Preclinical Conservative Dentistry

Year 2 — Bachelor of Dental Surgery

Reference and Resource List — Chapters 1 to 14

Supporting the MCQ, SBA, SAQ and flashcard question bank

BM Education FZE

Disclaimer

Questions in this bank were generated with the assistance of artificial intelligence and reviewed against the references listed. They are provided for educational revision only, are not a substitute for prescribed textbooks, clinical guidelines or supervised clinical training, and no warranty is given as to their accuracy or completeness.

References are presented in Vancouver style. Part 1 lists the core sources that apply across the whole subject; Part 2 lists, for each chapter, the relevant sections of those core texts together with sources specific to that chapter. Numbers in square brackets in Part 2 refer to the core list in Part 1.

PART 1 — CORE REFERENCES (ALL CHAPTERS)

1.1 Principal operative and conservative dentistry textbooks

1. Ritter AV, Boushell LW, Walter R, editors. Sturdevant's Art and Science of Operative Dentistry. 7th ed. St Louis: Elsevier; 2019.
2. Hilton TJ, Ferracane JL, Broome JC, editors. Summitt's Fundamentals of Operative Dentistry: A Contemporary Approach. 4th ed. Chicago: Quintessence Publishing; 2013.
3. Banerjee A, Watson TF. Pickard's Guide to Minimally Invasive Operative Dentistry. 10th ed. Oxford: Oxford University Press; 2015.
4. Garg N, Garg A. Textbook of Operative Dentistry. 4th ed. New Delhi: Jaypee Brothers Medical Publishers; 2020.
5. Sikri VK. Textbook of Operative Dentistry. 3rd ed. New Delhi: CBS Publishers and Distributors; 2017.
6. Marzouk MA, Simonton AL, Gross RD. Operative Dentistry: Modern Theory and Practice. St Louis: Ishiyaku EuroAmerica; 1985.
7. Baum L, Phillips RW, Lund MR. Textbook of Operative Dentistry. 3rd ed. Philadelphia: WB Saunders; 1995.
8. Black GV. A Work on Operative Dentistry. Vols 1–2. Chicago: Medico-Dental Publishing; 1908.

1.2 Dental materials science

9. Shen C, Rawls HR, Esquivel-Upshaw JF, editors. Phillips' Science of Dental Materials. 13th ed. St Louis: Elsevier; 2022.
10. Sakaguchi RL, Ferracane JL, Powers JM, editors. Craig's Restorative Dental Materials. 14th ed. St Louis: Elsevier; 2019.
11. van Noort R, Barbour ME. Introduction to Dental Materials. 5th ed. Edinburgh: Elsevier; 2023.
12. McCabe JF, Walls AWG. Applied Dental Materials. 9th ed. Oxford: Wiley Blackwell; 2008.
13. Manappallil JJ. Basic Dental Materials. 4th ed. New Delhi: Jaypee Brothers Medical Publishers; 2016.

1.3 Dental anatomy, occlusion and supporting basic science

14. Nelson SJ. Wheeler's Dental Anatomy, Physiology and Occlusion. 11th ed. St Louis: Elsevier; 2020.
15. Scheid RC, Weiss G. Woelfel's Dental Anatomy. 9th ed. Philadelphia: Wolters Kluwer; 2017.
16. Nanci A. Ten Cate's Oral Histology: Development, Structure, and Function. 10th ed. St Louis: Elsevier; 2024.
17. Okeson JP. Management of Temporomandibular Disorders and Occlusion. 8th ed. St Louis: Elsevier; 2020.
18. Wassell R, Naru A, Steele J, Nohl F. Applied Occlusion. 2nd ed. London: Quintessence Publishing; 2015.

