



Vaccination Coverage Surveys – Forms & Variable Lists (FVL) Structured for Compatibility with VCQI

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Expanded
Programme on
Immunization

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Acknowledgements

The survey questions in this document were inspired by those in the 2005 WHO Immunization Coverage Cluster Survey Reference Manual (WHO/IVB/04.23).

They were further developed for inclusion in the 2015 (draft) and 2018 (final) WHO Vaccination Coverage Cluster Survey Reference Manual by Anthony Burton, Pierre Clauquin, Felicity Cutts and Dale Rhoda (WHO/IVB/18.09).

The questions were modified further still for the Vaccination Coverage Quality Indicators (VCQI) by the staff of Biostat Global Consulting: Dale Rhoda, Mary Prier and Mary Kay Trimner.

This document was developed for the World Health Organization by Biostat Global Consulting. It was written by Dale Rhoda and Mary Kay Trimner in 2015.

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Introduction

This document is intended to fill two purposes:

1. It lists sample questions that may be used in questionnaires for household surveys to estimate:
 - a. vaccination coverage resulting from a country's routine immunization (RI) program,
 - b. coverage achieved in a vaccination campaign, or
 - c. the proportion of children who are protected at birth from neonatal tetanus.
2. It lists variable names, variable types and question response coding schemes that define what it means for datasets to be compatible with the freely available WHO software called the Vaccination Coverage Quality Indicators (VCQI).¹ To be analyzed with VCQI, survey datasets should use precisely the same variable names as those found here and precisely the same variable types (numeric vs. text string) and precisely the same response coding for categorical variables.

The VCQI programs were originally developed in Stata. An R implementation of VCQI is in development, with a limited set of indicators currently available. The guidance in this document is applicable for making survey datasets compatible with either the Stata or R versions of VCQI.

Sample Questions and Response Options

The eight forms in this document are modified versions of those in Annex H from the 2018 World Health Organization Vaccination Coverage Cluster Survey Reference Manual.²

1. Form HH – Sample Questions for a Household Listing Form
2. Form HM – Sample Questions for a Household Members Listing Form
3. Form RI – Sample Questions for a Routine Immunization Form (12-23 months)
4. Form TT – Sample Questions for a Maternal Tetanus Immunization Form
5. Form SIA – Sample Questions for a Post Campaign Survey Form
6. Form RIHC – Sample Questions for a Routine Immunization Health Centre Form
7. Form TTHC – Sample Questions for a Maternal Tetanus Health Centre Form
8. Form CM – Cluster Metadata

This document uses the word “form” loosely – it does not provide field-ready paper questionnaire forms, but rather lists questions and response options and skip patterns. The questions listed here could be reformatted into field-ready questionnaire forms in either paper or electronic formats.

Each sample form lists suggested questions and guidance on what type of responses and skip patterns might be appropriate. Each sample survey form is divided into three sections: (1) a suggested header with information for

¹ Pronounced Vicki.

² <https://apps.who.int/iris/handle/10665/272820>

field staff to fill in before they begin the data collection, (2) the main body of the suggested questions, and (3) a footer with information for field staff to fill after the work in the household or cluster is complete.

The header should include several fields identifying the stratum and cluster from which the data are being collected. If possible, these fields should either be pre-printed on the forms, or pre-printed on weather-proof stickers to be applied to the forms, so that stratum ID and cluster ID will be correct, easy for data entry clerks to read, and recorded in a uniform fashion across the entire survey.

The main body of the form includes questions that will be repeated many times with one entry per household or per respondent. Paper forms should be laid out in a manner that provides enough room to fill in each entry clearly.

The footer includes fields to document when the work in the household or cluster is finished. On paper forms, be sure to leave large spaces for clearly written comments and be sure to ask data entry clerks to enter those comments into the digital database so they are available to downstream analysts. These comments are sometimes very helpful!

Templates for VCQI-Compatible Datasets

While the document suggests many survey questions, we might also consider each form to be a template for a survey dataset to be analyzed with VCQI. The answers to questions from Form HH (household listing) might be collected and provided in a dataset named HH. Its variables could be named after the question numbers HH01, HH02, HH03, etc. The answers to questions from Form HM (household member listing) might be provided in a dataset named HM and have variables named HM01, HM02, etc. And so on, for any of the eight forms that are used for your survey. You may download and examine digital examples of VCQI-compatible datasets with some VCQI training materials available at the Technet-21 VCQI User's Group,³ or at the VCQI resources website.⁴

If you are tasked with making a survey dataset compatible with VCQI, you should focus initially on the variables that are ticked in the columns named 'Required to Run Indicators'. VCQI does not require all the variables listed here and conversely a VCQI-compatible dataset may include additional variables that are not listed in this document. In many cases the non-essential variables listed here can provide important context for your report, and if present, should be summarized using VCQI's descriptive indicators or used to stratify coverage results. But they are not essential in for constructing a VCQI compatible dataset.

The set of questions in these sample questionnaires provide enough data to calculate vaccination coverage estimates, but survey designers may often want to add questions to capture additional constructs. These forms do not list many demographic questions, but it is common to ask about the education, occupation, and religion of adults in homes selected into vaccination coverage survey samples. The survey may also ask questions that will be summarized into a single variable to characterize wealth or socioeconomic status. Feel free to add questions to the forms and code the responses in a logical manner. VCQI has the capability to incorporate those additional variables as stratifiers in tables and to summarize responses to those questions using the so-called

³ www.technet-21.org/en/network/groups/293-vcqi

⁴ http://www.biostatglobal.com/VCQI_RESOURCES.HTML

descriptive (DESC) indicators. See the *VCQI User's Guide* for details. Additional questions may use any variable name that makes sense to the survey designer, but the variable names listed in this document should be reserved for the corresponding questions from this document.

A Word Concerning Variables with Dates

The VCQI software is particular about how date variables should be specified. Each date should be specified using three variables: one containing the month, the second containing the day of the month, and the third containing the 4-digit year. E.g., the date of the routine immunization interview is stored in RI09_m, RI09_d, and RI09_y. You may also provide a variable that combines these three elements into a date-type variable (e.g., RI09), but for routine immunization surveys, VCQI will use the variables that furnish the elements of the date and ignore the variable that combines the elements into a full date.

VCQI is designed to work with dates from the Gregorian calendar. If survey data are collected using dates from another calendar (e.g., the Ethiopia calendar, the Solar Hijri calendar in Afghanistan & Iran, or the Vikram Samvat in Nepal), the data analyst will need to convert them to Gregorian dates before running VCQI. At Biostat Global Consulting we have experience with this and some Stata programs to help, so contact us if you need assistance with date conversions.

Please send corrections, suggestions, and questions to the VCQI development team at Biostat Global Consulting (Dale Rhoda, Mary Kay Trimner, Caitlin Clary, and Mia Yu) (GetVCQIHelp@biostatglobal.com) and Carolina Danovaro at the World Health Organization (danovaroc@who.int).

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Getting Started Making a Survey Dataset Compatible with VCQI

Steps to prepare data from a routine immunization survey:

1. Review the original questionnaire and dataset to familiarize yourself with how the vaccination evidence is coded.
2. Review the RI form in this document, making a list of which variables are essential. It is not a long list:
 - a. RI01, RI02, RI03, RI04, RI11, and RI12 uniquely identify children and the household, cluster & stratum they live in.
 - b. RI09_m, _d, and _y hold the interview date.
 - c. dob_date_history_m, _d, and _y hold the child's date of birth from caregiver's recall
 - d. RI26 & RI27 record whether the child ever had a home-based vaccination record (card) and if so, whether they showed it to the interviewer.
 - e. If the interviewer did see the card, then dob_date_card_m, _d, and _y hold the child's date of birth from the card.
 - f. Vaccination evidence is held in:
 - i. <dose>_date_card_m, _d, _y
 - ii. <dose>_tick_card
 - iii. <dose>_history
3. Use your data management skills to rename and recode the variables from your dataset to agree with those in this document. Save the dataset with a name like RI_version1.
4. Use the draft RI dataset to construct a draft cluster metadata (CM) dataset:

In Stata:

```
use RI_version1, clear
keep RI01 RI02 RI03 RI04
duplicates drop
rename RI01 HH01
rename RI02 HH02
rename RI03 HH03
rename RI04 HH04
gen province_id = 1      // if a single stratum survey, or
* gen province_id =      ///
<name of your variable that holds the province ID code>
gen psweight_1year = 1 // replace later with survey weights
save CM_version1, replace
```

In R:

```
cm <- readRDS("RI_version1.rds") %>%
  dplyr::select(RI01, RI02, RI03, RI04) %>%
  unique() %>%
  dplyr::rename(
    HH01 = RI01,
    HH02 = RI02,
    HH03 = RI03,
```

```
    HH04 = RI04) %>%  
  dplyr::mutate(  
    province_id = 1, # if a single stratum survey, or  
    # province_id = <name of variable that holds the province ID code>,  
    psweight_1year = 1) # replace later with survey weights  
  
  saveRDS(cm, "CM_version1.rds")
```

5. Assemble a list of the survey strata and construct the five small datasets required to list their names and the order in which they should appear in tables. See the section of this document named **Datasets to Specify Stratum Names and Table Listing Order**.
6. This is all you need to prepare for an initial (self-weighted) analysis! You may now copy the control program template to a new empty folder and edit it to customize Blocks B, D, and F as described in the *VCQI User's Guide*.

