



Clinical Practice Guidelines: Trauma/Dental injury

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Date	January, 2019
Purpose	To ensure a consistent approach to the management of a patient with dental injury.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Traumatic dental injuries (TDI) encompass structures within the mouth cavity, inclusive of the lips, teeth and peridontum. High velocity injuries cause fractures and luxations of teeth while blunt trauma causes greater damage to soft tissues.^[1]

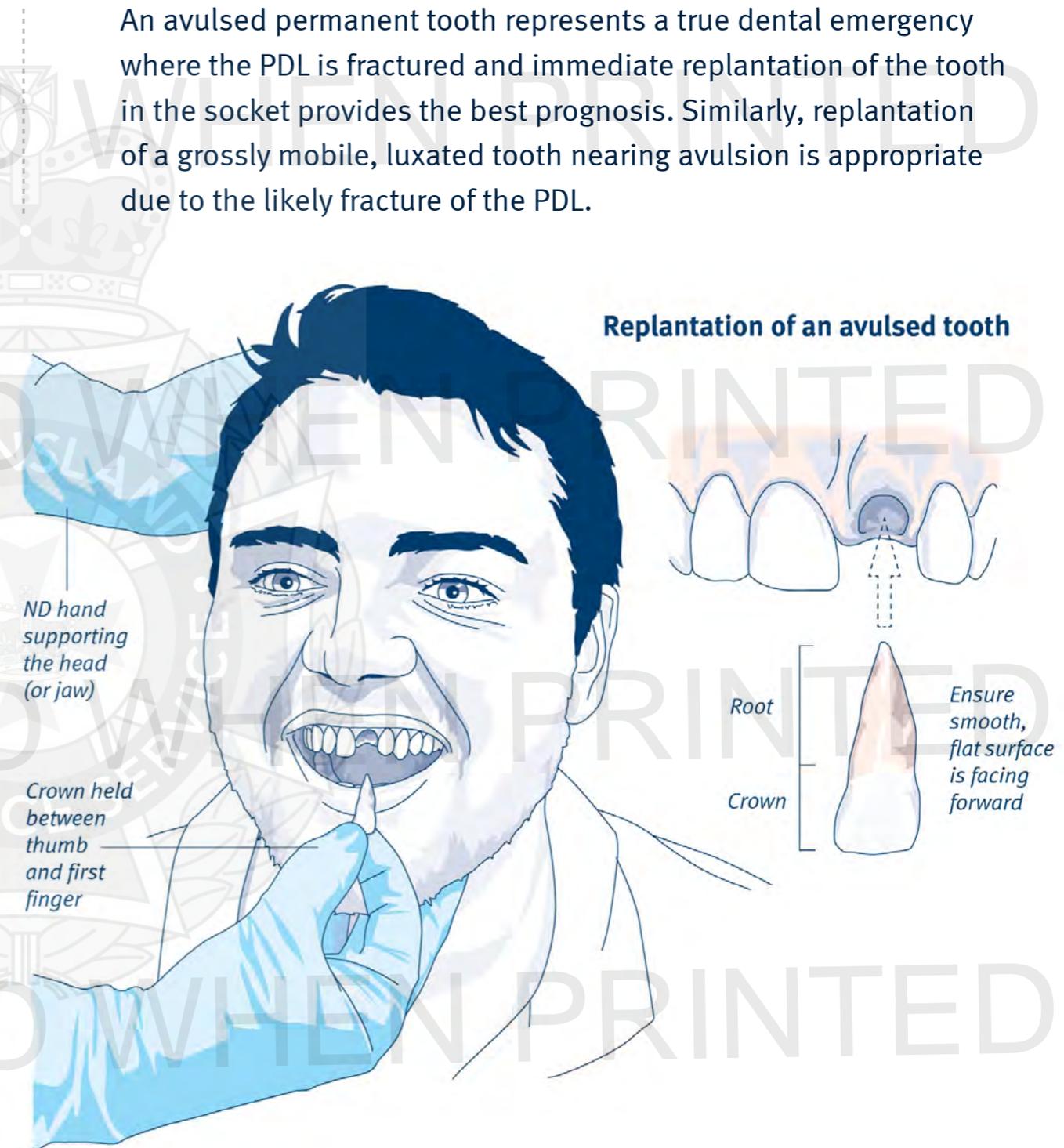
TDI occur frequently in preschool, school age children and young adults where 25% of all school children experience a dental trauma and 33% of adults have experienced trauma to the permanent teeth.^[2]

Generally between the age of 6 and 7 years, primary teeth start to shed and are replaced by permanent teeth. This tooth eruption continues to the age of 13 years where only the third molars (wisdom teeth) have not emerged. Third molar eruption usually occurs between 17 to 21 years of age.^[3]

Injuries that result in fractured, displaced or lost teeth can have significant negative functional, aesthetic and psychological effects, especially on children.^[4,5,6] Therefore, emergency ambulance management of isolated TDI is aimed at the salvage and care of teeth, as well as the preservation of function and appearance, through appropriate out of hospital treatment and referrals.

After a primary tooth has been injured, the treatment strategy is dictated by concern for the safety of the underlying permanent teeth. Primary teeth should not be replaced due to the risk of insult to the developing permanent teeth. The treatment strategy after injury to a permanent tooth is directed at preserving the delicate periodontal ligament (PDL) cells and vital pulp tissue.^[7-10] When a tooth has been out of the oral cavity and in a dry environment for greater than 60 minutes, the PDL has no chance of survival.^[9,10]

An avulsed permanent tooth represents a true dental emergency where the PDL is fractured and immediate replantation of the tooth in the socket provides the best prognosis. Similarly, replantation of a grossly mobile, luxated tooth nearing avulsion is appropriate due to the likely fracture of the PDL.



Clinical features



General symptoms

- Haemorrhage
- Laceration
- Pain
- Haematoma
- Mobile tooth
- Sensitivity

TDI are categorised as:

- **Infractions** – incomplete fracture of the enamel without loss of tooth structure
- **Fracture** – an enamel, dentin and/or cementum fracture with or without pulp exposure
- **Concussion** – injury to the tooth supporting structures without abnormal loosening or displacement of the tooth
- **Subluxation** – injury to the tooth supporting structures with abnormal loosening and nil tooth displacement
- **Luxation** – displacement of the tooth from the tooth socket, it may be mobile or immobile
- **Avulsion** – the complete displacement of a tooth from its socket, owing to trauma.^[2,3,7-10]

Risk assessment



- All dental injuries require review by a dentist AND/OR medical officer.

+ Additional information

- Comprehensive assessment of the TDI patient is necessary to identify all injuries, as forces strong enough to fracture, intrude or avulse a tooth can also result in intracranial and cervical spine injuries.^[3]
- Avulsed teeth are not to be stored in water. Appropriate mediums include normal saline 0.9%, milk or saliva (tooth paced inside patient's lip or cheek).^[11]

CPG: Clinician safety
CPG: Standard cares

Permanent tooth displaced or avulsed?

Less than 60 minutes since injury?

Consider:
• Analgesia
• Haemorrhage control

Tooth replantation (if avulsed tooth replantation is not possible, store tooth in an appropriate medium* and transport with patient to hospital)
Consider:
• Analgesia
• Haemorrhage control

Store avulsed tooth in an appropriate medium* and transport with patient to hospital
Consider:
• Analgesia
• Haemorrhage control

Transport to hospital
Pre-notify as appropriate

* Appropriate avulsed teeth medium^[11]

- Normal saline 0.9%
- Milk
- Saliva (tooth placed inside patient's lip or cheek)

Note: Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.