

Nourishing the future: targeting infants and their caregivers to reduce undernutrition in rural China

Submission date 19/03/2013	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 15/04/2013	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 12/02/2024	Condition category Haematological Disorders	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

There are high rates of iron deficiency anemia (IDA) among babies in Chinas rural areas, but since no single institution holds responsibility for the health and development of this critical age group, IDA and other undernutrition problems are commonly neglected. We have two objectives in this study. Our first objective is to measure the impact of providing a daily nutritional supplement packet with iron on the health and development of babies in our study. Our second objective is to compare how well two programs designed to encourage usage of the nutritional supplement packets work: one program in which the packets are simply given away for free, and another in which caregivers are offered a conditional cash transfer for using the packets.

Who can participate?

All babies in 189 villages in poor parts of rural Shaanxi Province (China), aged 6-12 months at the time of participation.

What does the study involve?

Villages will be randomly allocated to one of three groups: (1) a Control Group with no intervention; (2) a Free Supplement Group that receives nutritional training for caregivers and free daily nutritional supplements for babies; (3) a Text Messaging Group that receives the same interventions as the Free Supplement Group plus a daily text message reminding them to feed their baby the nutritional packet. These text message reminders will continue for the entire duration of the study (24 months).

What are the possible benefits and risks of participating?

The risks to the participants are lo. There is no risk of harm from the nutritional supplements. Participating babies may experience some discomfort during the hemoglobin blood test, but since the test only requires a few drops of blood taken using new and sterilized equipment, the risk of infection is minimal.

Where is the study run from?

189 villages in Shaanxi Province (China)

When is the study starting and how long is it expected to run for?
May 2013 to May 2015.

Who is funding the study?

Funding for the project is provided by the International Initiative for Impact Evaluation (3ie), the UBS Foundation, the Bank of East Asia, the Heinz Institute of Nutritional Sciences (HINS), and the Shanghai Charity Foundation.

Who is the main contact?

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Contact information

Type(s)

Scientific

Contact name

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Additional identifiers

Protocol serial number

N/A

Study information

Scientific Title

Nourishing the future: targeting infants and their caregivers to reduce undernutrition in rural China - a cluster-randomized controlled trial

Study objectives

We focus on the undernutrition problem of iron deficiency anemia (IDA). Iron deficiency anemia is the most common nutritional deficiency worldwide, affecting approximately a quarter of the global population, mostly in developing countries. Prolonged iron deficiency impairs the production of hemoglobin, limiting the amount of oxygen that blood cells can carry to essential organs and, most importantly, to the brain. As a result, IDA can cause fatigue, poor attention, and prolonged physical impairment. A large body of literature also links iron deficiency with or without anemia to impaired cognition and brain function. Iron deficient school-age children have been shown to have worse educational outcomes, including grades, attendance and attainment, than their better-nourished peers.

1. What is the impact on child health and development of offering caregivers a free daily nutrition supplement packet for their child?

2. What is the uptake rate of the nutrition supplements when caregivers are educated about nutrition and given the supplements free of charge?
3. How does the uptake rate of the nutrition supplements change when caregivers are sent a daily text message reminding them to feed the supplements to their babies?

Ethics approval required

Old ethics approval format

Ethics approval(s)

Stanford University Human Subjects Research Institutional Review Board, 26/10/2012, ref: 25734

Study design

Cluster randomised single-blind controlled interventional multi-centre trial

Primary study design

Interventional

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Iron deficiency anemia

Interventions

Control Group: No intervention.

Treatment Group 1: Free Supplement Arm

Families in the Free Supplement Arm will receive the following interventions:

- An in-depth nutritional training campaign, teaching caregivers (mothers, grandmothers and others) the importance of good infant nutrition, providing examples of a balanced diet, and informing about the role of nutritional supplements
- A nutritional supplementation program, in which families participating in the project will be offered free NurtureMate supplement packets

Treatment Group 2: Text Messaging Arm

Families in the Text Messaging Arm will receive the same two interventions as the Free Supplement Arm, and also:

- All caregivers will be sent a daily text message reminding them to feed their baby the nutritional supplement

All treatments will last for 24 months, from May 2013 through May 2015.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

1. Hemoglobin level, measured every 6 months using HemoCue 201+ fingerprick technology
2. Height and weight, measured every 6 months using WHO standard methodology
3. Cognitive development, measured by Bayley Scale of Infant Development (BSID) III test

4. Packet uptake rate, measured by monthly counts of empty nutritional packets and bi-annual List Randomization Technique (LRT) survey questions (to determine whether the caregiver respondent is lying about the number of packets fed to the infant participant)

Key secondary outcome(s)

1. Infant health, measured by a monthly survey of episodes of illness
2. Infant social emotional development, measured by the Ages and Stages Questionnaire: Social Emotional (ASQ:SE)
3. Caregiver nutritional knowledge, measured by a nutritional quiz administered every 6 months over the course of the study

Completion date

01/05/2015

Eligibility

Key inclusion criteria

All babies aged 6-12 months (at the start of the study) in the sample areas in rural Shaanxi Province

Participant type(s)

All

Healthy volunteers allowed

No

Age group

Neonate

Sex

All

Key exclusion criteria

Babies outside of the age range 6-12 months at the start of the study

Date of first enrolment

01/04/2013

Date of final enrolment

01/05/2015

Locations

Countries of recruitment

China

United States of America

Study participating centre
616 Serra Street
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Sponsor information

Organisation
Rural Education Action Program (REAP) (USA)

ROR
<https://ror.org/00f54p054>

Funder(s)

Funder type
Charity

Funder Name
International Initiative for Impact Evaluation (3ie)

Funder Name
UBS Foundation

Funder Name
Bank of East Asia

Funder Name
Heinz Institute of Nutritional Sciences

Funder Name
Shanghai Charity Foundation

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	19/01/2018		Yes	No
Results article		10/02/2024	12/02/2024	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes