



## Applying behavioural insights to a cash transfer program

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# Who?

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## **Who are we?**

We are the Behavioural Economics Team of the Australian Government, or BETA. We are the Australian Government's first central unit applying behavioural economics to improve public policy, programs and processes.

We use behavioural economics, science and psychology to improve policy outcomes. Our mission is to advance the wellbeing of Australians through the application and rigorous evaluation of behavioural insights to public policy and administration.

## **What is behavioural economics?**

Economics has traditionally assumed people always make decisions in their best interests. Behavioural economics challenges this view by providing a more realistic model of human behaviour. It recognises we are systematically biased (for example, we tend to satisfy our present self rather than planning for the future) and can make decisions that conflict with our own interests.

## **What are behavioural insights and how are they useful for policy design?**

Behavioural insights apply behavioural economics concepts to the real world by drawing on empirically-tested results. These new tools can inform the design of government interventions to improve the welfare of citizens.

Rather than expect citizens to be optimal decision makers, drawing on behavioural insights ensures policy makers will design policies that go with the grain of human behaviour. For example, citizens may struggle to make choices in their own best interests, such as saving more money. Policy makers can apply behavioural insights that preserve freedom, but encourage a different choice – by helping citizens to set a plan to save regularly.

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# Glossary of terms

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Program Keluarga Harapan (PKH)	Conditional cash transfer program in Indonesia providing low-income families with funds provided certain health and education activities are completed. Translated to English as “Family Hope Program”.
Posyandu	Integrated Health Service post
Posyandu cadres	Volunteers who are officially assigned by the village or local authority to operate the Posyandus
Puskesmas	Community Health Centre at the Sub-District Level
Puskesmas Pembantu	Community Health Sub-centre

# Executive Summary

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Cash transfers are a common form of social protection, often designed to reduce poverty and improve health and education outcomes by providing vulnerable families with access to financial support. BETA collaborated with the Department of Foreign Affairs and Trade (DFAT) to find ways of bolstering the impact of an existing cash transfer program in Indonesia.

We conducted in-country consultations with a number of government and non-government stakeholders to understand Indonesia's national development priorities. The result was a focus on maternal anaemia and childhood stunting, both of which contribute to poor long-term economic and health outcomes. Approximately 31 per cent of all Indonesian children under five are stunted, and maternal anaemia rates sit even higher, at 49 per cent (Ministry of Health 2018).

Social protection, health, and education are investment priorities for Australia's official development assistance program. Australia supports Indonesia with an estimated \$298.5m AUD of official development assistance (2019-20). Part of this goes toward supporting government programs such as Program Keluarga Harapan (PKH), a conditional cash transfer program offering financial support for families to help them engage in health and education activities.

Aspects of the PKH program specifically target maternal anaemia and stunting. For example, PKH recipients must take their children to healthcare centres regularly to be weighed and measured (to detect stunting) and pregnant women in the program must take iron tablets throughout their pregnancy.

While beneficiaries of the PKH program have seen some improvements in maternal and childhood health, there remains room for improvement. BETA explored how behavioural insights can bolster the impact of programs like PKH to address childhood and maternal health.

In collaboration with a local research organisation, we conducted qualitative research with health care providers, program delivery staff, and program beneficiaries. The research uncovered some of the barriers preventing recipients from adhering to the health activities mandated by the program, as well as some of the drivers motivating them to focus on their own and their children's health.

Based on our research, we designed two products to address maternal anaemia and stunting. These products – a children's growth chart, and a calendar card for pregnant women taking iron tablets – use behavioural insights to address some of the challenges associated with adhering to the conditions of the cash transfer program. They also aim to strengthen the drivers of healthy actions and habits to improve overall maternal and childhood health. This report forms part of broader work underway by DFAT to test some of these ideas in the field in partnership with the Abdul-Latif Jameel Poverty Action Lab (JPAL).

# Why?

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Cash transfers can include payments made to poor communities, households, or individuals, to mitigate the effects of poverty in the immediate term, and support recipients to invest in human capital for the future (Fiszbein and Schady, 2009). Since the 1990s, cash transfer programs have become widespread across the world. Many governments choose to include conditions, which require cash transfer recipients to engage in certain activities to receive funds. Recent and current studies are testing what role behavioural insights can play in improving the effectiveness of cash transfers (see Karlan 2014; Benhassine et al. 2013).

## **Cash transfers are a form of social protection**

Financial constraints may prevent some families from being able to afford the upfront and ongoing costs associated with education and healthcare, which can lead to chronic underinvestment in education and health among those affected by poverty. Providing cash to households enables them to consume more goods and services.

Conditionality aims to ensure recipients use the funds for specific purposes, especially those related to schooling and healthcare. By tying the receipt of cash transfers to the fulfilment of certain activities, recipients have a strong incentive to meet requirements to avoid losing future payments.

## **Understanding human behaviour can improve the impact of cash transfers**

Compared to standard economic theory, behavioural economics recognises people do not always act in ways reflecting their long-term intentions or preferences. A behavioural lens applied to cash transfers can analyse why – even where accessing desired services is possible and affordable, and where there are penalties associated with non-compliance – people may still forget, delay, or give up on following through with their plans. It can also provide insights into how light-touch and cost effective behavioural prompts can result in greater uptake of actions with long-term benefits.

## **The PKH program aims to address health and education needs by providing a conditional cash transfer**

As with many conditional cash transfer programs, the Program Keluarga Harapan (PKH) program (translated to English as the “Family Hope Program”) in Indonesia aims to reduce intergenerational poverty by providing financial support for key health and education activities. It provides quarterly transfers of 1,800,000 Indonesian Rupiah (roughly \$180 Australian dollars) to pregnant women, and/or are mothers of children below the age of 15 (or below the age of 18 if they have not yet completed nine

years of education). These transfers are the equivalent of up to 20 per cent of the average income among Indonesia's poorest citizens (Kusuma et al. 2017a).

As part of the PKH program, beneficiaries must comply with a range of health and education conditions. These include actions or outcomes such as attending pre and post-natal health checks, getting child and maternal vaccinations, and attending school (see Table 1 for a complete list of conditions). PKH field facilitators are responsible for monitoring people's compliance with these conditions, but the extent to which facilitators are able to monitor compliance in practice is difficult to determine.

**Table 1: Conditions of the PKH conditional cash transfer program**

Households with...	...must accomplish these conditions to continue receiving their cash transfer
Pregnant or lactating women	<ol style="list-style-type: none"> <li>1. Complete four antenatal care (ANC) visits and take iron tablets during pregnancy</li> <li>2. Be assisted by a trained professional during the birth.</li> <li>3. Lactating mothers must complete two post-natal care visits.</li> </ol>
Children aged 0–6 years	<ol style="list-style-type: none"> <li>4. Ensure children have complete childhood immunisation and take Vitamin A capsules a minimum of twice a year.</li> <li>5. Take children for growth monitoring check-ups (monthly for infants 0–11 months, and quarterly for children 1–6 years).</li> </ol>
Children aged 6–15 years	<ol style="list-style-type: none"> <li>6. Enrol their children in primary school and ensure attendance for a minimum of 85 per cent of school days.</li> <li>7. Enrol junior secondary school children and ensure attendance for a minimum of 85 per cent of school days.</li> </ol>
Children aged 16–18 years with	<ol style="list-style-type: none"> <li>8. Enrol their children in an education program to complete nine years equivalent.</li> </ol>

Field facilitators also deliver Family Development Sessions (FDS), which provide community-based group training in topics such as health and nutrition, early childhood education, parenting, household budgeting, and entrepreneurship (World Bank Group, 2017). FDS sessions are progressively being developed and added to the program, with the goal of educating and supporting transfer recipients to take up beneficial actions and habits on their own, outside of the conditions of the PKH program.

## Maternal and childhood health are key areas for national development policy in Indonesia, and are features of the PKH program

The Indonesian government aims to reduce maternal anaemia in part by distributing iron tablets, which women receive at each of their antenatal (ANC) visits to Pukesmas (local health centres), or maternal health clinics during pregnancy. This iron supplementation program has been operational since the

1970s and has wide coverage across the country. Additionally, as shown in Table 1 (above), antenatal visits and regular consumption of iron pills are conditions of the PKH program.

Despite this, the most recent estimates suggest only one-third of women take iron tablets for the recommended duration (more than 90 days) during their pregnancy (Ministry of Health Republic of Indonesia 2014, Annex 5.4). One reason for low iron tablet consumption is a lack of adequate counselling by health workers to ensure women understand and adhere to the correct dosage and are able to manage side effects (Micronutrient Initiative 2017). The likelihood of taking iron tablets for 90 days or more also decreases with poverty level, though the reasons for this are likely to be multifaceted (2012 Indonesia Demographic Health Survey).

Stunting is another prevalent health problem in Indonesia (World Health Organisation 2006)<sup>1</sup>. Stunting in the first years of life, particularly in the first thousand days, is strongly correlated with higher rates of morbidity, lower cognition, educational attainment, and wage earnings in later life (Bhutta 2009). Currently, approximately 31 per cent of all Indonesian children under five are stunted (Ministry of Health 2018). At birth, around 10 per cent of Indonesian babies have a low birth weight (UNICEF/WHO 2019). To combat stunting, the PKH program includes a condition of growth monitoring for children six years and younger in an attempt to catch the signs of malnutrition early.

## **The PKH program has had significant impacts, but there are some outcomes yet to be realised**

The PKH program was initially implemented using a randomised controlled trial, allowing researchers to evaluate its impact. In 2018, the PKH program was expanded from 6 million households to 10 million households. Australia provided support for this expansion. Numerous studies found PKH has made gains on many health and educational outcomes. For example, there is evidence to suggest PKH has increased health-care appointment attendance overall (Kusuma et al., 2017b). This increased attendance has also helped spur improvement in other areas such as infant immunisation, which one study found was 30 per cent higher on average among PKH program beneficiaries under the age of one than in control populations (Kusuma et al., 2017b).

The PKH program has also increased school enrolment and attendance rates, particularly among primary school-aged children. Although transition rates between primary and secondary schooling are still low, those enrolled in PKH move between educational stages with more ease than control groups (Satriawan et al. 2017). The PKH program has also successfully enabled recipients to spend more on education and nutritious foods, increase time spent in formal employment, and decrease the likelihood of children under the age of twelve engaging in paid labour (Satriawan et al. 2017). Notably, it appears the PKH program may have long-term (if not immediate) effects on reducing stunting rates, which is encouraging (Cahyadi et al 2018).

