# Sector Evaluation Framework

## GUIDE

An Approach to Outcome Evaluation

NCSS
National Council
of Social Service

# Contents

# Introduction

**In the face of rapidly changing needs in the society, the importance for evidence-based decision-making in the social service sector cannot be overstated. Funders increasingly require social service agencies (SSAs) to demonstrate the effectiveness of their programmes, while policymakers rely on evidence to inform decision-making processes. Hence, it is critical for the social service sector to measure and articulate the impact social service programmes have on society.**
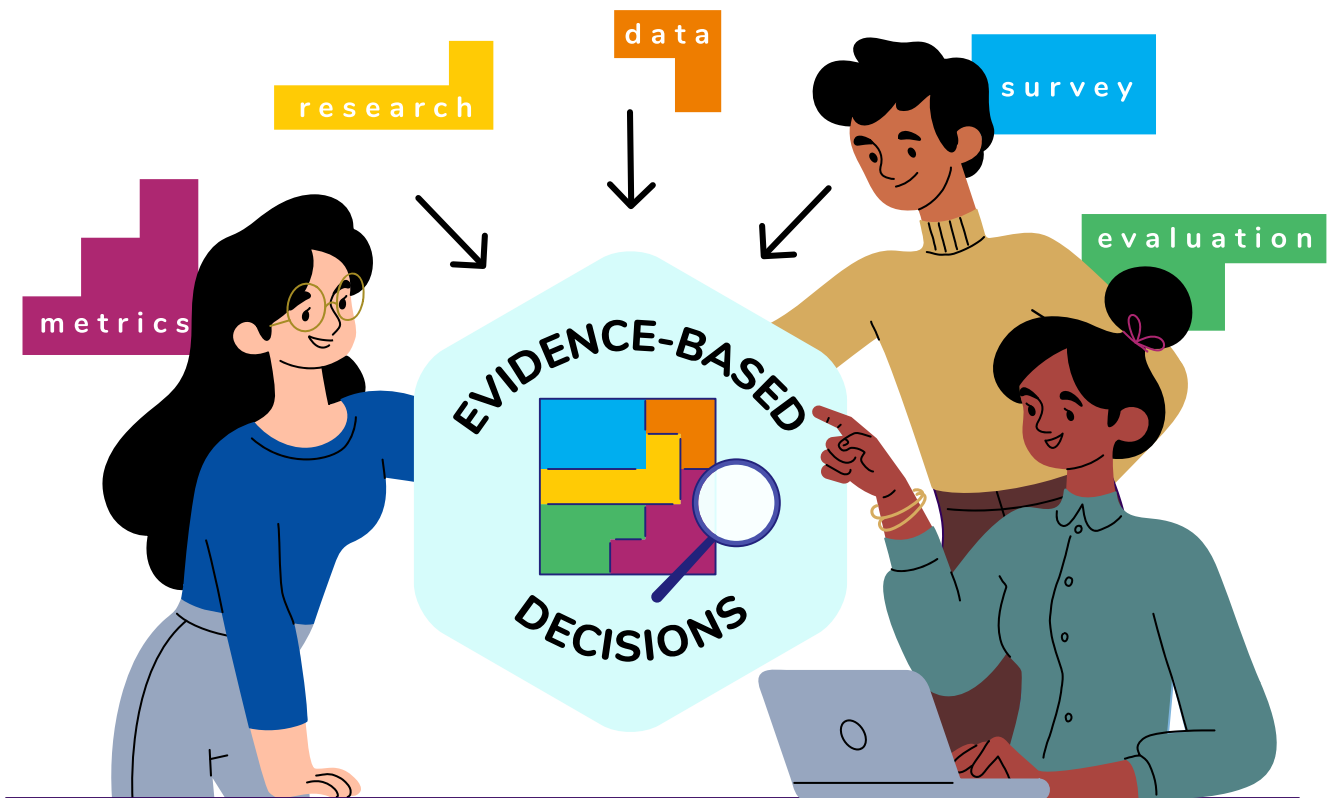


## What is this guide about?

This guide is therefore intended to serve as a valuable resource for SSAs seeking to increase their knowledge and develop the skills needed to conduct outcome evaluation. The step-by-step instructions provided in this guide are designed to help SSAs gather and analyse data to assess the extent to which programmes are achieving their intended outcomes. This approach ensures that decisions regarding social service programme design and implementation are based on evidence.

At the end of this guide, SSAs will have a concrete idea of the outcome measurement process, as well as how NCSS' Sector Evaluation Framework (SEF) can help SSAs in evaluating outcomes. SSAs will be better equipped to meet the needs of service users and communities, and ultimately, to make a meaningful difference in the lives of those they serve.

# Programme evaluation

Programme evaluation can be defined as "the systematic collection of information about the activities, characteristics, and outcomes of programmes, for use by people to reduce uncertainties, improve effectiveness, and make decisions"[1]. Conducting programme evaluation brings clarity to organisations in understanding not only what works, but more importantly, how well interventions work and for whom do these interventions work better.

Depending on the stage a programme is at, there are three types of programme evaluation which can be conducted. Table 1 below summarises this systematic collection of information which can take different forms and occur at various junctures of a programme.

**Table 1: Types of programme evaluation and when to conduct them**

| Types of Programme Evaluation | Information being Uncovered | When to Conduct |
|---|---|---|
| **Formative evaluation** | • Needs assessment: determining the exact needs of the target audience <br> • Programme theories: developing a Theory of Change (TOC) to illustrate how specific interventions may be effective in achieving certain outcomes <br> • Programme design: how will the programme be implemented | Before programme starts |
| **Process evaluation** | Whether the programme… <br> • is targeting the intended audience <br> • activities are being implemented as planned <br> • output metrics are being attained | Throughout the programme |
| **Summative evaluation** | • Outcome evaluation: whether pre-determined immediate outcomes have been met <br> • Impact evaluation: whether long term and larger scale impact has been effected <br> • Cost-benefit analysis: measures the total costs of a programme and compares against the total benefits | After the programme ends |

For new programmes, it is advisable that SSAs conduct all three types of programme evaluation to ensure that the programme design is evidence-based and that the implementation is going according to plan.

For programmes which are already in a steady state, SSAs should continue to conduct process and outcome evaluation to monitor if the programme remains relevant to the needs of the target audience. While not compulsory for programmes in a steady state to conduct formative evaluation, it is advisable for SSAs to relook at the literature every few years to account for any new developments in the field which might help to improve the programmes further.

For SSAs who are interested in conducting formative and process evaluation, the Service Standards Playbook would be a useful guide.

**Service Standards Playbook**
*go.gov.sg/service-standards-playbook*

As measuring outcomes is the gateway to be able to articulate impact in the longer term, this guide focuses on outcome evaluation to eventually measure impact in the future.

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[1] Patton, M. Q. (2008). *Utilization-focused evaluation*. Sage publications.

# Outcome evaluation & the Sector Evaluation Framework

Outcome evaluation is a component of programme evaluation and it aims to assess whether a programme has achieved its intended goals.

**How will outcome evaluation be useful?**

**Social Service Agencies**

- Findings can be used to improve future iterations of programmes.
- Comparison against benchmarks for common outcome metrics can help SSAs gauge service users' progress.

**Funders**
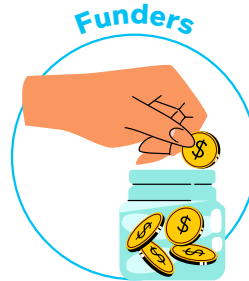
- Have common metrics to gauge effectiveness of programmes.
- Gain confidence in knowing that funded programmes are effective.

