§ 170.315(g)(10) Standardized API for Patient and Population Services

FHIR API Endpoints and OAuth 2.0 Authentication

Overview

This documentation demonstrates compliance with **45 CFR § 170.315(g)(10) - Standardized API for Patient and Population Services**. Our Health IT Module provides comprehensive FHIR API access with detailed service base URLs, OAuth 2.0 authentication, and secure data exchange capabilities for authorized applications and third-party integrations.

This requirement enables seamless application access to health information, supporting healthcare IT ecosystem interoperability and patient data exchange under secure, standards-compliant conditions.

Woundtech

API Standard & Version

Baseline Standards Versions

Our Health IT Module implements the following baseline standards versions for ONC certification compliance:

Standard	Version	Details
FHIR Standard	Release 4.0.1 (R4)	Fast Healthcare Interoperability Resources specification
U.S. Core Data for Interoperability (USCDI)	v3 (Baseline)	ONC standard for minimum health data set required for interoperability
SMART App Launch	2.0.0	Substitutable Medical Applications and Reusable Technologies
FHIR Bulk Data Access	1.0.1	Specification for bulk export of FHIR resources (HL7)
OAuth 2.0	RFC 6749 / RFC 6750	Authorization framework for secure API access
OpenID Connect	Core 1.0	Identity layer on top of OAuth 2.0

Service Base URLs

Production Environment

Environment	Service Base URL	Status	TLS Version
Production	`https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir`	Active	TLS 1.2, 1.3
Sandbox/Test	`https://onc-fhir.emr.woundtech.net`	Active	TLS 1.2, 1.3
Service URLs	`https://emr.woundtech.net/onc-additional-docs/fhir-service-urls`	Active	

Note: All service base URLs enforce TLS 1.2 minimum. TLS 1.3 is supported where applicable. Non-TLS connections are rejected with HTTP 403 Forbidden.

FHIR API Overview

Supported FHIR Resources

The API supports the following core FHIR resources per US Core Implementation Guide v6.1.0:

- **Patient:** Patient demographics and identification
- **Encounter:** Clinical encounters and visits
- **Condition:** Active and historical diagnoses
- **Medication:** Medication catalog
- **MedicationRequest:** Prescriptions and medication orders
- **MedicationStatement:** Medication history
- **MedicationDispense:** Medication dispensation events
- **AllergyIntolerance:** Allergies and adverse reactions
- **Observation:** Lab results, vital signs, measurements
- **DiagnosticReport:** Laboratory and clinical reports
- **Procedure:** Procedures and treatments
- **Immunization:** Vaccination records
- **Practitioner:** Provider information
- **PractitionerRole:** Provider role and affiliations
- **Organization:** Healthcare organization details
- **Location:** Physical and service locations
- **CarePlan:** Care plans and treatment goals
- **CareTeam:** Patient care team composition
- **Goal:** Patient-specific care goals

- **ServiceRequest:** Referrals and ordered services
- **Coverage:** Insurance and payer coverage details
- **RelatedPerson:** Caregiver and related contact details
- **Specimen:** Collected specimen metadata
- **Device:** Patient-associated or implanted devices
- **DocumentReference:** Clinical and administrative documents
- **Provenance:** Data lineage and audit provenance

Patient ID Based Search Endpoints (Applicable Resources)

For resource types that support patient-scoped retrieval, the API supports query-based fetch using patient ID. This follows the same pattern as ONC/US Core style searches and returns a Bundle (searchset).

```
Request Pattern:
GET [Base_URL]/{ResourceType}?patient={patientId}[&status={status}]

Common Query Parameters:
  - patient (string, required): Patient resource ID used to filter records
  - status (string, optional): Resource-specific status filter (e.g., active,
completed, final)
  - _count (integer, optional): Number of resources returned per page (default
server behavior)
  - _page (integer, optional): Pagination page index when supported

Applicable Resource Types:
  - Encounter: /Encounter?patient={patientId}
  - Condition: /Condition?patient={patientId}
  - Observation: /Observation?patient={patientId}
```

- MedicationRequest: /MedicationRequest?patient={patientId}
- MedicationStatement: /MedicationStatement?patient={patientId}
- AllergyIntolerance: /AllergyIntolerance?patient={patientId}
- Procedure: /Procedure?patient={patientId}
- Immunization: /Immunization?patient={patientId}
- CarePlan: /CarePlan?patient={patientId}
- CareTeam: /CareTeam?patient={patientId}
- Coverage: /Coverage?patient={patientId}
- DiagnosticReport: /DiagnosticReport?patient={patientId}
- DocumentReference: /DocumentReference?patient={patientId}
- Device: /Device?patient={patientId}
- Goal: /Goal?patient={patientId}
- MedicationDispense: /MedicationDispense?patient={patientId}
- Provenance: /Provenance?patient={patientId}
- RelatedPerson: /RelatedPerson?patient={patientId}
- ServiceRequest: /ServiceRequest?patient={patientId}
- Specimen: /Specimen?patient={patientId}

Example Request (CareTeam):

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CareTeam?
patient=17e77411359-8837d878-ea1e-45b5-bb89-882fdfb2be4b&status=active
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Response Code: 200 (Success)

