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Cash Transfer Programmes in low-income countries, understanding pathways to nutritional change – A realist review protocol

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4 1 Cash Transfer Programmes in low-income countries, understanding pathways to nutritional
5 2 change – A realist review protocol
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8 4 Floate, Hilary¹; Marks, Geoffrey C.²; Durham, Jo³
9

10 5 ¹ The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
11 6 hilary.floate@uqconnect.edu.au
12
13

14 7 ² The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
15 8 g.marks1@uq.edu.au
16
17

18 9 ³ Queensland University of Technology, School of Public Health and Social Work, Kelvin
19 10 Grove, Qld 4059 Australia; email: joanne.durham@qut.edu.au
20
21

22 11 Corresponding author: hilary.floate@uqconnect.edu.au
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31 **Abstract**

32 **Introduction:** Child malnutrition continues to be a significant global public health concern.
33 Nutrition-related interventions have changed and diversified over the last two decades, with
34 increasing emphasis on nutrition-sensitive programmes which address the underlying
35 determinants of child malnutrition. Cash transfer programmes (CTPs) are used with increasing
36 popularity in low-middle-income countries to improve both food/nutrition insecurity and
37 resilience. Available studies have provided mixed findings on the outcomes of CTPs on child
38 nutritional status. The purpose of this review is to understand how, why, for whom and in what
39 circumstances CTPs can consistently and positively influence child nutritional status.

40 **Methods and analysis:** This realist review is informed by RAMSES guidelines and recent
41 protocols for reviews in similar contextual environments. A five-step process is to be
42 followed. To ensure rigour and validity we adopt accepted and validated analytic techniques.
43 Early scoping of the literature and a conceptual framing exercise has identified potential
44 contextual factors and underlying mechanisms, providing the basis for tentative preliminary
45 theories expressed as a series of If/Then statements and context-mechanism-outcome
46 configurations. The analysis will apply a realist logic to identify patterns and
47 regularities/demi-regularities in these configurations until programme theory (s) are refined.
48 A final literature search, quality appraisal and data extraction will be undertaken to further
49 test the theory(s). Final steps involve analysis and synthesis, and dissemination of a
50 preliminary theory. The various CMOs constructed through our analysis will inform research
51 to be undertaken following this review, involving primary data collection and expert
52 consultations to extend our review findings.

53 **Ethics and dissemination:** This stage of the study will not involve primary research; however,
54 ethical clearance has been sought through the University of Queensland for the next steps of
55 the research project. Findings will be presented in accordance with RAMESES guidelines and
56 published in a peer-reviewed journal.

57 **Keywords:** nutrition-sensitive, cash-transfers, unconditional cash transfer, conditional cash
58 transfer, nutrition insecurity, malnutrition, nutrition status, children, food insecurity,
59 implementation, realist review

60 **Article Summary**

61 **Strengths and Limitations of this study**

- 62 ➤ The use of realist review methods enables explicit examination of contextual factors
63 and underpinning mechanisms to explain how various cash transfer programme
64 (CTP) implementation structures, services and practices influence child nutritional
65 status

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- 66 ➤ The review will provide a middle-range theory (MRT) and CMO configurations as a
- 67 summary of current understandings that can be empirically tested through the
- 68 collection and analysis of primary data
- 69 ➤ The method includes a broad range of evidence from various data sources, including
- 70 grey literature; while strengthening understandings of context it may also affect data
- 71 quality
- 72 ➤ The quality appraisal and data extraction stage of the review will adopt standard
- 73 approaches to ensure rigour and validity
- 74 ➤ Maintaining an audit trail throughout the review process will ensure decision-making
- 75 is structured and reproduceable
- 76

For peer review only

95 Background

96 Poor nutrition in low-resource countries continues to be an underlying cause of at least one
97 third of all child deaths and approximately twenty percent of maternal mortality annually¹.
98 Evidence suggests however, that sufficient and adequate nutrition during the first 1000 days
99 of life (from conception to a child's second birthday) would increase longer-term resilience to
100 economic shocks at the individual, household, community, and national levels². Based on a
101 review of the evidence and with a focus on low-income countries, UNICEF has identified
102 numerous factors that contribute to poor child nutrition status, and has consolidated these in
103 a conceptual framework of the determinants of child nutritional status³. UNICEF categorises
104 these determinants into the basic (e.g. political and economic structures), underlying (e.g.
105 household food security/health environment/care for mothers and children), and immediate
106 (e.g. child's dietary intake and child's health status)³. As with other social determinants of
107 health, addressing the determinants of child nutritional status therefore requires interventions
108 targeting not only child health, but the structural, environmental and resource related causes
109 (i.e. underlying and basic determinants), affecting child nutritional status.

110 Based on the UNICEF Framework, interventions to improve maternal and child nutrition are
111 typically categorised as nutrition-sensitive or nutrition-specific. Nutrition-sensitive strategies
112 aim to address the underlying and basic determinants of child nutritional status and can
113 support nutrition-specific interventions, such as feeding programmes and typically target
114 women of reproductive age, pregnant and lactating women and children under the age of five.
115 This is because children under the age of five are the most vulnerable to malnutrition and
116 associated morbidities, and the prevention of largely irreversible outcomes (i.e. failure to
117 thrive/stunting) must be addressed in the first 1000 days of life. Nutrition-sensitive
118 interventions include for example, agricultural programmes, infrastructure development,
119 education, asset support and social protection initiatives¹. To address the basic and
120 underlying determinants of child nutritional status, increasingly, donors and governments have
121 been using cash transfer programmes (CTPs), to alleviate chronic and acute food and nutrition
122 insecurity in vulnerable populations, rather than food aid⁴.

123 CTPs can be either conditional or unconditional. Examples of conditional cash transfers are
124 incentives for school enrolment, immunisation programmes, childcare benefit schemes and
125 unemployment benefits with job-seeking requirements⁵. This type of cash transfer is
126 commonly used in more advanced economies. Unconditional cash transfers are those
127 provided without conditions for recipients to meet certain behaviours, they can be offered
128 through the provision of cash only or a package of assistance interventions, dependent on
129 context. Examples include, monthly cash transfers during hunger gap periods to help
130 households manage risk, continuous transfers to orphans and vulnerable households, or a
131 combination of cash and in-kind assistance (e.g. food rations, if food availability in local
132 markets is low). This form of cash transfer is more commonly employed in lower-middle-
133 income countries, especially those with large rural populations, because of high rates of food
134 insecurity and dependence on external support during periods of economic hardship (e.g.
135 between harvest periods). For example, in Kenya, the Hunger Safety Net Programme (HSNP),
136 provides unconditional cash transfers to pastoralist households in the North and East of the
137 country during periods of low rainfall, to improve food security, reduce dependence on food
138 aid and prevent the sale of assets.

139 The underlying theory of unconditional CTPs is that during periods of economic hardship, cash
140 is provided in a timely manner (i.e. before the depletion of household assets and accumulation
141 of debts), in sufficient quantities to meet essential household expenditures to facilitate positive,
142 rather than negative, household risk management strategies. The underlying assumption of
143 nutrition-sensitive CTPs is that by increasing household income, households will be able to

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3 144 buy adequate quantities of food and of sufficient diversity, which in turn will benefit child
4 145 nutrition and prevent both acute (e.g. wasting) and chronic (e.g. stunting) malnutrition.
5 146 Improving nutritional outcomes through cash transfers however, is only one strategy and is
6 147 usually complemented by other initiatives that aim to address the underlying and immediate
7 148 determinants of child nutritional status ¹⁶⁻⁸. For example, improving health services and health-
8 149 seeking behaviours, increasing the capacity of primary health care workers to deliver nutrition
9 150 education for caregivers, improving household agricultural productivity and work opportunities.

11
12 151 While the underlying pathways of how CTPs may affect child nutritional status in times of
13 152 economic hardship are illustrated in frameworks such as those provided by the UNICEF
14 153 Framework, as scholars such as Leroy et al ⁷, Black et al ¹ and De Groot et al ⁶ observe,
15 154 nutrition interventions such as CTPs are implemented in complex social systems with
16 155 outcomes influenced by various contextual factors. Furthermore, while several studies have
17 156 demonstrated CTPs can impact positively on food consumption, agricultural yields, and asset
18 157 depletion ^{7 9-12}, there is limited research that explains how, in what circumstances and over
19 158 what timeframe, various CTP implementation structures, services and practices influence child
20 159 nutritional status. The purpose of this review is to understand how, why, for whom, in what
21 160 circumstances, in what respect and over what duration, CTPs can consistently and positively
22 161 influence child nutritional status. Applying a realist logic of enquiry will facilitate our exploration
23 162 and explanation of the avenues in which CTPs reach intended and unintended child nutrition
24 163 outcomes.

27 164 The review and evidence synthesis outlined in this protocol is the first stage of a research
28 165 project that employs a theory-driven realist approach ¹³. The results of tentative theories
29 166 developed in this review will be empirically tested in Kenya and Ethiopia (currently
30 167 implementing large-scale CTPs). We have selected a realist approach because CTPs have
31 168 been implemented in different ways and in different contexts and available studies have
32 169 provided mixed findings on the outcomes of CTPs on child nutrition, suggesting context may
33 170 play a key role in how and in what circumstances different causal mechanisms are triggered
34 171 to generate nutritional outcomes. Furthermore, using a realist synthesis will allow us to use
35 172 evidence from a broad range of data sources from international development, nutrition, food
36 173 security and CTPs, providing novel insights into CTP programme development and
37 174 implementation. This will allow us to develop tentative theories that can then be tested
38 175 empirically to provide a deeper understanding of CTP implementation structures and
39 176 practices.

42 177 **Methods**

43 178 **Realist Review Methodology**

44 179 The realist approach to synthesising evidence has become accepted as a rigorous alternative
45 180 method to systematic reviews, where the intent is to understand causation. Other forms of
46 181 systematic reviews were investigated (e.g. meta-analysis), however, while providing
47 182 information on outcomes, other methods often fail to explain how or why programmes worked
48 183 and do not easily account for the complexity found in real-world nutrition related CTPs ¹⁴.

51 184 Publication standards have been issued by the RAMESES (Realist and Meta-Narrative
52 185 Evidence Synthesis: Evolving Standards) project, and realist reviews are utilised with greater
53 186 frequency in complex intervention evaluations, particularly those related to human behaviour
54 187 change outcomes, such as CTPs ¹⁵⁻¹⁹. The approach is a theory-based approach to
55 188 understanding 'what works for whom in what circumstances' and importantly, *why and in what*
56 189 *context?* ¹³.

59 190 The realist approach as proposed by Pawson and Tilley ¹³, is based on a specific philosophical
60 191 approach, that is, realism and more specifically, scientific realism, sitting somewhere between

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3 192 positivism (the belief that knowledge must be scientifically tested with systematic
4 193 mathematical or logical proof) and constructivism (the theory that knowledge is constructed
5 194 by humans through their own experiences)^{20 21}. The approach is based on the understanding
6 195 that there is a social reality, but this is socially constructed. Outcomes (O) are generated by
7 196 mechanism(s) (M) that are triggered within certain contexts (C). The mechanism(s) from a
8 197 realist perspective (in socially contingent interventions) is usually hidden and is the reaction
9 198 or response of people to resources introduced by the intervention within a certain context and
10 199 can be enabling or disabling. Context relates to the setting in which the programme operates,
11 200 including systems such as health, political, environmental, and social systems. The context
12 201 can have several layers and can be separated into the outer and inner contexts of an
13 202 intervention.

16 203 In a realist approach, the researcher seeks to understand interventions through the concept
17 204 of generative causation that is hypothesised and tested through context-mechanism-
18 205 configurations (CMOs)²². A key task for the researcher is to identify situations where
19 206 interventions have had effective and/or ineffective implementation, achieving either planned
20 207 or unplanned outcomes, and to examine the causes of these²³. Typically, to achieve this
21 208 differentiation, potential preliminary theory(s) (or candidate theory(s)) of the context,
22 209 mechanisms and outcomes in which a programme is or will be implemented are generated
23 210 throughout the review, to account for the processes of an intervention that lead to an outcome
24 211²⁴. CMO configurations and potential theories are then analysed to inform the creation of
25 212 protocols for data collection for the review and analysis. Realist evaluations typically use data
26 213 from various sources, including qualitative, quantitative or mixed methods studies. An
27 214 evidence-informed programme theory answering the realist question of what works, for whom,
28 215 under what circumstances, is the result of the inquiry¹³. All phases of a realist inquiry are
29 216 iterative, to allow for constant refinement of potential theories and CMOs. Developing and
30 217 testing CMO configurations can help ensure external validity, by enabling a level of abstraction
31 218 for the theory, or theories, that can be useful in other contexts.

35 219 A realist synthesis, which is synonymous with the realist review, applies a realist philosophy
36 220 to collate findings from various studies that are related to either a single research questions
37 221 or a collection of questions^{25 26}. The steps of a realist review, as recommended by Pawson et
38 222 al²² are as follows: 1. Clarifying the scope of the review 2. Searching for evidence 3.
39 223 Appraising primary studies and extracting data 4. Synthesising evidence and drawing
40 224 conclusions 5. Disseminating, implementing and evaluating. All phases of a realist inquiry are
41 225 iterative, to allow for constant refinement of potential theories and CMOs. Developing and
42 226 testing CMO configurations can help ensure external validity, by enabling a level of abstraction
43 227 for the theory, or theories, that can be useful in other contexts. Step 1 of the review has been
44 228 completed, step 2 is currently in progress.

47 229 Protocol and Review Methods

48 230 The approach for this protocol has been informed by peer-reviewed realist review protocols
49 231 published in the last ten years, RAMESES guidelines and the work of Ray Pawson^{13 27-37}. We
50 232 conducted a search of databases such as Medline, Scopus, and Google Scholar, using search
51 233 terms including “realist review” and “protocol”. Our search yielded 68 records, of which 13
52 234 were found to be pertinent for our review. Relevant protocols were chosen based on
53 235 similarities in programme contextual factors, such as national operating systems, multiple
54 236 implementing agencies, multifaceted causal chains, and potential outcomes. These have
55 237 informed the protocol below.

58 238 To ensure rigour and validity, we adopt accepted and validated analytic techniques. The use
59 239 of these techniques will allow us to compare and consolidate key multidisciplinary

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3 240 implementation attributes and their relationships²⁷. We used the PRISMA-P checklist when
4 241 writing our report³⁸.

6 242 Review objectives

7 243 To understand the relationships between cash transfer programmes and child nutritional
8 244 status the objectives of our review are to:

- 10 245 1) identify the underlying programme theory (s) of CTPs with nutrition objectives,
11 246 targeting children under five and pregnant and lactating women in low income
12 247 countries
- 14 248 2) explore how and why these interventions influence nutritional status of children under
15 249 five, particularly in the context of large-scale, multi-stakeholder interventions, driven by
16 250 external donors
- 17 251 3) identify how cash transfer programmes achieve or propose to achieve nutrition
18 252 outcomes in the context of large-scale social protection programmes in low- and
19 253 middle-income countries
- 20 254 4) understand the key contextual factors that interreact with the resources (i.e. cash
21 255 transfer) and the reasoning of participants to generate nutrition outcomes.

24 257 Patient and Public Involvement

25 258 The public and/or patients were not involved in this stage of the research project

27 259 Step 1: Theoretical and conceptual framework

28 260
29 261 The initial theoretical and conceptual frameworks of how nutrition sensitive programmes are
30 262 theorised to influence child nutrition status were identified based on an initial review of the
31 263 literature, discussions with relevant stakeholders (e.g. donors, community members,
32 264 development practitioners) working in nutrition and food security and the first author's practical
33 265 experience. The initial literature search revealed four potentially relevant frameworks^{1 6-8}.
34 266 Based on these frameworks and the UNICEF conceptual framework^{1 3 6-8}, and complemented
35 267 by stakeholder interviews and practical experience, we identified common themes across the
36 268 frameworks and possible gaps in knowledge. We then mapped the proposed pathways and
37 269 underlying assumptions of how CTPs influence child nutritional status in a conceptual framing
38 270 exercise (using the UNICEF and other relevant frameworks as our foundation) and then began
39 271 the process of identifying potential CMO configurations and tentative theories. The results
40 272 included several potential CMOs, and a series of If/Then statements to facilitate in the creation
41 273 of tentative theories. The CMOs have been categorised into four main domains, that were
42 274 chosen through the grouping of common concepts and themes. The four main domains of
43 275 implementation structures, contextual influences, food and community response, as
44 276 represented in Figure 1. Implementation practices have been identified as a key contributing
45 277 factor in CTPs achieving nutrition outcomes. Therefore, this review will also draw on the
46 278 practical concepts of implementation research guidelines to help with our understanding of
47 279 what elements of CTPs contribute to planned or unplanned outcomes

51
52 280 An example of two of our hypothesised CMOs and tentative theories categorised under the
53 281 domain of implementation structures and associated capacity building are as follows:

- 55 282 • Nutrition education provided by a health professional (C), who is skilled in
56 283 behaviour change techniques (resource M) and able to create nutrition
57 284 awareness in recipients (response M) that will ensure CTP recipients provide
58 285 food to their children in sufficient quantity and diversity and prevent/treat
59 286 diseases, reducing chronic malnutrition rates in children under five (O)

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3 287 OR
4 288 • Nutrition education provided by CTP employees (e.g. government workers or
5 289 programme monitors) (C), unskilled in behaviour change techniques but trained
6 290 in CTP protocols (resource M), deliver appropriate nutrition messages and
7 291 health-seeking advice, guaranteeing CTP recipients diversify their child's daily
8 292 dietary intake and prevent diseases (response M), reducing chronic
9 293 malnutrition rates in children under the age of five (O)

12 294 **Step 2: Identifying relevant literature to develop preliminary programme theories**

13 295 Following the identification of our tentative programme theory (s), the next stage in our review
14 296 will be to identify the relevant literature for inclusion in the review. The purpose of this step is
15 297 to identify a broad range of studies relating to CTPs and their outcomes from quantitative,
16 298 qualitative and mixed methods empirical studies.

18 299 **Literature search strategy**

19 300 Following the RAMESES guidelines for a realist review, in this step we will undertake an
20 301 iterative approach to searching for relevant literature, allowing relevant new studies to be
21 302 included continuously into findings and the overall synthesis.

23 303 We expect databases such as Medline, ProQuest, Cochrane, Scopus, Web of Science and
24 304 Google Scholar to be most instrumental in our search of the extant literature. The search will
25 305 be conducted in English, the research questions and theoretical framework will inform
26 306 selection of search terms, including for example: cash transfer, nutrition, children, pregnant
27 307 and lactating women, women of reproductive age, nutrition sensitive, conditional cash transfer,
28 308 unconditional cash transfer, social safety nets, financial incentives, food security, food
29 309 consumption, dietary diversity, acute, chronic malnutrition, low-income, middle-income, social
30 310 protection, implementation, World Bank, WFP, UNICEF, WHO, DFID, USAID. The search
31 311 strategy will include variations of the following examples of term combinations:

- 34 312 • “cash transfers” AND “nutrition”
35 313 • “cash transfers” AND “nutrition” AND “children”
36 314 • “cash transfers” OR “social safety nets” OR “financial incentives” AND “nutrition” OR
37 315 “nutritional status”
38 316 • “cash transfers” OR “conditional cash transfer” OR “unconditional cash transfer” AND
39 317 “nutrition”
40 318 • “cash transfers” AND “food security”

43 319 All searches will be limited to those published from 1990 (reflecting the start of Latin American
44 320 CTP programmes, where the first large-scale conditional cash transfers were implemented) to
45 321 present.

47 322 **Inclusion and exclusion criteria**

48 323 As per the realist approach, in this study, we are less concerned with whether an evaluation
49 324 meets traditional epidemiological methodological standards, (e.g. must be a randomised
50 325 controlled trial or case-control trial), but rather what type of information may be gathered from
51 326 studies about how, why and for whom CTPs achieve nutritional change, and under what
52 327 circumstances. Our inclusion and exclusion criteria have been designed to reflect this, by
53 328 including a variety of studies regardless of study design. The studies will be included or
54 329 excluded based on programme elements at this stage of the literature search, as per the
55 330 following:
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331 Included

- 332 1) Programmes targeting children under the age of five, including pregnant and lactating
- 333 women
- 334 2) Programmes with >1000 recipients
- 335 3) Programmes implemented through government systems at national level with external
- 336 donor support
- 337 4) Welfare programmes in high-income countries
- 338 5) Programmes targeting increased food consumption, dietary diversity, and reduction of
- 339 malnutrition rates as primary outcomes
- 340 6) Programmes measuring at least one proximal outcome, such as maternal child care
- 341 practices, IYCF practices and micronutrient deficiencies in women and children

342 Excluded

- 343 1) Programmes targeting school-aged children, adolescents, and adults (except pregnant
- 344 and lactating women (PLWs))
- 345 2) Small-scale emergency relief cash transfer programmes implemented as a one-off
- 346 intervention
- 347 3) Studies that do not measure at least one proximal outcome (e.g. dietary diversity,
- 348 household food consumption, maternal childcare practices)

349 Article Screening

350 One reviewer will generate a list of articles and abstracts (if available), based on the search
 351 strategy mentioned above. These will be separated among the review team and titles and
 352 abstracts will be reviewed by individual reviewers to see if they 1) focused on CTPs
 353 (regardless of modality) and if 2) they appear to fit with the inclusion/exclusion criteria.
 354 Reviewers will list the articles as 'include', 'exclude' and 'maybe'³⁹. In the absence of an
 355 abstract, titles of articles will be used to determine if they are appropriate for review (e.g.
 356 mention of CTPs and nutrition outcomes). If the title is ambiguous, the article will remain in the
 357 'maybe' group for the next stage of the review. Following Velonis (2016), we will ensure inner-
 358 rater reliability, through a randomly selected number of article titles and abstracts, each being
 359 reviewed independently to determine if the study should be included. In the case of
 360 discrepancies, agreements will be reached collectively.

