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**Surveillance of chronic diseases:
Challenges and strategies for India**

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Introduction

- The World Health Organization's (WHO) Global Status Report on NCDs (2014) suggests that out of the 56 million global deaths in 2012, 38 million, or 68%, were due to NCDs.
- Principally, cardiovascular diseases, cancers, chronic respiratory diseases and diabetes accounted for 82% of NCD deaths (WHO 2014).
- India accounts for over 15% (5.9 million NCD deaths) of the global NCD deaths (38 million) and around 58% of these deaths occurring before individuals attain age of 70 years

Introduction

- In India, early onset of NCDs is a major concern and some studies have noted that about 3-4% of adults (aged 20 and above) in rural areas and 8-10% in urban areas suffer from coronary heart disease (Reddy et al 2005)
- Such high prevalence of NCDs is estimated to cause a total damage of \$3.55 trillion in lost economic output during the 18 year period, 2012-30 (Bloom et al 2014).
- Out-of-pocket (OOP) payments on chronic diseases have jeopardized the customary living standards of households

Introduction

- It is high time to put adequate emphasis on prevention and early treatment of chronic diseases
- A good surveillance system is a prerequisite for prevention and control of chronic diseases and can contribute towards planning and implementation of preventive measures
- But are the State health systems responding to the threat? What challenges do they face? What potential strategies are available? Can we develop a system for chronic disease surveillance?

Significance of surveillance

- Helps understand natural history of diseases, identify priority areas for policy engagements and research
- Helps design interventions and strategies for primary, secondary and tertiary prevention
- Facilitates programme development, monitoring, mid-course corrections and impact evaluations
- Informs resource allocations – financial, physical, technical, managerial and clinical
- Successful surveillance can reduce overall social and economic loss to the households and the economy

Registries, Surveys and Study Sites

- Sample Registration System (SRS)
- National Cancer Registry Programme (NCRP)
- Integrated Disease Surveillance Project (IDSP)
- About 18 public health demographic surveillance sites in India listed by PHFI
- Nationally representative household surveys (NFHS, DLHS, NSSO)

Surveillance under NPCDCS

- Government of India has launched a National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)
- NPCDCS was initially rolled out across 100 districts and now expanded to all the districts
- The focus is on early diagnosis and strengthening opportunistic screening at selected facilities
- The screening activities are linked to NCD clinics established under the programme

State-experiences

- We review the situation across four States: Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh
- All have initiated activities under NPCDCS and have established NCD Clinics
- NPCDCS is a major focus in Kerala and Tamil Nadu where chronic disease burden is high and increasing
- UP and Rajasthan have started in pilot mode and expect significant expansion in a couple of years

Key chronic NCD indicators for Kerala and Tamil Nadu, DLHS 2012-13

Indicator	Place	Kerala	Tamil Nadu
Reported prevalence of chronic illness (%)	Total	7.0	3.9
	Rural	6.9	3.8
	Urban	7.0	4.0
Reported prevalence of respiratory disease (%)	Total	14.0	12.8
	Rural	15.3	12.4
	Urban	12.6	13.2
Reported prevalence of cardiovascular disease (%)	Total	14.5	5.1
	Rural	15.8	5.6
	Urban	13.0	4.6
Reported prevalence of tuberculosis (%)	Total	0.6	0.9
	Rural	0.6	1.1
	Urban	0.5	0.6
High blood sugar level (>140mg/dl) for age 18 and above (%)	Total	24.7	13.0
	Rural	24.5	11.3
	Urban	24.9	14.8
Hypertension (Systolic >140 mm of Hg & Diastolic >90 mm of Hg) for age 18 and above (%)	Total	34.5	22.3
	Rural	36.6	20.7
	Urban	32.0	24.0

Source: Factsheet, District Level Household and Facility Survey 2012-13 (DLHS - 4), IIPS, Mumbai.

Key chronic NCD indicators for Rajasthan and Uttar Pradesh, AHS 2012-13

Indicator	Place	Rajasthan	Uttar Pradesh
Diagnosed for any kind of chronic illness (%)	Total	4.3	10.6
	Rural	3.8	10.8
	Urban	5.8	10.1
Diagnosed for asthma or chronic respiratory disease (%)	Total	0.7	0.9
	Rural	0.7	0.9
	Urban	0.6	0.8
Diagnosed for tuberculosis (%)	Total	0.2	0.3
	Rural	0.2	0.4
	Urban	0.2	0.3
Diagnosed for diabetes (%)	Total	0.4	0.5
	Rural	0.2	0.3
	Urban	1.1	1.0
Diagnosed for hypertension (%)	Total	0.8	0.8
	Rural	0.6	0.6
	Urban	1.6	1.2

Source: Factsheet, Annual Health Survey 2012-13 (AHS), Office of the Registrar General of India,

