



# Be Trauma-Aware, Take Care!

Traumatic injuries can occur anytime,  
any place and to anyone.  
It is not too late to start exercising  
safety precautions today!



Organised by:



Supporting Institutions:

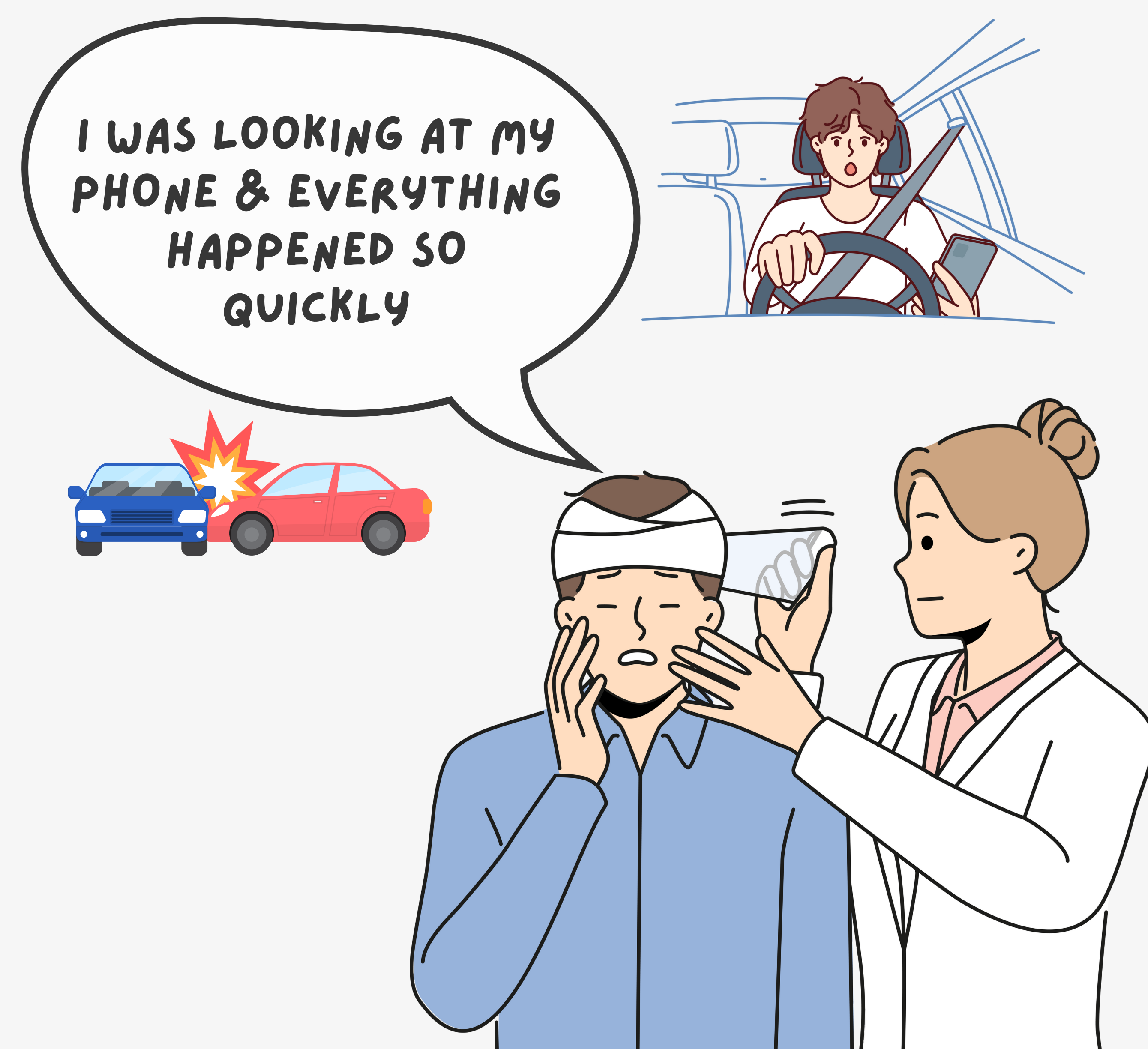


# 1. What is Trauma?

Trauma leads to a life-threatening event. It requires immediate medical attention at scene. The longer the delay of treating injuries, the higher the risks of complications or death. A major and complex traumatic injury may lead to one carrying long-term physiological and psychological scars that require prolonged treatment and recovery.

