

**NICK**Nutritional Improvement  
for children in urban Chile  
and Kenya**BRIEFING PAPER 8**

NICK

(Nutritional Improvement for children in  
urban Chile and Kenya)**Approaches to analysis of outcome for  
impact evaluation and possibilities for  
monitoring**

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This research project was funded to deliver a rigorous impact evaluation. In order to do this we have to understand what is meant by an impact evaluation, and we have to decide on clearly defined measures of outcome and precise protocols for their measurement. In addition, the paper will consider some possibilities for routine monitoring.

**1. Making impact evaluation as rigorous as possible**

1.1 Impact is defined as the difference in outcomes with and without the intervention. We know 'factually' what has happened with the intervention; the problem is to establish rigorously what would have happened without the intervention – and this is often called the 'counterfactual'. It is only then that we can begin to talk about 'attributing' the change in outcome for the intervention group to the intervention itself.

*Constructing the counterfactual:  
addressing attribution*

1.2 Rather obviously, we only observe what happens to the 'treatment group' once it is subject to the intervention. The

impact is the difference between what has happened, and what would have happened to the treatment group without the intervention. This cannot be observed. It is estimated by a combination of before versus after analysis, and use of a control group.

1.3 Getting a valid comparison group is subject to a number of challenges:

- *Allowing for confounding factors*
- *Selection bias arising from the endogeneity of program placement*
- *Spillover effects*
- *Contamination of the control*

*Designing quality-policy relevant impact studies*

1.4 Quality impact evaluations are those which are technically rigorous, and carry clear policy messages based on a deep understanding of context and implementation. In the field of nutrition, randomisation has usually been applied at community level because of the practical and ethical difficulties of discriminating between children in the same community/village; but this raises other problems when evaluating an intervention with a before-after or panel design because of emigration / immigration into the treatment and comparison areas and, worse still, households may move between treatment and comparison areas.

1.5 Moreover, rigour does not ensure relevance, which usually requires a theory-based study design utilizing a deep contextualization based on a mixed-methods approach. Some impact studies simply report an impact estimate, at worst just saying 'there is a significant impact on nutrition'. But such a 'what works' (or doesn't) approach doesn't help understand why, which is necessary to improve programme design. And impact can vary according to intervention design (deliberate or unintentional), beneficiary, and context. An average impact estimate

can miss important variations in impact, which are of great policy relevance. Measuring impact may therefore be relatively straightforward, but understanding it requires a different set of tools. Hence impact estimates need to be embedded in an analysis of the underlying program theory, tracing impact through from inputs to impacts.

## **2. Research Methodology**

### **2.1 Research Questions**

The central question guiding this study is 'Can child malnutrition amongst families living in poverty in informal settlements and slums in Mombasa and Valparaíso be reduced through broadening community and stakeholder participation to change the social determinants of nutritional status?'

This question will be addressed through the following specific research questions:

- 1) What are the social determinants of child malnutrition?
- 2) How effective are any policies, initiatives and networks that are already in place in influencing these determinants in those sites?
- 3) What are the constraints on the effectiveness of these policies, initiatives, networks in those sites?
- 4) What are the actions, pathways and mechanisms (including those in existing structures) through which broadening community and stakeholder participation can be made most effective in reducing child under-nutrition in a sustainable way?
- 5) What are the main implications and lessons learned for policy development and implementation at scale in the project countries and for other countries?

### **2.2 Overall approach and methods of data collection**

To answer the first three research questions, the general literature suggests

that there are several issues that have to be considered in any specific context: poor governance leading to social stratification and inequality; poverty; weaker informal social networks and social safety nets; shortage of healthy, low fat foods with many vendors selling fatty, salty sugary foods; low access to quality public services; cultural beliefs regarding body images, etc.. Our schedules (interviews and observation) will generate information on all of these.

To inform RQ 4, the actions, pathways and mechanisms through which the social determinants of child malnutrition can be changed will be explored using participatory action research (PAR).

