Strengthening Health Management Information System (HMIS) for Mental, Neurological and Substance use Disorders in Kolar - Karnataka

Executive Summary

A well-designed Health Management Information System (HMIS) plays a crucial role in decision making at all levels of health system from policy and service development for prioritization, implementation, monitoring and evaluation of health services. The disease burden due to mental, neurological and substance use disorders (MNSUDs) has shown a rising trend because of rapid economic, demographic and epidemiologic transition. Thus, there is a recognised need for reliable Health Management Information System (HMIS) in strengthening the programme that addresses MNSUDs. A situational analysis to identify possible strategies for strengthening the HMIS for MNSUDs within the district was undertaken in Kolar district, the public health observatory for CPH (Centre for Public health), NIMHANS. It has been clear that HMIS for many health services and programmes were organised and existing in Kolar district. But the present status of health programmes related to MNSUDs in Kolar district is not very strong and there is an enormous need for strengthening activities and reporting system to achieve the proposed objectives. A simple strategic HMIS beginning with simple patient case records with a uniformly designed printed register or computer based formats and introduction of reporting on programme activities related to MNSUDs containing patient related and programme related reporting with the scope for modification in line with phased rolling out of other envisaged activities has been delineated. This will serve as basis for developing a comprehensive HMIS for MNSUDs in future.

Next Steps

1. Introduce simple patient case records and uniformly designed printed register or computer based formats for MNSUDs at the district hospital
2. Introduce uniformly designed printed register for MNSUDs at the Taluka hospitals and Primary Health Centres
3. Introduce reporting on programme activities related to MNSUDs and facilitate data utilisation in MNSUDs related district programme management to track all activities
4. Training of key personnel (pharmacist in Kolar) in proper collection-documentation-analysis and reporting of MNSUDs
1 BACKGROUND

Health Management Information System (HMIS) is a system for collecting, processing, analysing, disseminating and using information about services and needs of the people to improve their health. A well-designed HMIS plays a crucial role in decision making at all levels of health system from policy and service development to prioritization, implementation, monitoring, evaluation and improvement of health services.

Today, the rapid economic, health and demographic transition with increased life expectancy and ageing population have resulted in increasing prevalence of many mental, neurological and substance use disorders (MNSUDs) in India. Recognising the need for care in the immediate future regarding MNSUDs, the Government of India apart from scaling up the on-going National Mental Health Programme (NMHP), has also started the National Program for Prevention and Control of Cancer, Diabetes, Cardio Vascular Diseases and Stroke (NPCDCS) and the National Programme for Health Care of Elderly (NPHCE). However, achieving desired outcomes for such priority programs has been limited by the absence of strong HMIS which would contribute to inform policies, setting priorities, allocating resources, assess progress and monitor impact of programmes.

2 OBJECTIVES

A situational analysis of the existing HMIS was undertaken in Kolar district, the Public Health Observatory of the Centre for Public Health, NIMHANS with the objectives of:

1) Documenting the HMIS in Kolar district with a special focus on MNSUDs, and
2) Exploring the strategies for strengthening the existing district HMIS for MNSUDs

3 METHODOLOGY

The HMIS assessment involved collection of both primary and secondary data using desk review, walk through analysis and key personnel interview in Kolar district. Data were collected from department, facility and worker level of the district health system.

3.1 Desk review

A thorough desk review was carried as a first step in the situational analysis to identify the appropriate methodology for evaluating the HMIS. Several documents available from World Health Organisation (WHO), national and state government offices were reviewed to understand the current system and changes over time.*

3.2 Walk through analysis

A walk through in the randomly selected Subcentre, Primary health centre, Taluka Hospital, District hospital and District Health Office was undertaken to study data collection process, reports / registers maintained, data submission, data flow and data utilisation.

3.3 Key personnel interview

Key personnel involved in HMIS were interviewed to ascertain the problems and challenges faced

*A mental health information system is a system for action: it should exist not simply for the purpose of gathering data, but also for enabling well-informed decision-making in all aspects of the mental health system.”

- World Health Organization 2005 in Mental Health Policy and Service Guidance Package (Mental health information systems).


in this area. The content of the interview varied according to the roles and responsibilities of the key personnel. The interviews for the personnel from non-health sectors were informal, while a semi-structured interview schedule was used for those from the health sector. The focus was on data flow and information use. Key personnel interviewed are shown in Table 1 below.

