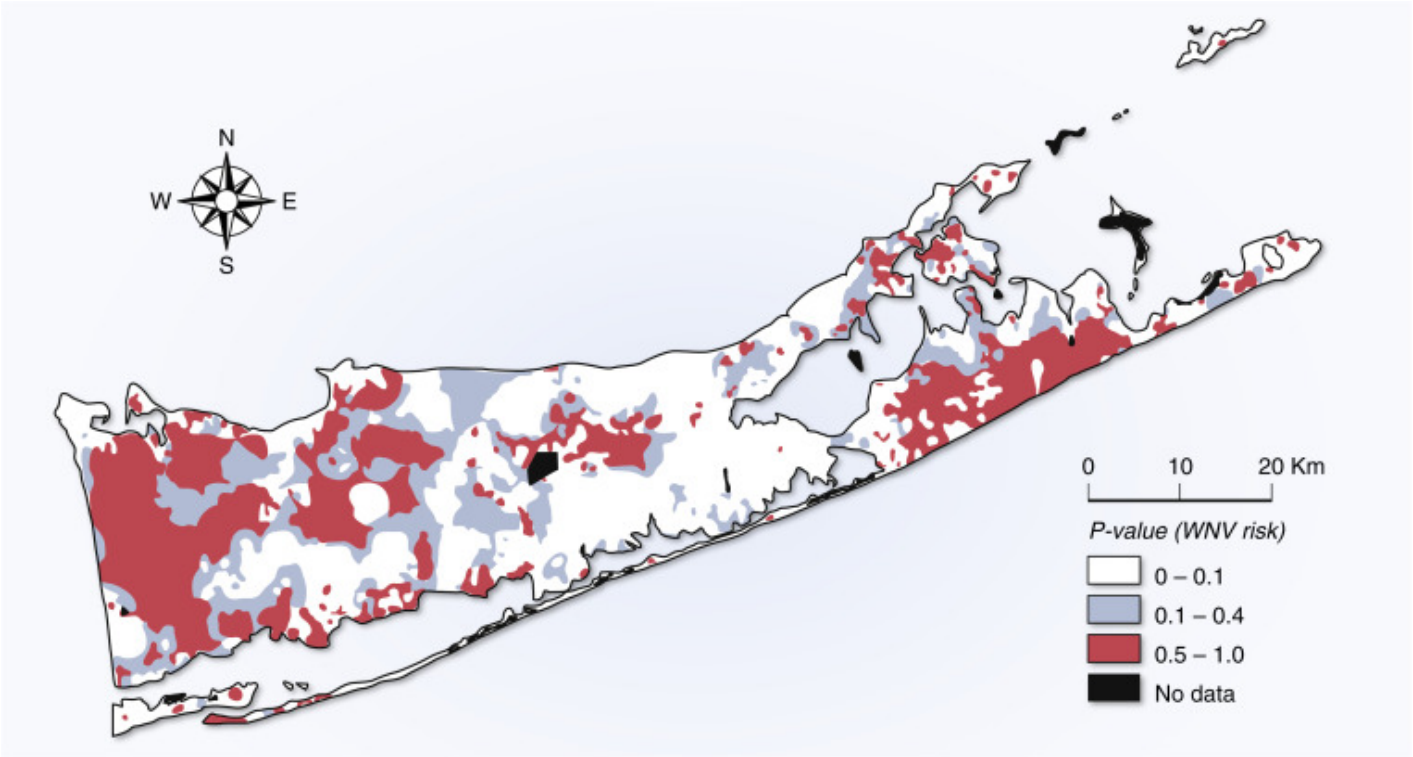


Figure: West Nile Virus Risk Map (Rainwater-Lovett et al., 2016)

Preston Curve / Cross Country Graph (2016)

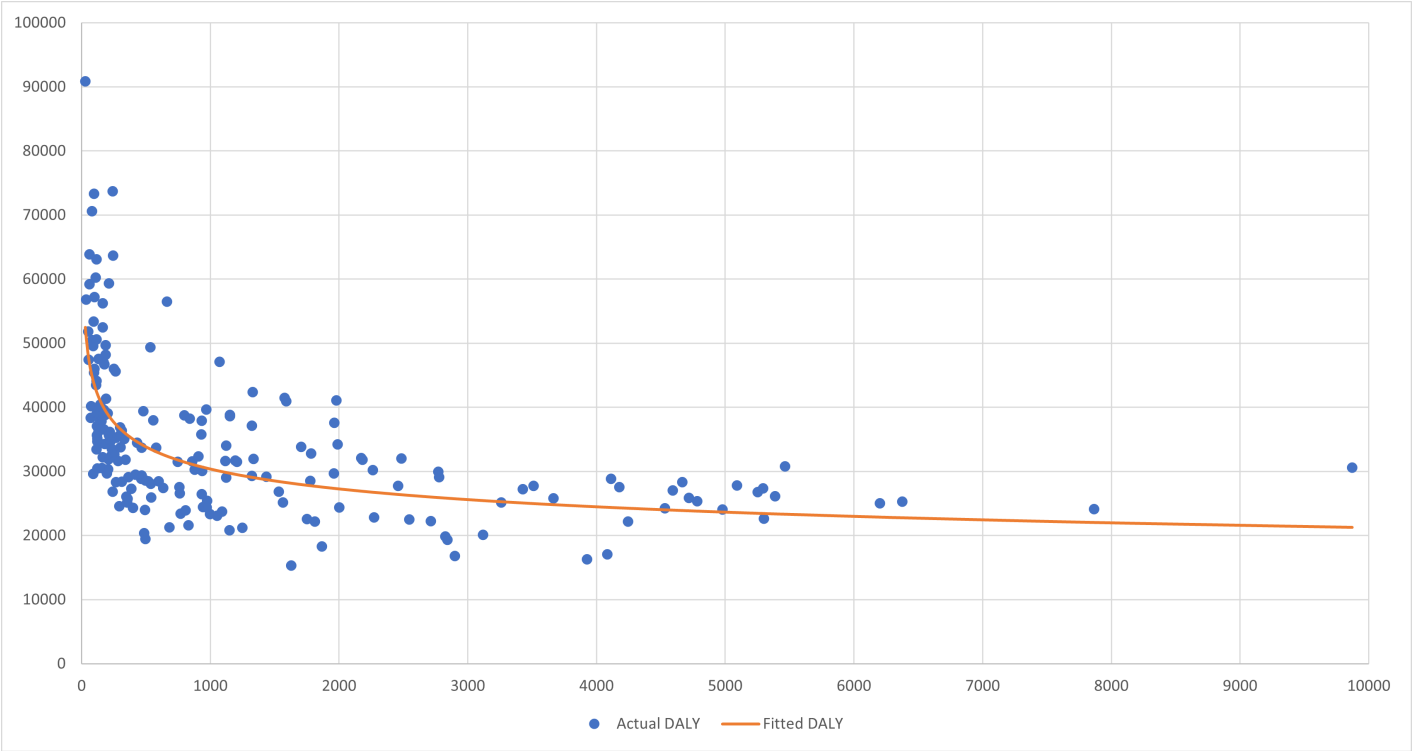


Figure: DALY Rate versus *THE* (Mor, 2022)

Pooled Dominant Outliers

Country	*THE*	*OOP*%	DALY Rate	Residual	Population
Turkey	1,089	16.47%	23,716	-6,024	79,821,724
Colombia	830	20.16%	21,613	-9,153	48,171,392
Costa Rica	1,249	22.14%	21,234	-7,584	4,899,345
Saudi Arabia	3,117	14.34%	20,105	-5,373	32,442,572
Oman	2,827	5.91%	19,821	-7,174	4,479,219
Israel	2,843	22.97%	19,331	-6,059	8,546,000
Kuwait	2,899	16.11%	16,795	-8,843	3,956,873
Qatar	3,926	8.55%	16,313	-8,883	2,654,374
Thailand	635	12.11%	27,412	-5,306	68,971,331

Table: Pooled Dominant (OOP $<$ 25%) (Mor, 2022)

Market Significant Outliers

Country	*THE*	*OOP*%	DALY Rate	Residual	Population
Mexico	972	40.38%	24,390	-5,254	123,333,376
Honduras	400	45.01%	24,290	-9,691	9,270,795
Peru	681	28.29%	21,305	-10,098	30,926,032
Nicaragua	485	32.22%	20,390	-12,610	6,303,974
Jordan	495	27.98%	19,449	-13,529	9,551,467
Indonesia	363	37.34%	29,105	-5,342	261,554,226
Himachal Pradesh	266	49.50%	28,320	-7,945	7,500,000
Vietnam	356	44.57%	25,748	-8,836	93,638,724

Table: Market Significant (25% $<$ OOP $<$ 50%) (Mor, 2022)

Market Dominant Outliers

Country	*THE*	*OOP*%	DALY Rate	Residual	Population
Sri Lanka	491	50.12%	23,965	-9,064	21,203,000
Bangladesh	91	71.89%	29,601	-14,576	157,970,840
Kerala	386	71.30%	27,301	-8,056	36,600,000
Kyrgyz Republic	240	57.59%	26,864	-10,240	6,079,500

Table: Market Dominant (OOP $>$ 50%) (Mor, 2022)