1.4 Cariology, caries management and pulp biology

19. Fejerskov O, Nyvad B, Kidd EAM, editors. Dental Caries: The Disease and Its Clinical Management. 3rd ed. Oxford: Wiley Blackwell; 2015.
20. Kidd EAM, Fejerskov O. Essentials of Dental Caries. 4th ed. Oxford: Oxford University Press; 2016.
21. Meyer-Lueckel H, Paris S, Ekstrand KR, editors. Caries Management: Science and Clinical Practice. Stuttgart: Thieme; 2013.
22. Hargreaves KM, Berman LH, editors. Cohen's Pathways of the Pulp. 12th ed. St Louis: Elsevier; 2020.

1.5 Infection control, occupational safety and mercury regulation

23. Kohn WG, Collins AS, Cleveland JL, Harte JA, Eklund KJ, Malvitz DM. Guidelines for infection control in dental health-care settings — 2003. MMWR Recomm Rep. 2003;52(RR-17):1–61.

24. Centers for Disease Control and Prevention. Summary of infection prevention practices in dental settings: basic expectations for safe care. Atlanta (GA): CDC; 2016. Available from: https://www.cdc.gov
25. Department of Health. Health Technical Memorandum 01-05: decontamination in primary care dental practices. London: DH; 2013. Available from: https://www.gov.uk
26. World Health Organization. WHO guidelines on hand hygiene in health care. Geneva: WHO; 2009. Available from: https://www.who.int
27. United Nations Environment Programme. Minamata Convention on Mercury: text and annexes. Geneva: UNEP; 2013 (as amended). Available from: https://www.mercuryconvention.org
28. Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury. Official Journal of the European Union. Available from: https://eur-lex.europa.eu

1.6 Guidelines, professional and curriculum sources

29. Scottish Dental Clinical Effectiveness Programme. Clinical guidance in dentistry. Dundee: SDCEP. Available from: https://www.sdcep.org.uk
30. Office for Health Improvement and Disparities. Delivering better oral health: an evidence-based toolkit for prevention. London: OHID. Available from: https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention
31. National Institute for Health and Care Excellence. Dental checks: intervals between oral health reviews. Clinical guideline CG19. London: NICE; 2004. Available from: https://www.nice.org.uk/guidance/cg19
32. FDI World Dental Federation. Policy statements. Geneva: FDI. Available from: https://www.fdiworlddental.org
33. General Dental Council. Preparing for practice: dental team learning outcomes for registration. London: GDC; 2015. Available from: https://www.gdc-uk.org
34. Dental Council of India. Bachelor of Dental Surgery (BDS) Course Regulations, 2007 (as amended). New Delhi: DCI.
35. Cowpe J, Plasschaert A, Harzer W, Vinkka-Puhakka H, Walmsley AD. Profile and competences for the graduating European dentist – update 2009. Eur J Dent Educ. 2010;14(4):193–202.

1.7 Key journals for currency

Operative Dentistry · Journal of Dentistry · Dental Materials · Journal of Adhesive Dentistry · Caries Research · Journal of Dental Research · Clinical Oral Investigations · British Dental Journal · International Dental Journal · Journal of Conservative Dentistry · European Journal of Dental Education

PART 2 — CHAPTER-SPECIFIC REFERENCES

Chapter 1 — Introduction to Conservative / Operative Dentistry

1.1 Scope and objectives · 1.2 Dental caries as an operative problem (applied) · 1.3 Tooth preparation philosophy (overview)

Core texts: [1] Chs. 1–2 (Introduction; clinical significance of dental anatomy and physiology to operative dentistry) · [2] Ch. 1 · [3] Chs. 1–2 (Introduction; the minimally invasive philosophy) · [4] Ch. 1 · [19] Chs. on the caries process and its clinical management · [20] Chs. 1–3 · [33]