**Policy and Service Planners**
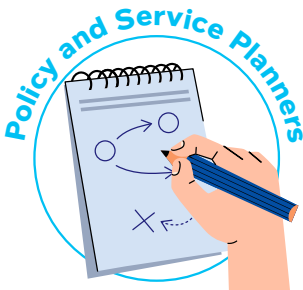
- Better quality of data enables timely policymaking decisions.
- Standardised outcomes allow policymakers to gauge the evolving sector needs more accurately.

**Service Users**

- Have access to programmes that are of good quality.
- Progress can be monitored more holistically, allowing for specific needs to be identified and addressed.

In context of the social service sector, adopting a pre-test post-test design (i.e., comparing a service user's conditions before and after the intervention to establish the effectiveness of the programme) is something SSAs might already be familiar with.

Despite the common methodology of using pre-test post-test for outcome evaluation among SSAs, its effectiveness can be hindered in the following situations:

| 1 | 2 | 3 |
|---|---|---|
| **Different outcome metrics being used for similar programmes** | **Different outcome metrics have undergone different levels of assessment** | **Conflation of outcomes and outputs** |
| Programmes of similar nature using different outcome metrics, hence reducing the comparability of these programmes' effectiveness. This hinders the sector's efforts to understand interventions which might be more suitable for addressing specific issues in society. | Chosen outcome metrics may have undergone different levels of assessment in their validity and reliability, hence resulting in the metrics possibly not having sufficient depth in uncovering the actual outcomes. | There might be a conflation of outcomes and outputs. While outputs are necessary, it is not sufficient in representing the effectiveness of the intervention. |

As such, NCSS has developed the Sector Evaluation Framework (SEF), which categorises programmes into programme groups and objectives, and identifies suitable outcome metrics to measure the programme's effectiveness. The SEF helps with lowering the barrier to conduct outcome evaluation by:

- Providing a repository of robust metrics for SSAs to use to measure their programme outcomes, making it less time consuming for SSAs to search for an appropriate metric.

- Supporting SSAs throughout the outcome evaluation process, including data collection and analyses.

For more information about the SEF, please refer to the **SEF Factsheet**

*go.gov.sg/sef-factsheet*



**The Sector Evaluation Framework (SEF)**

● ○ ○ ○ ○

**Programme Evaluation in Singapore's social service sector**

There is an increasing need to evaluate Singapore's social service programmes through evidence-based methods and demonstrate impact, given greater demands for accountability and transparency.

**This sentiment is shared by Social Service Agencies (SSAs) in the sector.**

**In the 2021 Social Service Sector Survey conducted by the National Council of Social Service (NCSS), more than 80% of SSAs expressed the desire to:**

1 evaluate the impact of their programmes

2 shift to a more "person-centered" approach in programme design and delivery

3 build organisational capabilities in these areas

With similar programmes reporting the same set of outcomes, the framework therefore provides a common language for SSAs, funders and the Government – paving the way for more clarity, greater accountability, and ultimately, better outcomes for service users.

In the following sections, this guide will:

- Introduce concrete steps that can be taken at each stage of outcome evaluation.

- Illustrate how NCSS, through the SEF, can assist SSAs in outcome evaluation.

- Consolidate and share NCSS resources that SSAs can take reference from.

# Who is this guide meant for?

This guide is meant for all SSAs who use outcome evaluation to refine and improve their programmes' effectiveness to bring about better outcomes for their service users.

This guide would be especially useful for those in the following roles:

**Programme managers**

**Research and evaluation officers**

**Anyone interested**
*to understand how SSAs and the sector as a whole can better track outcomes*

# How to use this guide?

SSAs may follow the steps illustrated in Figure 1 below to conduct outcome evaluation.

**Figure 1: Outcome evaluation cycle**
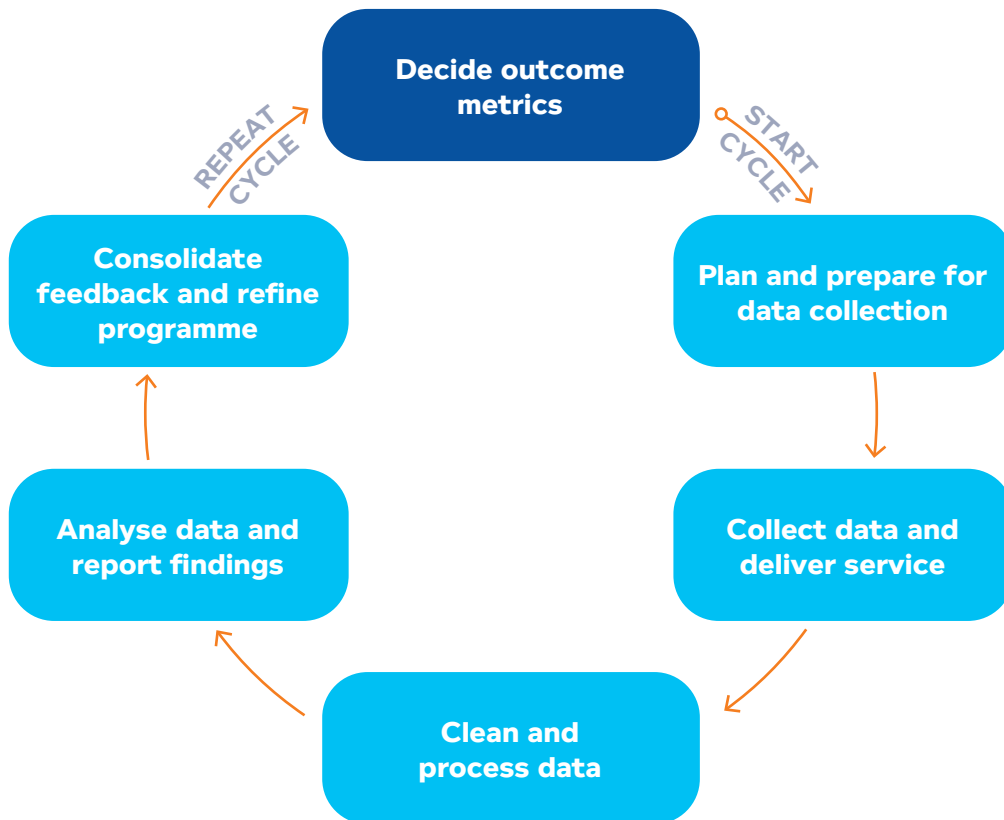


The steps (covered in detail in the following sections) will also outline the support provided by NCSS should your programme be onboarded to the SEF. For programmes that are funded by NCSS, being onboarded to the SEF is a requirement to allow NCSS to assist and provide evaluation support.

For non-NCSS funded programmes, it would be useful for the programme managers to onboard the SEF, or adopt the SEF metrics, which are research-backed and readily available. For more information about the outcome metrics which may be suitable for your programme, please contact NCSS at research@ncss.gov.sg and we are happy to get in touch.