7. To refine the work, you might:

- a. Add some optional variables to the RI dataset, e.g., RI20 (Child sex).
- b. Code the variables that summarize why some children are not fully vaccinated.
- c. Update psweight_1year in the CM dataset with the real survey weight values.
- d. Add optional cluster metadata to the CM dataset, like an indication of whether each cluster is urban or rural (urban_cluster).
- e. If the survey selected clusters that yielded zero respondents, list them in the CM dataset.
- f. Generate HH and HM datasets to help describe the dataset.
- g. If the survey also collected data from health centers, generate an RIHC dataset.

The steps to make SIA and TT datasets compatible with VCQI are much the same: Review the questionnaire and dataset. Review which variables VCQI considers to be essential. Use data management skills to code those variables from the original data. Use the SIA or TT dataset to make an initial version of the CM dataset. Run a basic VCQI analysis. Refine as appropriate.

Essential variables for an SIA dataset:

- a. SIA01, SIA02, SIA03, SIA04, SIA11, and SIA12 uniquely identify children and the household, cluster & stratum they live in.
- b. SIA17 codes whether the child was living in the area at the time of the campaign (not strictly required but recommended to include this variable).
- c. SIA20 codes whether the child received the campaign dose.
- d. SIA21 codes whether there is evidence documented on a campaign card.
- e. SIA22 codes whether the interviewer saw a campaign mark on the child's finger.
- f. SIA27 codes whether the child had received the campaign dose before the campaign.
- g. SIA28-33 codes the evidence of earlier doses from the child's routine immunization card and optionally from cards from earlier vaccination campaigns.

Essential variables for a TT dataset:

- a. TT01, TT02, TT03, TT04, TT11, and TT12 uniquely identify women and the household, cluster & stratum they live in⁵.
- b. TT16 codes the age of the mother in years.
- c. TT27 codes whether she has a home-based vaccination record.
- d. TT36-TT40 record the number of tetanus doses she received over her lifetime before the child was born.
- e. TT41 records how long ago she received the most recent dose.

⁵ Most TT datasets will have one row per woman who gave birth in the last year, but of course a woman might have given birth to more than one child. If she gave birth more than once (e.g., 11 months ago and 11 days ago) then the survey protocol usually focuses on the most recent pregnancy. But if the most recent pregnancy yielded live twins or triplets then the TT dataset should include one row per child. Her 2-3 rows will have identical values of TT01-04 & TT11-12 but will hold unique values of TT13 which is the id number of the child. VCQI does not use TT13, so strictly speaking you may include it or exclude it, but if there are twins or triplets in your dataset, you may wish to include it for clarity.

Form HH – Sample Questions for a Household Listing Form

This entire dataset is optional if the goal is simply to calculate coverage indicators.

It may be helpful, though, in your work to describe the sample clearly, and it is used by the optional indicator named DESC_01, but it is not used by other indicators and so may not be your first priority to make this dataset VCQI-compatible.

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
<i>Header, to be printed at the top of the form</i>								
HH01	Stratum ID number*	Number	X	X	X	X		HH01 (CM dataset) HM01 RI01 RIHC01 SIA01 TT01 TTHC01
HH02	Stratum name*	Free text					X	HH02 (CM dataset) HM02 RI02 RIHC02 SIA02 TT02 TTHC02
HH03	Cluster ID number*	Number	X	X	X	X		HH03 (CM dataset) HM03 RI03 RIHC03 SIA03 TT03 TTHC03
HH04	Cluster name*	Free text					X	HH04 (CM dataset) HM04 RI04 RIHC04 SIA04 TT04 TTHC04
HH05	Enumerator Number	Number					X	
HH06	Enumerator Name	Free text					X	
HH07	Supervisor number	Number					X	HM07 RI07 RIHC07 SIA07 TT07
HH08	Supervisor name	Free text					X	HM08 RI08 RIHC08 SIA08 TT08
HH09	Start date of enumeration	Date					X	
HH10	Start time of enumeration	Time					X	

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
<i>* Pre-print on the form, if possible</i>								

<i>Main body of the form, one entry per household</i>								
HH11	Structure ID	Number					X	
HH12	Occupied: Does this structure contain any households? <i>[If No, move on to the next structure and the next row of the form.]</i>	1. Yes 2. No				X		
HH13	Household (HH) Serial Number in the structure	Number					X	
HH14	Household ID	Structure Number - HH Serial Number (e.g., 44-3) Take note: HH14 should be a text variable...not a numeric variable!	X	X	X	X		HM09 RI11 RIHC14 TT11 SIA11 TTHC14
HH15	Address or Description	Free text					X	
HH16	Latitude	##.#####					X	HM11 RI15 RIHC10 SIA15 TT14
HH17	Longitude	##.#####					X	HM12 RI16 RIHC11 SIA16 TT15
HH18	Is the data from a resident, or a neighbor?	1. Resident 2. Neighbor				X		

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
		3. Unable to Enumerate						
HH19	Name of Head of Household	Free text					X	HM10 RIHC20
HH20	Phone number to coordinate visit time	Free text					X	
HH21	Second phone number	Free text					X	
HH22	Total number of HH residents	Number					X	
HH23	# of Eligible Respondents: 12-23 Months	Number					X	
HH24	# of Eligible Respondents: Gave Live Birth in Last 12 Months	Number					X	
HH25	# of Eligible Respondents: Post-Campaign Survey	Number					X	
HH26	Comment	Free text					X	
HH27	OFFICE USE ONLY: Serial # of Occupied HH in Cluster	Leave Blank					X	
HH28	OFFICE USE ONLY: Household is selected to participate in the survey	1. Yes 2. No					X	

Footer, to be printed at the bottom of the form

HH29_m	End date of interview – month	Numeric value between 1-12 or Missing					X	
HH29_d	End date of interview – day	Numeric value between 1-31 or Missing						
HH29_y	End date of interview – year	4-digit numeric						

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
		value or Missing						
HH30	End time of enumeration	Time					X	
HH31	Were there households you couldn't enumerate?	1. Yes 2. No					X	
HH32	If yes, how many?	Free text					X	
HH33	What prevented you from doing it?	Free text					X	
HH34	Other comments	Free text					X	
HH35	Supervisor's comments	Free text					X	

Form HM – Sample Questions for a Household Members Listing Form

This entire dataset is optional if the goal is simply to calculate coverage indicators.

It may be helpful, though, in your work to describe the sample clearly, and it is used by the optional indicator named DESC_01, but it is not used by other indicators and so may not be your first priority to make this dataset VCQI-compatible.

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
<i>Header, to be printed at the top of the form</i>								
HM01	Stratum ID number*	Number	X	X	X	X		HH01 (Both HH and CM datasets) RI01 RIHC01 SIA01 TT01
HM02	Stratum name*	Free text					X	HH02 (Both HH and CM datasets) RI02 RIHC02 SIA02 TT02
HM03	Cluster ID number*	Number	X	X	X	X		HH03 (Both HH and CM datasets) RI03 RIHC03 SIA03 TT03
HM04	Cluster name*	Free text					X	HH04 (Both HH and CM datasets) RI04 RIHC04 SIA04 TT04
HM05	Interviewer number	Number					X	RI05 RIHC05 SIA05 TT05
HM06	Interviewer name	Free text					X	RI06 RIHC06 SIA06 TT06
HM07	Supervisor number	Number					X	HH07 RI07 RIHC07 SIA07 TT07
HM08	Supervisor name	Free text					X	HH08 RI08 RIHC08 SIA08 TT08
HM09	Household ID	Copy number from HH list form	X	X	X	X		HH14 RI11 RIHC14 SIA11 TT11 TTHC14

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HM10	Name of head of household	Free text (may be copied from HH list form)					X	HH19 RIHC20
HM11	Latitude	##.#####					X	HH16 RI15 RIHC10 SIA15 TT14
HM12	Longitude	##.#####					X	HH17 RI16 RIHC11 SIA16 TT15
HM13	Start Date of Interview at Visit 1	Date					X	
HM14	Start Time of Interview at Visit 1	Time					X	
HM15	Start Date of Interview at Visit 2	Date					X	
HM16	Start time of Interview at Visit 2	Time					X	
HM17	Start Date of Interview at Visit 3	Date					X	
HM18	Start time of Interview at Visit 3	Time					X	
HM19	Disposition Code: Visit 1	1. Return later; no one home (fill in # of eligible respondents if you learn it from a neighbor) 2. Come back later; interview started but could not complete 3. Refused; someone is home but refused to participate 4. Complete; collected all necessary information				X		

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HM20	Disposition Code: Visit 2	1. Return later; no one home (fill in # of eligible respondents if you learn it from a neighbor) 2. Come back later; interview started but could not complete 3. Refused; someone is home but refused to participate 4. Complete; collected all necessary information				X		
HM21	Disposition Code: Visit 3	1. Return later; no one home (fill in # of eligible respondents if you learn it from a neighbor) 2. Come back later; interview started but could not complete 3. Refused; someone is home but refused to participate 4. Complete; collected all necessary information				X		

** Pre-print on the form, if possible*

Main body of the form, one entry per household member

HM22	Individual Number	Number	X	X	X	X		If primary caregiver same as : RI14 SIA14 If mother same as: TT12 If child same as: RI12 RIHC15 SIA12 TT13
------	-------------------	--------	---	---	---	---	--	--

