

STANDARDS FOR RESEARCH IN (StaR) CHILD HEALTH

There are special considerations for undertaking health research with children. These include the ethical obligation to optimize the value of their participation and to safeguard them from avoidable harms.

In 2012, Standards for Research in (StaR) Child Health published Standards to guide the rigorous design, conduct, and reporting of child health research in six priority areas:

SIX PRIORITY AREAS

Consent and recruitment

Well-designed consent procedures are essential to ethically sound recruitment

Containing risk of bias

Biases can lead harmful or ineffective treatments to be prescribed or effective ones to be withheld

Appropriate age groups

Trials should account for age differences and consistently report age-related data to ensure valid, useful results

Selection, measurement, and reporting of outcomes

Outcomes should be relevant to all stakeholders, including children and families

Determining adequate sample sizes

The sample size calculation is a matter of Good Clinical Practice when designing a trial

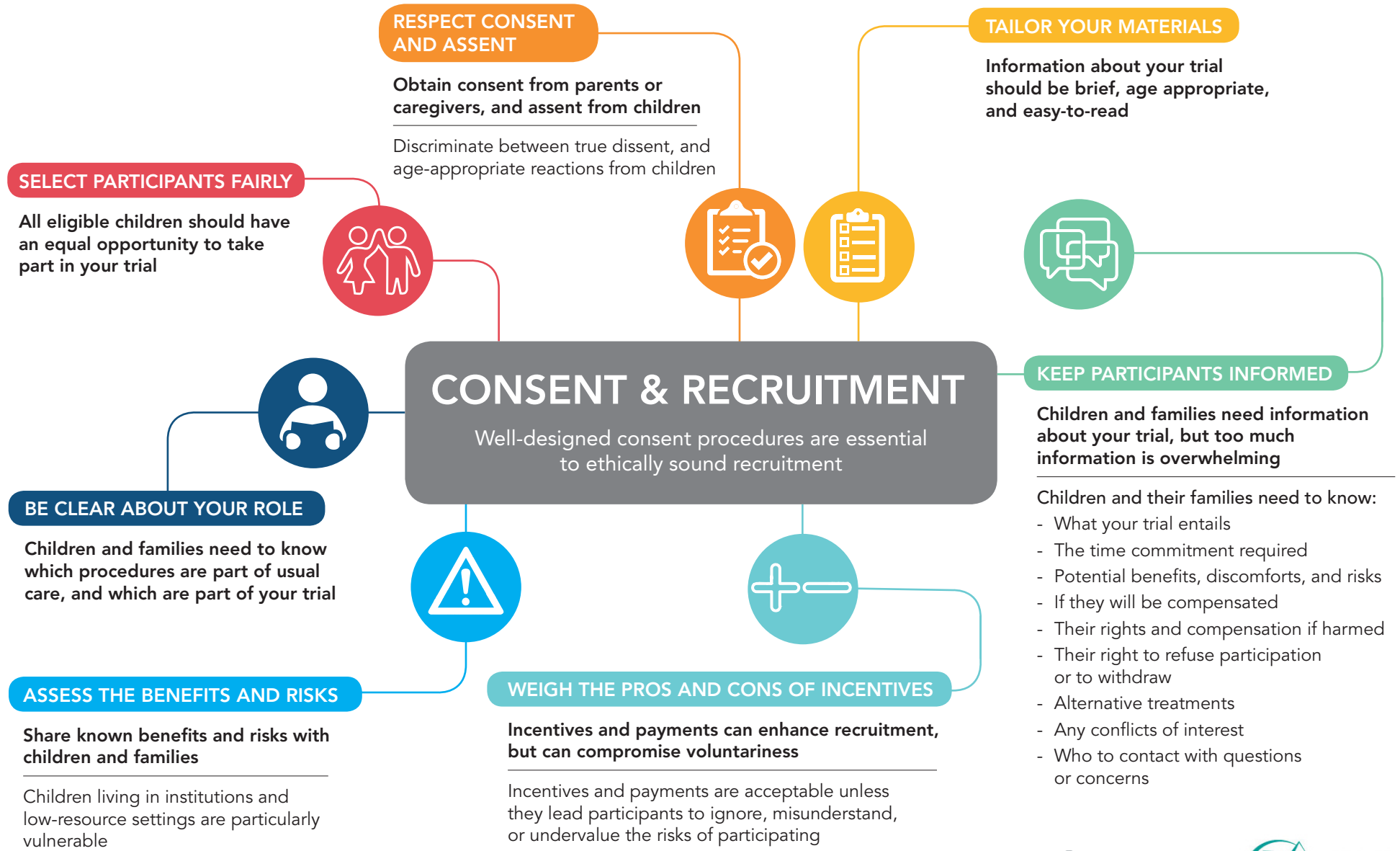
Data monitoring committees (DMCs)

A DMC protects the safety of participants and the ability of the trial to yield reliable results

These summaries provide the key design, conduct, and reporting considerations related to each of the six priority areas. They are designed to complement the detailed guidance within each published Standard.