“The ultimate objective of health information systems is therefore not to gain information but to improve action”
-Rainer Sauerborn and Theo Lippeveld (2000)

Table 1: Key personnel interviewed

<table>
<thead>
<tr>
<th>S.No</th>
<th>Location</th>
<th>Personnel interviewed</th>
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<tbody>
<tr>
<td>1</td>
<td>Sub centre</td>
<td>Auxiliary Nurse Midwifery (ANM)</td>
</tr>
<tr>
<td>2</td>
<td>Primary Health Centre (PHC)</td>
<td>Medical Officer In-charge (MO I/C), Pharmacist, Health Assistant (Male)</td>
</tr>
<tr>
<td>3</td>
<td>Taluka Hospital</td>
<td>Taluka Health officer, Block Programme management officer, Senior Health Assistant (Male), Lady Health Visitor (LHV), Pharmacist</td>
</tr>
<tr>
<td>4</td>
<td>District Hospital</td>
<td>District Surgeon, District Surveillance Officer, District Epidemiology Officer, District Psychiatrist</td>
</tr>
<tr>
<td>5</td>
<td>District Health Office</td>
<td>District Health Officer, Reproductive &amp; Child Health (RCH) officer, District Programme Management Officer (DPMO), District AIDS Control Officer (DACO), District Health Education Officer, District Leprosy Officer and other district health programme officers.</td>
</tr>
<tr>
<td>6</td>
<td>Others</td>
<td>District Statistical Officer, District Education Officer, District Social Welfare officer</td>
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4 RESULTS

HMIS can be broadly classified as HMIS -Public health sector, HMIS-Private health sector and HMIS-Non-health sector. HMIS for MNSUDs are seen in all these three domains of HMIS. As the HMIS-Public health sector plays a significant role in monitoring and evaluation of District Mental Health Programme (DMHP), the discussion focuses mainly on HMIS -Public health sector. The critical role of HMIS in private health sector and non-health sector are also considered due to intersectoral nature of the issues.

4.1 HMIS Public health sector - Overview

a. **System design:** The current HMIS is designed primarily to capture data for monthly reporting from lower health facility level to district and national levels. The system is supported by annual community needs assessment survey and other programme specific surveys in setting the annual targets. Presently, NPCDCS and NPHCE are implemented under District Surveillance Unit with priority focus on Hypertension and Diabetes. Both of these programmes are in its early phase and run parallel without any convergence with other programmes.

b. **Human resources:** At each level, there is a person-in-charge designated for data collection, report generation and compilation (Table 2). Almost all staff members are involved in information collection and reporting with reference to their specific in-charge programme activities and none of the regular staff members are involved in unified activities. Nearly two hours on any working day is used for making entry in registers and generating reports.

A state of decreased motivation among the staff members is clearly noticed due to overload from reporting and maintaining registers. The staff turnover rates are very high especially for the health centres in remote areas. The vacant staff position for data entry operators, data managers and clerks are not filled completely. Even the existing health workers have inadequate training in data collection, reporting and submission of the reports for majority of the health programmes. However, under NPCDCS and NPHCE, all the members were recruited under contractual basis and they were trained for reporting and delivering services.

c. **Data and reporting:** Most of the reporting is paper based and is done manually from each of the facility. The primary data from the individual registers is abstracted into specific
Table 2: Human resource matrix for existing HMIS