India: Financing & Payment

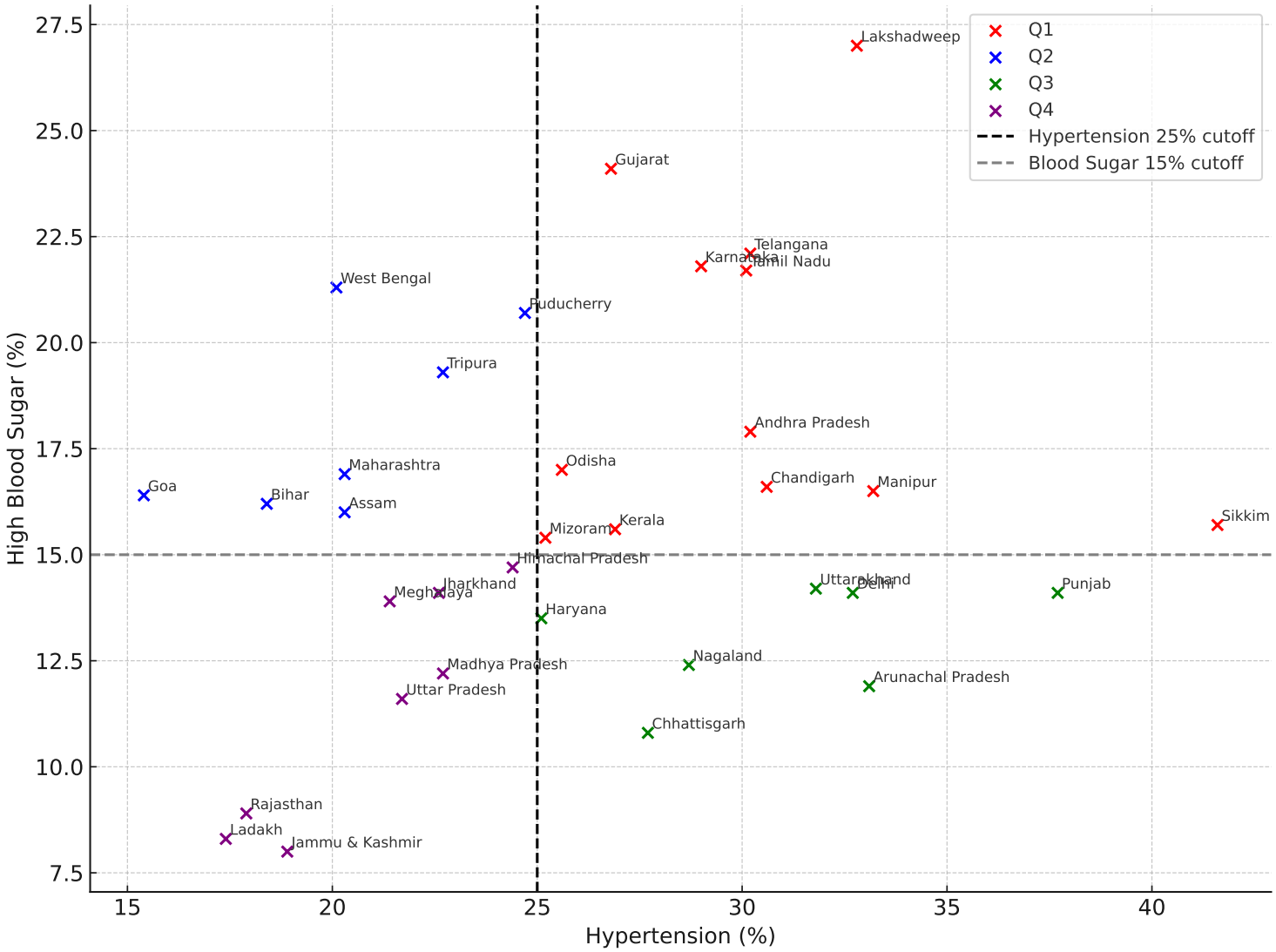
Financier	Purchaser	Provider	Payment
Tax	MoH	MoH	Input
Mandatory Insurance	Public Org	Govt + Private	Output + FFS
Voluntary Insurance	Private Org	Private	Output + FFS
Out-of-Pocket	Individual	Private	FFS

State Financing Indicators

State	THE Rs.	THE %GSDP	GHE %GSDP	GHE Rs.	OOP %THE
Andhra Pradesh	4,600	4.2	1.0	1,125	72.2
Bihar	2,358	6.4	1.4	504	77.6
Gujarat	3,703	2.1	0.8	1,429	48.1
Kerala	8,083	4.5	1.2	2,149	67.0
Maharashtra	5,210	2.9	0.7	1,216	56.7
Punjab	5,960	4.0	0.8	1,180	77.3
Tamil Nadu	4,734	2.8	0.8	1,293	62.1
Uttar Pradesh	3,469	6.1	1.3	772	74.8

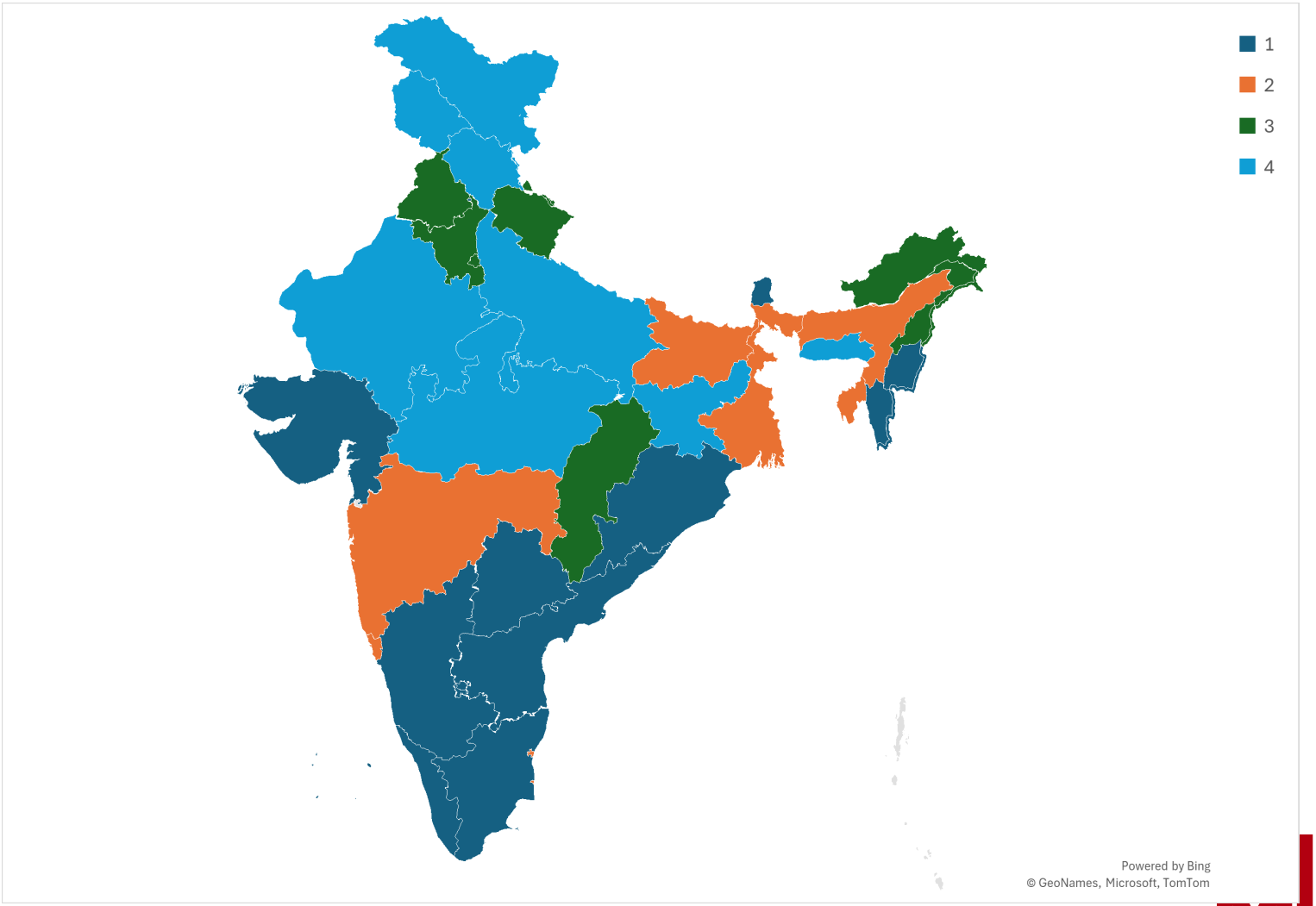
Table: Key Health Financing Indicators for select States (NHSRC, 2019)

Diabetes-Hypertension Typology by State



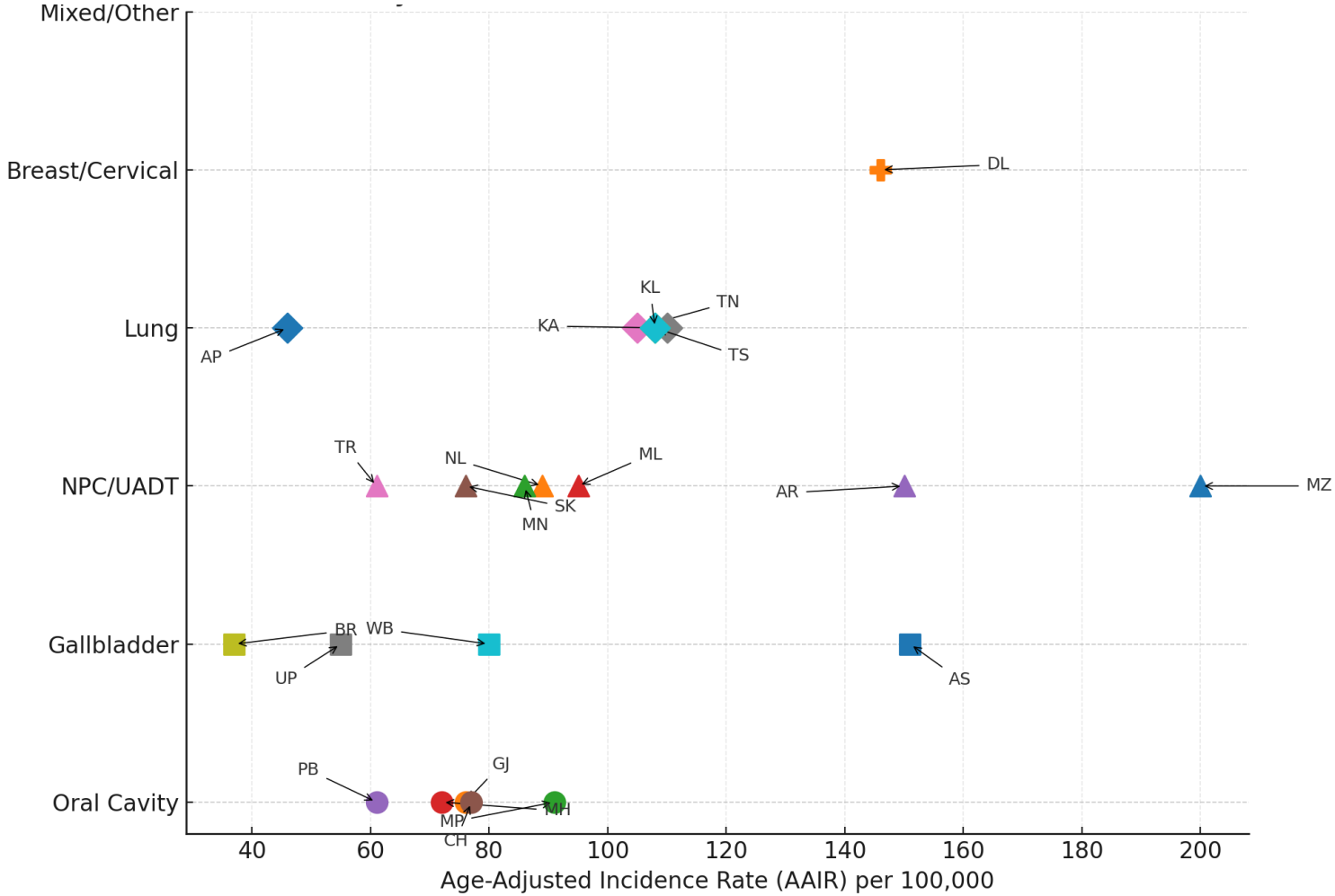
BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