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<sup>1</sup> Stunting is defined by the World Health Organisation as having a height-for-age two or more standard deviations below global standards of a healthy height-for-age.

Nevertheless, the PKH program is still lagging behind in other desirable health-related outcomes such as for maternal mortality rates, which have not improved among PKH program beneficiaries (Kusuma et al. 2016). An evaluation by Satriawan et al. (2017) also highlighted a number of important health behaviours that PKH program recipients were no more likely to undertake than non-recipients. These included postnatal visit attendance and iron tablet consumption.

Recognising the achievements of PKH to date, as well as areas for further improvement, BETA sought to diagnose the barriers and drivers associated with iron consumption and growth monitoring. BETA designed examples of light-touch and cost-effective interventions to complement the existing PKH program, and provide an additional means of addressing some of Indonesia (and the world's) most pressing healthcare priorities.

# Intervention designs

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After reviewing the literature on cash transfers and behavioural insights, we identified several relevant behavioural concepts (see Table 2 for behavioural concepts and Appendix A for the full literature review). We then discussed these concepts with key stakeholders in Indonesia, and identified stunting and maternal anemia as two key health issues of particular policy interest, which could both benefit from the application of behavioural insights.

The PKH conditional cash transfer program was already working to address these issues, but with limited success. To reduce maternal anemia, taking iron tablets is a requirement for pregnant women enrolled in the PKH program. To reduce stunting, growth monitoring for children under the age of five is a requirement of the PKH program.

We designed two products to help PKH recipients both adhere to these requirements, and enact behaviours to address the underlying health issues the requirements were aiming to target. Through our desktop research, we identified growth charts as one possible response to endemic stunting (see Fink et al. 2017). We did not find any behavioural designs to address maternal anemia or iron consumption. To help develop and refine our ideas, we conducted qualitative research with people enrolled in the PKH program in Indonesia.

We conducted interviews and focus groups in Indonesia, in partnership with a local research organisation, SurveyMETER. We asked PKH recipients about their health practices (including whether they took iron during pregnancy), their knowledge of stunting, and their reactions to a prototype of a children's growth chart.<sup>2</sup> We also interviewed healthcare workers about the same topics (See Appendix B for further details about the qualitative research).

The focus groups and interviews took place in one rural (Timor Tengah Selatan or TTS) and one urban (Grobogan) location in Eastern Java. Researchers from SurveyMETER talked to PKH recipients in groups of six to eight, and to healthcare workers (including PKH program facilitators, health centre staff, and midwives) in one-on-one interviews. We conducted research in Grobogan and TTS because these areas have moderate to high levels of stunting, average distribution of iron tablets, and are generally reflective of most urban and regional areas in Indonesia, excluding major cities and very remote locations. As such, we expect the results of the qualitative research to be broadly in line with people's experiences across most of Indonesia.

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<sup>2</sup> We are grateful to the 1000 Days Fund for supplying us with a copy of their growth chart for us to use as part of this research.

Following the qualitative research and workshops with policy experts, BETA also sent the growth chart and iron tablet designs to nutrition and behaviour change communication specialists at Specialist Health Service (SHS) Global for further feedback. We have incorporated their input into the designs.

Based on the behavioural insights literature, in-country qualitative research, and consultations with experts in Indonesia and Australia, we developed:

- a growth chart to help parents track their child’s height-for-age (as well as identify different nutritious foods and other tips for good health); and
- an iron tablet card to help women track their iron tablet consumption during pregnancy.

By making important health information salient and easier to access and understand, we aimed to overcome some of the barriers PKH recipients may experience when trying to engage in healthy behaviours. These included a lack of awareness about preventive health measures, and structural barriers such as distance from a healthcare centre (and the time and money needed to travel there).

Table 2: Behavioural concepts
<p><b>Present bias</b> describes our tendency to prefer receiving payoffs now rather than in the future (even if the long-term gain may make us better off) (O’Donoghue and Rabin 1999; Thaler 1980).</p>
<p><b>Social norms</b> signal ‘appropriate’ behaviour, expectations, or rules that exist within a group (Cialdini and Trost, 1998). These norms tend to have a strong influence on individuals, who often seek to act in accordance with the group or majority.</p>
<p><b>Scarcity</b> refers to the effect of having too few resources, including money and time, on decision-making (Shah et al., 2015; Ostrom 2000). Pressures from poverty crowd out individuals’ cognitive ‘bandwidth’ render individuals poorly prepared to handle shocks or unexpected events, and measurably decreases their fluid intelligence and problem solving skills (Mani et al. 2013).</p>
<p><b>Mental accounting</b> describes peoples’ tendency to set up mental accounts for outcomes that are psychologically separate (Thaler, 1980; Thaler 1985). For example, people may split their pay into different jars for ‘groceries’, ‘rent’, ‘petrol’ to help them budget. Like present bias, mental accounting can be problematic if it leads people to make spending decisions that do not reflect their long-term preferences.</p>
<p><b>Extrinsic motivation</b> refers to external incentives or rewards for behaviour. While these can be helpful sources of motivation, extrinsic rewards can sometimes “crowd out” intrinsic motivation (Gneezy et al 2011). Conditional cash transfers are a form of extrinsic motivation because they offer financial rewards for completing or participating in certain activities.</p>
<p><b>Intrinsic motivation</b> is long-term attitude change and habit formation, internally driven, which enables people to persist with behaviours that at first may be challenging (Wolf et al., 2013).</p>

Although behavioural interventions alone are insufficient to tackle all of the challenges facing pregnant women and parents of young children, low-cost behaviourally informed interventions could improve outcomes.

## We used the Health Belief Model as the theoretical framework for our designs

BETA considered the motivations and barriers to following through with certain health actions based on Rosenstock et al's (1988) "Health Belief Model". The model provides a framework for considering why people do not adhere to health recommendations, even if doing so is good for them. In general, people's behaviour can be classified as either "**unintentional**" or "**intentional**".

Sometimes, a person may fail to follow through with an action or behaviour despite believing it is good for them. In other words, they want to adhere to the recommendation, but are unsuccessful in doing so (perhaps because they forget, procrastinate, or delay starting a routine). This is described as **unintentional non-adherence**.

Conversely, a person may intentionally fail to follow through with an action because they do not believe they can do the action (perhaps because it is too difficult, or too time consuming), or they do not believe doing so is valuable in the first place.

**Intentional non-adherence** may be the result of informational barriers. For example, a person may not engage in a certain action or behaviour because they hold false beliefs about the importance or benefits of doing so. For example, some respondents in the qualitative research wrongly believed babies should not be breastfed immediately after birth. Behavioural insights can help raise awareness and make certain health information more salient and accessible to counteract misinformation. Behavioural insights can also provide rules of thumb or calls to action to increase the likelihood of take up.

Behavioural insights may also highlight positive social norms or the prevalence of a behaviour in a person's peer or community group to help them benchmark themselves. Alerting people to a certain behaviour, and highlighting how other people like them engage in similar behaviours, can help encourage take up in the first instance and follow-through in the long-run.

## There is a mix of intentional and unintentional non-adherence for PKH recipients

The qualitative research confirmed non-adherence to healthy behaviours by PKH recipients is characterised by a mix of **intentional and unintentional non-adherence**. Most of the unintentional non-adherence related to structural barriers. For example, while many program recipients recognised the value of eating nutritious foods or attending antenatal care visits, many also faced costs associated with distance, time, and money, in accessing them. Similarly, the need to go to work or tend to the farm precluded some recipients from attending Posyandu (integrated healthcare centre) meetings or engaging in breastfeeding.

While behavioural interventions cannot address structural barriers such as physical distance or financial costs, we still incorporated these considerations into the designs. For example, we designed products

for use in the home – because people are busy, may live far away from their nearest healthcare centre, or may not have funds available to make frequent trips to visit a health professional.

Most of the **intentional non-adherence** stems from informational barriers. For example, as verified by the qualitative research, the lack of awareness about stunting, its causes, and implications, may explain why sometimes little or no action is taken to prevent it. Additionally, feedback for many of the healthy behaviours the program seeks to encourage is delayed or non-existent. Although Posyandu meetings and ANC (antenatal care) visits occur in most communities relatively regularly, many of the benefits of preventive health such as iron consumption and healthy eating occur later (for instance, as an older child or adult) or are felt through the *absence* of ill health. As such, it can be difficult for a person to feel motivated to follow through with an action, even if they are aware of the benefits of doing so.

The qualitative research findings also suggested intentional non-adherence might be the result of social norms, particularly about breastfeeding and child nutrition. For example, there was some evidence to suggest grandparents or other members of the community hold uninformed beliefs about when to feed babies solid foods, and do not always believe or know the benefits of breastfeeding from birth. Although there may be other reasons why women cannot or do not breastfeed (such as going to work), it may be helpful to make the benefits of exclusive breastfeeding salient.

Finally, the qualitative research indicated, although it was not a common barrier, some of the side effects of iron can be a barrier to taking iron tablets. In this instance, behavioural insights cannot reduce or eliminate side effects, but we can factor this into the design by providing advice to help mitigate side effects. Additionally, we can encourage women to seek the advice of their midwife or healthcare worker to ensure the advice they are getting is medically sound, and less prone to misinformation. This is especially important given the other findings from the qualitative research, which indicate community members are not always aware of best practice.

## Behavioural elements of growth chart design

Based on the research and findings of Fink et al (2017), we designed a growth chart for parents to raise awareness of the importance of healthy eating and hygiene in an effort to reduce or prevent stunting (see Appendix C). Our design makes salient the benefits of eating nutritious foods, maintaining good hygiene, and practicing breastfeeding. Providing this chart in the home also helps parents who may not always be able to attend their Posyandu or visit a healthcare worker. By making a product prominent and easy to use, we reduced the friction costs associated with using it.

The chart makes it easy for parents to get quick feedback on their child's height-for-age. Changes in a child's height can be difficult to discern on a day-to-day basis, so providing an in-home measure of their progress can help to give them this information. However, simply measuring a child's height does not mean much if a parent does not know whether their height is sufficient for their child's age. A growth chart can make it easier to tell if a child is at a healthy height for their age by clearly signalling the average healthy height-for-age so parents can benchmark their children's progress. If they have concerns, the chart encourages them to seek in-person medical advice from a health professional.

