

12.8 mHealthSurvey standard operating procedures

The standard operating procedures given below are for the users of the mHealthSurvey mobile application, namely the health workers participating in the data collection and digitization process of the real-time biosurveillance program (RTBP). These standard procedures are recommended guidelines and are not rules that will be strictly enforced but users are encouraged to abide by the procedures as much as they can.

12.8.1 Acquiring a mobile phone

- A mobile phone will be given to those health workers participating in the RTBP pilot
- The PHC/Sarvodaya should provide the name and contact information of the health workers participating in the project
- The health worker receiving a mobile phone will be asked to sign a document indicating they have received the mobile phone and that the main purpose of the mobile phone is for the purpose of the RTBP and should not be misused or abused.
- If the mobile phone is lost or stolen, the project is not required to replace the mobile phone.
- If the mobile phone is damaged, then the health worker should notify RTBI/Sarvodaya and return the damaged mobile phone to receive a replacement.

12.8.2 Getting connected to the network

- User must obtain the mobile network access SIM card on their own under their own name. Thereby, the project cannot be held accountable for misuse of the phone or excess expenses incurred on personal communications.
- If the user already has a SIM card they may continue to use the same and the project will pay a fixed fee for the utilization with respect to the project work.
- The project may opt to purchase the SIM in the project's name for the user and pay the utilization fees, as in the case in Tamil Nadu. This option would require setting additional procedures for controlling the usage and payments. If the user abuses the usages and the project cannot cover the costs then the project faces the risk of the cellular operator discontinuing the service and jeopardizing the data collection.
- Once the SIM has been activated, the user should contact the provider customer service to activate GPRS and Internet connectivity
- The project will pre-load or to-pup the user's phone with a fixed amount that is more than sufficient for the communications requirements of the project.

12.8.3 Installing the mHealthSurvey

- A copy of the application download instructions can be obtained from the designated supervisor/program coordinator at the PHC/Sarvodaya. It is also available on the web – <include link>
- If required, contact Mr. Janakiraman/Ms. Pubudini Weerakoon to get assistance with downloading the application. Contact details are in Table 1 below.
- If the user encounters difficulties with entering the URL, then they may request that Mr. Janakiraman/Ms. Pubudini Weerakoon to SMS the URL (web link). The prospective user may click on the link in the SMS, which should direct them to the web site hosting the application.
- A second option is for the user to bookmark the application download link in the mobile phone itself. A third option is to write down the URL on paper.
- In the pilot stage of the RTBP, the installation process of the mHealthSurvey does not offer a user authentication process to ensure the person downloading the application is an authorized user. Therefore, the download instructions including the access information to the web link for downloading the application should not be publicized to avoid any tampering.

12.8.4 Initializing the mHealthSurvey

After installation, follow the instructions in the *User Manual* to configure the application such as downloading the list of disease, symptoms, and signs and registering the profile and locations.

- If the user had setup the profile before and the user is prompted with a message indicating the user profile already exists, then the user must contact Sarvodaya/RTBI for the database administrator to remove the previous instance of the profile in order. Thereafter, proceed with registering the Profile.
- If the user has downloaded the list of locations but wants to renew the list, then simply rerun the same steps of acquiring the list of locations.

12.8.5 Submitting Patient records

Once the mHealthSurvey has been installed and the application initialized, the user is ready to begin sending patient case data.

- Health workers submitting patient data through the mHealthSurvey mobile application or Sahana BSM Case Management web application should integrate the data recording and submission as part of the patient care process; i.e. immediately after examining the patient that patient's case record must be entered in to the application and sent.
- If the health worker encounters problems with the mobile phone or the mHealthSurvey application, it is only in this situation that the health worker should note patient records on paper to submit the data once the technology is operational.

12.8.6 Application maintenance

- Health workers should refrain from unnecessarily deleting the application as this would result in re-installation and initialization.
- It is recommended that the user run the download list at least once every few weeks to renew the list of disease, symptom, and signs.

12.8.7 Mobile Phone maintenance

- Monthly connection tariffs and utilization fees must be paid on time to ensure uninterrupted providers service
- The battery must be charged frequently to ensure uninterrupted operation of the mobile phone

12.8.8 Reporting Bugs and problems

If the health worker encounter a bug/fault in the mHealthSurvey or is unable to perform a particular function, the following procedures should be applied

- The fault should be, first recorded in the Journal, indicating the function that was attempted, exact steps (work flow) before encountering the problem, the fault, and any error messages the application may have displayed.
- The fault should be reported to RTBI/Sarvodaya via voice, SMS, or email, with particulars of contact details for the RTBP staff is given in Table 1 below.
- The fault should be discussed with the field coordinator or research assistant during the monthly meeting to ensure the

12.8.9 Contact information

- Health workers should be provided with a list of important contact information and should they should store this information in their mobile as well as a printed copy.

Table 82: Contacts for health workers

Role	Name	Email	Mobile Phone	Fixed Phone
Super User	Suma Prashant/ Pubudini Weerakoon	suma@tenet.res.in	+91-9941541788 +91-9717763888	(011)-9144-22570428
General Complaints	Janakiraman/ Pubudini Weerakoon	janu@tenet.res.in	+91-9747010875	+91-9747010875
mHealthSurvey training and general support	Pubudini Weerakoon / Janakiraman	janu@tenet.res.in	+91-9747010875	+91-9747010875

mHealthSurvey Technical Support	Sheena Radar Vincy Push pa Mary	vincy@tenet.res.in	+91-9790865253	(011)-9144-2257042
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12.9 TCWI standard operating procedures

Purpose: Give the epidemiology units--PDHS-REU (Sri Lanka) and DDHS-IDSP (Tamil Nadu)--a set of guidelines for carrying out the operations of the two main detection analysis scenarios: 1) Investigating a suspected or ongoing disease outbreak, and 2) routine monitoring of notifiable/communicable (high priority) disease.

