PERMANENT TEETH | CLINICAL QUICK REFERENCE

Vital Pulp Therapy

A clean decision-and-technique guide for permanent-tooth VPT. Read this page before picking up a bur.

DO NOT START WITHOUT THESE FIVE

1 Rubber dam

Place it **before caries removal**. This protocol depends on reliable isolation.

2 Magnification

Use strong light and magnification to judge tissue and bleeding.

3 Sterile pulp phase

New burs, sharp instruments and a sterile water/saline coolant setup.

4 NaOCl + sterile pellets

The technique guide uses **1-2% NaOCl** and **2-minute reassessment** cycles.

5 A definitive coronal seal

Plan a well-sealed restoration, preferably **at the same visit**.

BEFORE YOU START

1. Pain history: provoked, spontaneous, nocturnal or lingering; previous episodes and analgesic use.	**4.** Confirm vitality and restorability. Look specifically for necrosis, purulence and infection.
2. Cold and/or EPT against controls; percussion, palpation, periodontal and crack assessment.	**5.** Explain DPC, partial/full pulpotomy, RCT and extraction - including possible conversion.
3. Diagnostic periapical radiograph: caries depth, root maturity and periapical status.	**6.** Achieve profound anaesthesia. If the case or field is uncertain, refer before starting.

SELECT THE CARIES ROUTE

Deep caries + normal/reversible response

With a radiographically distinct dentine barrier, **selective caries removal** may avoid pulp exposure.

GOAL: preserve the barrier and create a sound peripheral seal.

Extremely deep / symptomatic caries

For spontaneous, nocturnal or lingering pain with a normal periapical appearance, **complete excavation** permits pulp assessment. If the pulp is vital and bleeding can be controlled, full pulpotomy may be appropriate.

GOAL: expose, assess and treat healthy remaining tissue.

! **STOP OR REFER** if the tooth is non-restorable, vitality is doubtful, there is necrosis/purulence, swelling or a sinus tract, significant apical pathosis, or reliable rubber-dam isolation cannot be achieved.

PERFORM | OPERATIVE SEQUENCE

Keep the clean phase clean

The core discipline is simple: isolate first, then change instruments before entering the pulp wound.

THREE OPERATIVE PHASES

1 Isolate + disinfect

Profound LA. Secure rubber dam **before caries removal**. Disinfect the isolated crown, clamp and adjacent dam using the practice's validated protocol.

2 Remove caries

Work through the infected phase and establish sound peripheral margins. Follow the caries route selected on page 1.

3 Enter the clean pulp phase

Change to **new sterile burs**. Resect with a sterile long-shank diamond at high speed under sterile water/saline coolant. Inspect under magnification.

! If exposure occurs without rubber dam, or a caries-contaminated instrument enters the pulp wound, do not simply cap it. Re-establish asepsis and consider conversion or specialist referral.

IF THE PULP IS EXPOSED

DIRECT PULP CAP	PARTIAL PULPOTOMY	FULL PULPOTOMY
Small exposure, healthy-appearing tissue and immediate control may be suitable.	Remove superficial inflamed tissue until healthy, uniformly vital tissue is seen.	For very deep/symptomatic cases when the pulp is vital and haemostasis is achievable.

THE 2-MINUTE HAEMOSTASIS PATHWAY

0-2 minutes

Place a **sterile cotton pellet** lightly moistened with **1-2% NaOCl** directly over the wound. Use gentle pressure.

→

2-4 minutes

Remove and inspect. If bleeding is still brisk, resect a further **1-2 mm** with a new sterile bur + coolant; irrigate and place a fresh pellet.

→

4-6 minutes

If needed, repeat once more after reassessment and further tissue removal. This is the final 2-minute cycle in the technique guide.

AT EVERY 2-MINUTE CHECKPOINT: remove pellet | inspect under magnification | assess tissue and bleeding

Bleeding controlled

The wound is clean; tissue is visibly vital; no necrosis, purulence, clot or debris remains at the interface.

PROCEED TO CALCIUM-SILICATE CEMENT.

Not controlled by 6 minutes

At partial level, progress to full coronal pulpotomy. If bleeding remains uncontrolled after full pulpotomy - or necrosis/purulence is seen - stop VPT.

RCT / PULPECTOMY OR REFER.

i **Timing:** The source technique guide uses 2 min x 2 min x 2 min. The 2025 AAPD guideline reports higher partial/full pulpotomy success when haemostasis is achieved within 6 minutes. The 2021 AAE statement notes that published protocols often use 5-10 minutes total. Use each 2-minute checkpoint to reassess tissue - do not simply keep pressing on persistently inflamed pulp.

PROTECT | SEAL, RECORD, REVIEW

Finish the biological job

VPT does not end when bleeding stops. The pulp-material interface and coronal seal protect the result.

THREE FINISHING STEPS

5	PULP MATERIAL	Leave the wound clean and free of clot/fibrin without desiccation. Place a validated **hydraulic calcium-silicate cement** directly over the pulp, typically **1-3 mm** thick. Follow the IFU for mixing, moisture, setting and overlay. Use a **non-staining** material in an aesthetic area.
6	DEFINITIVE RESTORATION	Protect/overlay the cement only with compatible materials and timing specified in the IFU. Place a **well-sealed definitive restoration, preferably at the same visit**. Establish sound margins, contact and occlusion; plan cuspal coverage according to remaining structure and fracture risk.
7	FOLLOW-UP	Clinical history/examination at **6 months**; clinical examination + periapical radiograph at **12 months**; then yearly if indicated for up to 4 years. Use cold/EPT for direct caps and partial pulpotomies; a full pulpotomy may be unresponsive.

SUCCESS OR FAILURE?

Expected success
Comfortable and functional. No spontaneous pain, swelling, sinus tract or pathological tenderness. No new apical disease/internal resorption. Continued root development if immature.

Prompt reassessment
Persistent/worsening spontaneous or lingering pain, swelling, sinus tract, tenderness, loss of function, new apical change or internal resorption -> prompt endodontic assessment.

ONE-MINUTE CHAIR-SIDE CHECKLIST

[ ] Diagnosis + restorability recorded	[ ] Rubber dam placed before caries removal
[ ] Magnification and strong light available	[ ] New sterile bur + sterile coolant for pulp
[ ] NaOCl concentration and cycles recorded	[ ] Haemostasis achieved within target time
[ ] Calcium-silicate product/lot documented	[ ] Definitive coronal seal completed/planned
[ ] Baseline photo/radiograph where appropriate	[ ] 6- and 12-month reviews booked

! **REFER RATHER THAN COMPROMISE THE PROTOCOL.** If reliable rubber-dam isolation, magnified assessment, a sterile cutting phase, haemostasis assessment, appropriate calcium-silicate placement or a durable seal cannot be provided - or if the diagnosis is uncertain - arrange timely specialist care.

SOURCES

[1] Internal training source: *VPT - study guide for Whangarei*, slides 8-9 and 28-29, Dropbox Vital Pulp Therapy folder.
[2] Coll JA et al. *Guideline for Use of Vital Pulp Therapy in Permanent Teeth.* Pediatr Dent. 2025;47(5):299-311. AAPD guideline PDF.
[3] American Association of Endodontists. *Position Statement: Vital Pulp Therapy.* 2021. AAE position statement PDF.
[4] Duncan HF et al. ESE position statement: management of deep caries and the exposed pulp. Int Endod J. 2019;52:923-934. doi:10.1111/iej.13080.

Use sodium hypochlorite under rubber dam with appropriate concentration, handling and soft-tissue protection according to the clinician's validated protocol and the product instructions.