361 Following the initial screening, articles that have been labelled 'included' and 'maybe' will be/
 362 reviewed a second time by the reviewers. Once completed, the reviewers will discuss and
 363 collate results, in cases where an article has been 'included' by one reviewer and 'excluded'
 364 by the second reviewer, reasoning will be discussed, and a consensus reached.

365 The complete article or paper for titles included at this stage will then be obtained for the final
 366 stage of the screening. Inter-rater reliability will be assessed again by having the reviewers
 367 read the same randomly selected five articles, make their own recommendations on inclusion
 368 and exclusion, then meet to discuss as a group³⁹. Results will be discussed collectively
 369 between the reviewers to ascertain any differences between findings, points of difference in
 370 categorisation will be discussed and consensus reached mutually. The remaining articles will
 371 be distributed amongst the reviewers and skim read to make a final decision as to their
 372 inclusion or exclusion, findings will again be shared, and consensus reached. Articles will be
 373 used as input for step 3 of the review.

374 Analysis

375 Step 3: Refining programme theories

376 This step seeks to refine our tentative programme theories and CMOs following the initial
 377 screening of the literature as outlined in steps 1 and 2 of the protocol as per RAMESES and
 378 Pawson recommendations for realist reviews^{22,30}. In this step we will seek to review the articles

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3 379 identified in step 2 and consider them in relation to our programme theories for integrity,
4 380 adjudicate between rival programme theories and review the same theories in comparative
5 381 settings²². These three strategies will facilitate in the consolidation of our programme theories.
6 382 A final literature search, quality appraisal and data extraction of included studies is also
7 383 included in this step of the review.
8

9 384 1) Reviewing for programme theory integrity

10 385 The purpose of this strategy is to study how programmes have been implemented in
11 386 what contexts and what results they have generated for whom. According to Pawson
12 387 et al²², in a realist synthesis, this strategy can aid in the discovery of typical weak
13 388 points in the history of the programme under review. For this review, this will mean for
14 389 example, examining the history of CTPs to identify if changes and deviations in
15 390 implementation structures have had an influence on child nutrition outcomes.
16 391

17 392 For example (hypothesised theory):

- 18 393
- 19 394 • CTPs implemented by national governments without external support (C) using
20 395 standardised CTP protocols and clear guidelines with nutrition objectives (M
21 396 resource), ensuring CTP implementers have a clear understanding of
22 397 programme priorities and how to deliver them (M response), are more
23 398 successful in changing traditional food beliefs (O).

24 399 2) Reviewing to adjudicate between rival programme theories

25 400 The purpose of this strategy is to identify which variations of mechanisms are most
26 401 successful in driving different outcomes, by uncovering evidence from competing
27 402 programme theories²². The conceptual frameworks, tentative theories and CMOs
28 403 identified in Step 1 of the review, highlight the numerous possible pathways a CTP
29 404 may improve child nutrition status. By adjudicating between rival programme theories,
30 405 we will elicit key causal factors that may be driving changes in outcomes in large-scale
31 406 CTPs, through analysis of both relevant literature and consultation with a range of
32 407 stakeholders, to identify what works for whom in what circumstances.
33 408

34 409 For example (hypothesised theory):

- 35 410
- 36 411 • CTPs provided with nutrition education training (C) are more successful in
37 412 improving maternal child care practices (O), when delivered by a local
38 413 midwife/traditional birth attendant (M resource) as women are more likely to
39 414 trust messages given by established community members (M response).
40 415 OR
 - 41 416 • CTPs delivered through condition of attendance to maternal child health
42 417 services (C), ensure women will improve child care practices (O) or they will
43 418 not receive monthly cash payments (M resource) and positive nutrition
44 419 awareness (M response) will only be achieved through constant monitoring.

45 420 3) Reviewing the same theory in comparative settings

46 421 This strategy addresses the core of realist evaluation to identify patterns in the context
47 422 in which interventions interact with participant reasoning to generate outcomes²². Our
48 423 theories will be compared between settings with similar CTP modalities in terms of the
49 424 four domains highlighted in Figure 1.
50 425

51 426 For example (hypothesised theory):

- 52 427
- 53 428 • Conditional CTPs implemented by national and local governments (C) ensure
attendance at MCH clinics for health and nutrition screening, provided by skilled

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3 429 health professionals (M resource), recipients will attend and receive nutrition
4 430 education, creating positive behaviour change (M response) that will improve
5 431 the nutrition status of children in recipient households (O).

6 432 OR

- 7 433 • Unconditional CTPs provided by INGOs and NGOs (C), with positive
8 434 implementation histories, will provide nutrition education programmes in
9 435 conjunction with cash transfers, through skilled outreach workers (M resource)
10 436 who are trusted by the community (M response) and diversify diets for children
11 437 in recipient households (O).

14 438 Literature search strategy

15 439 The purpose of a literature search in this step of the review is to further explore evidence from
16 440 a wide range of programmes, including empirical studies, policy and protocol documents,
17 441 evaluations, systematic reviews, grey literature (non-peer reviewed documents) from the field
18 442 (e.g. programme proposals, monitoring reports and donor updates) that will add to the search
19 443 from step 2 in the development of our programme theory. The search in this phase will be
20 444 more purposive in nature than in step 2. Reference and citation searches from articles
21 445 identified in step 2 will be tracked through 'snowballing' search techniques to identify additional
22 446 documents²². Additional articles will be selected at this stage according to whether they add
23 447 to our emerging theories or areas of explanatory potential in terms of context, mechanism and
24 448 outcome patterns³⁰. New targeted search terms, not included in the original search will be
25 449 used in this stage of the literature search, as per realist evidence searching recommendations
26 450^{30 40}.

29 451 Searching for new documents will end at the point of theoretical saturation, that is, when we
30 452 have established there is sufficient evidence to establish our MRT²⁵.

32 453 Agency project proposals, donor progress reports, protocol documents and descriptive
33 454 evaluations will be required for use in the identification of effective or ineffective
34 455 implementation practices. Whilst these will not have methodological rigour, they are
35 456 considered essential documents in the construction of our programme theory. Quality issues
36 457 will be addressed as per the section below.

39 458 Quality appraisal and Data Extraction

40 459 One reviewer (HF) has commenced searching databases as per step 2 of the protocol and
41 460 article screening has commenced. Articles will be appraised by two reviewers based on
42 461 relevance and demonstration of sufficient rigour (methods used to generate data will be
43 462 appraised in the analysis and synthesis)²⁵. The MMAT (Mixed Methods Appraisal Tool) will be
44 463 used to assess the rigour and validity of articles. It is recommended by RAMESES to appraise
45 464 the quality of quantitative, qualitative and mixed methods studies and has been independently
46 465 tested for efficiency and reliability^{14 41 42}. A third reviewer will review approximately 10% of
47 466 included papers against the MMAT tool to further ensure rigour and reliability. Implementation
48 467 practices have been identified as one of the key influencing factors for CTPs to achieve
49 468 nutrition outcomes in our preliminary programme theory, therefore, we will also use the Egan
50 469 et al (2008) implementation appraisal checklist to guide our appraisal of the quality of reporting
51 470 of implementation practices from the articles included in our review⁴³. The checklist will require
52 471 some modification due to differing contexts, however, several themes from the Egan et al
53 472 (2008) checklist are consistent with the organisational-level workplace interventions of the
54 473 CTPs we are evaluating (e.g. motivation, theory-of-change, employee support, resources
55 474 provided, differential effects and population characteristics)⁴³. These techniques and tools will
56 475 only be applied to the relevant aspects of the studies that relate to our programme theory
57 476 rather than the study as a whole¹⁴.

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3 477 Data extraction will focus on key context, mechanism and outcome findings that will contribute
4 478 to the further development and refinement of CMO configurations and programme theories.
5 479 An excel spreadsheet for extracting data from articles based on their relevance and rigour,
6 480 following the article screening step of step 2, will be formulated and agreed on between the
7 481 reviewers. Reviewers will use the spreadsheet to record the following information: 1) the
8 482 programme elements that are described, 2) what nutrition outcomes are measured and how
9 483 they are measured, 3) what proximal outcomes (e.g. improved maternal child care practices
10 484 through nutrition education support) are measured and how they are measured, 4) contextual
11 485 factors that are mentioned in the article, 5) mechanisms that lead to outcomes that are
12 486 mentioned in the article, 6) the study design and rigour (e.g. making note of potential bias or
13 487 validity issues using the MMAT tool and Implementation Appraisal checklist) of the article. The
14 488 findings of the review will provide an overall impression of the depth of the data available and
15 489 how much it will contribute to our programme theory ³⁹.

18 490 Step 4: Analysis and Synthesis

19 491 This step will involve the examination of the gathered data and determining whether it refutes
20 492 or supports our preliminary programme theory and theoretical framework. We will explore the
21 493 various evaluations pertaining to proximal child nutrition outcomes (e.g. maternal child care
22 494 practices, food security and availability of health resources) and assess how the data extracted
23 495 from these studies informs our understanding of how cash transfer programmes achieve
24 496 nutritional change in children under the age of five. We will use the data to create CMOs for
25 497 each programme, or ‘family of programmes’ under investigation. The various CMOs
26 498 constructed through our analysis will be tested in research to be undertaken following this
27 499 review involving primary data collection methods and consultation with experts and key
30 500 programme stakeholders to extend our review findings and construct our middle range theory
31 501 (MRT).

33 502 Step 5: Presentation and Dissemination

34 503 The findings from the review will be presented in accordance with the RAMESES guidelines
35 504 as recommended by Wong et al ²⁵. Findings will be published in a peer-reviewed journal. The
36 505 results will be disseminated to policymakers, external donors, relevant governments, and
37 506 research institutes (e.g. IFPRI), through formal or informal presentations, conferences and
38 507 reports.

40 508 Discussion

41 509 Cash transfer programmes are inherently complex, involving numerous programme
42 510 components, systems for implementation, aiming to produce a variety of outcomes. They are
43 511 heterogeneous interventions, ranging from conditional cash transfers to cash and in-kind
44 512 assistance (e.g. food aid distribution), provided in a diverse range of settings to a variety of
45 513 recipients. In theory, CTPs should be able to achieve positive nutrition outcomes through their
46 514 ability to influence the determinants of nutrition status and CTPs are rapidly replacing
47 515 traditional food security programmes, as a strategy to alleviate chronic poverty for households
48 516 vulnerable to economic shocks and to improve both food security and nutrition resilience.
49 517 Evidence suggests CTPs have a positive impact on household food consumption and asset
50 518 holdings. However, child nutrition outcomes are not routinely achieved through social safety
51 519 net programmes ⁴⁴ and there is limited understanding of how they can be optimally
52 520 implemented to consistently influence child nutrition status.

56 521 One of the key contributions of this review, in relation to other CTP impact evaluations and
57 522 systematic reviews is our focus on how the various CTP programme elements and
58 523 implementation structures can be implemented synergistically to improve nutrition status,
59 524 rather than evaluating the impact effect on nutrition through the cash transfer itself. To our

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3 525 knowledge this is the first realist review of these types of interventions. The use of this
4 526 approach in conjunction with other methods for data analysis and synthesis, will offer a deeper
5 527 understanding of the mechanisms and contextual factors required to address the various
6 528 determinants of child nutrition status throughout CTP implementation processes. We believe
7 529 our choice of study design and evidence synthesis will provide strong explanatory evidence of
8 530 how and why CTPs produce nutrition outcomes, in what circumstances and for whom. Our
9 531 initial review of the literature indicates an existing and current evidence base related to CTP
10 532 impact on both child nutrition indicators and proximal outcomes, such as household food
11 533 consumption and maternal childcare practices. However, evaluations of the entire
12 534 implementation process have been limited. Theorising programme CMO configurations
13 535 through a realist-informed evidence synthesis will expand the knowledge surrounding
14 536 implementation processes and structures that may be pivotal for CTPs to achieve nutrition
15 537 change. These concepts may not have been fully explored using existing conceptual
16 538 frameworks. The realist review method has limitations and findings may not be easily
17 539 reproduced due to its theoretical causal relationships and inability to analyse data across
18 540 several disciplines. These limitations will be addressed using other complementary methods,
19 541 such as meta-ethnography in the data analysis and synthesis phases. The strength of the
20 542 realist review method is its ability to be flexible and adaptable, which suits the complexity of
21 543 large-scale social safety net programmes with external donor support.

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25 544 The research will facilitate in the development of strategies to be included in CTP project
26 545 design and implementation guidelines to produce consistent nutrition outcomes in contexts
27 546 where large-scale, multi-sectoral safety social net programmes are a core poverty alleviation
28 547 policy.

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31 548 **[Figure 1 near here]**

32 549

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35
36 552 **Author Contributions:**

37 553 All authors contributed to the conception and design of the study, protocol and manuscript. All
38 554 authors read and approved the final manuscript

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43
44 558 **Competing Interests:**

45 559 None to declare

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47 560 **Data Statement:**

48 561 This paper describes a protocol for undertaking a literature review. As such data are not yet
49 562 available for lodging with a repository

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569 **References**

- 570 1. Black RE, Alderman H, Bhutta ZA, et al. Maternal and child nutrition: building momentum
571 for impact. *Lancet (London, England)* 2013;382(9890):372-75. doi: 10.1016/S0140-
572 6736(13)60988-5
- 573 2. Bhutta Z.A, Ahmed T, Black RE, et al. What works? Interventions for maternal and child
574 undernutrition and survival. *The Lancet* 2008;371(9610):417-40.
- 575 3. UNICEF. Conceptual framework of the causes of malnutrition. *New York: UNICEF* 1991
- 576 4. Ruel MT, Alderman H, Maternal, et al. Nutrition-sensitive interventions and programmes:
577 how can they help to accelerate progress in improving maternal and child nutrition?
578 *Lancet (London, England)* 2013;382(9891):536. doi: 10.1016/S0140-6736(13)60843-
579 0
- 580 5. Medgyesi M, Temesváry Z. GINI DP 84: Conditional cash transfers in high- income OECD
581 countries and their effects on human capital accumulation. *IDEAS Working Paper*
582 *Series from RePEc* 2013
- 583 6. de Groot R, Palermo T, Handa S, et al. Cash Transfers and Child Nutrition: Pathways and
584 Impacts. *Development Policy Review* 2017;35(5):621-43. doi: 10.1111/dpr.12255
- 585 7. Leroy J, Ruel M, Verhofstadt E. The impact of conditional cash transfer programmes on
586 child nutrition: a review of evidence using a programme theory framework. *Journal of*
587 *Development Effectiveness* 2009;1(2):103-29. doi: 10.1080/19439340902924043
- 588 8. Fenn B, Sangrasi GM, Puett C, et al. The REFANI Pakistan study--a cluster randomised
589 controlled trial of the effectiveness and cost-effectiveness of cash-based transfer
590 programmes on child nutrition status: study protocol. *BMC public health*
591 2015;15:1044. doi: 10.1186/s12889-015-2380-3 [published Online First: 2015/10/16]
- 592 9. Debela BL, Shively G, Holden ST. Does Ethiopia's Productive Safety Net Program
593 improve child nutrition? *Food Security* 2015;7(6):1273-89. doi: 10.1007/s12571-015-
594 0499-9
- 595 10. Berhane G, Gilligan DO, Hoddinott J, et al. Can Social Protection Work in Africa? The
596 Impact of Ethiopia's Productive Safety Net Programme. *Economic Development and*
597 *Cultural Change* 2014;63(1):1-26.
- 598 11. Gilligan DO, Hoddinott J, Taffesse AS. The Impact of Ethiopia's Productive Safety Net
599 Programme and its Linkages. *The Journal of Development Studies*
600 2009;45(10):1684-706. doi: 10.1080/00220380902935907
- 601 12. Kumar N. The impact of Ethiopia's Productive Safety Net Programme on the nutritional
602 status of children: 2008–2012: International Food Policy Research Institute (IFPRI),
603 2017.
- 604 13. Pawson R, Tilley N. Realistic evaluation. Thousand Oaks, Calif;London;: Sage 1997.
- 605 14. Iyengar S, Katz A, Durham J. Role of institutional entrepreneurship in building adaptive
606 capacity in community-based healthcare organisations: realist review protocol. *BMJ*
607 *Open* 2016;6(3) doi: 10.1136/bmjopen-2015-010915
- 608 15. Greenhalgh T, Humphrey C, Hughes J, et al. How Do You Modernize a Health Service?
609 A Realist Evaluation of Whole-Scale Transformation in London. *Milbank Quarterly*
610 2009;87(2):391-416. doi: 10.1111/j.1468-0009.2009.00562.x
- 611 16. Schierhout G, Hains J, Si D, et al. Evaluating the effectiveness of a multifaceted,
612 multilevel continuous quality improvement program in primary health care:
613 Developing a realist theory of change. *Implementation Science* 2013;8(1)
- 614 17. Nilsson D, Baxter G, Butler JRA, et al. How do community-based conservation programs
615 in developing countries change human behaviour? A realist synthesis. *Biological*
616 *Conservation* 2016;200:93-103. doi: 10.1016/j.biocon.2016.05.020
- 617 18. Gillespie B, Marshall A. Implementation of safety checklists in surgery: a realist synthesis
618 of evidence. *Implementation Science* 2015;10
- 619 19. Gilmore B, Adams B, Bartoloni A, et al. Improving the performance of community health
620 workers in humanitarian emergencies: a realist evaluation protocol for the PIECES
621 programme. *BMJ Open* 2016;6(8) doi: 10.1136/bmjopen-2016-011753

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60

- 622 20. Westhorp G. Realist impact evaluation: An introduction (Methods Lab). London:
623 Overseas Development Institute, 2014.
- 624 21. Westhorp G. Using complexity-consistent theory for evaluating complex systems.
625 *Evaluation* 2012;18(4):405-20. doi: 10.1177/1356389012460963
- 626 22. Pawson R, Greenhalgh T, Harvey G, et al. Realist review-a new method of systematic
627 review designed for complex policy interventions. *Journal of Health Services*
628 *Research & Policy* 2005;10(1_suppl):21-34.
- 629 23. Pawson R. Protocols, policy making and scientific progress. *Journal of Epidemiology and*
630 *Community Health* (1979-) 2012;66(5):386-87. doi: 10.1136/jech-2012-201061
- 631 24. Marchal B, van Belle S, van Olmen J, et al. Is realist evaluation keeping its promise? A
632 review of published empirical studies in the field of health systems research.
633 *Evaluation* 2012;18(2):192-212. doi: 10.1177/1356389012442444
- 634 25. Wong G, Greenhalgh T, Westhorp G, et al. RAMESES publication standards: realist
635 syntheses. *BMC medicine* 2013;11(1):1-14. doi: 10.1186/1741-7015-11-21
- 636 26. Pawson R. Evidence-based policy: a realist perspective. London: SAGE 2006.
- 637 27. Kastner M, Estey E, Perrier L, et al. Understanding the relationship between the
638 perceived characteristics of clinical practice guidelines and their uptake: protocol for
639 a realist review. *Implementation Science* 2011;6:69. doi: 10.1186/1748-5908-6-69
640 [published Online First: 2011/07/08]
- 641 28. Hudon C, Chouinard MC, Aubrey-Bassler K, et al. Case management in primary care
642 among frequent users of healthcare services with chronic conditions: protocol of a
643 realist synthesis. *BMJ Open* 2017;7(9):e017701. doi: 10.1136/bmjopen-2017-017701
644 [published Online First: 2017/09/06]
- 645 29. Papoutsis C, Hargreaves D, Colligan G, et al. Group clinics for young adults with diabetes
646 in an ethnically diverse, socioeconomically deprived setting (TOGETHER study):
647 protocol for a realist review, co-design and mixed methods, participatory evaluation
648 of a new care model. *BMJ Open* 2017;7(6):e017363. doi: 10.1136/bmjopen-2017-
649 017363 [published Online First: 2017/06/24]
- 650 30. Cooper C, Lhussier M, Shucksmith J, et al. Protocol for a realist review of complex
651 interventions to prevent adolescents from engaging in multiple risk behaviours. *BMJ*
652 *Open* 2017;7(9) doi: 10.1136/bmjopen-2016-015477
- 653 31. Wiese A, Kilty C, Bergin C, et al. Protocol for a realist review of workplace learning in
654 postgraduate medical education and training. *Systematic Reviews* 2017;6(1) doi:
655 10.1186/s13643-017-0415-9
- 656 32. Menear M, Gervais M, Careau E, et al. Strategies and impacts of patient and family
657 engagement in collaborative mental healthcare: Protocol for a systematic and realist
658 review. *BMJ Open* 2016;6(9) doi: 10.1136/bmjopen-2016-012949
- 659 33. Booth V, Harwood R, Hood V, et al. Understanding the theoretical underpinning of the
660 exercise component in a fall prevention programme for older adults with mild
661 dementia: A realist review protocol. *Systematic Reviews* 2016;5(1) doi:
662 10.1186/s13643-016-0212-x
- 663 34. Coles E, Wells M, Maxwell M, et al. The influence of contextual factors on healthcare
664 quality improvement initiatives: What works, for whom and in what setting? Protocol
665 for a realist review. *Systematic Reviews* 2017;6(1) doi: 10.1186/s13643-017-0566-8
- 666 35. Groot G, Waldron T, Carr T, et al. Development of a program theory for shared decision-
667 making: A realist review protocol. *Systematic Reviews* 2017;6(1) doi:
668 10.1186/s13643-017-0508-5
- 669 36. McGaughey J, O'Halloran P, Porter S, et al. Early warning systems and rapid response
670 to the deteriorating patient in hospital: A systematic realist review. *Journal of*
671 *Advanced Nursing* 2017;73(12):2877-91. doi: 10.1111/jan.13398
- 672 37. Zubair M, Chadborn NH, Gladman JRF, et al. Using comprehensive geriatric
673 assessment for quality improvements in healthcare of older people in UK care
674 homes: Protocol for realist review within Proactive Healthcare of Older People in
675 Care Homes (PEACH) study. *BMJ Open* 2017;7(10) doi: 10.1136/bmjopen-2017-
676 017270