Scope: These instructions or standard operating procedures for investigating known disease outbreaks and monitoring high priority (i.e. communicable diseases or notifiable disease) are for the RTBP (Real-Time Biosurveillance Program) users, namely health officials belonging to the Deputy Director of Health Services Integrated Disease Surveillance Program (DDHS-IDSP) and the Provincial Director of Health Services Regional Epidemiology Units (PDHS-REU) staff members. The DDHS-IDSP and PDHS-REU should apply the *Scenario B* for monitoring the 21 disease in Sri Lanka and 11 diseases in Tamil Nadu. *Scenario A* is for investigating any event of ongoing or potential disease outbreak.

Background: Reader should be familiar with the basics of accessing T-Cube Web Interface (TCWI), loading data, manipulating time series, maps, and pivot tables as described in the manual. It is recommended that the user go through the main manual and the exercises described in that manual before engaging in the activities described in this document.

Detection analysis Scenarios

Scenario A: Investigating a suspected or ongoing disease outbreak

Assume you have been notified or have come to learn of increased cases of a particular disease and want to investigate that particular disease, then follow the steps described in this section but do not restrict yourself to just these steps. You may use all other features available in TCWI as well.

Time Series Analysis (Temporal Scan)

After loading the data, click on the **Query Panel** to expand (Figure 122). Click the blue square next to label **Disease**, which will display the list of diseases. Click in the check box (i.e. mark with \checkmark) of the particular disease you wish to investigate (e.g. *Common-cold*). Rename the query name, in the text box located next to label **Name** (e.g. *common-cold*) and click Save. Scroll down to Time Series Analysis display. De-select (i.e. unchecked) **All Data** and **Current Query**. Now you should see the saved query (e.g. *common-cold*) as shown in Figure 123.



Figure 122: Expanded Query Panel with attributes

The time series plot for the selected disease (e.g. *common-cold*) compared with the time series plot of **All Data** may not show any disparities for you to identify any significant increases or decreases in disease counts. Therefore, it is recommended that you run **Temporal Scan** to find periods in time where there are statistically significant differences of the selected disease (e.g. *common-cold*).

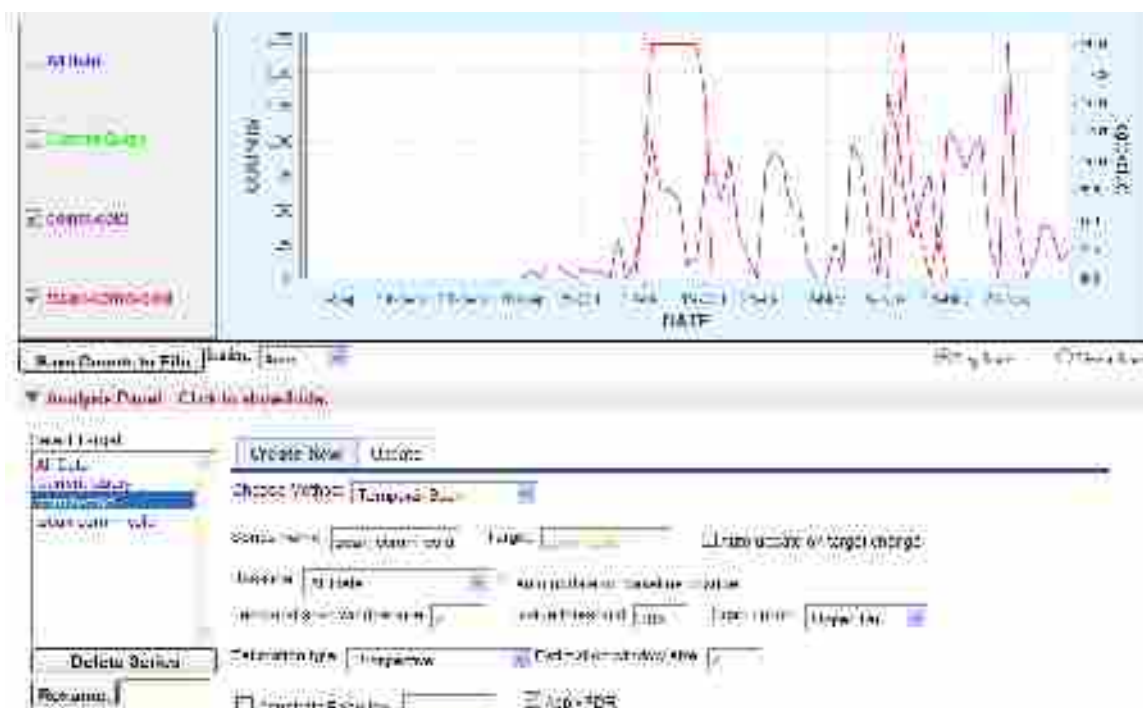


Figure 123: Time Series display showing saved query and temporal scan results with Analysis Panel

First set the parameters in the **Analysis Panel** (see Figure 123). In **Select Target** box, click on the saved query, in this case *common-cold*. Immediately, the parameters in the analysis panel will be displayed. Leave all default values as they are but change the following parameters - **Choose Method** = *Temporal Scan*, **Baseline** = *All Data*, **Scan Option** = *Upper Tail*, **Estimation Type** = *Prospective*, **Estimation Window Size** = 7, Apply False Detection Rate (**FDR**) = $\sqrt{\quad}$ (check). Change the **Series Name** to one that you can be identified (e.g. *tscan-comm-cold*) After all parameters are set and the series name is changed, click **Submit** to execute temporal scan. Once the process is complete and

graphs are displayed, click on **Log Scale** located at the bottom right corner of the plots.