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
								Could also be the same as: RI13 SIA13
HM23	Name	Free text					X	
HM24	Did the individual sleep here last night?	1. Yes 2. No					X	
HM25	How long has the individual lived in this household?	Time (years)					X	
HM26	How long has the individual lived in this household?	Time (months)					X	
HM27	Sex	1. M 2. F				X		RI20 RIHC19
HM28_m	Date of birth, month	Numeric value between 1-12 or Missing					X	
HM28_d	Date of birth, day	Numeric value between 1-31 or Missing					X	
HM28_y	Date of birth, year	4-digit numeric value or Missing					X	
HM29	Age in years	Number: Can take decimal values like 1.5		X				If child same as: RI24 If TT respondent, same as TT16
HM30	Age in months	Number: Can take decimal values like 14.5					X	If child same as: RI25
Note that either HM29 or HM30 may be coded but they are not meant to be combined. A child who is 18 months old should be recorded as HM29 = 1.5 or HM30 = 18 but NOT coded HM29 = 1 and HM30 = 6. In other words, the values of these two variables are not meant to be added together to obtain the age – they are simply two ways of recording age.								
HM31	Eligible for RI Coverage Survey	1. Yes 2. No				X		
HM32	Selected for RI Coverage Survey	1. Yes or blank				X		

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HM33	Disposition code for RI Survey: Visit 1	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM34	Disposition code for RI Survey: Visit 2	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM35	Disposition code for RI Survey: Visit 3	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM36	Eligible for TT Survey	1. Yes 2. No				X		
HM37	Selected for TT Survey	Yes or blank				X		
HM38	Disposition code for TT Survey: Visit 1	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM39	Disposition code for TT Survey: Visit 2	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HM40	Disposition code for TT Survey: Visit 3	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM41	Eligible for Post-SIA Survey	1. Yes 2. No				X		
HM42	Selected for Post-SIA Survey	Yes or blank				X		
HM43	Disposition code for Post-SIA Survey: Visit 1	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM44	Disposition code for Post-SIA Survey: Visit 2	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		
HM45	Disposition code for Post-SIA Survey: Visit 3	2. Come back later; caregiver not available 3. Refused interview for this respondent 4. Completed interview				X		

Footer, to be printed at the bottom of the form

HM46_m	End date of interview – month	Numeric value between 1-12 or Missing					X	
HM46_d	End date of interview – day	Numeric value between 1-31 or Missing						

Item	Question	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HM46_y	End date of interview – year	4-digit numeric value or Missing						
HM47	End time of interview	Time					X	
HM48	Finished with household (check box)	1. Yes 2. No					X	
HM49	Interviewer's comments	Free text					X	
HM50	Supervisor's comments	Free text					X	

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Form RI – Sample Questions for a Routine Immunization Form (typically for children aged 12-23 months, but may be modified for other cohorts)

This dataset is essential if the goal is to calculate routine immunization coverage indicators.

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
<i>Header, to be printed at the top of the form</i>							
RI01	Stratum ID number*		Number		X		HH01 HM01 RIHC01 SIA01 TT01
RI02	Stratum name*		Free text		X		HH02 HM02 RIHC02 SIA02 TT02
RI03	Cluster ID number*		Number		X		HH03 HM03 RIHC03 SIA03 TT03
RI04	Cluster name*		Free text		X		HH04 HM04 RIHC04 SIA04 TT04
RI05	Interviewer number		Number			X	HM05 RIHC05 SIA05 TT05
RI06	Interviewer name		Free text			X	HM06 RIHC06 SIA06 TT06
RI07	Supervisor number		Number			X	HH07 HM07 RIHC07 SIA07 TT07
RI08	Supervisor name		Free text			X	HH08 HM08 RIHC08 SIA08 TT08
RI09_m	Start date of interview	Month	Numeric value between 1-12 or Missing		X		
RI09_d	Start date of interview	Day	Numeric value between 1-31 or Missing		X		

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI09_y	Start date of interview	Year	4-digit numeric value or Missing		X		
RI10	Start time of interview		Time			X	
<i>* Pre-print on the form, if possible</i>							

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<i>Main body of the form, one entry per child</i>							
RI11	Household ID		Copy from Form HM (Again, note that this is saved as a string type variable.)		X		HH14 HM09 RIHC14 SIA11 TT11 TTHC14
RI12	Individual number of child (from form HM)		Copy number from Form HM		X		RI12 RIHC15 SIA12 TT13
RI13	Individual number being surveyed – typically the child's mother (from form HM)		Copy number from Form HM			X	RI13 SIA13
RI14	Individual number of primary caregiver (from form HM)		Copy number from Form HM			X	RI14 SIA14
RI15	Latitude		##.#####			X	HH16 HM11 RIHC10 SIA15 TT14

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI16	Longitude		##.#####			X	HH17 HM12 RIHC11 SIA16 TT15
RI17	Name of child (full name)		Free text			X	RIHC16
RI18	Name of child's father		Free text			X	RIHC17
RI19	Name of child's mother		Free text			X	RIHC18
RI20	Sex of child		1. M 2. F			X (Not strictly required, but sex is very often used as a stratifier, so we always include it.)	RIHC19 HM27
dob_date_history_m	Child's date of birth from Mother's recall	Month	Numeric value between 1-12 or Missing	If unknown, skip to RI24	X		
dob_date_history_d	Child's date of birth from Mother's recall	Day	Numeric value between 1-31 or Missing		X		
dob_date_history_y	Child's date of birth from Mother's recall	Year	4-digit numeric value or Missing		X		

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI24	Age of child (if birthdate not known)	Years	Number (Can take decimal values, like 1.5)			X (RI code uses it to assign age at interview if DOB is missing and RI24 is present, but does not require it)	HM29
RI25	Age of child (if birthdate not known)	Months	Number (Can take decimal values like 14.5)			X (RI code uses it to assign age at interview if DOB and RI24 are missing, but does not require it)	HM30
Home Based Record or Vaccination Card							
RI26	Did you ever receive or were given a vaccination card or a family folder for (name)?		1. Yes 2. No 99. Do Not Know	2 or 99 : RI70	X		

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI27	May I see it please?		1. Yes, Card Seen 2. No, Card Not Seen	1 : RI30	X		
RI28	Why do you no longer have the vaccination card?		1. Lost card 2. Destroyed 3. Other (Specify below)	Anything but 3: RI70		X	
RI29	Other, please specify		Free text	Skip to RI70		X	
RI30	Is the card the original that you received or a replacement/copy?		1. Original 2. Replacement/ Copy 99. Do Not Know	Anything but 2 : Skip next		X	
RI31	Did you have to pay for the replacement card?		1. Yes 2. No 99. Do Not Know			X	
<p>Note that the numbers in the Item names become irregular in this table because earlier versions of this document listed a fixed set of doses rather than using angle brackets (<dose> or <antigen>) to indicate that you should substitute the names of doses from your survey. When coding data to be compatible with VCQI, use the Item names in this document, even if the system for numbering the variables is not contiguous.</p>							
dob_date_card_m	Child's Month of birth (as recorded on card)	Month	Numeric value between 1-12 or Missing		X		dob_date_card_m (from RIHC dataset)
dob_date_card_d	Child's Day of birth (as recorded on card)	Day	Numeric value between 1-31 or Missing		X		dob_date_card_d (from RIHC dataset)

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
dob_date_card_y	Child's Year of birth (as recorded on card)	Year	4-digit numeric value or Missing		X		dob_date_card_y (from RIHC dataset)
<p><i>Note: The following 4 variables need to be created for each DOSE within the survey.</i></p> <p><i>Replace <dose> with vaccine name or abbreviation of vaccine name so it stays within 5 characters. (Example: penta, opv, rota, pcv,)</i></p>							
<dose>_date_card_m	Month DOSE received as recorded on card document	Month	Numeric value between 1-12 or Missing	Skip tick if able to fill any dose date component	X		
<dose>_date_card_d	Day DOSE received as recorded on card document	Day	Numeric value between 1-31 or Missing	Skip tick if able to fill any dose date component	X		
<dose>_date_card_y	Year DOSE received as recorded on card document	Year	4-digit numeric value or Missing	Skip tick if able to fill any dose date component	X		

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
<dose>_tick_card	DOSE - Tick mark on card	This should be populated with a 1 if there is an indication vaccine was received but the date is not legible. If the date is legible but incomplete, it is okay to fill in part of the date OR to set the tick variable, or both.	1. Yes 2. No		X		
Caretaker Recall or History							
RI69	<i>Has the child received every vaccine in this survey?</i>		1. Yes 2. No	1 : RI103		X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI70	Has <i>the child</i> ever received any vaccinations, drops or injections in the past?		1. Yes 2. No 99. Do Not Know	2 or 99 : RI89		X	
<antigen>_history_ever	Provide description of how the child would have received the vaccine to ask about antigen specific recall. For example: Has the child ever received an injection in the right upper arm or shoulder that usually causes a scar? – that is, BCG vaccination (against tuberculosis)		1. Yes 2. No 99. Do Not Know	2 or 99 : Skip next		X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI82	How many times was measles vaccine given during a large campaign, normally involving a large group of children? (The campaign can be up to five or up to fifteen years of age)		Number 99. Do Not Know			X	
RI85	How many times did the child receive yellow fever during a large campaign, usually involving a large group of children (up to five years of age), and perhaps vaccinating at your house?		Number 99. Do Not Know			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
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Note: Some surveys do not ask about campaign doses. If questions like RI82 or RI85 are included in the questionnaire then the program to make the <dose>_history variables should also incorporate these data. This might be accomplished with Stata code like this:

```
gen mcv_history = 2 * default to no
replace mcv_history = 1 if mcv_history_ever == 1      * mcv stands for 'measles containing vaccine'
replace mcv_history = 1 if RI82 >= 1 & RI82 < 99    * account for campaign doses

gen yf_history = 2 * default to no
replace yf_history = 1 if yf_history_ever == 1        * yf stands for 'yellow fever'
replace yf_history = 1 if RI85 >= 1 & RI85 < 99      * account for campaign doses
```