**Briefly, each section of the guide will contain the following:**

| | |
|---|---|
| **Step 1:**<br><br>Decide outcome metrics | Outcome metrics chosen should reflect the desired programme outcome(s) in the programme's Theory of Change (TOC).<br><br>To reduce burden on SSAs to find metrics which have been tested for validity and reliability, the SEF has a repository of metrics which allow for common metrics to be adopted, depending on the programme objective(s). |
| **Step 2:**<br><br>Plan and prepare for data collection | Planning for data collection includes determining:<br><br>• Sample size<br>• Survey platform<br>• Data collection period<br><br>NCSS provides one-on-one consultation with onboarded SSAs to devise a tailored data collection plan. During this stage, NCSS will also brainstorm solutions with SSAs on possible challenges that might surface during data collection. |
| **Step 3:**<br><br>Collect data and deliver service | Collect data as planned in the previous step.<br><br>SSAs should record challenges faced in the administration of the survey and review the process when appropriate.<br><br>NCSS will work with onboarded SSAs to resolve data collection challenges as soon as possible. |
| **Step 4:**<br><br>Clean and process the data | Cleaning of the data ensures that the data is of good quality for analysis. Some of the issues to be checked include:<br><br>• Duplicate data<br>• Missing data<br>• Illogical data<br><br>Following the basic cleaning of data, there needs to be the processing of data into a suitable format, and the matching of all the pre-intervention data to the post-intervention data to allow for pre-post comparison during analysis.<br><br>NCSS will provide assistance in data cleaning and processing for onboarded programmes. |
| **Step 5:**<br><br>Analyse data and report findings | The SEF recommends the use of significance testing to measure if there has been an improvement from pre-intervention to post-intervention. To examine such significant changes at the individual level, we recommend using Reliable Change Index (RCI).<br><br>NCSS will provide support to SSAs in conducting pre-post analyses for onboarded programmes. Findings will be presented in an accessible format to SSAs which will provide insights on whether the programme has achieved the intended outcome(s). |
| **Step 6:**<br><br>Consolidate feedback and refine programme | SSAs should review evaluation findings with relevant stakeholders internally. Upon consolidating feedback, the programme's TOC should be refined to ensure that the programme remains relevant to the evolving needs of the communities being served. |

# SEF's Approach to Outcome Evaluation

**The following sections will elaborate on each step of the outcome evaluation cycle, along with the resources which are readily available to SSAs to facilitate the completion of each step.**

## Pre-requisites

**Clear problem statement and programme objectives**

In service planning, there first needs to be a clear problem statement that accurately states the unmet needs of a specific population. From there, programme objective(s) can be identified.

SSAs may attend courses to learn more about identifying unmet needs from research findings. An example is:

**"Apply Research Findings and Trends Into Social Service Delivery"** by the Social Service Institute (SSI)

*go.gov.sg/ssi-applyresearchfindings*

NCSS also regularly puts out sector research-related resources which may be helpful in scoping problem statements:

**Online Interactive Dashboards**

*This series of dashboards provides SSAs easy access to insights for specific groups of service users. These dashboards were developed using data collected in Singapore, hence findings would be relevant for SSAs.*

*go.gov.sg/ncss-dashboards*

**Research Publications**

*NCSS helms flagship studies such as the Quality of Life, Public Attitudes and Social Service Sector Survey series. Findings from these studies are compiled into reports and updated regularly.*

*go.gov.sg/ncss-researchpublications*

**Social Service Sector Repository**

*This is an online database of research published by NCSS members and public service agencies on topics relevant to the social service sector. To apply for a new account or check the login details registered to your agency, please email* research@ncss.gov.sg.

*go.gov.sg/ncss-sssr*

**EBSCO Journal Subscription**

*NCSS subscribes to the EBSCO scholarly journal database and provides free access to our member agencies (one shared account per agency). To apply for a new account or check the login details registered to your agency, please email* research@ncss.gov.sg.

**Evidence-based Theory of Change (TOC)**

Following the definition of the problem statement and the overarching objective(s) of the programme, the next step is to develop a TOC.

A TOC is a systematic and strategic approach that outlines how a service user is expected to achieve the desired programme outcomes through the service[2].

To assist with understanding of the programme logic, TOCs are often presented in a visual format (see Figure 2 in the following page).

For more details about developing a TOC, SSAs may refer to the following resource which contains a self-help guide on how a TOC can be developed:

**Chapter 3** of the **Service Standards Playbook**

*go.gov.sg/service-standards-playbook*

**What can a good TOC achieve?**

- Boost persuasive power for funding and other relevant stakeholders
- Identify specific data and metrics that need to be analysed to assess the effectiveness of the programme
- Facilitate testing of hypotheses and assumptions in programme logic

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[2] The Evaluation Support Team. (2023). The theory of change process – guidance for outcome delivery plans. Government Analysis Function. United Kingdom.

**Figure 2: Example of a Theory of Change model (adapted from the WiShine programme by WiCare)**
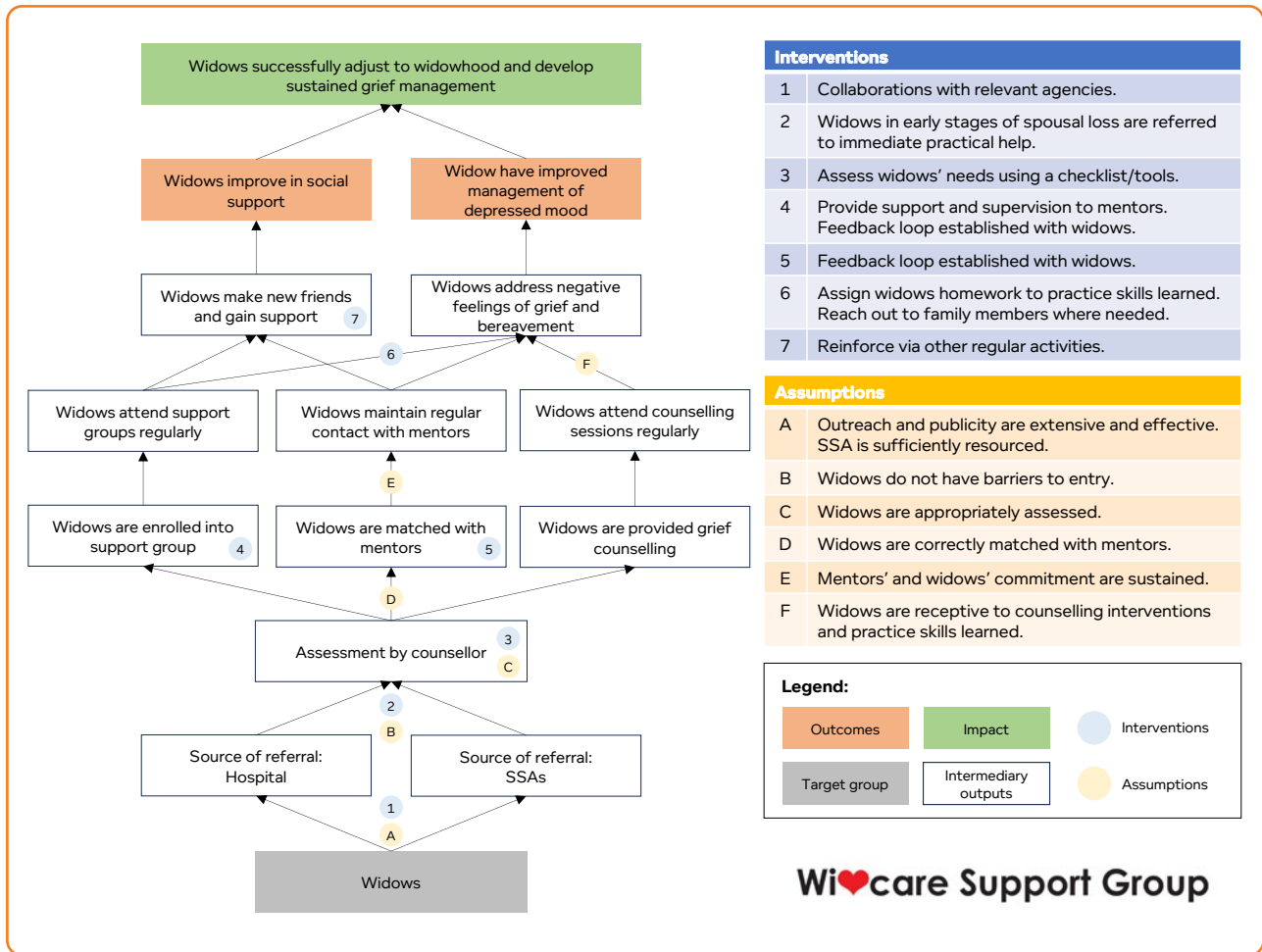