- 1
2
3 677 38. Moher D, Shamseer L, Clarke M, et al. Preferred reporting items for systematic review
4 678 and meta-analysis protocols (PRISMA-P) 2015 statement.(Research)(Report).
5 679 *Systematic Reviews* 2015;4(1):1. doi: 10.1186/2046-4053-4-1
6 680 39. Velonis AJ, Cheff R, Finn D, et al. Searching for the mechanisms of change: a protocol
7 681 for a realist review of batterer treatment programmes. *BMJ Open* 2016;6(4) doi:
8 682 10.1136/bmjopen-2015-010173
9 683 40. Pawson R. Digging for Nuggets: How 'Bad' Research Can Yield 'Good' Evidence.
10 684 *International Journal of Social Research Methodology* 2006;9(2):127-42. doi:
11 685 10.1080/13645570600595314
12 686 41. Mertens DM. Transformative research and evaluation: New York : Guilford Press 2009.
13 687 42. Pace R, Pluye P, Bartlett G, et al. Testing the reliability and efficiency of the pilot Mixed
14 688 Methods Appraisal Tool (MMAT) for systematic mixed studies review. *International*
15 689 *Journal of Nursing Studies* 2011;49(1) doi: 10.1016/j.ijnurstu.2011.07.002
16 690 43. Egan M, Bamba C, Petticrew M, et al. Reviewing evidence on complex social
17 691 interventions: appraising implementation in systematic reviews of the health effects of
18 692 organisational-level workplace interventions. 2008;63(1) doi:
19 693 10.1136/jech.2007.071233
20 694 44. Manley J, Gitter S, Slavchevska V. How effective are cash transfers at improving
21 695 nutritional status? *World development* 2013;48:133-55.
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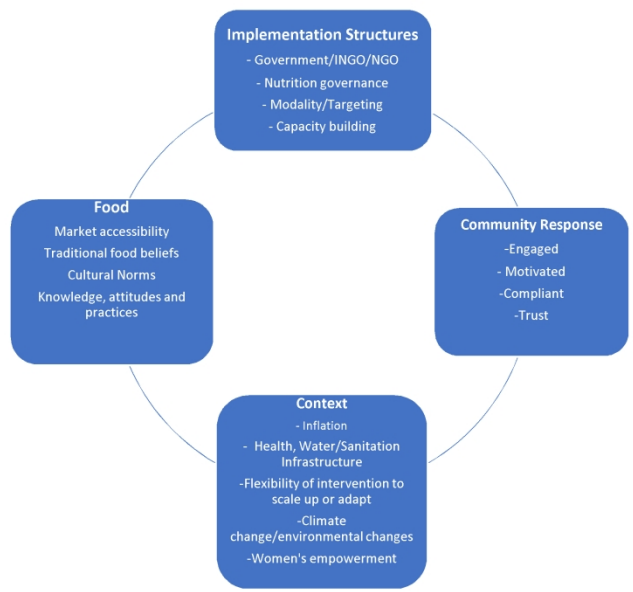
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716 [Figure Captions](#)
717 Figure 1: Theoretical framework domains
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Figure 1: Theoretical framework domains



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Figure 1: Theoretical framework domains

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Reporting checklist for protocol of a systematic review.

Based on the PRISMA-P guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the PRISMA-P reporting guidelines, and cite them as:

Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. Syst Rev. 2015;4(1):1.

			Page
		Reporting Item	Number
Identification	#1a	Identify the report as a protocol of a systematic review	1
Update	#1b	If the protocol is for an update of a previous systematic review, identify as such	N/A

1		#2	If registered, provide the name of the registry (such as	1
2			PROSPERO) and registration number	
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6	Contact	#3a	Provide name, institutional affiliation, e-mail address of all	1
7			protocol authors; provide physical mailing address of	
8			corresponding author	
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14	Contribution	#3b	Describe contributions of protocol authors and identify the	13
15			guarantor of the review	
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20		#4	If the protocol represents an amendment of a previously	N/A
21			completed or published protocol, identify as such and list	
22			changes; otherwise, state plan for documenting important	
23			protocol amendments	
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29	Sources	#5a	Indicate sources of financial or other support for the review	13
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36	Role of sponsor or	#5c	Describe roles of funder(s), sponsor(s), and / or	N/A
37	funder		institution(s), if any, in developing the protocol	
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41	Rationale	#6	Describe the rationale for the review in the context of what is	5
42			already known	
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46	Objectives	#7	Provide an explicit statement of the question(s) the review	7
47			will address with reference to participants, interventions,	
48			comparators, and outcomes (PICO)	
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54	Eligibility criteria	#8	Specify the study characteristics (such as PICO, study	8
55			design, setting, time frame) and report characteristics (such	
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1			as years considered, language, publication status) to be	
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3			used as criteria for eligibility for the review	
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6	Information	#9	Describe all intended information sources (such as	8
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8	sources		electronic databases, contact with study authors, trial	
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10			registers or other grey literature sources) with planned dates	
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16	Search strategy	#10	Present draft of search strategy to be used for at least one	8
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18			electronic database, including planned limits, such that it	
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20			could be repeated	
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23	Study records -	#11a	Describe the mechanism(s) that will be used to manage	11
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25	data management		records and data throughout the review	
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29	Study records -	#11b	State the process that will be used for selecting studies	9
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31	selection process		(such as two independent reviewers) through each phase of	
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33			the review (that is, screening, eligibility and inclusion in	
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35			meta-analysis)	
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39	Study records -	#11c	Describe planned method of extracting data from reports	11
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41	data collection		(such as piloting forms, done independently, in duplicate),	
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43	process		any processes for obtaining and confirming data from	
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45			investigators	
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48	Data items	#12	List and define all variables for which data will be sought	10
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50			(such as PICO items, funding sources), any pre-planned	
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52			data assumptions and simplifications	
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1	Outcomes and prioritization	#13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	12		
2		Risk of bias in individual studies	#14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	11	
3			Data synthesis	#15a	Describe criteria under which study data will be quantitatively synthesised	N/A
4				#15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I ² , Kendall's τ)	N/A
5				#15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	N/A
6				#15d	If quantitative synthesis is not appropriate, describe the type of summary planned	12
7			Meta-bias(es)	#16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	11
8	Confidence in cumulative evidence			#17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	6
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3 CC-BY 4.0. This checklist was completed on 06. November 2018 using <http://www.goodreports.org/>,
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5 a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)
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Cash Transfer Programmes in lower and middle-income countries, understanding pathways to nutritional change – A realist review protocol

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4 1 Cash Transfer Programmes in lower and middle-income countries, understanding pathways
5 2 to nutritional change – A realist review protocol
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8 4 Floate, Hilary¹; Marks, Geoffrey C.²; Durham, Jo³
9

10 5 ¹ The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
11 6 hilary.floate@uqconnect.edu.au
12
13

14 7 ² The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
15 8 g.marks1@uq.edu.au
16
17

18 9 ³ Queensland University of Technology, School of Public Health and Social Work, Kelvin
19 10 Grove, Qld 4059 Australia; email: joanne.durham@qut.edu.au
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22 11 Corresponding author: hilary.floate@uqconnect.edu.au
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31 **Abstract**

32 **Introduction:** Child malnutrition continues to be a significant global public health concern.
33 Nutrition-related interventions have changed and diversified over the last two decades, with
34 increasing emphasis on nutrition-sensitive programmes which address the underlying
35 determinants of child malnutrition. Cash transfer programmes (CTPs) are used with increasing
36 popularity in lower and middle-income countries to improve both food/nutrition insecurity and
37 resilience. Available studies however, have provided mixed findings on the outcomes of CTPs
38 on child nutritional status. This review is the first stage of a research project that will develop
39 evidence-informed theories of the ways in which CTPs affect child malnutrition. These are to
40 be empirically tested in the field and will contribute to a better understanding of how, why, for
41 whom and in what circumstances CTPs can be implemented to consistently and positively
42 influence child nutritional status.

43 **Methods and analysis:** This realist review is informed by the available standards for realist
44 reviews and follows a five-step process. In step 1 an Initial scoping of the literature has been
45 completed and identified potential contextual factors and underlying mechanisms that
46 influence nutritional outcomes. This allowed us to develop potential theories to address our
47 research question. In step 2, a systematic literature search using multiple databases will be
48 undertaken with papers screened for inclusion using defined inclusion/exclusion criteria. In the
49 next step, data from included studies will be used to test and further refine our explanatory
50 framework. Data will be extracted into a bespoke data extraction tool with the fourth step using
51 a mix of inductive and deductive analytical processes to identify patterns, link chains of
52 inference and tracking and linking of articles. Final steps involve analysis, synthesis, and
53 dissemination of a preliminary theory for feedback prior to empirically testing the theory in
54 Kenya and Ethiopia where large-scale CTPs) are being implemented.

55 **Keywords:** nutrition-sensitive, cash-transfers, unconditional cash transfer, conditional cash
56 transfer, nutrition insecurity, malnutrition, nutrition status, children, food insecurity,
57 implementation, realist review

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59 Article Summary

60 Strengths and Limitations of this study

- 61 ➤ The use of realist review methods enables explicit examination of contextual factors
62 and underpinning mechanisms to explain how various cash transfer programme
63 (CTP) implementation structures, services and practices influence child nutrition
64 outcomes
- 65 ➤ The review will develop a programme theory and a set of specific hypotheses relating
66 context-mechanism-outcome as a summary of current understandings that can be
67 empirically tested through the collection and analysis of primary data
- 68 ➤ The method includes a broad range of evidence from various data sources, including
69 grey literature; while strengthening understandings of context it may also affect data
70 quality
- 71 ➤ Realist reviews can be difficult to reproduce, we have sought to mitigate this risk
72 through specification of criteria and approaches that support structured and
73 reproducible decision-making
- 74 ➤ The findings will not produce generalisable effect sizes, but may be used to inform
75 future empirical studies
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Background

Poor nutrition in low-resource countries continues to be an underlying cause of at least one third of all child deaths and approximately twenty percent of maternal mortality annually¹. Nutrition-related interventions have changed and diversified over the last two decades, with increasing emphasis on nutrition-sensitive programmes which address the underlying determinants of child malnutrition. Cash transfer programmes (CTPs) are used with increasing popularity in lower and middle-income countries to improve both food/nutrition insecurity and resilience². Available studies however, have provided mixed findings on the outcomes of CTPs on child nutritional status³⁻⁷. This review is the first stage of a research project that will consider current evidence and understanding of CTPs to develop programme theories to summarise the ways in which CTPs affect child malnutrition. The pathways considered to be most influential and/or important will form the basis of specific hypotheses to be empirically tested in the field in subsequent work.

The numerous factors that contribute to poor child nutrition in low-income countries are summarised in a conceptual framework developed by UNICEF and categorised as basic determinants (e.g. political and economic structures), underlying (e.g. direct influences on household food security/health environment/care for mothers and children), and immediate determinants (e.g. child's dietary intake and child's health status)⁸. As with other social determinants of health, addressing child nutritional status requires interventions targeting not only child health, but the structural, environmental and resource related causes (i.e. underlying and basic determinants), affecting child nutritional status⁹. Based on this framework, interventions to improve maternal and child nutrition are typically categorised as nutrition-sensitive or nutrition-specific¹⁰. Nutrition-sensitive strategies aim to address the underlying and basic determinants of child nutritional status and include asset support and social protection initiatives as well as agricultural, infrastructure development, education programmes¹⁰. These can support nutrition-specific interventions, such as feeding programmes and typically target women of reproductive age, pregnant and lactating women and children under the age of five¹¹. Children under the age of five years are the most vulnerable to malnutrition and associated morbidities, and the prevention of largely irreversible outcomes (i.e. failure to thrive/stunting) must be addressed in the first 1000 days of life, from conception until two years of age¹⁰.

Over the last two decades, external donors, policy makers and national governments of low- and middle-income countries have increasingly used social protection programmes, including cash transfers, in combination with other targeted programmes to alleviate chronic and acute food and nutrition insecurity and the underlying social determinants of health in vulnerable populations^{12 13}. CTPs are non-contributory social protection programmes that provide monetary transfers to low-income households seeking to health and welfare decisions and outcomes through an 'income effect', and through this to break the 'intergenerational cycle of poverty'¹³⁻¹⁵. They can be categorised into two groups, conditional cash transfers (CCTs) or unconditional cash transfers (UCTs)¹⁴. The monetary transfers for CCTs are conditioned on recipients complying with a set of behavioural requirements, generally addressing financial barriers associated with accessing social services, such as school enrolment/attendance or health services^{13 14}. UCTs also target low-income individuals or households with monetary transfers but do not require recipients to meet a set of conditions¹⁴. CTPs can also include a combination of monetary transfers and in-kind assistance (e.g. food rations) and vouchers (for food or other commodities^{14 16}). The modality and duration of CTPs differ by context. CTPs for assistance in humanitarian disasters are often one-time/short duration and focus on short-term objectives (e.g. relief from a disaster). A second modality of CTPs are regular and ongoing cash transfers in development settings focused upon poverty reduction and addressing vulnerabilities with a possible graduation

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3 142 from the programme¹⁴. Other contextual factors that influence the CTP include the social
4 143 policy environment, availability and accessibility of complementary health and welfare
5 144 services, socio-demographics of the population, existing behaviours of recipients, and
6 145 organisational capability and capacity¹⁴. The nutritional objectives also differ by context with
7 146 short-term programmes in a humanitarian context generally framed as addressing acute
8 147 nutritional outcomes such as a reduction in child wasting, while the ongoing programs
9 148 generally identify longer term nutritional outcomes such as ameliorating child stunting.

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12 149 Latin American countries, including Mexico and Brazil, were among the first lower and
13 150 middle-income countries to implement CCTs to reduce financial barriers to accessing
14 151 services for low-income individual and households¹⁶⁻¹⁸. Introduced in the late 1990s, impact
15 152 evaluations and systematic reviews conducted since have demonstrated positive impacts on
16 153 access to health and nutrition services and poverty reduction, however, there have been
17 154 mixed results regarding child nutrition outcomes^{3 19}. With the increasing uptake of CTPs in
18 155 lower income contexts, such as sub-Saharan Africa and Asia, further studies have
19 156 demonstrated positive outcomes of CTPs on household food security, food consumption,
20 157 agricultural yields, poverty reduction and asset protection^{3 5-7 20-23} yet expected nutrition
21 158 benefits (e.g. reduction in wasting and stunting rates of children under five) have not been
22 159 clearly demonstrated.

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25 160 Several research teams have considered this issue^{1 3 24 25}. Whilst the studies differ in purpose,
26 161 design and approach, they each propose pathways by which increased income and/ or
27 162 financial incentives can affect the underlying determinants of child nutrition status and identify
28 163 various mediating, moderating or modifying variables that may influence the effect of each
29 164 pathway on the immediate determinants of child nutrition.

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31 165 The framework by de Groot et al²⁵, for example, suggests ways that the addition of financial
32 166 resources can influence the underlying determinants of child nutrition through the three
33 167 pathways of food security, health and care. The model presented by Leroy and colleagues³,
34 168 although focussed on the impact pathways of CCTs, has similarities to the de Groot
35 169 conceptual framework. Leroy and colleagues outline how the addition of financial resources
36 170 can make it easier for a household to purchase higher quantities and quality of food (HH food
37 171 security), increase access to health services (health) and increase women's control over
38 172 income and empowerment (care). Each framework highlights possible
39 173 mediating/moderating/modifying variables that could interrupt the underlying pathways
40 174 influence the immediate determinants of child nutrition -- shocks, feeding practices and feeding
41 175 styles, women's time (e.g. additional travel required to collect cash and meet conditions of
42 176 CCTs), availability of food and food prices, and existing resources for health, can have either
43 177 positive or negative influences on the impact of cash transfers on child nutrition. The REFANI
44 178 theory-of-change²⁴ also maps the pathways, but provides a deeper insight into household
45 179 choices related to income use and how these might activate mechanisms of change to
46 180 generate nutrition-related outcomes. The researchers^{2 3 5 6 24 25} have identified several gaps in
47 181 knowledge that warrant further research, examples include; caregiver behaviour (including
48 182 feeding practices), quality of health and nutrition services, child dietary intake and dietary
49 183 diversity, individual food security, the costing and cost-effectiveness of cash transfers in the
50 184 reduction of child undernutrition.

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55 185 While each of the models incorporate overarching contextual factors, how context affects the
56 186 pathways to generate outcomes remains underdeveloped. This is an important gap as
57 187 implementation structures and programme environments for CTPs with nutrition objectives are
58 188 heterogeneous. The systems for implementation for example, may include multiple
59 189 government and non-government agencies and be provided to a diverse range of recipients.

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3 190 Cash transfers take numerous forms – conditional/ unconditional cash transfers/ in-kind
4 191 assistance/vouchers. Further, access to complementary health and welfare services varies.

6 192 Using a realist approach to develop an initial programme theory, the evaluation conducted by
7 193 Owusu et al¹⁴ of cash transfers and the social determinants of health in Ghana expands the
8 194 knowledge of the interplay between context, potential mechanisms, and health outcomes. The
9 195 authors hypothesise that CTPs have a strong impact on poverty reduction and improve access
10 196 to services, however, significant changes are needed to improve programme impacts on the
11 197 social determinants of health¹⁴. The recommended changes are similar to the findings from
12 198 the nutrition research (i.e. addressing household motivation, risk-taking behaviour,
13 199 intersectoral collaboration, programme awareness). The authors provide a programme theory
14 200 that can be tested and refined in future studies, such as for the realist review proposed herein.

17 201 As discussed in the paper by Floate et al²⁶ the use of a realist approach in combination with a
18 202 theory-of-change (e.g. the REFANI theory-of-change) can assist in identifying underlying
19 203 mechanisms and explore the interplay with contextual factors that result in both planned and
20 204 unplanned outcomes. While re-examining the frameworks from earlier research using a realist
21 205 enquiry, we will extend them by explicitly considering how the various CTP programme
22 206 elements and implementation structures influence the pathways that affect the determinants
23 207 of child nutrition.

25 208 The review and evidence synthesis outlined in this protocol is the first stage of a research
26 209 project that employs a theory-driven realist approach²⁷. The programme theories developed
27 210 in this review will be empirically tested in Kenya and Ethiopia (currently implementing large-
28 211 scale CTPs). To our knowledge this is the first realist review of the impact of CTPs on child
29 212 nutrition status.

31 213 **Methods**

32 214 **Realist Review Methodology**

33 215 The realist approach to synthesising evidence has become accepted as a rigorous alternative
34 216 method to systematic reviews, where the intent is to understand causation. Other forms of
35 217 systematic reviews were investigated (e.g. meta-analysis), however, while providing
36 218 information on outcomes, other methods often fail to explain how or why programmes worked
37 219 and do not easily account for the complexity found in real-world nutrition related CTPs²⁸.

39 220 Publication standards have been issued by the RAMESES (Realist and Meta-Narrative
40 221 Evidence Synthesis: Evolving Standards) project, and realist reviews are utilised with greater
41 222 frequency in complex intervention evaluations, such as CTPs^{14 29-31}. The approach is a theory-
42 223 based approach to understanding ‘what works for whom in what circumstances’ and
43 224 importantly, *why and in what context?*²⁷.

44 225 The realist approach as proposed by Pawson and Tilley²⁷, is based on a specific philosophical
45 226 approach, that is, realism and more specifically, scientific realism, sitting somewhere between
46 227 positivism (the belief that knowledge must be scientifically tested with systematic
47 228 mathematical or logical proof) and constructivism (the theory that knowledge is constructed
48 229 by humans through their own experiences)^{32 33}. The approach is based on the understanding
49 230 that there is a social reality, but this is socially constructed. Outcomes (O) are generated by
50 231 mechanism(s) (M) that are triggered within certain contexts (C). The mechanism(s) from a
51 232 realist perspective (in socially contingent interventions) is usually hidden and is the reaction
52 233 or response of people to resources introduced by the intervention within a certain context and
53 234 can be enabling or disabling. Context relates to the setting in which the programme operates,
54 235 including systems such as health, political, environmental, and social systems. The context

236 can have several layers and can be separated into the outer and inner contexts of an
237 intervention.