Additional

- Frencken JE, Peters MC, Manton DJ, Leal SC, Gordan VV, Eden E. Minimal intervention dentistry for managing dental caries – a review: report of a FDI task group. Int Dent J. 2012;62(5):223–43.
- Innes NPT, Frencken JE, Bjørndal L, et al. Managing carious lesions: consensus recommendations on terminology. Adv Dent Res. 2016;28(2):49–57.
- Pitts NB, Zero DT, Marsh PD, et al. Dental caries. Nat Rev Dis Primers. 2017;3:17030.
- Selwitz RH, Ismail AI, Pitts NB. Dental caries. Lancet. 2007;369(9555):51–9.
- Murdoch-Kinch CA, McLean ME. Minimally invasive dentistry. J Am Dent Assoc. 2003;134(1):87–95.
- Elderton RJ. Preventive (evidence-based) approach to quality general dental care. Med Princ Pract. 2003;12(Suppl 1):12–21.
- Tyas MJ, Anusavice KJ, Frencken JE, Mount GJ. Minimal intervention dentistry — a review: FDI Commission Project 1-97. Int Dent J. 2000;50(1):1–12.

Chapter 2 — Armamentarium and Operative Instruments

2.1 Hand instruments · 2.2 Rotary instruments · 2.3 Isolation and accessory equipment

Core texts: [1] Chs. on instruments and equipment for tooth preparation and restoration · [2] Ch. on instruments and armamentarium · [3] Chs. on operative instrumentation · [4] Chs. on hand cutting instruments and rotary instruments · [7] Chs. on instrumentation · [9] Ch. on abrasion, finishing and polishing

Additional

- International Organization for Standardization. ISO 6360-1: Dentistry — Number coding system for rotary instruments. Geneva: ISO. Available from: https://www.iso.org
- International Organization for Standardization. ISO 1797: Dentistry — Shanks for rotary and oscillating instruments. Geneva: ISO. Available from: https://www.iso.org
- Watson TF, Flanagan D, Stone DG. High and low torque handpieces: cutting dynamics, enamel cracking and tooth temperature. Br Dent J. 2000;188(12):680–6.
- Ercoli C, Rotella M, Funkenbusch PD, Russell S, Feng C. In vitro comparison of the cutting efficiency and temperature production of 10 different rotary cutting instruments. J Prosthet Dent. 2009;101(4):248–61.
- Zach L, Cohen G. Pulp response to externally applied heat. Oral Surg Oral Med Oral Pathol. 1965;19:515–30.
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- Banerjee A, Kidd EAM, Watson TF. In vitro evaluation of five alternative methods of carious dentine excavation. Caries Res. 2000;34(2):144–50.

Chapter 3 — Infection Control and Ergonomics in Operative Dentistry

3.1 Infection control (preclinical laboratory protocols) · 3.2 Operator and patient positioning (ergonomics) · 3.3 Moisture control (principles)

Core texts: [1] Chs. on infection control and on patient, operator and assistant positioning · [2] Ch. on infection control · [3] Ch. on cross-infection control and the clinical environment · [23] · [24] · [25] · [26] · [33]

Additional

- Wang Y, Li C, Yuan H, et al. Rubber dam isolation for restorative treatment in dental patients. Cochrane Database Syst Rev. 2016;(9):CD009858.
- Ahmad IA. Rubber dam usage for endodontic treatment: a review. Int Endod J. 2009;42(11):963–72.
- Valachi B, Valachi K. Mechanisms leading to musculoskeletal disorders in dentistry. J Am Dent Assoc. 2003;134(10):1344–50.
- Valachi B, Valachi K. Preventing musculoskeletal disorders in clinical dentistry: strategies to address the mechanisms leading to musculoskeletal disorders. J Am Dent Assoc. 2003;134(12):1604–12.
- Hayes M, Cockrell D, Smith DR. A systematic review of musculoskeletal disorders among dental professionals. Int J Dent Hyg. 2009;7(3):159–65.
- Gupta A, Ankola AV, Hebbal M. Optimizing human factors in dentistry. Dent Res J (Isfahan). 2013;10(2):254–9.
- Health and Safety Executive. Control of Substances Hazardous to Health (COSHH) Regulations: approved code of practice and guidance. Norwich: HSE Books. Available from: https://www.hse.gov.uk
- World Health Organization. Decontamination and reprocessing of medical devices for health-care facilities. Geneva: WHO; 2016. Available from: https://www.who.int