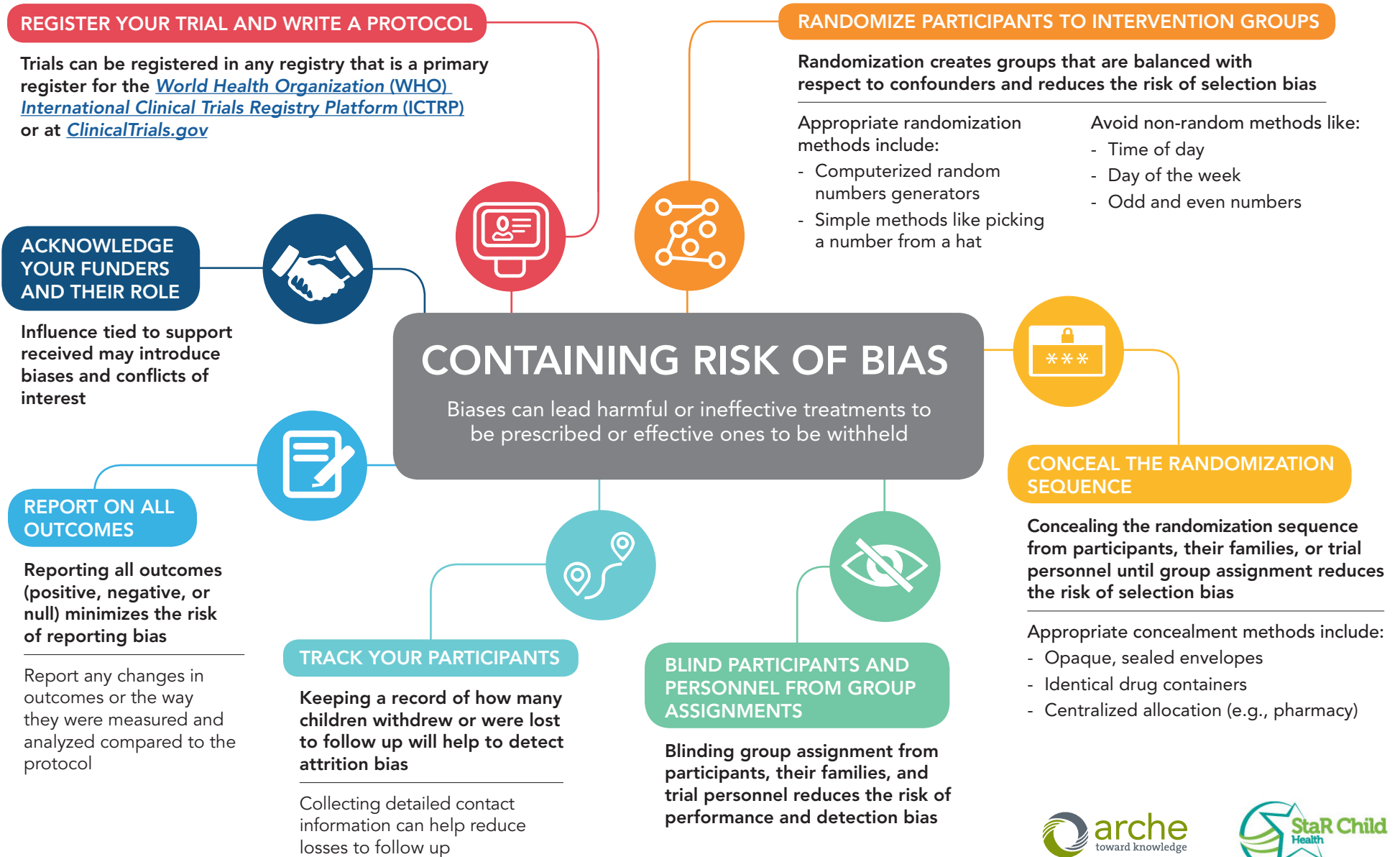
Trainees, clinicians, and researchers may find these summaries useful to learn about and guide the design, conduct, and reporting of child health research.