India Diabetes-Hypertension Typology Map



BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Cancer Typology by State



BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

NCD Typologies by Region

1. Northeast Highlands: Lean diabetes with relatively lower hypertension. High Upper Aero-Digestive Tract (UADT) cancers (nasopharyngeal, oesophageal, lung).
2. Gangetic Belt (UP–Bihar–WB–Assam plains): Lean diabetes; paradoxically high diabetes burden despite low obesity and low hypertension. Gallbladder cancer cluster, oral cavity cancers.
3. Western–Central States (Maharashtra, Gujarat, MP, Punjab, Chandigarh): Higher diabetes prevalence, hypertension rising. Oral cavity cancers dominate.
4. Southern Metros (Tamil Nadu, Kerala, Karnataka, Telangana, Andhra): High diabetes and hypertension. Lung cancers (men), rising breast cancers.
5. Urban Cohorts (Delhi, Mumbai, Bangalore, Kolkata, Chennai metros): Very high diabetes and hypertension. Breast rising, cervical falling, prostate.

Suicide Death Rates for India (2016)

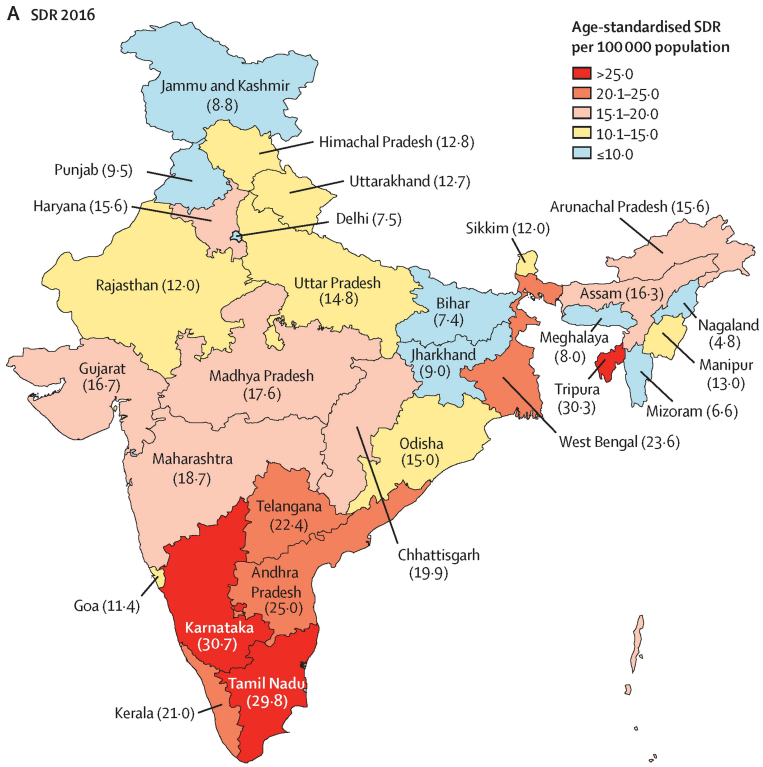


Figure: 2016 Suicide Rate by State (Dandona et al., 2018)

District C-Section Rates in India (2016)

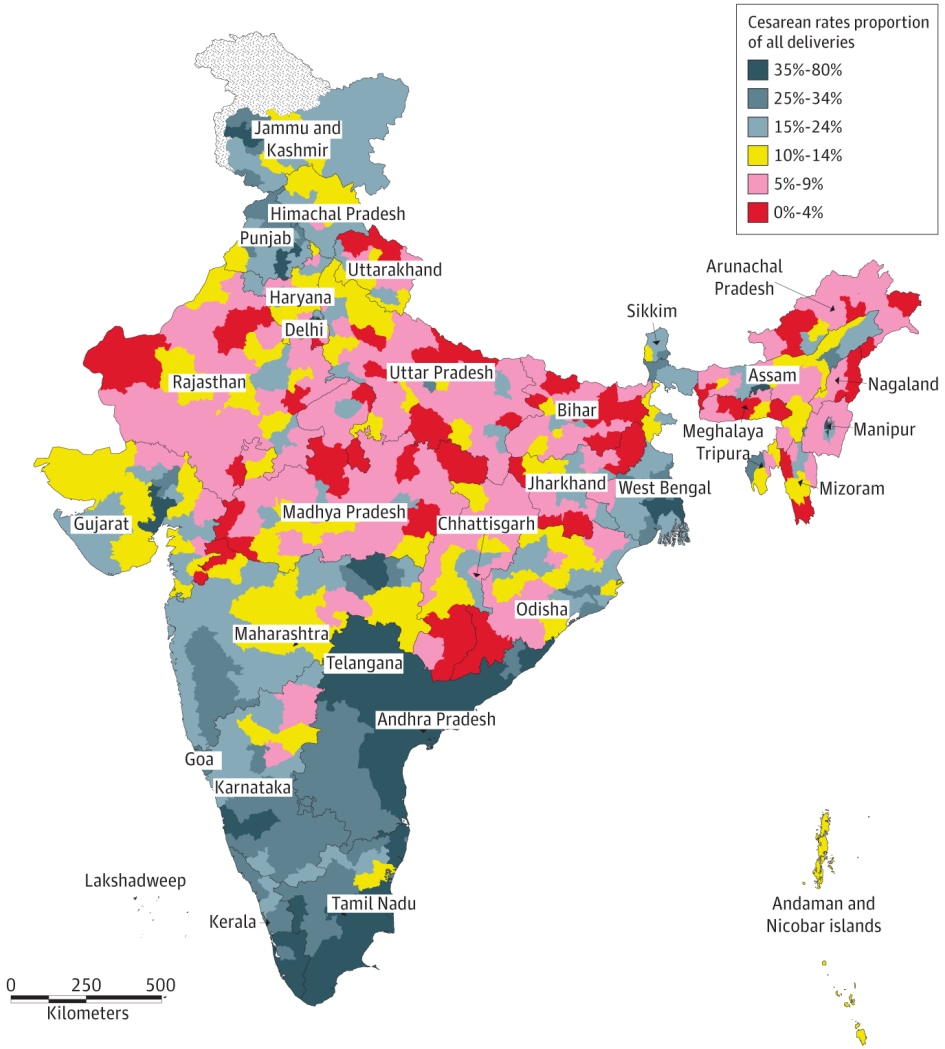


Figure: C-Section Map (Guilmoto and Dumont, 2019)

High C-Section Rates (2016)

District	State	Total	Private	Public
Karimnagar	Telangana	79.9%	87.4%	66.2%
Srinagar	Jammu & Kashmir	74.7%	94.6%	70.1%
Warangal	Telangana	69.2%	80.6%	54.2%
West Godavari	Andhra Pradesh	60.8%	71.7%	38.9%
Pathanamthitta	Kerala	52.1%	51.4%	52.9%
Kanniyakumari	Tamil Nadu	51.3%	56.7%	40.3%

Table: Indian Districts with C-Section Rates $>$ 50% (IIPS, 2017)

Rural C-Section Rates (2016)

District	State	Total C-Section %	Public Share %	Private Share %
Korea	Chhattisgarh	5.9%	31.9%	68.1%
Raipur	Chhattisgarh	7.4%	27.6%	72.4%
Shrawasti	Uttar Pradesh	0.8%	45.4%	54.6%
Hardoi	Uttar Pradesh	3.8%	43.7%	56.3%
Araria	Bihar	2.7%	24.5%	75.5%
Gopalganj	Bihar	6.3%	14.4%	85.6%

Table: Rural C-Section Rates for select Districts in 2015-16 (IIPS, 2017)

C-Section/MMR Relationship (2016)

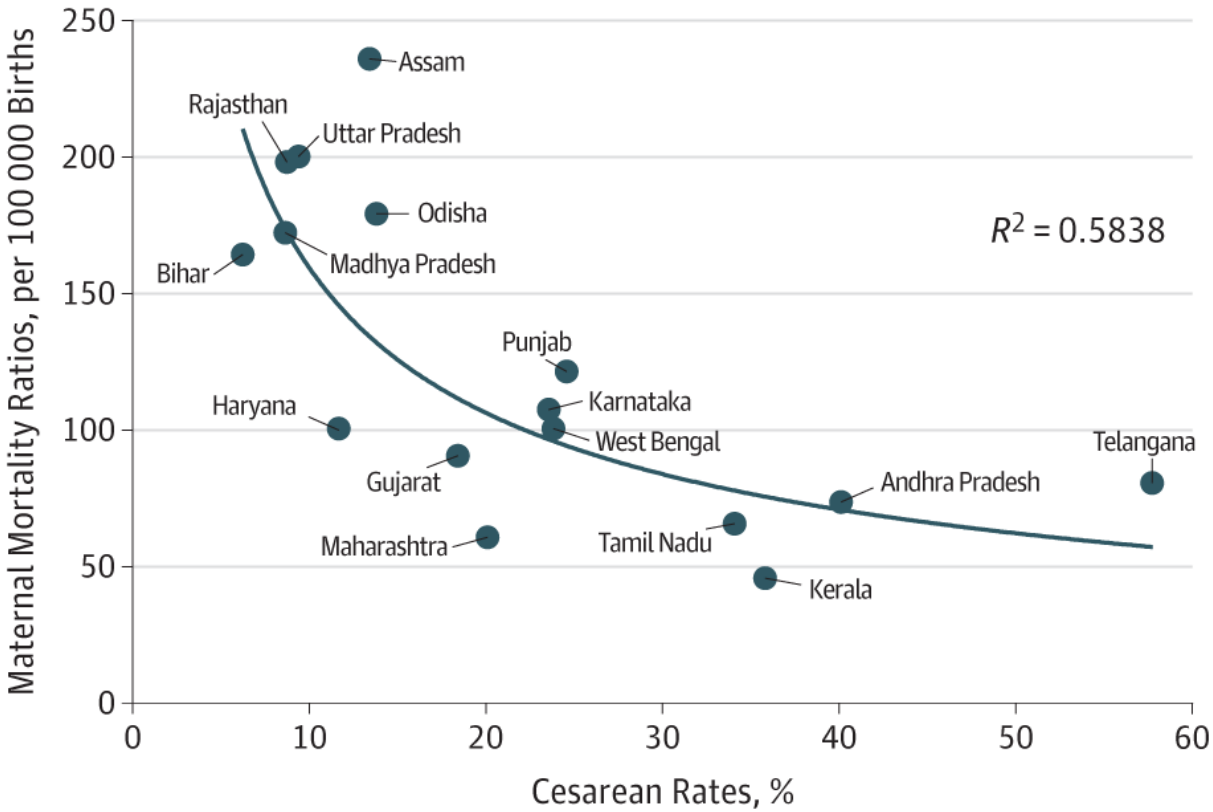


Figure: 2016 C-Section Rates & MMR (Guilmoto and Dumont, 2019)