238 In a realist approach, the researcher seeks to understand interventions through the concept
239 of generative causation that is hypothesised and tested through context-mechanism-
240 configurations (CMOs)³⁴. A key task for the researcher is to identify situations where
241 interventions have had effective and/or ineffective implementation, achieving either planned
242 or unplanned outcomes, and to examine the causes of these³⁵. Typically, to achieve this
243 differentiation, potential theories (or candidate theories) of the context, mechanisms and
244 outcomes in which a programme is or will be implemented are generated throughout the
245 review, to account for the processes of an intervention that lead to an outcome³⁶. CMO
246 configurations and potential theories are then analysed to inform the creation of protocols for
247 data collection for the review and analysis. Realist evaluations typically use data from various
248 sources, including qualitative, quantitative or mixed methods studies. An evidence-informed
249 programme theory answering the realist question of what works, for whom, under what
250 circumstances, is the result of the inquiry²⁷. All phases of a realist inquiry are iterative, to allow
251 for constant refinement of potential theories and CMOs. Developing and testing CMO
252 configurations can help ensure external validity, by enabling a level of abstraction for the
253 theory, or theories, that can be useful in other contexts.

254 A realist synthesis, which is synonymous with the realist review, applies a realist philosophy
255 to collate findings from various studies that are related to either a single research question or
256 a collection of questions^{37 38}. The steps of a realist review, as recommended by Pawson et al
257³⁴ are as follows: 1. Clarifying the scope of the review 2. Searching for evidence 3. Appraising
258 primary studies and extracting data 4. Synthesising evidence and drawing conclusions 5.
259 Disseminating, implementing and evaluating. All phases of a realist inquiry are iterative, to
260 allow for constant refinement of potential theories and CMOs. Step 1 of the review has been
261 completed, step 2 is currently in progress.

262 Protocol and Review Methods

263 The approach for this protocol has been informed by peer-reviewed realist review protocols
264 published in the last ten years, RAMESES guidelines and the work of Ray Pawson^{27 34 37 39-49}.
265 We conducted a search of databases such as Medline, Scopus, and Google Scholar, using
266 search terms including "realist review" and "protocol". Our search yielded 68 records, of which
267 8 were found to be pertinent for our review^{28 39-42 47 49 50}. Relevant protocols were chosen based
268 on similarities in programme contextual factors, such as national operating systems, multiple
269 implementing agencies, multifaceted causal chains, and potential outcomes. These have
270 informed the protocol below. The review commenced in October 2018, with completion
271 estimated to be in June 2019.

272 To ensure rigour and relevance, we adopt accepted and validated analytic techniques for
273 example the MMAT tool (Mixed Methods Appraisal Tool)^{51 52}, which are described in more
274 detail in Step 3 and 4 of this protocol. The use of these techniques will allow us to compare
275 and consolidate key multidisciplinary implementation attributes and their relationships³⁹. We
276 used the PRISMA-P checklist when writing our report⁵³.

277 Review objectives

278 To understand the relationships between cash transfer programmes and child nutritional
279 status the objectives of our review are to:

- 280 1) identify the programme theories underpinning the designs of CTPs with nutrition
281 objectives, targeting children under five and pregnant and lactating women in lower
282 and middle-income countries;

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3 283 2) identify the mechanisms that explain how CTPs affect child nutrition in lower and
4 284 middle-income countries;
5 285 3) examine how key contextual factors, (including implementation structures, programme
6 286 components and recipient characteristics) interact with resources (i.e. cash transfer
7 287 and supporting services) and participant reasoning to generate child nutrition
8 288 outcomes;
9 289 4) propose how and why CTPs affect, or do not affect child nutrition in lower and middle-
10 290 income countries.

291 Patient and Public Involvement

292 The public and/or patients were not involved in this stage of the research project

293 Step 1: Clarifying the scope of the review

294 Clarifying the scope of review involves understanding the nature and content of the intervention,
295 including its purpose and expected outcomes or impacts. It is often undertaken using an initial
296 literature review and in discussion with practitioners and experts in the field. The purpose of
297 this stage is to develop a framework for examining and synthesising evidence from diverse
298 sources³⁴ and begin to identify key words and concepts. In this review, the initial theoretical
299 and conceptual frameworks of how nutrition sensitive programmes are theorised to influence
300 child nutrition status were identified based on an initial review of the literature, discussions
301 with relevant stakeholders (e.g. donors, community members, development practitioners)
302 working in nutrition and food security and the first author's practical experience. The initial
303 literature search revealed four potentially relevant frameworks^{1 3 24 25}. Based on these
304 frameworks and the UNICEF conceptual framework^{1 3 8 24 25}, and complemented by
305 stakeholder interviews and practical experience, we identified common themes across the
306 frameworks and possible gaps in knowledge. We then mapped the proposed pathways and
307 underlying assumptions of how CTPs influence child nutritional status in a conceptual framing
308 exercise (using the UNICEF and other relevant frameworks as our foundation) and then began
309 the process of identifying potential CMO configurations and potential theories. The results
310 included several possible CMOs, and a series of If/Then statements to facilitate in the creation
311 of theories. The CMOs have been categorised into four main domains, that were chosen
312 through the grouping of common concepts and themes. The four main domains are
313 implementation structures, contextual influences, food systems and community response, as
314 represented in Figure 1. Implementation practices have been identified as a key contributing
315 factor in CTPs achieving nutrition outcomes. Therefore, this review will also draw on the
316 practical concepts of implementation research guidelines⁵⁴ to help with our understanding of
317 what elements of CTPs contribute to planned or unplanned outcomes.

318 An example of two of our hypothesised CMOs and potential theories categorised under the
319 domain of implementation structures and associated capacity building category are as follows:

- 320 • Nutrition education provided by a health professional (C), who is skilled in
321 behaviour change techniques (resource M) and able to create nutrition
322 awareness in recipients (response M) that will ensure CTP recipients provide
323 food to their children in sufficient quantity and diversity and prevent/treat
324 diseases, reducing chronic malnutrition rates in children under five (O)
- 325 OR
- 326 • Nutrition education provided by CTP employees (e.g. government workers or
327 programme monitors) (C), unskilled in behaviour change techniques but trained
328 in CTP protocols (resource M), deliver appropriate nutrition messages and
329 health-seeking advice, guaranteeing CTP recipients diversify their child's daily

330 dietary intake and prevent diseases (response M), reducing chronic
331 malnutrition rates in children under the age of five (O)

332 Step 2: Searching for relevant evidence

333 Following specification of our potential programme theories, the next stage will be to identify
334 relevant literature to further develop and test the theories. The aim is to identify a broad range
335 of studies (including quantitative, qualitative and mixed methods) relating to CTPs and the
336 programme theories⁵⁵. The ways in which we will undertake this step are described below.

337 Literature search strategy

338 Following the RAMESES guidelines for a realist review, in this step we will undertake an
339 iterative approach to searching for relevant literature, allowing relevant new studies to be
340 included continuously into findings and the overall synthesis.

341 We expect databases such as Medline, ProQuest, Cochrane, Scopus, Web of Science,
342 Business Source Complete, EconLit and Google Scholar to be most instrumental in our search
343 of the extant literature. Reports and unpublished papers from the 'gray' literature will be
344 sourced from websites such as the World Bank, UNICEF, WFP, WHO, FAO, 3ie Impact
345 Database, Transfer Project DFID and USAID. The search will be conducted in English, the
346 potential theories and possible CMOs have informed the selection of search terms, including
347 for example: cash transfer, nutrition, children, pregnant and lactating women, women of
348 reproductive age, nutrition sensitive, conditional cash transfer, unconditional cash transfer,
349 social safety nets, financial incentives, food security, food consumption, dietary diversity,
350 acute, chronic malnutrition, low-income, middle-income, social protection, implementation,
351 World Bank, WFP, UNICEF, WHO, DFID, USAID. The search strategy will include variations
352 of the following examples of term combinations:

- 353 • "cash transfers" AND "nutrition"
- 354 • "cash transfers" AND "nutrition" AND "children"
- 355 • "cash transfers" OR "social safety nets" OR "financial incentives" AND "nutrition" OR
356 "nutritional status"
- 357 • "cash transfers" OR "conditional cash transfer" OR "unconditional cash transfer" AND
358 "nutrition"
- 359 • "cash transfers" AND "food security"

360 All searches will be limited to those published from 1990 (reflecting the start of Latin American
361 CTP programmes, where the first large-scale conditional cash transfers were implemented) to
362 present.

363 Inclusion and exclusion criteria

364 As per the realist approach, in this study, we are less concerned with whether an evaluation
365 meets traditional epidemiological methodological standards, (e.g. must be a randomised
366 controlled trial or case-control trial), but rather what type of information may be gathered from
367 studies about how, why and for whom CTPs achieve nutritional change, and under what
368 circumstances. Our inclusion and exclusion criteria have been designed to reflect this, by
369 including a variety of studies regardless of study design. The studies will be included or
370 excluded based on the following criteria:

371 Included

- 372 1) programmes targeting children under the age of five, including pregnant and lactating
373 women;
- 374 2) centrally managed programmes implemented through various systems, including
375 national governments, international agencies and non-government organisations;

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3 376 3) programmes in humanitarian/relief and development settings with multiple sites;
4 377 4) programmes targeting underlying determinants of malnutrition (aspects of food
5 378 security, health and care) with reduction of malnutrition as a primary objective
6
7 379 5) programmes measuring at least one nutrition outcome or an immediate determinant
8 380 (such as diet, nutritional supplementation rate or associated morbidities).

9
10 381 **Excluded**

- 11 382 1) programmes targeting school-aged children, adolescents, and adults (except pregnant
12 383 and lactating women (PLWs))
13 384 2) welfare programmes in high income countries

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15 385 **Article Screening**

16 386 One reviewer will generate a list of articles and abstracts (if available), based on the search
17 387 strategy mentioned above. These will be separated among the review team, consisting of two
18 388 reviewers (HF, GM) and titles and abstracts will be reviewed by individual reviewers to see if
19 389 they 1) focused on CTPs (regardless of modality) and if 2) they appear to fit with the
20 390 inclusion/exclusion criteria. Reviewers will list the articles as 'include', 'exclude' and 'maybe'
21 391 ⁵⁰. In the absence of an abstract, titles of articles will be used to determine if they are
22 392 appropriate for review (e.g. mention of CTPs and nutrition outcomes). If the title is ambiguous,
23 393 the article will remain in the 'maybe' group for the next stage of the review. As described by
24 394 Velonis⁵⁰, we will ensure inner-rater reliability, through a randomly selected number of article
25 395 titles and abstracts, each being reviewed independently to determine if the study should be
26 396 included. In the case of discrepancies, agreements will be reached collectively.

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29 397 Following the initial screening, articles that have been labelled 'included' and 'maybe' will be/
30 398 reviewed a second time by the reviewers. Once completed, the reviewers will discuss and
31 399 collate results, in cases where an article has been 'included' by one reviewer and 'excluded'
32 400 by the second reviewer, reasoning will be discussed, and a consensus reached, where
33 401 consensus cannot be reached a third reviewer will be brought into the discussion.

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35 402 The complete article or paper included at this stage, will then be obtained for the final stage
36 403 of the screening. Inter-rater reliability will be assessed again by having the reviewers read the
37 404 same randomly selected five articles, make their own recommendations on inclusion and
38 405 exclusion, then meet to discuss as a group. Results will be discussed collectively between the
39 406 reviewers to ascertain any differences between findings, points of difference in categorisation
40 407 will be discussed and consensus reached mutually. The remaining articles will be distributed
41 408 amongst the reviewers and skim read to make a final decision as to their inclusion or exclusion,
42 409 findings will again be shared, and consensus reached. Articles will be used as input for step 3
43 410 of the review.

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46 411 **Step 3: Appraising primary studies and extracting data**

47 412 This step seeks to refine our programme theories and CMOs following the initial screening of
48 413 the literature as outlined in steps 1 and 2 of the protocol as per RAMESES and Pawson
49 414 recommendations for realist reviews ^{34 42}. In this step we will seek to review the articles
50 415 identified in step 2 and consider them in relation to our programme theories for integrity,
51 416 adjudicate between rival programme theories and review the same theories in comparative
52 417 settings ³⁴. These three strategies will facilitate in the consolidation of our programme theories.
53 418 A final literature search, quality appraisal and data extraction of included studies is also
54 419 included in this step of the review. For the quality appraisal, where appropriate, the MMAT
55 420 (Mixed Methods Appraisal Tool)^{51 52} will be used to evaluate rigour and credibility of relevant
56 421 evidence we extract from each study has been generated.

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3 423 1) Reviewing for programme theory integrity

4 424 The purpose of this strategy is to study how programmes have been implemented in
5 425 what contexts and what results they have generated for whom. According to Pawson
6 426 et al ³⁴, in a realist synthesis, this strategy can aid in the discovery of typical weak
7 427 points in the history of the programme under review. For this review, this will mean for
8 428 example, examining the history of CTPs to identify if changes and deviations in
9 429 implementation structures have had an influence on child nutrition outcomes.

10 430
11 431 For example (hypothesised theory):

- 12 432
13 433 • CTPs implemented by national governments without external support (C) using
14 434 standardised CTP protocols and clear guidelines with nutrition objectives (M
15 435 resource), ensuring CTP implementers have a clear understanding of
16 436 programme priorities and how to deliver them (M response), are more
17 437 successful in changing traditional food beliefs (O).

18 438 2) Reviewing to adjudicate between rival programme theories

19 439 The purpose of this strategy is to identify which variations of mechanisms are most
20 440 successful in driving different outcomes, by uncovering evidence from competing
21 441 programme theories ³⁴. The conceptual frameworks, potential theories and CMOs
22 442 identified in Step 1 of the review, highlight the numerous possible pathways a CTP
23 443 may improve child nutrition status. By adjudicating between rival programme theories,
24 444 we will elicit key causal factors that may be driving changes in outcomes in large-scale
25 445 CTPs, through analysis of both relevant literature and consultation with a range of
26 446 stakeholders, to identify what works for whom in what circumstances.

27 447
28 448 For example (hypothesised theory):

- 29 449 • CTPs provided with nutrition education training (C) are more successful in
30 450 improving maternal child care practices (O), when delivered by a local
31 451 midwife/traditional birth attendant (M resource) as women are more likely to
32 452 trust messages given by established community members (M response).
33 453 OR
34 454 • CTPs delivered through condition of attendance to maternal child health
35 455 services (C), ensure women will improve child care practices (O) or they will
36 456 not receive monthly cash payments (M resource) and positive nutrition
37 457 awareness (M response) will only be achieved through constant monitoring.

38 458
39 459 3) Reviewing the same theory in comparative settings

40 460 This strategy addresses the core of realist evaluation to identify patterns in the context
41 461 in which interventions interact with participant reasoning to generate outcomes ³⁴. Our
42 462 theories will be compared between settings with similar CTP modalities in terms of the
43 463 four domains highlighted in Figure 1.

44 464
45 465 For example (hypothesised theory):

- 46 466 • Conditional CTPs implemented by national and local governments (C) ensure
47 467 attendance at MCH clinics for health and nutrition screening, provided by skilled
48 468 health professionals (M resource), recipients will attend and receive nutrition
49 469 education, creating positive behaviour change (M response) that will improve
50 470 the nutrition status of children in recipient households (O).

51 471 OR

- Unconditional CTPs provided by INGOs and NGOs (C), with positive implementation histories, will provide nutrition education programmes in conjunction with cash transfers, through skilled outreach workers (M resource) who are trusted by the community (M response) and diversify diets for children in recipient households (O).

Revisiting the literature

The purpose of a literature search in this step of the review is to further explore evidence from a wide range of programmes, including empirical studies, policy and protocol documents, evaluations, systematic reviews, gray literature (non-peer reviewed documents) from the field (e.g. programme proposals, monitoring reports and donor updates) that will add to the search from step 2 in the development of our programme theories. The search in this phase will be more purposive in nature than in step 2. Reference and citation searches from articles identified in step 2 will be tracked through 'snowballing' search techniques to identify additional documents³⁴. Additional articles will be selected at this stage according to whether they add to our emerging theories or areas of explanatory potential in terms of context, mechanism and outcome patterns⁴². New targeted search terms, not included in the original search will be used in this stage of the literature search, as per realist evidence searching recommendations^{42 56}.

Searching for new documents will end at the point of theoretical saturation, that is, when we have established there is sufficient evidence to confirm a preliminary theory for testing in the field³⁷.

Agency project proposals, donor progress reports, protocol documents and descriptive evaluations will also be used in the identification of effective or ineffective implementation practices.

Quality appraisal and Data Extraction

One reviewer (HF) has commenced searching databases as per step 2 of the protocol and article screening has commenced. Articles and documents will be appraised by two reviewers (HF, GM), independently using the inclusion/exclusion criteria described earlier.

Realist reviews require the use of a wide range of documents to contribute to the development of programme theories with quality appraisal conducted throughout the review process. Documents or parts of documents therefore are not excluded based on methodological quality but on relevance and rigour⁵⁷. In realist syntheses, unlike a traditional systematic review, an assessment occurs in conjunction with the assessment of the study's relevance and related 'programme theories' and if the methods utilised to generate the data, or related 'programme theories' were appropriate. In other words, in this study we will seek and use different fragments of evidence within each study that are relevant to our programme theories. Each fragment of evidence will be appraised, as it is extracted, for its relevance to theory building and if the methods used to generate the data are trustworthy and credible.

Where appropriate, the MMAT (Mixed Methods Appraisal Tool)^{51 52} will be used in our assessment of rigour and credibility of the way in which the fragments of evidence we extract from each study have been generated. The MMAT tool is recommended by RAMESES to appraise the quality of data extracted from studies as it can be applied to studies that use quantitative, qualitative and mixed methods and has been independently tested for efficiency and reliability^{28 51 58}. The principle researcher (HF) will lead the process and will share and discuss the emerging synthesis with the other two researchers (GF, JD). In addition, JD will review approximately 10% of included papers and evaluate the extracted data using the

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3 519 MMAT tool. Implementation practices have been identified as one of the key influencing
4 520 factors for CTPs to achieve nutrition outcomes in our potential programme theories, therefore,
5 521 we will also use as appropriate, the Egan et al.⁵⁹ implementation appraisal checklist to guide
6 522 our appraisal of the quality of reporting of implementation practices from the articles included
7 523 in our review. The checklist will require some modification due to differing contexts. However,
8 524 several themes from the Egan et al. checklist are consistent with the organisational-level
9 525 workplace interventions of the CTPs we are evaluating (e.g. motivation, theory-of-change,
10 526 employee support, resources provided, differential effects and population characteristics)⁵⁹.
11 527 These techniques and tools will only be applied to the relevant aspects of the studies that
12 528 relate to our programme theories rather than the study as a whole²⁸.

15 529 Data extraction will focus on key context, mechanism and outcome findings that will contribute
16 530 to the further development and refinement of CMO configurations and programme theories.
17 531 Two reviewers (HF, GM) will independently read each source in full, identifying data that will
18 532 contribute to theory building A bespoke excel spreadsheet will be developed for extracting
19 533 data and will be formulated and agreed on between the reviewers. The study reviewers will
20 534 use the spreadsheet to record data relevant to theory building and may include for example,
21 535 information such as: 1) document bibliographic information 2) country of study/document, 3)
22 536 the type of CTP , 4) what nutrition outcomes are measured and how they are measured, 5)
23 537 what proximal outcomes (e.g. improved maternal child care practices through nutrition
24 538 education support) are measured and how they are measured, 6) contextual factors that are
25 539 mentioned in the article, 7) mechanisms that lead to outcomes that are mentioned in the
26 540 article, 8) the study design, 9) the relevance to theory building and 10) the credibility of the
27 541 methods used to generate the fragments of evidence extracted from the individual studies.
28 542 When extracting data, if an article does not include all aspects of the theory or data relevant
29 543 to a question 'Not reported' will be recorded. Where direct quotations are extracted the page
30 544 number from which the quote was taken will be noted.

34 545 The reviewers will pilot the data extraction sheet by independently extracting data from
35 546 approximately ten articles and discuss results, the spreadsheet may need modification
36 547 following piloting. Data will be managed using Microsoft Excel, an annotated notebook will be
37 548 kept ensuring an audit trail of decision-making is maintained. The findings of the data
38 549 extraction will provide an overall impression of the depth of the data available and how much
39 550 it will contribute to our programme theories⁵⁰.

41 551 **Step 4: Synthesising evidence and drawing conclusions**

42 552 This step will involve the identification of recurrent patterns (or demi-regularities) in outcomes,
43 553 mechanisms and contexts³⁷ and will be focussed on addressing our research questions

45 554 A mix of inductive and deductive analytical processes will be used to identify patterns in the
46 555 extracted data, which will be produced in the form of If/Then statements, with the aim of linking
47 556 the chains of inference, and tracking and linking of articles. Two reviewers (HF, GM) will
48 557 examine the If/Then statements to identify recurring themes within mechanisms that will be
49 558 grouped thematically (as anticipated in Figure1) as well as challenging emerging findings and
50 559 seeking divergent examples. Though this iterative process we will formulate hypotheses,
51 560 linking themes to chains of inference, which will subsequently be empirically tested in our field
52 561 work.