NCSS also highly recommends that SSAs attend TOC courses which are specific to Singapore's social service context to learn more about how to adopt TOC for your programmes:

| | | |
|---|---|---|
| go.gov.sg/ssi-effectiveprogrammes | go.gov.sg/ssi-toc | go.gov.sg/ssrc-toc |
| **"Enhancing Effectiveness of Social Service Programmes" (SCRS484)** by the Social Service Institute | **"Programme Theory of Change and Logic Model: Uncovering the Blackbox of Social Programmes"** by the Social Service Institute | **"Effective Use of Theory of Change for Social Services"** by Social Service Research Centre |

## Checkpoints:

☐ **Does your programme have clear objectives?**

- This is an important step as without a clear objective, it would be difficult to determine suitable outcome metrics for your programme.

- If not, you may refer to the resources outlined in the prior section to help you get started on drafting clear programme objectives.

☐ **Do you have an evidence-based TOC?**

- TOCs are extremely helpful in understanding how specific interventions may lead to the various outcomes as well as whether there are any gaps in the programme logic that requires further research.

- If not, we highly recommend that you attend courses on TOC to learn more about how you may start developing evidence-based TOCs.
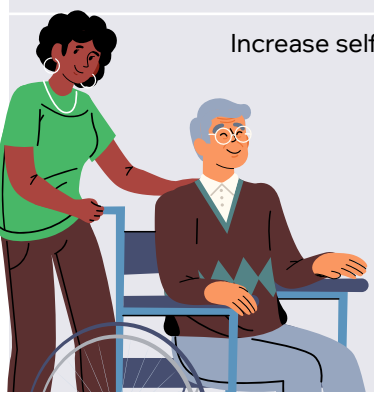
# Step 1: Decide outcome metrics

The first step of outcome evaluation is to decide on the outcome metrics (i.e., measurable information) that will allow us to determine if the programme has achieved the intended effect. It is important that the metrics used reflect the objectives of the programme based on the TOC. Sometimes outcome evaluation suffers from TOCs that do not articulate clear programme objective(s).

The SEF categorises programmes into programme groups and objectives, then identifies suitable outcome metrics to measure the programme's effectiveness. This allows for consistent evaluation across programmes sharing similar objectives.

Some examples of metrics for different programme groups are shown in Table 2 below.

**Table 2: Examples of outcome metrics**

| Programme Group | Programme Objective | Metric | Examples of Included Items |
|---|---|---|---|
| **Children and Youth** | Positive youth development | ACT! SG | "I care about how my actions affect other people."<br><br>"I can cope with the changes in my life."<br><br>For more information: **Children and Youth Factsheet**<br>go.gov.sg/childrenandyouth-factsheet |
| **Caregivers** | Reduce caregiver stress | Zarit Burden Interview | "Do you feel you don't have enough time for yourself?"<br><br>"Do you feel stressed between caring and meeting other responsibilities?" |
| | Increase self-efficacy | Pearlin Mastery Scale | "I have little control over the things that happen to me."<br><br>"I often feel helpless in dealing with the problems of life."<br><br>For more information: **Caregivers Factsheet**<br>go.gov.sg/caregivers-factsheet |
| **Social Support** | Improve social support | Social Provisions Scale | "There is someone I could talk to about important decisions in my life."<br><br>"There are people who I can count on in an emergency."<br><br>For more information: **Social Support Factsheet**<br>go.gov.sg/socialsupport-factsheet |

The SEF repository of metrics are reviewed periodically, please contact us at research@ncss.gov.sg if you are interested to find out more about the latest metrics being used.

For NCSS-funded programmes, the SEF also measures the quality of life (QOL) of service users[3]. QOL findings will be used to track our progress towards the sector-wide goal of improving service users' quality of life.

> All metrics in SEF's repository have undergone a stringent selection process using the two main principles listed:
>
> • **Assessed for validity** (i.e., the metric measures exactly what it proposes to measure) **and reliability** (i.e., the metric produces consistent findings) through stringent research processes.
>
> • **Having as few questions as possible** to ensure that service users do not experience survey fatigue, without compromising on the validity or reliability of the metric.

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[3] For adults aged 18 and above, the World Health Organisation Quality of Life (WHOQOL) scale will be used, whereas those below 18 years old will be administered KIDSCREEN.

## Checkpoints:

☐ **Are you able to find a metric that can accurately measure your outcomes from the SEF repository?**

• If not, please contact us at research@ncss.gov.sg and we are happy to provide further advice and assistance.

• You may also use other metrics on top of what the SEF proposes. We suggest that you consider the following guidelines when selecting other metrics:
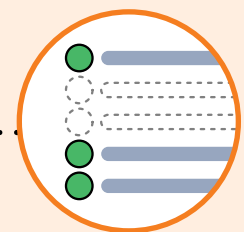
**STATISTICALLY ASSESSSED FOR VALIDITY**

**STATISTICALLY ASSESSSED FOR RELIABILITY**

**LOCALLY VALIDATED**

**CONTAINS AS FEW ITEMS AS POSSIBLE**
*to reduce survey fatigue, without compromising on the validity or reliability of the metric*

# Step 2: Plan and prepare for data collection

To track if the intended outcomes have been met, the same metric should be measured at both pre- and post-intervention to determine if the service user has improved after completing the programme.

Under the SEF, the data collection periods are detailed in Table 3 below.

**DATA COLLECTION**
*using the same metric*

**PRE-INTERVENTION**                                                                              **POST-INTERVENTION**

← ●————————————— SERVICE DELIVERY —————————————● →

**Table 3: Data collection periods for different programme lengths**

| Programme Length | Data Collection Periods |
|---|---|
| **Short-term programmes (i.e., <1 year)** | • Once for pre-intervention, at intake or within 4 weeks before commmencement of programme<br>• Once for post-intervention at discharge |
| **Long-term programmes (i.e., >1 year)** | • Once for pre-intervention, at intake or within 4 weeks before commmencement of programme<br>• Annual collection as an interim progress update<br>• Once for post-intervention at discharge |

Besides the data collection periods, SSAs will also need to determine the estimated sample size, how the survey will be administered (e.g., online survey platform, or hardcopy paper survey which will then require data entry at a later stage, etc.), as well as what additional questions should be included (e.g., demographic questions such as age and sex). All forms should go through at least two rounds of checking to ensure that all the necessary questions have been included, and that the logic for online surveys are accurate.

For programmes which have been onboarded to the SEF, one-on-one consultation sessions will be set up between NCSS and SSAs to decide on the ideal data collection period, questions to be included, and the survey platform to be used.

While the SEF is primarily focused on quantitative data such as the outcome metrics and demographics, SSAs can consider collecting qualitative data to glean insights which typically are not as easily captured using quantitative methods. Some examples of qualitative data which might be useful are:

**Conducting informal interviews** with service users to understand why they found certain segments of the programme more enjoyable.

