



Endodontic care strategy in general dental practice

STRATEGY 1 Prioritize prevention and early intervention

The first line of defense in endodontic therapy must be prevention of dental decay. Providing preventive care for dental caries and advising patients to protect against dental injuries are important to prevent endodontic disease. When endodontic disease is present, early intervention to preserve pulp vitality is essential to ensure optimal outcomes for patients.

STRATEGY 2 Determine the presence of endodontic disease and formulate a treatment plan

Assessment of a tooth needing endodontic treatment includes a case difficulty assessment, restorative treatment plan, and a dual pulpal and periradicular diagnosis. The overall treatment to be delivered is based on this assessment and diagnosis (see treatment guides on the back page).

Case difficulty assessment and restorative treatment plan

Understanding case difficulty – when to refer

While endodontic treatment can often be delivered in general practice, some cases or procedures may be very complex and require specialist care. Specialist care can help ensure the long-term survival of teeth in such cases. Tools for assessing the difficulty of any given case and deciding whether to treat, or whether to refer, are available via the QR code overleaf.

Assessing restorative need

Retaining function of affected teeth over the long-term is one of the essential goals of endodontic therapy:

- 1 Consider restoring endodontically treated teeth, even if severely damaged, with adhesive materials.
- 2 Carefully evaluate if endodontic posts and/or crowns are needed to improve tooth function.
- 3 Take into consideration the development/maintenance of alveolar bone structures.

Pulpal and periradicular diagnosis – Steps and tools

The following steps should be followed to obtain a dual pulpal and periradicular diagnosis:

- 1 Conduct a dental history review with a focus on the area in question.
- 2 Test pulpal conditions and categorize responses to stimuli as normal (short-lived pain), abnormal (exaggerated or prolonged response), or no response. Teeth with restorations should be tested with an expected variable response. No response is an indication of pulp necrosis, previous root canal treatment or a false negative, e.g. with a mineralized pulp.
- 3 Conduct at least one diagnostic radiograph of the area, including the contour of the lamina dura, apical conditions, and root/root canal anatomy.
- 4 Diagnose and decide on preferred treatment using the flowchart in the centre of this guide and the information obtained in the first three steps.

STRATEGY 3 Explain endodontic treatment to your patient

Some patients may be misinformed or anxious about endodontic treatment. Below are some key points to keep in mind when discussing endodontic treatment:

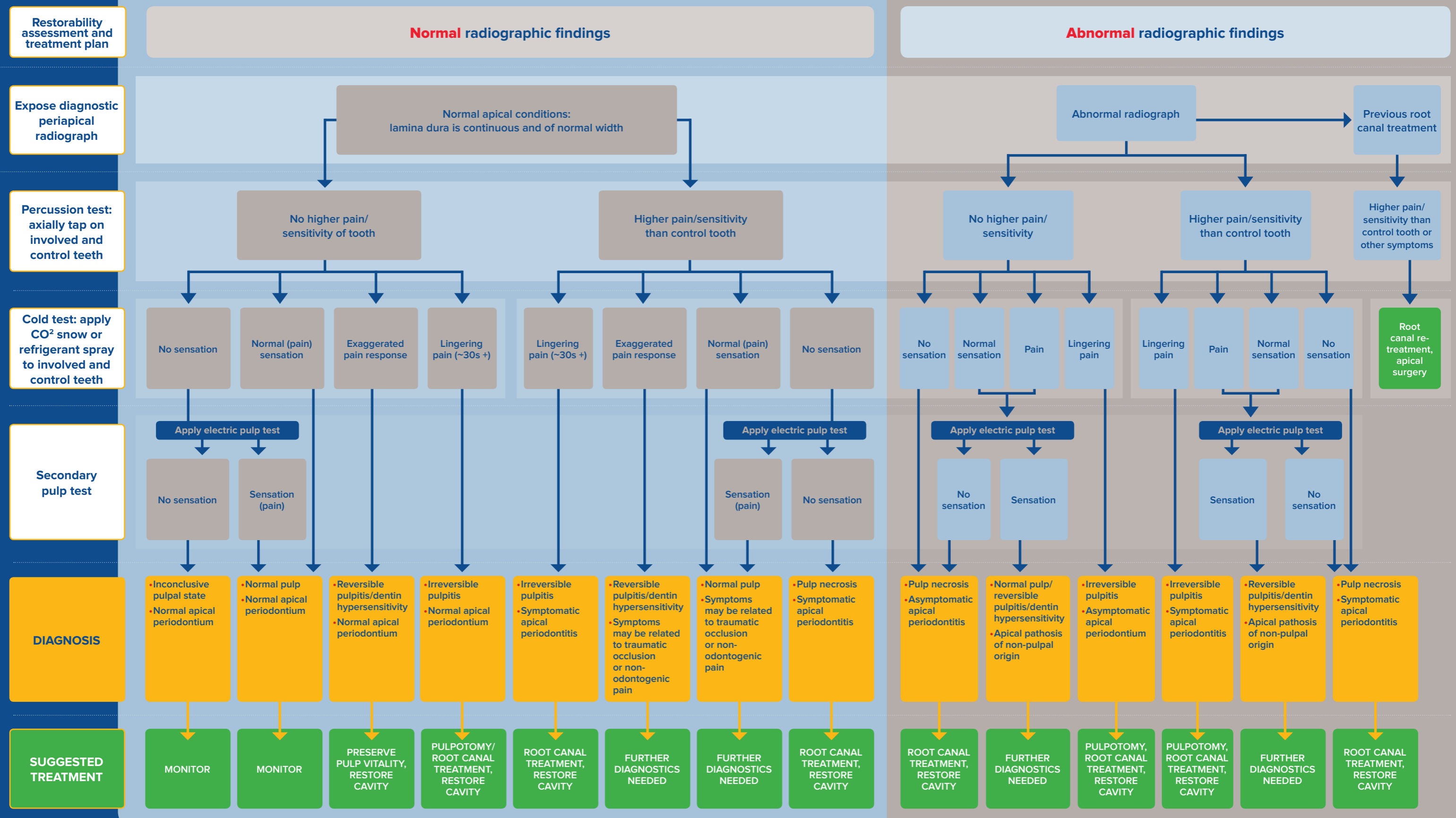
- Endodontic treatment helps save teeth, ensuring you maintain a healthy and functional mouth.
- Endodontic treatment is a routine dental procedure. Explaining to patients exactly what to expect from the procedure, including the time taken and sensations, can help reassure them.
- Endodontic treatment is safe. Endodontic procedures do not cause disease in other organs. On the other hand, untreated and worsening disease around the root may have harmful and dangerous health consequences.