The Temporal Scan scores are shown by the plot in red with legend label *tscan-comm-cold*. Figure 123 shows two periods: Oct 12-19 and Nov 9-16 with high scores of disease under investigation, in this case *common-cold*. The plot of the disease under investigation (*common-cold*) is in purple.

Map analysis (Spatial Scan)

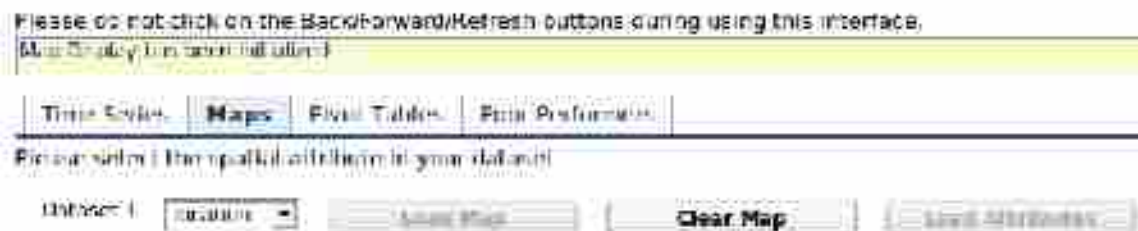


Figure 124: Loading the map for spatial scan

Navigate in to the Map section, set the **Dataset 1 = Location**, and click **Load Map** (Figure 124). After several seconds, the map will be displayed with blue circles around the locations where data is available.

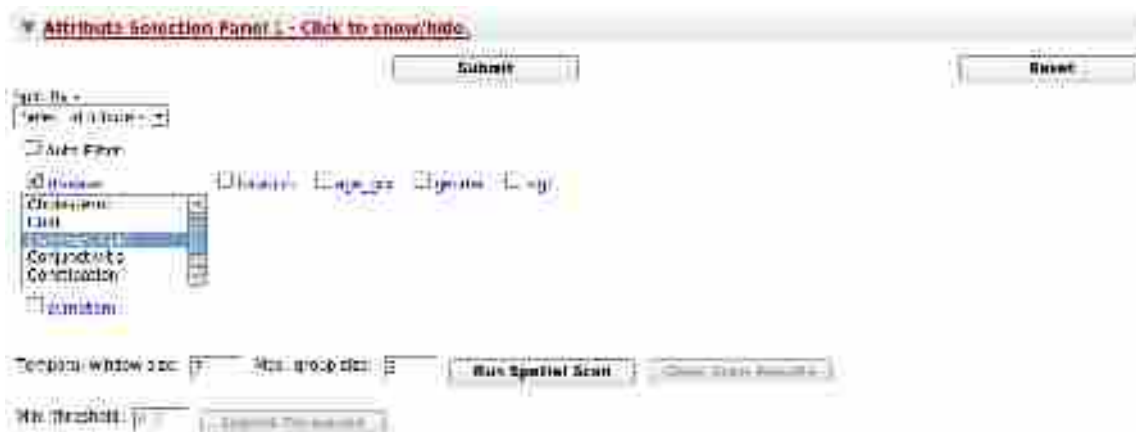


Figure 125: Spatial Scan attribute selection panel

Scroll down to the **Attribute Selection Panel** and click on the link to expand the panel (see Figure 125). Check (✓) the box associated with the Disease list, which will show all diseases highlighted in blue, indicating all of them to be selected. Scroll through list and click on the disease under investigation (e.g. *common-cold*), which will be the only disease highlighted in blue shown in Figure 125. Click on the **Submit** button at the top of the **Attribute Selection Panel**. Almost, immediately the map and the time series plot will change, reflecting the counts of the submitted query with the disease under investigation; i.e. *common-cold* chosen in our example.

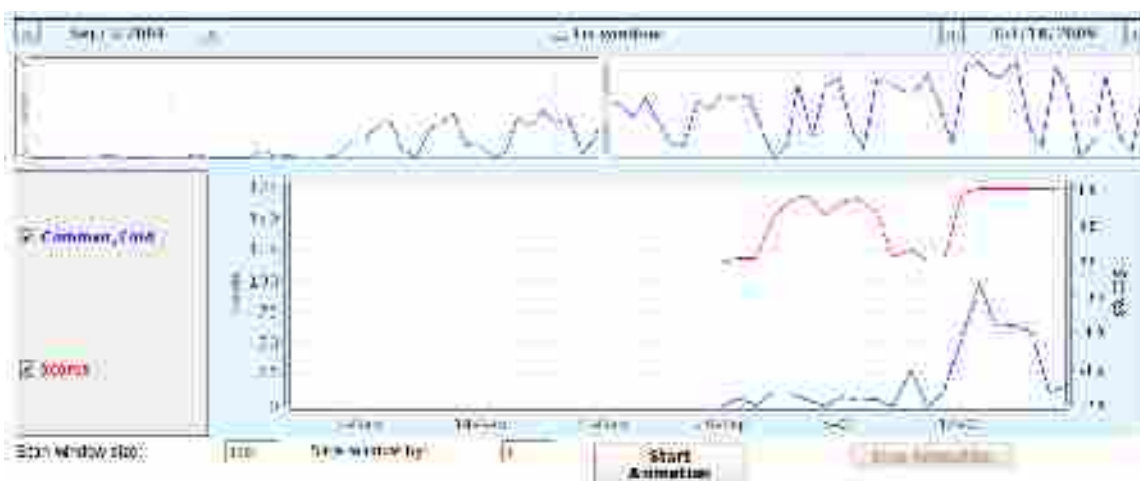


Figure 126: Spatial scan score and time series plot for disease under investigation

Change the **Temporal Window Size** = 7 and **Max Group Size** = 6 (Figure 125). After the parameters are set, click on **Run Spatial Scan**. The results will comprise the map with global score and time series window with global scores. Figure 126 shows the time series for the chosen example: *common-cold* (in blue) and the score (in red). The date slider has been moved to Oct/18/2009, which shows a high score of 0.9964 between Oct 12 and Oct 18. Also, shows another period Sep 09 to Oct 07 with a high score ranging from 0.700 to 0.8500.

