Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature: _____ Date _____

Wrijoya Roy

Approval Sheet

Knowledge, Attitude, and Practice Survey: A Midterm Assessment of Shishuder Jonno's School Health and Nutrition Program in Meherpur, Bangladesh

By

Wrijoya Roy

MPH

Global Health

_____

Committee Chair

Knowledge, Attitude, and Practice Survey: A Midterm Assessment of *Shishuder Jonno's* School Health and Nutrition Program in Meherpur, Bangladesh

By

Wrijoya Roy

Bachelor of Science, Millsaps College, 2012
Emory University
2014

Thesis Committee Chair:

Roger Rochat, M.D.

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
In partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2014

Abstract

Knowledge, Attitude, and Practice Survey: A Midterm Assessment of Shishuder Jonno's School Health and Nutrition Program in Meherpur, Bangladesh

By Wrijoya Roy

Save the Children is implementing a 10-year multi-sector, child-focused program in Meherpur, Bangladesh, supported through a sponsorship funding mechanism, titled *SHISHUDER JONNO,* meaning *For the Children* in Bangla. The School Health and Nutrition (SHN) sector of Shishuder Jonno began implementation since the program's inception in Meherpur in 2008. The interventions for SHN aim to prevent and treat health issues that affect children's ability to learn, while creating a safe and supportive school environment that promotes healthy behaviors and contributes to children's participation in quality education. To achieve this, four simple SHN interventions are implemented, namely the school-based delivery of health and nutrition services, water and sanitation (WASH) services, health education, and community support.

The research was a quantitative cross-sectional survey assessing Health-related knowledge, attitudes and practices (KAP) among children aged 10-12 years in Meherpur, Bangladesh. The objective of the KAP survey was to identify any achievements, gaps, and priority areas of the SHN sector. The sample frame was 24 primarily randomly selected institutions in the three Meherpur sub-districts. (12 in Sadar, 4 in Mujibnagar, and 8 in Gangni). 20 respondents per school were conveniently recruited for participation on the same day as data collection. A final sample size totalled to be 457 participants from the 4^{th} and 5^{th} grade (50.8% females and 49.2% males) from Sadar, Gangni, and Mujibnagar.

Over all, Sadar emerged as having significant advancement in health outcomes, compared to Gangni and Mujibnagar. Length of implementation of SHN program interventions may have influenced the differing effects across the three sub-districts: Sadar, being the first sub-district to begin SHN interventions at schools (2008). Additionally, availability and access to resources, economic development within sub-districts (income levels), and differing implementation strategies between Save the Children (in Sadar) and Jagorani Chakra Foundation (in Gangni and Mujibnagar) may have caused such discrepencies among children's health knowledge and behaviour.

Four recommendations were made with hopes to benefit the upcoming years of implementation. If children remain healthy, they will be able to stay in school, attend classes more regularly, develop their interest in learning—thus, becoming healthier and more productive adults.

Acknowledgement

I would like to thank Save the Children, US and Save the Children, Bangladesh for giving me the opportunity to complete my summer practicum in 2013. This learning opportunity would have been incomplete without the guidance from Ms. Mohini Venkatesh and Dr. Asadur Rahman. My sincere thanks to the entire 'Shishuder Jonno' team in Dhaka and Meherpur—the children, officers, enumerators, staff, mentors—for supporting me, feeding me, keeping me safe, and most importantly, teaching me the importance and need of doing Public Health work.

A huge heartfelt thank you to my faculty thesis advisor, Dr. Roger Rochat. You have supported and guided me from the very first semester at Emory. Your unwavering interest to listen, kind spirit, and the continuous passion for making a difference in people's lives—as a doctor, teacher, mentor, and friend—is inspiring. Thank you for your patience and constant motivation to finish the race. You helped me see the light at the end of this very long tunnel!

Thank you to Bill and Melinda Gates for making it financially possible for me to attend two fantastic universities, Millsaps College and Emory University. Without the Gates Millennium Scholarship, pursuing higher studies at such great institutions would have been unimaginable.

My friends, near and far, have been my home away from home. I cannot even list the number of people who have helped me survive these two years, especially my Emory family—with food, hugs, unforgettable memories, slightly blurred memories, phone calls, couches to sleep on, texts, dance parties, etc—so much love for you. You have helped make Atlanta a treasured place. A very special thanks to my Puchu for tolerating a year of my tantrums, random requests, aspirations to be famous, and Bollywood obsession…You have given me nothing but laughter and love.

My family never fails me—Ma, Daddy, Didisona, Koni, Manish dada, and relatives in Bangladesh, India, and US (Grandparents, Uncles, Aunties, Cousins—everyone!). There are not enough to words in the world to describe how much you all inspire, motivate, and mean to me. Everything I do is to make you all proud. Thanking God for all of these blessings.

This 65-page paper is for all of you!

Knowledge, Attitude, and Practice Survey: A Midterm Assessment of *Shishuder Jonno's* School Health and Nutrition Program in Meherpur, Bangladesh

By

Wrijoya Roy

Bachelor of Science, Millsaps College, 2012
Emory University
2014

Thesis Committee Chair: Roger Rochat, M.D.

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
In Global Health
2014

Table of Contents

Chapter 1: Introduction, Background, and Literature Review

Location

Situated in the Khulna Division of Bangladesh, Meherpur is a district located in south-western Bangladesh. The total area of the district spans across approximately 290 square miles, making it the smallest district in the nation. A map of Bangladesh highlights the location of Meherpur in Appendix 1. It consists of three upazilas, or sub-districts: Meherpur Sadar, Mujibnagar and Gangni. Within the sub-districts, there are two municipalities, 18 unions and 249 villages. The district's total population is approximately 655,392 with a density of 2258 people per square miles (Table 1)

Table 1. Comparison of Demographic Factors, Bangladesh and Meherpur district, 2011 [1]

	Bangladesh	**Meherpur**
Population		
Male	72,109,796	324,634
Female	71,933,901	330,758
Total Fertility Rate	2.1 children born/woman	
Infant Mortality Rate	37.3 per 1000 live births	
Life Expectancy (at birth)		
Male	68.8 years*	
Female	72.6 years*	
Households	32,173,630	166,312
Average Household Size	4.44	3.93
Area sq. mile	56,976	290
Density per sq. mile	2,528	2,258
Literacy		
Male	54.1%	46.9%
Female	49.4%	45.7%
School Attendance (5 to 24 years)		
Male	54.6%	56.2%
Female	50.8%	51.0%

** Source: Life Expectancy at Birth-2014, The World Factbook, Central Intelligence Agency*

Meherpur has approximately 325 government primary schools (grades 1 through 5) operated by the District Primary Education Office under Directorate of Primary Education of Ministry of

Primary & Mass Education. Along with primary educational institutions, there are 302 pre-primary schools (Sadar-105, Mujibnagar-37, Gangni-160) in the district supported by Save the Children and Jagoroni Chakra Foundation through the Shishuder Jonno program. The district is religiously diverse with 82.6% Muslims, 14.5% Hindu, 2.6% Christians and 0.43% people of other faith. Literacy rate of the district in 2011 is 46.3%; however, there is variation among the subdistricts.

Political Climate

The Government of Bangladesh has recognized the strategies and objectives of the "Education for All" agreement presented during the EFA World Conference in 1990. [2] The same year, the Bangladeshi government approved the Convention on the Rights of the Child, which advocates for the access to primary education as a basic right and equal opportunity for every child in Bangladesh. A decade later, in 2000, this pledge was emphasized once again at the World Education Forum at Dakar, Senegal. [3] The Government of Bangladesh also agreed to be a part of the Millennium Development Goals (MGDs), committing to eliminate gender disparities and achieve free universal primary education by the year 2015. This commitment was made against the global backdrop of more than 100 million children with no access to education, with about four million out of school children in Bangladesh alone. [4] The GOB recognized that in order to achieve real progress in education, it needed to go beyond a verbal commitment; thus, developing the Bangladesh Primary Education Act, 1990. This act is a tangent to the EFA goal, pledging to assure that:

1. No child is deprived of education for lack of teachers, learning materials or adequate space.
2. No child is subjected to disparities of access to primary education arising from gender, age, income, family, culture or ethnic difference and geographic remoteness.

3. The quality and relevance of primary education programs are improved and supplies ensured
4. All possibilities are acted upon to improve learning contents and materials, to enhance physical facilities and to carry out necessary reforms in the primary education system. [4]

These commitments have been reiterated in Bangladesh's National Plan of Action (2003-2015) which ensures all children—irrespective of their physical, intellectual, social, emotional, linguistic challenges and including ethnic, disabled, working and street children or any other vulnerable children—have access to high quality, free and compulsory primary education. It also recommends that all educational institutions across the country remain flexible and inclusive in order to enroll and retain children from marginalized and excluded groups

Save the Children: 'Shishuder Jonno' Program

Save the Children is implementing a 10-year multi-sector, child-focused program in Meherpur, Bangladesh, supported through a sponsorship funding mechanism, titled *SHISHUDER JONNO*, meaning *For the Children* in Bangla. Designed to contribute to Save the Children's intended global impact of ensuring that children are safe, educated, healthy and better able to attain their rights, the goal of the program is: Children learn and develop to their full potential. Three strategic objectives are proposed to achieve this goal:

- *SO1: Children learn and develop with age-appropriate care and education;*
- *SO2: Improved use of key health, hygiene and nutrition services and practices; and*
- *SO3: Adolescents contribute positively to the wellbeing and betterment of society.*

Program components

The overall program has 4 core-programs and 5 non-core programs. Key program strategies and interventions include:

- Early Childhood Development (ECD): activities include early stimulation, community and school based preschools and adolescent run summer preschool camps
- Basic Education: activities include teacher training, promotion of Child Friendly Schools, e-textbooks and technology enhanced education, parenting education, and capacity building of School Management Committees.
- School Health and Nutrition (SHN): activities include bi-annual de-worming, iron supplementation, annual vision screening, Vitamin A supplementation, school and community water and sanitation, hygiene promotion and health and nutrition education.
- Adolescent Development (AD): activities include promotion of access to youth-friendly health services, education in Adolescent Sexual and Reproductive Health (ARSH), peer education, as well as increased access to formal and non-formal education and livelihoods opportunities for youth.

The 5 non-core programs include ICT in education, birth-3 years care, Community Mobilization, Child Protection, and Sponsorship Operations. Monitoring & Evaluation is a cross-cutting component of the entire Shishuder Jonno program. [5]

Project Area and Implementation teams

Shishuder Jonno program is directly implemented by Save the Children in Meherpur Sadar, and by Jagoroni Chakra Foundation -a local NGO partner- in Mujibnagar and Gangni. Save the Children began implementing SHN program activities in the Sadar sub-district from year 2008,

followed by Jagorani Chakra Foundation (JCF)-implemented SHN activities in Mujibnagar and Gangni by 2010 and 2011, respectively.

