Diagnosis and Management of Endodontic Emergencies, a British Endodontic Society Position Paper for Primary Dental Care and other healthcare providers during the COVID-19 pandemic

British Endodontic Society Executive Council
Dr Sanjeev Bhanderi – President
Dr Maria Lessani – Vice President
Dr Alyn Morgan – Vice President Elect
Dr Phil Tomson – Secretary
Dr Will McLean – Treasurer

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TREATMENT PROTOCOLS ONLY TO BE USED IN LOCAL URGENT DENTAL CARE CENTRES WITH APPROPRIATE PPE AND ENVIRONMENTAL CONTROL, NOT FOR USE IN PRIMARY GENERAL DENTAL PRACTICE

This document has been prepared by the British Endodontic Society (BES) Executive committee in response to requests from dental professional bodies to provide advice and support on the provision of emergency endodontic care in the emerging Covid-19 pandemic.

The document is for information, advice and support only and should be used in conjunction with locally agreed protocols.

No advice is offered in the document relating to the provision of appropriate PPE or infection prevention and control measures, but offers an *aide memoire* to those professionals providing endodontic care to treat emergencies and offers suggestions to reduce the risk from aerosol generating procedures, where possible.

In this time of national emergency, the BES wishes to help and support all dental professionals providing treatment for patients in need of our help. If you have any questions or would like further support please contact admin@britishendodonticsociety.org.uk and we will do our very best to get back to you in a timely fashion.

To ensure that you are using the most current version of this document please check www.britishendodonticsociety.org.uk regularly for updates.

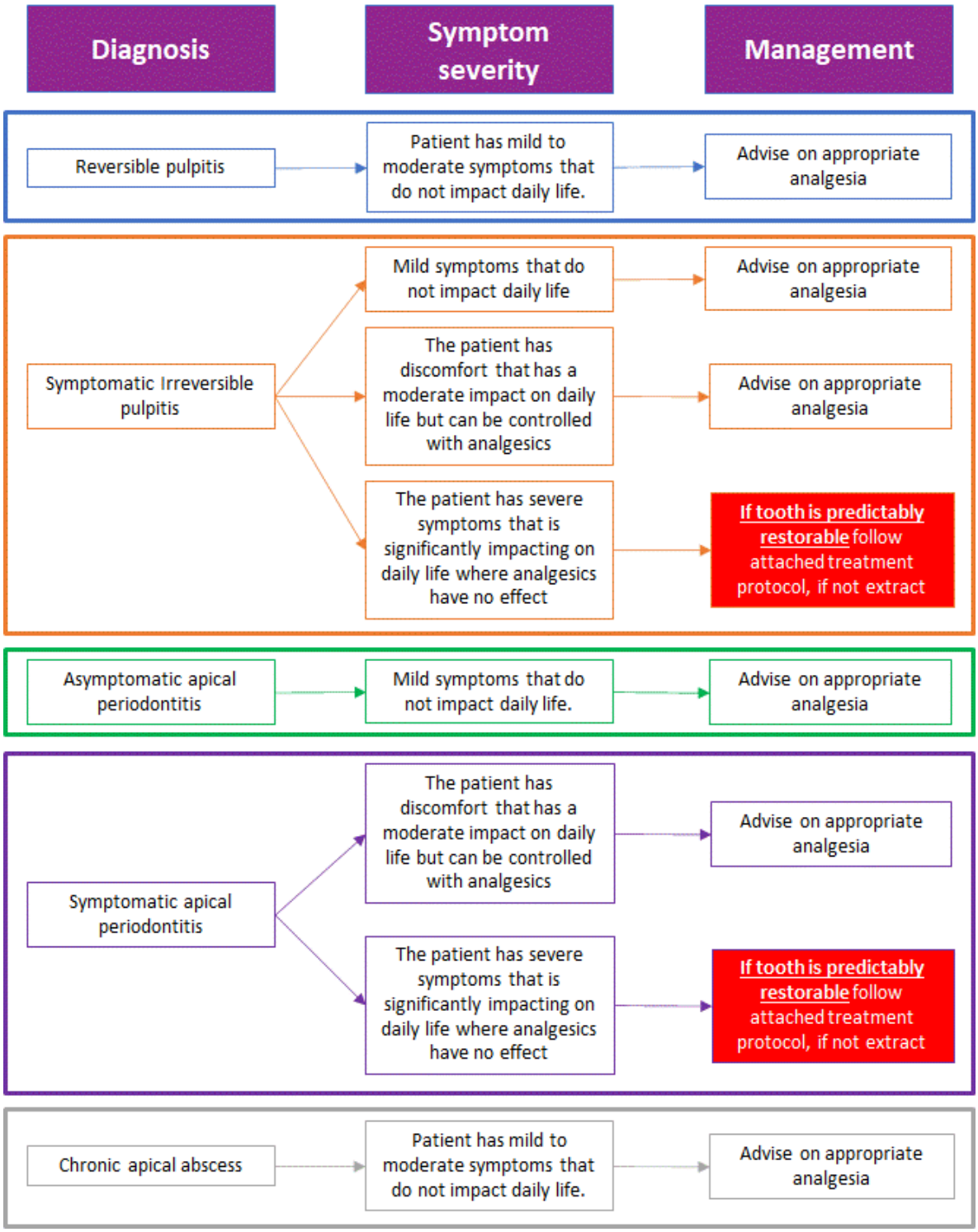
Key changes identified in this document that may not be part of current treatment protocols are listed below

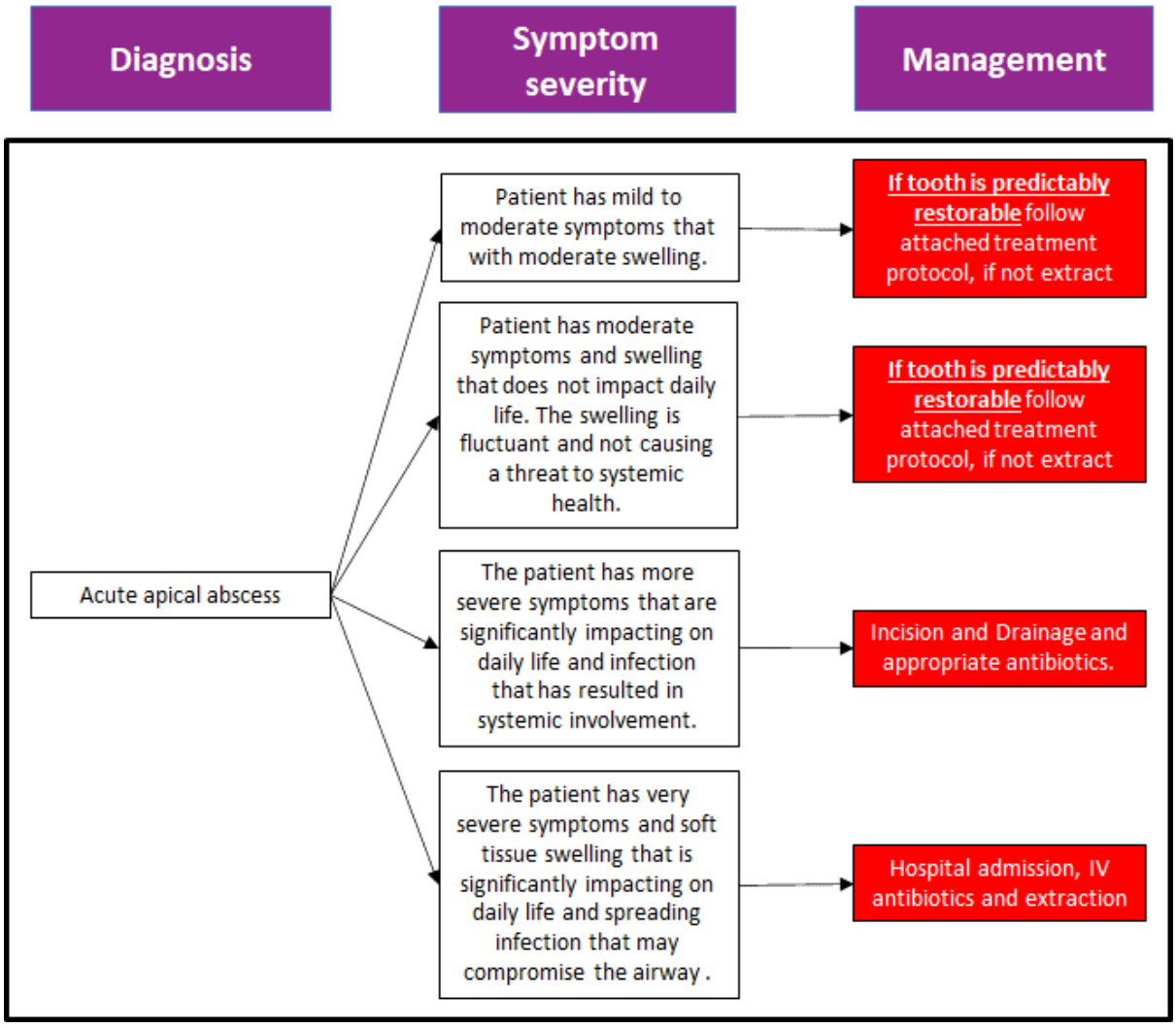
- **Use of a pre-operative 1% Hydrogen peroxide or 0.2% povidone-iodine mouthrinse**
- **Decontamination of the whole operative field (rubber dam and tooth) with sodium hypochlorite**
- **Access into the pulp chamber only without instrumentation of the root canal system**

Symptoms and Diagnoses of Common Endodontic Conditions

Clinical signs and symptoms	Radiographic findings	Diagnosis
Sensitivity to hot and cold, cold usually worse Short duration, sharp pain	No periapical signs, although caries may be present	Reversible pulpitis
Throbbing pain elicited by hot, cold can ease Lasts minutes/hours Poorly localised initially, can be spontaneous	Caries may be present, may be some widening of PDL space as develops	Symptomatic Irreversible pulpitis
Symptom-free Occasional mild ache	Periapical radiolucency usually evident	Asymptomatic apical periodontitis
May be tender to bite on Tender to percuss Tender to palpate Dull throbbing pain	Apical radiolucency may or may not be present	Symptomatic apical periodontitis
Little pain Intermittent localized swelling Possible sinus formation	May have periapical radiolucency present	Chronic apical abscess
Rapid onset Spontaneous pain Tender to percussion Tender to palpation Formation of pus Swelling present	Periapical radiolucency may be present	Acute apical abscess