For more information, see: Caldwell PH, Dans L, de Vries MC, et al. Standard 1: consent and recruitment. *Pediatrics*. 2012;129 Suppl 3:S118-23.





For more information, see: Hartling L, Hamm M, Klassen T, et al. Standard 2: containing risk of bias. *Pediatrics*. 2012;129 Suppl 3:S124-31.



PLAN AHEAD

Decide on eligible age groups, age-related stratification, and subgroup analyses ahead of the trial



CONSIDER INTEGRATED AGE GROUPS

The [Eunice Kennedy Shriver National Institute of Child Health and Human Development](#) (NICHD) has defined age stages that may be used to establish age groups and age-based sub-groups for child health trials

AGE STAGES DEFINED BY NICHD PEDIATRIC TERMINOLOGY

Stage	Definitions		
Preterm neonatal	The period at birth when a newborn is born before the full gestational period	Infancy	28 days to 12 months
Term neonatal	Birth to 27 days	Toddler	13 months to 2 years
		Early childhood	2 to 5 years
		Middle childhood	6 to 11 years
		Early adolescence	12 to 18 years
		Late adolescence	19 to 21 years



JUSTIFY THE SELECTED AGE GROUP IN THE FINAL REPORT

Describe in detail:

- Whether age groups were decided a priori
- How and why the age groups were selected
- The method used to ascertain participants' ages

AGE GROUPS

Trial designs that account for age differences and promote consistency in the reporting of age-related data are essential to ensure valid and clinically useful results



CHOOSE AGE-APPROPRIATE OUTCOMES

Not all outcomes will be relevant or appropriate for children of all ages
Outcomes are sometimes measured differently in children of different ages

For more information, see: Williams K, Thomson D, Seto I, et al. Standard 6: age groups for pediatric trials. *Pediatrics*. 2012;129 Suppl 3:S153-60.



ADOPT A CORE OUTCOME SET IF AVAILABLE

Core outcome sets are a minimum set of outcomes that should be measured for a given condition in a standardized way

The [COMET initiative](#) aims to facilitate the development and application of core outcome sets

REPORT OUTCOMES AND MEASURES FULLY

Be completely transparent as to:

- Planned outcomes and how they were decided
- Who measured and reported the outcomes
- The measures used to assess the outcomes
- When the outcomes were measured
- Definitions of event endpoints
- Previous validation work

Report any changes to the outcomes and how they were measured compared to the protocol

SELECT IMPORTANT OUTCOMES

Select outcomes that are important to all stakeholders and relevant to clinical decision-making

MEASURE OUTCOMES RIGOROUSLY

Use measures that are valid in the age group under study, with the condition of interest, in the setting that the trial is conducted

