FANTA III

FOOD AND NUTRITION TECHNICAL ASSISTANCE

USAID
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Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/ Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference

Mark Myatt, Brixton Health
Ernest Guevarra, Valid International
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Saul Guerrero, Action Against Hunger UK
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Daniel Jones, Valid International
Ephrem Emru, Valid International
Kate Sadler, Tufts University

October 2012

FANTA
FHI 360
1825 Connecticut Ave., NW
Washington, DC 20009-5721
Tel: 202-884-8000 Fax: 202-884-8432
fantamail@fhi360.org www.fantaproject.org

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THE SCIENCE OF IMPROVING LIVES

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Contact information:

Food and Nutrition Technical Assistance III Project (FANTA)
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1825 Connecticut Avenue, NW
Washington, DC 20009-5721
Tel: 202-884-8000
Fax: 202-884-8432
fantamail@fhi360.org
www.fantaproject.org

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Foreword

During the past 10 years, the management of acute malnutrition has undergone a major paradigm shift that has changed the previous inpatient 'clinical' model of care into a community-based 'public health' model of care. Since 2007, this new model, called Community-Based Management of Acute Malnutrition (CMAM), has expanded rapidly and is now implemented in more than 55 countries worldwide.

In the old clinical model, the main determinant of impact was the quality of the inpatient medical and nutritional care provided in the centres and hospitals. By contrast, in the CMAM model, the key determinants of impact are the degree to which interventions treat people early in the course of their disease and the ability to treat as many of those affected as possible. This is a profound shift that requires an equivalent change in the protocols and indicators used to implement and monitor programs. Previously in the clinical model, impact was achieved using in-depth medical and nutritional protocols and results were monitored using clinical outcomes indicators. Now, the simplicity and robustness of the CMAM treatment protocols are such that, as long as the basics such as ready-to-use therapeutic food (RUTF) are available and those afflicted by acute malnutrition present early and in sufficient numbers, impact is ensured. In the new CMAM public health model, the focus on clinical guidelines has been replaced by protocols to ensure that those that are affected are admitted into programs early and the clinical outcome indicators have been supplemented by the direct assessment and monitoring of coverage.

The semi-quantitative evaluation of access and coverage (SQUEAC) and the simplified lot quality assurance sampling evaluation of access and coverage (SLEAC) assessment methods are an exciting new set of tools that draw together access and coverage, the two essential determinants of quality CMAM programming. SQUEAC combines an array of qualitative information about access and the perceptions of CMAM programs with small-sample quantitative surveys. These surveys test hypotheses generated during the qualitative work and establish levels of program coverage in key geographical areas. This combination both identifies key issues affecting presentation and program uptake whilst also establishing the actual levels of coverage attained. Vitally, all this can be done in real time, allowing the tool to be of immediate practical use to tweak program design and implementation in response to the information obtained.

The keys to the success of SQUEAC are diversity, triangulation, and iteration, which gradually build up a picture of the 'truth' about program coverage whilst simultaneously indicating what practical measures can be undertaken to improve access and coverage. The beauty of the technique is that it combines information that is often routinely collected but rarely used with other data specifically collected by fast, low-resource methods. Directly harnessing existing routine monitoring data to improve impact and program effectiveness greatly increases the cost efficiency of the additional time spent collecting new data, thereby decreasing the time and resource overhead required to implement SQUEAC.

SLEAC is a simple, low-cost, small-sample quantitative method. The keys to the success of SLEAC are simplicity, low cost, and versatility. SLEAC has the ability to map and estimate coverage over large areas.

As CMAM shifts from a donor-funded emergency intervention to a routine part of primary health-care programming, the resources available to implement these programs will inevitably decrease. In this environment, low-resource methods to increase timely access, monitor coverage, and allow program design to be proactively refined are essential if CMAM is to maintain its effectiveness. In my opinion, SQUEAC and SLEAC are major steps forward toward achieving these goals.

