Strengthening Health Management Information Systems in India: An Assessment

Ekta Saroha MA, DrPH, Thigarajan Sundararaman, MD, Alia Kauser, MBA, Amit Mishra, MHA, Tanu Priya, MHA, Itisha Vasish, MBA

NATIONAL HEALTH SYSTEMS RESOURCE CENTRE, NEW DELHI, INDIA

INTRODUCTION

- Ministry of Health and Family Welfare (MoHW) provide subsidized healthcare through various healthcare facilities/providers in India.
- Health facilities/providers maintain health records through the ‘Health Management Information Systems (HMIS)’ and report to MoHW.
- Since 2005 National Rural Health Mission (NRHM) at MoHW is strengthening HMIS to promote evidence-based decision making.
- Since health is a State subject, 28 States and 7 Union Territories (UTs), i.e., 636 Districts solicit NRHM’s support for HMIS strengthening at their discretion.
- Validity of HMIS data is yet to be established.
- At present, ‘District Level Household and Facility Survey (DLHS)’ is a substitute HMIS.
- Both DLHS III (2007-08) and HMIS (2009-10) generate data for 200+ health indicators.

OBJECTIVES

- Research Objective 1: Compare district level HMIS and DLHS III health data.
- Research Question 1: Are district level HMIS data comparable with DLHS III data for selected health indicators?
- Research Objective 2: Determine if NRHM’s HMIS strengthening yield data that are comparable to DLHS.
- Research Question 2: Did the Districts of States that solicited support from NRHM for HMIS strengthening since 2005 (HMIS Early Districts) yield HMIS data in 2009-10 comparable to DLHS III for selected health indicators compared to the States of Districts that did not solicit support from NRHM until 2010 (HMIS Late Districts)?

METHODS

- Study Population: All Districts of India.
- Sample selection and classification: All Districts (N=590, 92.76%), of 27 States/UTs (77.14%) for which data for selected health indicators were available in either DLHS III or HMIS, classified as:
  - HMIS Early Districts: 309 Districts of 3 States (Chhattisgarh, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Bihar, Uttaranchal, and West Bengal) that solicited NRHM’s support since 2005.
  - HMIS Late Districts: 281 Districts of 14 States (Andhra Pradesh, Arunachal Pradesh, Assam, Delhi, Haryana, Jharkhand, Manipur, Meghalaya, Mizoram, Rajasthan, Sikkim, Tamil Nadu, Tripura, and Uttar Pradesh) that did not solicit NRHM’s support till 2010.
- Sample size: N=590 Districts of India (n=309 HMIS Early Districts, n=281 HMIS Late Districts).
- Selection of health indicators: Of 200+ health indicators available in both DLHS and HMIS only following 14 have similar definitions, hence comparable:
  - Selection of health indicators: Of 200+ health indicators available in both DLHS and HMIS only following 14 have similar definitions, hence comparable:
    - 3% Home delivered by trained birth attendants
    - 2% Home delivered by trained health attendants
    - 2% Home deliveries attended by skilled birth attendants
    - 4% Newborns breached within 1 hour of birth
    - 6% Women inserted with Intrauterine Device
    - 8% Women given/received Oral Contraceptive Pills
    - 10% Men sterilized
    - 12% Women tested for HIV
    - 14% Women treated for Reproductive/Sexually Transmitted Infections
    - 41% Antenatal care registration in 1st trimester
    - 50% Women given/received Iron Folic Acid during pregnancy
    - 76.8% Women given/received Emergency Contraceptive Pills
    - 82% Women delivered by skilled birth attendants
    - 82% Women sterilized
    - 84% Women given/received Contraceptive
    - 91.9% Home deliveries attended by skilled birth attendants
    - 95.8% Women given/received Emergency Contraceptive Pills

RESULTS

Table 1: Comparison of HMIS (2009-10) and DLHS III (2007-08) data, segregated by HMIS Early and HMIS Late Districts in India (N=590)