**Organising focus groups** after the programme to explore how service users were able to apply the skills learnt to their lives, and what seems to still be lacking or challenging.

**Observations** on how participative service users were during the programme.

SSAs may use these insights to further refine the programmes and to enhance the programme experience.

## Checkpoints:

☐ **Do your caseworkers require training on how the metrics should be administered to service users?**

- Caseworkers will be able to look through the list of questions and seek clarifications on the interpretation of certain words or phrases.

- During the training, it would also be helpful to share with caseworkers on how they can introduce the survey to service users (e.g., how will the data be used, data confidentiality, etc).

☐ **Other than the outcome metrics which will be included in the survey form, are there any other questions that you think will be helpful in the evaluation?**

- We suggest including basic demographics such as age and sex which might be helpful during the analysis stage. We will then be able to determine if the effectiveness of the intervention is affected by certain demographic factors.

- You may also consider adding feedback questions to better understand the service users' experience (e.g., what they found the be more relevant or enjoyable, what they were not able to connect with, etc.).

☐ **Do you have a unique identifier in the survey which can assist with following up with specific service users?**

- Having unique identifiers in the survey will allow caseworkers to identify specific service users for further follow up if necessary.

- In line with NCSS' person-centred approach, we recommend that follow ups are conducted for service users who have exhibited the need for additional support.

☐ **Are your users able to complete the survey online?**

- You may need to consider other modes of data collection if your users are unable to complete the online survey due to various reasons.

- This may include the use of a physical form.

- You can contact us at research@ncss.gov.sg for further discussion regarding the mode of data collection should you require assistance.

☐ **Taking into account the nature of your programmes, when is an appropriate time to administer the survey?**

- As much as possible, NCSS recommends that the collection of data be done at the point of intake and discharge respectively.

- However, different types of programmes would likely have different points at which data is collected due to logistical limitations.

  ○ **Scenario 1**

    Using counselling programmes as an example, you may choose to administer the pre-intervention survey during the intake session, and the post-intervention survey may be administered at the end of the final counselling session.

  ○ **Scenario 2**

    For other programme types such as befriending at drop-in centres, it might be challenging to collect the pre-intervention data as part of the registration process due to certain logistical challenges. In such cases, you may consider separating the registration process and outcome evaluation data collection process into two different sessions.

# Step 3: Collect data and deliver service

After the necessary preparations have been completed, data collection and service delivery may proceed as planned.

During this stage, programme managers are to ensure that all challenges are documented for review. Where possible, SSAs should address these concerns as early as possible to avoid the possibility of data issues (e.g., incomplete data, inaccurate data, etc.) from arising. This is because data issues would affect the data integrity and as a result, potential findings might be compromised.

For SEF onboarded programmes, programme managers may share challenges faced with the NCSS team. The NCSS team would brainstorm and share best practices on how such challenges can be overcome at the earliest possible juncture. Depending on the feedback from this step of the outcome evaluation, NCSS will review data collection processes periodically with individual SSAs to ensure that the processes remain as efficient as possible.

Some common challenges that SSAs may face and certain preventive steps taken by NCSS under the SEF include:



**Service users not completing the survey in a timely manner**

- NCSS will collaborate with SSAs to plan when the survey should be administered to ensure response rate is maximised and service users complete the survey (e.g., service users must complete the survey at the intake session, etc.).

- NCSS will also monitor data collection progress weekly to keep track of completion rates. Progress will be shared with SSAs to aid SSAs in identifying which service users have not completed the survey.

**Service users losing interest mid-way through the survey**

- One of the principles of selecting a metric to be included in the SEF repository of metrics is that it should have as few items as possible to avoid survey fatigue. This is the first step in preventing service users from ending the survey prematurely.

- Some programmes will have longer survey forms as multiple metrics are being used to track different outcomes. NCSS may recommend administering the metrics separately on a case-by-case basis to ensure that the data collected is accurate.
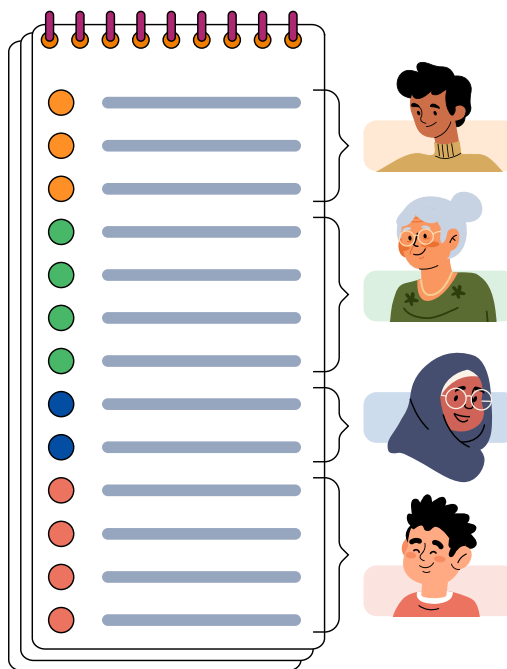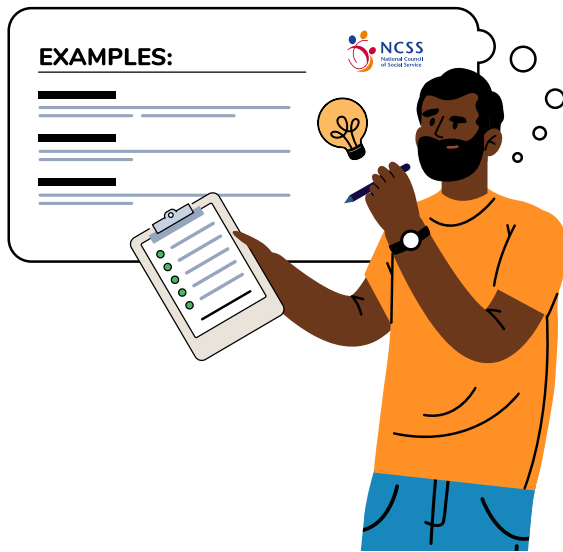
**EXAMPLES:**

**Service users requiring more guidance in understanding the survey questions**

- As some metrics may contain words that are difficult to understand, NCSS has a list of standardised examples and definitions to aid understanding.

**Checkpoints:**

☐ **Are your service users able to answer the survey questions independently?**

- If service users require prompts or examples to guide them through the questionnaires, please contact us at research@ncss.gov.sg and we are happy to provide further advice and assistance.

- If service users are unable to answer the survey questions, you may want to consider administering a proxy version to a caregiver or family member who is able to represent the service user.

# Step 4: Clean and process data

To prepare the data for analysis, some checking and cleaning of data will need to be done to ensure that the data is of good quality. Data cleaning can be done on Microsoft Excel after exporting the raw data from the survey platform.

Below are some common issues and possible ways to resolve them:

Other common software that can be used for data cleaning, processing and analysis (for Step 5):
- SPSS
- STATA
- Jamovi
- R Studio
- Python

## Duplicate data

### Example

Having two rows of data which are completely identical.

This issue could have happened because the service user clicked on the "Submit" button twice for online surveys.

### Resolution

Once it has been verified that the two rows are 100% identical and that both responses belong to the same service user, you may proceed to delete either one of the responses.

| Service User | Item 1 (Y/N) | Item 2 (Y/N) |
|---|---|---|
| | | |
| | | |
| Sarah Tan | Y | N |
| Sarah Tan | Y | N |
| | | |
| | | |
| | | |
| | | |

## Missing data

### Example

Certain questions do not have data even though the questions are meant to be compulsory.

