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.

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This cheat sheet scopes HL7 v2 feeds, FHIR R4 reads and writes, SMART launch and the 2026 version baseline. Our seven-volume handbook covers the video stack such a telemedicine product runs on; start with Volume 7 for compliance and the healthcare playbook, then Volume 3 for WebRTC visits.

WHAT YOU WILL FIND INSIDE

- Compliance and the healthcare playbook (Vol. 7)
- Encoding clinical video (Vol. 1)
- WebRTC visits and QoE monitoring (Vol. 3)

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Scoping FHIR or HL7 integration for a telemedicine app?

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