

Verbal Autopsy Management Dashboard
(VAMAN)

Manual Version 1

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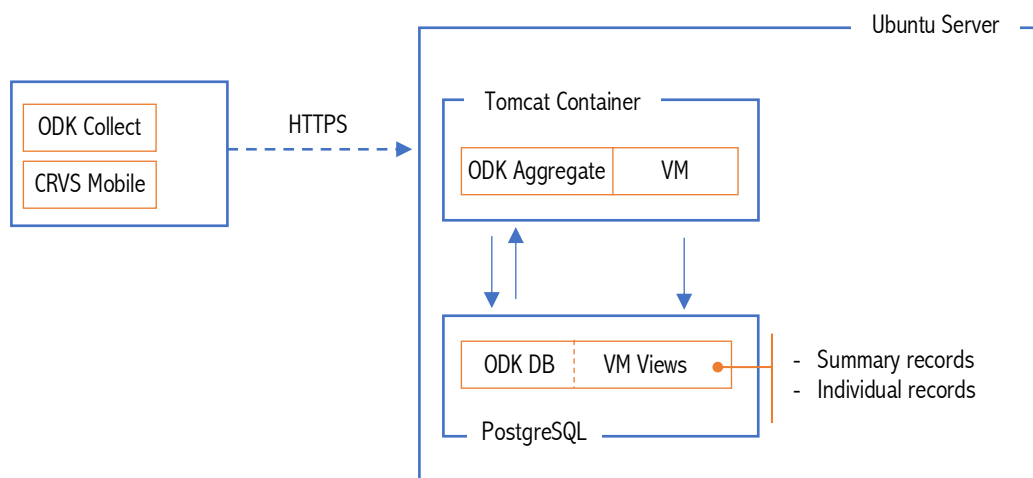
Background information

Implementation of VA is to describe the causes of death at the community level or population level when people die at home. The management of day to day activities of VA Interviewer is a major challenge as they are distributed in diverse locations. The VA Management Dashboard (VAMan) is a tool established in the form of a dashboard and data tables that are linked to ODK server to display content of the ODK Aggregate server. The primary role of the VAMan is to help health officials and those responsible for monitoring VA activities to access real time information on field activities and be able to track reporting progress. In addition, to also address bottlenecks based on the information generated. The VAMan provides a user-friendly mechanism for people sitting in the management level to view and monitor VA data collection progress.

The application is built on existing structure of the ODK aggregate server to retrieve and display data from ODK Collect.

VAMan is deployed on a tomcat container. The backend works with PostgreSQL or MySQL databases. This is similar to ODK Aggregate common backends. The application uses of the existing structure of the ODK Aggregate server to retrieve and display data collected by ODK Collect without disruption ODK services. The data displayed on the VAMan application is based from SQL Views from the same ODK Aggregate database.

The VAMan application is based on JAVA language, and utilizes HTML, JQuery and Bootstrap libraries. The diagram below shows the configuration of the CRVS web application parallel with ODK Aggregate.



Set of functionalities

The below table shows a set of functionalities and their release version

No	Functionality	Details	Release Version
1	View real time summary of VA submission	The verbal autopsy management dashboard can be used to view real time summary of VA submission by verbal autopsy data collectors. The summary is categorized in the following groups, <ol style="list-style-type: none"> 1. VA Type, (adult, child and infant) 2. Time submission (today, this week, this month or this week) 	1.0
2	View interviewer/data collector submission summary	Display total number of VA submitted per month on each VA data collector. This information is useful to monitor the performance of each data collector	1.0
3	Display summary of the VA document	Display summary indicators of the VA document. Sample indicators includes (data collector name and phone, time the interview started, time the interview ended, presence of the narrative part*)	1.0
4	Display content of the verbal autopsy document	Open VA document and view its content	1.0
5	Online physician coding	<ul style="list-style-type: none"> - Add user and assign a role of physician/coder - Assign VA document to a pair of physician/coder - Allow physician/coders to log online and view content of the VA document - Allow physician/coders to assign probable cause of death based on the content of VA - Match causes of death from two physicians and define concordances or discordances pairs - Allow physician to exchange messages based on discordance pairs 	1.0
6	API to share PCVA data	Application Program Interface to extract physician coded VA	1.0
7	Clean duplicate data collector names	A functionality to update and merge duplicate data collector names	1.0
8	Upload and merge VA data with automated VA results	Create a functionality to upload results of algorithmic coding methods to VA document for later comparison the results of coding methods	2.0
9	Summary view of the VA		
10	Display summary of narrative part completion	Display on average, how many VA has the narrative part completed, and completed by what about	2.0

Installation

Before you begin, make sure ODK Aggregate is running. You have access to tomcat server as well as access to the database

Required files

1. init_tables.sql
2. init_views.sql
3. vm.war

Instructions

1. Run **init_tables_mysql.sql**. This script will install necessary tables which are needed for the VM application to run. There are currently six tables as shown below.

