Management Information System for Health

Andhra Pradesh

A Case Study

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Motivation

- Evidence based -informed health policies require data and information derived from effective health information systems

- Mikkelsen et al.(2015), reported that India fares very low (<0.25) in terms of the Vital Statistics Performance Index (VSPI)

- Pandey et al.(2010), reports prolonged reporting delays by public health authorities and lack of data from private sector.

- The objective of this paper is to:

  - Discuss different sources of information on health in India

  - Assess the quality and availability of such data

  - Understand the gaps or deficiencies –AP A case study

  - Suggest policy recommendations on the basis of findings above

Features of strong HIS: international evidence

- **Nationalised databases** cuts across other databases horizontally and vertically

- Characterised by **well laid EHR system**, linked to **unique patient identifying number** and/or a set of identifiers to support standardisation and to allow for cross reference

- Promote research and quality monitoring using population based data, with well defined legal framework to ensure **personal privacy** while enabling **data linkages across sources**.

- **Strong decentralisation**

- Develop or adopt existing **quality assessment frameworks**: IMF: Data Quality Assessment Framework, European Statistical System Framework, OECD Quality Measurement Framework

WHO Framework: 100 Core Global Health Indicators

Input and service level	Output and Outcome	Impact
● **Governance:** existing policies, schemes on specific diseases and health systems ● **Health financing:** health expenditures, resource allocations ● **Inputs:** medicines, machine ● **Health workforce:** Doctors, Nurses ● **Health infrastructure:** CHC, PHC, Hospitals ● **Health information:** disease surveillance, EHR	● **Service utilisation:** outpatient, inpatient, lab tests, BOR ● **Service quality and safety:** IMR, MMR ● **Incidence and interventions:** TB case detection, ANC, SBA ● **Risk factor and behaviour:** alcohol consumption, hypertension prevalence	● **Vital Statistics:** CDR, CBR ● **Maternal and child health:** IMR, MMR ● **Financial Protection:** OOP ● **Population health:** causes of deaths, disease burden

Data sources for HIS

Surveys

- Census

- Sample Registration System (SRS)

- National Family Health Survey (NFHS)

- Annual Health Survey (AHS)

- Coverage Evaluation Survey (CovES)

- Rural Health Survey (RHS)

- Consumer expenditure survey, NSS

- Morbidity and mortality survey, NSS

Data sources for HIS
Administrative Data

- Civil Registration System (CRS)

- HMIS, National Health Mission (NHM)

- Concurrent monitoring

- National Health Profile (NHP)

- Integrated Disease Surveillance Program (IDSP)

Part I

Challenges to HIS in India

1. Challenges at national level–Governance/ leadership

- Different sources, divergent figures

- Decentralised procurement of nationalised HRIS

- Lack of linkage between data sources

- Data dissemination and utilisation challenges

Table: Vital Statistics from different sources - All India

	CRS	SRS	NFHS -4
	2013	2014	
BR	21.4	21	
DR	7	6.7	
Sex Ratio	898	906	Not available at country level

2. Challenges at a sub-national management level

- Lack of private sector data
- Limited disaggregation of data

3. Challenges at institutional level-compilation and analysis of data

- Lack of training on probing skills
- Shortage of staff

4. Challenges at institutional level-Intrinsic data quality issues

- Methodical issues in CRS
- Data triangulation issue
- Lack of baseline data
- Evolving surveys

71st Round Vs 60th Round (cont.)

Differences

Heads	60th Round	71st Round
Definition of Household	As used by NSSO in the consumption expenditure surveys	few exceptions for household members and included • students residing in hostels irrespective of period of absence • any women undergone childbirth in last one year and incurred some cost irrespective of her place of residence • child less than 1 year is member of the household to which its mother belongs

71st Round Vs 60th Round

Differences

Heads	60th Round	71st Round
Disability	Persons with pre-existing dis-ability regarded as ailing persons	- Persons with pre-existing disability under treatment for a specified period during the reference period [1] was classified as **chronic ailment**, else not recorded as ailment - disability acquired within the reference period is recorded as ailment
Medical treatment	Self-medication or use of medicines on advice of chemist - not considered as medical treatment	all such treatments considered as medical treatment

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[1] Reference period is last one year

71st Round Vs 60th Round (cont.)

Differences

Heads	60th Round	71st Round
Child birth	Collected consolidated expenditure incurred pre and post and during childbirth	- Is coded as a dummy ailment to record detailed expenditure incurred **Not included** in estimating proportion of ailing persons (PAP)
Persons aged 60+	Collected the information of ailment - reported during reference period (last 15 days) - reported on date of survey and nature of treatment	- Information of ailments reported on date of survey not collected (for any age group) **however**, information on economic dependence; - living arrangement; and - State of health

71st Round Vs 60th Round (cont.)

Differences

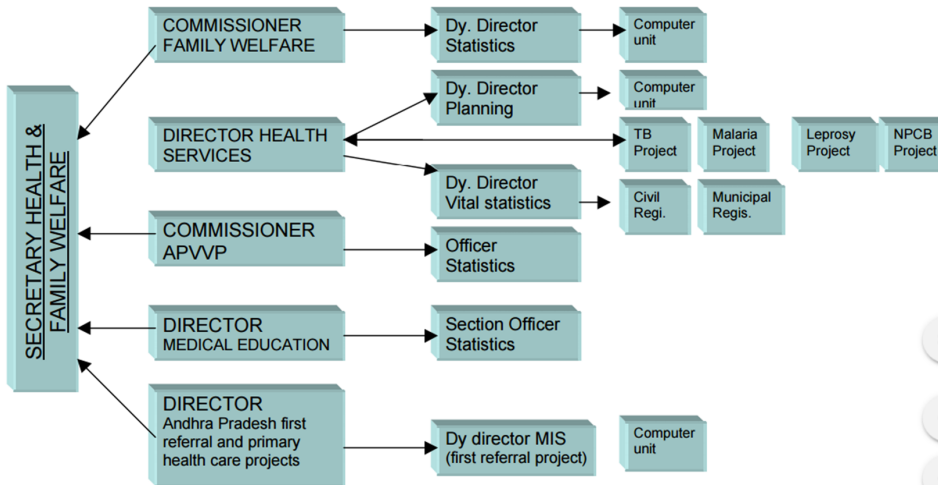| Heads	60th Round	71st Round
List of ailments		updated (20 new ailments added to the list used for the 60th round)
Nature of treatment	Not differentiated	recorded as separate categories