This could be due to the online survey link having an erroneous skip logic, or if a question was accidentally marked as "optional" instead of "compulsory".

| Service User | Item 1 (Y/N) | Item 2 (Y/N) |
|---|---|---|
| | | |
| | | |
| Sarah Tan | Y | |
| | | |
| | | |
| | | |
| | | |

### Resolution

For online survey links, it is important to conduct at least 2 rounds of checks to ensure that skip logics have been applied correctly. Once data collection has begun, it is important to check the data to ensure that there are no missing data. Should there be an error in the skip logic or question settings, the survey link will need to be updated immediately to avoid further errors.

Depending on the nature of the missing data (i.e., missing 'sex' vs missing one of the items in the outcome metric), SSAs may be able to input objective data such as sex or age, but would likely need to discard the response should there be a missing rating for one of the items in the outcome metric.

## Illogical data

**Example**

There are two post-intervention entries for the same service user, but the responses to both are different.

This issue could be due to human error where the service user mistakenly selected "post-intervention" when he/she should have selected "pre-intervention" for the first entry.

**Resolution**

The system-captured data and time for online surveys are typically accurate. Hence, there might be a need to recode the entry that was completed earlier (by the same service user) to be "pre-intervention".

| Service User | Item 1 (Y/N) | Item 2 (Y/N) |
|---|---|---|
|  |  |  |
|  |  |  |
| Sarah Tan | Y | N |
| Sarah Tan | N | Y |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Following the checking of the data to ensure that the dataset is free of data quality issues, SSAs may proceed to process and organise the data into the desired format (i.e., arranging the columns in the dataset, renaming variables, etc.) to prepare for analysis.

For SEF onboarded programmes, the NCSS team will provide assistance to SSAs in data cleaning and processing. At the end of this step, SSAs should have a dataset that is clean (i.e., free from data issues), paired (i.e., each service user's pre-intervention data has been matched with the respective post-intervention data), and processed (i.e., the data is in an analysis-ready format).

### Checkpoints:

☐ **Are you noticing a lot of incomplete data?**

- If you notice a lot of incomplete data (i.e., service users end the survey prematurely), you may need to consider the following:
  ○ Service users might not understand the survey items and would require further assistance
  ○ Survey is too lengthy, resulting in service users losing interest
  ○ Service users might prefer other modes of data collection (e.g., physical forms vs online forms)

☐ **Have you observed any patterns within the service user's response?**

- Some examples include:
  ○ Having the same rating for consecutive items in the survey (e.g., "Strongly agree" for 10 consecutive items)
  ○ Ratings which follow sequential or repeated patterns (e.g., Alternating responses between "Strongly agree" and "Agree")
- It would be useful to flag these responses out for further investigation.
- You could approach the service user's caseworker to check on the service user's condition throughout the programme. This may help you make an informed decision on whether the responses are valid or if they should be removed from the dataset.

# Step 5: Analyse data and report findings

To measure if the intended outcomes have been met for service users, NCSS recommends using the reliable change index (RCI). The RCI is a type of significance testing, hence it is able to separate actual change from a change that could have occurred due to chance (in statistical terms, we refer to these as "errors").

In essence, using the RCI allows us to say with greater confidence if the intervention has indeed resulted in the improvement of a service user's outcomes, as well as the extent of such improvements. Please see Table 4 below for examples of how we may interpret whether outcomes have been met using the RCI.

For more information about the RCI, please contact NCSS at research@ncss.gov.sg and we are happy to get in touch. SSAs may refer to the Annex for the broad technical steps involved in the calculation of the RCI.

Benchmarks will also be consolidated by NCSS across programmes using the same outcome metric. SSAs may make comparisons against these benchmarks to gain a better understanding of how your service users fare compared to the rest of the population.

NCSS will provide support to SSAs in conducting such analyses. Outcome metrics will also be reported in a format that is aligned with the Enhanced Programme Evaluation System (EPES) for SSAs that are required to complete it. SSAs may use the findings to craft an outcome evaluation report which can be disseminated internally.

**Table 4: Examples of how outcome scores may be interpreted using the RCI**

| Service user | Score difference *from pre to post* | RCI | Outcome | Interpretation |
|---|---|---|---|---|
| Anna Lee | 4 | 3 | Improved significantly | Anna saw a 4-pt increase in score from pre- to post-intervention. The 4-pt has exceeded the RCI, suggesting that Anna has improved significantly for this outcome. |
| Brandon Ng | 2 | 3 | No significant change | Brandon saw a 2-pt increase in score from pre- to post-intervention. However, the 2-pt is within the RCI, hence we cannot be confident that Brandon has improved in this outcome. |
| Carol Lim | -5 | 3 | Deteriorated significantly | Carol saw a 5-pt decrease in score from pre- to post intervention. This 5-pt decrease has exceeded the RCI, this suggests that Carol faced a significant deterioration in this outcome. It is important that the caseworker follows up with Carol as there may be external factors that have caused the deterioration, and she may require additional support. |

**After conducting the analyses, SSAs may compile the findings into a report. Below is a non-exhaustive list of what should be included in the report:**

☐ Details about the programme and data collection (i.e., programme objective, sample size, survey timepoints, etc.)

☐ Percentage who showed significant improvement in outcomes

☐ Percentage who showed significant deterioration in outcomes

☐ Percentage who showed no significant change in outcomes

☐ Comparison against benchmarks

☐ Whether certain profiles were more or less likely to show significant changes

☐ Qualitative data collected from interviews, focus groups or observations

☐ Key insights and takeaways

☐ Recommendations to improve the programme

☐ Challenges faced in conducting the outcome evaluation

☐ Recommendations to improve the outcome evaluation process

**Checkpoints (for Step 5):**

☐ **Are there differences between what caseworkers observed/understood about a service user's progress compared to the data from the outcome evaluation?**

- Caseworkers' observations of service users' progress may differ from the service users' survey data. It is important to take both into account, and understand why the discrepancy exists in order to give a holistic view of service users' progress.

☐ **Is there a study conducted locally on the relevant population (e.g., persons with disabilities, caregivers, etc.) that you can refer to for the standard deviation and reliability index for calculation of the RCI?**

- If you are not able to find a relevant study conducted locally, you can consider referring to the official manual from the metric's developer.
- Please contact us at research@ncss.gov.sg and we are happy to provide further advice and assistance.

## Step 6: Consolidate feedback and refine programme

Using the evaluation report, SSAs should organise internal reviews with the different staff and stakeholders involved to ensure that all relevant parties are aware of how the programme has performed. The evaluation report should be used to provide insights into whether the programme has addressed the problem statement. This will inform decisions about the allocation of resources and identification of the programme direction following the evaluation.