_web_users - Contains users for the VAMan application. The default user is Admin with the password *password*

_web_roles - Contains user roles. The current most common roles are Administrator and Physician. Users with physician role can perform additional PCVA (see additional functionality for more details)

Additional tables. The following tables are necessary for physician coding functionality (PCVA). See additional functionality section for more details.

_web_assignment,
_web_messages,
_web_icd10,
_web_icd10_category;

2. Run **init_views.sql**. This script creates necessary views for the VM application to run. There are currently eight views as shown below,
view_va, view_summary_va, view_summary_registration, view_summary_coding,
view_interviewer, view_individual_va, view_coded_va, view_assignments

Before you proceed, make sure you did not get any errors with the above scripts.

4. Deploy tomcat

Copy or deploy vaman.war to your tomcat container. Start tomcat if it has been stopped.

5. Configure settings and database connection

Navigate to tomcat-folder/WEB-INF/classes

Open db.properties and configure database settings

Open st.properties and configure location specific settings.

6. Launch the application

Open your browser and navigate to <http://<tomcat>/vaman>

Default user: admin

Default password: password

The welcome screen displays the total number of VA which have been collected disaggregated in terms of the three different types of VA categories (Adult, Child, Neonate). These numbers are updated dynamically as VA data collectors submit data to the VA ODK Aggregate server. This information is also displayed graphically using percent contribution to the total number of VA.

The welcome screen also displays summary of VA collected using different types of date intervals (today, this week, this month and this year).

Summary of the VA interviewers

The bottom table on the welcome screen displays total number of VA collected per interviewers per month on a combined annual summary. Location information are also attached to this table. This table can be sorted to display the interviewer with the highest number of VA per specific column on the table.

Sample Output

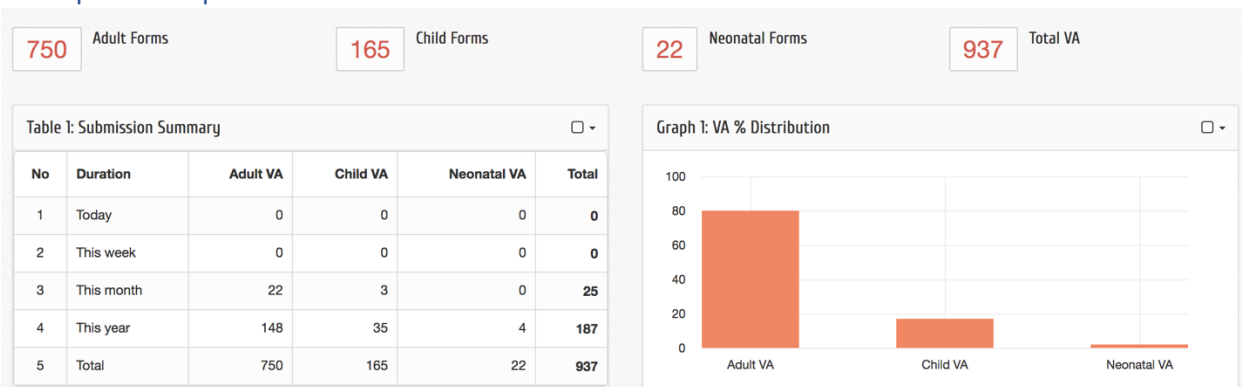


Figure 1: Sample display from the CRVS Web Dashboard

VA Collection Summary

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Interviewer	District	Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Love Joseph	Arusha	Arusha City Council	0	0	0	0	0	0	0	0	1	0	0	0	1
Hamisi Ally Boffu	Dar es Salaam	Ilala Municipal Council	0	0	0	1	0	0	0	0	0	0	0	0	1
David Mshingo	Dar es Salaam	Temeke Municipal Council	0	0	0	0	0	1	0	0	0	0	0	0	1
Hussein Halid	Dar es Salaam	Temeke Municipal Council	0	0	0	1	0	1	0	0	0	0	0	0	2

