New salt bill is a real commitment to human development

Saiqa Siraj & Tomoko Nishimoto

Despite steep challenges, including frequent natural disasters, poverty rates, and the COVID-19 pandemic, Bangladesh has defied the odds to make progress in its development goals. It bucked the global recession during the pandemic year, with 5.1% GDP growth in 2020 – the highest growth rate in South Asia. The country has also made significant headway in reducing infant mortality rates and increasing life expectancy.

Now, Bangladesh is taking another step to improve national health outcomes, with the 'Iodised Salt Bill' currently in front of the parliament. This is not just a piece of legislation; it is a real commitment to human development.

Iodine is an essential micronutrient, especially critical during foetal development and in the first few years of a child's life. Iodine deficiency can result in lifelong cognitive disability and impairment, goitre and even death. Every year, approximately 16.2 million babies are born in developing countries without adequate iodine and nearly one billion people globally remain at risk of iodine deficiency.

Salt iodisation has been one of the world's most successful public health campaigns in recent decades and is the most effective way to combat iodine deficiency. It is also one of the most cost-effective interventions, costing less than US$ 0.05 per capita per year. As of 2020, 108 of 139 low-and-middle-income countries have legislation on universal salt iodisation.

Bangladesh has done a remarkable job in bringing down once-epidemic levels of goitre and thyroid disease. In the mid-1990s, 47% of the population suffered from goitre. Today, that number is well below 6%. Yet only 57.6% of households use adequately iodised salt, meaning that about 68 million households consume inadequately iodised salt, leaving them vulnerable to iodine deficiency disorders.

This new law seeks to close this gap and improve the availability of adequately iodised salt. The 'Iodised Salt Bill', when enacted, mandates that all edible salts, including salt used for livestock and the production of processed food items for human consumption, be iodised at 30-50 parts per million. It brings in clear and standardised guidelines for salt production, stocking, import and marketing, and mandates registration of manufacturers sellers and importers. The new law also increases penalties for violations.

Akhil Ranjan Tarafdar, the project director of the Control of Iodine Deficiency Disorders (CIDD) project, is confident the new legislation will increase adequately iodised salt coverage to 100%. The CIDD project has been instrumental in reducing iodine deficiency in the country. For the last 15 years, Nutrition International has been working with the government, salt producers and citizens to improve salt iodisation in Bangladesh. From providing technical support to salt processors and the Bangladesh Small and Cottage Industries Corporation (BSCIC), upgrading laboratories, supporting the maintenance of iodisation plants, introducing new technology, and training CIDD project officials, Nutrition International is proud to have contributed to national salt iodisation efforts. This bill is the culmination of Nutrition International's long-standing partnership with the government of Bangladesh.

Nutrition International has been at the forefront of cost-effective, scalable nutrition interventions globally and is a champion of universal salt iodisation. Nutrition International has supported efforts for universal salt iodisation, as well as vitamin A supplementation, rice fortification, behaviour change interventions, and improving the affordability of nutritious foods in Bangladesh. Nutrition International delivers targeted interventions for women, girls and children – and works with them – to ensure they have the nutrition they need to thrive.

The 'Iodised Salt Act' will help to increase access to an important micronutrient and improve the health of the population. And for the country's children, this is a huge step forward in ensuring that they can grow fully and develop properly, giving them a better chance to have a healthy, happy life and reach their full potential.

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IMMUNITY

The optimal way to measure immunity to SARS-CoV-2

Several serologic assays are available for detecting antibody responses to SARS-CoV-2 infection; however, their sensitivity and specificity are limited and their correlation with viral neutralisation (considered a marker of protective immunity) is unclear, thereby obscuring their interpretation. To examine this issue, researchers assessed antibody levels as detected by enzyme-linked immunosorbent assay (ELISA) of four viral antigens (the receptor-binding domain [RBD], the spike protein, UV-inactivated SARS-CoV-2 virus, and the nucleocapsid protein [NP]), followed by a standard viral neutralisation assay. Plasma from 15 individuals who had symptomatic COVID-19 and who were enrolled around 21 days after their positive PCR test were compared with 30 negative blood-bank samples obtained prior to December 2019.

Using criteria of high specificity, negative predictive value, low misidentification of subjects, and strong agreement with the plaque reduction neutralisation test, ELISAs for RBD IgG, spike protein IgG3, and NP IgG all performed well — with the ELISA for spike protein IgG3 performing best. This small study employed viral neutralisation testing as a benchmark to measure the sensitivity and specificity of several antibody assays involving different SARS-CoV-2 antigens. Among these, the ELISA for the spike protein IgG3 was optimal.

The authors suggest that this assay could be followed by a viral neutralisation assay to more fully assess protective immunity.

