World Scabies Program

An initiative of the Murdoch Children's Research Institute

Monitoring and Evaluation Plan

for

Mass Drug Administration Programs for Scabies Control

2021

Suggested citation. Monitoring and Evaluation Plan for Mass Drug Administration Programs for Scabies Control, 2021. World Scabies Program

General Disclaimer: This plan has been developed by the World Scabies Program specifically for scabies mass drug administration programs. As this is the first M&E plan for a scabies MDA programs it is anticipated that the plan will evolve with ongoing experience in implementing at national scale and through information from research activities on scabies control.

Acknowledgements: This document has been prepared by Adam Bartlett, Clare Dyer, John Kaldor, Sarah Andersson, Andrew Steer, Daniel Engelman, Matthew Parnaby and Lucia Romani. Contributions were made by Margot Whitfeld, Asha Bowen, Michael Marks, Oliver Sokana, Josefa Koroivueta, Aya Yajima, Merelesita Rainima-Qaniuci and Susana Vaz Nery.

Contents

Glossary

Evaluation unit (EU)	geographically defined areas for assessment of disease prevalence which can comprise multiple implementation units, or part of an implementation unit
Innovative and intensified disease management (IDM)	individual case detection and treatment of scabies through health services incorporating treatment of household contacts
Mass drug administration (MDA)	administration of medications to whole populations irrespective of individual disease status and without prior diagnosis
Prevalence of infection	The proportion, expressed as a percentage, of a population who has the infection
Prevalence survey	Survey of a representative sample of individuals within a specified EU to determine disease prevalence
Rapid assessment	Survey based on a convenience sample to provide crude estimates of disease burden
Sentinel site	A clinical or community location, selected in order to collect disease prevalence data on an ongoing basis to monitor the success of the programme

1. Introduction

1.1 Background

This document outlines a plan for monitoring and evaluation (M&E) of scabies mass drug administration programs. The document is designed to complement the mass drug administration (MDA) implementation plan and does not include an M&E plan for control programs using innovative and intensified disease management (IDM) strategy (to be added in the future). The plan has been developed to support programs planned for Fiji and Solomon Islands under the World Scabies Program (WSP) and to provide the basis of an M&E plan for future scabies control programs globally.

As this is the first M&E plan developed specifically for scabies control programs it draws on recommendations set forth by the World Health Organization (WHO) informal consultation on scabies control in 2019 (1), M&E plans developed for other neglected tropical diseases (NTDs) and the experience of previous scabies control initiatives. This plan will evolve with ongoing experience in implementing large-scale scabies control programs and data obtained through research activities on scabies control. Specific M&E Plans for Fiji and the Solomon Islands in **Appendix 1 and 2** respectively.

This document is a guide for managers of public health control programs for scabies that are considering implementing MDA. The M&E plan provides options for program managers to select and adapt activities that are suitable for their program and country context. It is not expected that all activities are necessary in all circumstances.

1.2 Mass drug administration for scabies control

The current recommendation, based on an informal consultation conducted by WHO, is that public health control strategies should be considered in areas with high burden of scabies and its complications, and particularly in areas with limited access to health care. The consensus is that MDA should be considered where the community prevalence of scabies infestation is ≥ 10% of the whole population. The recommended protocol for MDA to control scabies is two doses of ivermectin given orally 7 to 14 days apart at a dose of 200 mcg/kg body weight. Ivermectin is administered to everyone who does not have contra-indications to ivermectin. Contraindications currently include children weighing < 15 kg, pregnant and lactating women within 1 week of giving birth, sick and infirmed people and people with previous hypersensitivity to ivermectin. 5% topical permethrin is given for groups in which ivermectin is contraindicated. In areas with a prevalence of 2-10%, an alternative strategy, innovative and intensified disease management (IDM), is recommended for clinical case detection and treatment of close contacts. M&E for IDM is not addressed in this document and will be added in future versions (1).

1.3 Overview of M&E plan

The monitoring and evaluation (M&E) plan is designed to measure specific process, performance and impact indicators to answer the following questions:

- **Process indicators:** Are the program's activities taking place successfully?

