

# VaxEPI: Integrated Vaccine Registration & Vaccination Information (Bangladesh)

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## 1) What VaxEPI Is (Overview)

VaxEPI is Bangladesh DGHS's public-facing portal (introduced in **2024**) for **integrated vaccine registration** and **vaccination information management**. It covers both **routine EPI** (Expanded Programme on Immunization) and **special campaigns**. VaxEPI is a **single-time registration** system: a child is registered once and remains trackable across programs and facilities. Registration is verified against the **Birth Registration Number (BRN)** to ensure identity integrity and deduplication.

VaxEPI is interoperable with the national **Shareable Health Record (SHR)**, so each registered child receives a **Unique Health ID**; all vaccination events appear in the **Health Information Exchange (HIE)** for authorized use. Families receive a **vaccine card with a QR code**; vaccinators record doses and scan the QR to update the central record. Digital **vaccination certificates** are made available via the [VaxEPI portal](#), following EHR-style access patterns. Special campaigns such as **HPV**, **TCV (Typhoid Conjugate Vaccine)**, and **meningitis vaccine for Hajj pilgrims** are also managed through VaxEPI.

**Retrieval cues:** "single-time registration", "BRN verification", "SHR Unique Health ID", "QR vaccine card", "routine EPI + campaigns", "digital certificate", "HIE availability".

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## 2) Core Objectives

- **Universal, deduplicated identity for children** via BRN → SHR → Unique Health ID.
  - **Continuity of care:** one longitudinal vaccination timeline per child across facilities.
  - **Operational efficiency:** unified workflows for routine and campaign activities.
  - **Data quality & exchange:** real-time updates to HIE; fewer missed doses/duplicates.
  - **Citizen convenience:** QR-coded card and downloadable vaccination certificate.
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## 3) Scope & Program Coverage

- **Routine EPI:** BCG, OPV/IPV, Penta, PCV, MR, etc. (country schedule applies).
  - **Special campaigns:** **HPV**, **TCV**, and **meningitis/Hajj** drives, plus other MoHFW/DGHS-approved campaigns.
  - **Population focus:** primarily **children**; program extensions may include adolescents or adults for specific campaigns (e.g., Hajj).
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## 4) Identity & Registration Model

**Inputs:** Child's **BRN**, name (Bangla/English), date of birth, sex, guardian details, address/upazila/district, contact number(s).

**Verification:** Online verification of **BRN** (preventing duplicates).

**Linkage:** On successful registration, VaxEPI requests/receives a **Unique Health ID** from **SHR**.

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**Artifacts: QR-coded vaccine card** (physical and/or digital).

**Card Use:** QR encodes persistent identifiers (e.g., Health ID and VaxEPI record ID) to enable fast retrieval and updates at point of care.

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## 5) Vaccination Workflow (Facility & Field)

1. **Presentation:** Caregiver brings the child and **QR card** to a session (facility or outreach).
  2. **Assessment:** Vaccinator reviews **due/overdue doses** (per age and schedule) in VaxEPI.
  3. **Administration:** Vaccine is given; **dose details** are recorded (vaccine code, dose #, lot/batch, expiry, route, site).
  4. **Update:** Vaccinator **scans the QR**; VaxEPI loads the child record and **posts the dose event**.
  5. **Sync & Exchange:** Event is written to VaxEPI and **propagated to HIE/SHR**.
  6. **Certificate:** A refreshed **digital vaccination certificate** becomes available in the portal.
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## 6) Citizen Experience

- **Discoverability:** Public portal for registration and certificate download.
  - **Proof of vaccination: QR-coded card;** digital **certificate** view/print.
  - **Portability:** Records visible across facilities due to SHR Health ID.
  - **Notifications (if enabled):** SMS or portal prompts for upcoming/overdue doses.
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## 7) Interoperability & Data Exchange

- **SHR (Shareable Health Record):** creation/lookup of **Unique Health ID**.
  - **HIE (Health Information Exchange):** publishes vaccination events for authorized systems.
  - **Standards & semantics:** consistent vaccine codes, dose definitions, and schedule logic to support analytics and exchange.
  - **Result:** Authorized providers and national analytics can **query longitudinal vaccination history** for service continuity and planning.
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## 8) Special Campaigns (HPV, TCV, Hajj Meningitis)

- **Registration:** Uses the **same child record** (no duplicate accounts).
  - **Targeting:** Eligibility computed by **age/sex/risk group** (e.g., adolescent girls for **HPV**, child age bands for **TCV**, **pilgrim status** for Hajj).
  - **Delivery:** VaxEPI supports **bulk session lists**, on-site verification via **QR**, and rapid **dose posting**.
  - **Reporting:** Campaign-specific dashboards can aggregate coverage, dropout, and stock usage.
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## 9) Governance, Roles & Access

- **DGHS/MIS ownership;** national data stewardship.