Figure 127 shows the corresponding map with the global score of 0.9964. One area (around the Hospital in Katupotha) has a count of about 270 (blue circle) and score of 0.833 (orange). Place mouse pointer inside the circle and click to view the name of location and corresponding counts. List will also show the counts of neighboring villages. From the color scheme, we may conclude that the neighboring areas are also showing relatively high counts of the disease under investigation



Figure 127: Spatial Scan map with counts and scores of disease under investigation

(*common-cold*). By changing the date slider or date arrows, the user can see the colors in the respective areas to change proportional to the score.

Scenario A: Monitoring high priority (notifiable/communicable) diseases

Tamil Nadu and Sri Lanka monitor a set of diseases termed as notifiable disease that are currently communicated through the S/P form and H-544 form, respectively. This section illustrates the steps for carrying out the disease surveillance procedure. This procedure should be conducted frequently (daily or weekly).

Time Series Analysis (Massive Screen)

After loading the data, click on the **Massive Screening Panel** to expand (Figure 128). Let all default values be as it is but change the following: **Scan Window Size = 7,14,21,28** **Estimation Type = Prospective**, **Scan Option = Upper Tail**, **Check (✓) Last Day Only**, and **Baseline = All Data**.

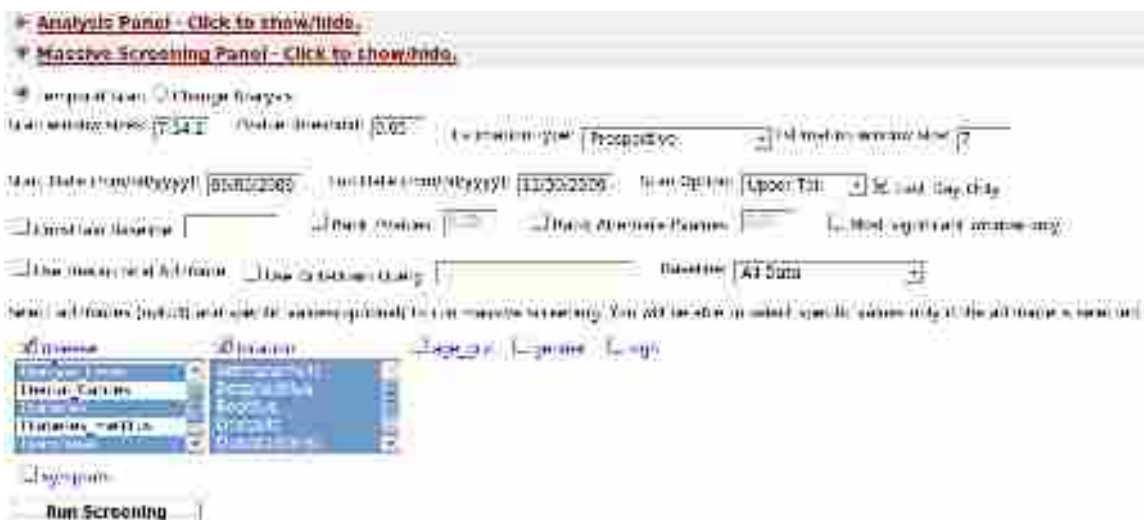


Figure 128: Massive Screening Panel setting of parameters and values

Click the blue square next to label **Disease**, which will display the list of diseases. Click on the particular set of disease you wish to monitor (e.g. *dengue*, *Diabetes*, *Diarrhea*). To select multiple disease hold the **CTRL** button and click on the desired diseases. Similar to Disease, click on the blue square next to label **Location**. This will select all the locations to generate the alerts. Finally click on **Run Screening**, which will almost immediately generate a list of alerts as shown in Figure 129.

Click once more on the **Massive Screening Panel** to shrink it, then you can see the **Time Series** and **Recent Massive Screening Results** close to each other. Click on the button **Log Scale**. De-select (or unchecked) the legend labels *All Data*, *Current Query* and *MS Baseline*, which will leave you with the *MS Pvalue* and *Results Query* displayed in the **Time Series** window. When you select an alert (or Massive Screening Result) the plot will change.

Figure 129 shows the example of the results *disease = Diarrhea*, *location = Narammala*, and *Pvalue = 0.02*. We are mostly interested in alerts that have a Pvalue closer to zero; where Pvalue = 0.02 is considerably high. Alert window (yellow in Figure 129) shows where T-Cube would have generated the alert as early as Nov 10.