Primary Care

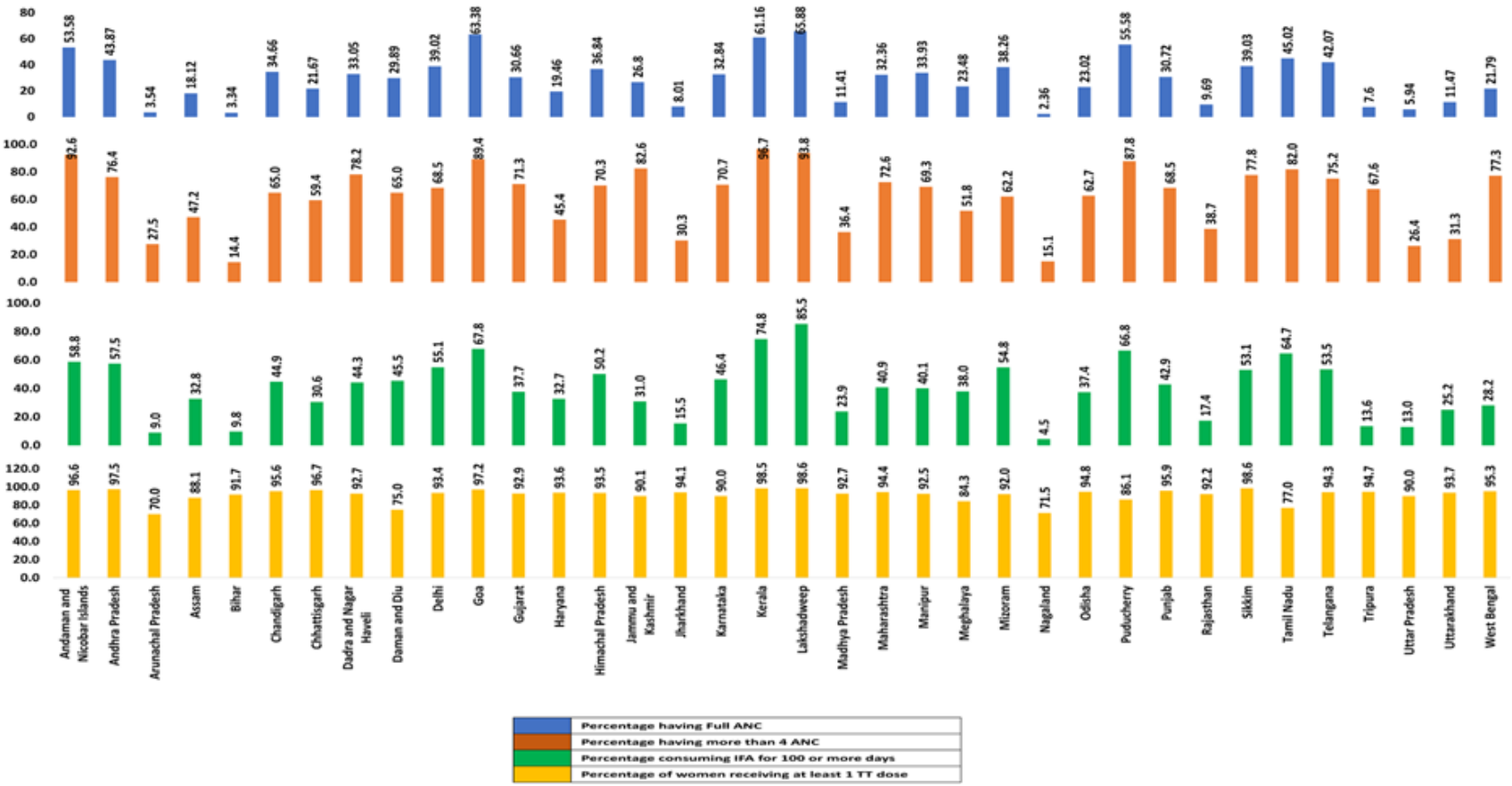


Figure: Provision of Antenatal Care 2015-16 (Kumar et al., 2019)

What is happening in Kerala?

- **Loss of public sector market share**: A further decline in the already low share of the public sector in routine delivery of babies in the last five years, from 38.3% in 2015-16 (IIPS, 2018) to 34.1% in 2019-20 (IIPS, 2020).
- **Excessive C-Sections in the public sector**: The continued abuse of the C-Section as a procedure by the public sector at a growing rate, from a high of 31.4% in 2015-16 (IIPS, 2018) to 37.2% in 2019-20 (IIPS, 2020). In Ernakulam, Palakkad, and Thrissur, the public sector rates are higher than in the private sector.
- **High NCD burden & low primary care use**: It has one of the highest NCD burdens in the country (Prabhakaran et al., 2018, page e1343) alongside a low utilisation of public sector primary care facilities (Nandraj et al., 2016).
- **High government expenditure**: At Rs. 2,272 per capita, it has one of the highest absolute levels of government health expenditures in the country (NHSRC, 2021).

Where are we in Chhattisgarh?

- **Poor outcomes**: GHE: Rs.1516 (TN: Rs.1621; Bihar: Rs.556); OOP 55.9% of THE; DALY Rate 38,810 (Mor, 2022).
- **Poor Basic Primary Care**: Only 21.7% of pregnant women received full antenatal care (Kumar et al., 2019).
- **Insufficient Basic Birthing Care**: In the districts of Bijapur, Mungeli, and Bastar, institutional delivery rates remain below 70%.
- **Inadequate Emergency Care**: Only 8 of the 27 districts showed C-section rates greater than 15%, the WHO norm, with Sukma, Bijapur, and Kodagaon having rates less than 5%.
- **Poor NCD Care**: Median moderate to severe blood pressure 7.01%, Kerala median 6.45%.

balm BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

How much does healthcare cost in India?

Medical Procedure	Procedure Cost		Implied Exchange Rate (Rs/$)
	USA ($)	India (Rs)	
Heart bypass	1,30,000	799,100	6.15
Heart valve replacement	1,60,000	719,190	4.49
Angioplasty	57,000	879,010	15.42
Hip replacement	43,000	719,190	16.73
Hysterectomy	20,000	239,730	11.99
Knee replacement	40,000	679,235	16.98
Spinal fusion	62,000	439,505	7.09

Table: Exchange rates implied by the relative costs of major surgeries in USA & India (adapted from Reddy and Qadeer, 2010)

Can India afford to offer UHC?

Estimation Approach	UHC Estimate at 2018 Prices (Rs/capita)
Outside-In (International)	1,645
Actuarial (Insurance)	1,302
Normative (IPHS Guidelines)	2,703
Inside-out (Current Public Sector)	5,552
Prinja et al., 2012	2,296
Bhatt et al., 2014	1,976

Table: Estimated UHC Costs (adapted from Mor and Shukla, 2023)

NCD Typology: Northeast Highlands

- States: SK-AR-NL-MN-MZ-ML
- Hypertension/Diabetes: Lean diabetes with relatively lower hypertension (low BMI but high metabolic burden).
- Cancer: High UADT cancers (NPC, oesophagus, lung).
- Shared anchors: Tribal/ethnic genotypes, diet of smoked/fermented foods, biomass fuel, high tobacco/areca.
- Implication: This is a "lean but high-risk" ecology — relatively thin people with strong environmental/behavioural carcinogenic and metabolic risks.
- Precision PH Strategy: Clean-fuel/air policies, strong anti-tobacco/areca programmes, early referral for ENT/lung, and metabolic screening bundled together.

NCD Typology: Gangetic Belt

- States: UP–BR–WB–AS plains
- Hypertension/Diabetes: Lean diabetes; paradoxically high diabetes burden despite low obesity and low hypertension.
- Cancer: Gallbladder cancer cluster, oral cavity cancers.
- Shared anchors: Arsenic contamination, unsafe water, poor sanitation, high smokeless tobacco use, entrenched poverty, famine history (epigenetics)
- Implication: A "toxic environment cluster" — exposures in water and food chain drive both metabolic and oncological risk.
- Precision PH Strategy: Safe water programmes, hepatobiliary capacity, tobacco cessation, diabetes early detection — one integrated "environmental NCD package".

NCD Typology: Western Central States

- States: MH-GJ-MP-PB-CH
- Hypertension/Diabetes: Higher diabetes prevalence, hypertension rising, and obesity beginning to show.
- Cancer: Oral cavity cancers dominate, driven by smokeless tobacco/areca.
- Shared anchors: Chewing practices embedded culturally, rural–urban inequality.
- Implication: A "behavioural culture cluster" — risk behaviours (chewing, alcohol, sedentary lifestyles) drive both metabolic and cancer burdens.
- Precision PH Strategy: Quitlines, oral inspection, diabetes/hypertension screening — integrated into PHC with culturally adapted counselling.