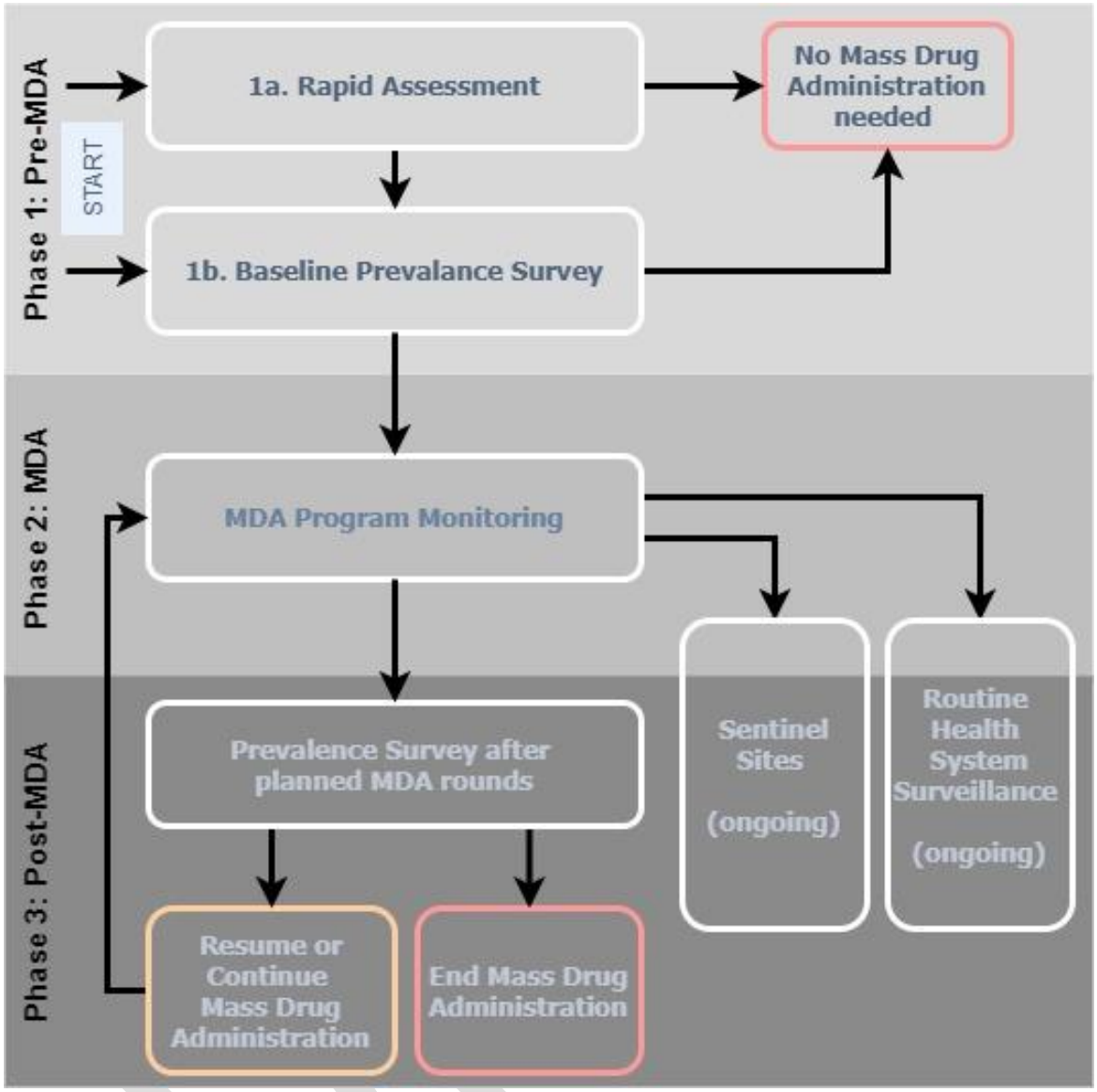
- **Performance indicators:** Is the program reaching the target population?
- **Impact indicators:** Is the program improving health outcomes as intended?

The M&E activities and indicators are embedded throughout the phases of the scabies MDA control program. **Box 1** summarises the key M&E indicators and how they will be measured at each stage of implementation.

TABLE 1: Overview of key M&E indicators

Program Phase	Aim	Key M&E Indicators	Measured
PHASE 1a: Pre-MDA	Determine whether scabies is a public health problem	**A.** Disease prevalence	• Rapid assessment
PHASE 1b: Pre-MDA	Determine choice of control strategies	**B.** Disease prevalence	• Baseline prevalence survey
PHASE 2: MDA	Ensure safe and effective implementation of MDA	**C.** Treatment coverage	• Treatment registers • Summary reports of drug administration • Coverage survey
		D. Serious Adverse Events (SAEs)	• SAE reporting sheets
		E. Process indicators	• Evaluation of staff training program • Community sensitisation key informant interviews
PHASE 3: Post MDA	Evaluate effectiveness of control strategy and need for modifications	**F.** Disease prevalence	• Prevalence survey 9-15 months after the final planned round of MDA
		G. Disease prevalence	• Reporting from sentinel sites
		H. Episodes of care	• Reporting routine health facility data on disease

Figure 1: M&E Mass Drug Administration for Scabies Workflow



2. Phase 1: Pre-MDA

The first programmatic step is to assess the disease situation and identify if and where MDA may be required. The purpose is to guide decision making on which specific control strategies, such as MDA or IDM, to implement based on the disease burden.

Disease burden should be measured as the prevalence of disease at a whole of community level or within specific target populations (e.g., school-age children). Based on the estimated disease prevalence the program can identify areas that exceeds the threshold for different control strategies. WHO provisional recommendations for scabies interventions are as follows, scabies prevalence ≥10% (hyperendemic) MDA should be undertaken until it falls below 2%; scabies prevalence 2-9% (mesoendemic), either MDA or IDM should be considered (1).

Burden of disease estimates for M&E in scabies control programs should include scabies and impetigo. Monitoring of other health outcomes, such as skin and soft tissue infections, invasive bacterial infections, rheumatic fever, and quality of life measures (at an individual or household level) can be considered if resources allow, but are not included in this M&E plan.

