# Pertussis

#### **1 | Disease & Natural History**

* *Bordetella pertussis* (rarely *B. parapertussis*, not vaccine‑preventable). Illness: catarrhal → paroxysmal cough/“whoop” lasting ≥2 – 3 m; apnoea common in infants .
* Complications: bronchopneumonia, weight‑loss, cerebral hypoxia; deaths mainly in unvaccinated <6 m .
* **Incubation** 6 – 20 d; infectious from day –6 of catarrhal phase to 3 w after paroxysms .

#### **2 | UK Epidemiology & Maternal‑programme Impact**

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| **Year / period** | **Key event** | **Lab‑confirmed cases** | **Infant deaths** |
| 1950s (pre‑vax) | Baseline | >120 000 / yr | 100s |
| 1978 (coverage ≈ 30 %) | Whole‑cell scare | 65 000 | 12 |
| 2012 outbreak | Triggered antenatal programme | Surge | 14 (2012) |
| 2013‑Dec 2024 | Maternal programme | Variable cyclical peaks; Q1 2024 >2012 | **31** deaths (vs 63 in 12 y pre‑programme) |
| Maternal VE vs infant death **91 % (95 % CI 73‑98 %)** . Large 2024 surge attributed to post‑COVID immunity gap . |  |  |  |

#### **3 | Laboratory Diagnosis Timeline**

Culture → enhanced surveillance 1994 → serology 2001 → PCR 2002 → oral‑fluid IgG (2‑16 y) 2013 .

#### **4 | Vaccine Science & Products**

* UK uses **acellular pertussis (aP)** only; 3‑ vs 5‑component aP give similar efficacy .
* Key combined products (0.5 ml IM):

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| **Group** | **Vaccine (manufacturer)** | **aP comps** | **Other antigens** | **Licensing / programme role** |
| **Primary & 18 m** | Infanrix Hexa (GSK) – 3; Vaxelis (Sanofi) – 5 | D,T (full), IPV, Hib, HepB | Inter‑changeable; prefer course continuity |  |
| **Pre‑school booster** | Repevax (5‑comp) / Boostrix‑IPV (3‑comp) | d,T (low), IPV | Both latex‑free; also maternal alt |  |
| **Maternal & HCW** | **Adacel (Tdap, 5‑comp) – preferred** | d,T (low) | No IPV – avoids infant type‑2 polio blunting |  |

*Latex allergy*: Adacel tip‑cap contains latex – use Repevax/Boostrix‑IPV in pregnancy .

**Composition tables** (toxoid & antigen µg/DU) are on pp 6‑8 – skim for viva .

#### **5 | UK Immunisation Schedule (from Jul 2025)**

1. **Primary** : 8‑, 12‑, 16‑wk DTaP/IPV/Hib/HepB ×3.
2. **18 m hexavalent booster** (new) – maintains Hib; **does not** replace preschool booster .
3. **Pre‑school booster** (3 y 4 m): dTaP/IPV .
4. **Maternal** : Tdap each pregnancy, 16‑32 wk (target ≈ 20 wk); can give until labour or ≤8 wk postpartum for maternal protection .
5. **HCW booster** : if ≥5 y since last aP and regular contact with pregnant women / infants <3 m .
6. **Outbreak control** : additional aP + macrolide PEP per UKHSA guidance .

#### **6 | Special Groups & Precautions**

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| **Situation** | **Key advice** | **Source** |
| **Premature ≤28 wk** | Vaccinate on time; observe 48‑72 h for apnoea | turn11file4 |
| **Severe latex allergy (pregnancy)** | Offer dTaP/IPV, arrange referral if maternity stock absent | turn11file4 |
| **Bleeding disorder** | Follow Ch 4 IM guidance; stable vs unstable distinction | turn11file15 |
| **Immunosuppressed / HIV** | Give inactivated aP as scheduled; may revaccinate post‑therapy | turn11file3 |

Minor illness, previous HHE, febrile convulsion = *not* contra‑indications .

#### **7 | Co‑administration & Blunting Issues**

* Safe with influenza, COVID‑19 vaccines; do **not** give <16 wk gestation .
* **RSV vaccine:** slight reduction in some pertussis antibody titres; preferable to separate (pertussis ~20 wk, RSV ≥28 wk) but may co‑administer if late .
* **IPV blunting:** infants of mothers vaccinated with IPV‑containing Tdap show reduced type 2 polio response; hence Adacel (no IPV) is preferred since Oct 2022 .
* Hexavalent + PCV/MMR increases febrile convulsions – counsel parents .

#### **8 | Occupational Vaccination (HCWs)**

* Offer pertussis to HCWs without aP in last 5 y **and** regular contact with pregnant women or infants <3 m.
  + **Priority 1**: maternity, neonatal & paediatric ICUs .
  + **Priority 2**: general paediatrics, specialised paediatric units, health visitors .
* Order vaccines direct from manufacturers / ImmForm; telephone & web ordering details given .

#### **9 | Supply, Storage & Disposal**

* National stock list includes Repevax, Boostrix‑IPV, Infanrix IPV+Hib, Infanrix Hexa, Vaxelis, Adacel .
* Order via ImmForm (E, W, S) or NI holding centres .
* Store 2–8 °C; dispose sharps per HTM 07‑01 .

#### **10 | Adverse Events & Reporting**

Local pain/erythema common; systemic fever/irritability rare; aP safer than wP .

Report to MHRA Yellow Card (black‑triangle products or serious AE) .

#### **11 | Management of Contacts & Outbreaks**

* **Notifiable disease**.
* Macrolide PEP (clarithro/azithro) + selective vaccination per UKHSA guidelines .

#### **12 | Exam‑Focused Mnemonics**

* **WHOOP 91** – Waning immunity, HCW boosters, Outbreak cycles, Occupational vaccine, Polio blunting (Adacel), **91 %** maternal VE vs infant death.
* **“8‑12‑16 / 18 / 3 + 4 / MAT‑20”** – schedule line.
* **“RSV after aP”** – separate to avoid antibody attenuation.
* **“5 years & <3 m”** – HCW booster interval / infant age risk.

These updated notes now incorporate:

* **Polio‑blunting rationale & Adacel preference**
* **18‑month hexavalent booster & five‑dose lifetime schedule**
* **Detailed HCW occupational offer & priority groups**
* **Vaccine ordering, supply lists, disposal rules**
* **Co‑administration with RSV, flu, COVID‑19**
* **Prematurity, latex allergy, bleeding disorders**
* **All current product compositions & interchangeability guidance**