In the Sadar sub-district, all the core programs are being implemented through 5 union teams of Save the Children. Each union team comprises of one project officer serving as team leader and four to five field officers. Each field officer is responsible to implement the programs in 7 to 8 schools in their respective union. In Mujibnagar and Gangni, the same core programs are being implemented by 6 union teams of Jagoroni Chakra Foundation, two in Mujibnagar and four in Gangni. Each union team comprises of one Union Coordinator who supervises two to three unions, and five to six field facilitators per union; each field facilitator is responsible for implementing the programs in 7 to 8 schools within their respective union of respective sub-district. An organogram of the Shishuder Jonno team is provided in the Appendix 2.

Chapter 2: Shishuder Jonno's School Health and Nutrition (SHN) Sector

Literature Review

In recent years, great progress has been made in improving child survival and increasing access to education for school-age children (aged 6 to 18 years) in the developing world. Though they suffer lower mortality than younger children, school-age children continue to face high levels of illness and malnutrition during their crucial growing years, decreasing their ability to pay attention and progress in school. An estimated 210 million school-age children suffer from iron deficiency Anemia (IDA), 60 million from iodine deficiency, 85 million from vitamin A deficiency, and close to 800 million from soil-transmitted worms. [6] If left untreated, these diseases can cause permanent impairment to their intellectual capacity, chronic illness, and poor growth. Ensuring that children are healthy and able to learn is essential for an effective education system. Good health increases school enrolment and brings more of the poorest and most disadvantaged children to school, many of whom are girls. It is these children who are often least healthy, most malnourished, and who will gain the most educationally from improved health. Once healthy and well-nourished, they not only stay longer in school, they also learn more and become healthier and more productive adults.

Bangladesh as a developing country has made impressive gains in key human development indices over the last decades. Achievements in the education sector, regarding the Millennium Development Goal of "Universal Primary Education" for 19 million children of primary school age (MDG 4), are sought to be particularly impressive. [7] The gross primary school enrolment rate is 95.9% showing that access to education has been largely achieved (net enrolment is estimated at 84%). However, national capacity to provide quality education has not been able to

keep pace with the expanded enrolment. According to the World Bank, one in three Bangladeshi children who start primary school drop out before completing their primary education and only 22% of children who complete primary school attain acceptable standards of numeracy and literacy. [8] Furthermore, children's access to education is often interrupted by the need to engage in income-earning activities or by seasonal flooding and other natural disasters which restrict mobility.

Children who do not receive appropriate care, education and nutrition face life-long consequences. Research shows that 85% of brain growth occurs in the first three years of life, so children who do not receive support early on grow into the school years less able to learn. [9] If they leave school before achieving basic competencies due to poor health, the low quality of education, or other factors, they are less able to find gainful employment, are more vulnerable to economic shocks and become dependent on safety nets and other forms of assistances. This means an ongoing cycle of poverty, as under-educated adults are less able to ensure the health, well-being and education of their own children. However, Save the Children and other agencies working in Bangladesh and around the world have identified realistic, cost-effective solutions to the challenges facing children and their families.

School Health and Nutrition: Background

Sponsorship funded 'Shishuder Jonno' program of Save the Children in Bangladesh has been implementing School Health and Nutrition (SHN) since its inception in Meherpur in 2008. The interventions for this particular sector aim to prevent and treat health issues that affect children's ability to learn, while creating a safe and supportive school environment that promotes healthy behaviors and contributes to children's participation in quality education. To achieve this, four simple SHN interventions are implemented, namely the school-based delivery of health and

nutrition services, water and sanitation (WASH) services, health education, and community support. These four interventions follow the framework that was developed at the Dakar World Education Forum in 2000 called Focusing Resources on Effective School Health (FRESH), outlining the key elements of School Health and Nutrition programming. [10] The four components of the FRESH framework are:

1) Safe school environment: This includes provision of safe portable water, adequate sanitation and the promotion of good hygiene practices for a safe and healthy school environment.
2) School health and nutrition policy: Ensure health-related school policies and support at all levels, from schools and communities to the national level. This includes advocacy, support and promotion of SHN policies.
3) School-based delivery of health services: This includes micronutrient supplementation, deworming, vision and hearing screening, school-based management of minor illnesses and injuries.
4) Skills-based health education: This component is centered on a behavior change approach to the promotion of good health, nutrition and hygiene and prevention of HIV.

SHN Strategic Objectives

The goal of SHN program is to improve the health and educational status of school-age children in Meherpur, Bangladesh.

The strategic objective of this sector is to increase the use of key school-based health and nutrition services and practices/behaviours. The four intermediate results (IR) anticipated towards the end of the program are as follows:

IR-1: Increased availability of school-based health, hygiene, and nutrition services

- De-worming & vitamin A supp. twice a year
- Iron supplementation once a week for 20 weeks
- First aid box distribution, training and management
- Annual vision screening, treatment and referral

IR-2: Increased quality of the school environment

- Arsenic testing and marking of tube wells at schools
- Installation of deep Tube-well/Ring wells in schools especially where the water source is contaminated with Arsenic
- Construction of school latrines, urinals, running water supply, waste water drainage
- Ensure hand-washing facility inside or nearby toilet/latrines
- Ensure class-room based safe drinking water

IR-3: Increased knowledge of, improved attitudes toward, and interest in using health services and health – protective behaviors

- Class-room based Health Education sessions by teachers
- Nutrition education session by SC staffs to malnourished children & their parents
- Demonstration of hand washing with soap during observation of Global hand washing day
- Wall-painting with 7 good habits/health messages. The 7 good habits/ messages include keeping nails clean/short every week; eating nutritious food/ balanced diet; brushing teeth twice a day; use slippers during using toilet; hand washing with soap after using toilet; come to school after having meal or do not come to school in empty stomach; take oral saline if suffering from diarrhea and visit a doctor if not improved.

IR-4: Improved community support and policy environment for SHN

- Work jointly with DPHE to test and mark tube wells in schools and also to avoid duplication of resources in installing/constructing WASH in Schools/WinS;
- National and district level advocacy on National deworming biannually, Little Doctors initiative and vitamin-A supplementation for 5-12 years children in Schools etc.
- Annual training of teachers on SHN to conduct HE sessions
- Participation in national SHN technical working group meetings, which take place biannually
- Engage Community Core Groups (CCGs) for planning, installation and maintenance of water treatment plants in communities
- Facilitate SMCs in maintaining cleanliness of toilets, school-yard, class-rooms and refilling medicines and logistics for first-aid

SHN Program Activities

1) Deworming treatment: Deworming treatment is provided twice a year to all pre & primary school children (5 to 12 years old) on National Deworming Weeks in coordination with the government. Deworming helps improve children's health and their ability to learn and grow by decreasing nutritional deficiencies caused by worm infections. In 2012, the program reached to at least 88,518 children in Meherpur Sadar, Mujibnagar and Gangni Upazilla under Meherpur district.
2) Vitamin-A Supplementation: Vitamin A capsules are given to all primary school children (5 to12) twice a year in the week/s following national deworming weeks. This supplementation helps to prevent night blindness and other disorders related to vitamin A deficiency. In 2012, the program reached to around 87,369 children in Meherpur Sadar, Mujibnagar and Gangni sub-districts under Meherpur district.
3) Iron Supplementation: Iron supplementation is provided to pre-school and primary school children (5 to 12 year old) one tablet/child two days/week (Sunday & Wednesday) for

consecutive 16-20 weeks to prevent micronutrient deficiencies, especially anemia. In 2012, 81,272 children in Meherpur Sadar, Mujibnagar and Gangni sub-districts under Meherpur district received at least 32 tablets of iron.

4) First Aid Management: First aid kits have been supplied to all primary schools under the provision of health services. This ensures first aid treatment in the schools. Teachers are trained to use the first aid kits to manage minor health issues. Regular replenishment of supplies is ensured by the school management committees.

5) Vision Screening: Vision screening is provided annually to pre-school and primary school children in partnership with technical partner. Teachers are trained on primary screening and children with problems are duly verified by eye expert during eye-camp. This health service provides students with required treatment for their vision (spectacle/eye-glass) and prevents night blindness. In 2012, 75,411 school-children were screened by the teachers and 74 received spectacle from the eye-expert.

6) Safe Water at School: Safe water - clean, odorless and arsenic-free - is provided to children in primary schools. School management committees and parent teacher associations are mobilized and trained to maintain safe water sources like tube and ring wells in schools. Arsenic-free water is ensured in coordination with the government and community awareness built concerning its use by children and their families. Safe water access to classrooms is ensured by having jugs and glasses with lids to use. In 2012, the program in collaboration with DPHE conducted testing of arsenic level in 457 schools and 666 water sources, running water supply is provided to 37 schools ring-wells were installed in 7 schools, ring well shades were constructed at 27 schools, deep tube-wells were installed in

17 schools, 7 arsenic removal plants were installed for 1400 families in Meherpur Sadar and Gangni.

7) Sanitation at school: According to Shishuder Jonno's programmatic standards, it is encouraged that all primary schools have separate latrines for boys and girls, with hand-washing facilities that include water and soap inside or nearby toilets and latrines. Teachers and School Management Committees are mobilized and motivated and their capacities built to maintain and ensure that hand washing supplies are available. In 2012, toilet for boys and girls were constructed in 16 schools, existing toilets were repaired in 52 schools at community level, 49 low-cost toilets were constructed at household level, and RCC ring & slabs were distributed to 500 families at Mujibnagar.

8) Health Education at School: Health education helps inform school children about safe drinking water, sanitation, hygienic behavior, diarrheal diseases, food, nutrition, micronutrients, and reproductive health issues. Until now, a total of 458 teachers were oriented on SHN to conduct class room based health education, 27,523 health education sessions were conducted by the teachers and 1725 Little Doctors and 538 Student Brigades were oriented on different healthy behaviors and their role to provide support to their teachers during providing schools health & nutrition services. Menstrual education is one of the components of health education for girls in grades four and five. Trained female teachers conduct the sessions. All of the sessions are in class routine and teachers are following that routine.

9) Nutrition Education at school & home: Nutrition education helps identify wasted & stunted children using growth chart and provides nutrition sessions with type and sources of food; and frequency of meals to those children. It promotes parents' participation in sessions to

confirm food for children. These sessions are organized for identified children and their parents using nutrition chart, locally available nutritious food and fruits. Height and weight of all children in primary schools are measured twice a year to identify nutritional deficient children. In 2012 assessment of malnutrition (21,773 children) was done by measuring height, weight and 345 nutrition education sessions were conducted with 8,682 children and 7,552 parents of those children.

10) School Cleanliness and Hand Washing Campaign: School cleanliness, waste management and hand washing demonstration are promoted to create a healthy school environment and support to practice. It encourages children to practice hand washing at critical time, cleanliness in classrooms and school premises. Children also participate in events such as demonstrating healthy practices learned during health education sessions. This cleanliness and hand washing practice also translate into action at home. Schools participate in Global Hand Washing Day events (rally, hand washing demonstration, quiz competition) which are on 15th October. In 2012, 81,192 school children and 887 others participated in the Global Hand washing Day by practicing hand-washing with soap.

