

The HEALTH

The young ones!

Young. Fit. Healthy. And still at risk. Malaysians are suffering heart attacks about a decade earlier than those in developed countries. Consultant cardiologist Datuk Dr Rosli Mohd Ali warns that when it comes to heart disease, youth is no longer the protection we think it is. **p08-09**

Innovation with purpose

True innovation delivers meaningful clinical benefits that improve comfort, vision quality and patients' everyday lives.

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Unpacking healthcare cost

Rising healthcare costs are exposing weaknesses across Malaysia's private medical system.

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Beyond Big Data

Big Data alone is no longer enough to meet the realities of modern clinical care.

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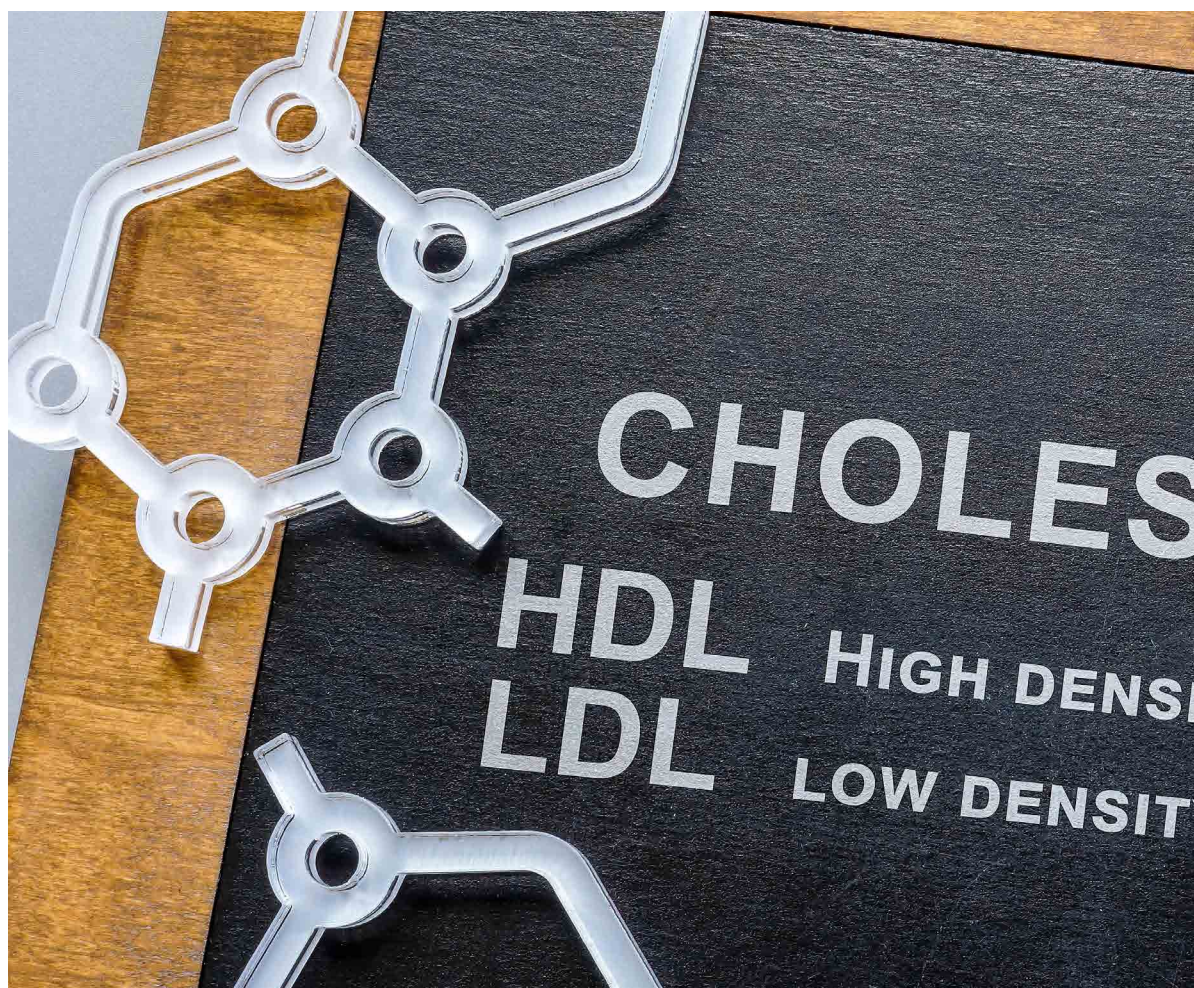
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The expectation of being permanently reachable is blurring the boundaries between work, home and rest, contributing to stress, poor sleep, reduced concentration and long-term physical and mental health risks.