Or with R code like this:

```
dplyr::mutate(
  mcv_history = 2, # default to no
  mcv_history = ifelse(mcv_history_ever %in% 1, 1, mcv_history), # mcv = measles containing vaccine
  mcv_history = ifelse(RI82 >= 1 & RI82 < 99, 1, mcv_history), # account for campaign doses
  yf_history = 2, # default to no
  yf_history = ifelse(yf_history_ever %in% 1, 1, yf_history), # yf = yellow fever
  yf_history = ifelse(RI85 >= 1 & RI85 < 99, 1, yf_history)) # account for campaign doses
```

RI88	Do you think your child has received all the vaccines that are recommended?		1. Yes 2. No 99. Do Not Know	1: RI103		X	
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Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI89	Why hasn't the child had all recommended vaccines? <i>(Without probing, record all reasons mentioned)</i>	1. Place of Immunization Too Far	1. Mentioned 2. Not Mentioned			X	
RI90	Why hasn't the child had all recommended vaccines?	2. Time of Immunization Inconvenient	1. Mentioned 2. Not Mentioned			X	
RI91	Why hasn't the child had all recommended vaccines?	3. Mother Too Busy	1. Mentioned 2. Not Mentioned			X	
RI92	Why hasn't the child had all recommended vaccines?	4. Family Problem, Including Illness of Mother	1. Mentioned 2. Not Mentioned			X	
RI93	Why hasn't the child had all recommended vaccines?	5. Child Ill-Not Brought	1. Mentioned 2. Not Mentioned			X	
RI94	Why hasn't the child had all recommended vaccines?	6. Child Ill-Brought but Not Given Immunization	1. Mentioned 2. Not Mentioned			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI95	Why hasn't the child had all recommended vaccines?	7. Long Wait	1. Mentioned 2. Not Mentioned			X	
RI96	Why hasn't the child had all recommended vaccines?	8. Rumors	1. Mentioned 2. Not Mentioned			X	
RI97	Why hasn't the child had all recommended vaccines?	9. No Faith in Immunization	1. Mentioned 2. Not Mentioned			X	
RI98	Why hasn't the child had all recommended vaccines?	10. Fear of Side Reactions	1. Mentioned 2. Not Mentioned			X	
RI99	Why hasn't the child had all recommended vaccines?	11. Place and/or Time of Immunization Unknown	1. Mentioned 2. Not Mentioned			X	
RI100	Why hasn't the child had all recommended vaccines?	12. Other (Specify Below)	1. Mentioned 2. Not Mentioned			X	
RI101	Why hasn't the child had all recommended vaccines?	13. Other, please specify	Free text			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI102	Which reason above is the MOST IMPORTANT reason?		1-13			X	
RI103	Where does your child usually receive vaccinations?		1. Local Government Health Clinic 2. Local Private Doctor's Office 3. Local Other 4. Outside Government Health Clinic 5. Outside Private Doctor's Office 6. Outside Other			X	
RI104	Write the name of the clinic or facility.		Free text			X	
RI105	Does the child usually receive vaccinations at one of the facilities on your list? (where the team will go to search for records)		1. Yes 2. No			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI106	Where did your child receive his/her most recent vaccination?		1. Local Government Health Clinic 2. Local Private Doctor's Office 3. Local Other 4. Outside Government Health Clinic 5. Outside Private Doctor's Office 6. Outside Other			X	
RI107	Have you taken a child to a health facility for vaccination and the child was not vaccinated?		1. Yes 2. No 99. Do Not Remember	2 or 99 : RI118		X	
RI108	Why was the child not vaccinated? <i>(Without probing record all reasons mentioned)</i>	1. No Vaccine	1. Mentioned 2. Not Mentioned			X	
RI109	Why was the child not vaccinated?	2. No Vaccinator (Not Closed)	1. Mentioned 2. Not Mentioned			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI110	Why was the child not vaccinated?	3. Health Facility Closed When I Went	1. Mentioned 2. Not Mentioned			X	
RI111	Why was the child not vaccinated?	4. Child Was Sick	1. Mentioned 2. Not Mentioned			X	
RI112	Why was the child not vaccinated?	5. Not Enough Children Present To Open A Vial of Vaccine	1. Mentioned 2. Not Mentioned			X	
RI113	Why was the child not vaccinated?	6. The Visit Was Not On The Vaccination Day	1. Mentioned 2. Not Mentioned			X	
RI114	Why was the child not vaccinated?	7. Wait was too long	1. Mentioned 2. Not Mentioned			X	
RI115	Why was the child not vaccinated?	8. Others (Specify Below)	1. Mentioned 2. Not Mentioned			X	
RI116	Why was the child not vaccinated?	9. Do Not Know	1. Mentioned 2. Not Mentioned			X	
RI117	Other, please specify		Free text			X	
RI118	Do you know of any child (own or neighbor, etc.) who had an abscess after a vaccination?		1. Yes 2. No 99. Do Not Know	2 or 99 : RI123		X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI119	Who was the child?		1. Own Child 2. Neighbor's Child 3. Friend's Child 4. Family Member's Child 5. Classmate/Friend of Own Child 6. Other (Specify Below)	Anything but 6 : Skip next		X	
RI120	Other, please specify		Free text			X	
RI121	Where was the abscess located?		1. Arm 2. Thigh 3. Other (Specify Below) 99. Do Not Know	Anything but 3: Skip next		X	
RI122	Other, please specify		Free text			X	
RI123	If your child was due for a vaccination and was showing symptoms of a fever, would you take them to be vaccinated?		1. Yes 2. No 99. Do Not Know			X	
RI124	If they had a cough?		1. Yes 2. No 99. Unsure			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI125	If they had a rash?		1. Yes 2. No 99. Unsure			X	
RI126	If they had diarrhea?		1. Yes 2. No 99. Unsure			X	
RI127	What messages have you heard about immunizations? <i>(Without probing, record all reasons mentioned)</i>	1. About Campaigns (E.G. Dates, Target Group)	1. Mentioned 2. Not Mentioned			X	
RI128	What messages have you heard about immunizations?	2. Importance of Routine Vaccination	1. Mentioned 2. Not Mentioned			X	
RI129	What messages have you heard about immunizations?	3. Where to Get Routine Vaccination	1. Mentioned 2. Not Mentioned			X	
RI130	What messages have you heard about immunizations?	4. Age to Get Routine Vaccination	1. Mentioned 2. Not Mentioned			X	
RI131	What messages have you heard about immunizations?	5. Return for The Next Doses Of The Routine Vaccination	1. Mentioned 2. Not Mentioned			X	

Item	Question	SubQuestion	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RI132	What messages have you heard about immunizations?	6. About New Vaccines (Pneumococcal/Rotavirus Vaccine)	1. Mentioned 2. Not Mentioned			X	
RI133	What messages have you heard about immunizations?	7. Other (Specify Below)	1. Mentioned 2. Not Mentioned			X	
RI134	What messages have you heard about immunizations?	99. Do Not Know	1. Mentioned 2. Not Mentioned			X	
RI135	Other, please specify		Free text			X	

Mobility Questions

The following questions may help identify families that are mobile or where caretakers travel for part of the year. If a substantial portion of families are somewhat mobile for cultural or economic reasons, it may be worthwhile to include these questions and to perform a hypothesis test to see if coverage levels differ between mobile and immobile households.

RI136	In the last year, have any members of this household gone to live or work somewhere else for part of the year? (Sleeping away from home for more than one month)		1. Yes 2. No 99. Do Not Know	2 or 99 : Skip to RI142		X	
RI137	If yes, how many times?		1. Once 2. 2-3 Times 3. 4 or More Times 99. Do Not Know			X	
RI138	If yes, what was the duration of the longest trip?		1. 1-2 Months 2. 3-6 Months 3. More Than 6 Months 99. Do Not Know			X	
RI139	Who went?		1. Everyone in the Household 2. One Adult Only 3. Two or more Adults 4. Children Only 5. A Mix of Adults and Children 99. Do Not Know			X	

RI140	What was the purpose of the trip?		1. To Work 2. To Visit Family 3. For Leisure Or Holiday Or Vacation 4. Other, Specify Below 99. Do Not Know	Anything but 4 : Skip next		X	
RI141	Other, please specify		Free text			X	

Footer, to be printed at the bottom of the form							
RI142_m	End date of interview – month	Month	Numeric value between 1-12 or Missing			X	
RI_142_d	End date of interview – day	Day	Numeric value between 1-31 or Missing				
RI_142_y	End date of interview – year	Year	4-digit numeric value or Missing				
RI143	End time of interview		Time			X	
RI144	Finished with household (check box)		1. Yes 2. No			X	
RI145	Interviewer's comments		Free text			X	
RI146	Supervisor's comments		Free text			X	

Form TT – Sample Questions for a Maternal Tetanus Immunization Form (Women who gave birth to a live baby in the last 12 months)

This dataset is essential if the goal is to calculate the tetanus protection at birth coverage indicator.