NCD Typology: Southern Metros

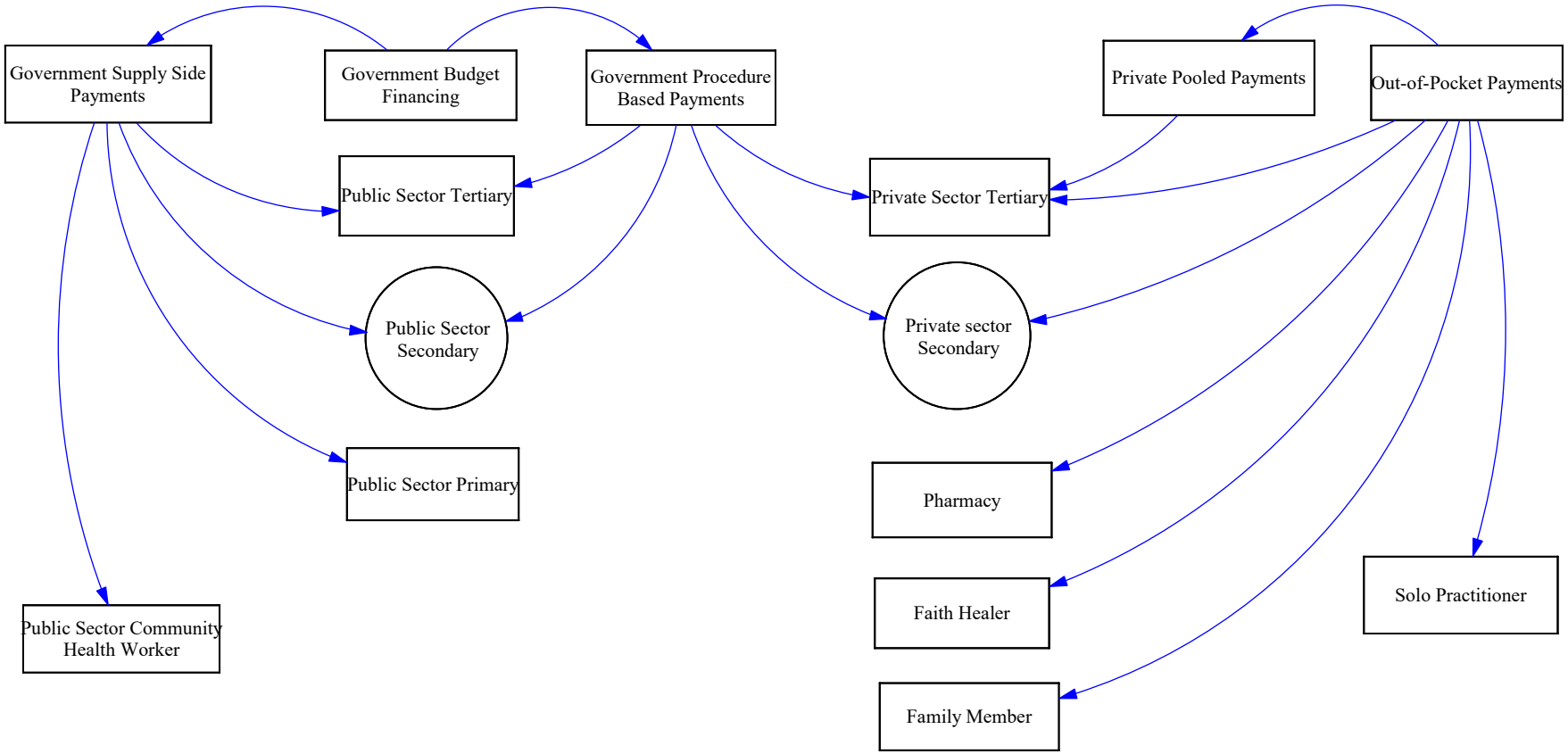
- States: TN-KL-KA-TG-AP
- Hypertension/Diabetes: High diabetes and hypertension with obesity, salt-sensitivity.
- Cancer: Lung cancers (men), rising breast cancers.
- Shared anchors: Urbanisation, air pollution, clean fuel gaps, dietary transitions, fertility transition.
- Implication: A "metabolic–urban lifestyle cluster" — obesity, salt, sedentary jobs, air pollution all converging.
- Precision PH Strategy: Air quality, lifestyle interventions, salt/fat reduction, HPV and breast screening — bundled into NCD hubs in cities.

NCD Typology: Urban Cohorts

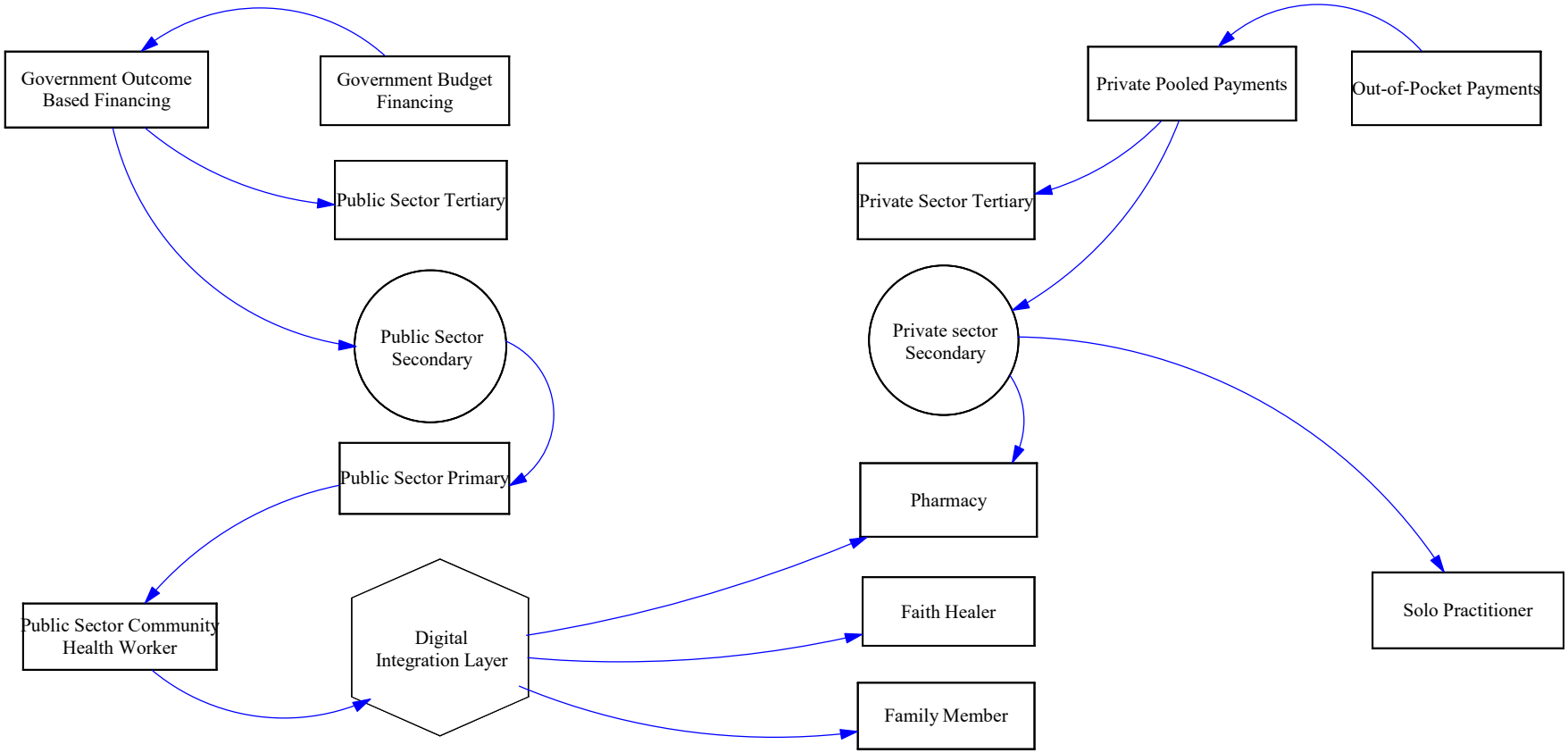
- Cities: Delhi, Mumbai, Bangalore, Kolkata, Chennai metros
- Hypertension/Diabetes: Very high diabetes and hypertension (Quadrant 1), driven by metabolic syndrome.
- Cancer: Breast rising, cervical falling, prostate.
- Shared anchors: Fertility transition, obesity, diabetes, urban lifestyle.
- Implication: A "wealthy but unequal cluster" — affluent lifestyles drive metabolic and cancer risk, but survival gaps remain in slums.
- Precision PH Strategy: Integrated metabolic + cancer screening in urban PHCs; equity-focused slum outreach; survivorship / palliative care.

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

State Health System: Current State



State Health System: Final State



Primary Care: Antecedents

- Multiple providers with variable quality.
- High "shopping" behaviour by patients (Kapoor et al., 2012).
- Low continuity of care over time and between levels.
- Very poor adherence and preventive behaviours by patients.
- High price elasticity of primary care, low price elasticity of hospital care $\implies$ underuse of primary care and overuse of hospital care.
- Deep cultural and evolutionary affinity towards sugar, salt, and fat.

Key Components of Effective Primary Care

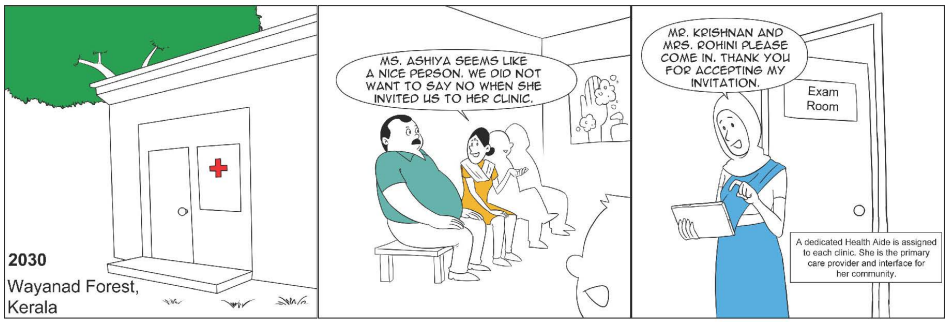
- Comprehensive.
- Management of a defined cohort.
- Risk stratification and proactive & accountable care.
- Home-based.
- Circle of Care.