<table>
<thead>
<tr>
<th>Objective</th>
<th>All Districts (N=590, 100%)</th>
<th>HMIS Early Districts (n=309, 52.37%)</th>
<th>HMIS Late Districts (n=281, 47.63%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Antenatal care registration in 1st trimester</td>
<td>206 (34.92%)</td>
<td>114 (36.89%)</td>
<td>92 (32.74%)</td>
<td>0.609</td>
</tr>
<tr>
<td>% Home deliveries attended by skilled birth attendants</td>
<td>112 (18.98%)</td>
<td>56 (18.12%)</td>
<td>56 (19.93%)</td>
<td>0.210</td>
</tr>
<tr>
<td>% Home deliveries attended by skilled birth attendants</td>
<td>415 (70.34%)</td>
<td>249 (80.58%)</td>
<td>165 (58.72%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% Newborns breached within 1 hour of birth</td>
<td>69 (11.69%)</td>
<td>38 (12.30%)</td>
<td>31 (11.03%)</td>
<td>0.464</td>
</tr>
<tr>
<td>% Women given/received Iron Folic Acid during pregnancy</td>
<td>64 (10.85%)</td>
<td>28 (9.06%)</td>
<td>36 (12.81%)</td>
<td>0.086</td>
</tr>
<tr>
<td>% Women inserted with Intrauterine Device</td>
<td>577 (94.11%)</td>
<td>299 (96.76%)</td>
<td>258 (81.81%)</td>
<td>0.653</td>
</tr>
<tr>
<td>% Given/received condoms</td>
<td>528 (89.49%)</td>
<td>283 (91.59%)</td>
<td>245 (87.19%)</td>
<td>0.657</td>
</tr>
<tr>
<td>% Women given/received Oral Contraceptive Pills</td>
<td>524 (88.11%)</td>
<td>202 (69.40%)</td>
<td>222 (77.86%)</td>
<td>0.001</td>
</tr>
<tr>
<td>% Women given/received Contraceptive</td>
<td>506 (94.19%)</td>
<td>301 (97.41%)</td>
<td>205 (72.17%)</td>
<td>0.354</td>
</tr>
<tr>
<td>% Men sterilized</td>
<td>50 (93.22%)</td>
<td>204 (95.15%)</td>
<td>256 (91.10%)</td>
<td>0.204</td>
</tr>
<tr>
<td>% Women sterilized</td>
<td>40 (69.67%)</td>
<td>16 (54.84%)</td>
<td>24 (85.14%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% Women tested for HIV</td>
<td>396 (66.78%)</td>
<td>190 (61.49%)</td>
<td>204 (72.60%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% Women attended for Post natal Complications</td>
<td>20 (20.34%)</td>
<td>10 (20.34%)</td>
<td>10 (20.34%)</td>
<td>0.710</td>
</tr>
<tr>
<td>% Women treated for Reproductive/Sexually Transmitted Infections</td>
<td>6 (1.02%)</td>
<td>3 (0.97%)</td>
<td>3 (1.07%)</td>
<td>0.863</td>
</tr>
</tbody>
</table>

Table 2: Logistic regression analysis indicating odds of HMIS (2009-10) data being comparable to DLHS III (2007-08) data among HMIS Early Districts compared to HMIS Late Districts in India (N=590)

<table>
<thead>
<tr>
<th>Objective</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Home deliveries attended by skilled birth attendants</td>
<td>2.67 (1.81, 3.05)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% Women given/received Oral Contraceptive Pills</td>
<td>3.39 (1.61, 7.16)</td>
<td>0.001</td>
</tr>
<tr>
<td>% Women tested for HIV</td>
<td>0.46 (0.31, 0.67)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- HMIS (2009-10) data are comparable with DLHS III (2007-08) data for selected indicators in the country.
- HMIS Early Districts were more likely to yield comparable data compared to HMIS Late Districts, indicating that NRHM’s support for HMIS strengthening need to be continued.
- Such comparison of data sources for other health indicators and same time periods can inform evidence-based decision making and planning of health programs.
- Other factors that contribute to HMIS strengthening need to be researched.