55 562 The broader literature will also be used to inform and refine our emerging theories. For
56 563 example theories that may be drawn on, as per the Owusu et al¹⁴ realist evaluation are
57 564 capability theory (Sen⁶⁰), empowerment theory (Kabeer⁶¹) and self-determination theory
58 565 (Ryan and Deci⁶²). These theories will be consistent with the behavioural and structural
59 566 mechanisms that have been identified in the causal pathways of the underlying determinants

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3 567 of child nutrition. Literature will be located through searches of social science and health
4 568 databases, as well reviewing the reference lists of included papers and our own libraries.
5 569 Searches of the literature will be undertaken purposively and iteratively, with the main criterion
6 570 the ability to refine our programme theories. Search terms for this stage will be developed with
7 571 the research team based on the key concepts and processes suggested to have explanatory
8 572 power within the key programme theories identified.

9
10 573 Based on the review and analysis, the CMO configurations and aspects of programmes
11 574 theories considered to be the most influential and/or important for nutrition outcomes will be
12 575 identified, to be tested in research to be undertaken following this review involving primary
13 576 data collection and consultation with experts and key programme stakeholders.

14 577 **Step 5: Dissemination**

15
16 578 The findings from the review will be presented in accordance with the RAMESES guidelines
17 579 as recommended by Wong et al³⁷. Findings will be published in a peer-reviewed journal. The
18 580 results will be disseminated to policymakers, external donors, relevant governments, and
19 581 research institutes (e.g. IFPRI), through formal or informal presentations, conferences and
20 582 reports.

21 583 **Discussion**

22
23 584 Cash transfer programmes are inherently complex, involving numerous programme
24 585 components, systems for implementation, aiming to produce a variety of outcomes. They are
25 586 heterogeneous interventions, ranging from conditional cash transfers to cash and in-kind
26 587 assistance (e.g. food aid distribution), provided in a diverse range of settings to a variety of
27 588 recipients. In theory, CTPs should be able to achieve positive nutrition outcomes through their
28 589 ability to influence the determinants of nutrition status and CTPs are rapidly replacing
29 590 traditional food security programmes, as a strategy to alleviate chronic poverty for households
30 591 vulnerable to economic shocks and to improve both food security and nutrition resilience.
31 592 Evidence suggests CTPs have a positive impact on household food consumption and asset
32 593 holdings. However, child nutrition outcomes are not routinely achieved through social
33 594 protection programmes⁴ and there are gaps in knowledge of how they can be optimally
34 595 implemented to consistently influence child nutrition status.

35
36 596 One of the key contributions of this review, in relation to other CTP impact evaluations and
37 597 systematic reviews is our focus on how the various CTP programme elements and
38 598 implementation structures can be implemented synergistically to improve nutrition status,
39 599 rather than evaluating the impact effect on nutrition through the cash transfer itself. Our initial
40 600 review of the literature indicates an existing and current evidence base related to CTP impact
41 601 on both child nutrition indicators and proximal outcomes, such as household food consumption
42 602 and maternal childcare practices. However, evaluations that also consider the influence of
43 603 implementation structures and processes have been limited. To our knowledge this is the first
44 604 realist review of CTPs impact on child nutrition status. The use of this approach in conjunction
45 605 with other methods for data analysis and synthesis, will offer a deeper understanding of the
46 606 mechanisms and contextual factors required to address the various determinants of child
47 607 nutrition status throughout CTP implementation processes.

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49 608 The realist review method has limitations and findings may not be easily reproduced where
50 609 disciplinary perspectives and judgement differs across research teams in terms of relevance
51 610 and quality of literature identified. We have sought to address this through clear specification
52 611 of criteria, use of validated approaches (such as the MMAT tool) and maintaining an audit trail
53 612 throughout the review process to support structured and reproduceable decision-making. The
54 613 strength of the realist review method is its ability to be flexible and adaptable, which suits the
55 614 complexity of cash transfer programmes with nutrition objectives.

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3 615 The research will inform the development of strategies to be included in CTP project design
4 616 and implementation guidelines to produce consistent nutrition outcomes in contexts where
5 617 cash transfer programmes are implemented with short or long term objectives.

7 618 **[Figure 1 near here]**

8 619

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10 620 **Ethics and dissemination**

11 621 This stage of the study will not involve primary research; however, ethical clearance has
12 622 been sought through the University of Queensland for the next steps of the research project.
13 623 Findings will be presented in accordance with RAMESES guidelines and published in a
14 624 peer-reviewed journal.

15
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18
19 627 **Author Contributions:**

20 628 All authors contributed to the conception and design of the study, protocol and manuscript. All
21 629 authors read and approved the final manuscript

22
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25 632 non-for-profit sectors

26
27 633 **Competing Interests:**

28 634 None to declare

29
30 635 **Data Statement:**

31 636 This paper describes a protocol for undertaking a literature review. As such data are not yet
32 637 available for lodging with a repository

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References

1. Black RE, Alderman H, Bhutta ZA, et al. Maternal and child nutrition: building momentum for impact. *Lancet* 2013;382(9890):372-75. doi: 10.1016/S0140-6736(13)60988-5
2. Fenn B, Pietzsch S, Morel J. Research on Food Assistance for Nutritional Impact (REFANI): literature review. 2015
3. Leroy J, Ruel M, Verhofstadt E. The impact of conditional cash transfer programmes on child nutrition: a review of evidence using a programme theory framework. *Journal of Development Effectiveness* 2009;1(2):103-29. doi: 10.1080/19439340902924043
4. Manley J, Gitter S, Slavchevska V. How effective are cash transfers at improving nutritional status? *World development* 2013;48:133-55.
5. Sibson VL, Grijalva-Eternod CS, Noura G, et al. Findings from a cluster randomised trial of unconditional cash transfers in Niger. *Matern Child Nutr* 2018;14(4):e12615. doi: 10.1111/mcn.12615 [published Online First: 2018/05/10]
6. Hougbe F, Tonguet-Papucci A, Altare C, et al. Unconditional Cash Transfers Do Not Prevent Children's Undernutrition in the Moderate Acute Malnutrition Out (MAM'Out) Cluster-Randomized Controlled Trial in Rural Burkina Faso. *The Journal of Nutrition* 2017;147(7):1410-17. doi: 10.3945/jn.117.247858
7. Grijalva-Eternod CS, Jelle M, Haghparsad-Bidgoli H, et al. A cash-based intervention and the risk of acute malnutrition in children aged 6-59 months living in internally displaced persons camps in Mogadishu, Somalia: A non-randomised cluster trial. *PLoS Med* 2018;15(10):e1002684. doi: 10.1371/journal.pmed.1002684 [published Online First: 2018/10/30]
8. UNICEF. Conceptual framework of the causes of malnutrition. *New York: UNICEF* 1991
9. Ruel M., Alderman H. Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *Lancet* 2013;382(9891):536. doi: 10.1016/S0140-6736(13)60843-0
10. Ruel MT, Alderman H, Maternal Child Nutr Study G. Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *Lancet* 2013;382(9891):536-51. doi: 10.1016/s0140-6736(13)60843-0
11. Bhutta Zulfiqar. A, Ahmed T, Black RE, et al. What works? Interventions for maternal and child undernutrition and survival. *The Lancet* 2008;371(9610):417-40. doi: 10.1016/S0140-6736(07)61693-6
12. Bright T, Felix L, Kuper H, et al. A systematic review of strategies to increase access to health services among children in low and middle income countries. *BMC Health Serv Res* 2017;17(1):252.
13. Lagarde M, Haines A, Palmer N. Conditional cash transfers for improving uptake of health interventions in low- and middle-income countries: a systematic review. *JAMA* 2007;298 doi: 10.1001/jama.298.16.1900
14. Owusu-Addo E, Renzaho AMN, Smith BJ. Cash transfers and the social determinants of health: Towards an initial realist program theory. *Evaluation* 2018;0(0):1356389018814868. doi: 10.1177/1356389018814868
15. Baird S, Ferreira FHG, Berk Ö, et al. Relative Effectiveness of Conditional and Unconditional Cash Transfers for Schooling Outcomes in Developing Countries: A Systematic Review. *Campbell Systematic Reviews* 2013;9(8)
16. Fiszbein, Schady, Ferreira. Conditional Cash Transfers Reducing Present and Future Poverty. Washington, DC: World Bank 2009.
17. Barbosa AL, Neves, De H, et al. Conditional cash transfer and informality in Brazil. *IZA Journal of Labor & Development* 2014;3(1):1-18. doi: <http://dx.doi.org/10.1186/s40175-014-0024-0>
18. Baird S, Ferreira FHG, Özler B, et al. Conditional, unconditional and everything in between: a systematic review of the effects of cash transfer programmes on schooling outcomes. *Journal of Development Effectiveness* 2014;6(1):1-43. doi: 10.1080/19439342.2014.890362

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55
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57
58
59
60

- 703 19. Paes-Sousa R, Santos LMP, Miazaki ÉS. Effects of a conditional cash transfer programme on child
704 nutrition in Brazil. *World Health Organization Bulletin of the World Health Organization*
705 2011;89(7):496-503.
- 706 20. Debela BL, Shively G, Holden ST. Does Ethiopia's Productive Safety Net Program improve child
707 nutrition? *Food Security* 2015;7(6):1273-89. doi: 10.1007/s12571-015-0499-9
- 708 21. Berhane G, Gilligan DO, Hoddinott J, et al. Can Social Protection Work in Africa? The Impact of
709 Ethiopia's Productive Safety Net Programme. *Economic Development and Cultural Change*
710 2014;63(1):1-26.
- 711 22. Gilligan DO, Hoddinott J, Taffesse AS. The Impact of Ethiopia's Productive Safety Net Programme
712 and its Linkages. *The Journal of Development Studies* 2009;45(10):1684-706. doi:
713 10.1080/00220380902935907
- 714 23. Kumar N. The impact of Ethiopia's Productive Safety Net Programme on the nutritional status of
715 children: 2008–2012: International Food Policy Research Institute (IFPRI), 2017.
- 716 24. Fenn B, Sangrasi GM, Puett C, et al. The REFANI Pakistan study--a cluster randomised controlled
717 trial of the effectiveness and cost-effectiveness of cash-based transfer programmes on child
718 nutrition status: study protocol. *BMC Public Health* 2015;15:1044. doi: 10.1186/s12889-015-
719 2380-3 [published Online First: 2015/10/16]
- 720 25. de Groot R, Palermo T, Handa S, et al. Cash Transfers and Child Nutrition: Pathways and Impacts.
721 *Development Policy Review* 2017;35(5):621-43. doi: 10.1111/dpr.12255
- 722 26. Floate H, Durham J, Marks GC. Moving on from logical frameworks to find the 'missing middle' in
723 international development programmes. *Journal of Development Effectiveness* 2018:1-15.
- 724 27. Pawson R, Tilley N. Realistic evaluation. Thousand Oaks, Calif;London;: Sage 1997.
- 725 28. Iyengar S, Katz A, Durham J. Role of institutional entrepreneurship in building adaptive capacity
726 in community-based healthcare organisations: realist review protocol. *BMJ Open* 2016;6(3)
727 doi: 10.1136/bmjopen-2015-010915
- 728 29. Greenhalgh T, Humphrey C, Hughes J, et al. How Do You Modernize a Health Service? A Realist
729 Evaluation of Whole-Scale Transformation in London. *Milbank Q* 2009;87(2):391-416. doi:
730 10.1111/j.1468-0009.2009.00562.x
- 731 30. Schierhout G, Hains J, Si D, et al. Evaluating the effectiveness of a multifaceted, multilevel
732 continuous quality improvement program in primary health care: Developing a realist theory
733 of change. *Implementation Science* 2013;8(1)
- 734 31. Nilsson D, Baxter G, Butler JRA, et al. How do community-based conservation programs in
735 developing countries change human behaviour? A realist synthesis. *Biol Conserv*
736 2016;200:93-103. doi: 10.1016/j.biocon.2016.05.020
- 737 32. Westhorp G. Realist impact evaluation: An introduction (Methods Lab). London: Overseas
738 Development Institute, 2014.
- 739 33. Westhorp G. Using complexity-consistent theory for evaluating complex systems. *Evaluation*
740 2012;18(4):405-20. doi: 10.1177/1356389012460963
- 741 34. Pawson R, Greenhalgh T, Harvey G, et al. Realist review-a new method of systematic review
742 designed for complex policy interventions. *J Health Serv Res Policy* 2005;10(1_suppl):21-34.
- 743 35. Pawson R. Protocols, policy making and scientific progress. *Journal of Epidemiology and*
744 *Community Health (1979-)* 2012;66(5):386-87. doi: 10.1136/jech-2012-201061
- 745 36. Marchal B, van Belle S, van Olmen J, et al. Is realist evaluation keeping its promise? A review of
746 published empirical studies in the field of health systems research. *Evaluation*
747 2012;18(2):192-212. doi: 10.1177/1356389012442444
- 748 37. Wong G, Greenhalgh T, Westhorp G, et al. RAMESES publication standards: realist syntheses.
749 *BMC Med* 2013;11(1):1-14. doi: 10.1186/1741-7015-11-21
- 750 38. Pawson R. Evidence-based policy: a realist perspective. London: SAGE 2006.
- 751 39. Kastner M, Estey E, Perrier L, et al. Understanding the relationship between the perceived
752 characteristics of clinical practice guidelines and their uptake: protocol for a realist review.

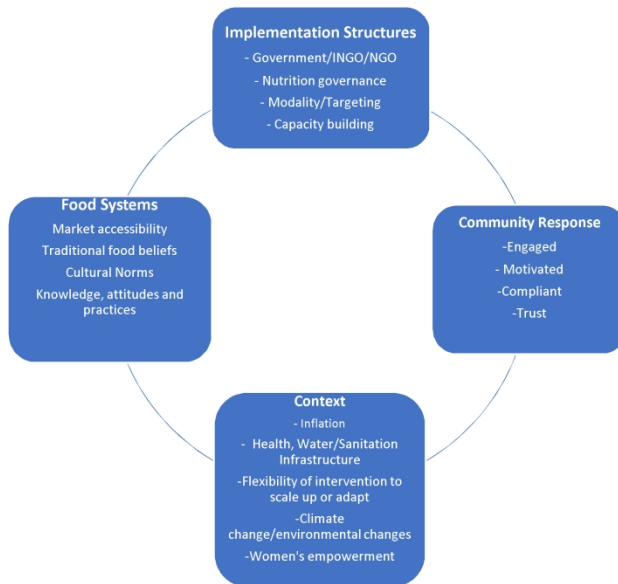
- 1
2
3 753 *Implementation Science* 2011;6:69. doi: 10.1186/1748-5908-6-69 [published Online First:
4 754 2011/07/08]
- 5 755 40. Hudon C, Chouinard MC, Aubrey-Bassler K, et al. Case management in primary care among
6 756 frequent users of healthcare services with chronic conditions: protocol of a realist synthesis.
7 757 *BMJ Open* 2017;7(9):e017701. doi: 10.1136/bmjopen-2017-017701 [published Online First:
8 758 2017/09/06]
- 9 759 41. Papoutsi C, Hargreaves D, Colligan G, et al. Group clinics for young adults with diabetes in an
10 760 ethnically diverse, socioeconomically deprived setting (TOGETHER study): protocol for a
11 761 realist review, co-design and mixed methods, participatory evaluation of a new care model.
12 762 *BMJ Open* 2017;7(6):e017363. doi: 10.1136/bmjopen-2017-017363 [published Online First:
13 763 2017/06/24]
- 14 764 42. Cooper C, Lhussier M, Shucksmith J, et al. Protocol for a realist review of complex interventions
15 765 to prevent adolescents from engaging in multiple risk behaviours. *BMJ Open* 2017;7(9) doi:
16 766 10.1136/bmjopen-2016-015477
- 17 767 43. Wiese A, Kilty C, Bergin C, et al. Protocol for a realist review of workplace learning in
18 768 postgraduate medical education and training. *Systematic Reviews* 2017;6(1) doi:
19 769 10.1186/s13643-017-0415-9
- 20 770 44. Menear M, Gervais M, Careau E, et al. Strategies and impacts of patient and family engagement
21 771 in collaborative mental healthcare: Protocol for a systematic and realist review. *BMJ Open*
22 772 2016;6(9) doi: 10.1136/bmjopen-2016-012949
- 23 773 45. Booth V, Harwood R, Hood V, et al. Understanding the theoretical underpinning of the exercise
24 774 component in a fall prevention programme for older adults with mild dementia: A realist
25 775 review protocol. *Systematic Reviews* 2016;5(1) doi: 10.1186/s13643-016-0212-x
- 26 776 46. Coles E, Wells M, Maxwell M, et al. The influence of contextual factors on healthcare quality
27 777 improvement initiatives: What works, for whom and in what setting? Protocol for a realist
28 778 review. *Systematic Reviews* 2017;6(1) doi: 10.1186/s13643-017-0566-8
- 29 779 47. Groot G, Waldron T, Carr T, et al. Development of a program theory for shared decision-making:
30 780 A realist review protocol. *Systematic Reviews* 2017;6(1) doi: 10.1186/s13643-017-0508-5
- 31 781 48. McGaughey J, O'Halloran P, Porter S, et al. Early warning systems and rapid response to the
32 782 deteriorating patient in hospital: A systematic realist review. *J Adv Nurs* 2017;73(12):2877-
33 783 91. doi: 10.1111/jan.13398
- 34 784 49. Zubair M, Chadborn NH, Gladman JRF, et al. Using comprehensive geriatric assessment for
35 785 quality improvements in healthcare of older people in UK care homes: Protocol for realist
36 786 review within Proactive Healthcare of Older People in Care Homes (PEACH) study. *BMJ Open*
37 787 2017;7(10) doi: 10.1136/bmjopen-2017-017270
- 38 788 50. Velonis AJ, Cheff R, Finn D, et al. Searching for the mechanisms of change: a protocol for a realist
39 789 review of batterer treatment programmes. *BMJ Open* 2016;6(4) doi: 10.1136/bmjopen-
40 790 2015-010173
- 41 791 51. Pace R, Pluye P, Bartlett G, et al. Testing the reliability and efficiency of the pilot Mixed Methods
42 792 Appraisal Tool (MMAT) for systematic mixed studies review. *Int J Nurs Stud* 2011;49(1) doi:
43 793 10.1016/j.ijnurstu.2011.07.002
- 44 794 52. Pluye P, Gagnon M-P, Griffiths F, et al. A scoring system for appraising mixed methods research,
45 795 and concomitantly appraising qualitative, quantitative and mixed methods primary studies
46 796 in Mixed Studies Reviews. *Int J Nurs Stud* 2009;46(4):529-46. doi:
47 797 <https://doi.org/10.1016/j.ijnurstu.2009.01.009>
- 48 798 53. Moher D, Shamseer L, Clarke M, et al. Preferred reporting items for systematic review and meta-
49 799 analysis protocols (PRISMA-P) 2015 statement.(Research)(Report). *Systematic Reviews*
50 800 2015;4(1):1. doi: 10.1186/2046-4053-4-1
- 51 801 54. Werner A. A guide to implementation research: Washington, D.C. : Urban Institute Press 2004.
- 52 802 55. Pawson R, Greenhalgh T, Harvey G, et al. Realist synthesis: an introduction. *Manchester: ESRC*
53 803 *Research Methods Programme, University of Manchester* 2004
- 54
55
56
57
58
59
60

- 1
2
3 804 56. Pawson R. Digging for Nuggets: How 'Bad' Research Can Yield 'Good' Evidence. *International*
4 805 *Journal of Social Research Methodology* 2006;9(2):127-42. doi:
5 806 10.1080/13645570600595314
6 807 57. Wong G, Westhorp G, Pawson R, et al. Realist synthesis. *RAMESES training materials London: The*
7 808 *RAMESES Project* 2013
8 809 58. Mertens DM. Transformative research and evaluation. New York: Guilford Press 2009.
9 810 59. Egan M, Bambra C, Petticrew M, et al. Reviewing evidence on complex social interventions:
10 811 appraising implementation in systematic reviews of the health effects of organisational-level
11 812 workplace interventions. 2008;63(1) doi: 10.1136/jech.2007.071233
12 813 60. Sen A. Development as freedom: Oxford : Oxford University Press 1999.
13 814 61. Kabeer N. Resources, Agency, Achievements: Reflections on the Measurement of Women's
14 815 Empowerment. *Development and Change* 1999;30(3):435-64. doi: 10.1111/1467-
15 816 7660.00125
16 817 62. Ryan RM, Deci EL. Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social
17 818 Development, and Well-Being. *Am Psychol* 2000;55(1):68-78. doi: 10.1037/0003-
18 819 066X.55.1.68
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821 Figure Captions

822 Figure 1: Theoretical framework domains
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Figure 1: Theoretical Framework Domains

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Reporting checklist for protocol of a systematic review.