Implementation teams

In Sadar, the Senior Manager (SHN) and Manager (AD&SHN) provide technical support to all 5 Project Officers and union teams who are supervised by Deputy Manager (Program Implementation); while in Mujibnagar and Gangni the Technical Officers/Sr. Technical Officers for each sub-district supervises the Union Coordinators. The Technical Officers/Sr. Technical Officers are supervised by the Project Coordinator in Gangni, who reports directly to the JCF program director in Jessore.

Implementation area

SHN interventions have been implemented in all (115) the schools of Meherpur Sadar from 2008-09, all (155) schools in Sadar and Mujibnagar in 2010-11, and 235 government supported primary schools in Sadar, Mujibnagar and part of Gangni sub-districts and all the Shishuder Jonno supported pre-primary schools in 2012. A list of the unions for each sub-district, the number of schools, and total number of children in each sub-district supported by Save the Children funded activities is presented in Table 2:

Table 2: Distribution of Shishuder Jonno supported schools in Meherpur, Bangladesh; 2013		**Sadar**	**Mujibnagar**	**Gangni**	**Total**
# of Unions		5	4	9	18
# of Primary Schools	SC supported GPS, RNGPS and Madrassas	115	42	168	325
	BRAC/Other NGO	59	39	69	167
# of Students at primary level	SC supported GPS, RNGPS, and Madrassas	26251	10601	34887	71739
	BRAC/Other NGO	1844	1205	1986	5035
Source: Population Census-2011, Zila Series, Bangladesh Bureau of Statistics					

Midterm KAP Survey:

KAP Description

KAP surveys are quick, efficient, and highly focused quantitative evaluations that measure changes in human knowledge, attitudes, and practices in response to a specific intervention, usually outreach or education. These surveys are commonly used and valued in public health research, including nutritional assessments, water and sanitation, family planning, and educational programs. KAP evaluation methods are used by national governments, non-governmental organizations, and international development agencies. They are cost-effective and resource conserving quantifiable measures compared to other social research methods. [11] KAP surveys

are unique to a particular setting and designed for a specific issue. Although other social research methods may cover a wide range of social values and activities, KAP surveys focus specifically on the changes (if any) on the knowledge, attitudes and practices (behaviors) for a certain topic. [12]

In this research:

- Knowledge is defined as being able to recall the correct information of a particular topic by the respondents.
- Attitude refers to the participants' emotions and/or feelings towards the particular topic of discussion, as well as capture any preconceived ideas present in their minds.
- Practice refers to the action—behavioural demonstrations reflecting their knowledge and attitudes.

KAP Objectives

The objectives of the Knowledge, Attitude, Practice Survey of the SHN interventions is to collect information on the:

a) Identify any achievements of SHN interventions and their outcomes. A list of pre-set indicators used to measure the program-defined progress is included in the Appendix 3.
b) Identify gaps within SHN programming and other challenges faced by children and find corrective actions/recommendations for the next programming period
c) Identify priority areas for SHN for the next five years of Shishuder Jonno implementation identified depending on outstanding needs and success strategies

Chapter 3: Methodology

This KAP survey serves as situation analysis to help guide implementation of Shishuder Jonno's School Health and Nutrition sector, while also providing data to against which to eventually assess program impact. Save the Children plans to conduct final evaluations to measure the impact of the program by comparing data with the baseline and midterm findings, as well as track performance of the indicators mentioned in Shishuder Jonno's Results Framework. This section outlines the survey's target population and methodology before the report moves to a detailed review of findings.

Study Design

The research was a quantitative cross-sectional survey assessing Health-related knowledge, attitudes and practices (KAP) among children aged 10-12 years in Meherpur, Bangladesh.

Sample Size, Frame and Population Sampling

Schools from each of the three sub-districts of Meherpur were selected to conduct this research as most of the Shishuder Jonno services are concentrated and overlapped there. The sampling frame was based on the population of schools in each sub-district and assessed from the baseline methodology. During the baseline, 36 schools were selected in total: 10 in Sadar, 8 in Mujibnagar and 18 in Gangni. Out of a comprehensive list of primary schools (grades 1 - 5), the sample frame was narrowed down to 24 primarily randomly selected institutions (approximately 10% of the current 235 intervention schools in Meherpur).

The initial selection of the 24 schools were randomly generated by a computer; however, due to political strikes and unforseen school closings, two schools (Meherpur Mohila Madrasa and Gangni Madrasa) had to be conveniently selected. Time constraint and a limited budget further

influenced the number of days and span of area for survey coverage. The list of final selected schools for the survey is presented in Appendix 4.

The 24 selected sites were representative of primary schools in the district in terms of type of school, school demography, and start of the School Health and Nutrition interventions. Unlike the baseline frame which sampled schools based on the size of the population in each district, the mid-term school selections were proportionate to the reach of the SHN interventions in schools (12 in Sadar, 4 in Mujibnagar, and 8 in Gangni). Each sub-district represented three different types of schools (GPS, aka old Government Primary School; RNGPS, aka Registered Non-government Primary Schools; and Madrassa, which are Islamic-faith based educational institutions).

In each school, approximately 20 students (boys and girls) from grades 4 and 5 were randomly selected for the KAP survey interview and anthropometric status measurement (height and weight). Health status measurement (worm prevalence and Anemia prevalence) was completed separately by the Ministry of Health and Family Wellness, prior to the national deworming round in October, and not included in this assessment.

Respondents were conveniently recruited for participation on the same day as data collection. A final sample size of 457 participants (50.8% females and 49.2% males) comprised of 239, 150, and 68 students (4^{th} and 5^{th} grade) from Sadar, Gangni, and Mujibnagar respectively.

Survey team

The survey team was formed in coordination with Senior Program Manager of SHN, Dr. Asadur Rahman; Technical Advisor of SHN, Mohini Venkatesh; and Monitoring and Evaluation Manager, Binoy Debnath. The implementation of the suvey was supervised by the Survey Coordinator, along with technical support from Abu Bakar and Marjad Kameli. There was a total of 12 enumerators hired for data collection, forming four teams (three members per team).

Questionnaire

A KAP questionnaire containing 42 questions covering population demographics and the following topics was developed to investigate the knowledge, attitudes and practices of the primary school students' population of Meherpur district regarding:

- Healthy Habits
- Nutrition
- Toilet Use
- Diarrhea
- Health Services
- Tooth brushing
- Hand washing
- Safe water

The questionnaire was written in English, and simultaneously translated into Bangla (the commonly spoken, universal language of the population of Bangladesh) by the survey team as they were carrying out the questionnaires.

A preliminary version of the questionnaire was field tested (pilot study) in 4 schools (2 in Sadar and 2 in Mujibnagar, 28 students) and refined accordingly, prior to utilization in the full KAP survey. The final questionnaire was translated in Bangla; however, an English version is provided in Appendix 5.

Data Collection

Data collection occurred over 6 days, between June 20th and July 1st, 2013, excluding the weekend and government holidays. To enhance the response rate, the institutions were sensitized in writing beforehand and contacted by phone by the M&E officer to ascertain the most convenient time to do data collection. The data collection was administered using the Tangerine software on electronic tablets.

The 12 enumerators were intensively trained over four days on the use of electronic tablet application, informed consent, purpose of the survey, rapport building with participants, and questionnaire. Each team, consisting 4 enumerators each, was responsible for collecting surveys from 20 randomly students per school, per day. All four teams were supervised by one overall survey supervisor. Quality control and checking of questionnaires were carried out on a daily basis.

Minimization of Bias:

Selection Bias

Even though participants were conveniently selected at the health facilities, selection bias was first minimized by randomly selecting the schools that would be targeted for participation from a comprehensive list of all educational facilities within Meherpur. In addition, all students (regardless of age, religion, and wealth) were approached on the days of data collection. These strategies would have facilitated inclusion of a wide range of schools, in terms of size and services offered, and also of categories of students and hence minimize the preferential selection of a specific group of students or type of educational institution.

Information Bias

The questionnaire was pretested on 6 students outside of the sampled educational institutions for refinement of the questions in order to minimize leading or confusing questions. Importance of positive rapport building was emphasized during enumerator training, as it was necessary to build a strong connection with the children and assure anonymity.

Social desirability of participants, sometimes referred to as response bias, was another potential form of information bias that could have greatly skewed the data. This happens when respondents provide answers with what they consider was expected of them—and is highly prevalent when interviewing children. This was minimized, again, by strong rapport building with the interviewer, incentives, assurance of anonymity, and interview location away from the presence of the students' teachers and or advisors.

Respondents' incentives

Each respondent was provided with an eraser, a ruler, a sharpener and a pencil for participating in the study.

Data Entry and Cleaning

The questionnaire was pre-coded for data entry into the Tangerine software. Once the quantitative data was collected, the data was automatically uploaded to Cloud (online storage) as CSV files, and later downloaded as Microsoft Excel files for further analysis using Statistical Analysis Software (SAS) and Microsoft Excel. Using the Tangerine software automatically minimized common data entry errors present in paper collection methods. Further steps to minimize data entry errors were taken by incorporating check codes in to the database. The enumerators were encouraged to write additional notes at the end of the survey, noting any needed

changes or errors. The data collected each day was reviewed by the survey supervisor each day and cleaned accordingly to ensure consistency of responses. For questions that participants' refused to answer, these responses were left blank during data entry and treated as missing data in the analysis.

Data Analysis

Quantitative data was cleaned, coded, and entered into STATA Statistical Software for analysis. Descriptive statistics of number of observations and frequencies were used to describe the characteristics of the respondents: age, education level, nutritional knowledge, personal hygiene attitudes and practices, etc. Inferential statistics were used to determine statistical significances in selected variables between the respondents of Meherpur Sadar, Mujibnagar, and Gangni. T-test and chi-square tests were used to establish relationships and associations between knowledge, attitude and practices regarding health and nutrition and sub-districts, gender, and grades. Significance of the results was determined at 95% confidence interval.

Chapter 4: Results and Discussion

Background Characteristics

Between June 23, 2013 and July 1, 2013, twelve enumerators for the SHN KAP survey interviewed 457 students in 24 schools. Eight schools were located Gangni, 12 in Sadar, and 4 in Mujibnagar. The 24 schools comprised of 12 Government Primary Schools (GPS), 9 Registered Non-Primary Schools (RNGPS), and 3 Madrasas. There were a total of 225 boys (49.2%) and 232 girls (50.8%) included in the survey. The level of education varied between grade 4, with a total of 228 students (50.3%) and grade 5, with a total of 225 students (49.7%). The overall sample included 150 students from Gangni (32.8%), 239 students from Sadar (52.3%), and 68 students from Mujibnagar (14.9%).