Public health activities for neglected tropical diseases, including M&E, are typically undertaken within geographically defined evaluation units (EUs). For logistical and epidemiological reasons, an EU is generally in the population range of 100,000 - 250,000, and ideally correspond to a or multiple administrative units for health service provision that provided they can be meaningfully grouped and have similar characteristics. If the distribution of disease is considered highly focal or there is considerable heterogeneity in populations or settings, a lower administrative level may also be considered for the EU. Geographic or demographic features such as islands or urban areas may also influence the choice of EUs.

Two methods are recommended for estimating disease prevalence: 1) rapid assessment to generate approximate estimates of disease burden and identify if mass treatment strategies should be considered; and 2) prevalence surveys to refine the estimates, confirm conclusions reached by rapid assessment and provide a baseline for longitudinal impact assessment.

2.1 Rapid Assessment

AIM: Determine whether scabies is a public health problem

KEY INDICATOR: Disease prevalence

MEASURED: Rapid assessment

Rapid assessment is a simplified way to identify if scabies is a public health problem and if control strategies should be considered. A rapid assessment is designed to provide crude estimates of disease burden with the purpose of determining if scabies is a problem that likely needs to be addressed by control strategies. The following methodology is based on the rapid assessment process used for monitoring and evaluating trachoma (3). During

rapid assessment, program managers and implementation partners review existing information on scabies in regions of interest, via routine administrative reports from health services, discussion with key informants and undertake direct observations through field work to collect limited prevalence data.

Rapid assessment uses convenience sampling and should focus on communities within the EU that are considered likely to have prevalence above the 10% threshold. Communities for rapid assessment field work should be prioritised if one or more of the following criteria are met:

- Suspicion of scabies endemicity based on a previous review, or analogy with areas that have direct evidence and comparable sociodemographic, environmental, and other relevant characteristics
- Evidence of scabies from previous clinic reports or key informants
- Poor access to primary health care

Attention may need to be given to particularly sub-populations defined by ethnicity or other characteristics, such as isolated communities, minorities and other marginalised, mobile, or migrant population groups or tribes.

In accordance with the rapid assessment protocol for trachoma, 3 to 7 communities should be selected per EU, targeting 50 residents per community. Within each EU, this equates to examination of 150 to 350 individuals. More communities can be selected if the initial survey does not provide adequate information to inform decision making. Information should be gathered on the selected communities such as population size, housing conditions and available health care facilities. Within each community, 10-15 households (to enable examination of 50 residents) should be selected, in areas with evidence of poor housing/overcrowding and in liaison with local community leader should be examined for clinical evidence of scabies.

A simplified method for diagnosing scabies is recommended for rapid assessment using the following criteria: *identification of typical lesions and distribution of scabies, with or without itch* (1). Examination of the arms and legs, without additional visualisation techniques or skin scrapings is sufficient. Impetigo need not be measured during rapid assessment. Skin assessment should be conducted by nurses or health workers who have completed a training program. The proportion of individuals diagnosed with scabies among those examined is then calculated to give an estimate of the prevalence in the EU and this is used to indicate if further assessment is required.

2.2 Baseline prevalence survey

AIM: Determine choice of control strategies

KEY INDICATOR: Disease prevalence

MEASURED: Baseline prevalence survey

A baseline prevalence survey can be conducted prior to MDA to (a) more accurately determine the prevalence of scabies and impetigo, (b) determine the appropriate control

strategies (e.g., MDA or IDM), and (c) provide a baseline to monitor the impact of control strategies. A baseline prevalence survey could be omitted if a program manager and stakeholders determine that the rapid assessment has provided enough information for decision-making regarding scabies control strategies.

2.2.1 Sampling strategy for baseline prevalence survey

As it is not practical to examine the entire EU population for scabies, a survey should be conducted on a sample of the population, with sample size sufficient to provide an accurate estimate of the prevalence in the overall EU population. The recommended approach is a two-stage random cluster-sampled survey; (i) first-sampling-stage clusters is a selection of villages, informal settlements or the local equivalent; and (ii) second-sampling-stage clusters are a selection of households. First stage clusters refer to populations comprising 100–300 individuals living in the same geographic location, whether villages (rural settings), informal settlements or urban settings.

In order to calculate the number of individuals to be examined in each EU, the following formula is used:

Sample size required = $\frac{\mathbf{e} \times \mathbf{d}^2 \times \mathbf{b} \times (\mathbf{1}-\mathbf{b})}{\mathbf{c}^2}$

where

- **a.** planned cluster size (usually 100–300 individuals)
- **b.** expected prevalence of scabies in the EU
- **c.** absolute precision required (recommend ±20% of the point prevalence estimate)
- **d.** alpha risk (risk of true prevalence being outside confidence interval) expressed as z score (recommend 1.96)
- **e.** expected design effect to take account of clustering (recommend design effect of 2)

The sample size should then be divided by **a**, the planned cluster size (usually 100–300 individuals) in order to calculate the number of clusters required. For example, a sample size of 2,000 would require 20 clusters of 100 individuals per cluster.

Within each EU a list of all villages and lower urban administrative units should be obtained, together with their population sizes. From this list, the first stage clusters should be randomly selected using a probability proportional to the population size of each village or lower urban administrative unit. This provides an equal opportunity for individuals to be surveyed irrespective of the size of the cluster they live in.