Based on the PRISMA-P guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

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			Page
		Reporting Item	Number
Identification	#1a	Identify the report as a protocol of a systematic review	1
Update	#1b	If the protocol is for an update of a previous systematic review, identify as such	N/A

1		#2	If registered, provide the name of the registry (such as	1
2			PROSPERO) and registration number	
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6	Contact	#3a	Provide name, institutional affiliation, e-mail address of all	1
7			protocol authors; provide physical mailing address of	
8			corresponding author	
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14	Contribution	#3b	Describe contributions of protocol authors and identify the	13
15			guarantor of the review	
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20		#4	If the protocol represents an amendment of a previously	N/A
21			completed or published protocol, identify as such and list	
22			changes; otherwise, state plan for documenting important	
23			protocol amendments	
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29	Sources	#5a	Indicate sources of financial or other support for the review	13
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32	Sponsor	#5b	Provide name for the review funder and / or sponsor	N/A
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36	Role of sponsor or	#5c	Describe roles of funder(s), sponsor(s), and / or	N/A
37	funder		institution(s), if any, in developing the protocol	
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41	Rationale	#6	Describe the rationale for the review in the context of what is	5
42			already known	
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46	Objectives	#7	Provide an explicit statement of the question(s) the review	7
47			will address with reference to participants, interventions,	
48			comparators, and outcomes (PICO)	
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54	Eligibility criteria	#8	Specify the study characteristics (such as PICO, study	8
55			design, setting, time frame) and report characteristics (such	
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1			as years considered, language, publication status) to be	
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3			used as criteria for eligibility for the review	
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6	Information	#9	Describe all intended information sources (such as	8
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8	sources		electronic databases, contact with study authors, trial	
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10			registers or other grey literature sources) with planned dates	
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12			of coverage	
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16	Search strategy	#10	Present draft of search strategy to be used for at least one	8
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18			electronic database, including planned limits, such that it	
19				
20			could be repeated	
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23	Study records -	#11a	Describe the mechanism(s) that will be used to manage	11
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25	data management		records and data throughout the review	
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29	Study records -	#11b	State the process that will be used for selecting studies	9
30				
31	selection process		(such as two independent reviewers) through each phase of	
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33			the review (that is, screening, eligibility and inclusion in	
34				
35			meta-analysis)	
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39	Study records -	#11c	Describe planned method of extracting data from reports	11
40				
41	data collection		(such as piloting forms, done independently, in duplicate),	
42				
43	process		any processes for obtaining and confirming data from	
44				
45			investigators	
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48	Data items	#12	List and define all variables for which data will be sought	10
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50			(such as PICO items, funding sources), any pre-planned	
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52			data assumptions and simplifications	
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1	Outcomes and prioritization	#13	List and define all outcomes for which data will be sought,	12
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4			including prioritization of main and additional outcomes, with	
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6			rationale	
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8	Risk of bias in individual studies	#14	Describe anticipated methods for assessing risk of bias of	11
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11			individual studies, including whether this will be done at the	
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13		outcome or study level, or both; state how this information		
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15		will be used in data synthesis		
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17	Data synthesis	#15a	Describe criteria under which study data will be	N/A
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19			quantitatively synthesised	
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21		#15b	If data are appropriate for quantitative synthesis, describe	N/A
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23	planned summary measures, methods of handling data and			
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25			methods of combining data from studies, including any	
26			planned exploration of consistency (such as I ² , Kendall's τ)	
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28		#15c	Describe any proposed additional analyses (such as	N/A
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30	sensitivity or subgroup analyses, meta-regression)			
31		#15d	If quantitative synthesis is not appropriate, describe the type	12
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34	of summary planned			
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36	Meta-bias(es)	#16	Specify any planned assessment of meta-bias(es) (such as	11
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38			publication bias across studies, selective reporting within	
39			studies)	
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41	Confidence in cumulative evidence	#17	Describe how the strength of the body of evidence will be	6
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44			assessed (such as GRADE)	
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BMJ Open

Cash Transfer Programmes in lower and middle-income countries, understanding pathways to nutritional change – A realist review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-028314.R2
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Secondary Subject Heading:	Global health, Nutrition and metabolism, Health economics, Evidence based practice, Health policy
Keywords:	cash transfer programmes, realist review, nutrition status, nutrition-sensitive, children, food security

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4 1 Cash Transfer Programmes in lower and middle-income countries, understanding pathways
5 2 to nutritional change – A realist review protocol
6 3

8 4 Floate, Hilary¹; Marks, Geoffrey C.²; Durham, Jo³

10 5 ¹ The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
11 6 hilary.floate@uqconnect.edu.au

14 7 ² The University of Queensland, School of Public Health, Herston, Qld 4006 Australia; email:
15 8 g.marks1@uq.edu.au

18 9 ³ Queensland University of Technology, School of Public Health and Social Work, Kelvin
19 10 Grove, Qld 4059 Australia; email: joanne.durham@qut.edu.au

22 11 Corresponding author: hilary.floate@uqconnect.edu.au

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31 **Abstract**

32 **Introduction:** Child malnutrition continues to be a significant global public health concern.
33 Nutrition-related interventions have changed and diversified over the last two decades, with
34 increasing emphasis on nutrition-sensitive programmes which address underlying
35 determinants of child malnutrition. Cash transfer programmes (CTPs) are used with increasing
36 popularity in lower and middle-income countries to improve both food/nutrition insecurity and
37 resilience. Available studies however, provide mixed findings on the outcomes of CTPs for
38 child nutritional status. This review is the first stage of a research project to develop evidence-
39 informed theories of how CTPs affect child malnutrition. These will be empirically tested in the
40 field and contribute to a better understanding of how, why, for whom and in what
41 circumstances CTPs can be implemented to optimise impacts on child nutritional status.

42 **Methods and analysis:** This realist review is informed by available standards for realist
43 reviews and follows a five-step process. In step 1 an initial scoping of literature identified
44 potential contextual factors and underlying mechanisms that influence nutritional outcomes,
45 and potential theories developed to address our research question. In step 2, a systematic
46 literature search using multiple databases will be undertaken with papers screened using
47 defined inclusion/exclusion criteria. In step 3, included studies will be appraised, data
48 extracted into a bespoke data extraction tool and used to test and further refine our
49 explanatory framework. The fourth step will synthesise, using a mix of inductive and deductive
50 analytical processes to identify patterns, link chains of inference and tracking and linking of
51 articles. The final step involves dissemination of a preliminary theory for feedback prior to
52 empirically testing it in Kenya and Ethiopia where large-scale CTPs are being implemented.

53 **Ethics and Dissemination:** This review will not involve primary data collection. Findings will
54 be presented in accordance with RAMESES guidelines and published in a peer-reviewed
55 journal.

56 **Keywords:** nutrition-sensitive, cash-transfers, unconditional cash transfer, conditional cash
57 transfer, nutrition insecurity, malnutrition, nutrition status, children, food insecurity,
58 implementation, realist review

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63 Article Summary

64 Strengths and Limitations of this study

- 65 ➤ The use of realist review methods enables explicit examination of contextual factors
66 and underpinning mechanisms to explain how various cash transfer programme
67 (CTP) implementation structures, services and practices influence child nutrition
68 outcomes.
- 69 ➤ The review will develop a programme theory and a set of specific hypotheses relating
70 context-mechanism-outcome as a summary of current understandings that can be
71 empirically tested through the collection and analysis of primary data.
- 72 ➤ The method includes a broad range of evidence from various data sources, including
73 grey literature, while strengthening understandings of context it may also affect data
74 quality.
- 75 ➤ Realist reviews can be difficult to reproduce, we have sought to mitigate this risk
76 through specification of criteria and approaches that support structured and
77 reproducible decision-making.
- 78 ➤ The findings will not produce generalisable effect sizes, but may be used to inform
79 future empirical studies.
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96 Background

97 Poor nutrition in low-resource countries continues to be an underlying cause of at least one
98 third of all child deaths and approximately twenty percent of maternal mortality annually¹.
99 Nutrition-related interventions have changed and diversified over the last two decades, with
100 increasing emphasis on nutrition-sensitive programmes which address the underlying
101 determinants of child malnutrition. Cash transfer programmes (CTPs) are used with increasing
102 popularity in lower and middle-income countries to improve both food/nutrition insecurity and
103 resilience². Available studies however, have provided mixed findings on the outcomes of CTPs
104 on child nutritional status³⁻⁷. This review is the first stage of a research project that will consider
105 current evidence and understanding of CTPs to develop programme theories to summarise the
106 ways in which large-scale CTPs affect child malnutrition. The pathways considered to be most
107 influential and/or important will form the basis of specific hypotheses to be empirically tested
108 in the field in subsequent work.

109 The numerous factors that contribute to poor child nutrition in lower and middle-income
110 countries are summarised in a conceptual framework developed by UNICEF and categorised
111 as basic determinants (e.g. political and economic structures), underlying (e.g. direct
112 influences on household food security/health environment/care for mothers and children), and
113 immediate determinants (e.g. child's dietary intake and child's health status)⁸. As with other
114 social determinants of health, addressing child nutritional status requires interventions
115 targeting not only child health, but the structural, environmental and resource related causes
116 (i.e. underlying and basic determinants), affecting child nutritional status⁹. Based on this
117 framework, interventions to improve maternal and child nutrition are typically categorised as
118 nutrition-sensitive or nutrition-specific¹⁰. Nutrition-sensitive strategies aim to address the
119 underlying and basic determinants of child nutritional status and include asset support and
120 social protection initiatives as well as agricultural, infrastructure development, education
121 programmes¹⁰. These can support nutrition-specific interventions, such as feeding
122 programmes and typically target women of reproductive age, pregnant and lactating women
123 and children under the age of five¹¹. Children under the age of five years are the most
124 vulnerable to malnutrition and associated morbidities, and the prevention of largely irreversible
125 outcomes (i.e. failure to thrive/stunting) must be addressed in the first 1000 days of life, from
126 conception until two years of age¹⁰.

127 Over the last two decades, external donors, policy makers and national governments of
128 lower and middle-income countries have increasingly used social protection programmes,
129 including cash transfers, in combination with other targeted programmes to alleviate chronic
130 and acute food and nutrition insecurity and the underlying social determinants of health in
131 vulnerable populations^{12 13}. CTPs are non-contributory social protection programmes that
132 provide monetary transfers to low-income households seeking to health and welfare
133 decisions and outcomes through an 'income effect', and through this to break the
134 'intergenerational cycle of poverty'¹³⁻¹⁵. They can be categorised into two groups, conditional
135 cash transfers (CCTs) or unconditional cash transfers (UCTs)¹⁴. The monetary transfers for
136 CCTs are conditioned on recipients complying with a set of behavioural requirements,
137 generally addressing financial barriers associated with accessing social services, such as
138 school enrolment/attendance or health services^{13 14}. UCTs also target low-income individuals
139 or households with monetary transfers but do not require recipients to meet a set of
140 conditions¹⁴. CTPs can also include a combination of monetary transfers and in-kind
141 assistance (e.g. food rations) and vouchers (for food or other commodities^{14 16}. The modality
142 and duration of CTPs differ by context. CTPs for assistance in humanitarian disasters are
143 often one-time/short duration and focus on short-term objectives (e.g. relief from a disaster).
144 A second modality of CTPs are regular and ongoing cash transfers in development settings
145 focused upon poverty reduction and addressing vulnerabilities with a possible graduation

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3 146 from the programme¹⁴. Other contextual factors that influence the CTP include the social
4 147 policy environment, availability and accessibility of complementary health and welfare
5 148 services, socio-demographics of the population, existing behaviours of recipients, and
6 149 organisational capability and capacity¹⁴. The nutritional objectives also differ by context with
7 150 short-term programmes in a humanitarian context generally framed as addressing acute
8 151 nutritional outcomes such as a reduction in child wasting, while the ongoing programs
9 152 generally identify longer term nutritional outcomes such as ameliorating child stunting.

11
12 153 Latin American countries, including Mexico and Brazil, were among the first lower and
13 154 middle-income countries to implement CCTs to reduce financial barriers to accessing
14 155 services for low-income individual and households¹⁶⁻¹⁸. Introduced in the late 1990s, impact
15 156 evaluations and systematic reviews conducted since have demonstrated positive impacts on
16 157 access to health and nutrition services and poverty reduction, however, there have been
17 158 mixed results regarding child nutrition outcomes^{3 19}. With the increasing uptake of CTPs in
18 159 lower and middle-income contexts, such as sub-Saharan Africa and Asia, further studies
19 160 have demonstrated positive outcomes of CTPs on household food security, food
20 161 consumption, agricultural yields, poverty reduction and asset protection^{3 5-7 20-23} yet expected
21 162 nutrition benefits (e.g. reduction in wasting and stunting rates of children under five) have not
22 163 been clearly demonstrated.

24
25 164 Several research teams have considered this issue^{1 3 24 25}. Whilst the studies differ in purpose,
26 165 design and approach, they each propose pathways by which increased income and/ or
27 166 financial incentives can affect the underlying determinants of child nutrition status and identify
28 167 various mediating, moderating or modifying variables that may influence the effect of each
29 168 pathway on the immediate determinants of child nutrition.

31
32 169 The framework by de Groot et al²⁵, for example, suggests ways that the addition of financial
33 170 resources can influence the underlying determinants of child nutrition through the three
34 171 pathways of food security, health and care. The model presented by Leroy and colleagues³,
35 172 although focussed on the impact pathways of CCTs, has similarities to the de Groot
36 173 conceptual framework. Leroy and colleagues outline how the addition of financial resources
37 174 can make it easier for a household to purchase higher quantities and quality of food (HH food
38 175 security), increase access to health services (health) and increase women's control over
39 176 income and empowerment (care). Each framework highlights possible
40 177 mediating/moderating/modifying variables that could interrupt the underlying pathways
41 178 influence the immediate determinants of child nutrition -- shocks, feeding practices and feeding
42 179 styles, women's time (e.g. additional travel required to collect cash and meet conditions of
43 180 CCTs), availability of food and food prices, and existing resources for health, can have either
44 181 positive or negative influences on the impact of cash transfers on child nutrition. The REFANI
45 182 theory-of-change²⁴ also maps the pathways, but provides a deeper insight into household
46 183 choices related to income use and how these might activate mechanisms of change to
47 184 generate nutrition-related outcomes. The researchers^{2 3 5 6 24 25} have identified several gaps in
48 185 knowledge that warrant further research, examples include; caregiver behaviour (including
49 186 feeding practices), quality of health and nutrition services, child dietary intake and dietary
50 187 diversity, individual food security, the costing and cost-effectiveness of cash transfers in the
51 188 reduction of child undernutrition.

54
55 189 While each of the models incorporate overarching contextual factors, how context affects the
56 190 pathways to generate outcomes remains underdeveloped. This is an important gap as
57 191 implementation structures and programme environments for CTPs with nutrition objectives are
58 192 heterogeneous. The systems for implementation for example, may include multiple
59 193 government and non-government agencies and be provided to a diverse range of recipients.

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3 194 Cash transfers take numerous forms – conditional/ unconditional cash transfers/ in-kind
4 195 assistance/vouchers. Further, access to complementary health and welfare services varies.

6 196 Using a realist approach to develop an initial programme theory, the evaluation conducted by
7 197 Owusu-Addo et al¹⁴ of cash transfers and the social determinants of health in Ghana expands
8 198 the knowledge of the interplay between context, potential mechanisms, and health outcomes.
9 199 The authors hypothesise that CTPs have a strong impact on poverty reduction and improve
10 200 access to services, however, significant changes are needed to improve programme impacts
11 201 on the social determinants of health¹⁴. The recommended changes are similar to the findings
12 202 from the nutrition research (i.e. addressing household motivation, risk-taking behaviour,
13 203 intersectoral collaboration, programme awareness). The authors provide a programme theory
14 204 that can be tested and refined in future studies, such as for the realist review proposed herein.

17 205 As discussed in the paper by Floate et al²⁶ the use of a realist approach in combination with a
18 206 theory-of-change (e.g. the REFANI theory-of-change) can assist in identifying underlying
19 207 mechanisms and explore the interplay with contextual factors that result in both planned and
20 208 unplanned outcomes. While re-examining the frameworks from earlier research using a realist
21 209 enquiry, we will extend them by explicitly considering how the various CTP programme
22 210 elements and implementation structures influence the pathways that affect the determinants
23 211 of child nutrition.

25 212 The review and evidence synthesis outlined in this protocol is the first stage of a research
26 213 project that employs a theory-driven realist approach²⁷. The programme theories developed
27 214 in this review will be empirically tested in Kenya and Ethiopia (currently implementing large-
28 215 scale CTPs). To our knowledge this is the first realist review of the impact of CTPs on child
29 216 nutrition status.

31 217 **Methods**

32 218 **Realist Review Methodology**

33 219 The realist approach to synthesising evidence has become accepted as a rigorous alternative
34 220 method to systematic reviews, where the intent is to understand causation. Other forms of
35 221 systematic reviews were investigated (e.g. meta-analysis), however, while providing
36 222 information on outcomes, other methods often fail to explain how or why programmes worked
37 223 and do not easily account for the complexity found in real-world nutrition related CTPs²⁸.

39 224 Publication standards have been issued by the RAMESES (Realist and Meta-Narrative
40 225 Evidence Synthesis: Evolving Standards) project, and realist reviews are utilised with greater
41 226 frequency in complex intervention evaluations, such as CTPs^{14 29-31}. The approach is a theory-
42 227 based approach to understanding ‘what works for whom in what circumstances’ and
43 228 importantly, *why and in what context?*²⁷.

44 229 The realist approach as proposed by Pawson and Tilley²⁷, is based on a specific philosophical
45 230 approach, that is, realism and more specifically, scientific realism, sitting somewhere between
46 231 positivism (the belief that knowledge must be scientifically tested with systematic
47 232 mathematical or logical proof) and constructivism (the theory that knowledge is constructed
48 233 by humans through their own experiences)^{32 33}. The approach is based on the understanding
49 234 that there is a social reality, but this is socially constructed. Outcomes (O) are generated by
50 235 mechanism(s) (M) that are triggered within certain contexts (C). The mechanism(s) from a
51 236 realist perspective (in socially contingent interventions) is usually hidden and is the reaction
52 237 or response of people to resources introduced by the intervention within a certain context and
53 238 can be enabling or disabling. Context relates to the setting in which the programme operates,
54 239 including systems such as health, political, environmental, and social systems. The context

240 can have several layers and can be separated into the outer and inner contexts of an
241 intervention.

242 In a realist approach, the researcher seeks to understand interventions through the concept
243 of generative causation that is hypothesised and tested through context-mechanism-
244 configurations (CMOs)³⁴. A key task for the researcher is to identify situations where
245 interventions have had effective and/or ineffective implementation, achieving either planned
246 or unplanned outcomes, and to examine the causes of these³⁵. Typically, to achieve this
247 differentiation, potential theories (or candidate theories) of the context, mechanisms and
248 outcomes in which a programme is or will be implemented are generated throughout the
249 review, to account for the processes of an intervention that lead to an outcome³⁶. CMO
250 configurations and potential theories are then analysed to inform the creation of protocols for
251 data collection for the review and analysis. Realist evaluations typically use data from various
252 sources, including qualitative, quantitative or mixed methods studies. An evidence-informed
253 programme theory answering the realist question of what works, for whom, under what
254 circumstances, is the result of the inquiry²⁷. All phases of a realist inquiry are iterative, to allow
255 for constant refinement of potential theories and CMOs. Developing and testing CMO
256 configurations can help ensure external validity, by enabling a level of abstraction for the
257 theory, or theories, that can be useful in other contexts.

258 A realist synthesis, which is synonymous with the realist review, applies a realist philosophy
259 to collate findings from various studies that are related to either a single research question or
260 a collection of questions^{37 38}. The steps of a realist review, as recommended by Pawson et al
261³⁴ are as follows: 1. Clarifying the scope of the review 2. Searching for evidence 3. Appraising
262 primary studies and extracting data 4. Synthesising evidence and drawing conclusions 5.
263 Disseminating, implementing and evaluating. All phases of a realist inquiry are iterative, to
264 allow for constant refinement of potential theories and CMOs. Step 1 of the review has been
265 completed, step 2 is currently in progress.

266 Protocol and Review Methods

267 The approach for this protocol has been informed by peer-reviewed realist review protocols
268 published in the last ten years, RAMESES guidelines and the work of Ray Pawson^{27 34 37 39-49}.
269 We conducted a search of databases such as Medline, Scopus, and Google Scholar, using
270 search terms including "realist review" and "protocol". Our search yielded 68 records, of which
271 8 were found to be pertinent for our review^{28 39-42 47 49 50}. Relevant protocols were chosen based
272 on similarities in programme contextual factors, such as national operating systems, multiple
273 implementing agencies, multifaceted causal chains, and potential outcomes. These have
274 informed the protocol below. The review commenced in October 2018, with completion
275 estimated to be in June 2019.

276 To ensure rigour and relevance, we adopt accepted and validated analytic techniques, for
277 example the MMAT tool (Mixed Methods Appraisal Tool)^{51 52}, which are described in more
278 detail in Step 3 and 4 of this protocol. The use of these techniques will allow us to compare
279 and consolidate key multidisciplinary implementation attributes and their relationships³⁹. We
280 used the PRISMA-P checklist when writing our report⁵³.