Seven Healthy Habits

Children learn from the influences around them. To instil a healthy lifestyle in children early on helps to build a strong foundation of healthy habits for an entire lifetime. Part of the SHN's health education program includes an age-appropriate poster listing seven healthy habits, distributed to all the primary schools in Meherpur. Schools are encouraged to hang the poster in a visible level in grades 1 through 5. The chart (presented in Appendix 6) conveys seven important health messages regarding sanitation, safe water, hygiene, and sanitation:

1. Brush teeth twice a day; once in the morning and once at night
2. Wear slippers/shoes at all the times, especially during using toilet/latrine
3. Wash hands with soap after using the toilet/latrine
4. Eat a full breakfast every day before school
5. Be knowledgeable about food choices and eat a balanced, nutritious meal

6. If you/loved one has diarrhea, remember to take oral saline and/or visit the doctor if the situation has not improved
7. Trim long nails once weekly

Respondents were asked whether they could recall any of the 7 healthy habits from the chart (Table 3) Since this SHN activity began implementation starting in 2010 (two years after inception phase), the program collected no baseline data measuring the respondents' prior knowledge regarding healthy habits. As a marker of 'improvement', the monitoring and evaluation team of Shishuder Jonno deemed the result to be 'satisfactory' if the respondent recalled at least five out of the seven healthy habits.

Overall, nearly half of respondents surveyed (51.5%) were able to recall at least five out of the seven healthy habits, with 16.9% recalling all seven; however, 13.2% of the respondents were unable to recall any of the seven habits. Pearson Chi-square tests and logistic regressions were conducted to find any associations between knowledge regarding the seven habits with respondents' education level, sex, and sub-districts.

Table 3: Recalling the Seven Healthy Habits; Meherpur, Bangladesh, N=457

	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Diarrhea treatment	202	44.2%	44	29.3%	135	56.5%	23	33.8%
Eat nutritious food	204	44.6%	36	24.0%	145	60.7%	23	33.8%
Washing hands after using the toilet	289	63.2%	81	54.0%	173	72.4%	35	51.5%
Wearing sandals	314	68.7%	86	57.3%	189	79.1%	39	57.4%
Tooth-brushing twice daily	316	69.1%	82	54.7%	194	81.2%	40	58.8%
Eat breakfast before school	239	52.3%	60	40.0%	149	62.3%	30	44.1%
Trimming Nails	290	63.5%	79	52.7%	181	75.7%	33	48.5%
*Answered at least 5 of the 7 habits	233	51.0%	47	31.3%	162	67.8%	27	39.7%

**Multiple answers allowed to be selected*

A significant difference exists between recollection of the seven habits and the three sub-districts ($X2=53.1$, $p<0.001$): Out of those surveyed in Sadar, 67.7% of students were able to recall at least five out of the seven healthy habits, compared to 39.7% and 31.3% in Mujibnagar and Gangni, respectively. Overall, relative to girls, boys were approximately 14% less likely to recall at least five out of the seven habits ($P<0.05$, 95% Conf. Interval: 0.05-0.23). Education level is significantly associated with knowledge regarding the seven healthy habits: respondents in the fifth grader were 2.4 times more likely to recall at least five out of the seven habits, compared to respondents in the fourth grade, ($P<0.001$, 95% CI: 1.66-3.53). This may be attributed to more emphasis on reciting the seven habits in the fifth grade classroom, compared to the fourth grade class room.

Understandably, the mere recitation of information presented on a chart does not necessarily mean the respondents actually practice it all the time. However, this does take a look at if the method of conveying key health information is being done in an effective way.

Nutrition and Food Choices

Breakfast

Breakfast is often described as the most important meal of the day; it not only provides important daily nutrients such as carbohydrates, protein, and calcium, but it also helps improve school performance by helping students maintain a steady level of concentration in the classroom. One of SHN's key activities is to ensure that children never attend school with an empty stomach. Amongst overall students surveyed, almost all respondents (99.8%) reported having eaten breakfast before coming to school. When asked about the breakfast items, over three-quarters of students (77%) reported eating rice, with 21% eating bread (Table 4). Respondents typically paired

the carbohydrates with only one other food item from the following categories: vegetable (46.6%), meat (39.2%), or eggs (11%).

Table 4: Breakfast Items; Meherpur, Bangladesh, N=457								
Practice: Breakfast items eaten today	**Overall (457)**		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Rice	353	77.2%	122	81.3%	176	73.6%	55	80.9%
Bread	96	21.0%	22	14.7%	63	26.4%	11	16.2%
Eggs	50	10.9%	18	12.0%	25	10.5%	7	10.3%
Greens	40	8.8%	16	10.7%	20	8.4%	4	5.9%
Other Vegetables	166	36.3%	64	42.7%	73	30.5%	29	42.6%
Lentils	27	5.9%	10	6.7%	14	5.9%	3	4.4%
Fish	97	21.2%	39	26.0%	48	20.1%	10	14.7%
Chicken	33	7.2%	7	4.7%	21	8.8%	5	7.4%
Beef	39	8.5%	7	4.7%	27	11.3%	5	7.4%
Goat	8	1.8%	3	2.0%	5	2.1%	0	0.0%
Biscuits	1	0.2%	0	0.0%	1	0.4%	0	0.0%
Milk	14	3.1%	5	3.3%	6	2.5%	3	4.4%
Fruits	35	7.7%	10	6.7%	19	7.9%	6	8.8%
Others	36	7.9%	14	9.3%	18	7.5%	4	5.9%

**Multiple answers allowed to be selected*

Food choice

It was not assumed that each respondent's choice of breakfast on the survey date determined his or her level of knowledge regarding a nutritious diet. Proper choice of food is important as it influences people's health and nutrition status. In order to assess students' idea of a healthy diet, respondents were asked to share food items they believe are necessary to be included in a nutritious diet. Food items with similar nutrition value were combined into food groups (carbohydrates, proteins, vitamins, minerals, dairy, etc.) for analysis purposes. As a marker of correct knowledge, the M&E team defined a nutritious meal as a combination of the three major food groups: carbohydrates, proteins, and vitamins/minerals. A detailed table including food items mentioned is included in Table 5.

Table 5: Food Choice; Meherpur, Bangladesh, N=457								
Knowledge: Items that should be included in a nutritious meal	**Overall (457)**		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Bread	157	34.4%	18	12.0%	130	54.4%	9	13.2%
Eggs	329	72.0%	78	52.0%	211	88.3%	40	58.8%
Greens	313	68.5%	110	73.3%	150	62.8%	53	77.9%
Other Vegetables	126	27.6%	60	40.0%	36	15.1%	30	44.1%
Lentils	182	39.8%	20	13.3%	149	62.3%	13	19.1%
Fish	211	46.2%	78	52.0%	85	35.6%	48	70.6%
Chicken	170	37.2%	53	35.3%	94	39.3%	23	33.8%
Beef	148	32.4%	55	36.7%	62	25.9%	31	45.6%
Goat	61	13.3%	43	28.7%	1	0.4%	17	25.0%
Biscuits	82	17.9%	2	1.3%	80	33.5%	0	0.0%
Milk	177	38.7%	68	45.3%	102	42.7%	7	10.3%
Fruits	45	9.8%	7	4.7%	20	8.4%	18	26.5%
Others	6	1.3%	4	2.7%	0	0.0%	2	2.9%
Don't Know	5	1.1%	1	0.7%	4	1.7%	0	0.0%

**Multiple answers allowed to be selected*

Findings suggest that half of the respondents (54.3%) were able to state that a nutritious meal was one that contains a combination of vitamins/minerals from vegetables (87.5%), protein from meat (75.5%), and carbohydrates from grain products (31.7%). Although fats and milk products are staple items used Bangladeshi cuisine, these items were rarely mentioned by respondents as a necessary part of a nutritious diet.

A significant difference exists between the three sub-districts regarding knowledge of a nutritious meal ($X2=10.9$, $p<0.05$): Out of those surveyed in Sadar, 59.4% of students correctly defined a nutritious meal, compared to 54.3% and 54.0% in Mujibnagar and Gangni, respectively. Overall, compared to boys, girls were approximately 1.8 times more likely to define what constitutes a nutritious meal ($P<0.05$, 95% Conf. Interval: 1.22-2.57). A Pearson chi square test at 0.05 level of significance revealed no significant association between the education level and knowledge of a nutritious meal, ($\chi2=0.825$, $P=0.364$). It should also be noted that factors such as

availability and accessibility of food affects children's knowledge of food and its consumption at the household.

Toilet Use

Improved sanitation has wide reaching benefits beyond public health; sanitation related diseases result in significant absences from school and illnesses can have a significant impact on learning ability. Toilets (or commonly known in Bangladesh as latrines) can often be a neglected facility in school buildings; however, if properly regarded and appropriately managed, latrines can provide a vital and valuable means of support for children in managing their own health. Good facilities appear to be an important precondition for student learning. In congruency with this theory, the SHN program ensures that all primary schools in Meherpur have well-built, safe, and clean form of gender-segregated onsite toilet facilities.

Respondents were asked questions regarding their use of toilet facilities at their respective schools and home. Of those who needed to defecate during school hours (67% overall), hundred percent of the respondents (N=306) reported using the latrines at school and at home (N=457), compared to open fields, bushes, and bodies of water. Overall, students' perception of a sanitary toilet included one that was clean (35.4%), had access to clean water (17.7%) and soap (16.8%). Although multiple answers could have been selected, almost a third of students failed to provide any explanation of a sanitary toilet (Table 6).

Table 6: Sanitary Toilet; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge: What is a sanitary toilet?	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Clean	162	35.4%	49	32.7%	91	38.1%	22	32.4%
No visible feces	66	14.4%	19	12.7%	43	18.0%	4	5.9%
No smell	48	10.5%	22	14.7%	24	10.0%	2	2.9%
No leaves/sticks/twigs	20	4.4%	9	6.0%	9	3.8%	2	2.9%
No broken bucket	3	0.7%	0	0.0%	3	1.3%	0	0.0%
Availability of soap	77	16.8%	12	8.0%	61	25.5%	4	5.9%
Availability of clean water	81	17.7%	20	13.3%	51	21.3%	10	14.7%
No flies/insects	11	2.4%	5	3.3%	5	2.1%	1	1.5%
Clean surrounding	61	13.3%	26	17.3%	33	13.8%	2	2.9%
Water sill	11	2.4%	5	3.3%	5	2.1%	1	1.5%
Safe/Not dangerous	12	2.6%	1	0.7%	11	4.6%	0	0.0%
Others	58	12.7%	12	8.0%	41	17.2%	5	7.4%
Don't Know	126	27.6%	58	38.7%	50	20.9%	18	26.5%

**Multiple answers allowed to be selected*

Over half of the students interviewed reported that one of the main reasons to using latrines is because it limits germs and diseases (53.4%) and keeps the environment clean (28.7%) and smell-free (34.6%). Table 7 details the differences of the answers across the three sub-districts.

Table 7: Toilet Use; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge: Importance of using latrines	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Keeps environment clean	131	28.7%	53	35.3%	65	27.2%	13	19.1%
Keeps environment smell-free	158	34.6%	59	39.3%	87	36.4%	12	17.6%
No germs/diseases	244	53.4%	77	51.3%	140	58.6%	27	39.7%
Taught at home	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Embarrassing/Rude	29	6.3%	15	10.0%	12	5.0%	2	2.9%
Others	39	8.5%	11	7.3%	25	10.5%	3	4.4%
Don’t Know	43	9.4%	17	11.3%	16	6.7%	10	14.7%

**Multiple answers allowed to be selected*

Although interviewers built a strong rapport with students, it is highly probable to have under-reporting of true facts regarding toilet use, as it is still considered a taboo and culturally 'embarrassing' topic for discussion.