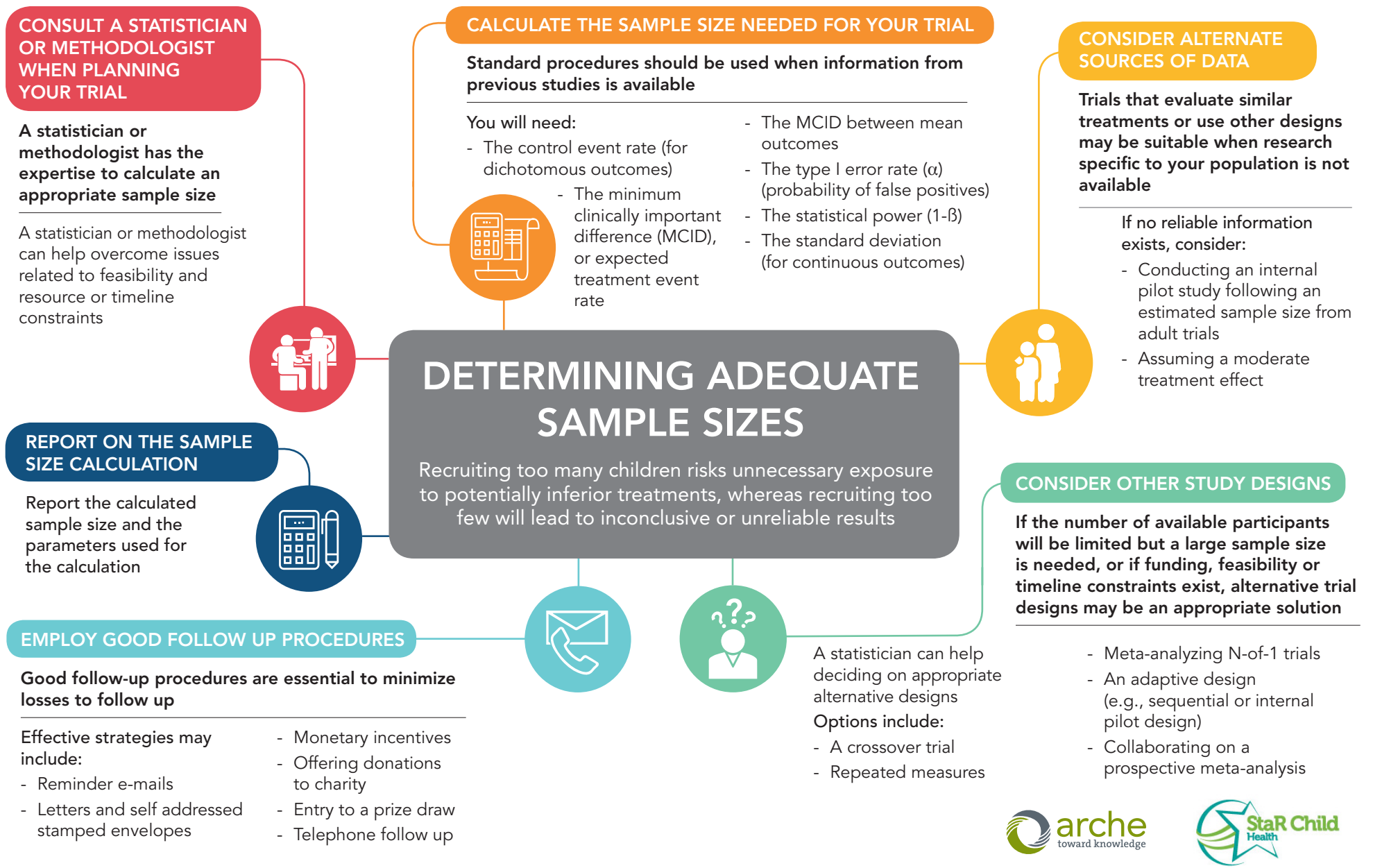
Measures must be responsive, and sensitive enough to reliably detect clinically important differences

Consider conducting validation studies if existing measures have not been validated

SELECTION, MEASUREMENT, AND REPORTING OF OUTCOMES

Trials should measure outcomes that are relevant to all potential stakeholders, including children, their families, regulatory authorities, funders, and policymakers





For more information, see: van der Tweel I, Askie L, Vandermeer B, et al. Standard 4: determining adequate sample sizes. Pediatrics. 2012;129 Suppl 3:S138-45.



CONSIDER IF YOUR TRIAL NEEDS A DMC

In some trials, the monitoring of conduct, accruing results, and safety data should be undertaken by an independent panel of experts

You will need a DMC if:

- You are investigating a new intervention
- Few safety data are presently available
- Your trial addresses major morbidity or mortality endpoints
- The participating population is high risk
- You have planned interim analyses
- There is a possibility of early stopping
- Your sample size is large
- Your trial will be undertaken at multiple centers



IF YOUR TRIAL NEEDS A DMC, YOU SHOULD: KEEP THE DMC SMALL

The DMC should include one or more relevant clinician experts and a statistician or clinical trial methodologist

A consumer/community advocate (often a parent) may also provide a helpful perspective

Report unavoidable conflicts of interest



DATA MONITORING COMMITTEES (DMCs)

A DMC protects the safety of participants and the ability of the trial to yield reliable results



IF YOUR TRIAL NEEDS A DMC, YOU SHOULD: DEFINE THE DMC'S RESPONSIBILITIES

The DMC should regularly review trial data and develop recommendations for trial modification and continuation

Broader responsibilities may include:

- Reviewing and approving the trial protocol
- Releasing interim data
- Reviewing and approving manuscripts and presentations

IF YOUR TRIAL NEEDS A DMC, YOU SHOULD: REPORT ON THE DMC'S ACTIVITIES

Reporting the DMC's activities allows readers to evaluate their impact on the validity of trial results

Reports must include the DMC roles, results of interim analyses, and if early termination occurred



IF YOUR TRIAL NEEDS A DMC, YOU SHOULD: OUTLINE THE DMC'S ROLES

The DMC should be governed by a DMC charter that outlines their roles and responsibilities

The charter is prepared by the sponsor and approved by the DMC before their review of any interim data

