

FHIR & HL7 v2 EHR Integration Cheat Sheet

One page to scope a telemedicine EHR integration: the two standards, the 2026 version baseline, the SMART on FHIR launch, and the three ways data moves. Engineering guidance, not legal advice — confirm specifics with counsel.

1 · HL7 v2 (legacy server-to-server feeds, behind the firewall)

- Pipe-delimited segments: MSH (header), PID (patient), OBR (order), OBX (result)
- Message types: ADT (admit/discharge/transfer), ORU (results), ORM/OMG (orders), SIU (scheduling)
- Transport is MLLP over a raw TCP socket — not HTTPS; every message gets an ACK
- Watch for per-site dialects and Z-segments; the variability, not the format, is the work

2 · FHIR (the web API for app-facing reads and writes)

- Clinical data as JSON resources over HTTPS: Patient, Observation, MedicationRequest, Encounter
- Read with REST: GET [base]/MedicationRequest?patient=ID&status=active
- Codes ride inline — LOINC (labs), SNOMED CT (findings), RxNorm (meds), ICD-10-CM (dx)
- 'We support FHIR' is not a spec — pin the version (next panel)

3 · THE 2026 VERSION BASELINE (ONC HTI-1, compliance Jan 1, 2026)

- Target FHIR Release 4 (R4) — the normative, certified base version
- Profiled by US Core 6.1.0 against USCDI v3; SMART App Launch for authorization
- R4B / R5 are not the production cert version; R6 is in ballot (not final before 2027)
- US Core 7.0.0 (USCDI v4) / 8.0.1 (USCDI v5) are voluntary via ONC SVAP

4 · ACCESS PATTERNS & THE VENDOR GATE

- SMART on FHIR (OAuth2 + PKCE) for the live single-patient consult, with patient context
- Bulk Data \$export (NDJSON, SMART Backend Services / JWT) for population reads
- HL7 v2 feed for the real-time events (ADT/ORU) the hospital already publishes
- Each vendor (Epic Showroom/Vendor Services, Oracle Health, athenahealth) gates you separately

THE ONE-LINE RULE

A telemedicine app talks to the EHR in two languages — legacy HL7 v2 messaging for the feeds a hospital cannot retire, and FHIR (a JSON web API) for app-facing reads and writes. In 2026 the certified version is fixed: FHIR R4, profiled by US Core 6.1.0 against USCDI v3, with SMART on FHIR for app launch. Choose the access pattern on purpose — SMART for the live consult, Bulk Data for populations, HL7 v2 for real-time feeds — and remember the FHIR standard governs the data shape, not the vendor's admission process: every EHR gates you through its own sandbox, app review, and per-customer go-live. Put a signed Business Associate Agreement on the EHR and any aggregator before a single field of real patient data flows.