281 Review objectives

282 To understand the relationships between large-scale cash transfer programmes and child
283 nutritional status the objectives of our review are to:

- 284 1) identify the programme theories underpinning the designs of CTPs with nutrition
285 objectives, targeting children under five and pregnant and lactating women in lower
286 and middle-income countries;

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3 287 2) identify the mechanisms that explain how CTPs affect child nutrition in lower and
4 288 middle-income countries;
5 289 3) examine how key contextual factors, (including implementation structures, programme
6 290 components and recipient characteristics) interact with resources (i.e. cash transfer
7 291 and supporting services) and participant reasoning to generate child nutrition
8 292 outcomes;
9 293 4) propose how and why CTPs affect, or do not affect child nutrition in lower and middle-
10 294 income countries.

13 295 Patient and Public Involvement

14 296 The public and/or patients were not involved in this stage of the research project.

16 297 Step 1: Clarifying the scope of the review

17 298 Clarifying the scope of review involves understanding the nature and content of the intervention,
18 299 including its purpose and expected outcomes or impacts. It is often undertaken using an initial
19 300 literature review and in discussion with practitioners and experts in the field. The purpose of
20 301 this stage is to develop a framework for examining and synthesising evidence from diverse
21 302 sources³⁴ and begin to identify key words and concepts. In this review, the initial theoretical
22 303 and conceptual frameworks of how nutrition sensitive programmes are theorised to influence
23 304 child nutrition status were identified based on an initial review of the literature, discussions
24 305 with relevant stakeholders (e.g. donors, community members, development practitioners)
25 306 working in nutrition and food security and the first author's practical experience. The initial
26 307 literature search revealed four potentially relevant frameworks^{1 3 24 25}. Based on these
27 308 frameworks and the UNICEF conceptual framework^{1 3 8 24 25}, and complemented by
28 309 stakeholder interviews and practical experience, we identified common themes across the
29 310 frameworks and possible gaps in knowledge. We then mapped the proposed pathways and
30 311 underlying assumptions of how CTPs influence child nutritional status in a conceptual framing
31 312 exercise (using the UNICEF and other relevant frameworks as our foundation) and then began
32 313 the process of identifying potential CMO configurations and potential theories. This provides
33 314 an initial rough programme theory to inform our search strategy and to find the data needed
34 315 to test and refine these configurations and theories.

35 316 The results included several possible CMOs, and a series of If/Then statements to facilitate in
36 317 the creation of theories. The CMOs have been categorised into four main domains, that were
37 318 chosen through the grouping of common concepts and themes. The four main domains are
38 319 implementation structures, contextual influences, food systems and community response, as
39 320 represented in Figure 1. Implementation practices have been identified as a key contributing
40 321 factor in CTPs achieving nutrition outcomes. Therefore, this review will also draw on the
41 322 practical concepts of implementation research guidelines⁵⁴ to help with our understanding of
42 323 what elements of CTPs contribute to planned or unplanned outcomes.

43 324 An example of two of our hypothesised CMOs and potential theories categorised under the
44 325 domain of implementation structures and associated capacity building category are as follows:

- 45 326
- 46 327 • Nutrition education provided by a health professional (C), who is skilled in
47 328 behaviour change techniques (resource M) and able to create nutrition
48 329 awareness in recipients (response M) that will ensure CTP recipients provide
49 330 food to their children in sufficient quantity and diversity and prevent/treat
50 331 diseases, reducing chronic malnutrition rates in children under five (O)
51 332 OR
 - 52 333 • Nutrition education provided by CTP employees (e.g. government workers or
53 334 programme monitors) (C), unskilled in behaviour change techniques but trained

334 in CTP protocols (resource M), deliver appropriate nutrition messages and
 335 health-seeking advice, guaranteeing CTP recipients diversify their child's daily
 336 dietary intake and prevent diseases (response M), reducing chronic
 337 malnutrition rates in children under the age of five (O)

338 Step 2: Searching for relevant evidence

339 Following specification of our potential programme theories, the next stage will be to identify
 340 relevant literature to further develop and test the theories. The aim is to identify a broad range
 341 of studies (including quantitative, qualitative and mixed methods) relating to CTPs and the
 342 programme theories⁵⁵. The ways in which we will undertake this step are described below.

343 Literature search strategy

344 Following the RAMESES guidelines for a realist review, in this step we will undertake an
 345 iterative approach to searching for relevant literature, allowing relevant new studies to be
 346 included continuously into findings and the overall synthesis.

347 We expect databases such as Medline, ProQuest, Cochrane, Scopus, Web of Science,
 348 Business Source Complete, EconLit and Google Scholar to be most instrumental in our search
 349 of the extant literature. Reports and unpublished papers from the 'gray' literature will be
 350 sourced from websites such as the World Bank, UNICEF, WFP, WHO, FAO, 3ie Impact
 351 Database, Transfer Project DFID and USAID. The search will be conducted in English, the
 352 potential theories and possible CMOs have informed the selection of search terms, including
 353 for example: cash transfer, nutrition, children, pregnant and lactating women, women of
 354 reproductive age, nutrition sensitive, conditional cash transfer, unconditional cash transfer,
 355 social safety nets, financial incentives, food security, food consumption, dietary diversity,
 356 acute, chronic malnutrition, low-income, middle-income, social protection, implementation,
 357 World Bank, WFP, UNICEF, WHO, DFID, USAID. The search strategy will include variations
 358 of the following examples of term combinations:

- 359 • "cash transfers" AND "nutrition"
- 360 • "cash transfers" AND "nutrition" AND "children"
- 361 • "cash transfers" OR "social safety nets" OR "financial incentives" AND "nutrition" OR
 362 "nutritional status"
- 363 • "cash transfers" OR "conditional cash transfer" OR "unconditional cash transfer" AND
 364 "nutrition"
- 365 • "cash transfers" AND "food security"

366 All searches will be limited to those published from 1990 (reflecting the start of Latin American
 367 CTP programmes, where the first large-scale conditional cash transfers were implemented) to
 368 present.

369 Inclusion and exclusion criteria

370 As per the realist approach, in this study, we are less concerned with whether an evaluation
 371 meets traditional epidemiological methodological standards, (e.g. must be a randomised
 372 controlled trial or case-control trial), but rather what type of information may be gathered from
 373 studies about how, why and for whom CTPs achieve nutritional change, and under what
 374 circumstances. Our inclusion and exclusion criteria have been designed to reflect this, by
 375 including a variety of studies regardless of study design. The studies will be included or
 376 excluded based on the following criteria:

377 Included

- 378 1) programmes targeting children under the age of five, including pregnant and lactating
 379 women;

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3 380 2) centrally managed programmes implemented through various systems, including
4 381 national governments, international agencies and non-government organisations;
5 382 3) programmes in humanitarian/relief and development settings with multiple sites;
6 383 4) programmes targeting underlying determinants of malnutrition (aspects of food
7 384 security, health and care) with reduction of malnutrition as a primary objective
8 385 5) programmes measuring at least one nutrition outcome or an immediate determinant
9 386 (such as diet, nutritional supplementation rate or associated morbidities).

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12 387 **Excluded**

- 13 388 1) programmes targeting school-aged children, adolescents, and adults (except pregnant
14 389 and lactating women (PLWs))
15 390 2) welfare programmes in high income countries

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17 391 **Article Screening**

18 392 One reviewer will generate a list of articles and abstracts (if available), based on the search
19 393 strategy mentioned above. These will be separated among the review team, consisting of two
20 394 reviewers (HF, GM) and titles and abstracts will be reviewed by individual reviewers to see if
21 395 they 1) focused on CTPs (regardless of modality) and if 2) they appear to fit with the
22 396 inclusion/exclusion criteria. Reviewers will list the articles as 'include', 'exclude' and 'maybe'
23 397 ⁵⁰. In the absence of an abstract, titles of articles will be used to determine if they are
24 398 appropriate for review (e.g. mention of CTPs and nutrition outcomes). If the title is ambiguous,
25 399 the article will remain in the 'maybe' group for the next stage of the review. As described by
26 400 Velonis⁵⁰, we will ensure inner-rater reliability, through a randomly selected number of article
27 401 titles and abstracts, each being reviewed independently to determine if the study should be
28 402 included. In the case of discrepancies, agreements will be reached collectively.

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31 403 Following the initial screening, articles that have been labelled 'included' and 'maybe' will be/
32 404 reviewed a second time by the reviewers. Once completed, the reviewers will discuss and
33 405 collate results, in cases where an article has been 'included' by one reviewer and 'excluded'
34 406 by the second reviewer, reasoning will be discussed, and a consensus reached, where
35 407 consensus cannot be reached a third reviewer will be brought into the discussion.

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37 408 The complete article or paper included at this stage, will then be obtained for the final stage
38 409 of the screening. Inter-rater reliability will be assessed again by having the reviewers read the
39 410 same randomly selected five articles, make their own recommendations on inclusion and
40 411 exclusion, then meet to discuss as a group. Results will be discussed collectively between the
41 412 reviewers to ascertain any differences between findings, points of difference in categorisation
42 413 will be discussed and consensus reached mutually. The remaining articles will be distributed
43 414 amongst the reviewers and skim read to make a final decision as to their inclusion or exclusion,
44 415 findings will again be shared, and consensus reached. Articles will be used as input for step 3
45 416 of the review.

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49 417 **Step 3: Appraising primary studies and extracting data**

50 418 This step seeks to refine our programme theories and CMOs following the initial screening of
51 419 the literature as outlined in steps 1 and 2 of the protocol as per RAMESES and Pawson
52 420 recommendations for realist reviews ^{34 42}. In this step we will seek to review the articles
53 421 identified in step 2 and consider them in relation to our programme theories for integrity,
54 422 adjudicate between rival programme theories and review the same theories in comparative
55 423 settings ³⁴. These three strategies will facilitate in the consolidation of our programme theories.
56 424 A final literature search, quality appraisal and data extraction of included studies is also
57 425 included in this step of the review. For the quality appraisal, where appropriate, the MMAT
58 426 (Mixed Methods Appraisal Tool)^{51 52} will be used to evaluate rigour and credibility of relevant
59 427 evidence we extract from each study has been generated.

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1) Reviewing for programme theory integrity

The purpose of this strategy is to study how programmes have been implemented in what contexts and what results they have generated for whom. According to Pawson et al ³⁴, in a realist synthesis, this strategy can aid in the discovery of typical weak points in the history of the programme under review. For this review, this will mean for example, examining the history of CTPs to identify if changes and deviations in implementation structures have had an influence on child nutrition outcomes.

For example (hypothesised theory):

- CTPs implemented by national governments without external support (C) using standardised CTP protocols and clear guidelines with nutrition objectives (M resource), ensuring CTP implementers have a clear understanding of programme priorities and how to deliver them (M response), are more successful in changing traditional food beliefs (O).

2) Reviewing to adjudicate between rival programme theories

The purpose of this strategy is to identify which variations of mechanisms are most successful in driving different outcomes, by uncovering evidence from competing programme theories ³⁴. The conceptual frameworks, potential theories and CMOs identified in Step 1 of the review, highlight the numerous possible pathways a CTP may improve child nutrition status. By adjudicating between rival programme theories, we will elicit key causal factors that may be driving changes in outcomes in large-scale CTPs, through analysis of both relevant literature and consultation with a range of stakeholders, to identify what works for whom in what circumstances.

For example (hypothesised theory):

- CTPs provided with nutrition education training (C) are more successful in improving maternal child care practices (O), when delivered by a local midwife/traditional birth attendant (M resource) as women are more likely to trust messages given by established community members (M response).
- OR
- CTPs delivered through condition of attendance to maternal child health services (C), ensure women will improve child care practices (O) or they will not receive monthly cash payments (M resource) and positive nutrition awareness (M response) will only be achieved through constant monitoring.

3) Reviewing the same theory in comparative settings

This strategy addresses the core of realist evaluation to identify patterns in the context in which interventions interact with participant reasoning to generate outcomes ³⁴. Our theories will be compared between settings with similar CTP modalities in terms of the four domains highlighted in Figure 1.

For example (hypothesised theory):

- Conditional CTPs implemented by national and local governments (C) ensure attendance at MCH clinics for health and nutrition screening, provided by skilled health professionals (M resource), recipients will attend and receive nutrition education, creating positive behaviour change (M response) that will improve the nutrition status of children in recipient households (O).

OR

- Unconditional CTPs provided by INGOs and NGOs (C), with positive implementation histories, will provide nutrition education programmes in conjunction with cash transfers, through skilled outreach workers (M resource) who are trusted by the community (M response) and diversify diets for children in recipient households (O).

Revisiting the literature

The purpose of a literature search in this step of the review is to further explore evidence from a wide range of programmes, including empirical studies, policy and protocol documents, evaluations, systematic reviews, gray literature (non-peer reviewed documents) from the field (e.g. programme proposals, monitoring reports and donor updates) that will add to the search from step 2 in the development of our programme theories. The search in this phase will be more purposive in nature than in step 2. Reference and citation searches from articles identified in step 2 will be tracked through 'snowballing' search techniques to identify additional documents³⁴. Additional articles will be selected at this stage according to whether they add to our emerging theories or areas of explanatory potential in terms of context, mechanism and outcome patterns⁴². New targeted search terms, not included in the original search will be used in this stage of the literature search, as per realist evidence searching recommendations^{42 56}.

Searching for new documents will end at the point of theoretical saturation, that is, when we have established there is sufficient evidence to confirm a preliminary theory for testing in the field³⁷.

Agency project proposals, donor progress reports, protocol documents and descriptive evaluations will also be used in the identification of effective or ineffective implementation practices.

Quality appraisal and Data Extraction

One reviewer (HF) has commenced searching databases as per step 2 of the protocol and article screening has commenced. Articles and documents will be appraised by two reviewers (HF, GM), independently using the inclusion/exclusion criteria described earlier.

Realist reviews require the use of a wide range of documents to contribute to the development of programme theories with quality appraisal conducted throughout the review process. Documents or parts of documents therefore are not excluded based on methodological quality but on relevance and rigour⁵⁷. In realist syntheses, unlike a traditional systematic review, an assessment occurs in conjunction with the assessment of the study's relevance and related 'programme theories' and if the methods utilised to generate the data, or related 'programme theories' were appropriate. In other words, in this study we will seek and use different fragments of evidence within each study that are relevant to our programme theories. Each fragment of evidence will be appraised, as it is extracted, for its relevance to theory building and if the methods used to generate the data are trustworthy and credible.

Where appropriate, the MMAT (Mixed Methods Appraisal Tool)^{51 52} will be used in our assessment of rigour and credibility of the way in which the fragments of evidence we extract from each study have been generated. The MMAT tool is recommended by RAMESES to appraise the quality of data extracted from studies as it can be applied to studies that use quantitative, qualitative and mixed methods and has been independently tested for efficiency and reliability^{28 51 58}. The principle researcher (HF) will lead the process and will share and discuss the emerging synthesis with the other two researchers (GF, JD). In addition, JD will review approximately 10% of included papers and evaluate the extracted data using the

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3 525 MMAT tool. Implementation practices have been identified as one of the key influencing
4 526 factors for CTPs to achieve nutrition outcomes in our potential programme theories, therefore,
5 527 we will also use as appropriate, the Egan et al.⁵⁹ implementation appraisal checklist to guide
6 528 our appraisal of the quality of reporting of implementation practices from the articles included
7 529 in our review. The checklist will require some modification due to differing contexts. However,
8 530 several themes from the Egan et al. checklist are consistent with the organisational-level
9 531 workplace interventions of the CTPs we are evaluating (e.g. motivation, theory-of-change,
10 532 employee support, resources provided, differential effects and population characteristics)⁵⁹.
11 533 These techniques and tools will only be applied to the relevant aspects of the studies that
12 534 relate to our programme theories rather than the study as a whole²⁸.

15 535 Data extraction will focus on key context, mechanism and outcome findings that will contribute
16 536 to the further development and refinement of CMO configurations and programme theories.
17 537 Two reviewers (HF, GM) will independently read each source in full, identifying data that will
18 538 contribute to theory building A bespoke excel spreadsheet will be developed for extracting
19 539 data and will be formulated and agreed on between the reviewers. The study reviewers will
20 540 use the spreadsheet to record data relevant to theory building and may include for example,
21 541 information such as: 1) document bibliographic information 2) country of study/document, 3)
22 542 the type of CTP , 4) what nutrition outcomes are measured and how they are measured, 5)
23 543 what proximal outcomes (e.g. improved maternal child care practices through nutrition
24 544 education support) are measured and how they are measured, 6) contextual factors that are
25 545 mentioned in the article, 7) mechanisms that lead to outcomes that are mentioned in the
26 546 article, 8) the study design, 9) the relevance to theory building and 10) the credibility of the
27 547 methods used to generate the fragments of evidence extracted from the individual studies.
28 548 When extracting data, if an article does not include all aspects of the theory or data relevant
29 549 to a question 'Not reported' will be recorded. Where direct quotations are extracted the page
30 550 number from which the quote was taken will be noted.

34 551 The reviewers will pilot the data extraction sheet by independently extracting data from
35 552 approximately ten articles and discuss results, the spreadsheet may need modification
36 553 following piloting. Data will be managed using Microsoft Excel, an annotated notebook will be
37 554 kept ensuring an audit trail of decision-making is maintained. The findings of the data
38 555 extraction will provide an overall impression of the depth of the data available and how much
39 556 it will contribute to our programme theories⁵⁰.

41 557 **Step 4: Synthesising evidence and drawing conclusions**

43 558 This step will involve the identification of recurrent patterns (or demi-regularities) in outcomes,
44 559 mechanisms and contexts³⁷ and will be focussed on addressing our research questions

46 560 A mix of inductive and deductive analytical processes will be used to identify patterns in the
47 561 extracted data, which will be produced in the form of If/Then statements, with the aim of linking
48 562 the chains of inference, and tracking and linking of articles. Two reviewers (HF, GM) will
49 563 examine the If/Then statements to identify recurring themes within mechanisms that will be
50 564 grouped thematically (as anticipated in Figure1) as well as challenging emerging findings and
51 565 seeking divergent examples. Though this iterative process we will formulate hypotheses,
52 566 linking themes to chains of inference, which will subsequently be empirically tested in our field
53 567 work.

56 568 The broader literature will also be used to inform and refine our emerging theories. For
57 569 example theories that may be drawn on, as per the Owusu-Addo et al¹⁴ realist evaluation are
58 570 capability theory (Sen⁶⁰), empowerment theory (Kabeer⁶¹) and self-determination theory
59 571 (Ryan and Deci⁶²). These theories will be consistent with the behavioural and structural

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3 572 mechanisms that have been identified in the causal pathways of the underlying determinants
4 573 of child nutrition. Literature will be located through searches of social science and health
5 574 databases, as well reviewing the reference lists of included papers and our own libraries.
6 575 Searches of the literature will be undertaken purposively and iteratively, with the main criterion
7 576 the ability to refine our programme theories. Search terms for this stage will be developed with
8 577 the research team based on the key concepts and processes suggested to have explanatory
9 578 power within the key programme theories identified.

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12 579 Based on the review and analysis, the CMO configurations and aspects of programmes
13 580 theories considered to be the most influential and/or important for nutrition outcomes will be
14 581 identified, to be tested in research to be undertaken following this review involving primary
15 582 data collection and consultation with experts and key programme stakeholders.

17 583 **Step 5: Dissemination**

18 584 The findings from the review will be presented in accordance with the RAMESES guidelines
19 585 as recommended by Wong et al³⁷. Findings will be published in a peer-reviewed journal. The
20 586 results will be disseminated to policymakers, external donors, relevant governments, and
21 587 research institutes (e.g. IFPRI), through formal or informal presentations, conferences and
22 588 reports.

24 589 **Discussion**

25 590 Cash transfer programmes are inherently complex, involving numerous programme
26 591 components, systems for implementation, aiming to produce a variety of outcomes. They are
27 592 heterogeneous interventions, ranging from conditional cash transfers to cash and in-kind
28 593 assistance (e.g. food aid distribution), provided in a diverse range of settings to a variety of
29 594 recipients. In theory, CTPs should be able to achieve positive nutrition outcomes through their
30 595 ability to influence the determinants of nutrition status and CTPs are rapidly replacing
31 596 traditional food security programmes, as a strategy to alleviate chronic poverty for households
32 597 vulnerable to economic shocks and to improve both food security and nutrition resilience.
33 598 Evidence suggests CTPs have a positive impact on household food consumption and asset
34 599 holdings. However, child nutrition outcomes are not routinely achieved through social
35 600 protection programmes⁴ and there are gaps in knowledge of how they can be optimally
36 601 implemented to consistently influence child nutrition status.

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40 602 One of the key contributions of this review, in relation to other CTP impact evaluations and
41 603 systematic reviews is our focus on how the various CTP programme elements and
42 604 implementation structures can be implemented synergistically to improve nutrition status,
43 605 rather than evaluating the impact effect on nutrition through the cash transfer itself. Our initial
44 606 review of the literature indicates an existing and current evidence base related to CTP impact
45 607 on both child nutrition indicators and proximal outcomes, such as household food consumption
46 608 and maternal childcare practices. However, evaluations that also consider the influence of
47 609 implementation structures and processes have been limited. To our knowledge this is the first
48 610 realist review of CTPs impact on child nutrition status. The use of this approach in conjunction
49 611 with other methods for data analysis and synthesis, will offer a deeper understanding of the
50 612 mechanisms and contextual factors required to address the various determinants of child
51 613 nutrition status throughout CTP implementation processes.

