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Paying-for-performance and cost effectiveness of strategies to combat anaemia in China

Submission date	Recruitment status	[_] Prospectively registered
11/01/2011	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
31/01/2011	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
18/12/2020	Haematological Disorders	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Study information

Scientific Title
Paying-for-performance and cost effectiveness of strategies to combat anaemia in China: an interventional, multicentre cluster-randomised trial

Study objectives
To study the impact of financial incentives to primary school principals on anaemia reductions among students in rural China.

As of 15/03/2011 the target number of participants for this study has been increased from 2,957 to 3944

Ethics approval required
Old ethics approval format

Ethics approval(s)
Stanford University Human Subjects Research Institutional Review Board approved on the 21st July 2009 (ref: 17071)

Primary study design
Interventional

Study design
Interventional multicentre cluster-randomised trial

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
Iron deficiency anaemia

Interventions
Information only:
To some randomly-assigned schools we provided three types of information to school principals:
1. The share of enrolled students who are anaemic
2. Descriptions of efficacious methods for reducing anaemia (including vitamin supplementation, lunch fortification, and other dietary changes as well as the possible role of educating parents about anaemia)
3. Details about anaemia's relationship to school attendance, educational performance, and cognitive development as reported in peer-reviewed academic studies

Information and earmarked operating budget subsidy (hereafter termed "Subsidy" for simplicity):
Because purchasing inputs to reduce anaemia may be difficult given current operating budgets (which have little discretionary funds available), we randomly assigned some schools to receive earmarked operating budget subsidies. The subsidy schools were given 1.5 RMB per student per day, an amount that was enough to buy two to three ounces of red meat if the entire amount was spent on red meat. These subsidies are only allowed to be used for nutrition-related expenses.

However, it is always possible that other components of a school budget could be re-allocated, effectively resulting in subsidies being used for other more highly prioritised purposes (if a school's own nutrition spending fell in response to the subsidy); we investigate this possibility directly. In addition, we provide exactly the same information to principals as in Information only schools.

Information and earmarked operating budget subsidy and anaemia reduction incentive (hereafter termed "Incentive"):
To test the effectiveness of direct rewards for health improvement, we randomly assigned a

third group of school principals to receive performance payments for reductions in anaemia among their student populations. Given the governance structure of Chinese primary schools, school principals make executive decisions about school operations (National People's Congress 1995).

Incremental incentive payments were linear in the absolute reduction in students with anaemia (150 RMB per student) between baseline and follow-up. The amount 150 RMB was chosen to equal roughly two months of salary (3000 RMB) if the principal was successful in reducing the number of students with anaemia by 20 students a feasible reduction according to our early pilot experience. These schools also received the same information and subsidies as in the Information only and Subsidy schools.

Control Group (Added 15/03/2011):
No intervention in these schools.

The treatment lasted 6 months. The evaluation survey was done over the course of a week.

As of 15/03/2011 the trial record has been updated to include an additional control group.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
Haemoglobin concentrations, obtained by finger prick testing using HemoCue AB point-of-care diagnostics, measured during the evaluation survey, six months after the start of the treatment

Key secondary outcome(s)
Measured during the evaluation survey, six months after the start of the treatment:
1. Differential approaches of principals to reduce anaemia
2. Changes over time in the composition of meals at home (meat, tofu, and fruit)
3. Changes in school budgetary allocations in both the Subsidy, Incentive and Information only groups relative to the Control group

Completion date
06/04/2010

Eligibility

Key inclusion criteria
All fourth and fifth grade students (both male and female students ages 8 - 11 years) in 57 randomly selected rural primary schools in ten nationally designated poor counties in China's Ningxia and Qinghai provinces.

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Lower age limit
8 Years

Upper age limit
11 Years

Sex
All

Total final enrolment
3553

Key exclusion criteria
1. Students found to be extremely anaemic were excluded and sent to a clinician for treatment
2. Students identified as having thalassaemia

Date of first enrolment
10/01/2009

Date of final enrolment
06/04/2010

Locations

Countries of recruitment
China

United States of America

Study participating centre
616 Serra Street, Encina Hall
Stanford
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Sponsor information

Organisation
Stanford University (USA)

ROR

https://ror.org/00f54p054

Funder(s)

Funder type
Research organisation

Funder Name
International Initiative for Impact Evaluation (3ie), Inc. (USA)

Funder Name
Stanford University (USA)

Alternative Name(s)
Stanford, Leland Stanford Junior University, SU

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
United States of America

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	27/07/2012	18/12/2020	Yes	No