Steve Collins
March 2012

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Introduction

One of the most important elements behind the success of the Community-Based Management of Acute Malnutrition (CMAM) model of service delivery is its proven capacity for achieving and sustaining high levels of coverage over wide areas.

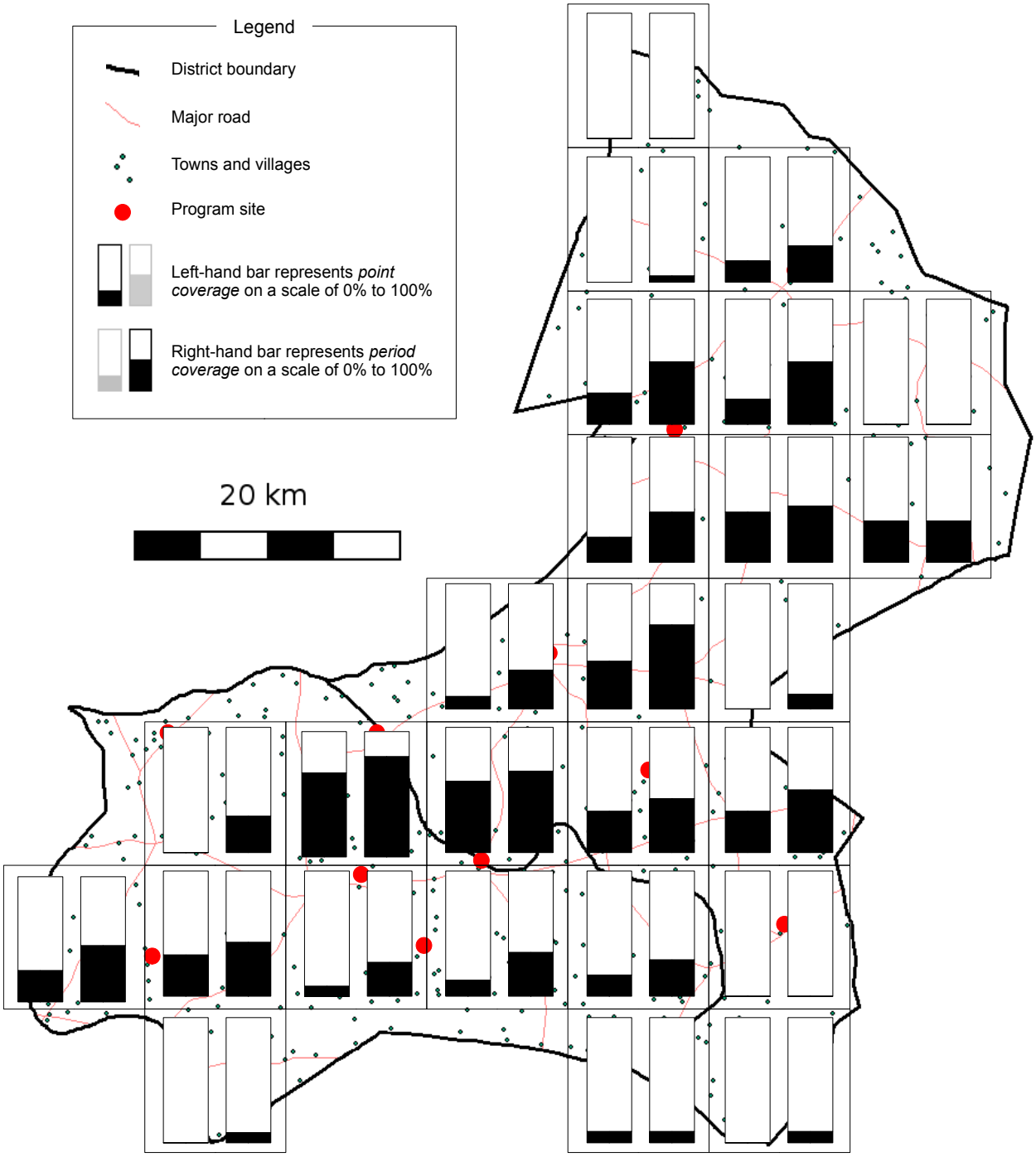
Two-stage cluster sampled surveys have been used to estimate the coverage of selective feeding programs. This approach suffers from several important limitations. In response, Valid International, Concern Worldwide, and the Food and Nutrition Technical Assistance Project (FANTA) developed a new survey method for estimating the coverage of selective feeding programs. This survey method, known as the Centric Systematic Area Sampling (CSAS) method, uses a combination of stratified and systematic area sampling and active and adaptive case-finding.