Figure 2: VA Collection Summary

Display VA Document

ID	Label	Response
ID10004	During which season death occurred	DK
ID10007	Name of the VA Respondent	Zubeda hamadi lema
ID10008	Respondent relationship to deceased	another_relationship
ID10009	Respondent live with the deceased in the period leading to her/his death	yes
ID10012	Date of the interview	2017-05-25 00:00:00.0
ID10017	First or given name(s) of the deceased?	Alli said
ID10018	Surname (or family name) of the deceased	Kindamba
ID10019	Sex of the deceased	male
ID10020	Is the date of birth known	yes
ID10021	Date of birth	1972-07-01 00:00:00.0

Summary

VA ID: [uuid:003a9943-30b4-47da-b7dd-022a0248d2e0](#)
 VA Type: **ADULT**
 Interviewer Name: [Mohammedi rupia](#)
 Interviewer Phone: [652249407](#)
 Date interviewed: [2017-05-25](#)

Figure 3: Content of the VA document

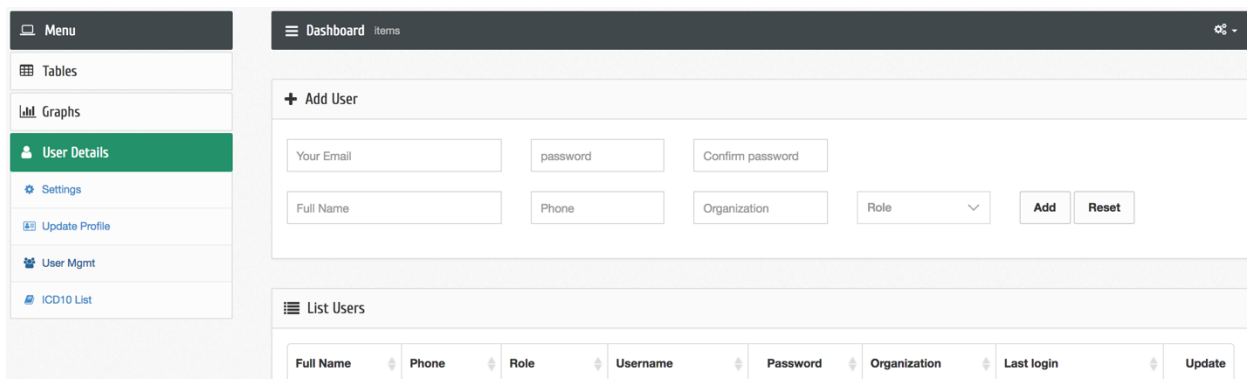
Adding User

At the moment, the VAMan utilizes two types of users, 1. Standard users and 2. Physician or coders. More user roles will be added later

Administrator: Can add user and assign VA document to physician

Physician/Coders: Can view content of the VA document, assign probable causes of death and communicate with another physician

Click on User Details and then User Management in order to list/add/edit users to the VM Application. See image below for more details,



The screenshot displays a web application interface for user management. On the left is a sidebar menu with options: Menu, Tables, Graphs, User Details (highlighted), Settings, Update Profile, User Mgmt, and ICD10 List. The main content area is titled 'Dashboard' and contains two sections. The top section, 'Add User', features a form with input fields for 'Your Email', 'password', 'Confirm password', 'Full Name', 'Phone', and 'Organization', along with a 'Role' dropdown menu and 'Add' and 'Reset' buttons. The bottom section, 'List Users', shows a table with columns: Full Name, Phone, Role, Username, Password, Organization, Last login, and Update.

Figure 4: User Management

Mapping File

There are two mapping files which are used to display content of the VA document. These files are located in /<tomcat-folder>/vm/js/ and are called mapping-smartva.js and mapping-whova.js for the SmartVA and WHO-VA questionnaire respectively. The mapping is done in English and references the ID column from each of the questionnaire. You do not need to change these files for standard deployment.

Settings File

Configure locale with this file. This includes Administrative structure of the underlying VA data collection processes. Also configure which questionnaire (SmartVA or WHO-VA) is implemented

1. WHO-VA Questionnaire (see reference for more details)
2. Smart-VA Questionnaire (see reference for more details)

Database Connection File


Configure database username, password, database connection URL as well as database driver. The VM application works with two database platforms, PostGres as well as MySQL.