- **Roles:** Registrar (front desk), Vaccinator, Facility Manager, District/Upazila EPI Manager, National Analyst.
  - **Access controls:** Role-based permissions for read/write; certificate access controlled via authenticated portal flow and/or verifiable QR link.
  - **Auditability:** All vaccination events and edits have **provenance** (who/when/where).
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## 10) Data Quality & Safety Nets

- **Identity deduplication:** BRN check at registration; “possible duplicate” flags.
  - **Schedule validation:** Client-side/server-side checks for **age-appropriate** dosing and minimum intervals.
  - **Lot controls:** Prevent posting events for **expired** lots; require lot/batch.
  - **Correction workflow:** Voiding/mending mis-entries with reason and audit trail.
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## 11) Privacy & Security (High Level)

- **PII handling:** Minimal necessary disclosure; **BRN** and **Health ID** protected.
  - **QR contents:** Encodes identifiers or verifiable token, not full PII.
  - **Transport/storage:** Encrypted channels; secure storage per national policy.
  - **Access:** Role-based access; certificate retrieval bound to guardian verification or QR proof.
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## 12) Typical User Journeys

### A) First-time Registration

1. Guardian opens [VaxEPI](#) → enters **BRN** and child details → system verifies BRN.
2. VaxEPI fetches/assigns **Unique Health ID (SHR)**.
3. VaxEPI issues **QR-coded vaccine card**; child appears on due-list.

### B) Dose Administration

1. Child presents **QR card** → vaccinator scans → due doses displayed.
2. Dose given → vaccinator records details → **event saved** → **HIE updated**.
3. Certificate refreshed → guardian can **download** from portal.

### C) Special Campaign (e.g., HPV)

1. Eligibility auto-determined → session roster generated.
  2. On site, **QR scan** retrieves record → dose posted.
  3. Coverage reports update in near-real time.
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## 13) Frequently Asked Clarifications (for RAG)

- **Q:** Is VaxEPI only for routine EPI?  
**A:** No. It supports **routine EPI** and **special campaigns** (HPV, TCV, Hajj meningitis).

- **Q:** Do parents need to register for every campaign?  
**A:** **No.** VaxEPI is **single-time registration**; campaigns reuse the same **Health ID**.
  - **Q:** How is identity verified?  
**A:** Via **Birth Registration Number (BRN)**; then linked to **SHR** to issue a **Unique Health ID**.
  - **Q:** How are vaccination events captured?  
**A:** Vaccinator **scans the QR card** and records details; the system posts to VaxEPI and **HIE**.
  - **Q:** Where can I get the vaccination certificate?  
**A:** From the **VaxEPI portal** at <https://vaxepi.gov.bd>, updated after each dose.
  - **Q:** What if a dose was recorded incorrectly?  
**A:** There is a **void/correction** process with full **audit trail**.
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## 14) Abbreviation Glossary

- **BRN:** Birth Registration Number
  - **DGHS:** Directorate General of Health Services
  - **EHR:** Electronic Health Record
  - **EPI:** Expanded Programme on Immunization
  - **HIE:** Health Information Exchange
  - **HPV:** Human Papillomavirus vaccine (campaign)
  - **MoHFW:** Ministry of Health and Family Welfare
  - **QR:** Quick Response code
  - **SHR:** Shareable Health Record
  - **TCV:** Typhoid Conjugate Vaccine
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## 15) One-Paragraph Summary (for fallback retrieval)

VaxEPI (launched 2024 by DGHS/MIS) is Bangladesh's integrated portal for vaccine registration and vaccination information, covering routine EPI and special campaigns (HPV, TCV, Hajj meningitis). Registration is verified by BRN; each child is issued a Unique Health ID from the national Shareable Health Record (SHR). Vaccinators give doses and scan a QR-coded vaccine card to update the record; events sync to the Health Information Exchange (HIE). Families can download an up-to-date digital vaccination certificate from the [VaxEPI portal](#). VaxEPI's single-time registration, SHR linkage, and QR-based point-of-care updates make it a cornerstone of Bangladesh's digital health implementation.