Score Card User Manual

Using HMIS Indicators
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INTRODUCTION

The RMNCH+A strategy aims to reduce child and maternal mortality through strengthening health care delivery system. In view of this, MoHFW has developed a ‘Score Card’ to assess & improve the service delivery through routine monitoring system. The, score card assists in comparative assessment of performance of States/UTs, Districts and Sub-Districts /Blocks.

Score Card: Key Objectives

- Provide a visual presentation in the form of ‘Maps’, for depicting the status of different components of services delivered under RMNCH+A strategy for States/ Districts/ Blocks.
- Compare States/ Districts/ Blocks using the Overall Composite Index
- Highlight inequities across states, districts and blocks for focusing on areas lagging behind.
- Facilitate use of existing HMIS data and ultimately improve HMIS data quality

Approach

Score card shows the relative position of a State/ District/ Sub-District / Block using a composite index. A total of 16 indicators are used to calculate the composite index. These 16 indicators cover 4 stages of lifecycle mentioned below:

- Pre-pregnancy/reproductive age
- Pregnancy care
- Child birth / delivery
- Post natal, maternal and new born care

List of indicators for each of the life cycle stages are provided in Annexure-I.
This document demonstrates the methodology for preparation of scorecards and broadly covers the following:

- Section-I: Provides step by step method to transform the indicators and generate the composite index.
- Section-II: Provides steps for generation of map (score card) using DevInfo.

SECTION-I: GENERATING COMPOSITE INDEX

Composite index is obtained by combining a number of indicators in a standardised way. It is a useful statistical measure to assess overall performance of a region over a period of time.

This section will cover the various steps involved in generation of the composite index based on the assumption that the scorecard is to be generated for State across Districts (Note: the same methodology shall apply for the district level scorecards too i.e. District across blocks):

1. **Generation of 16 indicators**
   There are 16 indicators (*as mentioned in annexure-I*) used for generation of Composite index. The user is required to calculate these indicators (*using the data elements*) manually or use these indicators available in Standard report section “Performance of Key HMIS indicators”

2. **Identification of Max value and Min value**
   After getting the 16 indicators mentioned above, the user is required to identify the maximum and the minimum value for each indicator across districts in a State

3. **Calculation of Index value for each district for each indicator**
   After identification of the maximum and minimum value for each indicator, the user is required to calculate the index value for individual indicator for each district. The index value is calculated on the basis of nature of the indicator, i.e. Positive indicator or Negative indicator
   a. **Positive indicator**: those indicators which are positively associated with development (*higher value linked to better performance*). Out of the 16 indicators
used in calculation 14 indicators are positive indicators. Indicators listed at s.no. 13 & 14 in Annexure-1 are negative indicators. For calculation of the index value of positive indicators, the following formula is referred:

\[
X_{id} = \frac{X_{id} - Min(X_{id})}{Max(X_{id}) - Min(X_{id})}
\]

- Where, \(X_{id}\) represent the value of the \(i\)-th indicator in the \(d\)-th district of a state \((i=1,2,3,\ldots,16; \ d=1,2,3,\ldots, \ n)\)
- \(n\) is the number of districts in a State
- \(Min(X_{id})\) and \(Max(X_{id})\) are, respectively, the minimum and maximum of \((X_{i1}, X_{i2}, \ldots, X_{in})\) for that particular indicator across districts in a State.

b. Negative indicator: those indicators which are negatively associated with development (higher value linked to poor performance). Out of the 16 indicators used in calculation, 2 indicators are negative indicators (i.e. 13 & 14). For calculation of the index value the following formula is referred:

\[
X_{id} = \frac{Max(X_{id}) - X_{id}}{Max(X_{id}) - Min(X_{id})}
\]

- Where, \(X_{id}\) represent the value of the \(i\)-th indicator in the \(d\)-th district of a state \((i=1,2,3,\ldots,16; \ d=1,2,3,\ldots, \ n)\)
- \(n\) is the number of districts in a State
- \(Min(X_{id})\) and \(Max(X_{id})\) are, respectively, the minimum and maximum of \((X_{i1}, X_{i2}, \ldots, X_{in})\) for that particular indicator across districts in a State.
4. Calculation of Composite index

After calculating Index value for each district on each indicator, the user is required to calculate the composite index for each district for indicators in each life stage and for all stages overall:

- Pre-pregnancy/reproductive age
- Pregnancy care
- Child birth / delivery
- Post natal, maternal and new born care
- Overall Index

The calculation involves simple average of indicators for each category.

\[
\text{Composite Index for } d^{th} (d=1,2,\ldots,n) \text{ district} = \frac{\sum_{i=1}^{y} x_{id}}{y}
\]

- where, \( y \) is the number of indicators in that particular category
- \( n \) is the number of districts in that State
- \( x_{id} \) is the index value for the particular indicator

After the above, the composite scores of the districts are divided into 4 parts \((\text{for individual category})\) using quartiles. The lowest ranking (lowest quartile) districts coded as Red (D) - depict very low performance, pink (C) – Low performing, yellow (B) - promising and Green (A) – good performance. The RGB combination of the same is mentioned in the table appended below:

<table>
<thead>
<tr>
<th>Caption</th>
<th>Color scheme</th>
<th>Red-Green-Blue Combination (R,G,B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Red</td>
<td>255,0,0</td>
</tr>
<tr>
<td>C</td>
<td>Baby Pink</td>
<td>230,185,184</td>
</tr>
<tr>
<td>B</td>
<td>Yellow</td>
<td>255,255,0</td>
</tr>
<tr>
<td>A</td>
<td>Green</td>
<td>0,176,80</td>
</tr>
</tbody>
</table>

The Ministry has automated the report \((\text{till States across districts})\) for generation of composite index using SAS software which is currently placed in HMIS portal and is refreshed on periodic basis. The user can refer to this report for generating the Scorecard / Dashboard for their respective State / UT.
Analytical Reports-> Score card and Dashboard-> Performance of RMNCH+A indicator report

Screenshot given below is for the state of Andhra Pradesh

Performance of RMNCH+A Indicators for Andhra Pradesh
Financial Year: 2013-14
Provisional Figures for the Period April to December

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Composite Index</th>
<th>% 1st Trimester registration to Total ANC Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall Index</td>
<td>Pregnancy care</td>
</tr>
<tr>
<td>1 Adivabad</td>
<td>0.4199</td>
<td>0.5140</td>
</tr>
<tr>
<td>2 Anantapur</td>
<td>0.2468</td>
<td>0.4949</td>
</tr>
<tr>
<td>3 Chittoor</td>
<td>0.35</td>
<td>0.589</td>
</tr>
<tr>
<td>4 Cuddapah</td>
<td>0.412</td>
<td>0.4969</td>
</tr>
<tr>
<td>5 East Godavari</td>
<td>0.459</td>
<td>0.4324</td>
</tr>
<tr>
<td>6 Guntur</td>
<td>0.3705</td>
<td>0.4979</td>
</tr>
<tr>
<td>7 Hyderabad</td>
<td>0.4074</td>
<td>0.5902</td>
</tr>
<tr>
<td>8 Karimnagar</td>
<td>0.4505</td>
<td>0.5582</td>
</tr>
<tr>
<td>9 Khammam</td>
<td>0.5859</td>
<td>0.6047</td>
</tr>
<tr>
<td>10 Krishna</td>
<td>0.4857</td>
<td>0.3565</td>
</tr>
<tr>
<td>11 Kurnool</td>
<td>0.2573</td>
<td>0.4207</td>
</tr>
<tr>
<td>12 Mahabubnagar</td>
<td>0.4155</td>
<td>0.4448</td>
</tr>
<tr>
<td>13 Medak</td>
<td>0.4603</td>
<td>0.5239</td>
</tr>
<tr>
<td>14 Nalgonda</td>
<td>0.4395</td>
<td>0.5175</td>
</tr>
</tbody>
</table>

At the bottom of the report there is a table which provides the information regarding classification of the indices on the basis of quartiles. This may be used for generation of maps.
SECTION-II: GENERATION OF MAPS

Composite index is obtained by combining a number of indicators in a standardised way. It is a useful statistical measure to assess overall performance of a region over a period of time.