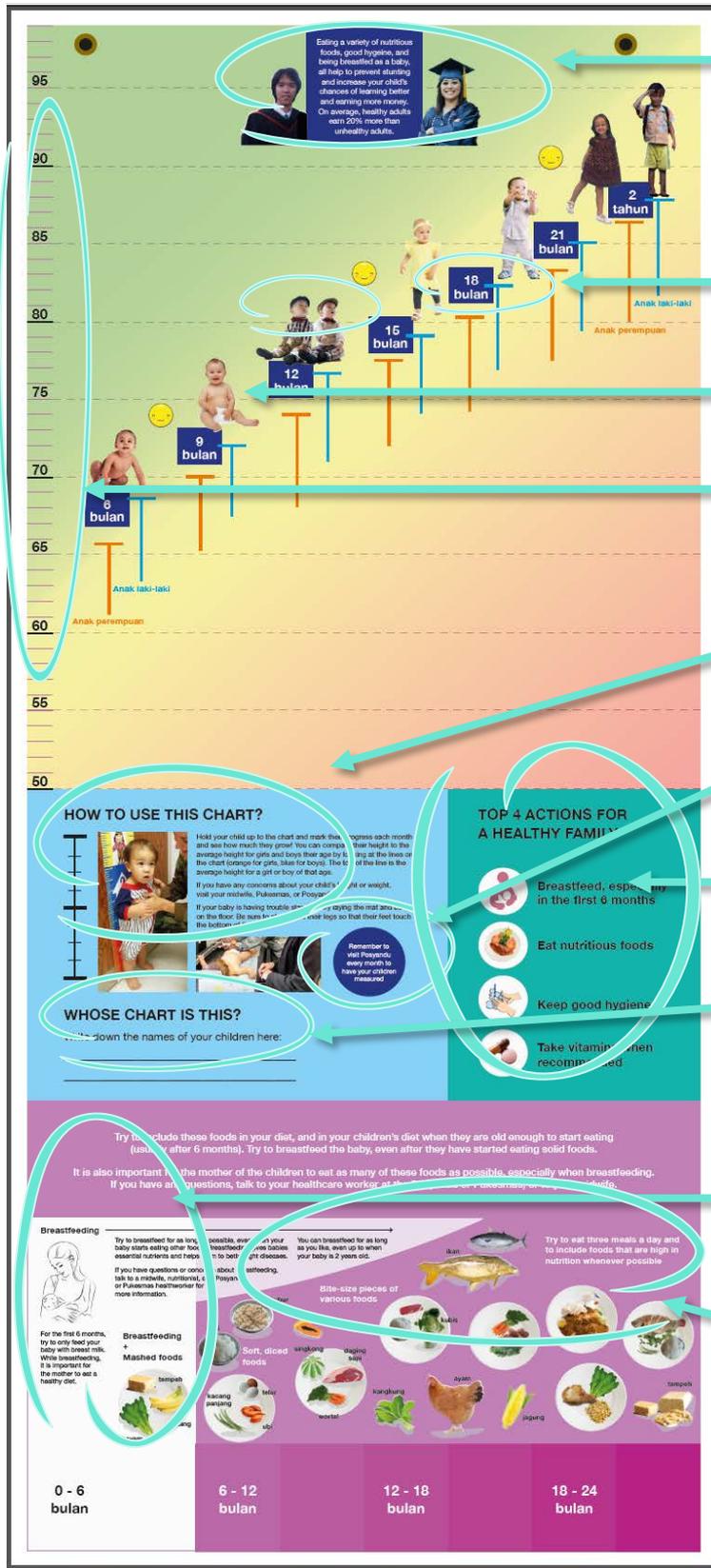
Including pictures of food and meal ideas also helps make it easier for parents to engage in good nutrition habits. Findings from the qualitative research suggested pictures of relevant nutritional foods and dishes were an attractive feature of the growth charts. In conjunction with this information, the chart makes salient the benefits of practicing exclusive breastfeeding for the first six months, and continuing breastfeeding where possible. Noting it may not always be possible for parents to access all of the nutritional foods or for mothers to engage in breastfeeding, the chart avoids prescriptive language and instead prompts users to engage their healthcare worker or midwife if they have questions or concerns.

The chart incorporates personalisation and social norms to motivate parents to instil the behaviours the chart encourages. For example, writing the names of their children into a “whose chart is this?” section can add a sense of ownership both of the chart and of the outcomes it measures. Including images of happy children and aspirational “graduates” as examples of grown and healthy adults were also cited as popular features in the qualitative research. Research from Fink et al (2017) on growth charts in Zambia shows how including facts about the earning potential of non-stunted adults can motivate some parents to consider the long-term advantages of engaging in healthy behaviours.

The chart is not a diagnostic tool. While it aims to make it easier for parents to recognise whether their child is at risk of stunting and take action to prevent it, the chart is not intended to replace professional medical advice. Rather, we aim to provide parents with tips on what to do and what to look for, but also encourage them to seek help as needed.

We have included some of these tips in the format of “rules of thumb” to make it easier for parents to engage in healthy behaviours. These include breastfeeding where possible, trying to eat healthy food, engaging in good hygiene behaviours, and taking vitamins and supplements as recommended. We know people often rely on heuristics (or, mental “shortcuts”) to make decisions, so if we can instil helpful rules of thumb to follow, it can make behaviour change more likely.

## Design 1: Behaviourally informed children's in-home growth chart [English]



Adding aspirational photos of young adult graduates makes the long-term benefits of engaging in daily healthy habits today **salient** and can help to overcome **present bias**.

Providing **benchmarks** of the healthy height-for-age of the average child **makes it easy** for parents to get quicker feedback on their child's height-for-age.

Photos and pictures **make it attractive** and more personable.

Measurements and corresponding lines across the chart **make it easy** to use.

A description and corresponding photos of how to use the chart **make it easy** for parents to use the chart at home. Photos are important for parents who may be less literate.

A **call to action** helps link the chart to PKH requirements to attend Posyandu.

Providing **rules of thumb** can help make it easier for parents to take up key behaviours because **heuristics** (mental shortcuts) are easy to remember.

**Personalisation** can be a powerful motivation, so families are encouraged to write the names of the children on the chart to instill a sense of ownership.

Making **salient** the benefits of breastfeeding, especially in the first 6 months, helps to dispel misinformation and encourage take up.

Making food ideas **easy** to understand and **attractive** to learn about can encourage take up.

People may be experiencing **cognitive overload** or 'scarcity', and important health information may not stand out.

Making a product prominent (in the home) and **easy to use** reduces the **friction costs** associated with accessing the information it provides.

## Behavioural elements of the iron tablet card design

Although the qualitative research suggests many women consume the iron tablets provided to them at their ANC visits, other research suggests the high rates of maternal anaemia in Indonesia may still be driven in part by under-consumption of iron (Ministry of Health 2014; Micronutrient Initiative 2017). The broader literature on medication adherence suggests people often forget or have difficulty tracking their progress when trying to adhere to a daily medication regime. Assuming this may be a factor for some women in the PKH program, for whom iron tablet consumption is a condition of their cash transfer, we developed an iron tablet “scratch card” to encourage greater adherence to daily iron consumption over the course of a woman’s pregnancy (see Appendix C for the card in full).

Enabling women to scratch out a “tablet” on the card for each tablet they consume can help make it easier to track progress. Research suggests visual prompts can help people track their progress and motivate them to complete a task. Based on Gestalt psychology (the idea that the ‘whole’ and its ‘parts’ are viewed differently), Barasz et al. (2017) found the presentation of options and the grouping of numerous tasks (either related or unrelated) increased the number of tasks completed. The authors suggest most people have an innate desire for completeness, and completing tasks is satisfying when their progress is measurable and salient (such as completing checklists, or filling in progress bars).

In addition to the simple act of tracking progress, we incorporate interesting facts and encouraging messages throughout the card. Making the benefits of taking tablets salient and attractive makes the uptake of a daily behaviour more engaging and relevant to tangible outcomes for their health and that of their baby. Noting for some women, the side effects of iron consumption may lead to intentional non-adherence, we include tips for how to address things like nausea and prompt them to seek help from their midwife or healthcare worker if they continue to experience issues.

Like the growth charts, the iron card is not intended to replace professional medical advice. As such, we prompt women to seek assistance from a nominated healthcare worker, whose name we suggest writing on the front of the card. This not only helps make it easier to know who to talk to, but also stems from research suggesting planning prompts are more powerful by writing details down – including the name of your doctor (Milkman et al 2013). There is also an opportunity for women to personalise the card by writing their name on the front, to instil a sense of ownership over the activity and its outcomes.

Like the growth charts, this card is for use in the home. This makes it easier to further relay health information outside of ANC or Posyandu visits, and addresses the financial and time costs associated with visits, or long distances to travel. One of the main challenges, as noted in the qualitative research findings, is that the number of tablets distributed at each ANC varies across centres and regions. Noting this, our card is designed on the assumption tablets are distributed for daily consumption for each trimester, though this may not always happen in reality. In this way, the card may also help healthcare workers to get a better sense of how frequently women take iron tablets, though this is a secondary outcome and not the primary purpose of the card.

## Design 2: Card to track iron consumption [English]

**Front pages**

**Why is it important to take iron tablets?**

**For you**

A lack of iron can lead you to develop anemia. Anemia can lead to fatigue, making work difficult. Anemia can also lead to serious complications during and after birth. Taking iron tablets can help ensure that you avoid becoming anemic, and have a strong and safe delivery.

**For your baby**

A lack of iron during pregnancy can lead your baby to have iron deficiency or anemia at birth. Babies with anemia tend to grow more slowly than do babies without anemia, and can have trouble learning. Taking iron tablets can help ensure that your baby is strong and healthy at birth.

**Iron Tablet Calendar**

This calendar belongs to: \_\_\_\_\_

Who can I talk to if I have questions?  
The names of my local midwives and healthcare staff are: \_\_\_\_\_

**Use this calendar to keep track of your progress!**  
Scratch out a circle each time you take an iron tablet. Try to take one tablet every day until all of them are gone. You can get more tablets at each Ante-Natal Care visit or at your Pukesmas. Ask a midwife or Pukesmas healthcare worker if you have any questions or concerns.