The CSAS survey method provides a rich set of information about program coverage. In particular, it provides a 'headline' estimate of overall program coverage, a map of the spatial distribution of program coverage (**Figure 1**), and a ranked list of program-specific barriers to service access and uptake (**Figure 2**).

The CSAS method is, however, resource intensive. This has led to a tendency for it to be used for *program evaluation* rather than for day-to-day *program planning* and *program monitoring* purposes. The results of CSAS surveys have, therefore, often been able to explain why a particular program failed to achieve a satisfactory level and spatial pattern of coverage, but this information has tended to arrive too late in the program cycle to institute effective remedial action.

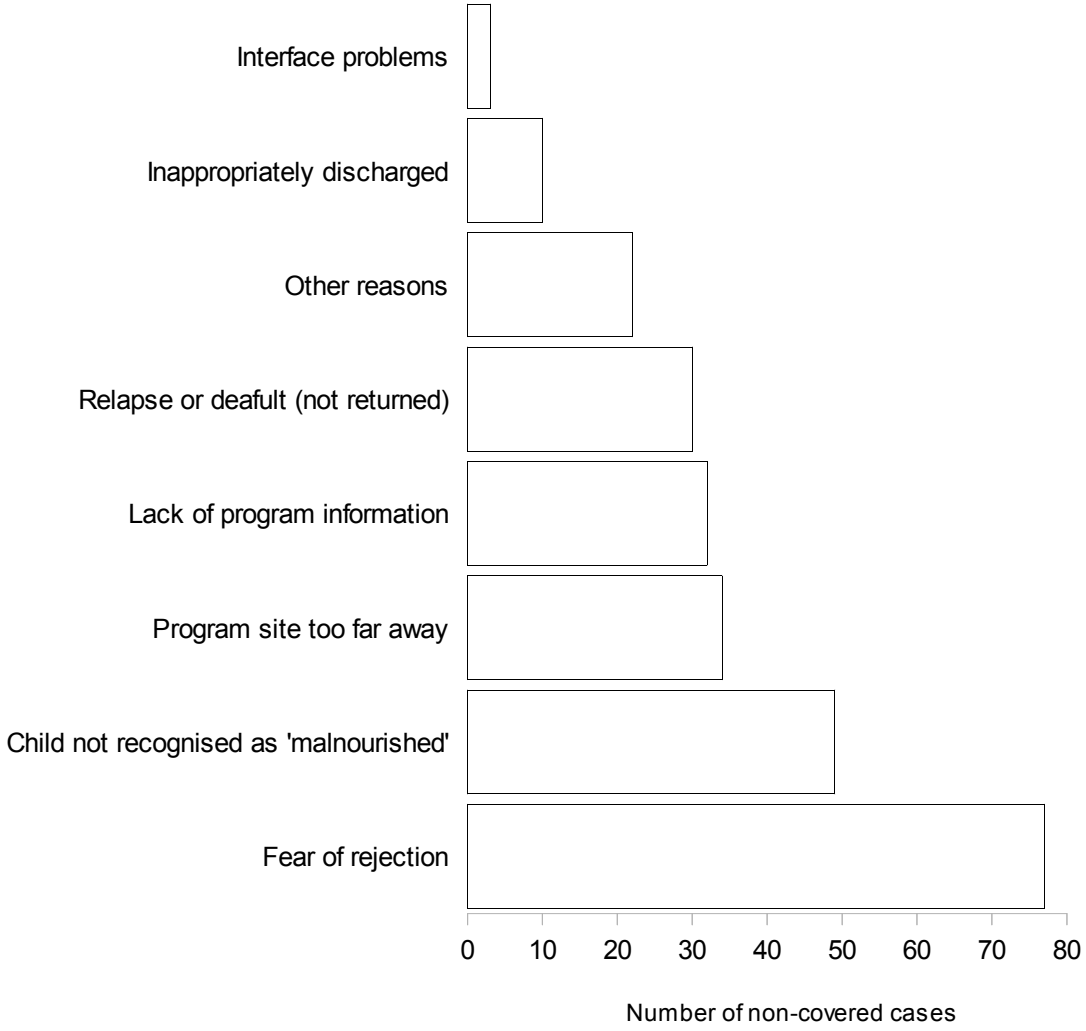
The CMAM model of service delivery is now being adopted in developmental and post-emergency settings. Programs in these settings tend to suffer from considerable resource scarcity compared to emergency-response programs implemented by non-governmental organisations (NGOs). There exists, therefore, a need for low-resource methods capable of evaluating program coverage, identifying barriers to service access and uptake, and identifying appropriate actions for improving access and program coverage. This document describes two such methods – the semi-quantitative evaluation of access and coverage (SQUEAC) method and the simplified Lot Quality Assurance Sampling evaluation of access and coverage (SLEAC) method – and how they can be used to investigate and improve three aspects of CMAM programs: *effectiveness*, *coverage*, and *ability to meet need*.