NPCDCS guidelines regarding reporting of programme information

Level	Reporting Form	Person in charge	Reporting to:	Frequency of submission
Sub-centre	Form 1	ANM/MHW	MO I/c NCD Clinic CHC	Monthly
CHC	Form 2 A	MO I/C NCD Clinic	District NCD cell	Monthly
	Form 2 B	MO I/C NCD Clinic	District NCD cell	Monthly
District	Form 3 A	DPO (NCD)	State NCD cell	Monthly
	Form 3 B	MO I/C NCD Clinic	District/ State NCD cell	Monthly
	Form 3 C	DPO (NCD)	State NCD cell	Monthly
State	Form 4 A	SPO (NCD)	National NCD cell	Quarterly
	Form 4 B	SPO (NCD)	National NCD cell	Quarterly

Source: NPCDCS Operational Guidelines, MoHFW.

Note: MO I/C – Medical Officer In Charge; DPO – District Programme Officer; SPO – State Programme Officer; ANM – Auxiliary Nurse and Midwives; MHW – Male Health Worker

Proposed and approved budget for NPCDCS and NTCP under NHM State Programme Implementation Plan, 2014-15

States	Proposed budget (in Rs. Cr)			Approved budget (in Rs. Cr)			% Approved	% NHM Budget
	NPCDCS	NTCP	Both	NPCDCS	NTCP	Both		
Kerala	54.8	0.87	55.7	11.2	1.42	12.6	22.6%	2.2%
Rajasthan	67.0	6.65	73.6	21.2	2.36	23.5	31.9%	1.2%
Tamil Nadu	59.0	3.1	62.1	11.8	1.22	13.0	20.9%	1.1%
Uttar Pradesh	133.0	12.1	145.1	30.9	4.73	35.7	24.6%	0.9%

Source: NHM State Programme Implementation Plans 2014-15 (Main and Supplementary).

Note: Total NHM state programme implementation plan budget approval (in Rs. Crores) for 2014-15 are as follows; Kerala 569.35, Rajasthan 1930.87, Tamil Nadu 1236.59, and Uttar Pradesh 3832.16.