For second stage clusters, if possible, a list of households should be obtained, and the required number of households selected randomly from the list. For example, if examination of 200 individuals is planned for each cluster, this would mean visiting approximately 40 households in each cluster, based on an assumption of 5 individuals per household. If a list of households is not available systematic sampling can be used by mapping the village and numbering the houses). Survey teams should then conduct surveys at these selected households until the at least the required number of individuals have been surveyed.

Within each household, all residents should be invited to participate and give informed consent. Children aged <18 years should be invited to participate with the informed consent of their parent or guardian. Information should be recorded on:

- Demographic characteristics – name, age (or date of birth), sex
- Results of clinical assessment – history and skin examination features as per diagnostic criteria outlined in Appendix 1

Following the survey EUs should be categorised according to scabies prevalence (calculated as the proportion of those examined and found to have scabies) as:

- **Hyperendemic**: 10% or greater
- **Mesoendemic:** 2-9%
- **Hypoendemic:** under 2%
- **Uncertain**: scabies prevalence is undetermined and further surveys are required.

3. Phase 2: Mass drug administration

The second phase is monitoring the implementation of the MDA. Monitoring comprises of routine collection and analysis of data to optimise the delivery of services. Monitoring the implementation of the MDA requires collecting data on both processes and performance of the program.

- **Process indicators:** Are the program's activities taking place successfully?
- **Performance indicators:** Is the program reaching the target population?

The key indicator for performance of an MDA program is treatment coverage which measures if the program is successfully reaching the targeted population. Process indicators measure successful implementation of ongoing program activities and the amount of data that could be collected can be very large. Therefore, it is important to identify some key indicators to monitor in each program area. Three key program areas are usually monitored in MDA programs these include quality of training, community sensitization and medicine procurement and management.

3.1 Treatment coverage

AIM: Ensure effective implementation of MDA

INDICATOR: Treatment coverage

MEASURED: Treatment registers, summary reports of drug administration, coverage supervision survey

Monitoring of coverage is the best measure of how well MDAs are implemented. Managers must know how many people ingested the treatment and when and where it was offered. Accurate record-keeping of those who were offered treatment and whether they took the treatment allows accurate calculation of treatment coverage. Recording reasons for

treatment refusal can inform program modifications as needed, such as improving community advocacy messages.

Treatment coverage is defined as the proportion of individuals eligible or targeted for MDA in a specified population who receive and swallow the treatment indicated by the program. The current recommendation is that to achieve scabies control the program must reach ≥80% of the population with either ivermectin tablets or permethrin cream.

Program treatment coverage (%) =

Number of individuals in the target population receiving treatment via MDA x 100

Number of individuals targeted for treatment

To calculate coverage an accurate count of the population is needed prior to MDA. It should be obtained either through National Census Office or in consultation with leaders of communities and local health offices where MDA is to be implemented. The information should be retained and updated for subsequent rounds of MDA.

Current recommendations are that the entire population of an EU targeted for MDA is eligible and should receive either ivermectin tablets or permethrin topical cream. As such, the entire population of the EU is included as the denominator.

3.1.1 Registers and summary reports for treatment administration

The collection of information on people receiving MDA should be conducted at the site and time treatment is being provided. The minimum information to be collected on individuals offered treatment is sex and age-group.

- Number of people targeted
- Number of people to whom treatment is offered
- Number of people who were directly observed taking or applying treatment, by age and sex
- Number of people who refused
- Reasons for refusal

Appendix 4 provides a model tally sheet for recording information on individuals who receive treatment (5). When each MDA round is complete a summary report (example in Appendix 5) should be compiled and prepared by a higher level for the entire EU.

3.1.2 Coverage survey

A supervisor's coverage survey is typically conducted immediately following the MDA to assure quality of the data reported by MDA teams and to identify any areas where "mop-up" activities may be required to improve coverage. An example coverage supervision tool (CST) is included in appendix 6, this tool is used for other NTD MDA programs. The tool is used by supervisors who are required to interview a small number of key informants from within the community to validate reported coverage data and gather input on overall performance of the program (7).

3.2 Serious adverse event reporting

AIM: Ensure safe and effective implementation of MDA

INDICATOR: SAEs

MEASURED: SAE reporting sheets

Even though ivermectin is a widely used anti-parasitic medication that is known to be safe it is still critical to monitor for adverse events (AEs) during an MDA. AEs are defined as any medical occurrence presenting during or soon after treatment with a medicine that is not consistent with its therapeutic benefit. Serious adverse events (SAEs) are AEs that (a) are life-threatening or fatal, (b) cause or prolong hospital admission, (c) cause persistent incapacity or disability, or (d) concern misuse or dependence (5). Reporting AEs is generally considered a pharmacosurveillance requirement of MDA programs. Specific challenges to interpretation include limited data on background rates of health conditions (6). Reporting from programs should be restricted to SAEs (5).

Program managers should coordinate and collaborate with the national pharmacovigilance team (or committee) at the MDA planning stage, agree on the protocol and forms to report AEs/SAEs from the peripheral level up to the national level, including causality investigation in line the national guidelines, and develop the local protocol to report and manage AEs/SAEs that are appropriate for health worker skills, capacity of health care facilities and availability of supplies. This will ensure that most AEs/SAEs can be managed at the drug delivery level through primary health care workers or drug distributors, and referral networks are established for higher level care where necessary.