Scratch out a circle using your finger or a coin. If you forget to take a tablet, that's ok - just take one the next day. You don't have to take more than one tablet a day.

**Tip: If you feel unwell, try taking your iron tablet at night before you go to sleep**

**Inlay: first trimester**

**Use this calendar to keep track of your progress!**  
Scratch out a circle each time you take an iron tablet. Try to take one tablet every day until all of them are gone. You can get more tablets at each Ante-Natal Care visit or at your Pukesmas. Ask a midwife or Pukesmas healthcare worker if you have any questions or concerns.

Scratch out a circle using your finger or a coin. If you forget to take a tablet, that's ok - just take one the next day. You don't have to take more than one tablet a day.

**Tip: If you feel unwell, try taking your iron tablet at night before you go to sleep**

**Inlay: second trimester**

**Use this calendar to keep track of your progress!**  
Scratch out a circle each time you take an iron tablet. Try to take one tablet every day until all of them are gone. You can get more tablets at each Ante-Natal Care visit or at your Pukesmas. Ask a midwife or Pukesmas healthcare worker if you have any questions or concerns.

Scratch out a circle using your finger or a coin. If you forget to take a tablet, that's ok - just take one the next day. You don't have to take more than one tablet a day.

**Tip: If you feel unwell, try taking your iron tablet at night before you go to sleep**

**Inlay: third trimester**

**Personalisation** is a powerful motivator and can instill a sense of ownership into the product and process.

Providing some other **rules of thumb**, some of which are linked to PKH conditions, can **make it easy** to enact simple habits or routines.

Writing down the name of a healthcare worker can act as a **planning prompt** and encourage follow-through with visits.

Making the personal benefits to iron consumption **salient** can help emphasise the value in taking daily iron tablets for women themselves as well as for their baby.

Providing helpful tips to manage side effects can help **make it easier** to adhere with taking iron every day. This is coupled with **calls to action** to encourage women to seek medical advice if they have questions or concerns.

Small messages of encouragement provide sources of **motivation**. Fun facts about the baby's development provide sources of **motivation** and link daily iron consumption with **tangible examples** of the impact of healthy actions during pregnancy.

Allowing daily iron tablet consumption to be tracked using a scratch card system uses **pseudo-set theory**, which suggests that being able to track and complete sets of activity increases the **motivation** to complete tasks.

# Limitations

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## Participants in the qualitative research may have felt pressured to overstate their compliance with conditions

Research participants in the focus groups with PKH recipients may have felt pressure to overestimate their adherence to activities because they are conditions of the program. Healthcare workers may have similarly felt a need to over-report their involvement with the communities under their charge, or the activities they are required to run, as members of the Posyandu or Pukesmas.

Since taking iron tablets is a condition of the program, it was difficult to accurately assess based on interviewee responses whether iron tablets were taken, and if so, how frequently. This could be due to a desire to provide a socially desirable response in front of others. Similarly, feedback on the growth chart concept may have been more favourable if respondents felt the need to be polite about the chart idea and its design.

Although we cannot be sure respondents felt any pressure to give socially desirable answers, we hope by seeking multiple perspectives on the same questions and prototype (for example, by engaging both PKH recipients and providers in separate focus groups and interviews), we have adequately cross-referenced the responses collected. SurveyMETER also tried to reduce this risk by reinforcing to the research participants they would remain anonymous, and the researchers were not affiliated with the government or the program in any way. Nonetheless, people may have over-reported how often they enact certain behaviours.

## Parents (and healthcare workers) may misinterpret the growth chart

We recommend the growth chart prototype undergo additional user testing to address any risk of harm to caregivers and children by having the chart misinterpreted. In particular, if the chart is used as a diagnostic tool in the absence of professional medical advice, parents could wrongly conclude their child is stunted when it may not be the case. Further testing would ensure the format and messages on the growth chart are understood, the purpose of the chart is clear, and there is a strong chance the chart will be used.

Important questions to include as part of further testing could include:

- accurate translation from English to Bahasa Indonesia in the final products (and whether translation to local languages should be considered);
- comprehension of how the chart is used, including what the average height-for-age ranges mean for each sex at each age;

- the types of foods promoted in the chart and the degree of access parents have to those foods, as well as other barriers and benefits to the consumption of the recommended foods;
- comprehension and acceptance of breastfeeding advice.

### **The distribution of iron tablets varies widely across different sub-districts, making measurement difficult**

Although many women appear to take iron tablets during pregnancy as recommended, the exact number of tablets and the frequency of their distribution appears to vary across districts, clinics and individuals. This pointed to a lack of clarity or understanding about when to take the tablets and for how long. The most common figure cited was 30 tablets at each antenatal visit in the first and second trimester, and 15 at each visit in the third trimester. However, some health care providers dispensed all 90 tablets at one time. Others reported dispensing more than the standard 90 tablets when women presented with symptoms of anaemia.

While the majority of women report taking iron pills on a regular basis, the variation in distribution could make measuring the impact of the calendar card on iron tablet consumption difficult. In particular, if the cards are distributed along with iron tablets, they are more likely to go to women who come to ANC visits regularly and who may have less of a need for a calendar card given their ability to maintain regular ANC visits. In this case, the card would not end up with the cohort of women for whom it may have the biggest impact.

Additionally, the iron tablet calendar card was developed after the qualitative research was conducted (and based, in part, on its findings), and was not part of the focus groups or interviews. Further user testing with the card would indicate whether a product like this would be considered useful, and if so, what features are most important.

# Discussion and conclusion

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Behavioural insights offer an additional (and perhaps, alternative) method of supporting take up of daily routines and habits leading to long-term health benefits. In the case of the PKH program, behavioural insights can help bolster the impact of existing activities recipients are incentivised to participate in. This is of particular interest given many of the benefits are likely to be realised in the long term, making investment in health *today* of even greater importance.

Both the growth chart and iron tablet card incorporate key behavioural insights and findings from in-country qualitative research. In addition to the application of the EAST framework (Easy, Attractive, Social, Timely), we draw on concepts such as personalisation, saliency, and pseudo-set theory to support the uptake of key health behaviours by PKH recipients.

The application of behavioural insights should occur within a context of a wider, multipronged public health strategy. Other factors affecting household welfare and health outcomes include employment, educational attainment, and overall accessibility of healthcare products and facilities. There are financial and structural barriers affecting Indonesia's maternal and childhood health programs, which cannot be solely addressed through behavioural insights.

The children's growth chart and iron tablet card provide cost effective solutions because they have minimal production costs and can be used directly in people's homes. We also note the products will be delivered to a population already linked to health clinics and other modes of public health delivery. For this reason, we feel confident the other factors needed to improve maternal and childhood health outcomes are in place.

We support further research into this emerging field, and hope this diagnostic report can add to the evidence base for using behavioural insights to improve the impact of cash transfer programs. This report is part of a broader piece of work by DFAT, which is currently testing these ideas in the field. In partnership with JPAL, founded by the 2019 winners of the Nobel Prize in Economics<sup>3</sup>, DFAT is testing the children's growth chart using a randomised controlled trial. Whether through diagnosing the barriers and drivers underpinning people's actions, or applying findings from research in economics and psychology, there is an opportunity to use light-touch and behaviourally informed tools to tackle some of the world's most urgent healthcare problems.

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<sup>3</sup> Abhijit Banerjee, Esther Duflo, and Sendhil Mullainathan founded the Poverty Action Lab in 2003, later named JPAL in 2005, at the Massachusetts Institute of Technology (MIT). Banerjee and Duflo were joint winners of the Nobel Prize in 2019, along with Michael Kremer.



# Appendix A: Behavioural insights literature review

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## Behavioural concepts to strengthen cash transfer program design

In the context of a cash transfer, behavioural insights can explain both why people may not allocate their funds to goods and services they otherwise intend to spend more on, and how harnessing certain strategies can overcome these intention-action gaps. The most relevant behavioural concepts and biases are outlined below.

This literature review was conducted in the early stages of research for this project. While many of the concepts have been applied in our designs, some were more relevant than others. BETA has provided the literature review in this appendix as a means of providing further research.

## Building intrinsic motivation is a powerful way to encourage habit formation

Conditional cash transfers sometimes penalise people who do not adhere to conditions by ceasing their payment. This penalty provides an external push (or, extrinsic motivation) to undertake certain actions. Using extrinsic motivation to change behaviour in this way can be problematic when it crowds out, or misses an opportunity to develop, intrinsic motivation.

Intrinsic motivation is the long-term attitude change and habit formation which enables people to persist with behaviours which may at first be challenging (Wolf et al., 2013). Using approaches that support intrinsic motivation, rather than fines or threats, can result in stronger or more sustained change in recipients' behaviour.

Self-efficacy theory offers one approach to building intrinsic motivation. Self-efficacy theory suggests the act of attempting and accomplishing a goal can improve motivation to achieve future goals (Bandura, 1982). When considering the structure of conditional cash transfers and their incentives, Wolf et al. (2013) suggest breaking down a large goal into small, more frequent actions. For example, incentivising academic attendance and performance by measuring grades several times a year may be better for building intrinsic motivation than tying incentives to a single test at the end of the year (Wolf et al., 2013). That is, a number of smaller and more readily achievable goals may be more effective at encouraging behaviour change and increasing motivation than a goal that is larger and more distant.

Accordingly, conditions could be designed in a way that help recipients feel a sense of competency, autonomy, and social connection to the behaviour change in order to “internalise” it (Ryan and Deci, 2000). This internalisation can then lead to behaviour change that is motivated intrinsically even where it may first be initiated by extrinsic factors.

While the above studies considered how self-efficacy theory could inform better design or conditions, it is also relevant to considering how to encourage desired behaviours in the absence of conditions. For example, using goal setting can be an effective tool for helping people follow through with their intentions, without having an extrinsic motivation (whether a threat or a reward). Goal setting interventions can be delivered in various ways, including face-to-face, via hard copy personal plans (e.g. journals), or digital tools such as smart phone apps.

A meta-analysis by Gollwitzer & Sheeran (2006) concluded that “implementation intentions” are an important aspect of goal setting that can develop and internalise intrinsic motivation. Analysing the results of 94 independent studies, the authors found that goals were more likely to be achieved when plans were made to facilitate when, where, and how a goal would be achieved and obstacles would be mitigated. This is just one example of alternative approaches to minimising or eliminating the gap between intention and action.