Personal Hygiene

Personal hygiene has a significant effect on an individual's health. Lack of hygienic behaviors represents a particular concern as these are key means of transmission of helminths or worm infection. To measure awareness-raising and outreach improvements, data was collected on hand-washing practices, tooth brushing, and clean nails.

Hand-washing

Poor hand washing can be directly linked to an increased spread of disease and illness that affects school attendance. Overall, almost all students reported washing hands the day of the survey (98%). When asked when they usually wash their hands, 93% of overall students reported before meals, 56.9% of overall students reported after using the toilet, 24.5% of overall students reported after meals, and 8.5% of overall students reported after play. (Table 8)

Table 8: Hand washing Time; Meherpur, Bangladesh, N=457

	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Practice: Washed hands today	448	98.0%	144	96.0%	236	98.7%	68	100.0%
Attitude: Time hands are washed:								
Before eating	421	92.1%	131	87.3%	223	93.3%	67	98.5%
After eating	114	24.9%	47	31.3%	54	22.6%	13	19.1%
After using toilet	260	56.9%	84	56.0%	148	61.9%	28	41.2%
After playing	39	8.5%	14	9.3%	18	7.5%	7	10.3%
Others	44	9.6%	19	12.7%	19	7.9%	6	8.8%
Don't Know	2	0.4%	1	0.7%	1	0.4%	0	0.0%

**Multiple answers allowed to be selected*

The considerably higher frequency of hand washing before meals among Bangladeshi children may be due, in part, to the Bengali cultural practice of washing hands before eating meals using hands. From the program's strategic standpoint, washing hands before meals and after using the toilet are considered the most defining sanitary times. Fecal-oral contamination is a major cause of transmissible diseases such as gastrointestinal infections, and washing hands after defecation is one of the most effective ways to prevent such infections. Nearly half of the overall respondents surveyed (53%) reported both times (before eating and after toilet use) as equally important for hand-washing. When asked about items used during washing hands, 91% of respondents reported using soap and 7.7% of respondents reported using ash. (Table 9)

Table 9: Hand washing Items; Meherpur, Bangladesh, N=457

	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Practice: Items used to wash hands	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Only water	44	9.6%	11	7.3%	27	11.3%	6	8.8%
Soap	416	91.0%	138	92.0%	218	91.2%	60	88.2%
Ashes	35	7.7%	13	8.7%	19	7.9%	3	4.4%
Nothing used	1	0.2%	0	0.0%	0	0.0%	1	1.5%
Others	6	1.3%	2	1.3%	4	1.7%	0	0.0%
Don't Know	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Tooth-brushing

Teaching children good dental health habits early can be an important way to establish lifelong good dental health practices. Children who are taught in early childhood how to brush and maintain other good dental hygiene practices can significantly lower their risk for developing future dental health problems. According to SHN's seven healthy habits, it is ideal for children to brush their teeth twice daily, and overall, 54.4% of the children surveyed reported brushing both

in the morning and at night. Individually, however, almost all students (99%) reported brushing their teeth in the morning (Table 10).

Table 10. Tooth-brushing Time; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Attitude: Considers tooth-brushing beneficial	450	98.5%	149	99.3%	233	97.5%	68	100.0%
Practice: Time of Tooth-brushing								
In the morning before eating	407	89.1%	131	87.3%	216	90.4%	60	88.2%
In the morning after eating	54	11.8%	23	15.3%	24	10.0%	7	10.3%
In the afternoon, during shower	4	0.9%	3	2.0%	1	0.4%	0	0.0%
Evening/Before sleeping	249	54.5%	82	54.7%	123	51.5%	44	64.7%
Other	1	0.2%	0	0.0%	1	0.4%	0	0.0%
Don't Know	0	0.0%	0	0.0%	0	0.0%	0	0.0%

**Multiple answers allowed to be selected*

A Pearson chi square test at 0.05 level of significance revealed no significant difference between the three sub-districts and brushing teeth two times daily ($\chi 2=2.854$, $P=0.240$). A logistical regression did, however, find a significant association between twice-daily tooth brushing practice and sex. Overall, boys reported being 11% less likely to brush their teeth twice, compared to girls engaging in the twice-daily tooth brushing practice, ($P<0.05$, 95% Conf. Interval: 0.026-0.209). There was, however, a positive relationship between children's attitude towards brushing teeth and actually practicing it (at least once a day).

Students were also asked to explain why they felt tooth-brushing was beneficial. Although multiple answers were allowed to be selected, overall, the most common reasons included no cavities (63.2%), teeth remaining clean (47.5%), and no bad breath (23.6%). Table 11 provides a detailed comparison between the three sub-districts.

Table 11: Importance of Tooth-brushing; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge: Why brushing teeth is beneficial	N	Freq.	N	Freq.	N	Freq.	N	Freq.
No broken teeth/No cavities	289	63.2%	94	62.7%	157	65.7%	38	55.9%
No toothache	94	20.6%	36	24.0%	50	20.9%	8	11.8%
It's good for health	55	12.0%	28	18.7%	25	10.5%	2	2.9%
No yellow stains	65	14.2%	19	12.7%	37	15.5%	9	13.2%
Teeth looks healthy	57	12.5%	26	17.3%	22	9.2%	9	13.2%
No gum infection	38	8.3%	14	9.3%	20	8.4%	4	5.9%
No bad breath	108	23.6%	40	26.7%	56	23.4%	12	17.6%
Teeth stays clean	217	47.5%	77	51.3%	118	49.4%	22	32.4%
Don't Know	2	0.4%	1	0.7%	1	0.4%	0	0.0%

**Multiple answers allowed to be selected*

Nails

Appropriate hand hygiene includes diligently cleaning and trimming fingernails, which may harbor dirt and germs and can contribute to the spread of infections (such as worms) and diarrhea. According to SHN, students' fingernails should be kept short and be cleaned frequently with soap. Longer fingernails can often retain more dirt and bacteria than short nails, thus potentially contributing to the spread of germs. After strong rapport building, respondents were asked to extend their hands and show the interviewers their nails, which the interviewers quietly noted. (Table 12) Clean nails were categorized to be both short with no dirt present, whereas dirty nails were classified to be 'long with dirt present'. Overall, nearly half of the respondents (55.1%) had clean nails; in contrast, 11.4% of respondents had dirty nails.

Table 12: Observation of Nails; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Practice: Cleanliness of Nails	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Short	322	70.5%	121	80.7%	160	67.0%	41	60.3%
No dirt present	296	64.8%	103	68.7%	149	62.3%	44	64.7%
Dirt present	103	22.5%	25	16.7%	59	24.7%	19	27.9%
Long	75	16.4%	12	8.0%	49	20.5%	14	20.6%
Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%

**Multiple answers allowed to be selected*

A Pearson chi square test at 0.05 level of significance revealed no significant difference between the three sub-districts and respondents having clean nails ($\chi 2=2.401$, $P=0.301$); however, the three sub-districts significantly amongst respondents with dirty nails. ($\chi 2=10.076$, $P<0.05$): Out of those surveyed in Sadar, 13% of students were observed to have dirty nails, compared to 11.4% and 5.3% in Mujibnagar and Gangni, respectively. Overall, no significant association existed between sex and respondents having either clean nails ($P<0.05$, 95% Conf. Interval: -0.021 - 0.162) or dirty nails ($P<0.05$, 95% Conf. Interval: -0.044 - 0.0725).

Key personal-hygiene guidelines:

As part of SHN's health education programs at primary schools, students in Meherpur are taught two very important rules regarding person hygiene:

1) Wearing sandals while using the toilet

2) Washing hands with soap after using the toilet.

Table 13: Guidelines to proper latrine use; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge: 2 important tasks regarding proper latrine usage	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Washing hands after using toilet	412	90.2%	127	84.7%	229	95.8%	56	82.4%
Wearing sandals before using toilet	397	86.9%	123	82.0%	217	90.8%	57	83.8%
Others	23	5.0%	11	7.3%	7	2.9%	5	7.4%
Don't Know	10	2.2%	5	3.3%	2	0.8%	3	4.4%
*Number of students recalling both tasks	377	82.5%	112	74.7%	212	88.7%	53	77.9%

**Multiple answers allowed to be selected*

Overall, majority of the students (82.5%) were able to recall both of the guidelines correctly (Table 13); however, a significant difference was present between the three sub-districts regarding knowledge of the two recommendations ($X2=13.7$, $p<0.001$): Out of those surveyed in Sadar, 88.7% of students correctly recalled both of the rules regarding personal hygiene during toilet use, compared to 74.7.3% and 77.9% in Mujibnagar and Gangni, respectively. A logistic regression at 0.05 level of significance revealed no significant association between recollection of the two guidelines and the respondents' grade level (P=0.949, 95% Conf. Interval: 0.604-1.603) and sex (P=0.375, 95% Conf. Interval: -0.038-0.101).

Diarrhea

Diarrhea is loose, watery stools caused by bacterial, viral or parasitic infections. The SHN program defines diarrhea as a person having three or more loose bowel movements within 24 hours. It causes electrolyte loss and dehydration which can lead to nutrient deficiency and even death. While contaminated water and food are the main sources of diarrhea for all age groups, children are especially vulnerable. Having knowledge of the causes of diarrhea and the skills to manage its symptoms are the two most effective ways to prevent and treat it.

Participants were asked to define diarrhea to assess their knowledge of this deadly disease. Overall, 62.4% of the students were able to define diarrhea per SHN's standard definition. (Table 14) No significant difference existed between the three sub-districts regarding knowledge of diarrhea (X2=1.78, P=0.411): Out of those surveyed in Sadar, 62.3% of students correctly defined diarrhea, compared to 55.9% and 65.3% in Mujibnagar and Gangni, respectively. Due to the loss of electrolytes from the body, the easiest treatment to diarrhea is saline water and/or if unsure, a visit to the doctor (who will provide necessary care). Overall, 97% of the students were able to provide the correct from diarrhea treatment.