The NTD MDA report should include information on:

a) Number of SAEs reported by therapeutic agent and type of adverse event
b) Outcomes of causality assessments
c) Atypical or unusually large clusters of SAEs
d) Summary of other relevant investigations

3.4 Evaluation of MDA program implementation

AIM: Ensure safe and effective implementation of MDA

INDICATOR: Process indicators

MEASURED: Evaluation of staff training program, community sensitisation key informant interviews, medicine management

As mentioned, the three key program areas usually monitored in MDA programs these include training, community sensitization or awareness and medicine procurement and management. Following each round of MDA, a formal evaluation of the successes, challenges, and learnings from the preparation and delivery phases of the project should take place to inform adjustments to improve the implementation of the MDA during the

next round and to ensure any failure to achieve program outcomes is not because of poor implementation. The following are examples of key areas of program implementation to be monitored and recommended methods:

- **Training** – pre- and post-training assessment plus participant feedback forms can identify what information participants have learnt through the training process.
- **Community sensitisation and mobilisation** - monitoring for community sensitization gauges awareness of the MDA among community members to determine which community outreach strategies were useful. This can be collected during the key informant interviews conducted as part of the supervisor's coverage survey post MDA (mentioned above).
- **Medicine procurement and management -** tracks the movement of drugs from arrival at the national or central level all the way to arrival at lower-level health facilities ready for MDA implementation. A summary report should be prepared by district or sub-national health offices when unused medicines are returned to central level. This will include the following information:
    - Total quantities of treatment received from central store
    - Total quantities of treatment administered
    - Quantities of treatments not used – wasted or discarded
    - Quantities returned to the national store

4. Phase 3: Post-MDA

To evaluate whether a scabies control program has been successful it is necessary to assess the impact of the program on health outcomes and determine if MDA can be ceased. Consensus recommendations endorsed by the WHO advise MDA should be ceased once the prevalence of scabies is below 2% (1). It is recommended that a prevalence survey should be carried out after the final planned round of MDA to determine if prevalence has been reduced to below 2% and MDA can be ceased.

Monitoring of sentinel sites is optional but can be used at any stage of the program to monitor the effectiveness of interventions during the program. Ongoing surveillance through the routine health information system based on reporting of cases by primary health care workers will provide valuable information for longitudinal monitoring of disease burden especially post MDA.

4.1 Prevalence Survey

AIM: Evaluate effectiveness of control strategy and need for modifications

INDICATOR: Disease prevalence

MEASURED BY: Prevalence survey 9 to 15 months after final planned round of MDA

A prevalence survey should be carried out 9 to 15 months after the final planned round of MDA is completed using a two-stage randomised cluster design as per the baseline

prevalence survey. See **Section 3.1.2 "Baseline prevalence survey"** for details of the sampling strategy – sample size should be recalculated based on expected prevalence post MDA. The prevalence survey should be carried out in all EUs where MDA programs took place.

If the prevalence survey shows that scabies prevalence is still above 2%, the likely outcome is that further round(s) of MDA should be implemented.

4.2 Sentinel sites (subject to resource availability)

AIM: Evaluate effectiveness of control strategy and need for modifications
INDICATOR: Disease prevalence
MEASURED BY: Reporting from sentinel sites

If resources allow, programs should consider monitoring trends in disease burden before, during and after implementation of control strategies via selected sentinel sites. This approach allows the effectiveness of interventions to be assessed over time and identification of areas that may subsequently require additional intervention or the intervention to be strengthened, rather than waiting until the end of the control program. Depending on resources, at least one sentinel site, but ideally more, should be selected for each EU based on criteria outlined in Box 4 below. Data collected should include prevalence of scabies and impetigo, as well as other markers of disease burden (where possible) and collected intermittently between rounds of MDA.

BOX 4: Criteria for selecting sentinel sites for regular monitoring of intervention impact.

1. A sentinel site is either a cluster, or a clinic serving a cluster
2. The population accessed should be at least 100–300 individuals (consistent with cluster selection criteria described previously)
3. The site should be chosen from an area of anticipated higher prevalence as determined by baseline surveys
4. It should have a stable population

4.3 Routine Health System Surveillance

AIM: Evaluate effectiveness of control strategy and need for modifications
INDICATOR: Episodes of care
MEASURED: Reporting routine health facility data on disease

Implementation of a scabies control program should incorporate training of community-, district- and national-level personnel such that routine health system surveillance

strategies can be incorporated into existing health services and clear mechanisms are in place to permit regular reporting of scabies prevalence and initiation of future control strategies where needed.

In addition to prevalence surveys, surveillance for scabies and impetigo can also be implemented through routine health services. Health information systems could be modified to capture scabies and impetigo as specific entities for facility reporting on episodes of care. Routine reporting could be enhanced by strengthening skills for identifying scabies and impetigo at primary health care level. Over time if reporting indicates that scabies cases are increasing the Ministry of Health should re-evaluate the need to conduct prevalence surveys and initiate control strategies in accordance with current scabies control recommendations.