Additional Features

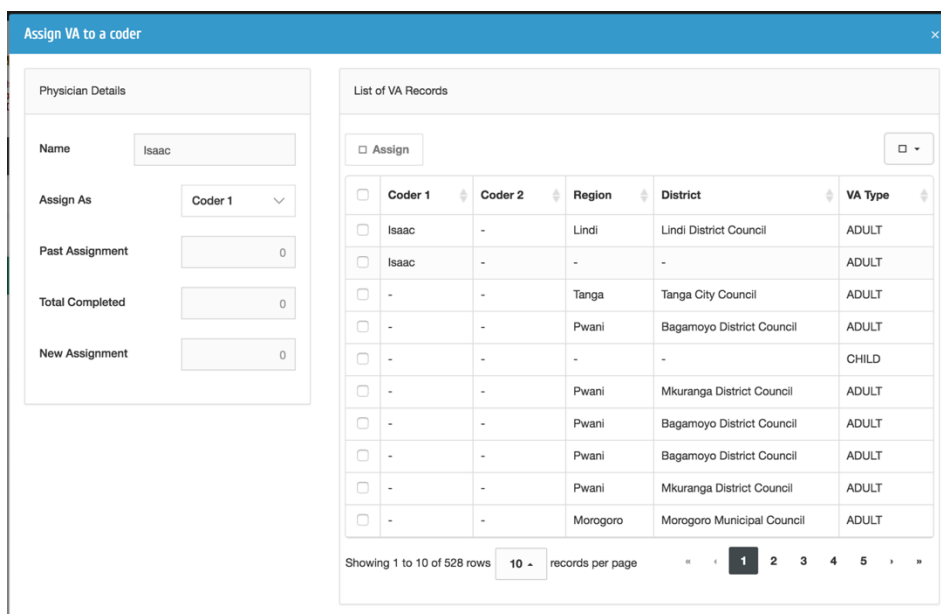
VAMan also provides registered users with the role of physician to open the VA document and assign the probable cause of death. This is similar to PCVA methods, where as one VA document is assigned to two physicians. Each physician can thereafter log in into the system, list and open the VA documents assigned. The physician can assign what he/she things is the probable cause of death given the information provided in the VA document.

Assign VA document to physician

Users with the role of coders or physician, can be assigned with verbal autopsy document to code. When assigned, these particular users when logged in into the system, they are presented with the list of VA documents to proceed with the coding exercise.


To assign VA document to coders, click the Physician image  under the particular name. Details of the physician loads on the left side, while list of available VA is presented on the right.

Change **Assign As** to either Coder 1 or Coder 2. Each VA document is coded by two physician, and thereafter compared if the final underline cause of death between the two physicians matches.



	Coder 1	Coder 2	Region	District	VA Type
<input type="checkbox"/>	Isaac	-	Lindi	Lindi District Council	ADULT
<input type="checkbox"/>	Isaac	-	-	-	ADULT
<input type="checkbox"/>	-	-	Tanga	Tanga City Council	ADULT
<input type="checkbox"/>	-	-	Pwani	Bagamoyo District Council	ADULT
<input type="checkbox"/>	-	-	-	-	CHILD
<input type="checkbox"/>	-	-	Pwani	Mkuranga District Council	ADULT
<input type="checkbox"/>	-	-	Pwani	Bagamoyo District Council	ADULT
<input type="checkbox"/>	-	-	Pwani	Bagamoyo District Council	ADULT
<input type="checkbox"/>	-	-	Pwani	Mkuranga District Council	ADULT
<input type="checkbox"/>	-	-	Morogoro	Morogoro Municipal Council	ADULT

Coding VA document

Log in as physician/coder. Under **Tables**, click **List VA Data**. If you are assigned a VA document to code, the VA document will have the following link, . Click this link to open the VA document along with the coding sheet. Complete the coding assignment accordingly