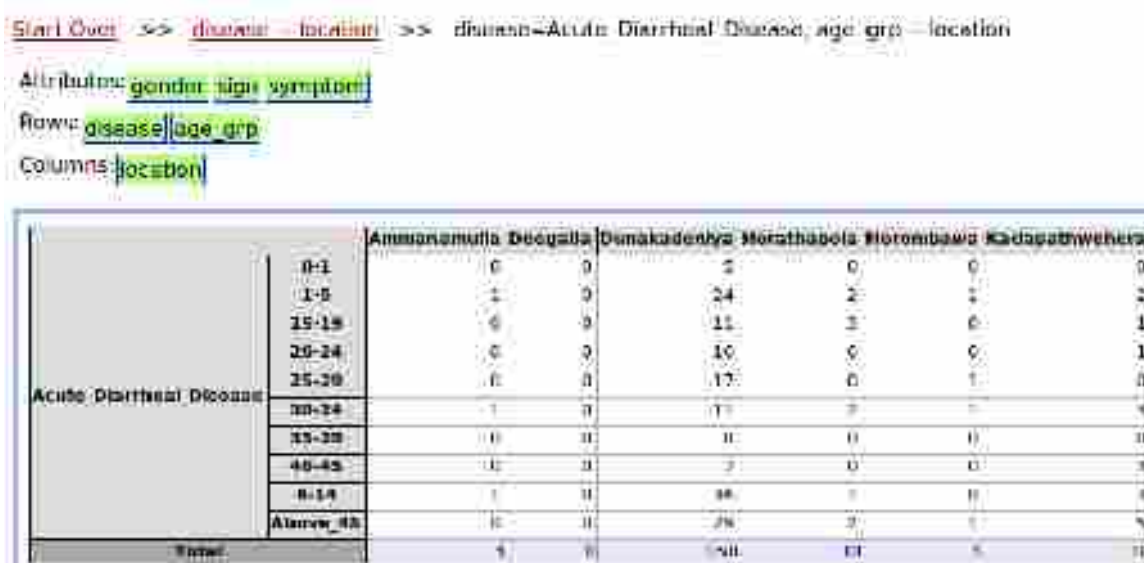


Figure 130: Pivot Table for selected disease split by age group and locations

One can use the pivot table to view counts of the disease for all the locations. First, navigate to the **Pivot Table** by clicking the labeled tab. Drag and drop the dimension *Disease* in to the **Rows** and *Location* in to the **Columns**. After a few seconds, a table with total counts corresponding to the respective location and disease will be displayed in each of the cells (see Figure 130). Use the **Start Date** and **End Date** controls at the bottom of the table to adjust the dates to your liking.

If the user wants to investigate a single disease slitting it by dimension, click on the disease you wish to investigate (e.g. *Acute_Diarrheal_Disease*), which will show a drop down panel with the list of attributes, as shown in Figure 130. In our example, we have selected *age_group* as the dimension, which results in the table shown in Figure 130. To return to the previous table, as in Figure 130, with all diseases and all location click on the link *disease—location* placed on the top of the page, next to link *Start-Over*.

12.10 *SABRO standard operating procedures*

12.10.1 ALERT AND SITUATIONAL-AWARENESS MESSAGING

Trained and certified health department personnel entrusted with the task of notifying health officials and health workers on health threats that require response actions or inactions should read this section. This section covers the procedures involving the RTBP Messaging/Alerting Module (MAM) and dissemination of alert and situational-awareness (situ-aware) messages via SMS, Email, and Web.

12.10.1.1 Roles and Responsibilities

Purpose: define the roles and responsibilities of the actors involved with the alert and situ-aware messaging process.

- **Decision-Maker:** is the head or responsible person in each of the health jurisdictions assigned for making decisions on disease surveillance and response actions. The same person will be the authority to decide whether or not an alert or situ-aware message should be issued for a particular detected health event. Following are the decision-makers in Tamil Nadu, India.
 - (a) DDHS office → DE or DD or both
 - (b) PHC office → BMO or MO or both
- **Message-Issuer:** is a health official or a person with authority granted by the State Government of Tamil Nadu who will be responsible for the issuing of the message within that particular jurisdiction. The name of this responsible person will be identified in the *senderName* field of the CAP message. This person may be the same person as the Decision-Maker but should not be confused with the person creating the message in 2.1.3.
 - (a) DDHS office → DE or DD or both
 - (b) PHC office → BMO or MO or both
- **Message-Creator:** is a technically competent and trained IT person capable of manipulating the RTBP messaging/alerting module to generate a CAP message and disseminate the message to the intended recipients.
 - (a) DDHS office → DM or DEO or both
 - (b) PHC office → SHN or HI or both
- **Message-Recipient :** is a health official or health worker: DD, DE, BMO, MO, HI, SHN, VHN, the message is intended for and received through one or more of the delivery channels such as SMS, Email, or Web.

12.10.2 Training

Purpose: orient and mobilize health departments with issuing health category alerts and situational reports, conducting surveys, and other messaging requirements.

- Users must receive training through the RTBP to operate the MAM for the purpose of issuing health category situational awareness and alerting messages using the CAP standard.
- Only trained and certified health workers or health officials should be authorized to issue alert and situational awareness CAP messages. Alerting and situational awareness messaging is a quite sensitive and should be executed with caution because these alerts or situational awareness messages should not cause any panic or mislead those receiving the messages. Moreover, only designated health departments have the jurisdictional authority to issue alert and situational awareness messages.
- All personnel involving in the decision-making, message-creation, message-issuing, and message-receiving are encouraged to read the CAP Alerting for **Sahana Messaging Module - Real-Time Biosurveillance Program Software Requirements Specifications v1.1** (to download a copy - <http://irneasia.net/wp-content/uploads/2009/05/Sahana-CAP-Msg-Mod-v0.2.pdf>) or latest to get an in-depth understanding of the CAP elements and the selection of values.
- A copy of the user manual: “Sahana Alerting using the Common Alerting Protocol: User Guide version 1.0” describing the step by step process of initializing and issuing CAP messages can be obtained through –
 - (a) RTBP web interface at <http://www.scdmc.lk/> → Messaging/Alerting Module → Read Me → CAP Alerting User Manual
 - (b) Directly from the web link – http://www.scdmc.lk/docs/rtbp_cap_user_guide_v1_3.pdf
 - (c) Requesting a copy from an RTBP support staff or other member listed in Table 2.
- At present RTBP is a pilot, users should be given training on providing feedback (or reporting) the acceptability of issues related to CAP, usability of the software, performance of the application and any bugs/fault encountered with the MAM applications. The feedback can be sent via email to the **General Complaints and Inquiries** or **Messaging/Alerting General Support** staff members listed in Table 2.