Chapter 4 — Diagnosis and Treatment Planning (Preclinical Orientation)

4.1 Diagnosis of caries and defects (intro) · 4.2 Treatment planning principles (intro)

Core texts: [1] Chs. on patient assessment, examination, diagnosis and treatment planning · [2] Ch. on diagnosis and treatment planning · [3] Chs. on caries diagnosis, risk assessment and care planning · [19] · [20] · [21] · [31]

Additional

- Ismail AI, Sohn W, Tellez M, et al. The International Caries Detection and Assessment System (ICDAS): an integrated system for measuring dental caries. Community Dent Oral Epidemiol. 2007;35(3):170–8.
- Pitts NB, Ekstrand KR. International Caries Detection and Assessment System (ICDAS) and its International Caries Classification and Management System (ICCMS) – methods for staging of the caries process and enabling dentists to manage caries. Community Dent Oral Epidemiol. 2013;41(1):e41–52.
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- European Commission. Radiation Protection No. 172: Cone Beam CT for Dental and Maxillofacial Radiology — evidence-based guidelines. Luxembourg: European Commission; 2012. Available from: https://energy.ec.europa.eu
- Twetman S, Fontana M. Patient caries risk assessment. Monogr Oral Sci. 2009;21:91–101.
- Bratthall D, Hänsel Petersson G. Cariogram — a multifactorial risk assessment model for a multifactorial disease. Community Dent Oral Epidemiol. 2005;33(4):256–64.

Chapter 5 — Cavity Preparation: Principles and Terminology

5.1 Terminology of tooth preparation · 5.2 Principles of cavity preparation (classic and modern) · 5.3 Depth and internal geometry · 5.4 Caries removal concepts

Core texts: [1] Chs. on fundamentals of tooth preparation and on preparation nomenclature · [2] Chs. on principles of cavity preparation · [3] Chs. on operative intervention and cavity design · [6] Chs. on preparation design and terminology · [8] Vol. 2 · [4] Chs. on principles of cavity preparation

Additional

- Osborne JW, Summitt JB. Extension for prevention: is it relevant today? Am J Dent. 1998;11(4):189–96.
- Schwendicke F, Frencken JE, Bjørndal L, et al. Managing carious lesions: consensus recommendations on carious tissue removal. Adv Dent Res. 2016;28(2):58–67.
- Innes NPT, Frencken JE, Bjørndal L, et al. Managing carious lesions: consensus recommendations on terminology. Adv Dent Res. 2016;28(2):49–57.
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- Kidd EAM. How 'clean' must a cavity be before restoration? Caries Res. 2004;38(3):305–13.
- Fusayama T. Two layers of carious dentin: diagnosis and treatment. Oper Dent. 1979;4(2):63–70.
- Bjørndal L, Reit C, Bruun G, et al. Treatment of deep caries lesions in adults: randomized clinical trials comparing stepwise vs. direct complete excavation, and direct pulp capping vs. partial pulpotomy. Eur J Oral Sci. 2010;118(3):290–7.
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- Reeh ES, Messer HH, Douglas WH. Reduction in tooth stiffness as a result of endodontic and restorative procedures. J Endod. 1989;15(11):512–16.

Chapter 6 — G.V. Black Classification and Tooth Preparations

6.1 Class I · 6.2 Class II · 6.3 Class III · 6.4 Class IV · 6.5 Class V · 6.6 Class VI preparations

Core texts: [1] Chs. on Class I, II, III, IV, V and VI amalgam and composite preparations · [2] Chs. on preparation designs by class · [4] Chs. on G.V. Black classification and class-wise preparations · [5] · [8] Vol. 2 · [14] and [15] for tooth morphology underpinning outline form

Additional

- Elderton RJ. Cavo-surface angles, amalgam margin angles and occlusal cavity preparations. Br Dent J. 1984;156(9):319–24.
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- Bader JD, Martin JA, Shugars DA. Preventive strategies for cracked teeth and cusp fracture. Community Dent Oral Epidemiol. 1998;26(1 Suppl):124–30.
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- Wilson NHF, Lynch CD. The teaching of posterior resin composites: planning for the future based on 25 years of research. J Dent. 2014;42(5):503–16.