5. Challenges at individual level

- Lack of surveillance infrastructure
- Absence of electronic health records

Part II

HIS in Andhra Pradesh

Organization of HIS in AP

Part III

Analysis of HIS for Andhra Pradesh

Internal consistency check
HMIS, NRHM

	2014-15	2015-16
1. BCG given should be ≤ number of deliveries		
Infants received BCG	811161	830159
Total reported deliveries	489847	735684
Ratio in %	165	112
2. BCG given should be ≤ number of live births		
Infants received BCG	811161	830159
Live births	653391	778402
Ratio in %	124	107
3. Total deliveries should be ≡ live birth + still birth		
Total Live + still birth	653422	778586
Total Deliveries	489847	735684
Ratio in%	133	106
4. No. of complicated pregnancies treated with IV Antibiotic ≤ No. of pregnant women with Obstetric Complications		
Number of complicated pregnancies treated with IV Antibiotics	50686	71748
Total Complicated Pregnancies	21119	67054
Ratio in %	240	107
5. No. of complicated pregnancies treated with IV Oxytocics ≤ No. of pregnant women with Obstetric Complications		
Number of complicated pregnancies treated with IV Oxytocics	64835	96558
Total Complicated Pregnancies	21119	67054
Ratio in %	307	144

External validation

Vital Statistics

	SRS	CRS	NFHS-4
	2014	2013	May-Aug 2015
IMR	39		35
U5IMR	40		41
BR	17 (13& 14)	14.6	
DR	7.3(13& 14)	5	
Sex Ratio	919(13& 14)	954	914
Immunization against measles	90.4		89.4
Percent of Delivery by SBA	95.6		92.2

External validation

NFHS-4 State fact sheet and NRHM key HMIS indicators for AP

National Family Health Survey (NFHS)-4,2015-16		National Rural Health Mission (NRHM) 2015-16	
Definition	Value	Definition	Value
Institutional deliveries to total reported deliveries	98.2	Institutional births (%)	91.6
Births delivered by caesarean section (%)	40.1	% C-section deliveries to reported institutional deliveries	33.9
Births in a private health facility delivered by caesarean section (%)	57	C-sections conducted at private facilities to Deliveries conducted at public facilities	22.8
Births in a public health facility delivered by caesarean section (%)	25.5	C-sections conducted at public facilities to Deliveries conducted at private facilities	41.9
Institutional births in public facility (%)	38.3	Deliveries conducted at Public Institutions to Total Institutional Deliveries	41.9
Sex ratio at birth for children born in the last five years (females per 1,000 males)	914	Sex Ratio at birth (Female Live Births/ Male Births *1000)	951

External Validation
Facility level information- 2012-13

Variables	DLHS-4	RHS
Average population covered by health facility, Sub Center	5134	4,501
Average population covered by health facility, PHC	40945	32,979
Average population covered by health facility, CHC	106273	193,020
Total number of Sub Center	468	12522
Total number of PHCs	361	1,709
Total number of CHCs	156	292
Total number of Sub-Divisional Hospital	38	61
Total number of District Hospital	17	17
Number of CHCs having new born care services	106	240

External Validation

Workforce level information- 2012-13

Variables	DLHS-4	RHS
Sub center with ANMs	90.4%	90%
PHC with Medical officer	90%	86%
PHC with Lady medical officer	41%	54%
PHC with Ayush Doctor	21%	93%
PHC with Pharmacists	53%	79%

Part IV

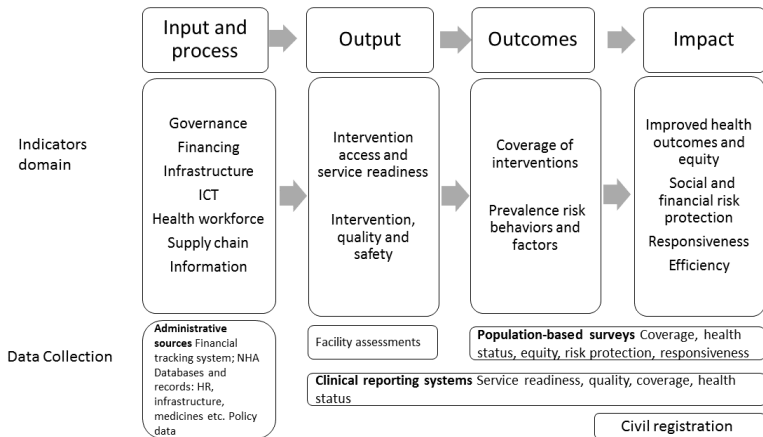# Conclusions and Way forward

Strengthening data governance and leadership

- Nationalised HIS infrastructure

- Legal framework to ensure data privacy

- Integrating data bases to enable analysis and draw correlations

Strengthening data quality

- Standardisation of data definitions

- Improve data availability

- Monitor evaluate and communicate results to incentivise team

- Capacity building of staff

WHO HIS framework

Thank You!