After generating the composite index for the districts of a State /UT, the user is required to generate the maps based on the values of overall index of the districts. For generation of maps, Ministry is currently using Devinfo software. However State can use any available map software for generation of the maps based on overall index and can compile the maps along with the index table in a document so as to prepare the final Dashboard (template for the same is provided in Annexure-II)

In case, the user desires to generate the maps using Devinfo software following steps needs to be followed:

1. **Data Import in DevInfo**
   MoHFW is currently using desktop version of DevInfo software to generate the maps for the scorecard / dashboard. DevInfo has two modules:
   - **Data Admin Module**: It is the data entry module where the data for maps can be entered and stored.
   - **User Module**: This module is used to generate the maps based on the data that has been entered using Data admin module.
For importing data into DevInfo data admin module is used.

a. Click on the Start button and then select “DevInfo 6.1 Data admin”

b. Click on the data entry module present at the left vertical pane and select “Open”
c. The user is now required to select the database where the information is required to be entered.

Selecting will list the files which are present in the selected database. We have selected “dashboard_national” database in which “dashboard_national” file is present. The user is required to select the file.
The user can select the database file either by double clicking or by pressing the radio button “>”. The user has to click on Next button present at the bottom right hand corner of the screen.

d. The user is then required to select the sector and the indicator for which data has to be entered. In this case the sector to be selected is “Health” and the indicator is “Composite Index”.

After selecting Composite index as indicator the user is required to click on Next button.
e. The user is then required to select the time period for which data has to be entered in Devinfo.

The user has to click on Next button present at the bottom right hand corner of the screen.

In case the user needs to add/create another financial year the same may be done using the “New” menu in the tool bar as indicated below:

On clicking “New” the following screen appears for adding / creating the new financial year.
From the format select ‘yyy-yyyy’ and now enter the required financial year to be added.

Now click ‘OK’ and the financial year gets added in the time period data set.
f. The user is then required to select the area for which information has to be entered.
   i. The screen is sub-divided into three sections. The first section specifies the list of available State / UTs.
   
   ![Image of the first section of the screen showing State / UTs]

   ii. The second column represents the sub-area that is available in the selected area.

   ![Image of the second section of the screen showing sub-areas]

iii. The third section represents the sub-area for which the data has to be entered.

After selecting the area, the user is required to click on Next button.

g. The user is then required to select the source of data for which map needs to be drawn. In the current database, the source file for data is “GoI_HMIS_2011”.

After selecting the source, the user is required to click on Next button.
h. The user will be now presented with a data entry form. The user is required to enter the value of overall index for the current year. After entering the data the user is required to click on "Finish" to save the data in the database.

Now close the DevInfo admin module.

2. **Generation of maps**
   For generating maps, DevInfo user module viz. DevInfo India v3.0 is used.
   a. Click on Start button and select DevInfo India v3.0
b. On the top of window a list buttons are present.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Indicator" /></td>
<td>Indicator</td>
</tr>
<tr>
<td><img src="image" alt="Area" /></td>
<td>Area</td>
</tr>
<tr>
<td><img src="image" alt="Time Period" /></td>
<td>Time Period</td>
</tr>
<tr>
<td><img src="image" alt="Source" /></td>
<td>Source</td>
</tr>
<tr>
<td><img src="image" alt="Data" /></td>
<td>Data</td>
</tr>
</tbody>
</table>
c. The user is required to select the database where the data for the map is stored. The user is required to click on the database tab present at the top left corner.

The user is then required to identify the database (in this case “dashboard_national”) from where data for the maps is to be fetched.
d. After selecting the database, the user is required to select Indicator for which the map needs to be drawn.

Thereafter select Sector as “Health” and “Composite index” as the indicator.
e. The user is then required to select the area for which map has to be generated.

f. After selecting the area, the user is required to select the time period for which map has to be drawn.
g. The user is then required to select source of data. In this case the data source is “GoI_HMIS_2011”

h. After selecting the source of data the user is required to click on Data. After this user will be provided with a screen with four major sections. The top section provides the details regarding complete information that has been stored in the database for the queried parameters which includes the time period, area details, value, unit and source of information. At the bottom, the left section gives the detail for the area and value stored, the middle section represents the map which has been generated on the queried parameters and the bottom right section is the bar graph generated on the selected parameter.
i. The user is now required to chloropleth maps according to the color scheme as approved by the Ministry. For doing so, the user is required to select the enlarge button present in the map section of the screen.