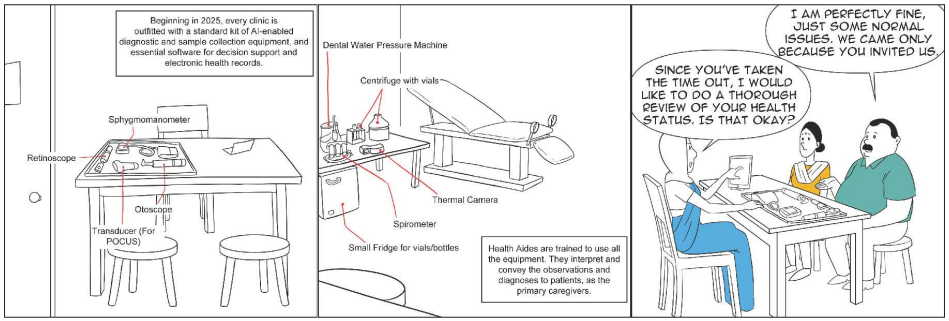
The Indian Solution

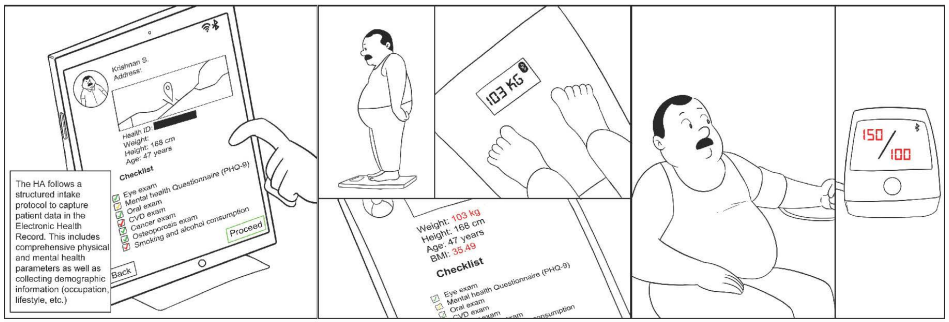
- The 4th stage community health worker.
- Trained and certified similar to an Alaskan Community Health Aide with a mobile-based EHR and CDSS tool.
- Well-equipped with skills and technologies for diagnostics, including phlebotomy, auscultation (AI-driven), vascular-doppler for footcare and breast cancer, portable ECG, and digital photography for oral and cervical cancers.
- Supported by a digital doctor and appropriate referral links and financial protection tools.
- Training in Motivational Interviewing and Mental Status Exams.
- Cultural Evolution of Health.

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Stage 4 CHW: 1/4



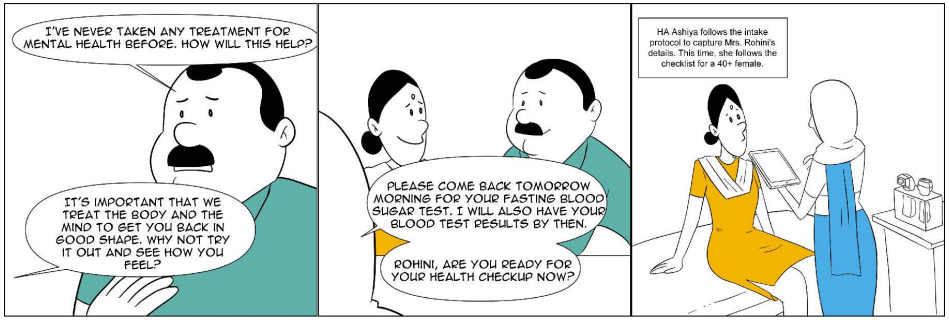


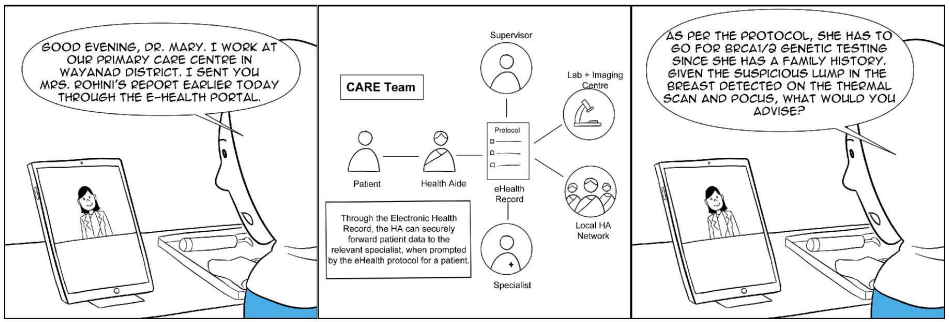


Stage 4 CHW: 2/4

balm BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

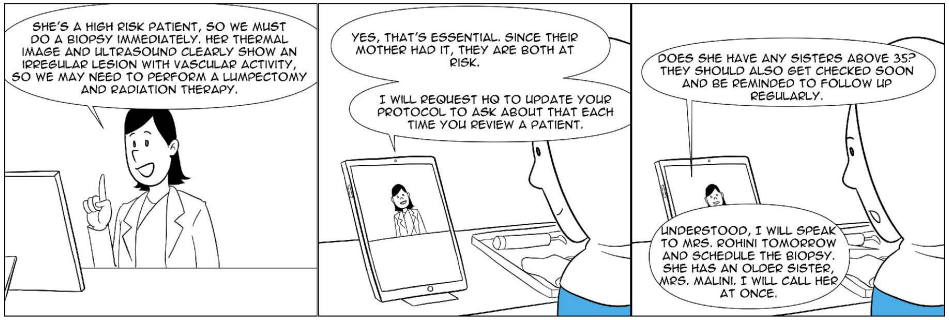
Stage 4 CHW: 3/4





BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Stage 4 CHW: 4/4



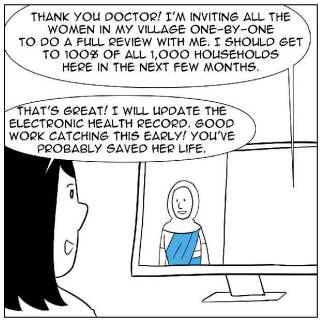


Table of Contents

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Mental Health Strategy

- India has a large burden of disease – an estimated number of 200 million with a diagnosable condition.
- It is expected to grow considerably over the next 25 years as the country urbanises, family support weakens, job insecurity rises, aspirations rise, and climate change takes hold.
- The traditional approach towards addressing this issue with psychiatrists, psychologists, and fully certified counsellors faces issues of availability, cost, and a delayed reaction after the harm has already been done.

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Opportunities for Intervention

- Over 50% of the burden is visible by age 14.
- Over 75% by age 21.
- The Pre-Frontal Cortex develops from birth to about age 25. Continues to be plastic even at older ages.
- Strong genetic predictors for Schizophrenia and Bipolar Disorder.

Need for a Graduated Approach

- Resilience: Routine Stress is inevitable $\rightarrow$ need to build population-level resilience to withstand it better.
- Reduction: Pathogenic stress is not inevitable $\rightarrow$ it needs to be systemically eliminated.
- Recognise: Some groups of individuals are more vulnerable because of occupational choices (nurses, army, customer-facing roles), genetic inheritance (schizophrenia, bi-polar disorder), and disconnection & discrimination (migrants, refugees) $\rightarrow$ they need special attention.
- Recovery: Mental illness is inevitable $\rightarrow$ need for a scalable strategy.

balm BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

How to Build *Resilience*?

- Early Stimulation & Nurturing (Gertler et al., 2021; Michalopoulos et al., 2010; Shonkoff and Phillips, 2000)
- Behaviour Self-Regulation (Kellam et al., 2011).
- OCEAN Non-Cognitive Skills (Kautz et al., 2014; Tatum et al., 2019).
- Old age stimulation (Carlson et al., 2009).

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Why *Reduce* Pathogenic Stress?

- Adverse Childhood Experiences (parental, economic) (Felitti et al., 1998).
- Bullying (Lereya et al., 2015).
- Lead in Paint (Freedman et al., 1990).
- Exposure to violence (Bisson and Lewis, 2009).

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

How to *Recognise* Enhanced Risk?

- Genetic risks (Eaton and Fallin, 2019).
- Occupational risks (Castro et al., 2012)
- Exposure to ACES (Harris, 2014).

How to Enable *Recovery* at Scale?

- Enhanced Self-care (Lewis et al., 2012; OH, 2021).
- Behavioural Health Aide (Dijkxhoorn et al., 2018; Patel and Hanlon, 2018).
- Collaborative Care (Acharya et al., 2017; Archer et al., 2012).
- Long-term Rehabilitation (WHO, 2021).

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Cost Feasibility

1. *Required:* INR 400 per capita needed to reach 600 DALY Rate.
2. *Available:* Projected 2040 UHC allocation: INR 585

Institutional Recommendations

1. Sentinel Surveillance Network
2. Centre for Public Mental Health
3. Centre for Recovery Protocols

Conclusion

- India can reduce the mental health DALY burden to near-zero
- Requires systemic, multi-domain, cross-sectoral action

Intervention Spotlight: Non-Cognitive Skills for Children

Causal Pathway:
Executive Function Training $\rightarrow$ Improved Self-Regulation $\rightarrow$ Academic & Social Competence $\rightarrow$ Mental Health Resilience

Empirical Evidence:

- Early childhood programs increase lifelong resilience to stress and peer conflict
- Kautz et al., 2014

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Intervention Spotlight: KiVa Anti-Bullying Program

Causal Pathway:
Bullying Reduction $\rightarrow$ Lower Social Threat $\rightarrow$ Reduced Cortisol Reactivity $\rightarrow$ Reduced Depression/Anxiety

Empirical Evidence:

- Reduces bullying and victimisation; improves classroom climate
- Kärnä et al., 2011; Salmivalli and Poskiparta, 2012

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Intervention Spotlight: Home-Based Psychosocial Stimulation

Causal Pathway:
Responsive Parenting $\rightarrow$ Secure Attachment + Cognitive Stimulation $\rightarrow$ Improved Mental & Neural Development

Empirical Evidence:

- Enhances cognitive scores, school readiness, and reduces behavioural disorders
- Gertler et al., 2021; Grantham-McGregor and Smith, 2016)

balm BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Intervention Spotlight: Good Behaviour Game (GBG)

Causal Pathway:
Structured Group Reinforcement $\rightarrow$ Classroom Norms $\rightarrow$ Reduced Conduct Disorder + Substance Use Risk

Empirical Evidence:

- Reduced disruptive behaviour and later life antisocial outcomes
- Kellam et al., 2011

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Intervention Spotlight: Unite for a Better Life

Causal Pathway:
Shift in Gender Norms $\rightarrow$ Reduction in IPV $\rightarrow$ Reduced PTSD/Depression in Women

Empirical Evidence:

- Reduces intimate partner violence and related psychological trauma
- Leight et al., 2021