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
<i>Header, to be printed at the top of the form</i>						
TT01	Stratum ID number*	Number		X		HH01 HM01 RI01 RIHC01 SIA01
TT02	Stratum name*	Free text		X		HH02 HM02 RI02 RIHC02 SIA02
TT03	Cluster ID number*	Number		X		HH03 HM03 RI03 RIHC03 SIA03
TT04	Cluster name*	Free text		X		HH04 HM04 RI04 RIHC04 SIA04
TT05	Interviewer number	Number			X	
TT06	Interviewer name	Free text			X	
TT07	Supervisor number	Number			X	
TT08	Supervisor name	Free text			X	
TT09	Start date of interview	Date		X		
TT10	Start time of interview	Time			X	
<i>* Pre-print on the form, if possible</i>						

<i>Main body of the form; one entry per respondent</i>						
TT11	Household ID	This should be a string type variable		X		HH14 HM09 RI11 RIHC14 SIA11
TT12	Individual number of mother being interviewed (from form HM)	Copy number from Form HM		X		If primary caregiver same as: RI14 SIA14

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
TT13	Individual number of child (from form HM)	Copy number from Form HM				RI12 RIHC15 SIA12
TT14	Latitude	##.#####			X	HH16 HM11 RI15 RIHC10 SIA15
TT15	Longitude	##.#####			X	HH17 HM12 RI16 RIHC11 SIA16
TT16	Age of the mother (years)	Number (Can take decimal values)		X		HM29
TT17	Date of birth of the child aged 0-11 months	Date			X	
TT18	Did you see anyone for pregnancy care during your pregnancy with (name) to check your pregnancy?	1: Yes 2: No 99: Do Not Remember	2 or 99 : TT22		X	
TT19	Whom did you see?	1. Doctor 2. Health Officer 3. Nurse/Midwife 4. Health Extension Worker 5. Traditional Birth Attendant 6. Community Health Worker 7. Other (Specify Below) 8. Do Not Know	Anything but 7 : Skip next		X	
TT20	Other, please specify	Free text			X	
TT21	How many visits did you have?	Number			X	
TT22	Where did you deliver the baby?	1. Home 2. Relative/Neighbor's Home 3. Health Post 4. Health Center/Hospital 5. Private Or NGO Facility 6. Other (Specify Below)	Anything but 6 : Skip next		X	
TT23	Other, please specify	Free text			X	

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
TT24	Who attended the delivery of the child?	1. Doctor 2. Health Officer 3. Nurse 4. Midwife 5. Health Extension Worker 6. Traditional Birth Attendant 7. Community Health Worker 8. Relative/Friend 9. Other Person (Specify Below) 10. Do Not Know	Anything but 9 : Skip next		X	
TT25	Other, please specify	Free text			X	
TT26	Did you ever receive a vaccination card for your own immunizations?	1. Yes 2. No 99. Do Not Know	2 or 99 : TT36		X	
TT27	Do you have a card or other documents with your own immunizations listed? May I see it?	1. Yes, Card Seen 2. Yes, Card Not Seen 3. No Card	3 : TT36	X		
TT28	Is the card the original that you received or a replacement/copy?	1. Original 2. Replacement/ Copy 3. Do Not Know	1 or 3 : Skip next		X	
TT29	Did you have to pay for a replacement?	1. Yes 2. No			X	
If card is available, copy dates for TT1-TT6						
TT30	TT1	Date (may record using TT30_m and TT30_d and TT30_y or may store the complete date in TT30. If the date on the card is incomplete or illegible, set the value of TT30 to 1.		X		

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
TT31	TT2	Date (may record using TT31_m and TT31_d and TT31_y or may store the complete date in TT31. If the date on the card is incomplete or illegible, set the value of TT31 to 1.		X		
TT32	TT3	Date (may record using TT32_m and TT32_d and TT32_y or may store the complete date in TT32. If the date on the card is incomplete or illegible, set the value of TT32 to 1.		X		
TT33	TT4	Date (may record using TT33_m and TT33_d and TT33_y or may store the complete date in TT33. If the date on the card is incomplete or illegible, set the value of TT33 to 1.		X		
TT34	TT5	Date (may record using TT34_m and TT34_d and TT34_y or may store the complete date in TT34. If the date on the card is incomplete or illegible, set the value of TT34 to 1.		X		

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
TT35	TT6	Date (may record using TT35_m and TT35_d and TT35_y or may store the complete date in TT35. If the date on the card is incomplete or illegible, set the value of TT35 to 1.		X		
If no card is available, <u>or</u> if the card does not have a date recorded for at least five doses, ask the following history questions.						
TT36	When you were pregnant with (<i>name</i>), did you receive any injection in the arm or shoulder to prevent the baby from getting tetanus after birth?	1. Yes 2. No 99. Do Not Remember	2 or 99 : Skip next	X		
TT37	How many times did you receive this injection in the arm (tetanus vaccine) during your pregnancy with (<i>name of baby born live in last 12 months</i>)? [Please list the total number, even if some of them are also listed on your card.]	Number of times 3. If ≥ 3 99. Do Not Know		X		
TT38	During a previous pregnancy (previous to the pregnancy with (<i>name</i>)), did you receive any injection in the arm or shoulder to prevent the baby from getting tetanus after birth?	1. Yes 2. No 99. Do Not Remember	2 or 99 : Skip next	X		
TT39	How many times did you receive this injection in the arm (tetanus vaccination) during your pregnancies previous to the pregnancy with (<i>name</i>)? [Please list the total number, even if some of them are also listed on your card.]	Number 99. Do Not Know		X		

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
TT40	Did you receive any tetanus vaccination (an injection in the arm) at any time when you were not pregnant, other than injections given for contraception (Depo-Provera)?	1. Yes 2. No 99. Do Not Know	2 or 99 skip next	X		
TT41	How many times did you receive a tetanus vaccination when you were not pregnant during routine or outreach immunizations or during large campaign many women attended? [Please list the total number, even if some of them are also listed on your card.]	Number of times 7. If ≥ 7 99. Do Not Know		X		
TT42	When did you receive your last tetanus vaccination (How many years ago)?	0. If <1 year enter 0 Years ago _____ 98. Never Had One 99. Do Not Know		X		
TT43	If the mother has received 0 or 1 lifetime vaccine doses against tetanus, why? (Ask the question first, after the person has answered, go through the list of answers to find the main reason)	A. The Mother Did Not Perceive The Importance Of The Second Dose At Least Two Weeks Before Delivery B. The Mother Ignores Need For Immunization C. The Mother Ignores The Place And Time Of The Session D. She Is Afraid Of Side Reactions E. She Made No Antenatal Visits F. She Deferred To A Later Date	Anything but T : Skip next		X	

Item	Question	Responses	Skip	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
		G. Does Not Trust Vaccination H. Rumors I. Location Of Setting Too Far Away J. Hours Unsuitable K. Missing Vaccinator L. Vaccine Not Available M. Mother Too Busy N. Family Problem (Disease) O. Mother Not Brought Because She Was Sick P. Sick Mother Brought But Was Not Vaccinated Q. Price Vaccination Card R. Syringes Too Expensive S. Wait Too Long T. Other (Specify Below)				
TT44	Other, please specify	Free text			X	

Footer, to be printed at the bottom of the form

TT45_m	End date of interview – month	Numeric value between 1-12 or Missing			X	
TT45_d	End date of interview – day	Numeric value between 1-31 or Missing				
TT45_y	End date of interview – year	4-digit numeric value or Missing				
TT46	End time of interview	Time			X	
TT47	Interviewer's comments	Free text			X	
TT48	Supervisor's comments	Free text			X	

Form SIA – Sample Questions for a Post Campaign Survey Form

This dataset is essential if the goal is to calculate campaign coverage indicators.

Note that the dataset only holds information for a single campaign dose, so if your campaign included two or more doses, you will need to make two or more datasets. If the campaign administered measles and polio vaccine, you might construct a dataset named sia_mcv and another named sia_opv.

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
<i>Header, to be printed at the top of the form</i>						
SIA01	Stratum ID number*	Number		X		HH01 HM01 RI01 RIHC01 TT01 TTHC01
SIA02	Stratum name*	Free text		X		HH02 HM02 RI02 RIHC02 TT02 TTHC02
SIA03	Cluster ID number*	Number		X		HH03 HM03 RI03 RIHC03 TT03 TTHC03
SIA04	Cluster name*	Free text		X		HH04 HM04 RI04 RIHC04

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
						TT04 TTHC04
SIA05	Interviewer number	Number			X	
SIA06	Interviewer name	Free text			X	
SIA07	Supervisor number	Number			X	
SIA08	Supervisor name	Free text			X	
SIA09	Start date of interview	Date			X	
SIA10	Start time of interview	Time			X	
<i>*Preprinted on the forms, if possible</i>						
<i>Main body of form; one entry per respondent</i>						
SIA11	Household ID	This should be a string type variable			X	HH14 HM09 RI11 RIHC14 TT11 TTHC14
SIA12	Individual number of child (from form HM)	Copy number from Form HM		X		RI12 RIHC15 SIA12 TT13 TTHC16
SIA13	Individual number being surveyed (from form HM)	Copy number from Form HM			X	RI13
SIA14	Individual number (from form HM) of primary caregiver of child identified in question SIA12	Copy number from Form HM			X	RI14
SIA15	Latitude	##.#####			X	HH16 HM11 RI15 RIHC10 TT14 TTHC10

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
SIA16	Longitude	##.#####			X	HH17 HM12 RI16 RIHC11 TT15 TTHC11
SIA17	Was the child living here during the campaign? (mention the campaign dates)	1. Yes 2. No 99. Do Not Know			X	
Although VCQI doesn't use SIA17 explicitly, if a notable portion of respondents say 'No' then it is important to consider using it in a high-level summary of the sample. <i>NN children were interviewed and PP% were living in the household at the time of the campaign.</i> It may also be prudent to report coverage among those who were living in the surveyed households at the time of the campaign and among those who were not. This can be a notable issue if the post-campaign coverage survey is delayed by weeks or months in a country with a mobile population. We recommend including SIA17 in the analysis dataset and doing some sensitivity analysis to decide what to say about it, if anything.						
SIA18	What was the primary source of information about the occurrence of the campaign? (Ask the question first, after the person has answered, go through the list of answers to select the primary source.) [If you would rather have the respondents tell you ALL the sources by which they heard of the campaign, break this into several questions where each is coded 1) Mentioned or 2) Not Mentioned.]	A. Not Informed B. Radio C. Television D. Internet E. Criers / Mobilisers F. Community Health Workers G. School H. Family I. Neighbor/ Friend J. Village Chief K. Religious Leader L. Other (Specify Below)	Anything but L: Skip next		X	
SIA19	Other, please specify	Free text			X	
SIA20	Did the child receive the <campaign> (e.g., measles/rubella) vaccine during the recent campaign (name campaign dates here as a reminder)?	1. Yes, Card Seen 2. Yes, Card Not Seen 3. No 99. Do Not Know	3 or 99 : SIA25	X		