References

1. WHO Regional Office for the Western Pacific. WHO Informal Consultation on a Framework for Scabies Control - Meeting report, 2019. Available from: https://www.who.int/publications/i/item/9789240008069.

2. Engelman D, Yoshizumi J, Hay RJ, Osti M, Micali G, Norton S, et al. The 2020 International Alliance for the Control of Scabies Consensus Criteria for the Diagnosis of Scabies. The British journal of dermatology. 2020.

3. Negrel AD, Taylor, H.R., West, S. Guidelines for Rapid Assessment for blinding trachoma. WHO Deafness PoBa; 2001 2001. Contract No.: WHO/PBD/GET/00.8.

4. WHO. Monitoring drug coverage for preventative chemotherapy2010. Available from: https://www.who.int/neglected_diseases/preventive_chemotherapy/monitoring_evaluation_manual/en/.

5. WHO. Assuring safety of preventative chemotherapy interventions for the control of neglected tropical diseases, 2011. Available from: https://www.who.int/lymphatic_filariasis/resources/9789241502191/en/.

6. Caplan A, Zink A. Adverse event management in mass drug administration for neglected tropical diseases. Clin Ther. 2014;36(3):421-4.

7. WHO. Rapid Monitoring of Preventive Chemotherapy Coverage in Neglected Tropical Disease Programmes: Coverage Supervision Tool, 2016. Available from: https://www.ntdsupport.org/sites/default/files/uploads/docs/resources/CST%20Guidelines%20for%20Implementation_4NOV2016.pdf.

8. Lokuge B, Kopczynski A, Woltmann A, Alvoen F, Connors C, Guyula T, et al. Crusted scabies in remote Australia, a new way forward: lessons and outcomes from the East Arnhem Scabies Control Program. Med J Aust. 2014;200(11):644-8.

9. Andrews R, Kearns T. East Arnhem Regional Health Skin Project - Final Report. Darwin, Australia: Menzies School of Health Research and Cooperative Research Centre for Aboriginal Health; 2008. Report No.: ISBN 978-0-7340-4101-2.

10. Romani L, Koroivueta J, Steer AC, Kama M, Kaldor JM, Wand H, et al. Scabies and impetigo prevalence and risk factors in Fiji: a national survey. PLoS Negl Trop Dis. 2015;9(3):e0003452.

11. Romani L, Steer AC, Whitfeld MJ, Kaldor JM. Prevalence of scabies and impetigo worldwide: a systematic review. The Lancet Infectious diseases. 2015;15(8):960-7.

12. Mason DS, Marks M, Sokana O, Solomon AW, Mabey DC, Romani L, et al. The Prevalence of Scabies and Impetigo in the Solomon Islands: A Population-Based Survey. PLoS Negl Trop Dis. 2016;10(6):e0004803.

Appendix 1: Diagnostic criteria for prevalence surveys of scabies and impetigo

The diagnosis of scabies in prevalence surveys should be based on the 2020 International Alliance for the Control of Scabies (IACS) diagnostic criteria (**Box 1**). Criteria for diagnosing impetigo are also shown in **Box 2**.

BOX 1: Simplified 2020 International Alliance for the Control of Scabies (IACS) diagnostic criteria (2).

Confirmed scabies

– Typical lesions in a typical distribution and two history features

Suspected scabies

One of:

– Typical lesions in a typical distribution and one history feature

– Atypical lesions or atypical distribution and two history features

History features

- Itch
- Positive contact history

Note: A diagnosis of clinical or suspected scabies should be made only if differential diagnoses are considered less likely than scabies.

Scabies lesions should be counted and classified according to their number

- **Very mild** (1–2 lesions)
- **Mild** (3–10 lesions)
- **Moderate** (11–50 lesions)
- **Severe** (>50 lesions)

BOX 2: Diagnostic criteria for impetigo.

- Papular, pustular or ulcerative lesions surrounded by erythema, or with crusts, pus or bullae
- Scabies lesions with signs of secondary infection should also be classified as impetigo.
- Impetigo lesions should be counted and classified according to their number
  - **Very mild** (1–2 lesions)
  - **Mild** (3–10 lesions)
  - **Moderate** (11–50 lesions)
  - **Severe** (>50 lesions)

Appendix 2: Recommended M&E plan for Fiji program

The WSP have committed to delivering two annual rounds of MDA nationally based on published data estimating the prevalence of scabies across the four divisions in Fiji (Western, Central, Northern and Eastern) between 20 and 30% (10, 11).

Phase 1: Pre-MDA

Baseline prevalence survey

Given the detailed information available for scabies prevalence in Fiji the fieldwork aspect of the RA component is not required. As such, fieldwork for detailed mapping should proceed to confirm the baseline prevalence of scabies and impetigo prior to the commencement of the MDA program.

a. Sample size calculation

An estimated prevalence of 20% (with precision of 4%) will be used throughout the EUs to calculate the sample size in each EU.

