

HEALTH IN THE BUDGET 2018

In this year's Union budget, the Government of India has laid out the blueprint for what is being described as the world's largest healthcare program. The National Health Protection Scheme plans to cover over 10 crore poor and vulnerable families, and will provide coverage upto Rs. 5 lacs per family per year for secondary- and tertiary-care hospitalization. About 150,000 Health and Wellness Centers will provide comprehensive healthcare, including for non-communicable diseases and maternal and child health services. These centers will also provide free essential drugs and diagnostic services. An additional Rs. 600 crore has been allocated to provide nutritional support to all patients with tuberculosis at the rate of Rs. 500 per month for the duration of their treatment.

The government also proposes to start 24 new government medical colleges and hospitals by upgrading existing district hospitals in the country. The aim is to ensure that there is at least one medical college for every three parliamentary constituencies, and at least 1 government medical college in each state of the country. (*The Hindu 1 February 2018*)

METHYLENE BLUE IN MALARIA

Artemesin-resistant malaria is an emerging problem in South-East Asia. World Health Organization's global plan for containing artemisinin resistance recommends adding a single dose of primaquine to reduce ongoing transmission. A study recently published in the *Lancet Infectious Diseases* from Mali has shown that giving methylene blue (15 mg/kg/day for 3 days) along with dihydroartemisinin-piperaquine to patients with falciparum malaria can effectively prevent transmission of gametocytes from humans to mosquitoes. Transmissibility was assessed by molecular quantification of sexual stage-specific mRNAs and by membrane feeding blood to mosquitoes and counting the oocytes that formed. Both primaquine and methylene blue were highly effective in reducing gametocytemia and preventing transmissibility within 2 days.

Although primaquine can induce hemolysis in individuals with glucose-6-phosphate dehydrogenase (G6PD) deficiency, a single low dose of 0.25 mg/kg is safe and well tolerated, even in G6PD-deficient individuals. The antimalarial properties of methylene blue was first described by Paul Ehrlich in the 1890's. Though *in vitro* it acts against many of the stages and species of malaria, *in vivo* its clinical efficacy was considered insufficient.

Adverse effects like gastrointestinal intolerance and urinary discoloration are also seen. This study has shown that methylene blue may be a useful addition in the armamentarium of drugs to prevent transmission of malaria from man to mosquito. (*The Lancet Infectious Diseases 6 February 2018*)

NEW CSF REFERENCE VALUES FOR YOUNG INFANTS

A large multicentric study evaluating 7766 infants has tried to relook at the normal values of CSF in very young infants. In this study, the upper value of normal for cells in the CSF in neonates (age <28 d) was 15 cells/mm³. For infants between 1-2 months of age, the upper limit of normal was 9 cells/mm³. The upper cut-off limit for CSF protein levels was 127 mg/dL and 99 mg/dL for age upto 1 month and between 1-2 months, respectively. The lower limit for CSF sugar values were 25 mg/dL for upto 1 month and 27 mg/dL for babies between 1-2 months of age.

In addition to the reported values, the authors use scatter plots with smoothed centile curves to show the age-related decline in CSF white-blood-cell counts and protein concentrations, and the increase in CSF glucose concentrations, during the first two months of life. The authors are also considering creating an App with normograms similar to the Bhutani charts for hyperbilirubinemia. (*Pediatrics February 2018*)

CHINESE SCIENTISTS CLONE MONKEYS

History was written in 1996 when Dolly – the first cloned animal – was born in Scotland. Since then, scientists have successfully used somatic cell nuclear transfer (SCNT) to clone more than 20 other species, including cows, pigs, dogs, rabbits, rats and mice. However, for mysterious reasons the technique failed in primates. Chinese scientists have finally managed to clone two identical long tailed macaques using SCNT, which involves transferring the nucleus of a cell, which includes its DNA, into an egg that has had its nucleus removed.

The research was published on 24th January 2018 in *Cell*. It took upto 127 attempts by the scientists for which they had to use various modulators to switch-on and switch-off the genes inhibiting embryo development. Though the work of these scientists is at the cutting edge of biomedical research, a broader and deeper viewpoint of long-term consequences of these ethically gray areas need to be considered before proceeding on these uncharted seas. (*Medscape 24 January 2018*).

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