

## Editorial

### Creating healthy heart environment

Traditional approaches regarding healthy heart strategy have largely remained individual centric with emphasis on educating individuals about conventional risk factors (smoking, diabetes, hypertension, dyslipidaemia, physical inactivity) with an aim to modify them. This strategy is based on the premise that cumulative effect of modifying these risk factors in individuals will result in population based changes (in these risk factors) leading to a decrease in the cardiovascular mortality of the population. On the other hand, environmental approaches for the healthy heart recommend a paradigm shift from individual centric approach to an upstream approach of changing the overall environment of the individual, society and nation by involving societies, local bodies and governments.

India being home of around 62 million coronary artery disease (CAD) patients with a relatively younger population being affected<sup>1</sup>, such strategies are of paramount importance. Ban on smoking in public places is an example of creating healthy heart environment. To create heart healthy environment, we need to identify (i) individual and population goals, (ii) high risk population, and (iii) barriers and promoters for change. Motivating an individual to change the environment poses many barriers and is unlikely to be effective<sup>2</sup>.

#### Creating environment for physical activity

Create built environments that make it easier for people to be physically active, particularly by facilitating people to walk and cycle. Built environments include buildings, grounds, layout of societies, roads, cycle tracks, parks, transportation, *etc.* Societal changes in the modern societies, mechanization, and computerization

have put barriers to the physical activity leading to a dramatic decrease in the routine physical work. Physical activity could be recreational/exercise, household, occupational and transportation related. All these spheres have different built environment, regulations and policies. Provision for parks and recreational activities for children, families and institutes/organizations such as schools is an important factor for promoting exercise. Easy accessibility to parks, sport fields and trails is positively associated with physical activity. Quality of these facilities is also a significant contributor to physical activity. Surrounding scenery, trail conditions, absence of noise, lighting, rest rooms promote trail use while parks with walkways, courts and multipurpose facilities are likely to promote physical activity<sup>3</sup>. Dedicated bicycle paths/trails may promote active transportation. Presence of a public transport facility nearby and its use are also associated with increased physical activity as solely walking to and from public transport facility contributes to physical activity. A good public transport system is important for active transportation and also contributes to less vehicular pollution. Proximity of workplace/school to residence, supportive pedestrian infrastructure and safety conditions are consistently associated with higher rates of walking. An international study has shown that in activity supported residential areas walking rates are two times higher than least supported neighbourhoods<sup>4</sup>. In nutshell, health professionals should collaborate with the local governments to make it easy for people to be physically active by changing the way that the built environment is designed. Planning for a healthy built environment puts the needs of people and communities at the heart of policy decisions regarding spaces in which people live, work and play<sup>5</sup>.

### **Food and nutrition**

Obesity, hypertension, dyslipidaemia and lack of fruits and vegetables in the diet are food-related risk factors for heart disease. A diet low in fat and sodium; moderate in calories and protein; high in fruits and vegetables, fibre, potassium, antioxidants, and other vitamins and minerals will help prevent atherosclerosis and hypertension. Food environments include cultural, familial, institutional, and commercial policies and practices for food production, acquisition, preparation, and consumption. Food habits vary widely in our country but in general food is fried and sugar rich leading to a higher incidence of diabetes and CAD. A ban on the sale of aerated cold drinks in schools is one such example of preventing potentially unhealthy food to school children. Design and layout of cities and towns is an important component in providing people physical and affordable access to safe, adequate, nutritious and culturally appropriate food. Governments and municipalities can play a key role in enabling food-sensitive planning and urban design to be implemented, which includes identifying opportunities for better access to healthy food for all. It will be appropriate to discourage the promotion of fast foods, by setting examples in healthcare facilities and schools.