<table>
<thead>
<tr>
<th>Health facility level</th>
<th>Person-in-charge for reporting</th>
<th>Forms/Reports accomplished at this level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Centre</td>
<td>ANM / Junior Health Assistant (female)</td>
<td>All reports. Male assistants are primarily involved in National Vector Borne Disease Control Programme (NVBDCP), National Leprosy Eradication Programme (NLEP) reports</td>
</tr>
<tr>
<td></td>
<td>LHV</td>
<td>RCH related report, Acute Flaccid Paralysis (AFP), Birth and Death (B&amp;D) registration</td>
</tr>
<tr>
<td></td>
<td>Health Assistant Male</td>
<td>NVBDCP, NLEP, Revised National Tuberculosis Control Programme (RNTCP), Reproductive Tract Infection/Sexually Transmitted Infection (RTI/STI), HRMS (Human Resource Management System)</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>Integrated Disease Surveillance Project (IDSP) - S &amp; P form, Out Patient Department (OPD) reports, vaccine reports, stock reports, National Rural Health Mission (NRHM –HMIS), Mother Child Tracking System (MCTS), Mental health</td>
</tr>
<tr>
<td></td>
<td>Lab technician</td>
<td>IDSP (L-form), RNTCP lab stock reporting</td>
</tr>
<tr>
<td>PHC/CHC</td>
<td>Senior Health Assistant (male)</td>
<td>NVBDCP, NLEP, RTI/STI, RNTCP, HRMS</td>
</tr>
<tr>
<td></td>
<td>Taluka LHV</td>
<td>All RCH reports, AFP</td>
</tr>
<tr>
<td></td>
<td>Block Programme Officer</td>
<td>HMIS (PHC&amp;SC), MCTS</td>
</tr>
<tr>
<td></td>
<td>Block Accountant</td>
<td>All Financial reports</td>
</tr>
<tr>
<td></td>
<td>Pharmacist/Clerk</td>
<td>HMIS (Taluka hospital), IDSP (S &amp; P form), Mental health</td>
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<tr>
<td></td>
<td>Staff nurse</td>
<td>B&amp;D registration, Special Newborn Care Unit (SNCU)/Newborn Stabilization Unit (NBSU), Newborn Care Corner (NBCC)</td>
</tr>
<tr>
<td></td>
<td>Lab technician</td>
<td>IDSP (L-form), RNTCP lab stock reporting</td>
</tr>
<tr>
<td></td>
<td>Block health education officer</td>
<td>Information Education Communication (IEC) activities</td>
</tr>
<tr>
<td></td>
<td>Contractual staff nurse</td>
<td>NPCDCS, NPHCE</td>
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<tr>
<td>Taluka Hospital</td>
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</table>

d. **Contents of reports:** The content of data collection-analysis-reporting varies from programme to programme and the nature and depth of the requirement. However, data elements are reflected on service delivery and utilisation, morbidity / diseases surveillance/mortality, disease outbreak, vital events, human resources, drugs, other materials and supplies, equipment status, expenses incurred etc. The only data that is reported in NPCDCS at present is on the number of persons screened and number of persons screened positive in routine and camp approach. Even though the data elements in NRHM-HMIS were indicator driven, a sense of complexity was expressed, given the level of training and understanding by the health workers.

e. **Report submission:** Reports are compiled, consolidated and a copy is stored at each level.
before submission to the higher level. The reporting dates for submission of the monthly reports are fixed for each levels of health facility in a chronological order. (26th of every month for the Subcentres, 30th for the PHCs and 5th of the next month for Taluka hospitals).

The reports submissions were timely for most of the health facilities and reporting through telephones were encouraged for timely submission. Wherever possible, reporting through e-mail and fax were also encouraged.

f. Data flow mechanism: The data flow mechanism for the paper based reporting is mainly vertical (Figure 1) and web based reporting system exist only for NRHM-HMIS, MCTS (Mother to Child Tracking System) and NACP-SIMS (Strategic Information Management System), wherein real time data entry and feedback takes place from the level of PHC.

In case of NPCDCS, reports from outreach camps, house visits and geriatric clinics are compiled and consolidated at the Taluka hospital by the contractual staff and submitted once in a month to the NPCDCS division of District Surveillance unit.

g. Data Analysis and utilisation: There is a monthly meeting at various levels from Subcentre to district health office on fixed dates (last working day in PHCs, 1st week of every month at Taluka hospitals and 2nd week of every month at District health office). Apart from review on whether the reports are submitted on time and whether the reports are complete without missing data, there is no detailed examination (analysis, feedback, utilisation, inputs to programmes etc.) of the reports.