After clicking on the enlarge button, a new screen will be displayed. The user is required to click on the edit button present on the left pane on the window.
The user will be required to change the range to discontinuous and enter the values based on the quartiles for Overall index. The user is required to change the caption and color scheme as was mentioned in section-1. The user will be required to change the border color to black and click on apply button present at the bottom to save the changes made.

j. The user will be presented with a chloropleth map. The user will be then required to add labels to the map.
k. For adding the labels, the user is required to click on the Labels button present on the menu bar.

The user is required to ensure that there is no overlapping of the labels for which nudging tool is to be used.
1. After doing the nudging and cross checking the user is required to save the map for which the user is required to click on the “Save As” button. Where the user is required to define the path where the map needs to be stored. After saving the map, the user can close the Devinfo application.

3. **Creating word file of the scorecard**

   After generating the map, the user is required to present the map along with the index table in a document to prepare the final dashboard. Various steps for creating dashboard include:
   - Heading of the dashboard
   - Placement of Overall Index table
   - Insert Map
   - Insert Table / Data

   The detailed process for each of the above step is detailed below:

   a. **Heading of the dashboard**

      The heading of the dashboard includes the name of the state for which the dashboard is being prepared along with the time period for which the data was referred. Also the date when the data was generated is to be placed in the heading.
b. Placement of Overall Index table

The user is then required to paste the overall index table (sorted high to low) of the districts for the two financial year. The user is required to highlight the High priority districts in the table.

If the user is using report from HMIS portal (Performance of RMNCH+A indicator), he/ she may copy the first two columns of the Composite index of the report along with the district name as highlighted below:
c. Insert Map

The user is then required to **paste the map** of the state along with the legend table depicting the range wise categorization of districts.

![Legend Table](image)

---

d. Insert Table

On the second page of the document, the user is required to **paste the table** which contains the overall index along with the index values of various groups of indicators.

![Table](image)

---

4. Save the Scorecard

After updating the template the user is required to save the scorecard in pdf format.
## ANNEXURE -I: LIST OF INDICATORS

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Stages of life cycle</th>
<th>Indicators</th>
<th>Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Pregnancy / Reproductive age</td>
<td>Post-partum sterilization against total female sterilization</td>
<td>Positive</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Male sterilization to total sterilization conducted</td>
<td>Positive</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>IUCD insertions to all family planning methods (IUCD plus permanent)</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>Pregnancy care</td>
<td>1st Trimester registration to total ANC registration</td>
<td>Positive</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Pregnant women received 3 ANC check-ups to total ANC registration</td>
<td>Positive</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Pregnant women given 100 IFA to total ANC registration</td>
<td>Positive</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Cases of pregnant women with Obstetric Complications and attended to reported deliveries</td>
<td>Positive</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Pregnant women receiving TT2 or Booster to total number of ANC registered</td>
<td>Positive</td>
</tr>
<tr>
<td>9</td>
<td>Child Birth</td>
<td>SBA attended home deliveries to total reported home deliveries</td>
<td>Positive</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Institutional deliveries to total ANC registration</td>
<td>Positive</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>C-Section to reported deliveries</td>
<td>Positive</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Newborns breast fed within 1 hour to live births</td>
<td>Positive</td>
</tr>
<tr>
<td>13</td>
<td>Postnatal maternal&amp; new born care</td>
<td>Women discharged under 48 hours of delivery in public institutions to total no. of deliveries in public institutions</td>
<td>Negative</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Newborns weighing less than 2.5 kg to newborns weighed at birth</td>
<td>Negative</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Newborns visited within 24hrs of home delivery to total reported home deliveries</td>
<td>Positive</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Infants 0 to 11 months old who received Measles to reported live births</td>
<td>Positive</td>
</tr>
</tbody>
</table>
### ANNEXURE-II: DASHBOARD TEMPLATE

**STATE DASHBOARD**

Based on HMIS data for **<<Year>>** (<Month>)
Status as on **<<Date>>**

**<<Paste map>>>

---

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Overall Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;&lt;Current Financial Year&gt;&gt;</td>
</tr>
<tr>
<td>Districts sorted according to their overall index with highest score at the top and lowest score at the bottom</td>
<td></td>
</tr>
<tr>
<td>Superscript &quot;#&quot; for the High priority districts, if any.</td>
<td></td>
</tr>
</tbody>
</table>

#: High Priority District

---

Statistics Division, Ministry of Health & Family Welfare
<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Composite Index: &lt;&lt;Year&gt;&gt; (&lt;Month&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Overall Index</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#: High Priority District
***End of Document***