It is crucial that SSAs use the findings to refine the programme's TOC to ensure that the programme remains relevant to the continuously evolving needs of the communities being served. SSAs may also revise or supplement the programme's TOC using updated knowledge in the sector if applicable.
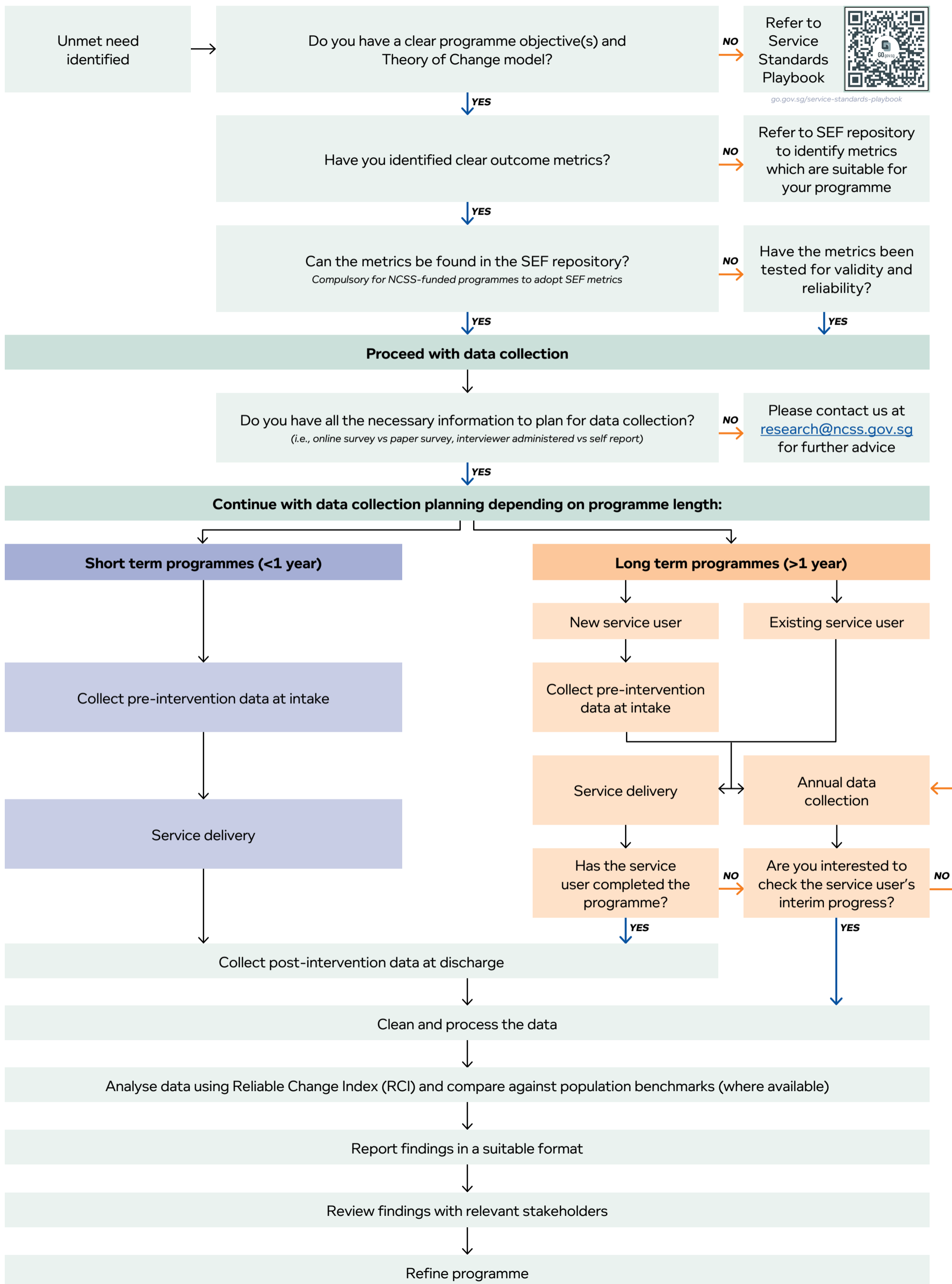


**Checkpoints:**

☐ **Have all relevant stakeholders had a chance to review the report before the discussion session?**

- It would be helpful if the report is disseminated to stakeholders before the discussion session. The discussion can then focus on interpreting the findings and brainstorming how the programme can be improved.

# Summary of Workflow

**SSAs may use the workflow in Figure 3 below as a guide on the key processes for outcome evaluation in the social service context. Should SSAs require further guidance or support about outcome evaluation, please contact NCSS at research@ncss.gov.sg and we are happy to get in touch.**

**Figure 3: Summary of workflow**



Unmet need identified

Do you have a clear programme objective(s) and Theory of Change model?

**NO** → Refer to Service Standards Playbook

*go.gov.sg/service-standards-playbook*

**YES**

Have you identified clear outcome metrics?

**NO** → Refer to SEF repository to identify metrics which are suitable for your programme

**YES**

Can the metrics be found in the SEF repository?

*Compulsory for NCSS-funded programmes to adopt SEF metrics*

**NO** → Have the metrics been tested for validity and reliability?

**YES** **YES**

**Proceed with data collection**

Do you have all the necessary information to plan for data collection?

*(i.e., online survey vs paper survey, interviewer administered vs self report)*

**NO** → Please contact us at research@ncss.gov.sg for further advice

**YES**

**Continue with data collection planning depending on programme length:**

**Short term programmes (<1 year)**

**Long term programmes (>1 year)**

New service user        Existing service user

Collect pre-intervention data at intake

Collect pre-intervention data at intake

Service delivery

Service delivery        Annual data collection

Has the service user completed the programme?        **NO** → Are you interested to check the service user's interim progress?        **NO**

**YES**        **YES**

Collect post-intervention data at discharge

Clean and process the data

Analyse data using Reliable Change Index (RCI) and compare against population benchmarks (where available)

Report findings in a suitable format

Review findings with relevant stakeholders

Refine programme

# Annex

## Likely asked questions

**1. How does NCSS select metrics to be included in the SEF repository?**

NCSS selects metrics to be included in the SEF repository based on 2 main principles:

- The metric must have been clinically and/or statistically assessed for reliability and validity.
- The metric must contain as few questions as possible to ensure that service users do not experience survey fatigue, without compromising on the validity and reliability of the metric.

Other than the 2 guiding principles above, NCSS will also have programme group-specific requirements. For example, for children and youth programmes, NCSS has the added requirement of the metric having to cover a wide age range in order for the metric to be included in the repository.

**2. Where can I find the latest set of metrics in the SEF repository?**

The SEF repository is reviewed periodically. For the latest set of metrics, please write in to research@ncss.gov.sg and we are happy to provide further advice and assistance.

**3. My SSA's service users are too young or not able to give their consent, how do I go about collecting data from them for evaluation?**

NCSS recommends that service users complete the survey whenever possible. However, we are aware that certain populations may not be able to provide informed consent.

For service users below 18 years old, NCSS recommends that SSAs seek the caregiver's consent on top of the service user's assent (i.e., an expression of agreement) before proceeding with the survey. As much as possible, the assent question in the survey form should be in age-appropriate language, caseworkers should also be ready to verbally explain the assent to service users should the need arise.

For service users 7 years old and below, as well as for those who are not able to provide consent, there is an option to engage a proxy (e.g., the service user's parents) to complete the survey on the service user's behalf.

SSAs can consider adding a clause on data collection for research and evaluation purposes in the intake form for caregivers to provide their consent upfront. Alternatively, the consent question can also be added at the start of the survey form for caregivers to provide consent.

# Other resources

Besides the resources that have been identified in the sections above, SSAs may choose to refer to the following resources which would be helpful in outcome evaluation, be it in terms of articulating programme objectives, or improving research capabilities.

| Resource | | Details |
|---|---|---|
| **"Application of Mixed Methods Research in Social Service" (SSI0025)** by the Social Service Institute (SSI)<br><br>*go.gov.sg/ssi-researchmethods* | | This course aims to provide those working in the social service sector with an overview of the core designs and the main ways in which data can be mixed and presented meaningfully in mixed methods research. Mixed methods research explores social issues more holistically. It can be used in different types of social service research including evidence syntheses, needs assessments and programme evaluations. |
| **Learning to Write a Funding Proposal e-course** by NCSS<br><br>*go.gov.sg/ncss-funding-proposal* | | This e-course aims to build proposal writing capabilities among social service agencies and improve the quality of funding applications submitted in the sector. |
| **Volunteer Research Consultant Matching Service** by NCSS<br><br>*go.gov.sg/quycvt* | | NCSS provides this service to match volunteer research consultants with social service agencies that require assistance with research projects (e.g., consultancy, advice, data analysis).<br><br>Please fill up this application form to indicate your interest for this service. |

# Case example

## Background

A particular SSA has a drop-in centre for youth between 11 and 18 years old.

