Operative Dentistry

National Dental Examining Board of Canada (NDEB) Virtual OSCE and Assessment of Fundamental Knowledge (AFK)

About 16% of the Virtual OSCE · 4 topics · 2026 blueprint

Operative Dentistry covers the diagnosis, risk assessment and restoration of caries and other hard tissue defects in permanent and primary teeth. It is the largest category, about 16% of the Virtual OSCE in NDEB's 2026 blueprint. Questions ask you to read a radiograph or photo, judge caries activity and risk, choose between preventive, minimally invasive and restorative options, and pick the right material, technique and anesthesia.

You should be able to: A 70 kg adult receives articaine 4% with epinephrine 1:100,000. What is the maximum number of 1.8 mL cartridges?

Every topic: the key point and the trap

OP-1 Caries risk and lesion activity

Caries risk assessment combines history (new lesions in the last 3 years, sugar exposures, fluoride use, saliva flow, medications) with clinical findings; risk level drives recall interval, radiograph frequency and preventive intensity.

Trap: Restoring every white spot lesion. A non-cavitated, cleansable lesion is arrested or remineralized with fluoride; drilling it starts the restorative cycle early.

OP-2 Deep caries and pulp protection

Before treating a deep lesion, record the pulp status: history of pain, cold test, percussion, and a periapical radiograph of the apex.

Trap: Removing all soft dentin over the pulp in an asymptomatic tooth. It increases exposure risk without benefit; the seal at the periphery is what stops the lesion.

OP-3 Choosing the restorative material

Composite resin needs good isolation and enamel for bonding; it is technique sensitive, shrinks on curing, and should be placed in increments of about 2 mm unless a bulk fill product is used.

Trap: Choosing composite because it is aesthetic when isolation is impossible. Contamination with saliva or blood breaks the bond and causes leakage and recurrent caries.

OP-4 Radiographs and anesthesia for operative care

Bitewings detect interproximal caries and recurrent caries under restorations; radiographic depth usually underestimates histologic depth.

Trap: Stopping at the milligram per kilogram calculation. In a cardiac patient the epinephrine limit is reached long before the local anesthetic maximum.

Key terms

Caries risk assessment: A structured review of history, diet, fluoride, saliva and clinical findings that classifies a patient as low, moderate or high risk to guide prevention and recall.

Arrested lesion: A caries lesion that is no longer progressing; usually shiny, hard and darker in colour.

Selective caries removal: Removing caries to hard dentin at the periphery while leaving soft or leathery dentin over the pulp to avoid exposure.

Direct pulp cap: Placement of a biocompatible material, ideally a calcium silicate cement, directly on a small vital pulp exposure.

Silver diamine fluoride: A 38% solution that arrests cavitated caries without drilling; stains the lesion black.

Configuration factor: Ratio of bonded to unbonded surfaces in a cavity; a higher value means more polymerization stress.

Resin-modified glass ionomer: A glass ionomer with added resin that light cures, is stronger than conventional glass ionomer and still releases fluoride.

Cavosurface margin: The junction between the cavity wall and the external tooth surface; amalgam needs a butt joint, composite benefits from an enamel bevel in some preparations.

Burnout: A radiographic dark band at the cervical area of teeth from overexposure of thin tissue; it can mimic root caries.

ALARA: As low as reasonably achievable: take radiographs only when they will change care, with the lowest dose that gives a diagnostic image.

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