The sample size required in each EU $= \frac{2 \times 1.96^2 \times 0.2 \times (1-0.2)}{0.04^2}$

$= 769$

sample size × non-response indicator (NRI) $= 800$

$= 800$ individuals

Sample / # of individuals $=1000 / 100$

$= 10$ first stage clusters per EU

b. Evaluation units

Each division consists of subdivisions that are further divided into medical areas, which are the standard administrative unit for the provision of health services. Given the relatively small size of medical areas, EUs have been designated at the subdivision and medical area level to permit comparable population sizes where possible (based on 2015 enumeration data). Given the island-based population of Fiji, there is variability in EU population size to maintain geographically meaningful EUs. The table below provides the designated EUs and their relative population size.

Subdivision	Population	Designated EU	Total EU Population
Central Division			
Suva	223,816	1 & 2	223,816
Serua/Namosi	30,587	3	159,998
Rewa	88,361		
Tailevu	21,578		
Naitasiri	19,472		
Western Division			

Lautoka/Yasawa	94,732	4	94,732
Nadi	98,198	5	98,198
Ba	56,450	6	180,892
Nadroga/Navosa	51,871		
Tavua	43,812		
Ra	28,759		
Northern Division			
Macuata	66,699	7	139,787
Cakaudrove	34,883		
Bua	17,032		
Taveuni	16,668		
Eastern Division			
Lomaiviti	16,187	8	39,103
Kadavu	10,978		
Lakeba	6,892		
Lomaloma	3,240		
Rotuma	1,806		
TOTAL	**936,526**		

c. Sampling strategy

For each of the EUs described in the table above, obtain a list of all the villages (rural settings) or lower administrative units (urban settings) on advice from MoH staff overseeing the relevant medical areas, together with their population size. Clusters, which are smaller community groupings that make up villages or lower administrative units, will be randomly selected using a probability proportional to the population size of the village or lower administrative unit.

Within each EU, 10 clusters will be randomly selected. For each cluster selected, households will be randomly chosen from a list and surveyed until 100 individuals have been assessed. It is anticipated a minimum of 20 households will be surveyed per cluster (based on an average of 4 to 5 residents in each household). Therefore:

- Sample per EU = 10 x 100 = 1,000 individuals surveyed
- Total national sample = 8 x 1,000 = 8,000 individuals surveyed.

Phase 2: MDA

During MDA, process and performance monitoring should be conducted as described in the main document. This includes:

- Evaluate success of staff training program (feedback forms, post-training assessment)
- Medicine management: Assess if supplies were distributed in adequate quantities to all areas, and unused doses returned
- Community awareness: Survey community to understand acceptance and perception of MDA and reach of community awareness campaign

Phase 3: Post MDA

Following the same approach described for baseline mapping, rural or urban clusters should be selected from each EU for an impact assessment 6-12 months after the second round of MDA is complete. The expected prevalence to be used for sample size calculations will be determined from unpublished and published data, routine administrative reports from health services, interviews with key informants, and direct observations at the community level. If scabies prevalence is still above 2%, then an additional round(s) of MDA or IDM should be implemented in these EUs until the prevalence is <2%. At the time of writing, monitoring trends in disease burden through sentinel sites throughout the course of the program is not planned, though maybe considered if resources permit.

Appendix 3: Recommended M&E plan for Solomon Islands program

The WSP have committed to delivering two annual rounds of MDA nationally based on published data estimating the prevalence of scabies in the Western Province of Solomon Islands as 20% (12).

Phase 1: Pre-MDA

Baseline prevalence survey

Given the information available for scabies prevalence in Solomon Islands the fieldwork aspect of the rapid assessment component is not required. As such, fieldwork for the baseline prevalence survey should proceed to confirm the prevalence of scabies and impetigo prior to the commencement of the MDA program.

a. Sample size calculation

An estimated prevalence of 20% (with precision of 4%) will be used throughout the EUs to calculate the sample size in each EU.

The sample size required in each EU $= \frac{2 \times 1.96^2 \times 0.2 \times (1-0.2)}{0.04^2}$

= 769

sample size × non-response indicator (NRI) = 800 x 1.2

= 1000 individuals

Sample / # of individuals = 1000 / 100

= 10 first stage clusters per EU

b. Evaluation units

There are nine provinces in Solomon Islands that consist of either single islands or island groups, with Honiara representing an additional administrative unit. Existing NTD programs are structured with EUs represented by the provinces and Honiara, with Temotu and Rennell & Bellona provinces combined. The table below provides the designated EUs and their relative population size (www.citypopulation.de).

Province	Population	Designated EU	Total EU Population
Central	32,170	1	102,590
Isabel	34,550		
Choiseul	35,870		
Guadalcanal	150,070	2	150,070
Honiara	88,500	3	88,500
Makira-Ulawa	54,000	4	83,120
Rennell & Bellona	4,130		
Temotu	24,990		

Malaita	159,330	5	159,330
Western	97,200	6	97,200

c. Sampling strategy

For each of the EUs, obtain a list of all the villages (rural settings) or lower administrative units (urban settings) on advice from MoH staff overseeing the relevant areas, together with their population size. Clusters, which are smaller community groupings that make up villages or lower administrative urban units, will be randomly selected using a probability proportional to the population size of the village or lower administrative unit.

Within each EU, 10 clusters will be randomly selected. For each cluster selected, households will be randomly chosen from a list and surveyed until 100 individuals have been assessed. It is anticipated a minimum of 20 households will be surveyed per cluster (based on an average of 5 residents in each household). Therefore:

- Sample per EU = 10 x 100 = 1,000 individuals surveyed
- Total sample = 6 x 1,000 = 6,000 individuals surveyed.