The impact of the small scale interventions designed by the action research teams will be assessed quantitatively through collection of anthropometric data (weight-for-height, weight-for-age and height-for-age) collected in baseline and follow up surveys and any change in nutritional status will be measured using a before-after experimental design. The interventions designed by the action research groups will be limited in nature, scope and type. As randomisation is not possible a quasi-experimental design has been used and the intervention and comparison groups carefully matched. This means that:

1. The area of intervention should be among the poorest in Valparaíso and there should be at least two similar areas; in other words the intervention cannot be in a unique context.
2. The intervention should have clearly defined aims which should have a reasonable chance of being achieved within the eighteen months; it cannot be too complex.
3. The intervention site has to be limited in extent and scope because again it would be difficult to find control or comparison groups.

The intervention and control groups have been chosen as far as possible to be distinct and separate from each other. Each of the intervention and control groups will include at least 400 participants. A major problem for the impact analysis and in particular for the attribution of any impact that is observed is that the time period for the intervention may well be insufficient for there to be substantial changes in the levels of malnutrition. Instead, we shall have to consider difference-in-difference analysis for a range of intermediate outcomes for children, process measures involving families and households, and process measures involving communities.

- *Intermediate outcomes for children* could include assessments of energy levels among children: we probably won't be including these.
- *Process measures for families and households* could include: behaviour change of families in cooking and eating patterns; attitude changes of parents towards consumption, cooking and eating patterns; knowledge changes among parents about healthy and nutritious foods, cooking.
- *Process measures for communities* could include: communal gardens; increased collaboration between parents; increased attendance at awareness/ educational sessions.

### **2.3 Framework and methods for analysis**

To evaluate the impact of the intervention, the anthropometric data from the experimental and control groups will be compared before and after the intervention by the chi-square test. Further analysis will employ the difference-in-difference procedure, comparing changes between the beginning and end of the period. Ideally,

outcomes are observed for two groups for two time periods. This removes biases in second period comparisons between the treatment and control group that could result from permanent differences between those groups, as well as biases from comparisons over time in the treatment group that could be the result of trends.

### **3. Implementation strategy**

The study will be implemented in three phases. During Phase 1 (0-12 months) literature reviews and situational analyses will be carried out by the core research team and used to inform the PAR. The before-anthropometric data will be collected and analysed, and a PAR group established in each of the study sites.

### **4. Monitoring**

#### **4.1 Outcomes**

In addition to the baseline and follow up measurements, the researchers should track nutrition-related morbidity local health centre workers.

#### **4.2 Process Measures**

There are also a wide variety of constraining or facilitating factors that should be monitored. These should include:

1. Any central or local government or NGO nutrition-related intervention in the area.
2. Availability of different kinds of commercial food outlets in the area.
3. Existence and change in transport facilities.
4. Changes in pattern of employment and of employment opportunities.

#### **4.3 Costing Schedule: What Costs to Record**

##### **4.3.1 Direct Costs**

- We have to decide what fraction of Beatriz and Daniel's time should be included. They could keep a

diary of how many days that they are participating in the action component.

- The time of PAR team members should be costed at their full daily wage rates.
- Any costs for the hire of meeting rooms, of refreshments provided during the meetings should also be documented.
- Any additional inputs the PAR team members bring should also be costed.
- Any inputs from other agencies whether or not associated with this NICK Project whether in cash or kind should be costed.

#### 4.3.2 Indirect Costs

We should document the presence of community members at meetings and on project activities could be costed in terms of the casual employment foregone; but is that too much work?

In principle, we would want to cost the *additional* time spent by caregivers in providing nutritious food in the target areas but that would require mothers keeping a diary which seems unreasonable. However, it could be included in the Observation Schedule/ Interviews with mothers in a small cohort panel. Note that this is not the *total* time they spend deciding and shopping for the food, preparing the meal and encouraging the child to eat the food but the *additional* time: for example, for sourcing fruit and fresh vegetables.

In principle, we could consider including an estimate of the future costs of health care for diabetics etc. avoided through improvement in children's nutritional status but there are too many confounding factors to make this worthwhile, so it will just be included in the discussion.

#### 4.3.3 Intangible Costs

Usually excluded in cost-effectiveness analysis.