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
		Note SIA20 may NOT be set to a missing value.				
SIA21	Did the child receive a vaccination card after receiving the vaccination during the campaign?	1. Yes, Card Seen 2. Yes, Card Not Seen 3. No Card 99. Do Not Know		X		
SIA22	Was the finger of the child marked with a pen after receiving the vaccine during the campaign?	1. Yes, Saw Mark on Child 2. Yes, Child Not Available to Check 3. No 99. Do Not Know		X		
SIA23	Did the child develop a reaction in the months following the vaccination?	1. Yes 2. No 99. Do Not Know			X	
SIA24	If so what is/was the problem?	Free text			X	
SIA25	If the child did not receive the vaccine during the campaign, why? (Ask the question first, after the person has answered, go through the list of answers to find the main reason for non-vaccination.) [If you prefer to summarize all of the reasons, switch this to a 'select all that apply' with a separate variable for each response coded 1) Mentioned or 2) Not mentioned. The variables might be named something like SIA25a – SIA25v.]	A. Didn't Know About the Campaign B. Confused With Other Vaccines (Believed That The Child Had Already Been Vaccinated. C. Subject Or Parent / Guardian Were Missing D. Injections Fear E. Lack Of Confidence In The Vaccine F. Fear Of Side Effects G. Site Of Vaccination Was Not Known H. Hours Vaccination Unsuitable	Anything but V : Skip next		X	

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
		I. Waited Too Long At The Vaccination Site J. Site Of Vaccination Too Far K. Vaccine Not Available At The Vaccination Site L. Missing Vaccinator At The Site M. Not Authorized By Head Of The Household N. Religious Beliefs O. Speaker At The Time Of Vaccination P. Sick At Time Of Vaccination Q. Absent or Travelling During The Period Of The Campaign R. Too Busy To Take Child S. Child Ill T. Mother Ill U. Child Already Received Measles Vaccine V. Other (Specify Below)				
SIA26	Other, please specify	Free text			X	
SIA27	Before the campaign, had the child already received the <campaign> (e.g., measles/rubella) vaccine?	1. Yes, Date(s) On Card 2. Yes, Recall/History 3. No 99. Do Not Know		X		
SIA28_m	Month of first (e.g., measles/rubella) vaccination on routine immunization card.	Numeric value between 1-12 or Missing	If date: skip next	X		
SIA28_d	Day of first (e.g., measles/rubella) vaccination on routine immunization card.	Numeric value between 1-31 or Missing		X		

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
SIA28_y	Year of first (e.g., measles/rubella) vaccination on routine immunization card.	4-digit numeric value or Missing		X		
SIA29	If the vaccination record (routine) is available, is 1st (e.g., measles/rubella) vaccination recorded with a tick mark or incomplete date or illegible date?	1=Yes, by tick mark or by incomplete or illegible date; 2 otherwise		X		
SIA30_m	Month of second (e.g., measles/rubella) vaccination on routine immunization card.	Numeric value between 1-12 or Missing	If date: skip next	X		
SIA30_d	Day of second (e.g., measles/rubella) vaccination on routine immunization card.	Numeric value between 1-31 or Missing		X		
SIA30_y	Year of second (e.g., measles/rubella) vaccination on routine immunization card.	4-digit numeric value or Missing		X		
SIA31	If the vaccination record (routine) is available, is 2nd (e.g., measles/rubella) vaccination recorded with a tick mark or incomplete date or illegible date?	1=Yes, by tick mark or by incomplete or illegible date; 2 otherwise		X		
SIA32	If the vaccination record from a previous campaign is available, does it show that the child received at least one <campaign> vaccination?	1=Yes, by date or tick mark or incomplete or illegible date (1 means there was any indication on the card they received the dose); 2 otherwise		X		
SIA33	If a second vaccination record is available from a previous campaign, does it show that the child received a second <campaign> vaccination?	1=Yes, by date or tick mark or incomplete or illegible date (1 means there was any indication on the card that they received the dose); 2 otherwise		X		

Item	Question	Responses	Skip	Required by SIA Indicators	Not Explicitly Used by SIA VCQI Indicators	Same Variable Across VCQI Datasets
and SIA33. If your survey did not ask to see cards from previous vaccination campaigns, simply code SIA32=2 and SIA33 = 2 for every respondent in the SIA dataset.						

<i>Footer, to be printed at the bottom of the form</i>						
SIA34_m	End date of interview – month	Numeric value between 1-12 or Missing			X	
SIA34_d	End date of interview – day	Numeric value between 1-31 or Missing				
SIA34_y	End date of interview – year	4-digit numeric value or Missing				
SIA35	End time of interview	Time			X	
SIA36	Interviewer's comments	Free text			X	
SIA37	Supervisor's comments	Free text			X	

Form RIHC – Sample Questions for a Routine Immunization Health Centre Form

Item	Question	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
<i>Header, to be printed at the top of the form</i>						
RIHC01	Stratum ID number*	Number		X		HH01 HM01 RI01 SIA01 TT01
RIHC02	Stratum name*	Free text		X		HH02 HM02 RI02 SIA02 TT02
RIHC03	Cluster ID number*	Number		X		HH03 HM03 RI03 SIA03 TT03
RIHC04	Cluster name*	Free text		X		HH04 HM04 RI04 SIA04 TT04
RIHC05	Interviewer number	Number			X	
RIHC06	Interviewer name	Free text			X	
RIHC07	Supervisor number	Number			X	
RIHC08	Supervisor name	Free text			X	
RIHC09	Name of health facility	Free text			X	
RIHC10	Latitude	##.#####			X	
RIHC11	Longitude	##.#####			X	
RIHC12	Arrival date at health facility	Date			X	
RIHC13	Start time of records review	Time			X	
<i>* Pre-printed on the form, if possible</i>						

<i>Main body of form; one entry per respondent</i>						
RIHC14	Household ID	This should be a string type variable		X		HH14 HM09 RI11 SIA11 TT11 TTHC14

Item	Question	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RIHC15	Individual number of child (from form HM)	Number		X		RI12 SIA12 TT13
RIHC16	Name of child (full name)	Free text			X	RI17
RIHC17	Name of child's father	Free text			X	RI18
RIHC18	Name of child's mother	Free text			X	RI19
RIHC19	Sex of child	1. M 2. F			X	RI20 HM27
RIHC20	Name of head of household	Free text			X	HH19 HM10
dob_date_card_m	Child's Month of birth (according to card seen in home (preferred) or caregiver recall on HH listing)	Numeric value between 1-12 or Missing			X	dob_date_card_m (From RI dataset) Included in this dataset for purpose of matching the child
dob_date_card_d	Child's Day of birth (according to card seen in home (preferred) or caregiver recall on HH listing)	Numeric value between 1-31 or Missing			X	dob_date_card_d (From RI dataset) Included in this dataset for purpose of matching the child
dob_date_card_y	Child's Year of birth (according to card seen in home (preferred) or caregiver recall on HH listing)	4-digit numeric value or Missing			X	dob_date_card_y (From RI dataset) Included in this dataset for purpose of matching the child
dob_date_register_m	Child's Month of birth (according to register)	Numeric value between 1-12 or Missing		X		

Item	Question	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
dob_date_register_d	Child's Day of birth (according to register)	Numeric value between 1-31 or Missing		X		
dob_date_register_y	Child's Year of birth (according to register)	4-digit numeric value or Missing		X		
<p><i>Note: The following 4 variables need to be created for each DOSE within the survey.</i></p> <p><i>Replace <dose> with vaccine name or abbreviation of vaccine name so it stays within 5 characters. (Example: penta, opv, rota, pcv,)</i></p>						
<dose>_date_register_m	Month DOSE received as recorded on register document	Numeric value between 1-12 or Missing	Skip tick if able to fill any dose date component	X		
<dose>_date_register_d	Day DOSE received as recorded on register document	Numeric value between 1-31 or Missing	Skip tick if able to fill any dose date component	X		
<dose>_date_register_y	Year DOSE received as recorded on register document	4-digit numeric value or Missing	Skip tick if able to fill any dose date component	X		
<dose>_tick_register	Tick mark recorded on register document or date DOSE received illegible.	1. Yes 2. No	This should be populated with a 1 if there is any indication the dose was received but there is no date or the date is not legible	X		

Item	Question	Responses	Skip	Required by RI Indicators	Not Explicitly Used by RI VCQI Indicators	Same Variable Across VCQI Datasets
RIHC59	Photo file name(s) of digital photo(s) or scan(s) of the EPI register	Free text			X	

Footer, to be printed at the bottom of the form						
RIHC60_m	End date of interview – month	Numeric value between 1-12 or Missing			X	
RIHC60_d	End date of interview – day	Numeric value between 1-31 or Missing				
RIHC60_y	End date of interview – year	4-digit numeric value or Missing				
RIHC61	End time of interview	Time			X	
RIHC62	Interviewer's comments	Free text			X	
RIHC63	Supervisor's comments	Free text			X	