Table 14: Treatment of Diarrhea; Meherpur, Bangladesh, N=457

	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge of <u>correct</u> Diarrhea definition	N	Freq.	N	Freq.	N	Freq.	N	Freq.
	285	62.4%	98	65.3%	149	62.3%	38	55.9%
Knowledge: Treatment of Diarrhea								
Oral saline	416	91.0%	132	88.0%	223	93.3%	61	89.7%
Breast milk	1	0.2%	0	0.0%	1	0.4%	0	0.0%
Other oral items	35	7.7%	7	4.7%	23	9.6%	5	7.4%
Doctor's advice/Hospital visit	179	39.2%	63	42.0%	103	43.1%	13	19.1%
Others	36	7.9%	11	7.3%	23	9.6%	2	2.9%
Don't Know	3	0.7%	2	1.3%	0	0.0%	1	1.5%

**Multiple answers allowed to be selected*

Saline water requires only three simple ingredients: clean water, sugar, and salt. The SHN health education program includes lessons on diarrhea treatment, teaching students how to make saline water. The interview participants were then asked if they knew what ingredients were needed to make saline water. Overall, 72.2% of the students were able to name the three ingredients and provide the correct answer; in contrast, 14.9% of students were unable to name even one ingredient. (Table 15)

Table 15: Ingredients of ORS; Meherpur, Bangladesh, N=457								
	Overall (457)		**Gangni (150)**		**Sadar (239)**		**Mujibnagar (68)**	
Knowledge: What are the ingredients in Oral saline?	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Salt	369	80.7%	119	79.3%	203	84.9%	47	69.1%
Sugar/Molases	355	77.7%	114	76.0%	195	81.6%	46	67.6%
Clean Water	362	79.2%	109	72.7%	198	82.8%	55	80.9%
Others	33	7.2%	15	10.0%	13	5.4%	5	7.4%
Don't Know	64	14.0%	24	16.0%	29	12.1%	11	16.2%
*Correct combination all 3 ingredients	330	72.2%	104	69.3%	182	76.2%	44	64.7%

**Multiple answers allowed to be selected*

Chapter 5: Conclusion, Limitations and Recommendation

Introduction

The rationale behind Save the Children Shishuder Jonno's School Health and Nutrition program have recognized that a major impact of ill health during the primary school years is that on cognitive development, learning, and educational achievement. Improving students' health and nutritional status can easily eliminate the common sources of absenteeism, poor classroom performance and early school dropout, which in return will improve the goal towards attaining education for all. If children remain healthy, they will be able to stay in school, attend classes more regularly, develop their interest in learning—thus, becoming healthier and more productive adults.

Conclusion

The main assessment mechanism for measuring the results and impact of Shishuder Jonno's SHN program has been this KAP survey. Although limited information was available on measuring the changes in outcomes of many of the interventions to date, identifiable mid-term intervention results can be seen in the following areas:

- Overall, all respondents believed breakfast is an important meal of the day and attended school the day of the survey by having a prior meal. Over three-quarters of the students reported eating rice paired with only one other item (mainly fish or potatoes).
- Students' perception of what should be eaten in a nutrition meal and what they actually had for breakfast varied. Most students valued the importance of including egg, greens, meat (chicken and beef), fish, and milk.

- Attitude and practice towards brushing teeth in the morning was positively correlated. Almost all students considered brushing their teeth beneficial and brushed at least once in the morning.
- Recalling healthy habits was variably associated with actually practicing them. Overall, almost 65% of students recalled the importance of trimming nails, with only 55% actually having clean and short nails; Only half recalled the importance of eating breakfast before school, whereas all students reported having eaten breakfast the day of the survey; Although three-quarters of students recalled the importance of brushing teeth at least twice a day, only 55% followed it.
- 9 in 10 children reported washing their hands before eating their meals; however, only a little over half of them reported washing hands after using the latrines.
- Soap was the primary item children reported using during hand-washing, followed by ashes.
- All respondents, except one, reported using toilets for defecation, with almost 8 in 10 children recalling washing hands after and wearing sandals during toilet use as important hygienic tasks.
- Overall, over 90% of respondents knew the treatment of diarrhea is providing Oral-Rehydration-Solution (ORS); however, only 60% of children had the accurate knowledge of diarrhea (loose stools over three times).
- Although all primary school children are being provided with Vitamin A capsules and Iron tablets as part of the SHN program, majority of the children are not aware of the benefits of taking the supplements, especially in Gangni and Mujibnagar.

- Length of implementation of SHN program interventions may have significant effect on the outcomes across the three sub-districts: Sadar, being the first sub-district to begin SHN interventions at schools (2008) had significantly more positive health knowledge, attitude, and practice outcomes compared to Mujibnagar (2010) and Gangni (2011).
- We conjecture that significant advancement in health outcomes in Sadar (compared to Gangni and Mujibnagar) may be due in part to earlier year of implementation, and also to availability of and access to resources, economic development within sub-districts (influencing income), and differing implementation strategies between Save the Children (in Sadar) and Jagorani Chakra Foundation (in Gangni and Mujibnagar).

Limitations to the Study

Several limitations must be considered when interpreting our results. First, the KAP survey was conducted under a limited time-frame (6 days) and small sample size in order to decrease programmatic costs, with only two days spent on enumerator training. Although the data-collectors were familiar with the interview process, specific topics for this particular survey may have required a more in-depth understanding. Longer training days may have allowed for better rapport building with students during the interview of sensitive topics. Second, students' self-reported behaviors may have resulted in over-reporting of proper hygiene and nutritional practices. Although all respondents signed the consent form, they may have felt anxious and or scared about potential repercussion during the interview process—which in return may have influenced their answers.

Third, our study was limited to students only in grades 4 and 5 and those who were present in school. Children absent due to illness or other circumstances were not interviewed; thus, results may not be generalized to all school children. Fourth, proper change in health outcomes from

baseline to mid-term could not be assessed due to a lack of survey data with similar questionnaire conducted during baseline. Fifth, due to political strikes and government-school shutdowns, three randomly selected schools had to be replaced by three new conveniently selected schools. Third, the cross-sectional study design makes determining causality impossible.

Recommendations

Shishuder Jonno's School Health and Nutrition program is a 10-year sponsorship funded project that will continue until year 2018. Below are some recommendations that will effectively address the gaps and challenges the KAP survey identified, and further improve the implementation process the remaining four years.

1. Hygiene practices are often contingent upon availability of sufficient resources. Well-designed and well-located hand washing facilities and latrines that include adequate amounts of soap and water, are essential to successfully promoting hygiene.
2. Children are visual learners; thus, developing posters (similar to the '7 Healthy Habits' chart regarding proper latrine use and personal hygiene may greatly improve sanitary outcomes.
3. Conduct and evaluate an assessment of the implementation strategies of Jagorani Chakra Foundation; although monetary resources are being provided by Save the Children, evaluating whether it is executed per Save the Children's standards in Gangni and Mujibnagar, may help identify why they lag behind Sadar district.
4. Along with teachers, parents should also be invited to the health education trainings. Since children spend majority of the day at home, parents can provide important information that will assist in increasing children's knowledge, attitudes, and practice regarding hygiene and nutrition.

References:

1. Bangladesh Bureau of Statistics. "Community Report: Meherpur Zila." *Population and Housing Census 2011*. June 2012. Web. 14 Feb. 2014. http://203.112.218.66/WebTestApplication/userfiles/Image/Census2011/Khulna/Meherpur/Meherpur%20at%20a%20glance.pdf

2. Malak, Md. Saiful. "Inclusive Education in Bangladesh: Policy and Practice." Joint AARE Conference 2013; <www.aare.edu.au/data/publications/2013/Malak13.pdf>

3. UNESCO. (2000). Dakar framework for action. <http://unesdoc.unesco.org/images/0012/001211/121147e.pdf>

4. SHIKHON Program: Baseline Survey Report. Rep. Dhaka: Save the Children, 2008. Web. <http://margaritaclark58.weebly.com/uploads/9/1/9/5/9195561/shikhon_bl_final_all_donors_110208.pdf>

5. *Shishuder Jonno Program: Baseline Survey Report. Rep.* Save the Children: Dhaka; Save the Children-USA; 2009.

6. Montresor, A., D. W. T. Crompton, T. W. Gyorkos, and L. Savioli. 2002.*Helminth Control in School-Age Children: A Guide for Managers of Control Programmes*. Geneva: World Health Organization

7. Bangladesh. Rep. UNICEF, 2008. Web. <http://www.unicef.org/bangladesh/cbg_(18.10.08).pdf>

8. World Development Report: Agriculture for Development. Rep. N.p: The World Bank, 2008. Print.

9. 2013 Public Policy: *Agenda in Brief.* Issue brief. New York: Child Development Council, 2013 <http://childdevelopmentcouncil.org/files/all/eclc_public_policy.pdf>

10. "School Health and Nutrition: Key Issues." *Education: Human Development Network*. The World Bank, n.d. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTEDUCATION/0,,contentMDK:20756103~menuPK:1340757~pagePK:210058~piPK:210062~theSitePK:282386~isCURL:Y,00.html#fresh>

11. Launiala, A. "How much can a KAP survey tell us about people's knowledge, attitudes and practices? Some observations from medical anthropology research on malaria in pregnancy in Malawi." Anthropology Matters. 11.1 (2009).

12. Gumucio, Sybille. Data Collection: The KAP Survey Model. Rep. N.p: IGC Communigraphie, n.d.<

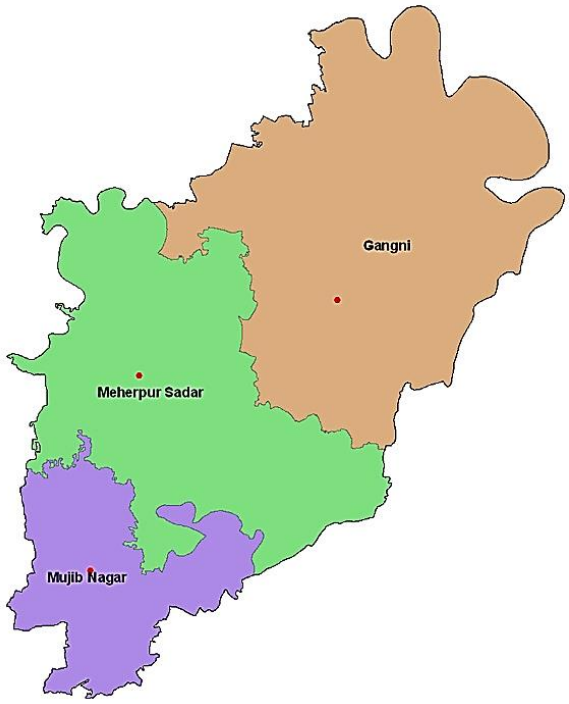
http://www.medecinsdumonde.org/content/download/1772/13753/file/6c27001736f069d23fab6b06b30ee3a1.pdf>

13. “A qualitative comparative analysis of well-managed school sanitation in Bangladesh” Christie Chatterley, Amy Javernick-Will, Karl G Linden, Kawser Alam, Laure Bottinelli, Mohini Venkatesh; BMC Public Health. 2014; <http://www.biomedcentral.com/1471-2458/14/6>

Appendix 1a: Map of Bangladesh*

*Source: The Daily Star Newspaper, Bangladesh 2013 < http://www.thedailystar.net/beta2/wp-content/uploads/2013/08/meherpur-map.jpg>