Chapter 7 — Matrices, Wedges and Contact Restoration

7.1 Principles of matrixing · 7.2 Wedges · 7.3 Contact and contour management

Core texts: [1] Chs. on matrices, wedges and the restoration of Class II preparations · [2] Ch. on matrix systems and proximal contour · [3] Chs. on plastic restoration technique · [4] Ch. on matricing · [7] Chs. on matrix technique

Additional

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- Loomans BAC, Opdam NJM, Roeters FJM, Bronkhorst EM, Huysmans MC. The long-term effect of a composite resin restoration on proximal contact tightness. J Dent. 2007;35(2):104–8.
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- Klein F, Keller AK, Staehle HJ, Dörfer CE. Proximal contact formation with different restorative materials and techniques. Am J Dent. 2002;15(4):232–5.
- Chuang SF, Su KC, Wang CH, Chang CH. Morphological analysis of proximal contacts in Class II direct restorations with 3D image reconstruction. J Dent. 2011;39(6):448–56.

Chapter 8 — Liners, Bases and Pulp Protection (Operative Focus)

8.1 Dentine–pulp complex considerations · 8.2 Materials used · 8.3 Indications by depth

Core texts: [1] Chs. on pulp protection, liners, bases, sealers and cements · [2] Ch. on liners, bases and pulpal considerations · [9] and [10] Chs. on dental cements and liners · [16] Ch. on the dentine–pulp complex · [22] Chs. on pulpal responses to caries and restorative procedures and on vital pulp therapy

Additional

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- Murray PE, Smith AJ, Windsor LJ, Mjör IA. Remaining dentine thickness and human pulp responses. Int Endod J. 2003;36(1):33–43.
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- Mjör IA. Pulp–dentin biology in restorative dentistry. Part 7: the exposed pulp. Quintessence Int. 2002;33(2):113–35.

Chapter 9 — Amalgam Restorations (Preclinical Technique Unit)

9.1 Principles specific to amalgam cavities · 9.2 Manipulation and placement steps · 9.3 Common errors

Core texts: [1] Chs. on amalgam restorations (Class I, II and V) · [2] Chs. on amalgam technique · [9] and [10] Chs. on dental amalgam · [12] Ch. on amalgam · [27] · [28]

Additional

- Mahler DB. The high-copper dental amalgam alloys. J Dent Res. 1997;76(1):537–41.
- Jørgensen KD. The mechanism of marginal fracture of amalgam fillings. Acta Odontol Scand. 1965;23(4):347–89.
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- FDI World Dental Federation. Dental amalgam phase-down. Geneva: FDI. Available from: https://www.fdiworlddental.org

Chapter 10 — Composite Resin Restorations (Preclinical Technique Unit)

10.1 Principles of composite cavity design · 10.2 Adhesive protocol · 10.3 Placement techniques · 10.4 Finishing and polishing · 10.5 Common composite failures

Core texts: [1] Chs. on adhesion, on Class I–VI composite restorations and on light curing · [2] Chs. on bonding and composite technique · [3] Chs. on adhesive restoration · [9], [10] and [11] Chs. on resin composites and dentine bonding agents

Additional

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- Nakabayashi N, Kojima K, Masuhara E. The promotion of adhesion by the infiltration of monomers into tooth substrates. J Biomed Mater Res. 1982;16(3):265–73.
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- Peumans M, De Munck J, Mine A, Van Meerbeek B. Clinical effectiveness of contemporary adhesives for the restoration of non-carious cervical lesions: a systematic review. Dent Mater. 2014;30(10):1089–103.
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- Braga RR, Ballester RY, Ferracane JL. Factors involved in the development of polymerization shrinkage stress in resin-composites: a systematic review. Dent Mater. 2005;21(10):962–70.
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- Opdam NJM, van de Sande FH, Bronkhorst E, et al. Longevity of posterior composite restorations: a systematic review and meta-analysis. J Dent Res. 2014;93(10):943–9.
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- Price RB, Ferracane JL, Shortall AC. Light-curing units: a review of what we need to know. J Dent Res. 2015;94(9):1179–86.
- Jefferies SR. Abrasive finishing and polishing in restorative dentistry: a state-of-the-art review. Dent Clin North Am. 2007;51(2):379–97.
- Lynch CD, Opdam NJ, Hickel R, et al. Guidance on posterior resin composites: Academy of Operative Dentistry – European Section. J Dent. 2014;42(4):377–83.