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54 614 The realist review method has limitations and findings may not be easily reproduced where
55 615 disciplinary perspectives and judgement differs across research teams in terms of relevance
56 616 and quality of literature identified. We have sought to address this through clear specification
57 617 of criteria, use of validated approaches (such as the MMAT tool) and maintaining an audit trail
58 618 throughout the review process to support structured and reproduceable decision-making. The
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3 619 strength of the realist review method is its ability to be flexible and adaptable, which suits the
4 620 complexity of cash transfer programmes with nutrition objectives.

6 621 The research will inform the development of strategies to be included in CTP project design
7 622 and implementation guidelines to help optimise nutrition impact in contexts where cash
8 623 transfer programmes are implemented with short or long term objectives.

10 624 **[Figure 1 near here]**

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12 626 **Ethics and dissemination**

14 627 This stage of the study will not involve primary research; however, ethical clearance has
15 628 been sought through the University of Queensland for the next steps of the research project.
16 629 Findings will be presented in accordance with RAMESES guidelines and published in a
17 630 peer-reviewed journal.

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22 633 **Author Contributions:**

23 634 All authors have contributed to the conception and design of the study, protocol and
24 635 manuscript. HF wrote the first draft. JD and GM critically reviewed it and provided comments
25 636 to improve the manuscript. All authors read and approved the final manuscript.

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29 639 non-for-profit sectors

31 640 **Competing Interests:**

32 641 None to declare

34 642 **Data Statement:**

35 643 This paper describes a protocol for undertaking a literature review. As such data are not yet
36 644 available for lodging with a repository

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658 **References**

- 659 1. Black RE, Alderman H, Bhutta ZA, et al. Maternal and child nutrition: building momentum for
660 impact. *Lancet* 2013;382(9890):372-75. doi: 10.1016/S0140-6736(13)60988-5
- 661 2. Fenn B, Pietzsch S, Morel J. Research on Food Assistance for Nutritional Impact (REFANI):
662 literature review. 2015
- 663 3. Leroy J, Ruel M, Verhofstadt E. The impact of conditional cash transfer programmes on child
664 nutrition: a review of evidence using a programme theory framework. *Journal of*
665 *Development Effectiveness* 2009;1(2):103-29. doi: 10.1080/19439340902924043
- 666 4. Manley J, Gitter S, Slavchevska V. How effective are cash transfers at improving nutritional status?
667 *World development* 2013;48:133-55.
- 668 5. Sibson VL, Grijalva-Eternod CS, Noura G, et al. Findings from a cluster randomised trial of
669 unconditional cash transfers in Niger. *Matern Child Nutr* 2018;14(4):e12615. doi:
670 10.1111/mcn.12615 [published Online First: 2018/05/10]
- 671 6. Hougbe F, Tonguet-Papucci A, Altare C, et al. Unconditional Cash Transfers Do Not Prevent
672 Children's Undernutrition in the Moderate Acute Malnutrition Out (MAM'Out) Cluster-
673 Randomized Controlled Trial in Rural Burkina Faso. *The Journal of Nutrition*
674 2017;147(7):1410-17. doi: 10.3945/jn.117.247858
- 675 7. Grijalva-Eternod CS, Jelle M, Haghparsad-Bidgoli H, et al. A cash-based intervention and the risk of
676 acute malnutrition in children aged 6-59 months living in internally displaced persons camps
677 in Mogadishu, Somalia: A non-randomised cluster trial. *PLoS Med* 2018;15(10):e1002684.
678 doi: 10.1371/journal.pmed.1002684 [published Online First: 2018/10/30]
- 679 8. UNICEF. Conceptual framework of the causes of malnutrition. *New York: UNICEF* 1991
- 680 9. Ruel M., Alderman H. Nutrition-sensitive interventions and programmes: how can they help to
681 accelerate progress in improving maternal and child nutrition? *Lancet* 2013;382(9891):536.
682 doi: 10.1016/S0140-6736(13)60843-0
- 683 10. Ruel MT, Alderman H, Maternal Child Nutr Study G. Nutrition-sensitive interventions and
684 programmes: how can they help to accelerate progress in improving maternal and child
685 nutrition? *Lancet* 2013;382(9891):536-51. doi: 10.1016/s0140-6736(13)60843-0
- 686 11. Bhutta Zulfiqar. A, Ahmed T, Black RE, et al. What works? Interventions for maternal and child
687 undernutrition and survival. *The Lancet* 2008;371(9610):417-40. doi: 10.1016/S0140-
688 6736(07)61693-6
- 689 12. Bright T, Felix L, Kuper H, et al. A systematic review of strategies to increase access to health
690 services among children in low and middle income countries. *BMC Health Serv Res*
691 2017;17(1):252.
- 692 13. Lagarde M, Haines A, Palmer N. Conditional cash transfers for improving uptake of health
693 interventions in low- and middle-income countries: a systematic review. *JAMA* 2007;298 doi:
694 10.1001/jama.298.16.1900
- 695 14. Owusu-Addo E, Renzaho AMN, Smith BJ. Cash transfers and the social determinants of health:
696 Towards an initial realist program theory. *Evaluation* 2018;0(0):1356389018814868. doi:
697 10.1177/1356389018814868
- 698 15. Baird S, Ferreira FHG, Berk Ö, et al. Relative Effectiveness of Conditional and Unconditional Cash
699 Transfers for Schooling Outcomes in Developing Countries: A Systematic Review. *Campbell*
700 *Systematic Reviews* 2013;9(8)
- 701 16. Fiszbein, Schady, Ferreira. Conditional Cash Transfers Reducing Present and Future Poverty.
702 Washington, DC: World Bank 2009.
- 703 17. Barbosa AL, Neves, De H, et al. Conditional cash transfer and informality in Brazil. *IZA Journal of*
704 *Labor & Development* 2014;3(1):1-18. doi: <http://dx.doi.org/10.1186/s40175-014-0024-0>
- 705 18. Baird S, Ferreira FHG, Özler B, et al. Conditional, unconditional and everything in between: a
706 systematic review of the effects of cash transfer programmes on schooling outcomes.
707 *Journal of Development Effectiveness* 2014;6(1):1-43. doi: 10.1080/19439342.2014.890362

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41
42
43
44
45
46
47
48
49
50
51
52
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56
57
58
59
60

19. Paes-Sousa R, Santos LMP, Miazaki ÉS. Effects of a conditional cash transfer programme on child nutrition in Brazil. *World Health Organization Bulletin of the World Health Organization* 2011;89(7):496-503.
20. Debela BL, Shively G, Holden ST. Does Ethiopia's Productive Safety Net Program improve child nutrition? *Food Security* 2015;7(6):1273-89. doi: 10.1007/s12571-015-0499-9
21. Berhane G, Gilligan DO, Hoddinott J, et al. Can Social Protection Work in Africa? The Impact of Ethiopia's Productive Safety Net Programme. *Economic Development and Cultural Change* 2014;63(1):1-26.
22. Gilligan DO, Hoddinott J, Taffesse AS. The Impact of Ethiopia's Productive Safety Net Programme and its Linkages. *The Journal of Development Studies* 2009;45(10):1684-706. doi: 10.1080/00220380902935907
23. Kumar N. The impact of Ethiopia's Productive Safety Net Programme on the nutritional status of children: 2008–2012: International Food Policy Research Institute (IFPRI), 2017.
24. Fenn B, Sangrasi GM, Puett C, et al. The REFANI Pakistan study--a cluster randomised controlled trial of the effectiveness and cost-effectiveness of cash-based transfer programmes on child nutrition status: study protocol. *BMC Public Health* 2015;15:1044. doi: 10.1186/s12889-015-2380-3 [published Online First: 2015/10/16]
25. de Groot R, Palermo T, Handa S, et al. Cash Transfers and Child Nutrition: Pathways and Impacts. *Development Policy Review* 2017;35(5):621-43. doi: 10.1111/dpr.12255
26. Floate H, Durham J, Marks GC. Moving on from logical frameworks to find the 'missing middle' in international development programmes. *Journal of Development Effectiveness* 2018:1-15.
27. Pawson R, Tilley N. Realistic evaluation. Thousand Oaks, Calif;London;: Sage 1997.
28. Iyengar S, Katz A, Durham J. Role of institutional entrepreneurship in building adaptive capacity in community-based healthcare organisations: realist review protocol. *BMJ Open* 2016;6(3) doi: 10.1136/bmjopen-2015-010915
29. Greenhalgh T, Humphrey C, Hughes J, et al. How Do You Modernize a Health Service? A Realist Evaluation of Whole-Scale Transformation in London. *Milbank Q* 2009;87(2):391-416. doi: 10.1111/j.1468-0009.2009.00562.x
30. Schierhout G, Hains J, Si D, et al. Evaluating the effectiveness of a multifaceted, multilevel continuous quality improvement program in primary health care: Developing a realist theory of change. *Implementation Science* 2013;8(1)
31. Nilsson D, Baxter G, Butler JRA, et al. How do community-based conservation programs in developing countries change human behaviour? A realist synthesis. *Biol Conserv* 2016;200:93-103. doi: 10.1016/j.biocon.2016.05.020
32. Westhorp G. Realist impact evaluation: An introduction (Methods Lab). London: Overseas Development Institute, 2014.
33. Westhorp G. Using complexity-consistent theory for evaluating complex systems. *Evaluation* 2012;18(4):405-20. doi: 10.1177/1356389012460963
34. Pawson R, Greenhalgh T, Harvey G, et al. Realist review-a new method of systematic review designed for complex policy interventions. *J Health Serv Res Policy* 2005;10(1_suppl):21-34.
35. Pawson R. Protocols, policy making and scientific progress. *Journal of Epidemiology and Community Health (1979-)* 2012;66(5):386-87. doi: 10.1136/jech-2012-201061
36. Marchal B, van Belle S, van Olmen J, et al. Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. *Evaluation* 2012;18(2):192-212. doi: 10.1177/1356389012442444
37. Wong G, Greenhalgh T, Westhorp G, et al. RAMESES publication standards: realist syntheses. *BMC Med* 2013;11(1):1-14. doi: 10.1186/1741-7015-11-21
38. Pawson R. Evidence-based policy: a realist perspective. London: SAGE 2006.
39. Kastner M, Estey E, Perrier L, et al. Understanding the relationship between the perceived characteristics of clinical practice guidelines and their uptake: protocol for a realist review.

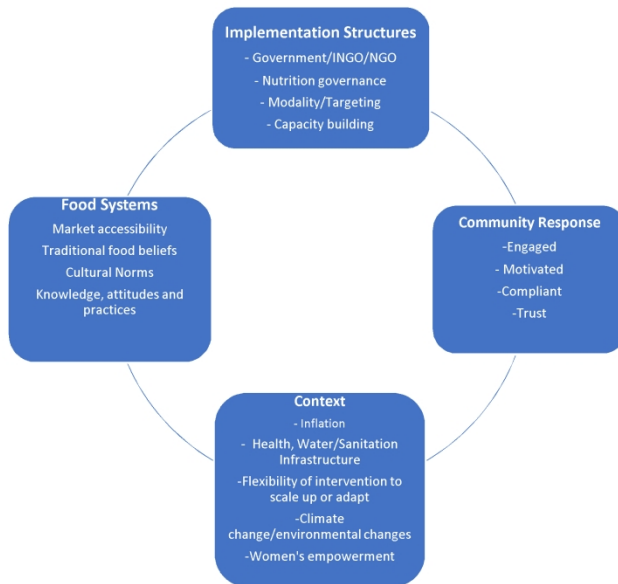
- 1
2
3 758 *Implementation Science* 2011;6:69. doi: 10.1186/1748-5908-6-69 [published Online First:
4 759 2011/07/08]
- 5 760 40. Hudon C, Chouinard MC, Aubrey-Bassler K, et al. Case management in primary care among
6 761 frequent users of healthcare services with chronic conditions: protocol of a realist synthesis.
7 762 *BMJ Open* 2017;7(9):e017701. doi: 10.1136/bmjopen-2017-017701 [published Online First:
8 763 2017/09/06]
- 9 764 41. Papoutsi C, Hargreaves D, Colligan G, et al. Group clinics for young adults with diabetes in an
10 765 ethnically diverse, socioeconomically deprived setting (TOGETHER study): protocol for a
11 766 realist review, co-design and mixed methods, participatory evaluation of a new care model.
12 767 *BMJ Open* 2017;7(6):e017363. doi: 10.1136/bmjopen-2017-017363 [published Online First:
13 768 2017/06/24]
- 14 769 42. Cooper C, Lhussier M, Shucksmith J, et al. Protocol for a realist review of complex interventions
15 770 to prevent adolescents from engaging in multiple risk behaviours. *BMJ Open* 2017;7(9) doi:
16 771 10.1136/bmjopen-2016-015477
- 17 772 43. Wiese A, Kilty C, Bergin C, et al. Protocol for a realist review of workplace learning in
18 773 postgraduate medical education and training. *Systematic Reviews* 2017;6(1) doi:
19 774 10.1186/s13643-017-0415-9
- 20 775 44. Menear M, Gervais M, Careau E, et al. Strategies and impacts of patient and family engagement
21 776 in collaborative mental healthcare: Protocol for a systematic and realist review. *BMJ Open*
22 777 2016;6(9) doi: 10.1136/bmjopen-2016-012949
- 23 778 45. Booth V, Harwood R, Hood V, et al. Understanding the theoretical underpinning of the exercise
24 779 component in a fall prevention programme for older adults with mild dementia: A realist
25 780 review protocol. *Systematic Reviews* 2016;5(1) doi: 10.1186/s13643-016-0212-x
- 26 781 46. Coles E, Wells M, Maxwell M, et al. The influence of contextual factors on healthcare quality
27 782 improvement initiatives: What works, for whom and in what setting? Protocol for a realist
28 783 review. *Systematic Reviews* 2017;6(1) doi: 10.1186/s13643-017-0566-8
- 29 784 47. Groot G, Waldron T, Carr T, et al. Development of a program theory for shared decision-making:
30 785 A realist review protocol. *Systematic Reviews* 2017;6(1) doi: 10.1186/s13643-017-0508-5
- 31 786 48. McGaughey J, O'Halloran P, Porter S, et al. Early warning systems and rapid response to the
32 787 deteriorating patient in hospital: A systematic realist review. *J Adv Nurs* 2017;73(12):2877-
33 788 91. doi: 10.1111/jan.13398
- 34 789 49. Zubair M, Chadborn NH, Gladman JRF, et al. Using comprehensive geriatric assessment for
35 790 quality improvements in healthcare of older people in UK care homes: Protocol for realist
36 791 review within Proactive Healthcare of Older People in Care Homes (PEACH) study. *BMJ Open*
37 792 2017;7(10) doi: 10.1136/bmjopen-2017-017270
- 38 793 50. Velonis AJ, Cheff R, Finn D, et al. Searching for the mechanisms of change: a protocol for a realist
39 794 review of batterer treatment programmes. *BMJ Open* 2016;6(4) doi: 10.1136/bmjopen-
40 795 2015-010173
- 41 796 51. Pace R, Pluye P, Bartlett G, et al. Testing the reliability and efficiency of the pilot Mixed Methods
42 797 Appraisal Tool (MMAT) for systematic mixed studies review. *Int J Nurs Stud* 2011;49(1) doi:
43 798 10.1016/j.ijnurstu.2011.07.002
- 44 799 52. Pluye P, Gagnon M-P, Griffiths F, et al. A scoring system for appraising mixed methods research,
45 800 and concomitantly appraising qualitative, quantitative and mixed methods primary studies
46 801 in Mixed Studies Reviews. *Int J Nurs Stud* 2009;46(4):529-46. doi:
47 802 <https://doi.org/10.1016/j.ijnurstu.2009.01.009>
- 48 803 53. Moher D, Shamseer L, Clarke M, et al. Preferred reporting items for systematic review and meta-
49 804 analysis protocols (PRISMA-P) 2015 statement.(Research)(Report). *Systematic Reviews*
50 805 2015;4(1):1. doi: 10.1186/2046-4053-4-1
- 51 806 54. Werner A. A guide to implementation research: Washington, D.C. : Urban Institute Press 2004.
- 52 807 55. Pawson R, Greenhalgh T, Harvey G, et al. Realist synthesis: an introduction. *Manchester: ESRC*
53 808 *Research Methods Programme, University of Manchester* 2004

- 1
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3 809 56. Pawson R. Digging for Nuggets: How 'Bad' Research Can Yield 'Good' Evidence. *International*
4 810 *Journal of Social Research Methodology* 2006;9(2):127-42. doi:
5 811 10.1080/13645570600595314
6 812 57. Wong G, Westhorp G, Pawson R, et al. Realist synthesis. *RAMESES training materials London: The*
7 813 *RAMESES Project* 2013
8 814 58. Mertens DM. Transformative research and evaluation. New York: Guilford Press 2009.
9 815 59. Egan M, Bambra C, Petticrew M, et al. Reviewing evidence on complex social interventions:
10 816 appraising implementation in systematic reviews of the health effects of organisational-level
11 817 workplace interventions. 2008;63(1) doi: 10.1136/jech.2007.071233
12 818 60. Sen A. Development as freedom: Oxford : Oxford University Press 1999.
13 819 61. Kabeer N. Resources, Agency, Achievements: Reflections on the Measurement of Women's
14 820 Empowerment. *Development and Change* 1999;30(3):435-64. doi: 10.1111/1467-
15 821 7660.00125
16 822 62. Ryan RM, Deci EL. Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social
17 823 Development, and Well-Being. *Am Psychol* 2000;55(1):68-78. doi: 10.1037/0003-
18 824 066X.55.1.68
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826 Figure Captions

827 Figure 1: Theoretical framework domains
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Figure 1: Theoretical Framework Domains

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Reporting checklist for protocol of a systematic review.

Based on the PRISMA-P guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the PRISMA-P reporting guidelines, and cite them as:

Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. Syst Rev. 2015;4(1):1.

			Page
		Reporting Item	Number
Identification	#1a	Identify the report as a protocol of a systematic review	1
Update	#1b	If the protocol is for an update of a previous systematic review, identify as such	N/A

1		#2	If registered, provide the name of the registry (such as	1
2			PROSPERO) and registration number	
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6	Contact	#3a	Provide name, institutional affiliation, e-mail address of all	1
7			protocol authors; provide physical mailing address of	
8			corresponding author	
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14	Contribution	#3b	Describe contributions of protocol authors and identify the	13
15			guarantor of the review	
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20		#4	If the protocol represents an amendment of a previously	N/A
21			completed or published protocol, identify as such and list	
22			changes; otherwise, state plan for documenting important	
23			protocol amendments	
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29	Sources	#5a	Indicate sources of financial or other support for the review	13
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32	Sponsor	#5b	Provide name for the review funder and / or sponsor	N/A
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36	Role of sponsor or	#5c	Describe roles of funder(s), sponsor(s), and / or	N/A
37	funder		institution(s), if any, in developing the protocol	
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41	Rationale	#6	Describe the rationale for the review in the context of what is	5
42			already known	
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46	Objectives	#7	Provide an explicit statement of the question(s) the review	7
47			will address with reference to participants, interventions,	
48			comparators, and outcomes (PICO)	
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54	Eligibility criteria	#8	Specify the study characteristics (such as PICO, study	8
55			design, setting, time frame) and report characteristics (such	
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1			as years considered, language, publication status) to be	
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3			used as criteria for eligibility for the review	
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6	Information	#9	Describe all intended information sources (such as	8
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8	sources		electronic databases, contact with study authors, trial	
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10			registers or other grey literature sources) with planned dates	
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12			of coverage	
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16	Search strategy	#10	Present draft of search strategy to be used for at least one	8
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18			electronic database, including planned limits, such that it	
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20			could be repeated	
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23	Study records -	#11a	Describe the mechanism(s) that will be used to manage	11
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25	data management		records and data throughout the review	
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29	Study records -	#11b	State the process that will be used for selecting studies	9
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31	selection process		(such as two independent reviewers) through each phase of	
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33			the review (that is, screening, eligibility and inclusion in	
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35			meta-analysis)	
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39	Study records -	#11c	Describe planned method of extracting data from reports	11
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41	data collection		(such as piloting forms, done independently, in duplicate),	
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43	process		any processes for obtaining and confirming data from	
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45			investigators	
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48	Data items	#12	List and define all variables for which data will be sought	10
49				
50			(such as PICO items, funding sources), any pre-planned	
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52			data assumptions and simplifications	
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1	Outcomes and prioritization	#13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	12		
2		Risk of bias in individual studies	#14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	11	
3			Data synthesis	#15a	Describe criteria under which study data will be quantitatively synthesised	N/A
4				#15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I ² , Kendall's τ)	N/A
5				#15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	N/A
6				#15d	If quantitative synthesis is not appropriate, describe the type of summary planned	12
7			Meta-bias(es)	#16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	11
8	Confidence in cumulative evidence			#17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	6
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5 a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)
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For peer review only