Thank you

Bibliography I

Acharya, B., Ekstrand, M., Rimal, P., Ali, M. K., Swar, S., Srinivasan, K., Mohan, V., Unützer, J., & Chwastiak, L. A. (2017). Collaborative Care for Mental Health in Low- and Middle-Income Countries: A WHO Health Systems Framework Assessment of Three Programs. *Psychiatric services (Washington, D.C.)*, *68*(9), 870. https://doi.org/10.1176/APPI.PS.201700232

Amuasi, J. H., Lucas, T., Horton, R., & Winkler, A. S. (2020). Reconnecting for our future: The Lancet One Health Commission. *The Lancet*, *395*(10235), 1469–1471. https://doi.org/10.1016/S0140-6736(20)31027-8

Archer, J., Bower, P., Gilbody, S., Lovell, K., Richards, D., Gask, L., Dickens, C., & Coventry, P. (2012). Collaborative care for depression and anxiety problems. *Cochrane Database of Systematic Reviews*, (10). https://doi.org/10.1002/14651858.CD006525.pub2

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography II

Ashraf, H., & Nambiar, A. (2022). *Designing Health Systems*. Dvara Research. https://dvararesearch.com/wp-content/uploads/2023/12/Designing-Health-Systems-Working-Paper-20220204.pdf

Bhatt, P., Madge, V., Mor, N., Paul, V., Jain, N., Hira, S., & Balasubramaniam, P. (2014). Designing and Costing of an Adaptable and Flexible Essential Health Package (EHP) for Indian States. *SSRN Electronic Journal*, 116. https://doi.org/10.2139/SSRN.2568297

BHS. (2020). Basic HealthCare Services (BHS): Providing high quality, low cost, primary care to last mile communities. https://bhs.org.in/

Bibliography III

Bisson, J., & Lewis, C. (2009). *Systematic Review of Psychological First Aid* (tech. rep.). World Health Organization. Geneva, Switzerland. https://www.researchgate.net/profile/Catrin-Lewis/publication/265069490_Systematic_Review_of_Psychological_First_Aid/links/5450d15f0cf24e8f7375a73c/Systematic-Review-of-Psychological-First-Aid.pdf

Cardoso, M. R. A., Cousens, S. N., de Góes Siqueira, L. F., Alves, F. M., & D'Angelo, L. A. V. (2004). Crowding: risk factor or protective factor for lower respiratory disease in young children? *BMC Public Health*, *4*(1), 19. https://doi.org/10.1186/1471-2458-4-19

Bibliography IV

Carlson, M. C., Erickson, K. I., Kramer, A. F., Voss, M. W., Bolea, N., Mielke, M., McGill, S., Rebok, G. W., Seeman, T., & Fried, L. P. (2009). Evidence for Neurocognitive Plasticity in At-Risk Older Adults: The Experience Corps Program. *The Journals of Gerontology: Series A*, *64A*(12), 1275–1282. https://doi.org/10.1093/gerona/glp117

Castro, C. A., Adler, A. B., McGurk, D., & Bliese, P. D. (2012). Mental health training with soldiers four months after returning from iraq: Randomization by platoon. *Journal of Traumatic Stress*, *25*(4), 376–383. https://doi.org/10.1002/jts.21721

CDC. (2020). 10 Essential Public Health Services. https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html%20https://phnci.org/uploads/resource-files/EPHS-English.pdf

Bibliography V

Cohen, S., Glass, D. C., & Singer, J. E. (1973). Apartment noise, auditory discrimination, and reading ability in children. *Journal of Experimental Social Psychology*, *9*(5), 407–422. https://doi.org/10.1016/s0022-1031(73)80005-8

Dandona, R., Kumar, G. A., Dhaliwal, R. S., Naghavi, M., Vos, T., Shukla, D. K., Vijayakumar, L., Gururaj, G., Thakur, J. S., Ambekar, A., Sagar, R., Arora, M., Bhardwaj, D., Chakma, J. K., Dutta, E., Furtado, M., Glenn, S., Hawley, C., Johnson, S. C., ... Dandona, L. (2018). Gender differentials and state variations in suicide deaths in India: the Global Burden of Disease Study 1990-2016. *The Lancet Public Health*, *3*(10), e478–e489. https://doi.org/10.1016/s2468-2667(18)30138-5

Bibliography VI

Dijkxhoorn, M. A., Padmakar, A., Jude, N., Bunders, J., & Regeer, B. (2018). Understanding caregiver burden from a long-term perspective: The Banyan model of caregiver experiences. *Perspectives in Psychiatric Care*, *55*(1), 61–71. https://doi.org/10.1111/ppc.12299

Dupas, P., & Miguel, E. (2017). Impacts and Determinants of Health Levels in Low-Income Countries. In A. V. Banerjee & E. Duflo (Eds.), *Handbook of economic field experiments* (pp. 3–93). Elsevier. https://doi.org/10.1016/bs.hefe.2016.09.003

Eaton, W. W., & Fallin, D. M. (Eds.). (2019). *Public Mental Health* (2nd ed.). Oxford University Press. https://global.oup.com/academic/product/public-mental-health-9780190916602?cc=us&lang=en&

Bibliography VII

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*, *14*(4), 245–258. https://doi.org/10.1016/s0749-3797(98)00017-8

Filarski, B. (2020). The Eye of Photography. https://loeildelaphotographie.com/en/

FIP. (2019). *Beating non-communicable diseases in the community: The contribution of pharmacists* (tech. rep.). International Pharmaceutical Federation, The Hague. https://www.fip.org/files/content/publications/2019/beating-ncds-in-the-community-the-contribution-of-pharmacists.pdf

Bibliography VIII

Freedman, R., Olson, L., & Hoffer, B. J. (1990). Toxic effects of lead on neuronal development and function.. *Environmental Health Perspectives*, *89*, 27–33. https://doi.org/10.1289/ehp.908927

Gertler, P., Heckman, J. J., Pinto, R., Chang, S. M., Grantham-McGregor, S., Vermeersch, C., Walker, S., & Wright, A. (2021). *Effect of the Jamaica Early Childhood Stimulation Intervention on Labor Market Outcomes at Age 31* (No. 29292). National Bureau of Economic Research. https://doi.org/10.3386/w29292

Grantham-McGregor, S., & Smith, J. A. (2016). Extending the Jamaican early childhood development intervention. *Journal of Applied Research on Children: Informing Policy for Children at Risk*, *7*(2), 4. http://digitalcommons.library.tmc.edu/childrenatrisk

Bibliography IX

Guilmoto, C. Z., & Dumont, A. (2019). Trends, Regional Variations, and Socioeconomic Disparities in Cesarean Births in India, 2010-2016. *JAMA Network Open*, *2*(3), e190526. https://doi.org/10.1001/jamanetworkopen.2019.0526

Harris, N. B. (2014). How Childhood Trauma Affects Health Across a Lifetime. https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en

HealthBasix. (2021). Health Basix - Transforming Pediatric Healthcare Delivery. https://www.healthbasix.in/

HP2020. (2013). Social determinants of health. https://health.gov/healthypeople/priority-areas/social-determinants-health

Bibliography X

Hutton, G., & Chase, C. (2017). Water Supply, Sanitation, and Hygiene. In C. N. Mock, R. Nugent, O. Kobusingye, & K. R. Smith (Eds.), *Disease control priorities* (3rd ed., pp. 171–198). World Bank. https://dcp-3.org/chapter/2488/water-supply-sanitation-and-hygiene

IIPS. (2017). *National Family Health Survey - 4 (2015 -16), India* (tech. rep.). International Institute for Population Sciences, Mumbai, Ministry of Health and Family Welfare, Government of India. http://rchiips.org/nfhs/NFHS-4Reports/India.pdf

IIPS. (2018). *National Family Health Survey - 4 (2015 -16), State Fact Sheet Kerala* (tech. rep.). International Institute for Population Sciences, Mumbai, Ministry of Health and Family Welfare, Government of India. http://rchiips.org/NFHS/pdf/NFHS4/KL_FactSheet.pdf

Bibliography XI

IIPS. (2020). *National Family Health Survey - 5 (2019-20): State Fact Sheet Kerala* (tech. rep.). Ministry of Health and Family Welfare. New Delhi. http://rchiips.org/nfhs/NFHS-5_FCTS/Kerala.pdf

Kapoor, S. K., Raman, A. V., Sachdeva, K. S., & Satyanarayana, S. (2012). How Did the TB Patients Reach DOTS Services in Delhi? A Study of Patient Treatment Seeking Behavior (O. Neyrolles, Ed.). *PLoS ONE*, *7*(8), e42458. https://doi.org/10.1371/journal.pone.0042458

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A Large-Scale Evaluation of the KiVa Antibullying Program: Grades 4–6. *Child Development*, *82*(1), 311–330. https://doi.org/https://doi.org/10.1111/j.1467-8624.2010.01557.x

Bibliography XII

Kautz, T., Heckman, J. J., Diris, R., Ter Weel, B., & Borghans, L. (2014). *Fostering and measuring skills: Improving cognitive and non-cognitive skills to promote lifetime success* (No. 20749). National Bureau of Economic Research. https://doi.org/10.3386/w20749

Kellam, S. G., Mackenzie, A. C., Brown, C. H., Poduska, J. M., Wang, W., Petras, H., & Wilcox, H. C. (2011). The Good Behavior Game and the Future of Prevention and Treatment. *Addiction Science & Clinical Practice*, *6*(1), 73. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3188824/

Bibliography XIII

Kumar, G., Choudhary, T. S., Srivastava, A., Upadhyay, R. P., Taneja, S., Bahl, R., Martines, J., Bhan, M. K., Bhandari, N., & Mazumder, S. (2019). Utilisation, equity and determinants of full antenatal care in India: analysis from the National Family Health Survey 4. *BMC pregnancy and childbirth*, *19*(1), 327. https://doi.org/10.1186/s12884-019-2473-6

Lambert, A., Vlaar, J., Herrington, S., & Brussoni, M. (2019). What Is the Relationship between the Neighbourhood Built Environment and Time Spent in Outdoor Play? A Systematic Review. https://doi.org/10.3390/ijerph16203840

Leight, J., Deyessa, N., & Sharma, V. (2021). Cost-effectiveness analysis of an intimate partner violence prevention intervention targeting men, women and couples in rural Ethiopia: evidence from the Unite for a Better Life randomised controlled trial. *BMJ Open*, *11*(3), e042365. https://doi.org/10.1136/bmjopen-2020-042365