Figure 1. Map showing the spatial distribution of *point* and *period* coverage in a CMAM program



Data courtesy of Save the Children/United Kingdom

Figure 2. Barriers to service access and uptake in a CMAM program reported by carers of non-covered cases



Data courtesy of Save the Children/United Kingdom

Note: This type of graph is most effective when you have a limited number (e.g., ≤ 10) of barriers to report. Similar barriers should be grouped together. For example, the barriers:

Carer not aware of program

Carer did not know location of program site

Carer did not know that the program site provided RUTF

could be merged into a single 'Lack of knowledge about the program' category.

Infrequently reported barriers should be grouped into a single 'Other' category. Pie charts should **not** be used to present this type of data.

Why Coverage Is Important

The *efficacy* of the CMAM protocol can be defined as how well the protocol works in ideal and controlled settings. It is measured by the cure rate:

$$Cure\,Rate\,(\%) = \frac{Number\ Cured}{Number\ Treated} \times 100$$

which is usually estimated in a clinical trial.

For the CMAM protocol, the cure rate is close to 100% in *uncomplicated incident cases* (i.e., in cases with mid-upper arm circumference [MUAC] at or just below the admission criteria and cases with mild oedema). There is, therefore, little room for large improvements in the efficacy of the CMAM protocol. Although we cannot significantly change the efficacy of the CMAM protocol, we can change the *effectiveness* of the CMAM protocol.

The *effectiveness* of the CMAM protocol can be defined as the cure rate in a beneficiary cohort under program conditions. Effectiveness depends, to a large extent, on:

Severity of disease. Early treatment seeking and timely case-finding and recruitment of severe acute malnutrition (SAM) cases will result in a beneficiary cohort in which the majority of cases are uncomplicated incident cases. The cure rate of the CMAM protocol in such a cohort is close to 100%. Late treatment seeking and weak case-finding and recruitment will result in a cohort of more severe and more complicated cases. The cure rate in such a cohort may be much lower than 100%.

Compliance. Programs in which the beneficiary and the provider adhere strictly to the CMAM protocol have a better cure rate than programs in which adherence to the CMAM protocol is compromised. Poor compliance can be a problem with the beneficiary (e.g., sharing of ready-to-use therapeutic food [RUTF] within the household) or a problem with the provider (e.g., RUTF and drug stock-outs), and both have a negative impact on effectiveness.