12.10.3 Prerequisites

Purpose: basic requirements for accessing MAM for health department personnel to use.

- The health departments intending to use the MAM should have a strong stable Internet connection to the personal computer they are accessing MAM through. To access the RTBP web interface use the URL –

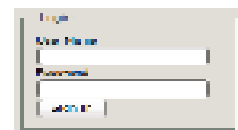


Figure 2: User login

<http://rs.rtbi-iitm.in/RTBPWeb/www/index.php>

- Health officials authorized to use the MAM, through the RTBP web interface, should be granted access with a user name and password. The username and password must be entered in text fields shown in Figure 131.
- To access the MAM the user must first log in to the RTBP web interface and then click on the menu item titled - Messaging/Alerting Module (Figure 132).



Figure 3: Menu screen

12.10.4 Initializing messaging templates

Purpose: setup of message templates and recipient lists that need to be configured in the MAM prior to issuing health category alerts.

- To add or edit a template, the users can access the user interface by clicking on the add_new template or edit template respectively (Figure 133).



Figure 4: menu for templates

- RTBP team and Health departments in the respective project sites (Sivaganga District) will develop a set of CAP message templates in the MAM to issue both manual and automated alerts. The templates carry only a subset of the CAP message attributes with respect to the alert information, and resource segments that can be predefined. By clicking on each of the tabs, the user may view and edit the respective attributes of the three segments (Figure 134).

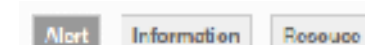


Figure 5: three segments

- For the purpose of the RTBP four main templates have been developed based on the policy and procedures assessment conducted during the months of April 2010 (Figure 135):
 - **Notifiable disease ACTION alerts** (action is required for the Form P & S list of diseases)
 - **Other-communicable disease ACTION alerts** (action is required for communicable disease not included in the Form P & S list of diseases)
 - **Notifiable disease awareness** (no action required, it is simply to make the health officials and health workers aware of the rise in Form P & S list of diseases)
 - **Other-communicable disease awareness** (no action required, it is simply to make the health officials and health workers aware of the rise in communicable disease not listed in the Form P & S list of diseases)
- In addition to the four main templates, the project has introduced one template (Figure 135):
 - **Top 5 WER** (Weekly Epidemiological Report) for IDSP to issue a situational awareness



Figure 6: List of templates

message, once a week, to the health officials and health workers in their jurisdictions, to inform them of the diseases with the top five counts (i.e. first five diseases when sorted in descending order by disease count).

- Templates must be saved with the CAP alert **status** set to “Draft” (Figure 136). When issuing the alert the status should be set the appropriate value: *actual*, *exercise*, *test*, or *system* (see section 2.6.8)

- The **scope** of the message templates should be clearly distinguished between public, private, or restricted alerts. The RTBP will only issue restricted alerts in this phase of the project where the audience will comprise health workers and health officials. The set of designations of the recipients should be provided in the restriction field (Figure 136).



Figure 7: Attribute selection in the Alert segment

- In the information segment of the CAP template, the **category** = “Health” and **Language** = “English”. The **event** is a mandatory element must be per-populated for the issuer's convenience (Figure 137).

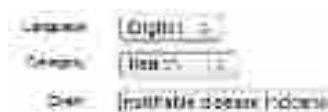


Figure 8: set the language, category, and event

- The **headline** and **description** are partially defined with user having to complete these two elements in the Information segment of the CAP message at the time of issuing a message (see section 2.6.12). All words bounded by square brackets [] must be replaced with actual content pertaining to the particular incident (Figure 138). Any other values that should be populated at the time of issuing the message to complete the content in a meaningful manner should be demarcated with square brackets []. Example the message issuer would replace the word disease with the dengue, if that were the relevant disease of concern.

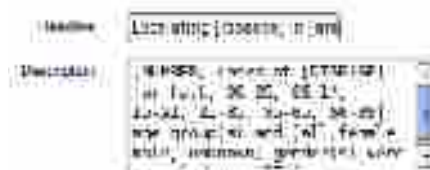


Figure 9: partly defined headline and description

- A URL to a website and a phone number should be predefined in the CAP template's information segment attributes: **web** and **contact**, respectively. The web URL and the contact number can be changed at the time of issuing a message (Figure 139).



Figure 10: web and contact attributes

12.10.5 Establishing recipients and groups

Purpose: maintain recipient lists and groups of recipients to speed up the process of selecting recipients instead of looking up and entering them at the time of issuing a message.

- Health department should register the recipients and create recipient groups to efficiently selecting message recipients at the time of sending the messages. To add or edit the recipients email and phone numbers, click on the menu item **Contacts** (Figure 140).



Figure 11: contact menu

- A designated staff member at each of the health departments should be responsible for the upkeep of the recipients list and groups. If a recipient changes his or her email or phone number, they should notify the staff member to update the system. Proposed staff members
- DDHS office → DM or DEO or both
- PHC office → HI or SHN or both
- For the purpose of the project the following individuals and groups have been identified: Deputy Director (DD), District Entomologist (DE), Data Manager (DM), Data Entry Operator (DEO), Block Medical Officer (BMO), Medical Officer (MO), Health Inspector (HI), Sector Health Nurse (SHN), Village Health Nurse (VHN)
- For the purpose of the project, groups have been created for each jurisdiction and designation (Figure 141). Examples: Seva_HIs (Sevanipatti PHC area Health Inspectors), Thiru_MOs (Thirukostiyur PHC area Medical Officers)



Figure 12: recipient groups

12.10.6 Creating a CAP Alert and situ-aware messages

Purpose: communicate diseases alert and situ-aware messages to the respective health officials and health workers for the purpose of choosing to respond to those communicated events.