## **Present bias causes people to value immediate payoffs over those in the long-term**

People tend to give stronger weight to payoffs in the present than those in the future. This bias in favour of “now” rather than “later” is known as present bias (O'Donoghue and Rabin, 1999). Standard economic theory assumes a person's preferences are consistent across time. However, observations of human behaviour suggest people frequently tend to have preferences that are “time-inconsistent”, leading them to opt for immediate gratification rather than beneficial long term investments (Rabin, 2013) (Dharami, 2016).

This “self-control problem” is something many people already recognise within themselves. It explains the existence of self-imposed restrictions on spending, such as group savings accounts or term deposits (Thaler, 1980). The world is full of different types of “commitment devices” to help people avoid engaging in consumption choices that do not reflect their true preferences. These include mechanisms that support outcomes like saving for the future, eating healthier foods, exercising more, or attending class.

Behavioural insights have demonstrated the power of pre-commitment as a tool for encouraging self-control. For instance, Ashraf et al. (2006) tested the use of a commitment device to help people in the Philippines build their savings. Participants pre-committed to placing a certain amount of their income into a savings account they could not access until a specified time or amount had been reached. Those in the treatment group were able to increase the balance of their savings by 81 percentage points (Ashraf et al., 2006). The commitment device enabled people to overcome their present bias or “hyperbolic discounting” – the act of valuing the present more highly than the future (Laibson, 1997).

The conditions typical of many cash transfer programs may act as a type of commitment device. A conditional cash transfer helps a person overcome present bias by making the funds conditional on obtaining certain goods or services. Nevertheless, present bias may also explain why conditions may still be insufficient to induce someone to fulfil their obligations under a condition or achieve sustained behaviour change. If the long-term benefits are not tangible or properly understood, people will be more inclined to “discount” these future investments than if the rewards were made salient to them.

### **Mental accounting can confuse spending preferences**

Mental accounting describes peoples’ tendency to set up mental accounts for outcomes that are psychologically separate (Thaler, 1980). In other words, people tend to treat money differently according to its intended use. Mental accounting is a type of heuristic, or mental shortcut, to make quick, rule-of-thumb decisions when we need to make a choice with limited information, time, and attention (Thaler, 1985). For instance, people may split their pay into different jars for ‘groceries’, ‘rent’, ‘petrol’ to help them budget. However, like present bias, mental accounting can be problematic when it leads people to make spending decisions that do not reflect their long-term preferences.

For instance, we are more likely to spend more money if we experience an unexpected ‘windfall’ gain, such as a refund, than if we had earned the same amount through our salaries (Thaler, 1985). Rather than save this money or spend it on something with long-term benefits, we may be more inclined to spend today or use it for a temptation-purchase because the unexpected income is “allocated” to a different mental account (e.g. “fun”).

Mental accounting, however, can also be manipulated to correct our behavioural quirks. For example, a study by Dupas and Robinson (2013) in Kenya found many households report a lack of cash as an impediment to their investing in preventive health products, such as insecticide-treated mosquito nets. To address this, the researchers provided selected families with a lockable metal box, a padlock, and a passbook. The household was encouraged to label the box with the name of a preventive health product they wished to purchase (Dupas and Robinson, 2013). Those who received a box increased their investment in preventive health products by 66–75 per cent, compared to those who did not have a box (Dupas and Robinson, 2013).

Studies such as this demonstrate how conditional cash transfers can help people allocate their spending by creating a real as well as mental ‘bucket’ for funds. Recent work on behaviourally-informed cash transfers in Morocco and Uganda have used mental accounting in the absence of an explicit condition by labelling cash transfers according to their intended use for education and health (see section “examples of behavioural insights applied to cash transfers?” below for greater detail).

### **Social norms dictate appropriate behaviour within and between groups**

Social norms signal “appropriate” behaviour and are defined as behavioural expectations or rules that exist within a group of people (Cialdini and Trost, 1998). These beliefs inform powerful assumptions about how the majority is likely to behave, and so guide the actions of individuals who act in accordance

with the group. Social norms are powerful because individuals can incur social penalties for non-compliance (e.g. exclusion), or social advantages from conforming (e.g. popularity and respect) (Ostrom, 2000).

Social norms are informed by the context in which they occur. For example, littering is a bigger problem in some environments than others. In situations where littering is perceived as common or acceptable (e.g. at a music festival), people are more likely to litter than they would otherwise because they feel little of the normally present anti-littering social pressure. Similarly, social norms can engender false and dangerous beliefs: for example, superstitions that prevent people from accessing appropriate medical care or nutrition, or the exclusion of particular minorities from participating in the life of the broader community, are examples of negative social norms.

Behavioural insights have both demonstrated the power of social norms, and the means by which they can be harnessed to engender positive outcomes. For instance a 2014 study successfully used social norming to increase tax return payment in Guatemala (Kettle et al., 2016). Letters with a socially normed message were the most successful at increasing timely payments. The letter included the following comment:

“According to our records, 64.5 per cent of Guatemalans declared their income tax for the year 2013 on time. You are part of the minority of Guatemalans who are yet to declare this for tax”.

Simply comparing an individual to the group, and noting their deviance from the majority, encouraged individuals to pay their taxes at a rate that was 48 per cent above average (Kettle et al., 2016). Studies such as these demonstrate the ability of socially relevant messaging to encourage behaviour change.

## **Scarcity status has measurable impacts on individuals’ cognition, making decision-making even harder for people in poverty**

We all struggle to make good decisions when we are overloaded with complex information. Recent research has demonstrated being in a state of poverty or “scarcity” can exacerbate this phenomenon, affecting both conscious and subconscious decision-making (Mani et al., 2013). This is primarily because the pressures of poverty crowd out individuals’ cognitive ‘bandwidth’, that is the executive function of the brain which enables us to hold multiple thoughts or priorities in our mind at once (Shah et al., 2012). This not only renders individuals poorly prepared to handle shocks or unexpected events, but also measurably decreases their problem solving capacity (Mani et al., 2013).

In the context of cash transfers, this means target recipients may be less likely to be in a position to easily understand information or retain their responsibilities (Shah et al., 2015). A necessary condition for program success is easily accessible and repeated information about the nature of the transfer and any requirements concerning compliance. The easier and more flexible this compliance is made (e.g. something as simple as offering a number of different appointment times for health clinic attendance, as opposed to just one) the more likely the program is to achieve outcomes (Shah et al., 2012).

Social protection program designers would already be aware of the importance of simplifying, streamlining, and generally making things easier for program recipients. The concept of scarcity gives even greater weight to the need to make program participation simple. This is especially true for the information given to recipients, which needs to be as clear and actionable as possible: the harder recipients need to work to understand the information given, the greater the cognitive load is imposed on them.

Mandating conditions may make it harder to undertake the behaviours required. Arguably, by reducing the amount of compliance (through fewer conditions), social program recipients may have more bandwidth to focus on actually undertaking the desired behaviours (e.g. eating healthier).

## Examples of behavioural insights applied to cash transfers

### Labelled cash transfers: Morocco

For instance, in Morocco, parents of school-aged children were given a labelled cash transfer (Benhassine et al., 2013). The transfer was not conditional on school attendance, but was explicitly labelled as for use on education. This may have helped parents to allocate the funds in a separate 'mental account' from other parts of the household budget.

The study found school participation among children of parents who received the labelled cash transfer was 7.4 percentage points higher than children whose parents received the transfer conditional on school attendance (Benhassine et al., 2013). This corresponds to a decrease in non-participation by 30 per cent. School re-enrolment among labelled transfer recipients was also close to double that of those who received the conditional transfer (26.8 percent versus 14.7 per cent) (Benhassine et al., 2013).

### Labelled cash transfers: Uganda

Similarly, positive results have been seen in different contexts; for instance, an evaluation of a Ugandan savings program for parents also used labelled cash transfers. One arm of the trial made parents commit all money they deposited into the account to education expenditures. The other trial arm was not conditional on education spending, but the account was labelled as 'for education'. Parents who saved money in the labelled account not only had higher saving rates overall, but also had higher expenditure on educational supplies (Karlan, 2014). Their children also achieved higher test scores, on average, than children whose parents were required to spend the money on education (Karlan, 2014).

Again, labelling the transfer as for a certain purpose is likely to have created a 'mental account' for education funds and encouraged greater saving and expenditure on education. This mental account was also clearly effective at helping parents to save rather than engage in present bias and use the funds for other, more immediate gains. While the social aspects of the transfers are not directly explored, it may also have been possible that labelling the transfer as 'for schooling' also invoked a sense of their children belonging to a broader community, which also values and attends school. These and other behavioural concepts are continuing to be explored in current and future studies (see: Table 3).

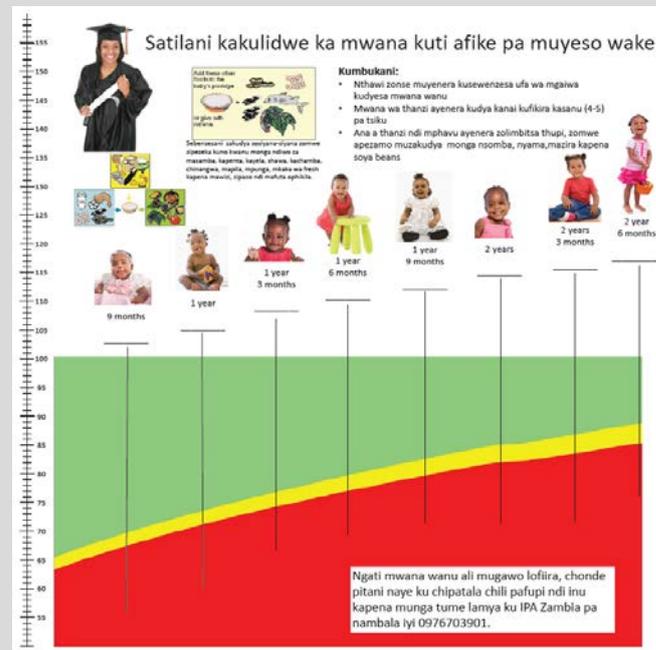
**Table 3: studies in the field**

Country	Intervention
Madagascar (a)	An unconditional cash transfer will be given to families with goal setting, structured future planning, and positive psychology elements worked into the delivery and design. The cash transfer will be facilitated and communicated by community leaders with a view to helping individuals voluntarily direct funds to parenting, child development, and school readiness.
Madagascar (b)	A cash transfer program is using mental accounting heuristics to encourage recipients to allocate funds from unconditional transfers towards activities that improve household productivity such as education and primary healthcare.
Mexico	Using goal setting and reminders, cash transfer recipients will be able to better utilise an associated financial education program aimed at helping them increase the amount they save in formal savings accounts.
Sudan	An existing unconditional cash transfer will be redesigned to be behaviourally informed. The materials advertising the cash transfer program will use framing and mental accounting to help recipients to allocate funds in ways that support their long-term wellbeing.