Defaulting. This is the ultimate in poor compliance.

An effective program must, therefore, have:

Thorough case-finding and early treatment seeking. This ensures that the beneficiary cohort consists mainly of uncomplicated incident cases that can be cured quickly and cheaply.

A high level of compliance. This ensures that the beneficiary receives a treatment of proven efficacy.

Good retention from admission to cure (i.e., little or no defaulting). This also ensures that the beneficiary receives a treatment of proven efficacy.

Coverage is one factor (the other being effectiveness) in the capacity of a program to meet need. It can be expressed as:

$$Program\ Coverage\,(\%) = \frac{Number\ in\ the\ program}{Number\ who\ should\ be\ in\ the\ program} \times 100$$

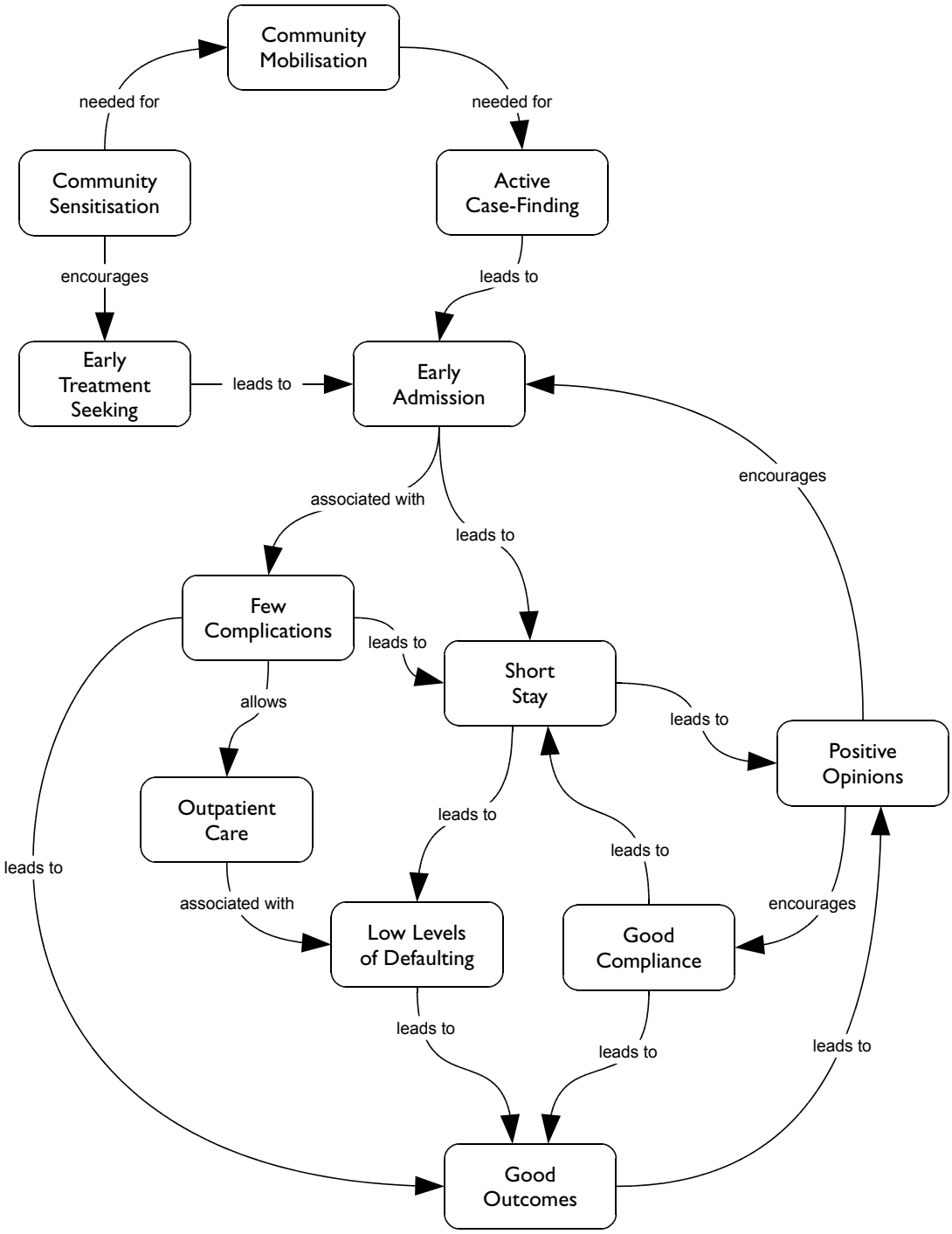
Coverage depends directly on:

Thorough case-finding and early treatment seeking. This ensures that the majority of admissions are uncomplicated incident cases, which leads to good outcomes (i.e., close to 100% cure rate).

Good retention from admission to cure. This is the absence of defaulting.

Coverage also indirectly depends on compliance (see **Figure 3**).

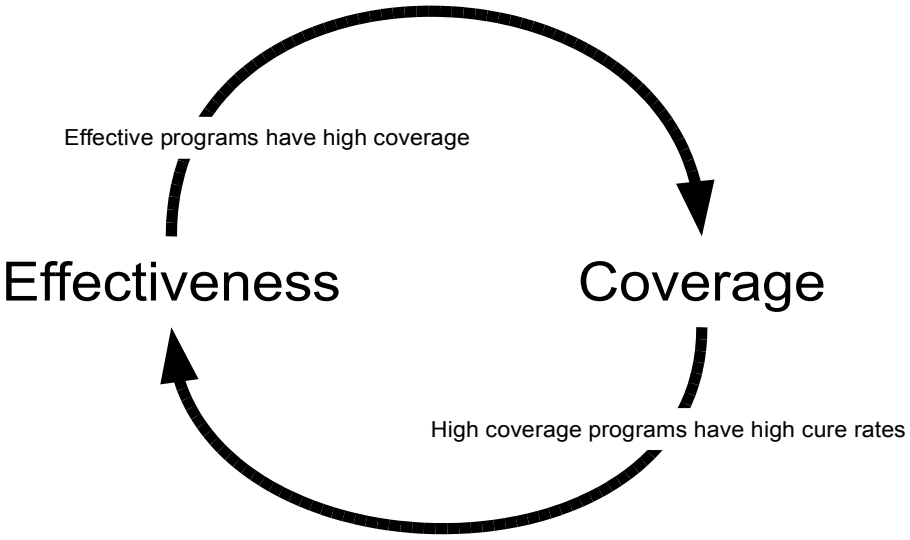
Figure 3. Relations between factors influencing coverage and effectiveness



Meeting need requires both high effectiveness and high coverage:

$$Met\ Need = Effectiveness \times Coverage$$

Coverage and effectiveness depend on the same things (see Figure 3) and are linked to each other:



Good coverage supports good effectiveness. Good effectiveness supports good coverage. Maximizing coverage maximises effectiveness and met need.

The implications of:

$$Met\ Need = Effectiveness \times Coverage$$

are illustrated in **Figure 4** and **Figure 5**. Programs with low coverage fail to meet need.