The reports thus submitted are predominantly used for administrative and operational aspects like indenting drugs, vaccines, other consumables and budgets. In addition, important data are displayed through tables and charts in majority of the health facilities on performance appraisal.

h. Logistic support: As the present reporting system is predominantly paper based and there are no instructions and requirement from the higher officials for electronic reporting, majority of the computers are underutilised despite their availability (with power backup and internet connectivity) in all the health facilities from the level of the primary Health centre.Also, there are no operational guideline documents for data collection, reporting or submission of the reports for the health programmes except for RCH under NRHM. However, in contrast to the earlier times, the supply of stationery for the paper based reporting is unhindered with current decentralised funding.

i. Supervision: Supportive supervision was weak and hence quality check of the data collected was minimal. The supervisory visit by District Quality Assurance Group focuses mainly on infrastructure and service management with hardly any focus on reporting.

j. Intersectoral sharing: Formal systems for sharing of information especially with departments of Women and Child Development, Social Welfare, Statistics and Education are non-existent except for ICDS meeting at the PHC. Joint signatory reporting with these departments are also infrequent. Similarly linkages with other population based statistics like census, District Level Household Survey are absent.

“Of the major obstacles to effective management, information support is the one most frequently cited”

– A report of WHO meeting (1987)
4.2 HMIS for MNSUDs

a. **System Design:** Kolar is a non-DMHP district in Karnataka and does not receive any additional support from the centre under NMHP. Hence there is no dedicated DMHP team available to deliver the activities envisaged under DMHP. The District Family welfare officer is given the additional charge as I/C District Mental Health Officer. Services related to MNSUDs are delivered as a part of routine OPD services and are predominantly follow up services. There are no special outreach camps and IEC activities for early diagnosis. The current HMIS for MNSUDs is paper based and is designed for monthly reporting along with other programmes.

b. **Human resources:** The district health service providers are not trained comprehensively to deliver the DMHP services. The doctors have not received any training in recent times for case diagnosis and management. Hence new case diagnosis is not made at any of the health facility level except at the district hospital where a psychiatrist is available. Only old diagnosed cases (referred mainly from district hospital and NIMHANS) are registered for consultation with the doctors. The doctors review the records and endorse the drug prescribed by the referring unit. There is no detailed case assessment. Only pharmacological intervention in the form of distributing the prescribed drug is provided. The difficult cases and those requiring non-pharmacological interventions are referred back for further management.

The pharmacists are not trained for maintaining the registers and generating the report. Usually, old cases of monthly OPD are reported in the place of cumulative cases till previous month while reporting.

c. **Data and reporting:** Details of the patients receiving care are entered in a separate register by the pharmacist while dispensing the drug as per doctor’s advice. A fresh notebook is made for each patient for further follow up. No case record is maintained at patient. As there were no printed registers with specified columns, reliable details with regard to patient are absent. Registers are not maintained in some Taluka hospitals.

d. **Contents of reporting:** Only patient care details are reported. Four disorders namely Epilepsy, Psychosis, Neurosis and Mental retardation are reported. Reporting formats are similar to the reporting formats of the centrally sponsored DMHP. The reporting format has mainly two sections viz., cases and drug stock position. Thus the usual reporting consists of information on (number of old cases, new cases, number collecting the drugs and drug stock position during the reporting month). Information on treatment outcome, referral and follow up are not routinely reported. No guidelines are available for classification of Epilepsy, Psychosis, Neurosis and Mental retardation.

e. **Report submission:** Reports on case load and drug stock are generated at each PHC, CHC and Taluka hospital on a monthly basis. All the reports are consolidated at the Taluka hospital and submitted to the district health office along with other reports.

f. **Data flow mechanism:** The data flow mechanism follows the same mechanism as other paper based reporting of the district health system (fig 1).

g. **Data Analysis and utilisation:** Data compiled at the district were not utilized properly to improve the services related to MNSUDs. Data are used only to review the completeness and timeliness in submission of the reports before reporting is made to the State Mental Health Cell.

h. **Logistic support:** Reporting formats are provided through the Taluka Health Officer, but the supply of registers to the pharmacist is irregular.

i. **Supervision:** With the limited activities of MNSUDs, supportive supervision was totally absent.