A trauma accident can be described as either "an event occurring by chance or arising from unknown causes" or "an unfortunate occurrence resulting from carelessness, unawareness and ignorance."

It can also be clinically categorized as intentional and unintentional. An intentional injury occurs with a purpose of harming, while an unintentional injury results from an accidental action.



## Some Undesirable Consequences of Trauma



## TRAUMA AROUND THE WORLD

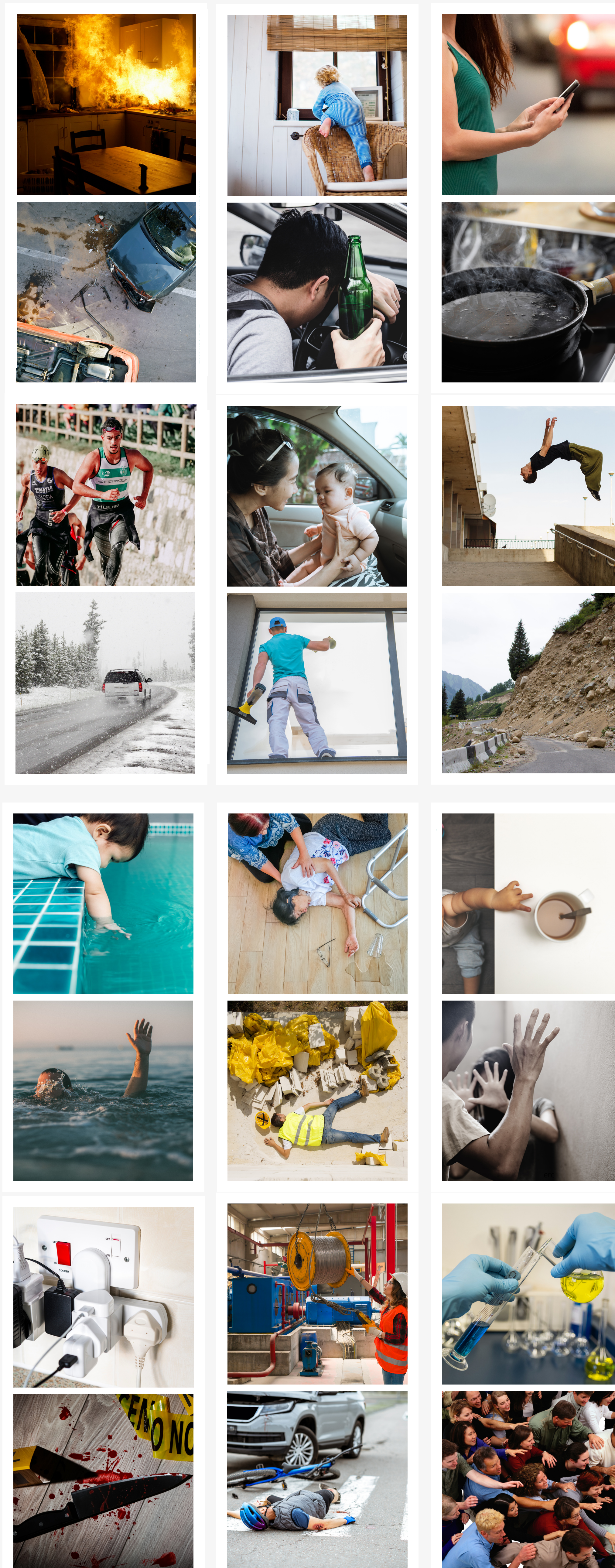
According to the World Health Organization, injuries claim an estimated 4.4 million lives annually and constitute nearly 8% of all deaths. For people aged 5-29 years, three of the five major causes of death are injury-related. These include road traffic injuries and suicide.

Furthermore, the millions of other patients who suffer from non-fatal injuries or disabilities place a massive burden on society and incurring billions of dollars in healthcare and lost productivity every year.

## IN SINGAPORE

Closer to home, the Ministry of Health lists trauma as **6th leading cause of death**, after cancer, ischaemic heart disease, pneumonia, cerebrovascular and hypertensive diseases. The majority of severe traumatic injuries occur among those aged 65 and above. **Motor vehicle accidents and falls** are the top two causes of severe trauma injuries overall.

For children, data from KK Women's and Children's Hospital Child Injury Surveillance Report 2022 showed that from 2012 to 2020, the top three causes of child injury deaths in children aged 16 years and below were due to 1) Drowning, 2) Falls from height and 3) Road traffic injuries.

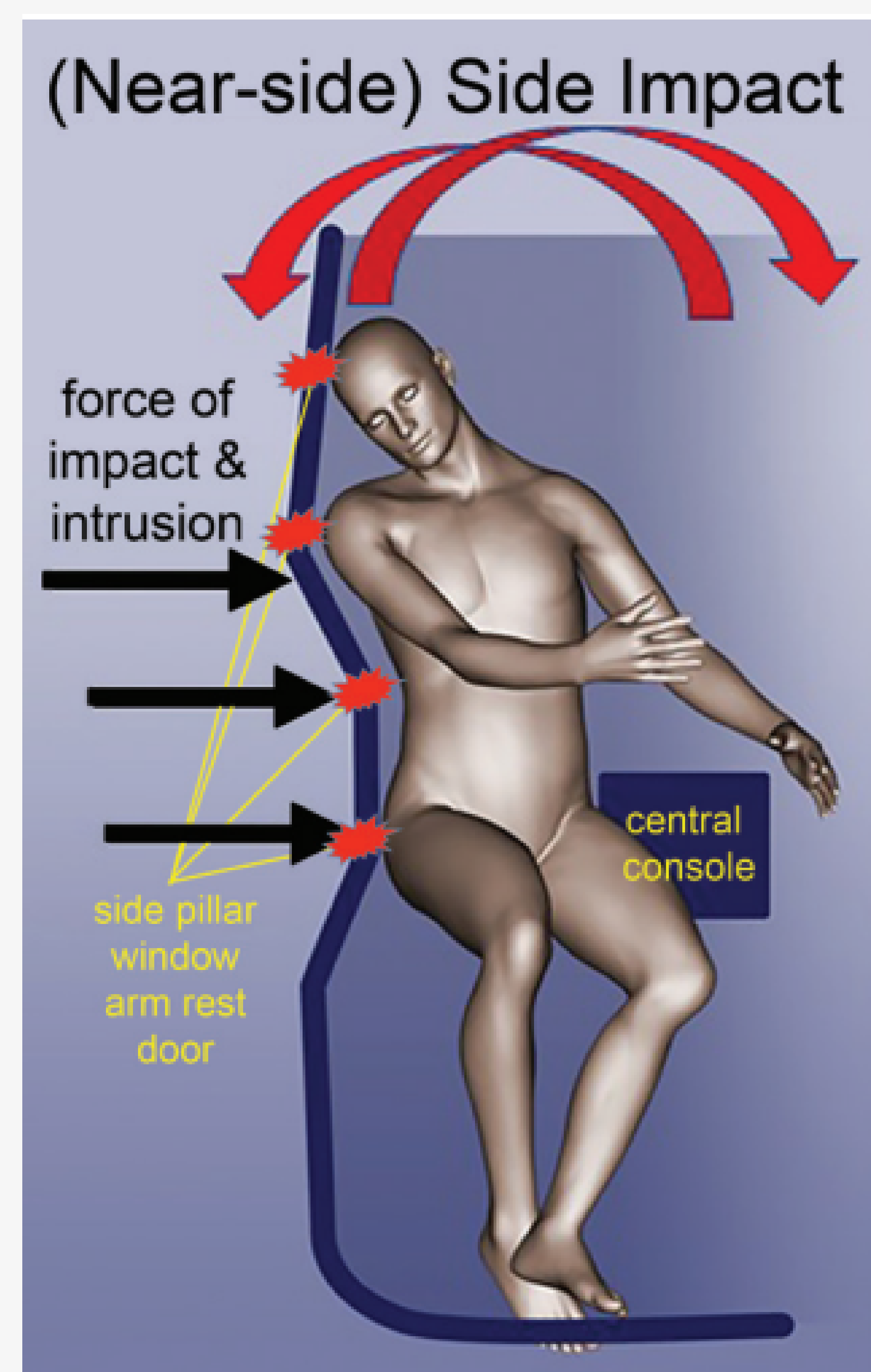
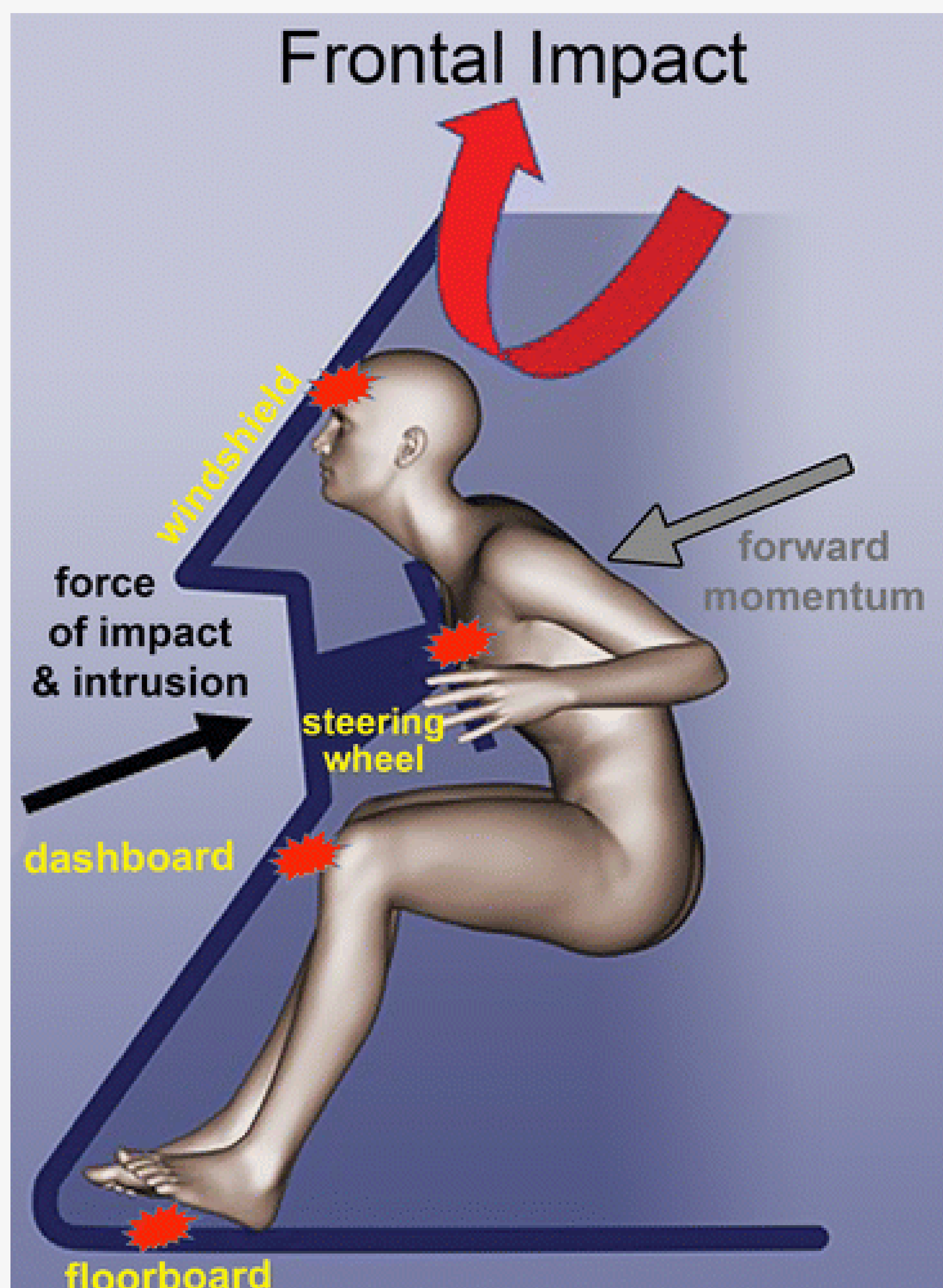


# 2. How Do Traumatic Injuries Come About?

There are a multitude of factors that play a part in the injury type and severity. For example, in a motor vehicle accident, the passenger's height, age, seat location, and body positioning, vehicle size and safety features, type of colliding vehicle or object, the angle and speed of impact. Understanding kinematics, the basic laws of physics, the anatomic and material properties of the human body, can help the paramedics and medical teams plan the next steps of rescue and treatment.

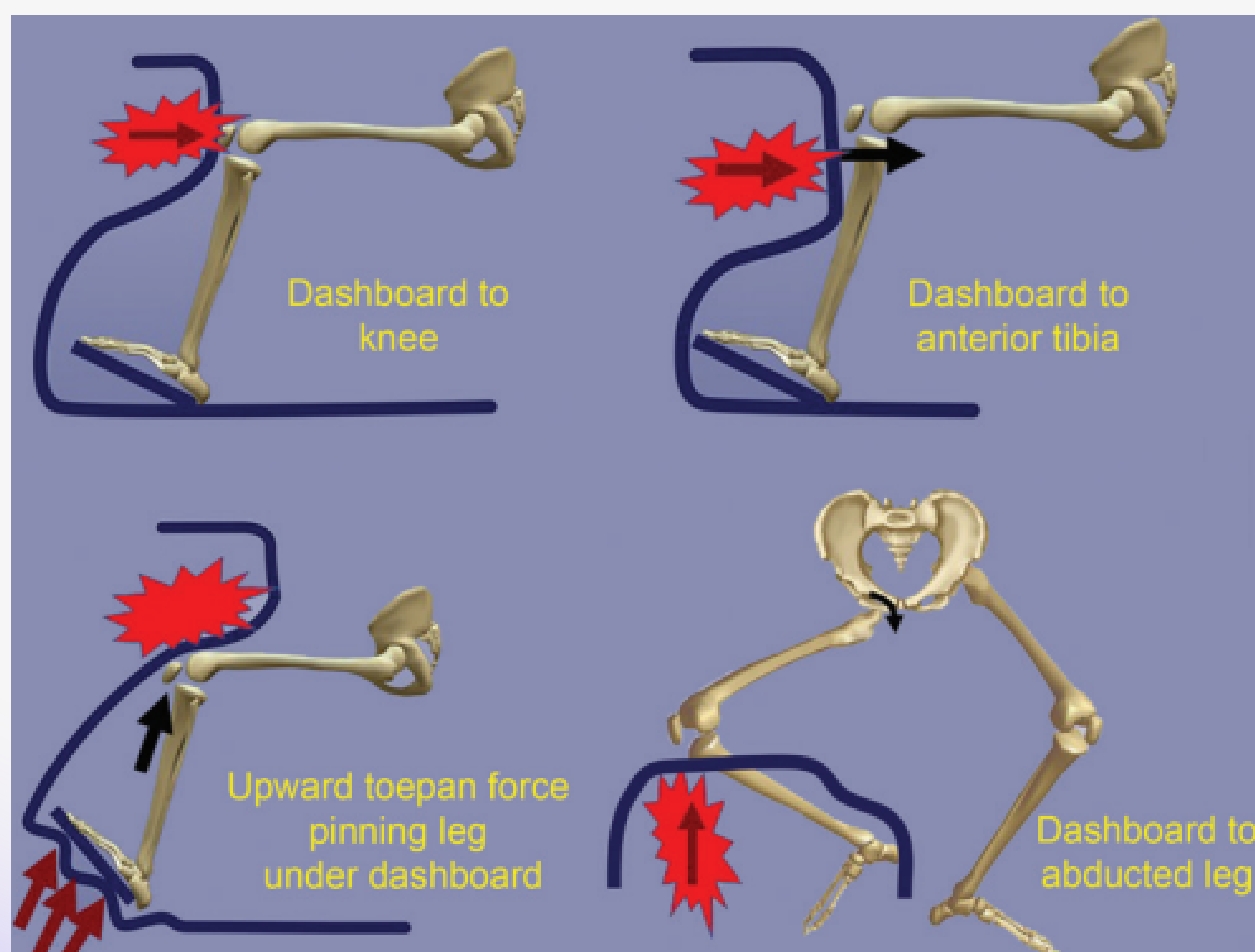
The images below show the mechanisms of injury during a motor vehicle accident.

**Red areas: Contact points during a collision leading to bodily injury.**



During frontal impact when a car hits another object, the driver's forward momentum drives him or her against the steering wheel, at the same time that the instrument panel and steering wheel are thrust backward. Contact occurs between the torso and steering wheel and/or seat belt, the knees and dashboard, and the feet and floorboard. The head may suffer injuries as it is thrown forward or if it hits the windshield.

In a side impact, lateral forces and resulting intrusion cause contact between the occupant's near-side thorax, abdomen, and pelvis and the interior structure of the car, including the door panel, side arm rest, window, or side pillar. The occupant can become pinned against the central console. Whiplash injury to head and neck, or cervical spine injury may occur in this scenario.



Dashboard injuries vary according to the position of the occupant, height of the dashboard and direction of force. The lower body such as the hip, knee and feet are usually affected in this scenario.



**It is important to note that extensive injuries can occur when the occupant is ejected from the car, when restraints are not used correctly, or when airbags are not present or deployed.**

Source: Pattern Recognition: A Mechanism-based Approach to Injury Detection after Motor Vehicle Collisions (2019)

# 3. A Collaborative & Integrated Trauma System

When a trauma accident occur, protocols are immediately activated to save the patient. These protocols are part of a bigger framework to support the care of trauma patients in Singapore. Let's take a closer look.

## At a Trauma Accident Scene



Source: ChannelNewsAsia, Singapore Civil Defence Force

Paramedics and emergency rescuers are alerted and activated to the scene. The patient is assessed and transported to a hospital that has the resources and capacity to treat severe and complex traumatic injuries. These hospitals are designated as **Trauma Centres**. Not all hospitals are Trauma Centres.



## At the Trauma Centre

Upon an activation prompt by ambulance providers, a **multi-disciplinary team of healthcare professionals** is mobilized at the Trauma Centre to prepare, receive and provide immediate medical care to the arriving patient.

The team comprises of highly trained surgeons, nurses and specialists of various disciplines such as Trauma Surgery, Anaesthesia, Radiology, Orthopaedic Surgery, Neurosurgery, Plastic Surgery and others.



Source: Mediacorp, Tan Tock Seng Hospital

## Central Region Trauma Services (CRTS)

Where are trauma centres located? In the Central Region of Singapore, Tan Tock Seng Hospital serves as the anchor trauma centre, with five other hospitals supporting the delivery of trauma care. These are Khoo Teck Puat Hospital, KK Women's and Children's Hospital, Raffles Hospital, Sengkang General Hospital and Woodlands Health.

Assisting pre-hospital management, traumatic head and spine injuries are the Singapore Civil Defence Force, Singapore Armed Forces and National Neuroscience Institute.

With a shared vision and framework to provide a regionalised trauma care, these institutions form the CRTS which targets key areas of improvements:

-  **Coordination of clinical services and resources**
-  **Right-siting and load balancing of trauma care**
-  **Implementing core standards and best practices**
-  **Expanding quality improvement and education initiatives**
-  **Enhancing cross-institutional collaborations to optimise care**



A regional system is crucial in a patient's journey from accident to recovery. This system can be overwhelmed if we do not act to prevent accidents from occurring right at the start.

# 4. The "Unspoken" Trauma

Trauma can occur in the form of an **emotional stress that undermines our abilities to cope** and having long-term effects on our body. We experience trauma after being part of a distressing event or accident. Depending on the complexity of injuries, recovery may take days, months to years.



It is important to observe the state of health and **seek help for any signs and symptoms as early as possible.**

## Signs and symptoms of Post-Traumatic Stress

Re-experiencing	Avoidance	Negative Mood	Reactivity
<ul style="list-style-type: none"> <li>Flashbacks</li> <li>Recurring nightmares</li> <li>Distressing thoughts</li> <li>Physical reactions such as sweating, heart-racing, trembling or pain</li> </ul>	<ul style="list-style-type: none"> <li>Staying away from places or activities</li> <li>Keeping busy all the time</li> <li>Inability to remember details of the trauma</li> <li>Numbing or cutting off feelings</li> </ul>	<ul style="list-style-type: none"> <li>Blaming oneself or others</li> <li>Feelings of anger, shame or guilt</li> <li>Loss of interest in activities used to enjoy</li> <li>Hold negative beliefs</li> </ul>	<ul style="list-style-type: none"> <li>Easily startled</li> <li>Feeling tense</li> <li>Difficulty concentrating</li> <li>Difficulty falling asleep</li> <li>Feeling irritable</li> <li>Feeling self-destructive</li> </ul>

For some people, these symptoms generally improve overtime. However, it is important to understand that people who experience Post-Traumatic Stress need time to heal. They generally can recover faster if they

- Feel safe and connected to others
- Have access to physical and emotional support
- Regain a sense of control by being able to help themselves

Talk to a doctor or health professional if these symptoms are affecting your ability to cope or perform daily activities, are very distressing and persist for more than 4 weeks after experiencing trauma. There are various ways to reach out for support, online or at the nearest A&E, GP or polyclinic in your community.



## Online Screening



Check if you have depression or anxiety on [phqscreeners.com](https://phqscreeners.com) or via the QR code. Next, select either:

- PHQ-9: Depression Screening
- GAD-7: Anxiety Screening

### Interpret your score results:

#### PHQ-9: Depression

Score	Severity
0 - 4	Normal/ None - Minimal
5 - 9	Mild
10 - 14	Moderate
15 - 19	Moderately Severe
20 - 27	Severe

#### GAD-7: Anxiety

Score	Severity
0 - 4	Normal/ None - Minimal
5 - 9	Mild
10 - 14	Moderate
>15	Severe

The questionnaires are screening tools and the results are not diagnostic. If your score suggests that you are experiencing none to mild symptoms of depression and/ or anxiety, continue to maintain healthy lifestyle.

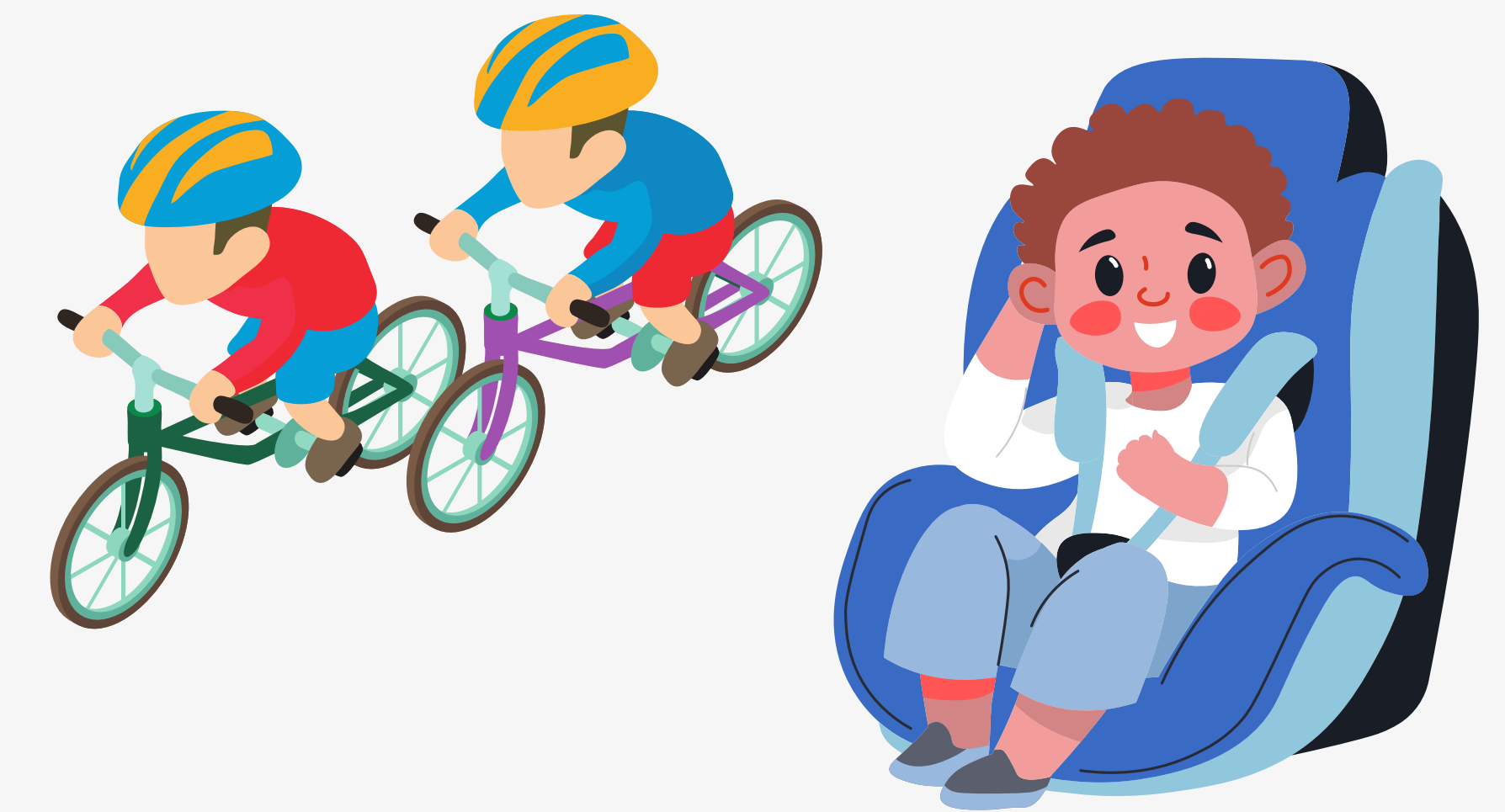
Reach out for professional support if your score suggests that you are experiencing moderate to severe symptoms of depression or anxiety, or if you find it difficult to perform daily tasks.