Figure 4. Effect of coverage on met need in two programs

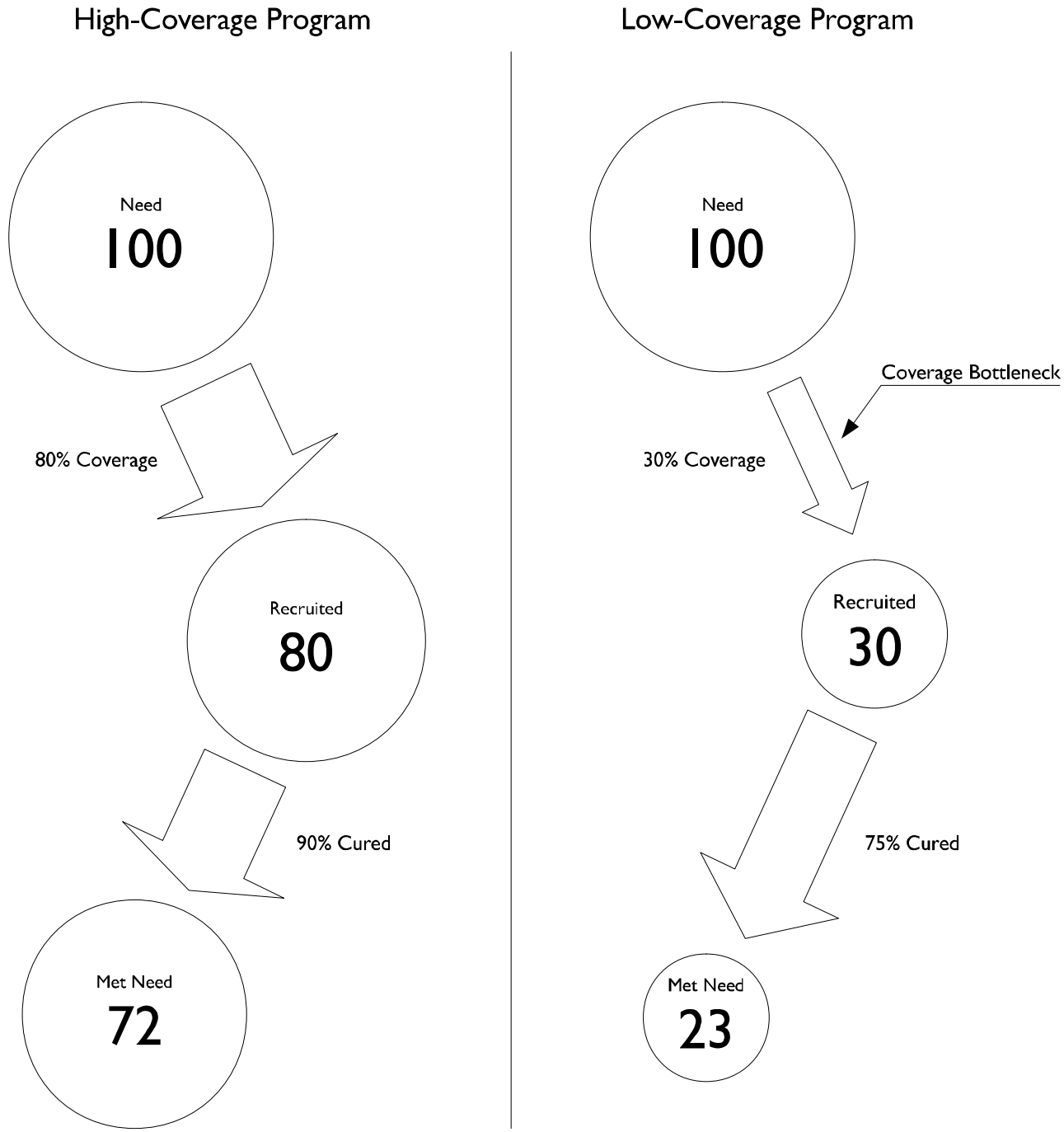
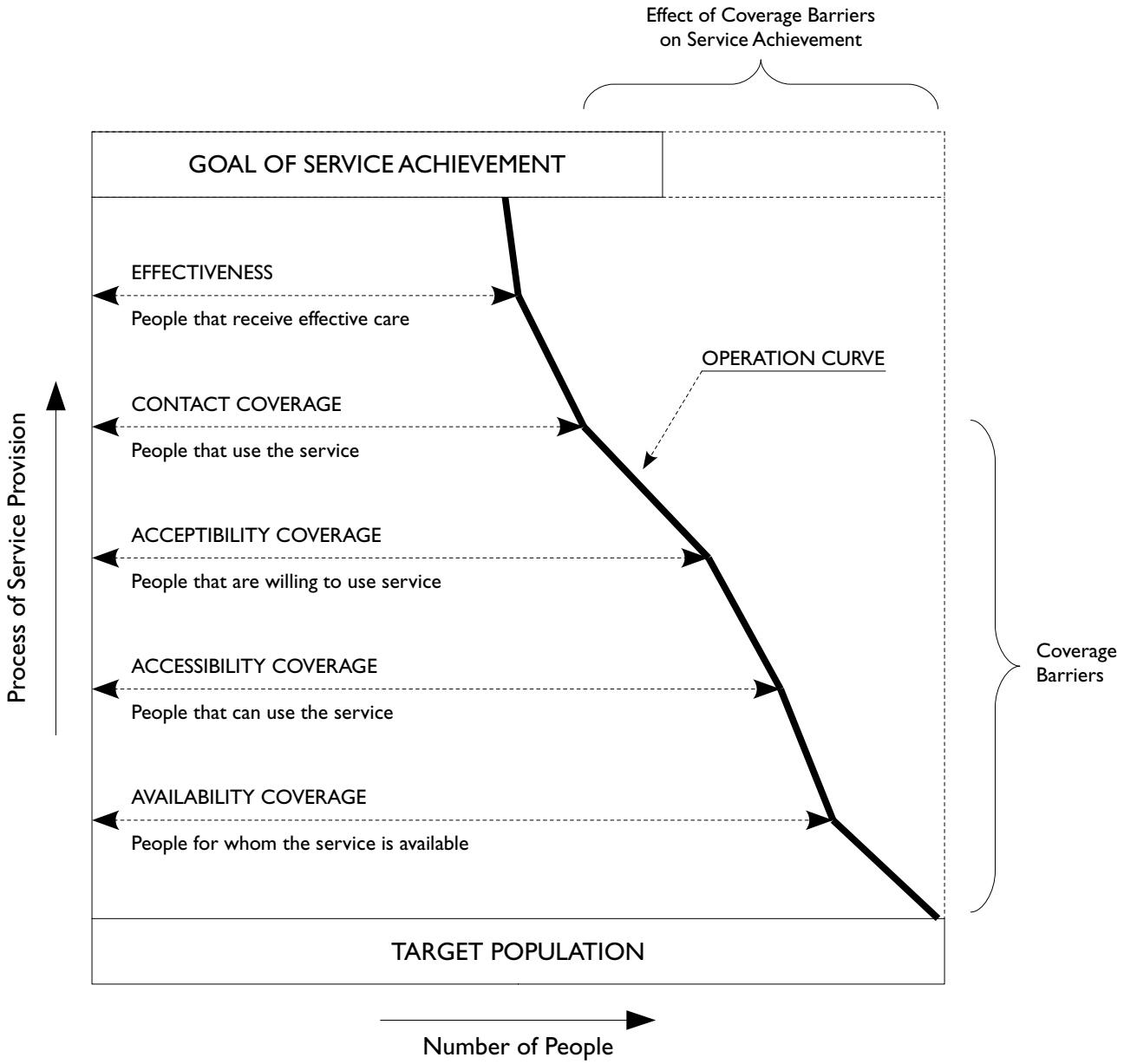


Figure 5. Tanahashi coverage diagram illustrating the effect of different types coverage barrier on service achievement (met need)



The following two sections describe the SQUEAC and SLEAC methods for investigating and improving the coverage, effectiveness, and met need of CMAM programs. These sections are followed by 10 case studies, each of which presents useful insights into how SQUEAC and SLEAC can and should be applied; a technical appendix, which provides greater detail about case-finding, survey sample sizes, calculations used in SQUEAC and SLEAC, and smoothing of time-series data; a brief tutorial on working with the formulas used in this document; and a glossary of SQUEAC and SLEAC terms.