# Appendix B: Qualitative Research

An initial literature review identified several behavioural concepts that could affect the impact of a conditional cash transfer (see Appendix A). To complement our desktop research, BETA attended several meetings with various government and non-government stakeholders in Jakarta, Indonesia. After workshopping our initial findings and hypotheses with stakeholders, we further refined the scope of our research to two key conditions of the PKH program: iron tablet consumption, and early childhood growth monitoring. We took inspiration from a previous study conducted in Zambia, which found in-home

## Box 1: A home-based growth chart poster was effective in reducing further stunting of children



A 2017 study in Zambia found that of children stunted at baseline, those whose parents received an in-home growth chart experienced a 22-percentage point reduction in further stunting. Conversely, children whose parents received community-based education meetings experienced no statistically significant impact on their stunting rates. Boys and girls received charts with different height and weight targets for each sex. The measurement bars helped parents quickly and easily compare their child against their target height-for-age measurements. The posters also provided positive images of children in different stages of growth, culminating in an aspirational picture of a healthy young woman or man in graduation garb. (Innovations for Poverty Action, 2017; Finke et al 2017)

growth monitoring had significant positive effects on reducing stunting for already stunted children (see



Figure 1 Map of the area of the study. The shaded area to the left is the Grobogan district, the shaded area to the right is the Timor Tengah Selatan district.

Box 1).

To put our assumptions to the test, we conducted qualitative research in partnership with local research organisation, SurveyMETER. We were particularly interested in learning more about the lived experience of both PKH program recipients and their healthcare providers. For maternal health outcomes (and to an extent, baby

health), this included accessibility and use of antenatal care appointments and attendance at birth of a health professional, as well as iron consumption during pregnancy. For early childhood growth, especially with efforts to reducing stunting, we were also interested in breastfeeding practices, childhood nutrition, and participants' views on whether something like an in-home growth chart would be useful.

The purpose of qualitative research was to better understand some of the contextual factors affecting childhood nutrition, breastfeeding practices, and access to maternal and child health services. In particular, the qualitative research aimed to get a sense of people's current behaviours and habits when it comes to their nutrition (and for women, their iron consumption).

## We conducted qualitative research to better understand the local context

SurveyMETER conducted expert interviews and focus groups with relevant Indonesian locals, including:

- Five focus groups with PKH program recipients (of approximately seven people per group);
- Six interviews with midwives;
- Six interviews with Puskesmas health workers;
- Six interviews with program facilitators.

The purpose of this research was to validate our hypotheses about what behavioural barriers and/or drivers might be at play when it comes to healthy actions and habits for recipients of program. We also sought feedback on a growth chart design, both in the concept as a whole and on the particular features that would make a chart most useful for conditional cash transfer recipients. See Appendix C for the prototype growth chart used in the qualitative research.

## Geographic location of research

Research took place in the rural district of South Central Timor or Timor Tengah Selatan (TTS) and the urban district of Grobogan (see Figure 1). To select the research areas, we compared the recorded level of stunting, coverage of the PKH program, percentage of low birth weight, level of iron pill distribution, and neonatal mortality rates. BETA, SurveyMETER, and DFAT staff used these criteria to select three sub-districts in TTS (Fautmolo, Boking, Nunbena) and Grobogan (Tegowan, Pulokulon, Brati). TTS has

some of the highest rates of stunting, at around 70 per cent of all children aged under five years. While Grobogan has a lower stunting rate, this is still at a rate of 55 per cent. Like most of Indonesia, the coverage of iron pills is high, at around 90 per cent in both areas.

## Findings: consumption of iron tablets

### Antenatal Care visits act as a key channel to dispense iron tablets, but structural barriers can prevent some women from attending

Although many women reported attending Antenatal Care (ANC) visits, structural factors continue to pose barriers to attendance in some sub-districts. Being unable to attend ANC visits not only affects the distribution of iron tablets, but also affects healthcare workers' ability to monitor women's health and assist them during pregnancy. This was particularly pronounced for program recipients and healthcare providers in the TTS region. Distance to the Puskesmas, poor road conditions and limited availability of transport in the TTS district creates high friction costs and makes it difficult for some pregnant women to attend antenatal care.

During the wet season, floods and high water levels can also restrict women's access to the Puskesmas. In some instances, village midwives would conduct home visits for pregnant women who did not attend ANC services. Respondents in the TTS district also described a tradition for new mothers to report news of pregnancy after five months due to fears the baby will not survive in the first trimester. This can mean the first antenatal care appointment is missed and the first 30 iron tablets usually dispensed in the first trimester are not received.



Figure 2 Photo from the field during the qualitative research. A typical road in the TTS district. Photo courtesy of SurveyMETER.

In contrast, in the Grobogan district, more health providers are available in the region and there are fewer challenges associated with physical distance and access. They also had more options and could attend the Puskesmas, village midwife or private midwife for ANC. All pregnant women and mothers with children under five interviewed in the Grobogan district met their commitment to attend antenatal care at least four times during their pregnancy. Service providers in Grobogan cited long queues at the Posyandu (Integrated Health Service post) and lack of private rooms as reasons women prefer to attend their ANC visits at a health facility. Other reasons for missing ANC appointments included women not realising they were pregnant, unintended pregnancies, or women who already had children placing less value on antenatal care.

## Side effects did not appear to deter pregnant women from taking iron tablets

Health providers in Grobogan and the TTS district stated side effects of iron tablets could include constipation, nausea, vomiting and dizziness. Many had strategies in place to address these side effects, such as eating papaya and taking tablets immediately before going to sleep to mitigate the effects of nausea and dizziness. However, health care providers in Grobogan reported the number of pregnant women suffering from these side effects were low, and in interviews with program beneficiaries, none reported on the side effects of iron tablets.

## Findings: early childhood health and stunting

### Breastfeeding practices are affected by a multitude of factors

Many CCT Program beneficiaries in the TTS and Grobogan district practice exclusive breastfeeding in the first two to three months. The WHO recommends exclusive breastfeeding for the first six months, and extended breastfeeding for up to two years if possible (though women can breastfeed beyond this period if they prefer). Despite health service providers' efforts in both the TTS and Grobogan district to improve awareness of the importance of extended breastfeeding, this practice has only been more widely and readily adopted in Grobogan. Factors affecting extended breastfeeding practices in TTS and Grobogan include the mothers' awareness of the importance of extended breastfeeding, local customs, their work, their health, and the preferences of the child. The influence of others in their family and community circles was also a reported factor.

“Although [mothers] are aware of the importance of practicing exclusive breastfeeding, sometimes it is the people around them that interfere. It is usually the grandparents of the baby, who get worried when their baby is crying. But it [is] better now, thanks to efforts to encourage breastfeeding.”

– Staff at Puskesmas,  
Grobogan District

### Most parents can access nutritious foods for their children, but financial barriers and availability are issues for some

There was little understanding of what 'stunting' is or what it is caused by. Some of the respondents said it related to a child's height, but only a few understood it relates to factors such as nutrition rather than genetics. Some of the strategies used by health providers to address stunting in children include giving babies zinc syrup and supplementary feeding to older children for 90 days. Village midwives will also provide parents with a food menu and counselling to educate them on the importance of children consuming a variety of food groups.

In general, parents expressed a desire to provide nutritious foods, but were not always able to access these foods due to financial or environmental factors. Most Conditional Cash Transfer Program beneficiaries in the TTS and Grobogan district were able to provide children with rice porridge or rice, served with side dishes such as Chinese cabbage or cassava leaves. Sources of protein included tempeh and tofu, which parents could purchase from the market or vegetable hawkers.

“Some ... [people with] poor financial conditions [will] only eat ground corn in the morning and afternoon”

– Program facilitator, TTS

Based on interviews with health service providers and program beneficiaries in the TTS district, a variety of food is available and accessible. This includes purchases at the market, local store and from vegetable hawkers, or by growing fruit and vegetables. The main barrier to providing healthy food to children is limited affordability. In some sub-districts of TTS, it is difficult to access water and households may have limited income to purchase nutritious foods such as fish, chicken or beef. Consumption of meats can be restricted to once a month at neighbourhood celebrations. During the dry season, water scarcity can also restrict their ability to grow produce. Food sources available include fruit and vegetables, instant noodles and eggs, and sources of protein, including tofu, tempeh and fish.

In Grobogan, parents expressed difficulty encouraging children to eat nutritious food due to the child's preference for store-bought snacks rather than home cooked meals. Some health service providers and facilitators suggested children get bored from eating the same types of food and mothers may lack the skills needed to prepare a variety of dishes. However, parents reported children in Grobogan consume protein sources on a daily basis, unlike in TTS where people eat eggs just two to three times a week.

## Findings: stunting monitoring practices and feedback

### Height monitoring practices vary across Posyandu and parents do not always understand the importance of monitoring the growth of children under five

Height measurements can be carried out by Posyandu cadres or village midwives. Data collection practices differ across districts, and some Posyandu are not equipped to measure the height of children under five.

Where the height of children under five can be measured, the frequency of this monitoring varies. In Grobogan, children have their height measured every three months across all three districts. In TTS, height monitoring can vary between every month, every two months or every three months.

In Grobogan, a child's height is recorded in a health worker's book or staff register. In TTS, height is recorded in the Posyandu register. PKH recipients in the Grobogan district said although staff told them the results of their child's measurements, they did not always explain what it meant for their child's health.

“Parents don't realise that their children are stunted... the children may look very healthy.”