Phase 2: MDA

During the MDA program, process and performance monitoring should be conducted as described in the main document. This includes:

- Evaluate success of staff training program (feedback forms, post-training assessment)
- Medicine management: Assess if supplies were distributed in adequate quantities to all areas, and unused doses returned
- Community awareness: Survey community to understand acceptance and perception of MDA and reach of community awareness campaign

Phase 3 – Post MDA

Following the same approach described for the baseline prevalence survey, rural or urban clusters should be selected from each EU for an impact assessment 6-12 months after the second round of MDA is complete. The expected prevalence to be used for sample size calculations will be determined from unpublished and published data, routine administrative reports from health services, interviews with key informants, and direct observations at the community level. If scabies prevalence is still above 2%, then an additional round(s) of MDA or IDM should be implemented in these EUs until the prevalence is <2%. At the time of writing, monitoring trends in disease burden through sentinel sites throughout the course of the program is not planned, though maybe considered if resources permit.

Appendix 4: Example register for recording treatment administration

MASS DRUG ADMINISTRATION BOOKLET (FORM 1)

Subdivision:	Nursing Zone:	Community Name (Settlement/Village/School)	Page ..... of	
Date of Administration:	Distributor Name:	Distributor Signature:	Dose1 ☐	Dose 2 ☐

No	Full Name	Age	Height Category	Sex		Exclusion* 1 - 7							No. Given		Observed	Remarks/ reason declined
				F	M	1	2	3	4	5	6	7	IVM	PER	DOT (tick)	
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																

*Code for exclusion: 1. <2years, 2. <90cm, 3. Pregnant, 4. Breastfeeding women with infants <1 week old, 5. On warfarin 6. Very ill, 7. Declined

DOT – tick if directly observed swallowing tablets or applying the cream

Appendix 5: Summary MDA report

Form 2: Nursing Zone Coverage Summary Form

Subdivision:	Nursing Zone:	Person Reporting:	Date:

Number of IVM tablets received	Number of IVM tablets used	Number of IVM tablets remaining	Number of PER tubes received	Number of PER tubes used	Number of PER tubes remaining

*IVM = ivermectin 3mg tablets, PER = permethrin 5% cream tubes

Catchment Name	Pop.	Dose 1						Dose 2						Total qty dispensed dose 1		Total qty dispensed dose 2		Remarks
		0 to 4 years		5 to 14 years		Adults (≥15 yrs)		0 to 4 years		5 to 14 years		Adults (≥15 yrs)						
		F	M	F	M	F	M	F	M	F	M	F	M	IVM (tabs)	PER (tubes)	IVM (tabs)	PER (tubes)	
	TOTAL																	

Person reporting signature: ..... Reporting date: .....

Appendix 6: Coverage Survey Tool example from Fiji Lymphatic Filariasis Program

CST Data Collection Form

Supervision Area: _____ Sub-division: _____ Survey Implementer: _____
Interviewer(s): _____ Date(s): -_____

No.	Date	Village	Respondent				Were you offered LF MDA Drugs during the MDA week? *Show respondent the example of the drugs* (Circle correct answer) Y- Yes N – No U - Unsure	If not, why? **A** – away at work/ farm/ traveling **S**- Supply ran out. **D** – Distributor never came. **O** – Other	If other, remark	Did you swallow the LF drugs during the MDA week *Show respondent the example of the drugs* (Circle correct answer) Y – Yes N- No U - Unsure	How did you access the tablets **D**- DOT (Home) **H** – DOT at Health facility **S** – DOT at school **W** – DOT at work **O**- other district	Verify mark on finger (Circle correct answer) Y – Yes N- No U - Unclear	If not, why? **F** – Fear of side effects **N**- Not enough information **T**- Taste **O**- other	If other, remark	Additional Information	
			ID Number		Age	Sex M – male F- female									Were you aware of the MDA campaign, its benefit and reason for MDA info Y – yes N - no	How did you know of the MDA campaign M – Media V – village meeting/ turagani koro F – Family members O- Others (Specify)
			HH#	FM#												
1							Y N U			Y N U		Y N U				
2							Y N U			Y N U		Y N U				
3							Y N U			Y N U		Y N U				
4							Y N U			Y N U		Y N U				
5							Y N U			Y N U		Y N U				
6							Y N U			Y N U		Y N U				
7							Y N U			Y N U		Y N U				
8							Y N U			Y N U		Y N U				
9							Y N U			Y N U		Y N U				
10							Y N U			Y N U		Y N U				
11							Y N U			Y N U		Y N U				
12							Y N U			Y N U		Y N U				
13							Y N U			Y N U		Y N U				
14							Y N U			Y N U		Y N U				
15							Y N U			Y N U		Y N U				
16							Y N U			Y N U		Y N U				
17							Y N U			Y N U		Y N U				
18							Y N U			Y N U		Y N U				
19							Y N U			Y N U		Y N U				
20							Y N U			Y N U		Y N U				
TOTAL							Y – N – U -			Y – N – U -		Y – N – U -				