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography XIV

Lereya, S. T., Copeland, W. E., Costello, E. J., & Wolke, D. (2015). Adult mental health consequences of peer bullying and maltreatment in childhood: two cohorts in two countries. *The Lancet Psychiatry*, *2*(6), 524–531. https://doi.org/10.1016/S2215-0366(15)00165-0

Lewis, C., Pearce, J., & Bisson, J. I. (2012). Efficacy, cost-effectiveness and acceptability of self-help interventions for anxiety disorders: systematic review (2018/01/02). *British Journal of Psychiatry*, *200*(1), 15–21. https://doi.org/10.1192/bjp.bp.110.084756

Liu, J., Alam, S. S., Guhabiswas, R., Waajid, M. S., Chakrabarty, S., Purkayastha, R. D., Popat, R., & Gupta, R. (2019). Impact of a family caregiver training program in Kolkata, India on post-operative health perceptions and outcomes of cardiothoracic surgical patients. *Journal of Global Health Reports*, *3*, e2019058. https://doi.org/10.29392/JOGHR.3.E2019058

Bibliography XV

Michalopoulos, C., Lundquist, E., & Castells, N. (2010). *The Effects of Child Care Subsidies for Moderate-Income Families in Cook County, Illinois* (tech. rep.). MDRC. New York, NY, USA. https://www.mdrc.org/sites/default/files/full_536.pdf

Minter, A., Costa, F., Khalil, H., Childs, J., Diggle, P., Ko, A. I., & Begon, M. (2019). Optimal Control of Rat-Borne Leptospirosis in an Urban Environment. https://www.frontiersin.org/article/10.3389/fevo.2019.00209

Mock, W. B. T. (2011). Pareto Optimality. In D. K. Chatterjee (Ed.), *Encyclopedia of global justice* (pp. 808–809). Springer Netherlands. https://doi.org/10.1007/978-1-4020-9160-5_341

Mor, N. (2022). Lessons for Developing Countries from Outlier Country Health Systems. *Frontiers in Public Health*, *10*. https://doi.org/10.3389/fpubh.2022.870210

Bibliography XVI

Mor, N., Ananth, B., Ambalam, V., Edassery, A., Meher, A., Tiwari, P., Sonawane, V., Mahajani, A., Mathur, K., Parekh, A., & Dharmaraju, R. (2023). Evolution of Community Health Workers: the Fourth Stage. https://doi.org/10.3389/fpubh.2023.1209673

Mor, N., Sen, D., Zaheen, S., Khan, R., Naik, P., & Basu, N. (2023). The Pharmacy as a Primary Care Provider. *Frontiers in Public Health*, *11*. https://doi.org/10.3389/fpubh.2023.1221439

Mor, N., & Shukla, S. K. (2023). Estimating funds required for UHC within Indian States. *The Lancet Regional Health - Southeast Asia*, *13*(6), 14. https://doi.org/10.1016/j.lansea.2023.100165

Mortimer, K., & Balmes, J. R. (2018). Cookstove Trials and Tribulations: What Is Needed to Decrease the Burden of Household Air Pollution? *Annals of the American Thoracic Society*, *15*(5), 539–541. https://doi.org/10.1513/AnnalsATS.201710-831GH

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography XVII

Nandraj, S., Joseph, J., Kamarudden, M., Thankachy, Y., Nambiar, D., Shastri, R., & Ganesan, P. (2016). *God's Own Country, Moving Towards Universal Health Coverage in Kerala, Piloting in the Districts of Malappuram and Palakkad* (tech. rep.). Public Health Foundation of India. New Delhi, India. https://www.researchgate.net/publication/301343329_God's_Own_Country_Moving_Towards_Universal_Health_Coverage_in_Kerala_Piloting_in_the_Districts_of_Malappuram_and_Palakkad

NHSRC. (2019). *National Health Accounts Estimates for India (2016-17)* (tech. rep.). National Health Systems Resource Centre. https://nhsrcindia.org/sites/default/files/2021-06/FINAL%20National%20Health%20Accounts%202016-17%20Nov%202019-for%20Web%20%281%29.pdf

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography XVIII

NHSRC. (2021). *National Health Accounts Estimates for India (2017-18)* (tech. rep.). National Health Systems Resource Centre (NHSRC). New Delhi, India. https://nhsrcindia.org/sites/default/files/2021-11/National%20Health%20Accounts-%202017-18.pdf

OH. (2021). Short Films About Mental Health from Oxford Health. https://www.youtube.com/playlist?list=PLKw7kjGJdcXAYVCP4IhoLzVOeBoI1vqfU

Pardeshi, P., Jadhav, B., Singh, R., Kapoor, N., Bardhan, R., Jana, A., David, S., & Roy, N. (2020). Association between architectural parameters and burden of tuberculosis in three resettlement colonies of M-East Ward, Mumbai, India. *Cities & Health*, 1–18. https://doi.org/10.1080/23748834.2020.1731919

Bibliography XIX

Patel, V., & Hanlon, C. (2018). *Where There Is No Psychiatrist: A Mental Health Care Manual* (2nd ed.). Royal College of Psychiatrists. https://www.cambridge.org/core/books/where-there-is-no-psychiatrist/47578A845CAFC7E23A181749A4190B54

Prabhakaran, D., Jeemon, P., Sharma, M., Roth, G. A., Johnson, C., Harikrishnan, S., Gupta, R., Pandian, J. D., Naik, N., Roy, A., Dhaliwal, R. S., Xavier, D., Kumar, R. K., Tandon, N., Mathur, P., Shukla, D. K., Mehrotra, R., Venugopal, K., Kumar, G. A., ... Dandona, L. (2018). The changing patterns of cardiovascular diseases and their risk factors in the states of India: the Global Burden of Disease Study 1990–2016. *The Lancet Global Health*, *6*(12), e1339–e1351. https://doi.org/https://doi.org/10.1016/S2214-109X(18)30407-8

Bibliography XX

Prinja, S., Bahuguna, P., Pinto, A. D., Sharma, A., Bharaj, G., Kumar, V., Tripathy, J. P., Kaur, M., & Kumar, R. (2012). The Cost of Universal Health Care in India: A Model Based Estimate (P. H. M. van Baal, Ed.). *PLoS ONE*, *7*(1), e30362. https://doi.org/10.1371/journal.pone.0030362

Rader, B., Scarpino, S. V., Nande, A., Hill, A. L., Adlam, B., Reiner, R. C., Pigott, D. M., Gutierrez, B., Zarebski, A. E., Shrestha, M., Brownstein, J. S., Castro, M. C., Dye, C., Tian, H., Pybus, O. G., & Kraemer, M. U. G. (2020). Crowding and the shape of COVID-19 epidemics. *Nature Medicine*, *26*(12), 1829–1834. https://doi.org/10.1038/s41591-020-1104-0

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography XXI

Rainwater-Lovett, K., Rodriguez-Barraquer, I., & Moss, W. J. (2016). Viral Epidemiology: Tracking Viruses with Smartphones and Social Media. *Viral Pathogenesis: From Basics to Systems Biology: Third Edition*, 241–252. https://doi.org/10.1016/B978-0-12-800964-2.00018-5

Reddy, S., & Qadeer, I. (2010). Medical Tourism in India: Progress or Predicament? *Economic & Political Weekly*, *45*(20), 69–75. https://www.epw.in/journal/2010/20/special-articles/medical-tourism-india-progress-or-predicament.html

Roberts, M. J., Hsiao, W., Berman, P., & Reich, M. R. (2004). *Getting health reform right : a guide to improving performance and equity*. Oxford University Press. https://academic.oup.com/book/7510

Bibliography XXII

Salmivalli, C., & Poskiparta, E. (2012). KiVa Antibullying Program: Overview of Evaluation Studies Based on a Randomized Controlled Trial and National Rollout in Finland. *International Journal of Conflict and Violence (IJCV)*, *6*(2), 294–302. https://doi.org/10.4119/ijcv-2920

Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. National Academies Press (US). https://nap.nationalacademies.org/catalog/9824/from-neurons-to-neighborhoods-the-science-of-early-childhood-development

Singh, V. (2018). {BDD} chawls tenants get glimpse of future. *DNA*. https://www.dnaindia.com/mumbai/report-bdd-chawls-tenants-get-glimpse-of-future-2596660

Bibliography XXIII

Solmi, F., Dykxhoorn, J., & Kirkbride, J. B. (2017). Urban-Rural Differences in Major Mental Health Conditions. In N. Okkels, C. B. Kristiansen, & P. Munk-Jorgensen (Eds.), *Mental health and illness in the city. mental health and illness worldwide* (pp. 1–106). Springer Singapore. https://doi.org/10.1007/978-981-10-0752-1{_}7-1

Tatum, L., Dutta-Gupta, I., Hampton, C., Li, H. A., & Edelman, P. (2019). *The Youth Opportunity Guarantee: A Framework for Success* (tech. rep.). Center on Poverty and Inequality, Georgetown Law. Georgetown Center on Poverty; Inequality. www.georgetownpoverty.org/issues/employment/youth-opportunity-guarantee-framework

TBH. (2021). Biology and Ecology of Spectacled Flying Foxes. https://tolgabathospital.org/about-spectacled-flying-foxes/

Bibliography XXIV

Thanakijborisut, Y. (2014). Estimating Price Elasticity of Demand for Medical Care Services in Thailand. *International Journal of Business and Economics (IJBE)*, *6*(1), 19–39. http://www.ijbejournal.com/images/files/10080154055c5d2db79dc84.pdf

Umstattd Meyer, M. R., Bridges, C. N., Schmid, T. L., Hecht, A. A., & Pollack Porter, K. M. (2019). Systematic review of how Play Streets impact opportunities for active play, physical activity, neighborhoods, and communities. *BMC Public Health*, *19*(1), 1–16. https://doi.org/10.1186/s12889-019-6609-4

Vasudevan, V., Agarwala, R., & Dash, S. (2021). Is vehicle ownership in urban India influenced by the availability of high quality dedicated public transit systems? *IATSS Research*, *45*(3), 286–292. https://doi.org/10.1016/J.IATSSR.2020.12.005

BANYAN ACADEMY OF LEADERSHIP IN MENTAL HEALTH

Bibliography XXV

WHO. (2021). The Banyan: Home Again. In *Guidance on community mental health services: Promoting person-centred and rights-based approaches* (pp. 118–122). World Health Organization. https://www.who.int/publications/i/item/9789240025707