– Village midwife, Grobogan

Parents therefore did not always understand the importance of monitoring the growth of children under five or the implications of stunting on their child's health.

“It’s usually difficult to measure the height of children when [they] have just learned to stand up... besides, some Posyandu do not have the instruments to measure height.”

– Staff Puskesmas, Grobogan

The Puskesmas uses the height measurements to monitor the nutrition status of children and to identify stunting. The data is used to prepare reports to the health service and identify malnourished children who need access to the supplementary food scheme. Puskesmas staff in the Grobogan district reported giving supplementary foods only to children or pregnant women who were identified as having poor nutrition.

Some health providers in the TTS district noted the Mother and Child Health handbook (distributed by the Government) includes a chart to monitor a child’s growth. However, there was a lack of knowledge among staff on how to use the chart and in recording measurement results. Health workers also experienced difficulty trying to calm children down at the clinic, especially when measuring the height of babies and children who have just learned to stand. There is also a limited supply of measuring instruments, and some of these are broken or damaged.

Barriers to mothers attending Posyandu included a lack of knowledge of the importance of monitoring growth of children under five. Once their child has received all immunisations, some parents reportedly stop taking their child to the Posyandu.

### **Participants provided valuable feedback on what features were likely to make the growth chart prototype successful**



*Figure 3 Photo from the field during qualitative research. A growth chart prototype helped stimulate discussion. Photo courtesy of SurveyMETER.*

Both health care workers and program facilitators in the TTS and Grobogan district believed parents needed guidance on how to use the chart. Health care providers, facilitators, and beneficiaries in both districts believed if the height measurements indicated the child’s status was at risk of stunting, the parents would be more concerned with the child’s nutrition and consult health providers such as the village midwife in the Posyandu, a private practice, the local Puskesmas or other health facility. However, some health care providers were unsure about the

effectiveness of giving the chart to parents as any action taken to prevent stunting depended on the parents’ level of awareness and education.

Respondents in the Grobogan district believed parents’ education, knowledge on how to use the chart, and awareness of the importance of measuring height would determine whether parents would find a growth chart useful. Health care providers in the TTS district believed parents would seek to give their

children nutritious foods if they discovered their child was at risk of being stunted (or was already stunted and at risk of further stunting), though they believed financial constraints were likely to be a barrier for TTS parents.

PKH program beneficiaries liked the chart because it allowed them to measure their child's height and provided them with information on stunting. In the Grobogan district, beneficiaries also stated they liked the chart as they could check their child's height and this would motivate them to prevent stunting. Facilitators and health care providers liked how the growth chart prototype outlined strategies to prevent stunting. Health care providers and program facilitators suggested including pictures of available food in their district so households could understand which foods are most nutritious.

Health care providers also liked that the chart as it was easy to use, and believed it would help to maintain a healthy lifestyle for children. Participants and interviewees suggested ways of improving the charts, including increasing the chart and font size, designing the chart to measure children up to five years of age, including more interesting pictures, and starting the chart from 0cm. These suggestions were largely to make the chart even easier to install (by starting it at ground height rather than at a height requiring proper measurement at 30cm from ground height, as was the case with the prototype), and to read (by making fonts bigger, and including more photos and pictures).

# Appendix C: Intervention designs

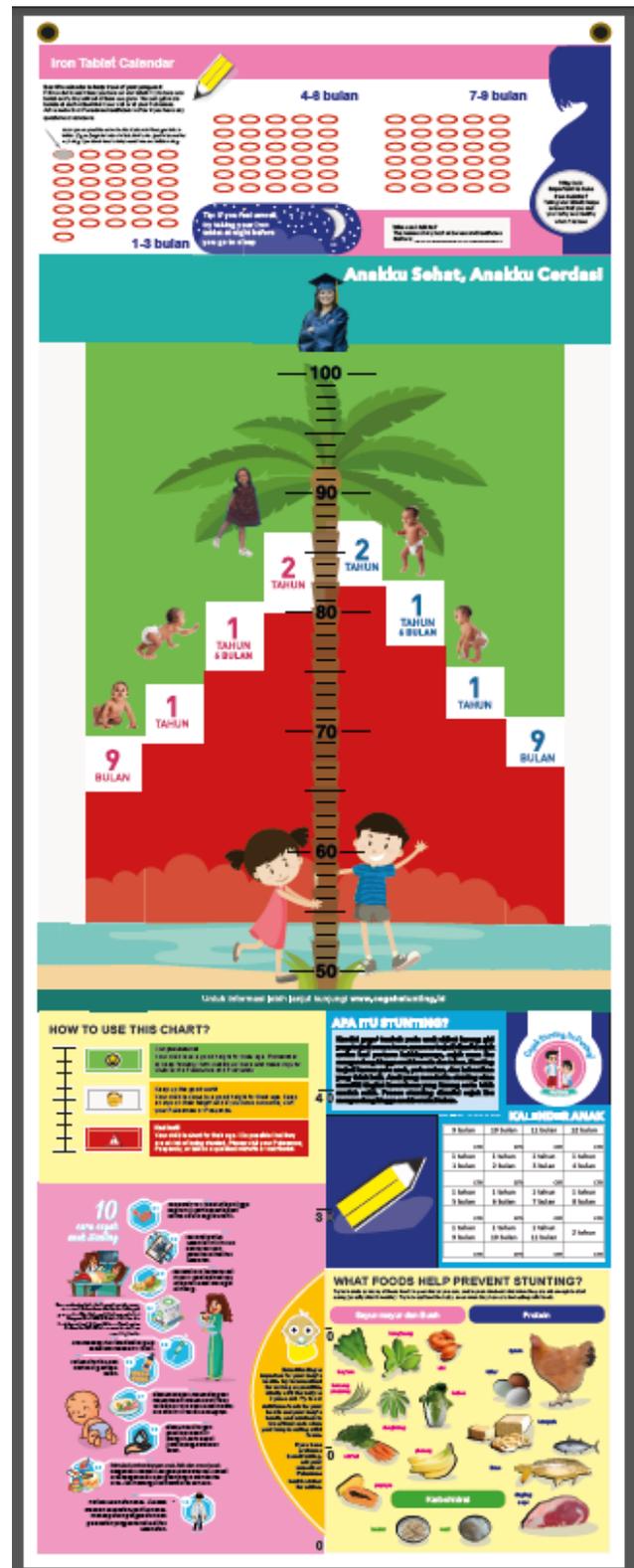
## Design 1. Prototype for qualitative research

- This is an early design of a growth chart developed by The 1000 Days Fund, provided for use in the qualitative research conducted by SurveyMETER on behalf of BETA and DFAT.
- The chart incorporates the “red” colouring to indicate a height-for-age range that may indicate stunting.
- A list of “top 10” actions that can help support healthy growth and nutrition for children is one way to make it easy for parents to adopt good rules of thumb.
- A description of stunting aims to increase awareness of stunting, its causes and consequences.
- A photo of a young adult graduating from high school is intended to motivate parents to internalise the long-term benefits of healthy actions for their young children by imagining the educational and employment opportunities that good health can support.
- Although there are slightly different height-for-age measurements for girls and boys, respondents found the split made the chart initially difficult to understand and use.



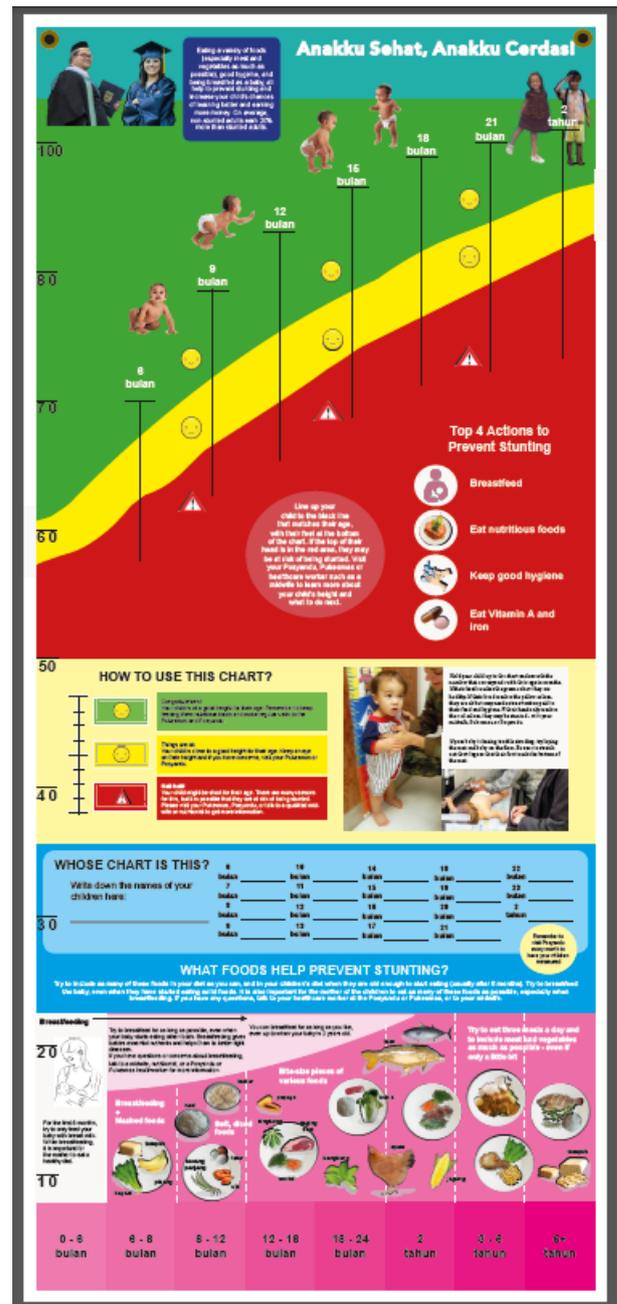
## Design 2. BETA design v1

- Based on findings from the qualitative research, BETA added photos of nutritious foods to make it easier for parents to identify which foods best support a healthy diet for their family.
- We also considered incorporating an iron tablet calendar into the chart itself – to make it easier for pregnant women to track their iron tablet consumption alongside other messages about healthy eating and habits.
- Based on the qualitative research and the literature, we also made the coloured zones more prominent to make it easier to understand when a child may be at risk of being stunted based on their height-for-age. We also included instructions on how to use the chart and understand the different colours.
- The chart length was extended to start at 0cm, in line with qualitative findings that this would be easier to install.
- We also included more information about the benefits of exclusive breastfeeding, where possible, in the first six months.