Find out more about post-traumatic stress and helplines here:



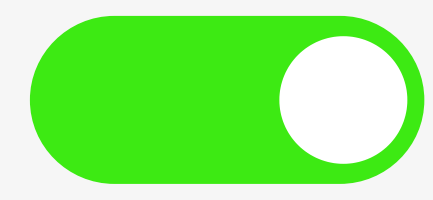
# 5. Be Trauma-Aware Today

Bearing in mind what you have learnt about physical and psychological trauma today, we have listed a few ways that can get you started on being trauma-aware!



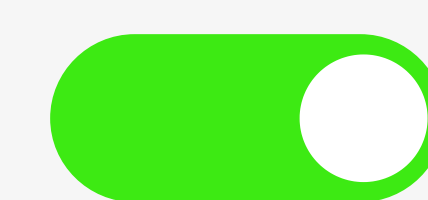
## Be Informed

Update yourself about health and safety measures as well as the latest news and advice from health experts, whether you are at home, workplace or overseas. Share this information with your friends and family so that everyone is aware!



## Be Prepared

Being professionally trained or certified in practical skills such as first aid, CPR and the use of AEDs can help save a life during an emergency.



## Be Equipped

Trauma injuries are usually preventable. Practice safety in your daily routine and invest in safety items or equipment which will help in case of emergencies. Keep them at easy reach and ready to use.

### Examples of common safety items used at home & outdoors

- Child Car Seat (by age range)
- Seat Belts
- Air Bags
- Cyclist Helmet
- Bike lights
- Reflective Clothing
- Anti-slip Shoes
- Anti-slip Bathroom Mat
- Grab Bars
- Bright Lighting

- Fire Extinguisher
- Smoke Detector
- Residual Current Circuit Breaker (RCCB)
- Electrical accessories with Safety Mark
- Safety Goggles
- Safety Boots
- Hot Oven Mittens
- Swimming Floats
- Life Jacket
- Rescue Tube

Traumatic injuries can happen at unpredictable moments and the repercussions can be a matter of life and death. Let's make a difference together by exercising safety precautions today.

## Prepare and prevent, don't repair and repent!

### Online Resource Centre

Learn more about the CRTS and upcoming events and activities.



For more enquiries, contact us at:

 [corp.nhg.com.sg/crtsedu](http://corp.nhg.com.sg/crtsedu)

 [central\\_trauma@nhg.com.sg](mailto:central_trauma@nhg.com.sg)