HEALTH *bulletin*

For SARS-CoV-2 detection, saliva performed as well as nasopharyngeal swabs

Assessing nasopharyngeal (NP) swabs with nucleic acid amplification testing (NAAT) is considered the gold standard for detecting SARS-CoV-2, but proper sample collection requires trained personnel and is uncomfortable. Saliva, by contrast, is easily self-collected.

In a meta-analysis and systemic review, researchers evaluated NAAT testing of saliva versus NP swab specimens. Sixteen studies were included; of these, 10 exclusively tested outpatients and 2 involved population screenings in which participants were not required to show symptoms of COVID-19.

In all, 5,922 subjects underwent NAAT testing of saliva and NP swabs; 4,981 had negative tests for both samples and 941 had positive tests for one or both samples. The pooled sensitivity and specificity was 83.2% and 99.2%, respectively (saliva), and 84.8% and 98.9% (NP swab). Similar results were seen in a sensitivity analysis limited to outpatients undergoing a single test with each assay.

Routine serial screening for SARS-CoV-2 is central to a comprehensive strategy for controlling the pandemic in universities and other settings where social distancing is difficult to achieve. This study provides evidence that using easy-to-collect saliva specimens rather than NP swabs will not significantly compromise such efforts.

Recycled lead-acid battery putting Bangladesh in danger

Dr Mahfuzar Rahman

More than a million battery-operated auto-rickshaws sprang up out of nowhere in Bangladesh and are now being used by millions of people every day. This is a newly added innovative technology in Bangladesh's transport system. It is often called an easy-bike, charger or auto, which is now a well-known name in the field of transport. The technology has been introduced to Bangladesh in 2009 and all urban and rural areas have now been equipped with these easy-bikes. These are considered as the cheapest and instantly available mode of public transport. From the beginning, it has been popular among the lower and middle-class people because of low transport cost.

The use of lead-acid batteries has sharply risen because of the increased demand for easy-bikes in the transport sector. About 97% of lead-acid batteries in Bangladesh are manufactured by recycling batteries and scrap metal. Lead recovered from old batteries by crude smelting process is used as raw material to manufacture a new battery. This recovered lead is used and subsequently recycled for several occasions. There are as many as 1,100 informal and illegal recycling/recharging establishments all over Bangladesh and one-third of these establishments are found in the Dhaka division. The majority of lead batteries in Bangladesh end up being recycled by unregulated small-scale operators. During this process, vaporised lead contamination occurs in the air while being discarded acid pollutes the environment.

These huge contamination revealed a high blood level among children and adults. The national mean blood lead level (BLL) among Bangladeshi children is estimated to be 7 µg/dl. 47% of children (28.5 million out of 60 million children) live with levels of lead in their blood above the safe level. We know that lead is a potent neurotoxin. Recent evidence suggested, even at low levels, lead damages the intellectual development of young children, reducing IQ and attentive disorder. Bangladesh is estimated to have the 4th highest rate of death attributable to lead exposures, globally.

Measures should be taken to restrict or control any source of lead dust or fumes by applying proper technical control measures in every step of the lead-acid battery manufacturing process. Battery manufacturing workers should be made aware to undertake precautionary measures to use personnel protective equipment (PPEs) and maintain personal hygiene. Periodic estimation of blood lead level and examination of manifestations attributable to lead toxicity are to be undertaken for early detection and preventive measures as well. Ingesting soil and dust are primary pathways of children's exposure to several environmental contaminants.

The government should take steps to ensure that the recycling of both formal and non-formal lead-acid batteries is done in a safer and environmentally friendly way.

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Simple lifestyle changes can make a world of difference to your quality of sleep. Follow these tips for a more restful night.

Keep regular sleep hours: Going to bed and getting up at roughly the same time every day will programme your body to sleep better. Choose a time when you are likely to feel tired and sleepy.

Create a restful sleeping environment: Your bedroom should be a peaceful place for rest and sleep. Temperature, lighting, and noise should be controlled so that your bedroom environment helps you to fall (and stay) asleep.If you have a pet that sleeps in the room with you, consider moving it somewhere else if it often disturbs you in the night.

Exercise regularly: Moderate exercise on a regular basis, such as swimming or walking, can help relieve some of the tension built up over the day. But make sure you do not do vigorous exercise, such as running or the gym, too close to bedtime, as it may keep you awake.

Cut down on caffeine: Cut down on caffeine in tea, coffee, energy drinks or colas, especially in the evening. Caffeine interferes with the process of falling asleep, and also prevents deep sleep. Instead, have a warm, milky drink or herbal tea.

Do not over-indulge: Too much food or drink, especially late at night, can interrupt your sleep patterns.

Do not smoke: Nicotine is a stimulant. People who smoke take longer to fall asleep, wake up more frequently, and often have more disrupted sleep.

Try to relax before going to bed: Have a warm bath, listen to quiet music or do some gentle yoga to relax your mind and body.

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