j. **Intersectoral sharing:** Substantial data related
to MNSUDs were generated in the district from the following public sectors:

i. District Surveillance Unit (Monthly data on ICD-10 coded cases and deaths due to MNSUDs generated under CBHI form 3A)

ii. Reproductive and Child Health (Monthly data on adolescent counselling services for selected mental disorders reported under Adolescent Reproductive and Sexual Health (ARSH))

iii. District AIDS Control Programme Unit (Monthly data on schools and children provided with Life skills training reported under Adolescent Education Programme)

iv. District Disability Rehabilitation Centre (Data on People with certified Disability related to MNSUDs),

v. District Education Department (Data on school children with low vision, totally blind, mental retardation, multiple disability, learning disability, autism spectrum disorders, orthopaedic impairment, speech impairment, hearing impairment reported under Survey for Children with Special Needs)

vi. District Social Welfare Department (Data on mental retardation among 0-18 years available under village level disability survey by District Child Protection Officer)

Despite these enormous data, there is no established mechanism of information sharing and decision making for MNSUDs at the district.

Similarly among the private sector, information on MNSUDs from various NGOs and private sectors were not shared except for the two private centres, even though some minor services related to MNSUDs were provided.

"Changing the way information is gathered, processed, and used for decision-making implies changing the way an organization operates"

— Helfenbein et al (1987)

5 OPPORTUNITIES AND CHALLENGES FOR STRENGTHENING PRESENT HMIS FOR MNSUDS

There is an enormous need for strengthening the reporting system for MNSUDs while rolling out the programme activities in phased manner. The present assessment of Kolar district HMIS has enabled us to explore the possible opportunities and challenges for strengthening present HMIS for MNSUDs.

5.1 Opportunities

1) The growing importance of MNSUDs
2) A well-established health management information system for routine reporting
3) Periodic review meetings at various levels within the district system (for utilization and dissemination of information)
4) Availability of more than one computer with backup and internet connectivity in all the health facilities above the Sub-centres
5) Availability of additional personnel viz., School health team (One doctor, two staff nurse) under district school health programme
6) Decentralised flexible financing under NRHM (facilitating the uninterrupted supply of logistics related to HMIS)

5.2 Challenges

1) Absence of structured and organised programme activities and HMIS reporting for MNSUDs at the district level
2) Absence of guidelines for programme related activities and lack of case record system for patient of MNSUDs
3) Existence of vacancies for data entry operators at the facility level, statistical officers and data managers at the district level for various programmes
4) High staff turnover rate and hence the training needs especially at the grass root level
5) Increased work load due to initiation of new health programmes and reporting in recent years
6) Decreased motivation of health workers due to duplication in reporting
7) Changes in funding and priorities for existing and new programmes
8) Absence of comprehensive HMIS strategic plan at the district level
9) Poor mechanism for intersectoral sharing by the existing HMIS

“The enhanced development of the health information system has been used as the entry point for the improvement of managerial capabilities in the health system”

– Newbrander & Thomason (1988)

6 WAY FORWARD

Based on the current review, the following activities need to be undertaken for strengthening MNSUDs HMIS in Kolar:

1. Strengthening information systems with a focus on MNSUDs keeping in mind sustainability, cost effectiveness and utilisation pattern
2. Building up simple patient case records with a uniformly designed printed register or computer based formats at various levels of public health system.

To begin with, the following patient details namely Patient ID, name, age, sex, socioeconomic status (Above Poverty Line/ Below Poverty Line), address, distance travelled, contact number, case type (new/ follow up), source of referral, duration of illness, place of diagnosis, diagnosis, Treatment type (Drugs/counselling/referral) will be captured using the printed registers.

3. Introduce reporting on programme activities related to MNSUDs and facilitate data utilisation in MNSUDs related district programme management to track all activities.

The following domains namely (1) Human resources (staffing & training) (2) Outreach services (3) Counselling services (4) Rehabilitation services (5) Information Education and communication (IEC) (6) Assistance to social benefit (7) Services related to school (8) Meetings (9) Integration and inter sectoral sharing of information (if any) (10) Statement of expenditure will be covered in programme related reporting. This monthly reporting will be introduced initially on quarterly basis.

4. Introduce the scope and importance of HMIS in district HMIS training programmes with a focus on MNSUDs
5. Training of key personnel like pharmacist in proper collection-documentation-analysis and reporting
6. Operationalize a set of simple indicators to monitor progress of programme
7. Enable district health managers to introduce mental health in monthly review of programme and review activities based on the data

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