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Family Planning Program *Need for gender equality*

India is one of the first countries to realize the importance of family planning for economic growth and development. The national family planning program was launched in the country in 1952. However, the way it has been implemented is a little lopsided. Even half a century later, the onus of family planning is not shared equally between men and women. This may have something to do with a more widespread marketing of female contraceptives as opposed to male contraceptives. As a result, female sterilizations are the mainstay of family planning while male sterilizations account for a paltry percentage.

Then there is the problem of female education. The lack of female literacy breeds misconceptions regarding family planning and the methods to achieve it. This also leads to unsafe abortions in several parts of the country. Also, despite the implementation of the program, India still lags behind its targets. There is a countrywide imbalance in the results of the program. This could be improved if women are empowered through education and economic opportunities. There is evidence to suggest that independent women are more informed about the options available for family planning and make smarter choices to secure their future and that of their children. In a General Article on **page 633** scientists discuss the importance of women empowerment for the success of the national family planning program.

Cancer Therapy Design *Computers take over*

The cell cycle is a highly regulated process through which a parent cell divides into two daughter cells. Nature has developed several contingencies to ensure that the cycle continues without any errors. But, sometimes, a cell might deviate from the charted path and replicate aggressively to form a malignant tumour. This usually hap-

pens due to genetic defects. Because every tumour is genetically distinct, the best course of treatment varies between patients.

Now, computers may step in to design efficient cancer therapy for different patients. On **page 677**, Natasha Singh and Ajay Kumar, from the Thapar University, Patiala, discuss how. Even though cancer is a disease of faulty genes, there is a certain trait that is common to all malignant cells – they go on dividing indefinitely. So, computer programs like Finite automata and Büchi automata could be trained to look for discrete cancer states. Both Finite automata and Büchi automata are programs that can detect patterns in different ways. As the name suggests, the Finite automaton identifies a specified pattern. The Büchi automaton could then use this initial design to model an infinite cancer progression pattern. By using both these programs in succession, scientists describe a way to select the best course of treatment for patients. Read more in a Research Article.

Another Cause of Anaemia *The lesser known factor*

Deficiency of iron is usually linked with anaemia. Now, on **page 692** a research article reveals another factor that could contribute to this deficiency disease.

Anaemia is a condition of low haemoglobin in the blood. Haemoglobin is the protein which gives blood its red colour. It also plays the important role of carrying oxygen to different parts of the body. Because iron is essential for its formation, diets lacking this mineral could lead to anaemia. There have been several efforts to eliminate the condition by supplying iron and folic acid to school children. Ideally, it should have improved the haemoglobin status of those who consumed the supplements. But that's not the case.

Studies show that in some cases, anaemia may also be caused due to deficiency of an important vitamin – vitamin B₁₂. This nutrient is made by

the gut flora of the body and helps in hemoglobin biosynthesis. Now, scientists from the Fluorosis Foundation of India and the All India Institute of Medical Sciences, Delhi, have identified yet another factor that can affect both iron absorption and meddle with the gut microbes in humans. They found that its consumption by pregnant women can lead to the development of anaemia during pregnancy which in turn raises the risk of anaemia in the progeny. To know the identity of this factor, read the Research Article.

Combating Hospital Infections *Antimicrobial plant oils*

According to the Centre for Disease Control and Prevention, in the US, 99,000 people die each year due to hospital acquired infection from bacteria and fungi combined. The figures could be higher in India. A report published in 2015 shows that the number of device-associated infections acquired over a decade from 40 hospitals in 20 cities was greater than the average infection rates from the same source in the US.

Apart from devices, hospital linen is also a common source of nosocomial or hospital acquired infections. While the linens are washed regularly, it does not mean that they are always sterile. Some bacteria may persist if sufficient antimicrobial agents were not used during washing. These could then infect other patients. Now, researchers from the SSM Polytechnic College, Komarapalayam and the Rajalakshmi Engineering College, Chennai, have tested certain plant oils on cotton twill tape for their antimicrobial and antifungal effect. After applying the oil, they also washed the twill tapes with water for up to five times to see if the fabric would retain the antimicrobial effect. To know if the strategy worked, read the Research Communication on **page 779**.

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