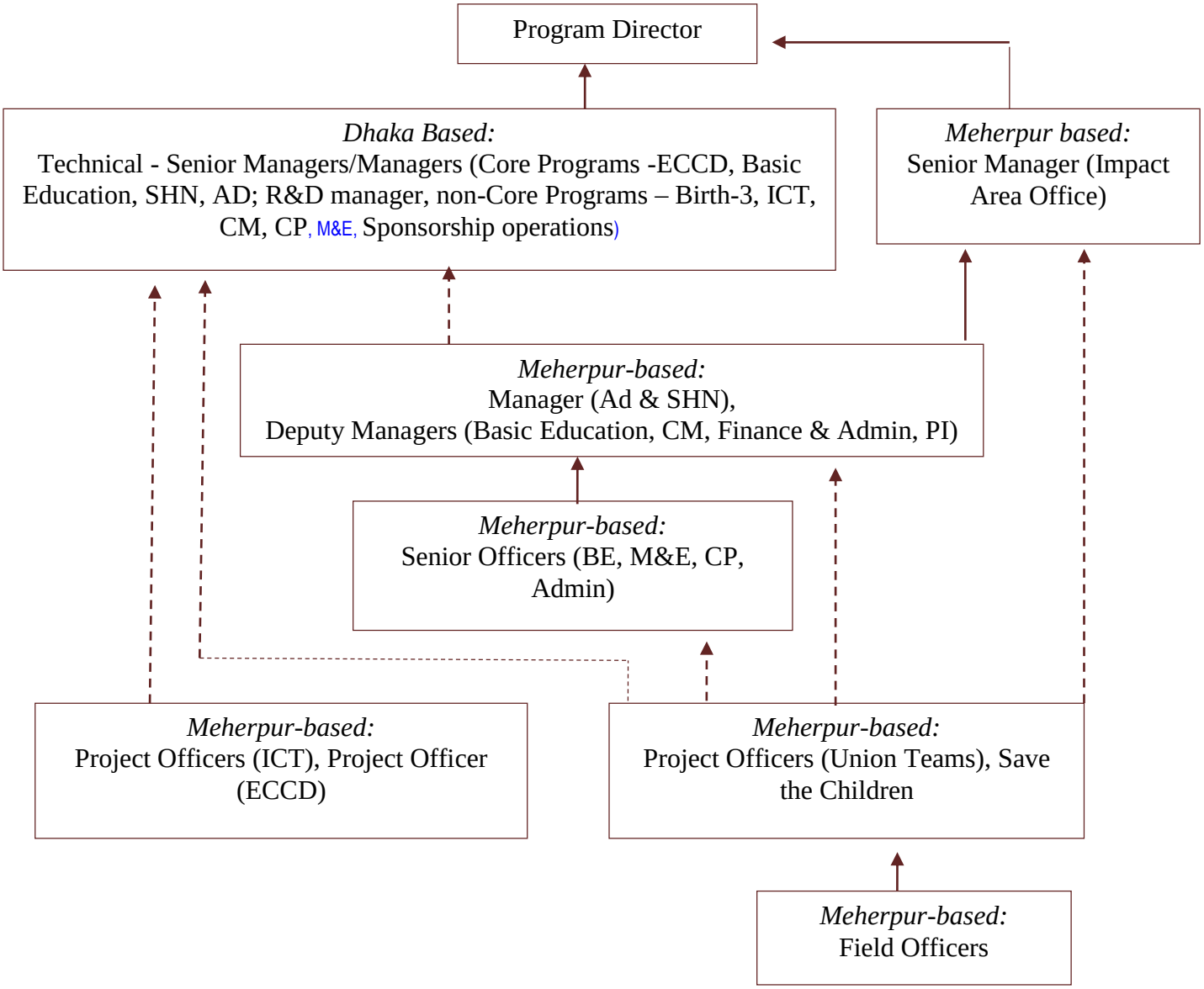
Appendix 1b: Map of Meherpur, Bangladesh with 3 subdistricts*



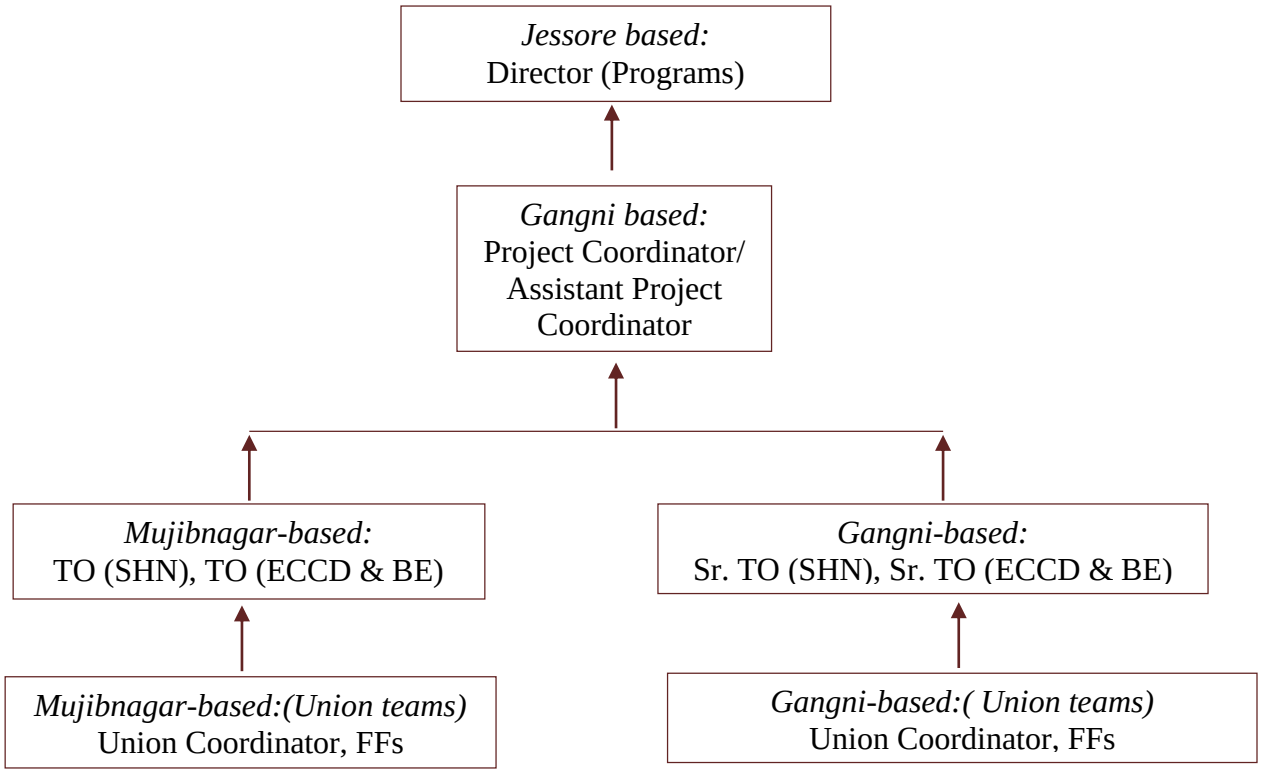
*Source: Country Window IT Center, Meherpur District, Bangladesh 2013 < http://www.countrywindow.net/index.php?id=339>

Appendix 2: Organogram of Shishuder Jonno

Shishuder Jonno (Save the Children):



Shishuder Jonno (Jagroni Chakra Foundation):



Appendix 3: Key Indicators for measuring achievements of SHN interventions:

Health education
% of children in intervention schools who can recall 5 of the 7 good-health habits

Nails:
% of children observed with clean/ short nails

Breakfast
% of children who reportedly had breakfast this morning.

Nutrition
% of children who reported eating a variety of foods (e.g. rice, vegetables, beans, fruits) the previous day
% of children who know the main food groups/ types of foods that should be part of a diet

Tooth brushing
% of children who reported brushing their teeth at least two times a day
% of children who know that tooth brushing prevents cavities/ toothache/infection/ plaque

Hand washing
% of children who reported washing hands with soap at the two most critical times of the day (before eating and after toilet)
% of children who reported using soap and water for hand washing
% of children can demonstrate correct method of washing hands with soap

Latrines
% of children who reported using a toilet the last time they defecated in school
% of children who reported using a toilet the last time they defecated at home
% of children who know that one must defecate in the toilet to prevent communicable diseases/ diarrhea
% of children who can recall two hygiene steps of washing hands and wearing slipper when they defecate.

Diarrhea
% of children who know the treatment of diarrhea is oral saline
% of children who know how to make oral saline

WASH
% of children know what is a sanitary latrine — one that is clean, with no visible feces on the floor, no smell or flies

Appendix 4: List of schools selected for the KAP survey; Meherpur, 2013

SL	Name of Primary School	School Type	Union	Sub-district	Survey date	Team #
1	Vatpara GPS	GPS	Dhankhola	Gangni	20.06.13	1
2	Dharmochaki GPS	GPS	Shaharbati	Gangni	20.06.13	2
3	Dhapa GPS	GPS	Dhankhola	Gangni	20.06.13	3
4	Hariadoho GPS	GPS	Raypur	Gangni	20.06.13	4
5	Khorompur RNGPS	RNGPS	Dhankhola	Gangni	22.06.13	1
6	Anandobash RNGPS	RNGPS	Raypur	Gangni	22.06.13	2
7	Bhomordah RNGPS	RNGPS	Shaharbati	Gangni	22.06.13	3
8	Barshibaria	RNGPS	Pirojpur	Sadar	22.06.13	4
9	Horirampur GPS	GPS	Buripota	Sadar	23.06.13	1
10	Shalika RNGPS	RNGPS	Buropota	Sadar	23.06.13	2
11	Kutubpur GPS	GPS	Kutubpur	Sadar	23.06.13	3
12	Hannangonj	GPS	Amjhupi	Sadar	23.06.13	4
13	Uzalpur GPS	GPS	Kutubpur	Sadar	24.06.13	1
14	Shaid Captain	GPS	Municipality	Sadar	24.06.13	2
15	Moyamari	GPS	Amjhupi	Sadar	23.06.13	3
16	Patkelpota	RNGPS	Pirojpur	Sadar	24.06.13	4
17	Subidpur RNGPS	RNGPS	Kutubpur	Sadar	26.06.13	1
18	Sunapur RNGPS	RNGPS	Pirojpur	Sadar	26.06.13	2
19	Babupur GPS	GPS	Mohajanpur	Mujibnagar	26.06.13	3
20	Anandobash GPS	GPS	Bagoan	Mujibnagar	26.06.13	4
21	Bagoan RNGPS	RNGPS	Bagoan	Mujibnagar	01.07.13	1
22	Gangni Madrasha	Madrasha	Municipality	Gangni	01.07.13	2
23	Meherpur Mohila Madrasha	Madrasa	Municipality	Sadar	01.07.13	3
24	Ayeshanagar Dakhil Madrasa	Madrasha	Mohajanpur	Mujibnagar	01.07.13	4

Team: 1	Shohel Rana, Asma, Rafiqul
Team: 2	Obaidur, Rukaiya, Nasrin Parvin
Team: 3	Shiplu, Rinki, Nasrin Akter
Team: 4	Uzzal, Rubana, Rehena

Appendix 5: KAP student questionnaire; English version, 2013 (Final format in Tangerine software)

1) Consent

READ THE SURVEY EXPLANATION AND ASK FOR STUDENT'S CONSENT. ASK THE RESPONDENT TO SIGN THE INFORMED CONSENT?