The **HEALTH** says...

Healthcare reform cannot wait

FOR many Malaysians, private healthcare has long been seen as a safety net when the public healthcare system is overstretched. People pay insurance premiums year after year, expecting that if illness strikes, they will be able to receive timely treatment without facing overwhelming financial hardship.

That expectation is becoming harder to sustain.

In recent years, many families have found themselves paying more for medical insurance while also worrying about the rising cost of treatment. For retirees and those on fixed incomes, the situation is even more difficult.

Some are forced to reduce their insurance coverage, while others may have to give it up altogether. This raises an important question: is private healthcare becoming too expensive for the very people who depend on it most?

The answer cannot simply be to point fingers at hospitals, insurers or regulators. Healthcare is a complex system where every decision affects someone else. Hospitals face rising operating costs. Insurers must manage increasing claims.

Regulators work within existing laws and responsibilities. Yet, if every part of the system focuses only on its own challenges, it is ultimately patients who bear the greatest burden.

What Malaysians need is not another debate over who is responsible, but a shared commitment to solving the problem. Greater transparency would be a good place to start. Patients deserve to understand what they are paying for and why.

Medical bills should be clear, easy to understand and consistent. Healthcare is not like buying an ordinary product. Patients are often making decisions under stress and have little opportunity to question charges or compare prices.

Affordability should also become a national priority. Good healthcare should not become a privilege reserved only for those who can absorb repeated increases in premiums or medical bills. A system that forces people to choose between financial security and health does not serve the public well.

At the same time, reforms must recognise that hospitals and insurers also need to remain financially sustainable. Medical technology continues to advance, healthcare professionals must be fairly rewarded, and quality services require continued investment.

Sustainable healthcare does not mean keeping costs artificially low. It means ensuring that every ringgit spent delivers genuine value for patients.

The challenge ahead is therefore not simply about reducing costs. It is about building trust. When patients believe pricing is fair, when insurers communicate openly, and when regulators provide effective oversight, confidence in the healthcare system will naturally grow.

Meaningful reform will not happen overnight. It will require cooperation, political will and a willingness from every stakeholder to place patients at the centre of decision-making. Malaysians are not expecting healthcare to become inexpensive.

They are asking for something far more reasonable: a system that is transparent, fair and affordable enough to provide peace of mind when they need it most.

The invisible particles around us

- Researchers are increasingly viewing plastic pollution as a public health issue, as microscopic particles are now found in human tissues.
- From contaminated food and drinking water to airborne dust and synthetic fibres, exposure can happen in more ways than most people realise.
- New studies are investigating whether nanoplastics can bypass the blood-brain barrier and potentially interfere with normal brain function.



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WE live in an age when plastic is part of almost every aspect of daily life. We drink from plastic bottles, store food in plastic containers, wear synthetic fabrics, use personal care products packaged in plastic, and travel on roads where vehicle tyres shed tiny particles into the environment.

These conveniences have made modern life easier, but they have also created an invisible form of pollution: microplastics and nanoplastics.

Plastics do not completely decompose when discarded. Over time, sunlight, heat, friction and mechanical breakdown cause larger plastic items to fragment into smaller pieces.

Microplastics are generally defined as plastic particles smaller than 5 mm, while nanoplastics are even smaller particles that may be measured at the nanoscale. Because of their tiny size, these particles are often invisible to the naked eye, yet they are increasingly being detected in the air, water, soil and food chain.

Human exposure to microplastics may occur through several routes. The main suspected pathways are inhalation and ingestion. Tiny plastic particles can be released into the air from synthetic textiles, tyre wear, industrial activity, household dust and degrading plastic waste.

They may also enter the body through contaminated food and drinking water. Microplastics have been reported in sea-food, table salt, bottled water, tap water, and other food sources, although the amounts and significance of exposure vary widely across studies.