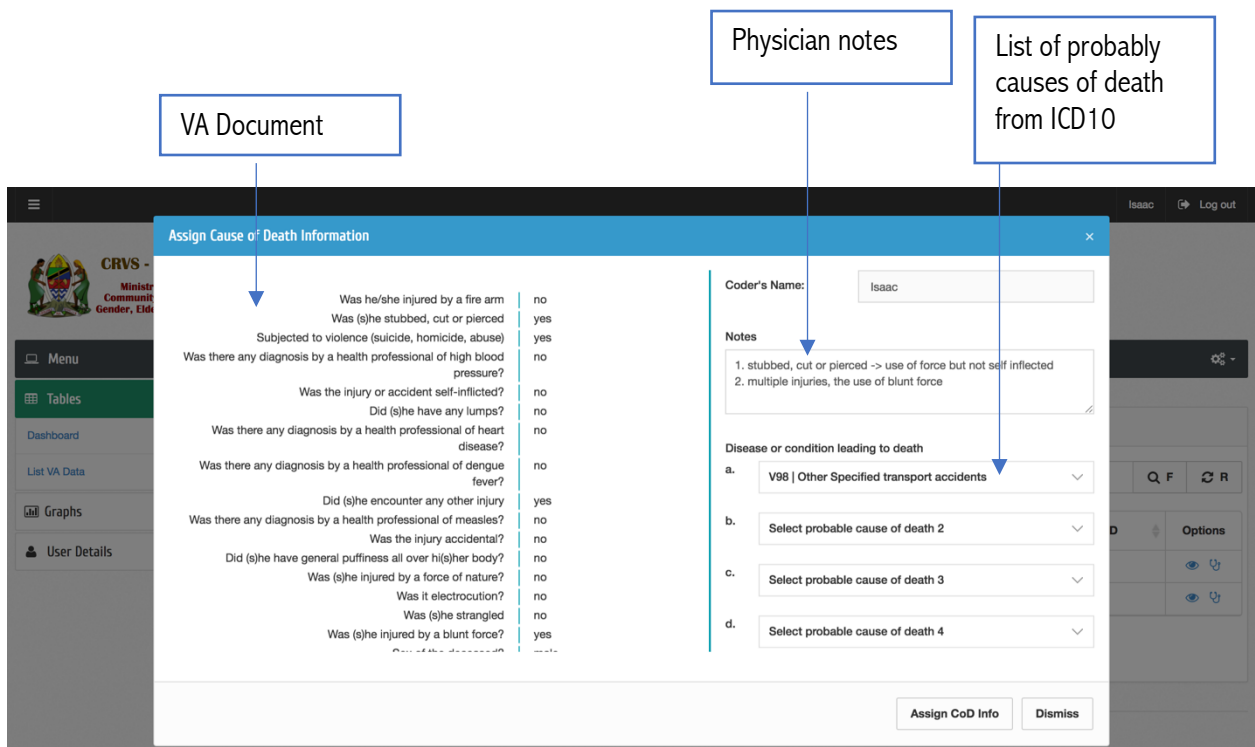
Each VA is coded by two physicians. Each physician can assign probable cause of death for values a, b, c and d, a being the immediate and d underline. You do not need to complete all the values, the last value on the list will automatically become the underline. Since each VA is coded by two physicians, there is a possibility that the underline cause of death from physician 1 match (concordant VA) or do not match (discordant VA) with the underline cause of death from physician 2. The identification of concordant or discordant is only possible when the two physicians have completed coding the VA document.

Coding: Concordant Results

These are the VA documents with the underline causes from the two physicians matches. The findings from these VA can safely be used for further processing

Coding: Discordant Results

These are the VA documents where the two underlines from physicians do not match. Upon discussion of the two physician and review of the VA document, the physician can update probable causes of death in order to match the two underlines.



The screenshot shows a web application interface for assigning a cause of death. The main window is titled "Assign Cause of Death Information" and contains a list of questions with "yes" or "no" options. A sidebar on the left includes a menu with options like "Tables", "Dashboard", "List VA Data", "Graphs", and "User Details".

Annotations with blue boxes and arrows point to specific parts of the interface:

- VA Document**: Points to the list of questions in the main form.
- Physician notes**: Points to the "Notes" field in the right-hand panel, which contains the text: "1. stubbed, cut or pierced -> use of force but not self inflicted" and "2. multiple injuries, the use of blunt force".
- List of probably causes of death from ICD10**: Points to the "Disease or condition leading to death" section, which includes a dropdown menu for "a." (currently showing "V98 | Other Specified transport accidents") and four other dropdowns labeled "b.", "c.", and "d." for selecting probable causes of death.

At the bottom right of the form, there are two buttons: "Assign CoD Info" and "Dismiss".