- Only trained and authorized users should be granted permission to issue alert and situational awareness messages. Only alert and situ-aware messages that are authorized by the designated decision-maker should be issued.
- Health events detected manually through the T-Cube Web Interface (TCWI) or events detected through other processes must be, first, verified and authenticated by the disease-event-detection analysts and then receive authorization by the designated Decision-Makers of that health department before creating and issuing an alert or situ-aware message.
 - (a) DDHS office: detection analysis done by Data Manager/Data Entry Operator and decision to issue the message is granted by District Entomologists and Deputy Director.
 - (b) PHC office: detection analysis done by Health Inspector or Sector Health Nurse and decision to issue the message is granted by the BMO or MO.
- The Decision-Maker should instruct the Message-Creator of the alert type, as to whether it is a

Notifiable disease action alert, Other-communicable disease action alert, Notifiable disease situational-awareness, Other-communicable disease situational-awareness, Top 5 WER.

- Messages that are authorized for issuing should be relayed through the RTBP MAM; specifically the “Alert” sub module that uses the **CAP** standard (Figure 142). To access the CAP alerting module, Message-Creator should, first, login and navigate in to the RTBP Messaging/Alerting Menu; see *Figure 13: Issue disease alert menu* section 2.3 and procedures 2.2.2 and 2.2.3. Thereafter, click on the sub menu titled: **Issue DISEASE Alerts** followed by **Create New Alert** (Figure 142).



Figure 13: Issue disease alert menu

- Each alert issued must be given a name to identify that alert during an audit or when wanting to reuse that same alert to issue an update, acknowledgement, or cancellation of the message. The naming convention should be **jurisdiction-disease-date** (Figure 143). The jurisdiction can be the abbreviation or acronym of the jurisdiction name concatenated with the first 3 to 4 characters of the location (village, town, division, district, or province name). The disease name can be the full name or a short form like ADD for Acute Diarrhea or RTI for Respiratory Tract Infection. The date can be a single string concatenation of the four digit year, two digit month, and two digit day (leading zero if 1 - 9), Example – mohwari-rti-20100502.

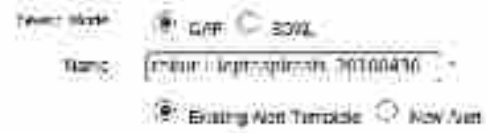


Figure 14: selecting CAP, name, and existing template

- Although it is permissible to issue just-in-time fabricated CAP messages, it is highly recommended, in order to preserve the integrity, completeness, unambiguity of the message to use predefined templates to issue the CAP messages. Click on **Existing Alert Template** for this choice, which would present the templates as shown in Figure 143.



Figure 15: fill in the sender only

- **Sender** field is a mandatory element and without completing this the Message-Creator could not proceed further. It is recommended that the email address, of the message-issuer, decision-maker or responsible health official for that jurisdiction, is given (Figure 144). Message-Creator may allow other fields in the initial screen of the message creation (Figure 144) remain with the default values.



Figure 16: Alert segment elements

- The Message-Creator must remember to set the **messageType** and **status** (Figure 145) in the tab titled: **Alert**. The status must be changed from the value “Draft”, which is set at the time of creating the template (see section 2.4.5), to either “Actual”, “Exercise”, or

“Test” based on your intentions. Similarly, the messageType must be set to “Alert”, “Update”, “Cancel”, or “Ack” based on the intention (Figure 146).

- The **restriction** list, also in the Alert tab, should be edited to correctly reflect the list of actual recipients (Figure 145 is edited such that the message is restricted for PHIs only). Thus, in case the message is received by health official, health worker, or any other person not on the list, for that matter, they know that the message may have been sent to them by accident and that they may chose to disregard the message or choose to inquire from the sender as to whether the message was intend for him or her. All other attributes may remain as per the default values.
- Of the attributes in the **Information** tab – **language**, **category**, and **event** should not be changed and allowed to remain with the default values (Figure 146). These values are predefined at the time of creating the template as per the policy and procedures gathered from the interviews with the health department officials.



Figure 17: defaulter Info elements

- It is essential that the **priority** of the message is set based on the severity, certainty, and urgency of the message (Figure 147). An **urgent** priority message requires immediate action, **high** priority message requires execution of response plans if the threat is eminent, and a **low** priority message is simply an awareness where recipients are recommended to be vigilant of the event escalating. The reader should refer to the RTBP CAP Guidelines mentioned section 2.2.3 to understand the scope of the message priority.



Figure 18: setting the priority

- The **sender name**, **headline**, and **description** must be changed to fit the particular incidence. Sender name is the actual name (example first name and last name) of the Message-Issuer. Headline requires that the [disease] name and the [area] affected be properly replaced. Description requires the [number] of cases, [disease] name, [age groups], [genders], and affective geographic [areas] are replaced with the appropriate words bounded by square brackets []. Figure 148 illustrates an example:



Figure 19: sender, headline, and description

- *14 cases of Respiratory Tract Infection applicable to all genders and all age groups were reported by the Katupotha District Hospital.*
- Based on the priority level of the incidence a response action must be indicated. A set of fixed **response type** values are given in the drop down list; where **prepare**, **monitor**, **execute**, **assess**, or **none** are the most appropriate values to select one (Figure 149).