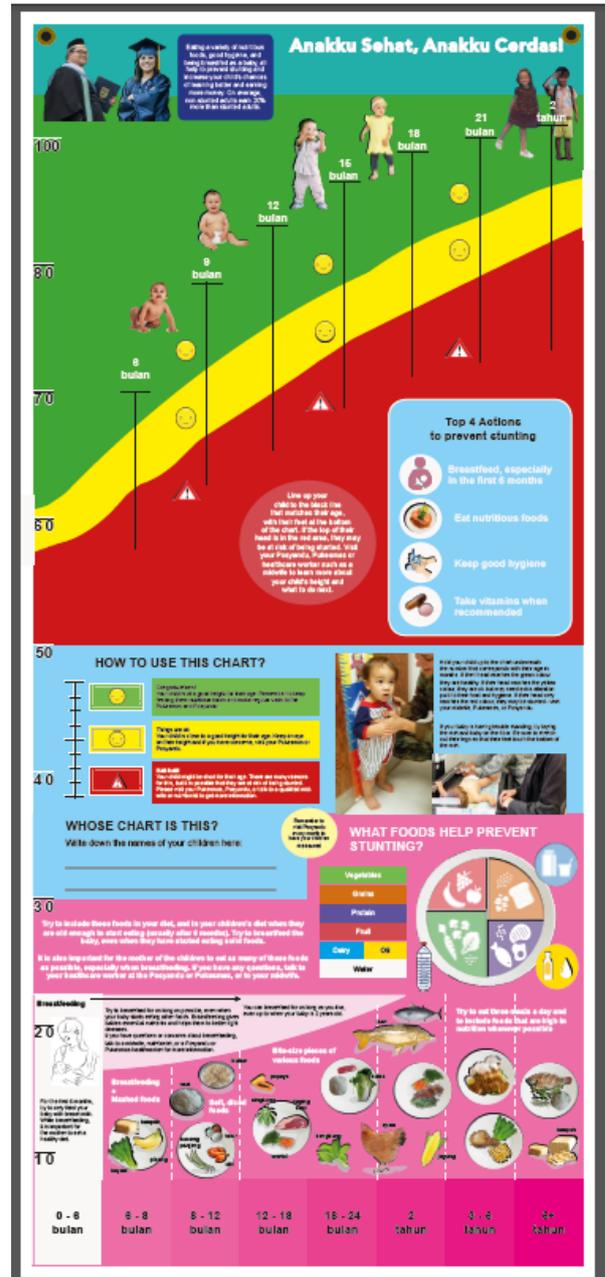
### Design 3. BETA design v2

- BETA adapted elements of the previous chart to make the measurement section easier to use by combining the height-for-age measurements for boys and girls. This was done by using the stunting measurements for boys (red) (which also covers the stunted measures for girls) and the healthy height (green) for girls (which also covers the healthy measurements for boys). While this makes the chart more universal and easier to use and read, it also means that for a portion of the population, there will be some girls who may falsely fall into the “red” zone (when they should be in the yellow zone), and some boys who may falsely fall into the “green” zone (when they should be in the yellow zone).
- We also expanded the size of the instructions section, “How to use this chart” and added photos to demonstrate how parents should hold or lay their children against the chart for ease of use.
- Reducing the 10 tips down to four healthy actions helps to make it easier to incorporate these into daily routines.
- In line with the qualitative research, the food section was expanded to 5 years of age, and a greater emphasis was placed on breastfeeding practices and whole meals rather than individual ingredients.



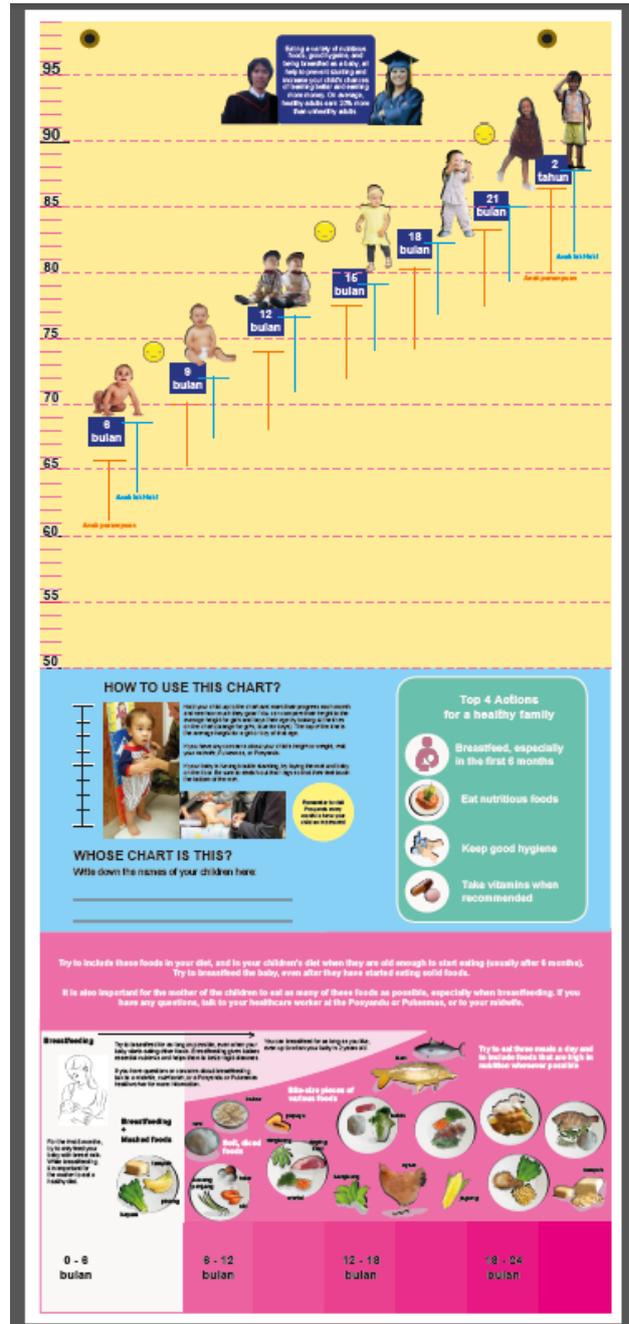
## Design 4. BETA design v3

- To make more salient the importance of variety in a healthy diet, this version added a food “wheel” to describe different food groups.
- The Top 4 Actions were made more salient by changing the background colour.
- Different photos of children at the respective stages of development were added to make the ages more distinct.



## Design 5. BETA design v4

- This iteration the design shows what a growth chart could look like in the absence of distinct “zones”. Expert feedback suggested that removing the zones would lower the risk that parents were caused undue distress if their child was in the “red” zone of their height-for-weight. Although this design minimises this risk, it also makes it more difficult to determine whether a child may be at risk of stunting.
- This iteration of the chart encourages parents to mark their child’s height according to their age. The healthy average height-for-age for boys and girls is represented by the green and blue lines respectively to help parents benchmark their child’s progress against a healthy average. If parents are concerned, they are encouraged to contact their local healthcare worker or attend a Pukesmas or Posyandu.
- Based on expert feedback, the food groups were changed to reflect ages 0 to 2years, to better reflect the time period in which the chart should be used.







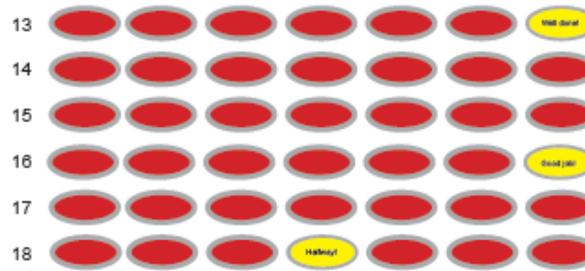
**Use this calendar to keep track of your progress!**

Scratch out a circle each time you take an iron tablet. Try to take one tablet every day until all of them are gone. You can get more tablets at each Ante-Natal Care visit or at your Pukesmas. Ask a midwife or Pukesmas healthcare worker if you have any questions or concerns.

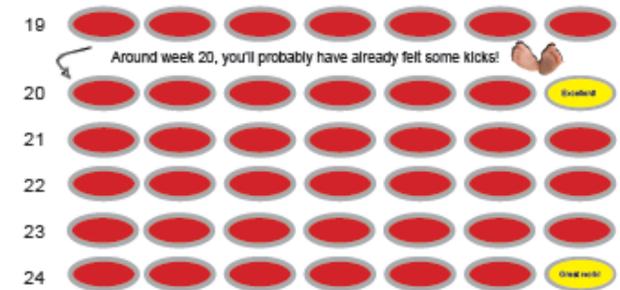


Scratch out a circle using your finger or a coin. If you forget to take a tablet, that's ok - just take one the next day. You don't have to take more than one tablet a day.

**Tip: If you feel unwell, try taking your iron tablet at night before you go to sleep**



At around 18 or 19 weeks, your baby is about the size of a mango!



By the end of the second trimester, your baby is about the size of a jeruk ball!

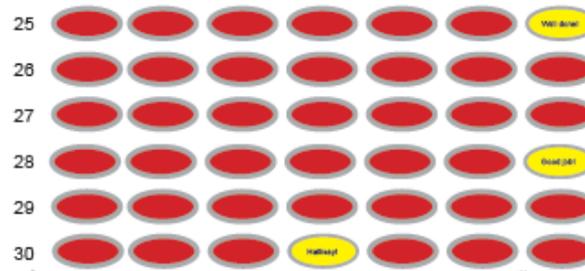
**Use this calendar to keep track of your progress!**

Scratch out a circle each time you take an iron tablet. Try to take one tablet every day until all of them are gone. You can get more tablets at each Ante-Natal Care visit or at your Pukesmas. Ask a midwife or Pukesmas healthcare worker if you have any questions or concerns.



Scratch out a circle using your finger or a coin. If you forget to take a tablet, that's ok - just take one the next day. You don't have to take more than one tablet a day.

**Tip: If you feel unwell, try taking your iron tablet at night before you go to sleep**



At around 30 or 31 weeks, your baby is about the size of a coconut!



Remember to talk to your midwife or other health care worker about how you're feeling or if you have any questions or concerns.

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