Form TTHC – Sample Questions for a Maternal Tetanus Health Centre Form

Item	Question	Responses	Required by TT Indicators	Not Explicitly Used by TT VCQI Indicators	Same Variable Across VCQI Datasets
<i>Header, to be printed at the top of the form</i>					
TTHC01	Stratum ID number*	Number	X		HH01 HM01 RI01 RIHC01 SIA01 TT01
TTHC02	Stratum name*	Free text	X		HH02 HM02 RI02 RIHC02 SIA02 TT02
TTHC03	Cluster ID number*	Number	X		HH03 HM03 RI03 RIHC03 SIA03 TT03
TTHC04	Cluster name*	Free text	X		HH04 HM04 RI04 RIHC04 SIA04 TT04
TTHC05	Interviewer number	Number		X	
TTHC06	Interviewer name	Free text		X	
TTHC07	Supervisor number	Number		X	
TTHC08	Supervisor name	Free text		X	
TTHC09	Name of health facility	Free text		X	
TTHC10	Latitude	##.#####		X	HH16 HM11 RI15 RIHC10 SIA15 TT14
TTHC11	Longitude	##.#####		X	HH17 HM12 RI16 RIHC11 SIA16 TT15
TTHC12	Start date of record check	Date		X	
TTHC13	Start time of record check	Time		X	
<i>*Pre-printed on the forms, if possible</i>					

<i>Main body of the form, one entry per respondent</i>					
TTHC14	Household ID	This should be a string type variable	X		HH14 HM09 RI11 RIHC14 SIA11 TT11
TTHC15	Individual number of mother (from form HM)	Number	X		HM22 TT12 If primary caregiver same as: RI14 If individual being surveyed same as: RI13 SIA13
TTHC16	Individual number of child (from form HM)	Number		X	RI12 RIHC15 SIA12 TT13
TTHC17	Name of mother (full name)	Free text		X	RI19 RIHC18
TTHC18	Name of head of household	Free text		X	HH19 HM10 RIHC20
TTHC19	Mother's date of birth (according to HH listing)	Date		X	HM28
TTHC20	Mother's date of birth (according to register)	Date		X	
TTHC21	TT1 (according to register)	Date (may record using TTHC21_m and TTHC21_d and TTHC21_y or may store the complete date in TTHC21. If the date on the card is incomplete or	X		

		illegible, set the value of TTHC21 to 1.			
63	TTHC22	TT2 (according to register)	Date (may record using TTHC22_m and TTHC22_d and TTHC22_y or may store the complete date in TTHC22. If the date on the card is incomplete or illegible, set the value of TTHC22 to 1.	X	
	TTHC23	TT3 (according to register)	Date (may record using TTHC23_m and TTHC23_d and TTHC23_y or may store the complete date in TTHC23. If the date on the card is incomplete or illegible, set the value of TTHC23 to 1.	X	

TTHC24	TT4 (according to register)	Date (may record using TTHC24_m and TTHC24_d and TTHC24_y or may store the complete date in TTHC24. If the date on the card is incomplete or illegible, set the value of TTHC24 to 1.	X		
TTHC25	TT5 (according to register)	Date (may record using TTHC25_m and TTHC25_d and TTHC25_y or may store the complete date in TTHC25. If the date on the card is incomplete or illegible, set the value of TTHC25 to 1.	X		
TTHC26	TT6 (according to register)	Date (may record using TTHC26_m and TTHC26_d	X		

		and TTHC26_y or may store the complete date in TTHC26. If the date on the card is incomplete or illegible, set the value of TTHC26 to 1.			
TTHC27	Photo file name(s) of digital photos or scans of the register record	Free text		X	

<i>Footer, to be printed at the bottom of the form</i>					
TTHC28_m	End date of interview – month	Numeric value between 1-12 or Missing		X	
TTHC28_d	End date of interview – day	Numeric value between 1-31 or Missing			
TTHC28_y	End date of interview – year	4-digit numeric value or Missing			
TTHC29	End time of interview	Time		X	
TTHC30	Interviewer's comments	Free text		X	
TTHC31	Supervisor's comments	Free text		X	

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Form CM – Cluster-level Metadata

VCQI requires a “Cluster-level Metadata” or “CM” dataset with the following variables to describe the individual clusters. For some projects it might include additional variables.

Variable	Label	Responses	Required to Run Indicators				Not Explicitly Used by VCQI Indicators	Same Variable Across VCQI Datasets
			RI	SIA	TT	DESC01		
HH01	Stratum ID number	Number	X	X	X	X		HH01 (HH Dataset) HM01 RI01 RIHC01 SIA01 TT01
HH02	Stratum name	Free text	X	X	X	X		HH02 (HH Dataset) HM02 RI02 RIHC02 SIA02 TT02
HH03	Cluster ID number	Number	X	X	X	X		HH03 (HH Dataset) HM03 RI03 RIHC03 SIA03 TT03
HH04	Cluster name	Free text	X	X	X	X		HH04 (HH Dataset) HM04 RI04 RIHC04 SIA04 TT04
province_id*	Province ID number (VCQI will later rename this level2id)	Number					X	level2id
expected_hh_to_visit	Number of HH survey team expects to visit in this cluster (or cluster segment)	Number				X		
urban_cluster	Is the cluster urban?	1=yes; 0 = no Or we might say: 1=Urban 0=Rural					X	
psweight_1year**	Post-stratified sampling weight for one-year cohorts (RI & TT)	Number	X		X			
psweight_sia**	Post-stratified sampling weight for SIA cohort	Number		X				

- * The CM dataset has the important job of defining which Level 3 strata (values of HH01) are nested within which Level 2 strata (values of province_id). Every rows in CM with the same value of HH01 should also have the same value of province_id.
- ** Note that VCQI assumes that every respondent in the same cluster will have the same post-stratified weight. This is commonly but not universally true. If the survey weights can vary within a cluster for your survey, code the variables psweight_1year and psweight_sia with missing values in the CM dataset. The weights can be saved directly with the SIA, TT or RI datasets but must use a name other than psweight. The user will need to insert extra lines into the VCQI control program to rename the weight variable to psweight after the analysis dataset is assembled, but before the analyses in Block F. Alternatively, you can store the weights in a small dataset and merge it with the analysis dataset before Block F executes. Contact the VCQI development team (GetVCQIHelp@biostatglobal.com) for details on how to use VCQI with weights that vary within a cluster.

Datasets to Specify Stratum Names and Table Listing Order

To run VCQI, the user must construct several small datasets that hold metadata naming the survey strata and specifying what order they should appear in VCQI output tables. Sometimes the preferred order is alphabetical; sometimes it is not. The user specifies their wishes unambiguously with the files that are described below. Some surveys will have meaningful strata at levels 1 and 2 and 3; others will only have level3 or level 2 & 3 strata. Regardless of which levels are meaningful for your survey, you must specify datasets to hold: level1name, level2names, level2order, level3names, and level3order. The text below holds guidance for what to specify for levels that are not relevant for your survey. See the *VCQI User's Guide* Annexes A & B for more details and several examples. Note that regardless of the number of levels of strata in your survey, you are required

Level	What it Represents	Is the Name Dataset Required?	Is the Order Dataset Required?
1	All of the survey strata aggregated together; sometimes this represents the entire country	Yes	No, because there is always only one level 1 stratum.
2	Sub-national aggregates of sampling strata; sometimes this represents provinces	Yes, even if there is only one level 2 stratum	Yes
3	The main sampling strata in the survey; in VCQI examples, level 3 strata are sometimes health districts or states	Yes, even if there is only one level 3 stratum	Yes
4	Subgroups – usually demographic such as male/female or urban/rural, etc.	Level 4 strata are optional in the Stata version but required in the R version. Level 4 names and order are specified in a single LAYOUT dataset. See Annex B of the <i>VCQI User's Guide</i>	

Level1name Dataset

Just one row with two columns. The level1name variable indicates the name will be listed in tables if the user asks for level 1 output. If level 1 is not relevant to your work, simply call it “Level 1”.

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
level1id	Stratum ID of level1 population. Should be 1.	Numeric value	X	X	X	X
level1name	Name of level1 population. Usually “National” or the name of the country where the survey was conducted.	String	X	X	X	X

Level2names Dataset

One row per level 2 stratum. The names specified in this dataset will be used in tables if the user asks for level 2 output. If level 2 is not relevant to your work, identify a single level2 stratum with level2id = 1 and level2name = "Level 2".

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
level2id	Stratum ID of level2 population	Numeric	X	X	X	X
level2name	Name of level2 population	String	X	X	X	X

Level2order Dataset

One row per level 2 stratum. This indicates the relative order that the user wants the tables to use when listing level 2 strata.

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
level2id	Stratum ID of level2 population	Numeric	X	X	X	X
level2order	Order for level2 id to appear in VCQI results.	Numeric value 1-number of rows in dataset. Does not need to be the same as the ID number	X	X	X	X

Level3names Dataset

One row per level 3 stratum. These names will be used in tables if the user asks for level 3 results. Every survey has at least one meaningful level 3 stratum. List the ID and the name for each stratum in this dataset.

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
level3id	Stratum ID of level3 population	Numeric	X	X	X	X
level3name	Name of level3 population	String	X	X	X	X

Level3order Dataset

One row per level 3 stratum. The level3order stipulates the order in which strata should appear in tables.

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
level3id	Stratum ID of level3 population	Numeric value 1- number of rows in dataset	X	X	X	X
level3order	Order for level3 ID to appear in VCQI results	Numeric value 1-number of rows in dataset. Does not need to be the same as the ID number	X	X	X	X

Level4 Layout Dataset

This dataset is only required if LEVEL4 output is requested and you want to specify the layout through the VCQI_LEVEL4_SET_LAYOUT. This dataset can also be created automatically by VCQI by providing a list of the names of stratification variable(s) in the global VCQI_LEVEL4_SET_VARLIST and leaving the global VCQI_LEVEL4_SET_LAYOUT blank (NULL in the R version). If the user is using the R version of VCQI and wants to have one level nested within another level, then the user must define a layout dataset. See Annex B in the *VCQI User's Guide* for more instructions and examples.