Figure 20: response type with effective, onset, and expire dates

- Alert and situ-aware messages are not intended to be internal. Therefore, the message must specify the **effective** and **expire** date of the message; meaning what is the date range, start and end, of the message validity (Figure 149). It is to the discretion of the health departments of Message-Issuer to decide the effective period of the alert (i.e. the number of days Expires = Effective + Num-days). A date time calendar will pop-up when the user clicks inside the text field of the effective or expire date boxes. The time zone is by default set to reflect the UTC shift for India and Sri Lanka; hence, the Message-Creator need not change the value and may leave it as default.
- The **onset** date is the date and time of when the incident began, which is intuitively on or before the effective date of the alert or situ-aware message. To set the onset date click inside the text box for the calendar to appear. Similar to the effective and expire date the UTC time shift is, by default, set to Indian and Sri Lankan time zones and need not be changes (Figure 149).
- The **instruction** text box can be used to provide additional information with respect to the description or response (Figure 150). A default set of instructions are indicated at the time of creating the template; however, can be changed based on the incidence such as mentioning the set of actions that should be applied specific to the particular disease.

- The recipient can be directed to a **web** page that carried a complete description of the alert or situ-aware message or web page carrying additional information. The **contact** is a telephone number (or hotline) for the message recipients to verify the message or receive further information. By default, the web URL points to the complete CAP message published on the web and the contact number is the DDHS office number. These two values may be changed; for example, if a PHC office is issuing the message, then the contact phone number can be the PHC office phone number opposed to the default DDHS phone number (Figure 150).

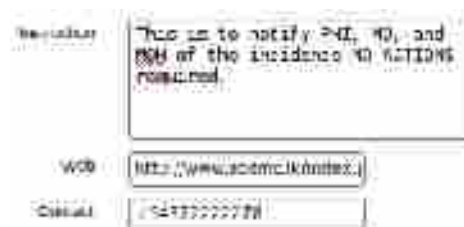


Figure 21: instruction, web, and contact

- The Area segment of the CAP message describes the geographic area for which the message is issued to. This **area description** is different from the area indicated in the description or headline, which indicates the locations the disease was reported from.



Figure 22: area description (locations message is for)

Whereas the area to which the alert or situ-aware message is issued is wider areas. For example, the disease incidence may be reported from two neighboring hospitals in a PHC division but the alert or situ-aware message may be issued to the entire district. The Message-Creator should first select the location category followed by the location type. Thereafter, type in the name of the geographic area for which the message is intended. When typing the name, the software application will recommend similar names that are in the database from which the Message-Creator may select one or more locations (Figure 151).

- After all values pertaining to the message have been completed, the Message-Creator should click in the **update** button, located at the bottom of the entry forms, to save the values to the

database prior to disseminating the message. Message-Creator may save the work during any time of the message-creation process.

12.10.7 Delivering the Alert and Situ-Aware messages

Purpose: select the appropriate recipients or groups of recipients and disseminate the message through the available SMS, Email, and Web publishing channels.

- Once the created message is successfully saved (or updated), a message will appear at the top of the form as in Figure 152. The Message-Creator or Message-Issuer can click on the blue hyper-link to begin sending the message.



Figure 23: warning message

- Overall, the Message-Issuer should check all values before sending a message because once the message is sent it cannot be revoked. In the event a user does want to correct or amend an issued message, then they should re-issue the same message but changing the Message Type to “Update” or “Cancel”.

- Alert and situ-aware messages should be issued only to those **recipients**: health workers and health officials the message is intend for. To deliver the message via SMS and email the mobile phone number and email address of the recipient is required. Recipient phone numbers and email addresses can be directly entered in to the recipients text box (Figure 153). Each phone number and email address must be separated by a comma. All phone numbers should preceded with 00 (for international dialing) followed by the country code (e.g. 0091).

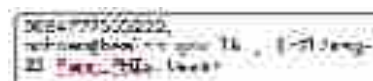


Figure 24: recipients list

- To add include groups of recipients, simply click on the group name (e.g. Seva_PHC), shown in Figure 154. This would automatically include those recipients in to the delivery list, similar to the group id - `{r712msg-22:Pann_PHIs:team}` (Figure 153).



Figure 25: groups

- Once all recipients are included in the recipients list (Figure 153), click the button labeled “Next → Alert Type” to proceed to the next page for selecting the **delivery types**. Select each of the delivery types SMS, Email, and Web through which the message should be disseminated. There are three delivery types: long-text, short-text, and voice-text messages. The RTBP will use short-text and long-text delivery types only with **SMS**, **Email**, and **Web** as the three different delivery technologies (Figure 155). The difference between the short-text email and the long-text email is that the long-text email will attach the CAP XML file in the email.



Figure 26: delivery types

- Click “**Next** → **Transform Message**”, which will transform the CAP message to an SMS, Email, and Web as defined by the Implementers. The resembling transformed messages to be delivered via SMS, Email, and Web will be displayed in the next screen, as shown in Figure 156. The Message-Issuer has one last chance to edit the message, if necessary, before clicking the “**Send Message**” button, which would deliver the message.
- To change the appearance and the structure of the SMS or email alert or situ-aware messages, consult the Implementers or Support Staff mentioned in Table 2.



Figure 27: transformed messages

12.10.8 Reporting bugs and problems

Purpose: ensure uninterrupted use of application with less ambiguity, maximum functionality and minimal down time.

- Any bugs, problems, or observations, or enhancement requests with respect to the MAM should be reported to an RTBP member in Table 2.
- The Research Assistant will meet with the users each month to assess the workability, problems, and performance of the MAM.

12.10.9 Contact information

- Health officials should be provided with a list of important contact information

Table 83: Contacts list for health officials

Role	Name	Email	Mobile Phone	Fixed Phone
General Complaints	Janakiraman	janu@tenet.res.in	+919747010875	+919747010875
TCWI / MAM General support	Suma Prashant	suma@tenet.res.in	+919717763888	+914422570428