Management of Common Endodontic Conditions




Diagnosis
Symptom severity
Management
Acute apical abscess
Patient has mild to moderate symptoms that with moderate swelling.
Patient has moderate symptoms and swelling that does not impact daily life. The swelling is fluctuant and not causing a threat to systemic health.
The patient has more severe symptoms that are significantly impacting on daily life and infection that has resulted in systemic involvement.
The patient has very severe symptoms and soft tissue swelling that is significantly impacting on daily life and spreading infection that may compromise the airway .
If tooth is predictably restorable follow attached treatment protocol, if not extract
If tooth is predictably restorable follow attached treatment protocol, if not extract
Incision and Drainage and appropriate antibiotics.
Hospital admission, IV antibiotics and extraction

Suggested Endodontic Access Protocol

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Pre-op mouthrinse with agents such as 1% hydrogen peroxide or 0.2% povidone-iodine is recommended for one minute.

- These can potentially reduce the salivary viral load. It is important to note chlorhexidine, which is commonly used as mouth rinse in dental practice, may not be effective in inactivating SARS-CoV-2 (Kampf *et al* 2020, Peng *et al* 2020, Eggers *et al* 2018, Kariwa *et al* 2004).

Administration of local anaesthesia

- Buccal and Palatal infiltrations for upper teeth and lower anterior teeth
- Lidocaine 2% with Epinephrine 1:80000 or Articaine 4% with Epinephrine 1:100000, unless medical history contra-indicates. Plain LA can be used Scandonest 3% or Citanest 3% with Octapressin
- Lower posterior teeth are associated with a higher failure rate in pulpitic cases, consider use of supplemental techniques. Suggest IAN block with Lidocaine 2% and buccal infiltration with Articaine 4%
- Consider use of Gow-Gates block as well as conventional IAN block to achieve LA along more of the nerve trunk length
- Intraligamentary or intraosseous infiltrations can be very useful adjunct techniques for pulpitic teeth and should be employed if the operator is familiar with them

Placement of rubber dam

Non-latex dam to be used.

Single tooth isolation ideally, place rubber dam clamp and rubber dam together onto tooth to be treated. Place the rubber dam sheet so that it covers the oral cavity but also covers the patient's nose where possible – reassure patient that they can still breath normally (AAE position paper).

Oraseal or OpalDam should be used sparingly to ensure a moisture tight seal around the tooth. Once the tooth is isolated it should be scrubbed with a pledget of sterile cotton wool soaked in 5% NaOCl for one minute (Kampf *et al* 2020)

Access into pulp chamber

Access through enamel into dentine using a high-speed handpiece - reducing the water flow will reduce aerosol spread. Do this in relatively short bursts to prevent potential overheating of the PDL. Outline ideal shape access cavity into dentine.

Once through enamel move to speed increasing electric handpiece to access through roof of pulp chamber and expose entire pulp chamber. Avoid use of ultrasonics to refine cavity. Ensure that high volume aspiration is used as close to the tooth as practicable.

Pulp extirpation

Once the pulp chamber has been fully opened, irrigate the chamber with NaOCl.

Ideally higher concentrations of NaOCl should be employed (3-5%) as there is considerable evidence that higher concentrations of NaOCl are more effective in dissolving pulp tissue (Stojicic *et al* 2010) which is desirable in emergency endodontic management.

Do not attempt to introduce the syringe into the root canal orifices. Flush the pulp chamber for up to 5 minutes or until no further bleeding or drainage is seen from the chamber.

Dressing

In cases where a diagnosis of pulpitis was made, dry the pulp chamber and dress with a steroid containing dressing material (Ledermix or Odontopaste). If the diagnosis was of symptomatic apical periodontitis then dress with non-setting $Ca(OH)_2$. Place a layer of the dressing material to cover the pulpal floor, then place either a pledget of sterile sponge or cotton wool to cover the canal orifices, ensuring that this is sufficiently compressed to allow for a minimum thickness of dressing material of at least 5mm.

As there is a possibility that the dressing will be required to last longer than it would under normal circumstances consider the use of a more resistant material such as a core build-up glass ionomer material (e.g. Chemfil Rock, Fuji IX, RivaHV) or IRM. Ensure that the occlusion is not high as this may lead to further symptoms and require adjustment.

Post-operative Instructions

If analgesics or antibiotics are required please refer to the BES Advice, Analgesia and Antibiotics document, prepared in conjunction with the current document and available on the BES website. Advise patient where possible to avoid chewing on the affected tooth for 24 hours. To manage expectation, advise the patient that symptoms may take some time to subside.

References

AAE Position Paper. https://www.aae.org/specialty/clinical-resources/covid-19-updates-resources/

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