STRATEGY 4 Address patient-centred outcomes

In line with FDI's oral health definition, endodontic treatment planning and outcomes should be patient-centred and consider the patient's oral health function and overall health:

- Vital teeth have better long-term retention rates than root-canal-treated teeth. Early intervention and vital pulp therapy should therefore be prioritized. When vital pulp therapy is not possible, root canal treatment should be favoured over extraction when indicated.
- Apical periodontitis and abscess formation are associated with other conditions and may compromise health. Early intervention to retain vital pulp and prevent apical disease is therefore indicated.

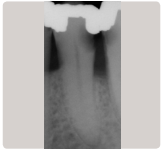




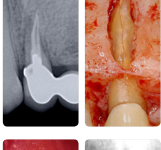
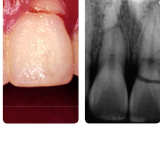
Flowchart to arrive at endodontic diagnosis and treatment suggestions



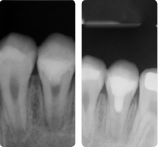
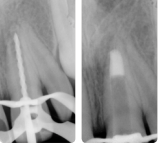
The information in this Chairside Guide is accurate as of publication in 2019. Advances in research and technology may lead to different diagnostic criteria and treatment protocols over time.



Endodontic treatment guide for teeth with complete root formation

Condition	Image	Treatment type	Objective	Main procedure
Healthy pulp or reversible pulpitis with deep carious lesion or where the pulp is exposed through non-infected dentin		Direct pulp capping	Protect vital pulp from additional injury and allow healing and repair	Removal of caries from the tooth and treatment of the remaining dentin or application of biocompatible material on the exposed pulp
Irreversible pulpitis restricted to the coronal pulp		Pulpotomy/apexogenesis	Maintain the vitality of the radicular pulp when the coronal pulp is exposed or diseased, or alleviate symptoms of pulpal disease as an interim procedure	Surgical removal of the coronal pulp and capping of the radicular pulp at the appropriate level, often in molars and younger patients
Irreversible pulpitis or necrotic pulp, cracked or fractured teeth with significant pulpal involvement, or as elective treatment		Root canal treatment	Remove pulpal and periradicular disease, and promote healing of the periradicular tissue	Mechanical debridement of the canal system, followed by shaping, irrigation, and filling
Continued or emerging periradicular disease or symptoms due to failing previous root canal treatment		Root canal re-treatment	Eliminate pulpal and periradicular disease, and promote healing of the periradicular tissue	Removal of existing canal filling material, complete mechanical debridement of the canal system, followed by shaping, irrigation, and filling
Accumulation of fluid in soft or hard tissues that cannot be accessed through the root canal		Incision and drainage/trephination	Reduce fluctuant swelling of soft tissue, promote repair of affected tissue, and prevent damage to teeth and other structures	Opening of the soft or hard tissue to remove accumulated fluid, using a drain if necessary
Periapical disease that cannot be addressed through root canal therapy or retreatment, or overextension of a root filling		Apical surgery	Treat pathosis in the radicular pulp and periradicular tissue and prevent further progression	Removal of diseased periapical tissue, resection and retrograde filling of roots that cannot be treated through root canal therapy, or intentional replantation of teeth that cannot be treated with conventional endodontic surgery
Periapical disease or root defects that cannot be treated with root canal therapy or apical surgery, periodontal defects, or crown and vertical root fractures		Resective therapy	Alleviate periradicular disease or canal and/or coronal defects; alleviate signs and symptoms of crown and/or root fracture	Surgical removal of one or more roots, or one or more roots plus a portion of the crown, of a multirooted tooth
Traumatic events , such as crown/root fractures, luxations, avulsions, and alveolar fractures		Treatment of traumatized teeth	Successfully reposition a tooth that has been displaced from its socket, achieving re-attachment of periodontal ligament fibres to retain function; promote root development in immature teeth	Pulpal management, repositioning and splinting as appropriate; use of conditioning media, medications and follow-up

Endodontic treatment guide for teeth with immature root formation

Condition	Image	Treatment type	Objective	Main procedure
Necrotic pulp in immature teeth with a need for additional growth in root wall thickness and length is desired		Guided pulpal repair	Promote healing of apical periodontitis and retain a functional dentition. Ideally restore structure, including dentine and root wall, as well as cells of the pulp-dentine complex	Canal debridement and disinfection, eliciting of apical bleeding with ingress of stem cells and mediators. Formation of scaffold to promote continued hard tissue formation in the canal space
Necrotic pulp in teeth with immature root development in which an apical hard tissue barrier is desired		Apexification	Management of cases with wide root canals and immature apical foramina that require root canal treatment	Canal debridement and long-term disinfection with medication, allowing for hard tissue deposition or placement of apical plug with biocompatible material