Variable	Label	Responses	Required to Run Indicators			
			RI	SIA	TT	DESC01
order	Row order for level 4 results	Unique numeric value ranging from 1 up to the number of rows in dataset	X	X	X	X
label	Row label	String	X	X	X	X
condition	Criteria for including in this row of output	String – a valid conditional clause for a Stata/R <i>if</i> statement	X	X	X	X
rowtype	Indicates if the row is a label for the output or data value or a blank row to make the table look nice	String that takes one of three values: - LABEL_ONLY - DATA_ROW - BLANK_ROW	X	X	X	X

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Names of RI Dose-related Variables

Vaccination evidence for each RI dose will be stored using several variables. For example, evidence concerning whether the child received measles-containing vaccine might be stored in the following variables:

- | | |
|-----------------------|-------------------------|
| a) In the RI dataset: | b) In the RIHC dataset: |
| a. mcv_history | a. mcv_date_register_m |
| b. mcv_date_card_m | b. mcv_date_register_d |
| c. mcv_date_card_d | c. mcv_date_register_y |
| d. mcv_date_card_y | d. mcv_tick_register |
| e. mcv_tick_card | |

VCQI is somewhat flexible concerning dose names that form the prefixes of these variables. The examples above start with a dose name prefix of *mcv* which stands for “measles containing vaccine”. They could just as easily use a prefix *mr* to stand for “measles-rubella” or *sar* for the Spanish “*sarampión*” or *rouge* for the French “*rougeole*”. Any short text string is okay in the prefix.

Please note that VCQI is not at all flexible about the remainder of the variable name! You must name the variables using the lower-case phrases listed in the examples above: _history, _date_card_m, etc.

Here are some guidelines for dose naming conventions in VCQI.

1. For single-dose antigens, the name should be no more than six characters and the variable names should use lower-case letters. Some common choices for surveys conducted in English include: *bcg*, *hepb0*, *mcv*, *mr*, *ipv*, and *yf*.
2. For multi-dose antigens, VCQI currently knows how to handle two- and three-dose antigens for the Stata version and up to nine-dose antigens for the R version. Those dose names must use a root string or word that is five characters or less, because VCQI will append a number that indicates the dose number. Examples include: *penta1*, *penta2*, *penta3*, *mcv1*, *mcv2*, *hepb1*, *hepb2*, *hepb3*. Note that *pneumo* is one character too long to be a prefix for a multi-dose antigen.
3. Two-dose antigens use the suffixes 1 and 2. Three-dose antigens use 1, 2 and 3. Other multi-dose antigens should be named in similar way if the user is using the R version.
4. The variables that encode vaccination evidence from card, from history and from register must all use the same prefix. And the doses in a series must all use the same prefix.
5. Birth doses are considered to be single-dose antigens. Common choices in English include *bcg*, *opv0*, and *hepb0*.
6. Single dose antigens may have a number in their name. It is okay to use *hepb0* or *mcv1* as single-dose prefixes.
7. The only hard-coded dose name in VCQI is *bcg*. If the RI survey asks whether the interviewer observed the child’s BCG scar, then that response should be coded into a variable named *bcg_scar_history* and the dose prefix should be *bcg*. When VCQI calculates crude coverage, it considers evidence from card or recall (history) or register or from the BCG scar.

8. The dose abbreviations will appear in column names of VCQI output, so select something that will be meaningful in the country where the survey is conducted.
9. The prefix that is used in the dose evidence variable names must be the same as the prefix used in Blocks D and F of the VCQI control program to specify the vaccination schedule and to specify which doses should be analyzed by VCQI. See the *VCQI User's Guide* for more information on the control program.

Breaking Dates Into Month, Day and Year Components

VCQI requires that dates be provided in three component variables ending with _m, _d, and _y.

For doses recorded by caregiver recall, or “history”, VCQI expects to find a yes/no variable named <dose>_history where 1 = yes and 2 = no.

For doses recorded from the home-based record, or “card”, VCQI expects to find four variables per dose:

- If the dose was recorded with a date, then <dose>_date_card_m, <dose>_date_card_d and <dose>_date_card_y
- If the dose was recorded with a tick, then <dose>_tick_card (coded 1=yes and 2 or missing = no)

For doses recorded at the health center or health facility, from the EPI register, VCQI expects to find four variables per dose:

- If the dose was recorded with a date, then <dose>_date_register_m, <dose>_date_register_d and <dose>_date_register_y
- If the dose was recorded with a tick, then <dose>_tick_register (coded 1=yes and 2 or missing = no)

For date of birth, VCQI expects to find the following:

- If a household interview was completed, VCQI expects to see: dob_date_history_m, dob_date_history_d, and dob_date_history_y
- If a card was seen, VCQI expects to see: dob_date_card_m, dob_date_card_d, and dob_date_card_y
- If a register was seen then VCQI expects to see: dob_date_register_m, dob_date_register_d, and dob_date_register_y

If you are trying to make a dataset compatible with VCQI and the date of birth, of vaccination, or of the interview are stored in a variable that holds the entire date, you will need to conduct a preprocessing step to generate variables with the _m, _d, and _y suffixes. That might be accomplished with Stata code like this:

```
*****
* Code the _m _d _y of child's DOB as reported by caregiver
* The date of birth reported by the caregiver is
* held in a variable named child_dob_from_caregiver.
```

```
gen dob_date_history_m = month(child_dob_from_caregiver)
gen dob_date_history_d = day(child_dob_from_caregiver)
gen dob_date_history_y = year(child_dob_from_caregiver)
*****
```

Or with R code like this:

```
#####
# Code the _m _d _y of child's DOB as reported by caregiver
```

```
# The date of birth reported by the caregiver is
# held in a variable named child_dob_from_caregiver

dplyr::mutate(
  dob_date_history_m = lubridate::month(child_dob_from_caregiver),
  dob_date_history_d = lubridate::day(child_dob_from_caregiver),
  dob_date_history_y = lubridate::year(child_dob_from_caregiver))
#*****
```

Coding Caregiver Recall from Survey Data

If the caregiver recall data for a multi-dose antigen is stored in variables that code whether the child had any of that dose, and if so, how many, then you will need to code a preprocessing step to generate a single recall variable (<dose>_history) for each dose where 1=yes and 2=no or do not know. That might be accomplished using Stata code like this:

```
*****
* Code pental_history and penta2_history and penta3_history
*
* In the variables from the survey,
* Received *ANY* Penta is stored in any_penta (1=yes, 2=no, 99=do not know)
* and
* HOW MANY Penta received is stored in how_many_penta
*(missing if any_penta = 2 or 99; otherwise = positive integer;
* 99 = do not know if any_penta = 1)

gen      pental_history = 2 // default to no
replace pental_history = 1 if any_penta == 1 & ///
    how_many_penta >= 1 & how_many_penta < 99 & !missing(how_many_penta)

gen      penta2_history = 2
replace penta2_history = 1 if any_penta == 1 & ///
    how_many_penta >= 2 & how_many_penta < 99 & !missing(how_many_penta)

gen      penta3_history = 2
replace penta3_history = 1 if any_penta == 1 & ///
    how_many_penta >= 3 & how_many_penta < 99 & !missing(how_many_penta)

* Give credit for a single dose if the caregiver says
* the child received some penta but they do not know how many

replace pental_history = 1 if any_penta == 1 & how_many_penta == 99

label define yesno12 1 "Yes" 2 "No", replace
label values pental_history penta2_history penta3_history yesno12

* If the caregiver says they do not know whether the child received
* any penta (any_penta == 99), then the conservative choice is to
* leave _history = 2 (no) for all three doses.
* The code above does just that.
*****
```

Or with R code like this:

```
# ****
# Code pental_history and penta2_history and penta3_history
#
# In the variables from the survey, received *ANY* Penta is stored in
# any_penta (1=yes, 2=no, 99=do not know) and
# HOW MANY Penta received is stored in how_many_penta (missing if any_penta =
# 2 or 99; otherwise = positive integer; 99 = do not know if any_penta = 1)

dplyr::mutate(
```

```

pental_history = 2, # default to no
pental_history = ifelse(any_penta == 1 & how_many_penta >= 1 &
                      how_many_penta < 99 & !is.na(how_many_penta) ,
                      1, pental_history),
penta2_history = 2,
penta2_history = ifelse(any_penta == 1 & how_many_penta >= 2 &
                      how_many_penta < 99 & !is.na(how_many_penta) ,
                      1, penta2_history),
penta3_history = 2,
penta3_history = ifelse(any_penta == 1 & how_many_penta >= 3 &
                      how_many_penta < 99 & !is.na(how_many_penta) ,
                      1, penta3_history),
# Give child credit for a single dose if the caregiver says the child
# received some penta but they do not know how many
pental_history = ifelse(any_penta == 1 & how_many_penta == 99,
                      1, pental_history))
# ****

```

Accompanying Excel Spreadsheet

There is an Excel spreadsheet named “VCQI FVL - Required Variables Spreadsheet v1.0.xlsx” that accompanies this document. It holds one worksheet or tab for each VCQI indicator and lists the survey variables that are required to calculate that indicator. You may find it helpful to examine the sheets for indicators that interest you to be sure you have incorporated all required variables into your datasets.

Other Challenges Making Data Compatible with VCQI

The VCQI software developers at Biostat Global Consulting have converted dozens of datasets to be compatible with VCQI. If you have a question about how to accomplish this task, email

GetVCQIHelp@biostatglobal.com.