তোমাকে শুভেচ্ছা। আমার নাম _____। আমি সেভ দ্য চিলড্রেন এ কাজ করি। Tomar ekta boro bhai/bon'er moto, thik ache? Tomar bhoy paoar kichchu nei, ami ajke tomar shathe khali ektu golpo korte chai, okay? Tumi bashay, school'e ki koro,
এটি জানার জন্য আমরা এখানে এসেছি। আমিতোমার স্কুল এবং পরিবার সম্পর্কে কিছুটা জানতে আগ্রহী। আমি তোমার কাছে কয়েকটিজিনিস জানতে চাইব। আশা করছি তুমি আমাদের সঠিক তথ্য দিয়ে সহায়তা করবে।প্রথমেই তোমার নামটা লিখে নিই। তোমার দেয়া সব তথ্য শুধু তুমি আর আমিই জানব। Abaro bolchi, eta kono porikkha na...tumi ja bolbe, ota pore mone rakhar jonno, ami ektu note likhte chai, okay?
এসো আমরা এখন আলোচনা শুরু করি। Kono shomoy jodi tumar ekta proshno bujhte shommosha hoy, tumi amake khule bolo. Kono proshner uttor tumi jodi na jano, tahole kono oshubidha nei, tumi amake bolo je "apu/bhaiya, ami ei proshner uttor ta jani na"--kono problem nai, thik ache?

আলোচনার মাধ্যমে নেয়াউত্তরগুলির সাথে স্কুলে তোমার পাশ ফেইলের কোন সম্পর্ক নেই।

2) Date of Interview (AUTOFILL) (date)
Data Field Name : STU_DOI

3) Interviewer Name (multi)
Data Field Name : STU_ENUM

4) Sub-District Name (multi)
Data Field Name : STU_SUBDISTRICT

1. Sadar
2. Mujibnagar
3. Gangni

5) School Name (multi)
Data Field Name : STU_SCHOOL

6) Respondent Name (text)
Data Field Name : STU_NAME

7) Mention the year you were born? (multi)
Data Field Name : STU_DOB_YEAR

Possible responses:

1. 2007

2. 2006
3. 2005
4. 2004
5. 2003
6. 2002
7. 2001
8. 2000
9. 1999
10. 1998
11. Do not know

8) Mention the month your were born? *(enter June if respondent does not remember)* (multi)
Data Field Name : STU_DOB_MONTH

1. January
2. February
3. March
4. April
5. June
6. July
7. August
8. Sep
9. Oct
10. November
11. December
12. Do not know

9) Mention the date your were born? *(Enter 15 if respondent does not remember)*
Data Field Name : STU_DAB_DATE

Enter manually

10) Gender
Data Field Name : STU_GENDER

1) Male
2) Female

11) Grade
Data Field Name : STU_GRADE
1) Class 4
2) Class 5
3) Other
4) Don't Know

**Already prepared to be measured* (Need height scale/working weight scale)*

12) Please stand against the height chart. (*Note the height of child on the chart; Enter number manually)*

_____cm

13) Please stand on the weighing scale. (*Note the weight of the child; Enter number manually)*

_____ kg

Health Education

14) Tell me at least 5 healthy habits that you have learned from your school?

1. Brush teeth twice a day; one after breakfast and another at night
2. Wear slippers/shoes all the time especially during using toilet/latrine
3. Wash hands after using toilet/latrine
4. Come to school after having meal/not in empty stomach
5. Take food that is nutritious/ balanced
6. If diarrhea, take oral saline and go to doctor if the situation not improved
7. Trim extra nails once weekly
8. Don't know
9. Others:

Nutrition *(practice)*

15) Did you eat for breakfast this morning?

1. Yes
2. No
3. Don't Know/Don't Remember
4. No answer

* If No, or Don't Know/Don't Remember, or No answer, Skip to Question 17 *

16) If yes, what did you eat for breakfast? (multi)

*Probe needed. For example, if the child replies "rice" or "roti', go ahead and ask "were there anything else, other than rice/roti?"

1. Rice
2. Roti
3. Egg
4. Green vegetable (shaak)
5. Other Vegetables (e.g. Potatoes, tomatoes, pumpkin)
6. Lentils
7. Fish
8. Chicken
9. Beef
10. Mutton

11. Biscuit
12. Milk
13. Fruits
14. Others
15. Nothing
16. Don't Know/Don't Remember
17. No answer

18) What food do you think should be eaten every day/nutritious food? (multi)

1. Rice
2. Roti/Bread
3. Egg
4. Green vegetable (shaak)
5. Other Vegetables (e.g. Potatoes, tomatoes, pumpkin)
6. Lentils
7. Fish
8. Chicken
9. Beef
10. Mutton
11. Biscuit
12. Milk
13. Fruits
14. Others
15. Nothing
16. Don't Know/Don't Remember
17. No answer

<u>Tooth brushing</u>

20) Yesterday, when did you brush your teeth? **If the answer is morning/evening, ask again before and after doing what* **(multi)**

1. In the morning before eating
2. In the morning after eating
3. In the afternoon during showering
4. In the evening before going to bed
5. Other
6. Don't Know/Don't Remember
7. No answer

21) Do you think brushing your teeth is useful?

1. Yes
2. No
3. Don't know/Don't remember
4. No answer

* If No, or Don't Know/Don't Remember, or No answer, Skip to 22 *

22) In your opinion, what is the benefit of tooth brushing? (multi)

1. No broken teeth/ cavities
2. No toothache (pain)
3. Good for health
4. No plaque (not yellowish color)
5. Teeth will be clean and look nice
6. No infection (prevent diarrhea, tummy ache)
7. To prevent bad smellGerm will infect food
8. Don't know/Don't remember
9. No answer
10. Other

Hand washing

23) Have you washed your hands today? ***(introductory question)***

1. Yes
   No
2. Don't Know/ Don't Remember
3. No answer

24) When all do you wash your hands? ***(reported practice)***

1. Before eating food
2. After eating food
3. After using toilet
4. After playing in dirty field
5. Don't Know/Don't Remember
6. No Answer
   Others

25) How do you wash your hands usually? (*ask, with what?)*

implied use of water when using the word "wash"

1. Water (only)
2. Soap
3. Ash
4. Nothing
5. Don't know/Don't remember
6. No answer
7. Others

Availability and access to sanitary latrine

26) Did you ever defecate at school?

1. Yes
2. No

3. Don’t Know/ Don’t Remember
4. No answer

* If No, or Don’t Know/Don’t Remember, or No answer, Skip to 28*

27) Where did you defecate, the last time you defecated at school?

1. School latrine/Toilet/Bathroom
2. Bush/ school yard
3. River/canal/pond
4. Yard/Playground
5. Field (crops)
6. Don’t know/Don’t remember
7. No answer
8. Others

** If Don’t Know/Don’t Remember, or No answer, Skip to 28**

28) If answer is other than school latrine, why did you not use the latrine?

1. No latrine/toilet at school;
2. Latrines/toilets are dirty;
3. Latrines/toilets are locked;
4. Afraid to go latrine/toilet alone
5. Latrine is unstable/dangerous/falling apart
6. Latrine/toilet line too long
7. No water/Not enough water
8. No soap/ash
9. Others
10. Don’t know/ Don’t remember
11. No answer

29) Where did you defecate, last time you defecate at home?

1. Latrine/Toilet/Bathroom
2. Neighbors
3. Bush
4. River/canal/pond
5. Yard/Playground
6. Field (crops)
7. Others
8. Don’t know/ Don’t Remember
9. No answer

** If Latrine/Toilet/Bathroom/ or Don’t Know/Don’t Remember or No answer, Skip to 31**

30) If answer other than latrine, why did you not use the latrine?

1. No latrine at home;
2. Latrines are dirty;
3. Latrines are locked;

4. Afraid to go latrine (latrine unstable/dangerous/falling apart);
5. Latrine line too long;
6. Not enough water
7. Don't know
8. Others
9. Not applicable

31) What are two good habits to following when you go to defecate? (multi)

1. Wash your hands after defecating
2. Wear slippers when you defecate
3. Don't know
4. Others
5. Don't answer

32) What must a sanitary latrine look like? (multi)

1. Clean/presentable/looking nice
2. No feces
3. No smell
4. No leaves/sticks/twigs
5. No broken bucket
6. Availability of soap
7. Availability of clean water
8. No flies/insects
9. Don't know/ Don't Remember
10. No Answer
11. Others

33) Why must we use a latrine for defecation? (multi)

1. Keeps the environment clean
2. Prevent bad smell
3. Prevent germs/diseases/diarrhea
4. Taught to do so at school/home
5. Shameful/impolite to do so
6. Do not know
7. No answer
8. Others

<u>Diarrhea</u>

34) What do we mean by diarrhea? What is diarrhea? *(probe: how many times)* **(multi)**

1. Passage of loose stools at least 3 times a day
2. Passage of loose stools many times
3. Others
4. Do not know

MAKE SURE WE SAY: Please explain diarrhea to the respondent and make sure the respondent understand about diarrhea.

35) What is the treatment for diarrhea? (multi)

1. Drinking oral rehydration solution
2. Breastmilk for babies
3. Sugar salt solution
4. Drink other liquid
5. Medication from a doctor, midwife, or health center
6. Traditional remedies
7. Do not know/Don't Remember
8. Do not answer
9. Others

36) What are the ingredients to making ORS? (multi)

1. Salt
2. Sugar/ Molasses
3. Clean Water
4. Other
5. No answer
6. Do not know/Don't Remember

Health Services

I would now like to ask you some questions about health services such as vitamin A supplementation and iron supplementation.

39) What is the benefit of having Vitamin-A capsule twice yearly? *See one of the first three answers as being correct* (multi)

1. To improve eating habits
2. To improve anemia
3. To prevent night-blindness/improve eye-sight
4. Don't know/Don't Remember
5. No answer
6. Other

40) What is the benefit of having weekly Iron tablet? *See one of the first three answers as being correct* (multi)

1. To improve eating habits
2. To reduce tiredness
3. To improve anemia
4. To improve blood hemoglobin
5. Don't know/Don't Remember
6. Other

Nails

41) Please show me your nails? (multi)

NOTE THE FOLLOWING (multiple choice)
**Enumerator observation* --need consensus on the definition of "clean" and "short"—take a photo of a few hands of a clean/dirty*

1) Short
2) Clean
3) Dirty
4) Long
5) Others

42) Please demonstrate how you wash your hands. *(Tick all that are applicable)*
Demonstration with actual water/soap/towel

1. Wet hands with running water
2. Apply soap to all parts of hands
3. Rub hand palm
4. Rub back of the hand
5. Rub between fingers
6. Rinse with water
7. Dry hands in air or clean towel
8. Dry hands in dirty clothes

Appendix 6: Shishuder Jonno's "Seven Healthy Habits" Chart, 2010