Besides the drop-in centre being a safe place for the youth to spend time at after school hours, the SSA also plans activities which aim to foster positive youth development through workshops and activities such as the following:

- Experiential learning so that service users will have the opportunity to be actively involved in the learning journey and build leadership skills along the way
- Sports activities to improve physical health and other soft skills (e.g., teamwork)
- Structured workshops to improve emotion regulation, awareness and develop positive coping skills

The workshops are carried out on a weekly basis, over the span of two years.

**Based on the SEF, here is how the outcome evaluation process will pan out:**

## Step 1: Decide outcome metrics

The SSA's main programme objective is to foster positive youth development through workshops and activities conducted at the drop-in centre.

The NCSS team took into account both the programme objective and profile of the service users, which in this case is children and youth, to decide the corresponding outcome metric. The programme Theory of Change was also assessed to help with the determining of the outcome metric.

In this case, the outcome metric from SEF's repository of common outcomes would be ACT! SG.

## Step 2: Plan and prepare for data collection

This planning and preparation phase involved collaboration between NCSS and the SSA to ensure that the data collection process is as seamless as possible.

**Determining timeline for data collection**

As the programme has been planned to run for two years, NCSS considers this as a long term programme and the data collection period would be as follows:

- **Pre-intervention:** to be collected at intake or registration, after receiving parents'/caregivers' consent given that children and youth are minors
- **Interim:** to be collected annually, this allows for the SSA to track if the service user is benefitting from the programme instead of waiting for the full two years to end
- **Post-intervention:** to be collected at discharge or at the end of the programme

**Mode of administration**

As the service users are between 11 and 18 years old, they would likely be comfortable completing an online survey. Using an online survey compared to a paper survey reduced the need for manual data entry.

**How will the surveys be administered?**

Given the service users' profile and their comprehension ability, they should be able to complete the online surveys independently instead of requiring a proxy. Hence, it was decided that the survey will be self-reported (i.e., service users will complete the survey on their own behalf).

**Developing the survey form**

Other than understanding the service users' outcomes using ACT! SG, the SSA was also interested in receiving further feedback on the service users' experience. The online form therefore included additional question on which workshop was the most enjoyable, further areas of improvement, etc.

Items to monitor service users' quality of life (QOL) using the KIDSCREEN indicator were also included.

Please note that this case study is meant to be an example to illustrate how the process would look like, it is not generalisable to all programmes as NCSS offers tailored support and solutions for different programmes.

## Step 3: Collect data and deliver service

After the finalisation of the survey form, the SSA disseminated the online link to service users.

During this stage, NCSS monitored the progress closely and provided updates to the SSA. In the first 2 weeks, many service users were not completing the surveys in a timely manner despite the caseworkers sharing the online link with them. Caseworkers also provided feedback that multiple reminders were required before the service users would complete the survey.

At this juncture, NCSS and the SSA convened again to brainstorm how the completion rate can be boosted. Given the circumstances, it was possible for caseworkers to stay in the same room as the service users while the service users completed the survey form. This ensures that the service users would complete the survey in a timely manner, reducing the burden on caseworkers to send out repeated reminders.

To prevent service users from potentially providing socially desirable responses, NCSS also advised the SSA that even though the caseworkers and service users are in the same room while service users are filling up the survey, caseworkers should avoid looming over or reading the service users' responses. This would help service users feel more at ease, and therefore provide more honest responses.

## Step 4: Clean and process data

During data cleaning, it was noticed that some service users submitted duplicated responses that were completed less than a minute apart. These responses were shared with the SSA, and the SSA verified that the duplicated responses were due to the service users clicking on the 'Submit' button twice. The additional responses were removed, and only one response per service user at each timepoint was retained.

Next, each service user's pre-intervention data was matched with the respective post-intervention data. In the process of matching the data, 50 out of 120 pre-intervention responses did not have a post-intervention response. Upon checking with the SSA, the SSA confirmed that the 50 did not have post-intervention data as they dropped out of the programme.

As such, the final dataset contained the matched data of 70 service users.

## Step 5: Analyse data and report findings

The data was analysed using the Reliable Change Index (RCI), comparing each service user's progress based on the ACT! SG outcome metric from pre- to post-intervention.

It was found that 40% of service users saw improvements in positive youth development outcomes based on ACT! SG, 30% deteriorated and the remaining 30% did not have significant changes between pre- and post- intervention.

Of the three domains in ACT! SG, a large majority of service users experienced improvements in the "Achieve" domain, thus suggesting that the SSA's programme was more successful in helping youth develop in that aspect as opposed to "Connect" or "Thrive".

Analysis findings were also reported in a format that was aligned with the Enhanced Programme Evaluation System (EPES).

## Step 6: Consolidate feedback and refine programme

After receiving the analysis findings from NCSS, caseworkers were able to follow up with the individual service users who experienced deterioration in outcomes to provide further support.

The SSA also conducted internal reviews and discussions based on the analysis findings to further refine the programme. In terms of programme improvement, one of the key points raised was the high attrition rate (i.e., out of 120 service users initially, there were 50 drop-outs) after one year of the programme. This suggests that the SSA may consider shortening the length of the programme, and resources set aside for this second year of programme could then be used to meet other more pressing needs of the service users.

At the end of the discussion sessions, the SSA consolidated the findings and observations, and updated the programme's Theory of Change with the new knowledge they have gained.

# Calculating and using the Reliable Change Index (RCI)

The broad steps below contain some technical references for the different components of the RCI formula. For more information, please contact us at research@ncss.gov.sg and we are happy to provide further assistance.

|  | Example |
|---|---|
| **Step 1**<br><br>Get the standard deviation (SD) from test manual/ journal article | **SD** = 2.07 |
| **Step 2**<br><br>Get the reliability index from the test manual/ journal article<br><br>We recommend looking for a statistic called Cronbach's alpha (α), otherwise SSAs may look for other reliability statistics such as inter-rater reliability or test-retest reliability (r) | **α** (or r) = 0.79 |
| **Step 3**<br><br>Calculate the RCI using the formula below:<br><br>$$1.96 \times (\sqrt{2}(SD \times \sqrt{1-\alpha}\,))^2$$<br><br>1.96 is the standardized score associated with 95% confidence level | $$\textbf{RCI} = 1.96 \times (\sqrt{2}(2.07 \times \sqrt{1-0.79}\,))^2$$<br><br>$$= 2.63$$ |
| **Step 4**<br><br>Subtract pre-test from post-test score | **Pre-test score** = 34<br>**Post-test score** = 26<br><br>**Change** = 34 − 26 = 8 |
| **Step 5**<br><br>If the change from pre to post test is more than the threshold, then a significant change is observed | 8  >  2.63<br><br>**Change  >  RCI**<br><br>Significant change was observed |

Adapted from Social-Emotional Assessments in Schools, Appendix E[4]

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[4] Wodrich, Social-Emotional Assessments in Schools, Appendix E: How to calculate reliable change indexes (RCIs). https://opentextbooks.library.arizona.edu/wodrichseas/back-matter/how-to-calculate-a-reliable-change-index-rci/.

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