### **Air and noise pollution**

Nearly 80 per cent of all premature deaths due to air pollution are because of cardiovascular diseases. Fine particulate matter also called PM<sub>2.5</sub>, has the ability to reach lower respiratory tract and thus enter the blood flow in large amounts with lots of toxins. PM<sub>2.5</sub> and NO<sub>2</sub> originate from industrial and vehicular combustion and are associated with increased incidence of severe heart attacks<sup>6</sup>. The impact is so much that the cardiac patients are often advised to stay indoors during rush hours to avoid vehicular pollution. World over, efforts are on to set norms and accountability for various causes of air pollution and formulate ways and means to minimize. Use and promotion of new and innovative technologies to decrease the industrial pollution is a matter of discussion at many international fora<sup>7</sup>. Noise pollution also contributes to the development of hypertension and atherosclerosis. Noise related stress is responsible for disturbances in autonomic nervous system leading to hypertension and accelerated atherosclerosis. A healthy heart strategy for air and noise pollution includes stricter norms for

vehicular and industrial pollution, public awareness about recognizing it as CAD risk factor, no-honking zones, promotion of clean and green energy (solar energy) and a wide range of other policy matters<sup>8</sup>.

### **Smoke and tobacco free environment**

Cigarette smoking and tobacco are well established risk factors for atherosclerosis. In recent years, health professionals have worked with governments and policy makers to reduce the prevalence of smoking in the community. A sustained campaign against tobacco products encompassing a wide range of social environmental conditions that create opportunities for smoke-free living is required to create a smoke free environment. Ban on smoking in public places, large warning signs, increase in taxes on tobacco products and all together ban on certain tobacco products are some of the initiatives that help in creating tobacco free environment. Consumption of tobacco which is causal factor in one third of CAD population<sup>1</sup> needs to be addressed more seriously by policy makers and the peer groups to make it socially unacceptable.

### **Health and prevention**

Preventive and medical services are important contributors in creating healthy heart environment<sup>9</sup>. Affordable, accessible and convenient health services ensure better prognosis of cardiac diseases. Management and modification of cardiac risk factors such as hypertension, dyslipidaemia, and diabetes also prevent CAD. Screening programmes for CAD risk factors identify at risk people, who would benefit from early counselling and treatment. Primary health care workers (family physician, ASHA or multipurpose health worker) play an important role in CAD prevention by treating risk factors. Guidance in simple and appealing language could be provided to the general public and primary health care workers on the importance of the most common risk factors and the most effective interventions. An example is the "rule of 80"<sup>10</sup> which has been proposed in 2004 and has since been modified to incorporate new evidence (Table). Along with primary health care facilities, speciality health care by cardiologists and endocrinologists is also required to treat advanced and complicated cardiac diseases. Adequacy of emergency health care system, early recognition of heart attack symptoms, availability of ambulances, and unique phone numbers for emergency calls and training for cardiopulmonary resuscitation are

**Table.** Rule of 80 for coronary artery disease

Risk factor/Intervention	Recommended level/dose
Fasting blood sugar	80 mg/dl
Diastolic blood pressure	80 mm Hg
LDL cholesterol	80 mg/dl
Waist circumference	80 cm
Aspirin	80 mg/day
Atorvastatin	80 mg/day
Walking	80 km/month
LDL, low density lipoprotein	

critical for saving many lives in the first few hours after myocardial infarction. Coronary care units (CCU) have contributed to significant reduction in the mortality due to myocardial infarction. Usually CCUs are available in large tertiary care centres in large cities. Proper distribution of tertiary hospitals and transportation services will ensure that the people living in remote areas can also be transferred to speciality hospitals in minimum possible time.

A new problem that has cropped up because of rapid evolution of technology is overprescription of investigations. This not only takes up significant time and resources but also leads to over treatment when none or less is enough. A classic example is coronary angiography which is an invasive diagnostic test that typically starts a therapeutic cascade involving revascularization. A joint initiative from health care providers, society and government can take care of this problem. One such example is the Society for Less Investigative Medicine (SLIM)<sup>11</sup>.

There are many other socio-economic factors which also contribute to provide healthy heart environment. Economic prosperity, employment, education, social support, public and personal safety are also critical factors in promoting overall health including healthy heart environment<sup>12</sup>. There is a need to generate momentum for creating environment for healthy heart. Some of the latest initiatives by the government such as “*Swachh Bharat Abhiyaan*” is one such step in this direction. We have a long way to go and all spheres of life to contribute in creating environment for healthy heart.

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