The World Health Organisation has highlighted that humans may be exposed to micro- and nanoplastics through food, water and air, but also emphasises that many uncertainties remain regarding their long-term health effects.

FINDING PLASTICS INSIDE THE HUMAN BODY

One reason microplastics have attracted growing scientific attention is their ability to move beyond the environment and into biological systems.

Recent studies have reported micro- and nanoplastics in several human tissues and biological samples, including the

lungs, blood, placenta, liver, kidney and, more recently, postmortem human brain tissue. However, detection alone does not prove that these particles cause disease.

Researchers are still working to improve sampling methods, avoid contamination during analysis, and understand what levels of exposure may be biologically meaningful.

The brain is of particular concern because it is one of the body's most highly protected and energy-demanding organs. It depends on a constant supply of oxygen and nutrients and contains billions of neurons that communicate through precise electrical and chemical signals.

Even small disturbances in this delicate environment may affect memory, learning, movement, mood and behaviour.

Normally, the brain is protected by the blood-brain barrier, a specialised structure that helps regulate which substances can pass from the bloodstream into brain tissue.

Experimental studies suggest that very small particles, especially nanoplastics, may cross or interfere with this barrier under certain conditions. Some laboratory and animal studies have shown that micro- and nanoplastics may affect blood-brain barrier integrity, enter neural cells, and trigger biological responses linked to cellular stress.

However, scientists have not yet determined how much microplastic or nanoplastic enters the human brain during ordinary environmental exposure.

WHAT RESEARCH HAS FOUND SO FAR

Several possible mechanisms have been proposed to explain how micro- and nanoplastics could affect brain health.

In laboratory and animal studies, these particles have been associated with oxidative stress, inflammation, mitochondrial dysfunction, disruption of cell membranes, altered neurotransmitter activity and impaired neuronal communication.

Oxidative stress occurs when harmful reactive molecules overwhelm the body's normal protective systems, potentially damaging DNA, proteins and lipids. Inflammation, when persistent, may also disturb normal brain function.

Together, these processes could theo-

retically affect neural networks involved in memory, learning and motor control.

At present, most evidence linking microplastics to brain effects comes from cell-based studies and animal models. These studies are important because they help scientists identify possible biological pathways.

However, findings from experimental models cannot be directly translated to humans without caution. The dose, type of plastic, particle size, exposure duration, and route of exposure used in laboratory studies may differ from those in everyday human exposure.

This distinction is important. Current evidence does not yet demonstrate that ordinary exposure to microplastics causes neurological disease in humans.

However, the possibility is concerning enough to justify further research. Scientists are particularly interested in whether long-term exposure may contribute to subtle effects on neurodevelopment, cognition, behaviour or neurodegenerative processes later in life.

More human studies are needed to determine exposure levels, vulnerable groups, dose-response relationships and safe thresholds.

GROWING PUBLIC HEALTH CONCERN

The issue of microplastics therefore sits at the intersection of environmental health and human health. Plastic pollution is no longer only an ecological concern affecting oceans, rivers and wildlife.

It is increasingly being studied as a possible public-health issue because the particles created from plastic waste may eventually return to us through the air we breathe, the water we drink and the food we eat.

Although it is almost impossible to avoid microplastics completely, several practical steps may help reduce unnecessary exposure while also reducing environmental pollution.

These include limiting single-use plastics, avoiding heating food in plastic containers, using glass or stainless-steel bottles when practical, improving indoor ventilation, reducing indoor dust, choosing personal care products without plastic microbeads, washing synthetic clothing

only when necessary, and supporting recycling programmes and policies that reduce plastic waste.

PRECAUTION OVER PANIC

The key message is not panic, but precaution. Microplastics are already widespread in our environment, and emerging evidence

suggests that they can enter the human body.

Whether they cause long-term neurological harm in humans remains an important unanswered question. Until science provides clearer answers, reducing plastic pollution is a sensible step for both environmental protection and human

health.

Plastics discarded today do not truly disappear; many gradually fragment into particles too small to see. By making wiser choices now, we may help protect our ecosystems, reduce future exposure and safeguard the health of generations to come. - **The HEALTH**