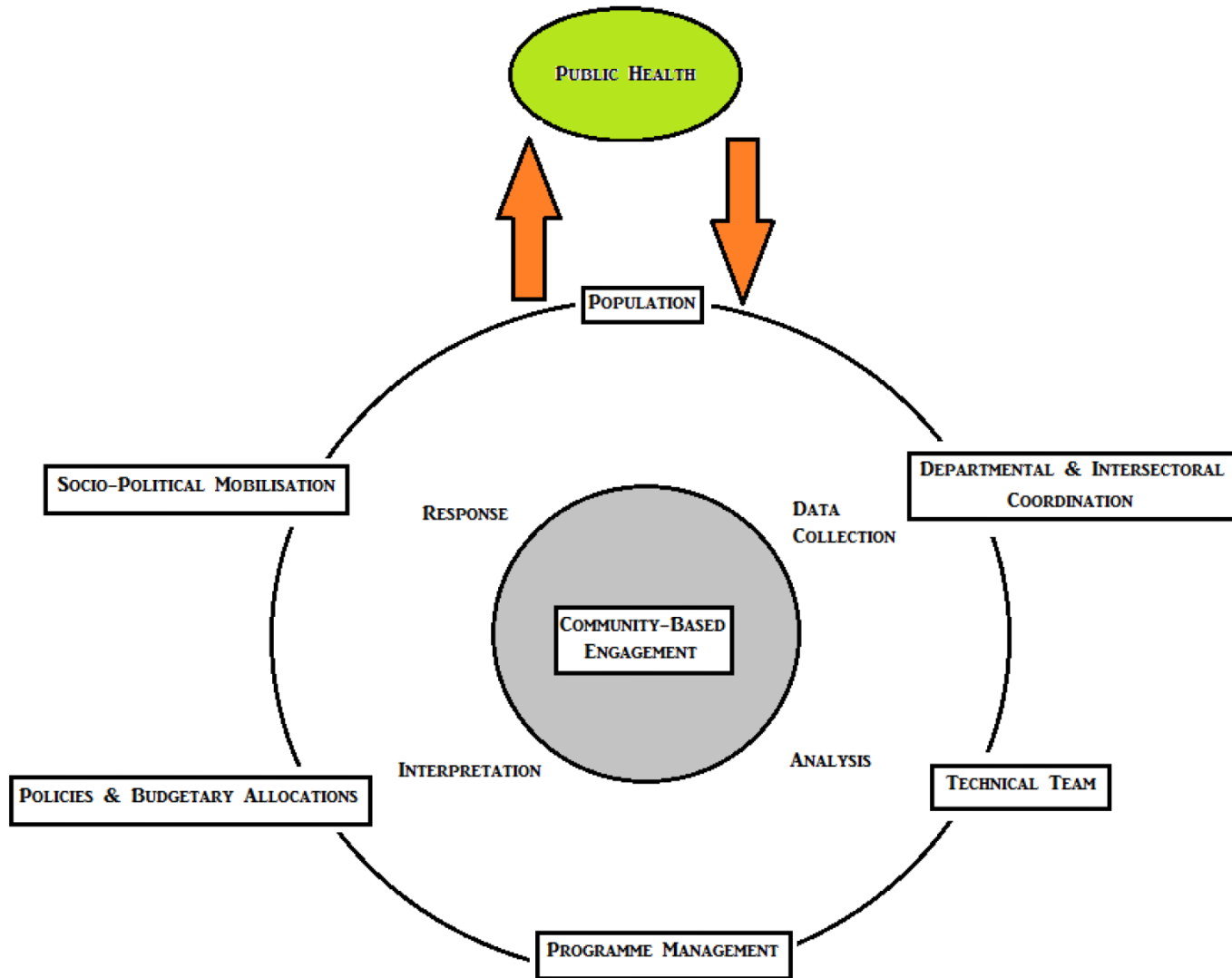
State-experiences

- Major challenges
 - Low awareness and strategic focus
 - Low priority in resource allocations
 - Moving beyond opportunistic screening and how to collect the surveillance data?
 - HR shortages for surveillance
 - Possible inclusion of the AYUSH and the private sectors?
 - Role of community health worker in surveillance

State-experiences

- Some public sector initiatives:
 - *Nalamana Tamizhagam in Tamil Nadu*
 - *Amrutham Aarogyam in Kerala*
 - LEAP programme in Kerala
- PPPs, NGOs and Private Sector led:
 - *Sampoorna clinic in Uttar Pradesh*
 - *Swasthya slate in Uttar Pradesh*
 - Sai Rural Diabetes Specialties Centre (SRDSC) in Chennai
 - Kidney Help Trust (KHT) in Chennai
 - Neonatal diabetes and maturity onset diabetes of young (MODY) registry in Chennai

Surveillance and response conceptual framework



Source: Adapted from surveillance and response conceptual framework in Nsubuga et al¹ (2006)

Surveillance Approach	Target Age Group	Target Population
Population based surveillance	30+	Individuals
Employment based	30+	Employees
School Health	6-14	Students
Higher education	15-21	Students
Population based	All	Individuals
Opportunistic screening	30+	Patients, Relatives
Programme based screening	30+	Target group
Local level surveillance	30+	Individuals
Old age homes	60+	Elderly
Self-help groups	30+	Women
Urban slums	30+	Individuals

Towards surveillance framework

- Develop Risk Scoring Algorithms and Surveillance Forms
- Identify surveillance domains and define domain responsibilities
- Engage community and volunteers networks for cost-effective population based screening at Block level
- Population-based screening can generate mass awareness and also promote health care seeking for prevention and early treatment

Surveillance form for behavioural risk factor assessment

Block name:								Village code:					
Block code:								Household id:					
Investigator code and Date of investigation:								Any diabetic in your family: (Yes/No)					
Sl. No.	Name/ Aadhaar ID	Age/ Sex	Height (in cm) / Weight (in kg)	Fruit / Vegetable Diet	Physical activity	Tobacco	Alcohol	NCD Diagnosis		NCD Treatment		NCD score	High- risk case
								Diabetes	Hypertension	Diabetes	Hypertension		
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

NCD risk scoring algorithm for behavioural risk factor assessment

Indicator	Score description
Any diabetic in your family	Yes – 20 points
Age	Above 60 years – 30 points 41-60 years – 20 points 30 – 40 years – 10 points
Weight	Female: Above 60 kg – 20 points 51 - 60 kg – 10 points 50 kg and below – 20 points Male: Above 65 kg – 20 points 51 - 65 kg – 10 points 50 kg and below – 20 points
Tobacco use	Yes – 20 points
Alcohol use	Yes – 20 points
Physical activity	Sedentary – 20 points Moderate – 10 points
Confirmed NCD case	60 points

Major recommendations

- Increase funding and resource allocations for surveillance of chronic diseases at least to support functional NCD clinics and conduct block level population based screening
- Define and harmonize surveillance data structure (BRFSS), collection, presentation and review. Also, strengthen ICT and HMIS platform
- Gender sensitivity in screening, prevention and treatment activities should be made part of quality management protocols

Major recommendations

- Recruit programme managers and technical staff for surveillance of chronic diseases
- Involve AYUSH and Private sector partners in surveillance activities but verify sustainability prospects of PPPs
- Recruit additional community health worker to facilitate population based screening and programmatic follow ups

Major recommendations

- Creation of public health cadre is critical to maintain high focus and expertise
- Strengthen primary health care by expanding focus and HR to address issues beyond MCH
- Inter-sector coordination is key. For example, school health programmes and industry collaborations for surveillance



Thanks for Your Attention!