Chapter 11 — Glass Ionomer and Temporary Restorations

11.1 GIC restorations (preclinical level) · 11.2 RMGIC (introductory technique differences) · 11.3 Temporary restorations

Core texts: [1] Chs. on glass-ionomer, resin-modified glass-ionomer and temporary restorative materials · [2] Chs. on glass ionomers and interim restorations · [9] and [10] Chs. on glass-ionomer cements and temporary materials · [3] Chs. on minimally invasive restoration

Additional

- Wilson AD, Kent BE. A new translucent cement for dentistry: the glass ionomer cement. Br Dent J. 1972;132(4):133–5.
- Sidhu SK, Nicholson JW. A review of glass-ionomer cements for clinical dentistry. J Funct Biomater. 2016;7(3):16.
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- Frencken JE, Leal SC, Navarro MF. Twenty-five-year atraumatic restorative treatment (ART) approach: a comprehensive overview. Clin Oral Investig. 2012;16(5):1337–46.
- Berg JH, Croll TP. Glass ionomer restorative cement systems: an update. Pediatr Dent. 2015;37(2):116–24.
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- Wiegand A, Buchalla W, Attin T. Review on fluoride-releasing restorative materials — fluoride release and uptake characteristics, antibacterial activity and influence on caries formation. Dent Mater. 2007;23(3):343–62.

Chapter 12 — Finishing, Polishing and Occlusal Adjustment

12.1 Occlusal anatomy essentials · 12.2 Finishing protocols · 12.3 Occlusal adjustment (introduction)

Core texts: [1] Chs. on finishing and polishing of restorations and on occlusion in operative dentistry · [2] Chs. on finishing and occlusal considerations · [9] Ch. on abrasion, finishing and polishing · [14] and [15] Chs. on occlusal morphology · [17] Chs. on functional occlusion and occlusal contacts · [18]

Additional

- Jefferies SR. Abrasive finishing and polishing in restorative dentistry: a state-of-the-art review. Dent Clin North Am. 2007;51(2):379–97.
- Roeder LB, Tate WH, Powers JM. Effect of finishing and polishing procedures on the surface roughness of packable composites. Oper Dent. 2000;25(6):534–43.

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- Davies S, Gray RMJ. What is occlusion? Br Dent J. 2001;191(5):235–45.
- Millstein P, Maya A. An evaluation of occlusal contact marking indicators: a descriptive quantitative method. J Am Dent Assoc. 2001;132(9):1280–6.
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Chapter 13 — Common Preclinical Errors and Evaluation Criteria

13.1 Evaluation of cavity preparations · 13.2 Evaluation of restorations · 13.3 Frequent student mistakes (high-yield)

Core texts: [1] Chs. on preparation and restoration assessment and on clinical technique errors · [2] Chs. on evaluation of restorations · [4] Chs. on errors in cavity preparation · [33] · [35]

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Chapter 14 — Minimal Intervention Dentistry (Introduction and Modern Concepts)

14.1 Caries management spectrum · 14.2 Sealants and PRR · 14.3 Repair versus replacement

Core texts: [1] Chs. on preventive and conservative management of caries · [2] Chs. on preventive resin restorations and sealants · [3] Whole text (minimally invasive operative dentistry) · [19] · [20] · [21] · [30] · [32]

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Compiled for BM Education FZE. Editions were current at the time of compilation; readers should consult the most recent edition of each text and the current version of each guideline.