Example Response (Bundle searchset):


```
{
  "resourceType": "Bundle",
  "id": "492509fd-0650-4e2e-834f-41fc7b132a5e",
  "type": "searchset",
  "total": 1,
  "link": [
    {
      "relation": "self",
      "url": "https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CareTeam?
_count=10&patient=17e77411359-8837d878-ea1e-45b5-bb89-
882fdfb2be4b&status=active&_page=1"
    }
  ],
  "entry": [
    {
      "fullUrl": "https://api.emr.woundtech.net/hapi-fhir-
jpaserver/fhir/CareTeam/17e775e7546-36e6a4cd-264e-4a94-92fa-cdf1b2fa30c1",
      "resource": {
        "resourceType": "CareTeam",
        "id": "17e775e7546-36e6a4cd-264e-4a94-92fa-cdf1b2fa30c1",
        "meta": {
          "versionId": "1",
          "lastUpdated": "2022-01-20T12:03:06.182Z",
          "profile": [
            "http://hl7.org/fhir/us/core/StructureDefinition/us-core-careteam"
          ]
        }
      }
    }
  ]
}
```

Supported Operations

- **Read:** Retrieve individual resource by ID
- **Search:** Search resources with standard FHIR search parameters
- **Create:** Create new resources (where permitted)
- **Update:** Update existing resources (where permitted)
- **Delete:** Delete resources (where permitted)
- **CapabilityStatement:** Discover API capabilities

API Documentation - Technical Specifications

Patient Resource - Read Endpoint

Method: GET
Endpoint: /Patient/{id}
Resource Type: Patient

Function Name: readPatient

Required Parameters:
- id (string, required): Patient resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Optional Parameters:
- _format (string, optional): Response format - application/fhir+json (default) or application/fhir+xml
- _summary (string, optional): Request summary only - true, false, or text

Return Variables & Types:
- resourceType (string): "Patient"
- id (string): Patient resource ID
- identifier (Identifier[]): Patient identifiers (medical record number, SSN, etc.)
  - system (uri): Identifier system (e.g., urn:oid:2.16.840.1.113883.3.879.3)
  - value (string): Identifier value
- name (HumanName[]): Patient names
  - use (code): Name use (usual, official, temp, nickname, anonymous, old, maiden)
  - text (string): Full name
  - family (string): Family name
  - given (string[]): Given names

- telecom (ContactPoint[]): Contact information
  - system (code): contact-point-system (phone, fax, email, pager, url, sms, other)
  - value (string): Telecom value
  - use (code): home, work, temp, old, mobile
- gender (code): male | female | other | unknown
- birthDate (date): Date of birth (YYYY-MM-DD format)
- address (Address[]): Patient addresses
  - use (code): home, work, temp, old, billing
  - type (code): postal, physical, both
  - text (string): Full address
  - line (string[]): Street address lines
  - city (string): City name
  - state (string): State or province
  - postalCode (string): Postal/ZIP code
  - country (string): Country code (ISO 3166-1 alpha-2)
- maritalStatus (CodeableConcept): Marital status
- active (boolean): Whether this patient record is active/in use
- extension (Extension[]): Additional data elements per US Core extensions
- meta (Meta): Metadata including version ID and last updated timestamp

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Patient/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
    "resourceType": "Patient",
    "id": "12345",
    "meta": {
      "versionId": "3",
      "lastUpdated": "2026-04-24T10:15:30Z"
    },
    "active": true,
```

```
"identifier": [
  {
    "system": "urn:oid:2.16.840.1.113883.3.879.3",
    "value": "MRN-987654"
  },
  {
    "system": "http://hospital.example.org/ssn",
    "value": "999-12-3456"
  }
],
"name": [
  {
    "use": "official",
    "text": "John A. Doe",
    "family": "Doe",
    "given": ["John", "Andrew"]
  }
],
"telecom": [
  {
    "system": "phone",
    "value": "+1-555-123-4567",
    "use": "mobile"
  },
  {
    "system": "email",
    "value": "john.doe@example.com",
    "use": "home"
  }
],
```

```
"gender": "male",
"birthDate": "1985-07-20",
"address": [
  {
    "use": "home",
    "type": "both",
    "text": "123 Main St, Springfield, IL 62704, USA",
    "line": ["123 Main St"],
    "city": "Springfield",
    "state": "IL",
    "postalCode": "62704",
    "country": "US"
  }
],

"maritalStatus": {
  "coding": [
    {
      "system": "http://terminology.hl7.org/CodeSystem/v3-MaritalStatus",
      "code": "M",
      "display": "Married"
    }
  ],
  "text": "Married"
},
```

```
  "extension": [
    {
      "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race",
      "extension": [
        {
          "url": "ombCategory",
          "valueCoding": {
            "system": "urn:oid:2.16.840.1.113883.6.238",
            "code": "2106-3",
            "display": "White"
          }
        }
      ]
    }
  ]
}
```

Condition Resource - Search Endpoint

Method: GET

Endpoint: /Condition

Resource Type: Condition

Function Name: searchConditions

Required Parameters:

- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Optional Parameters (Search Criteria):

- patient (reference): Filter by patient ID (e.g., patient=12345)
  - Type: reference to Patient resource
- clinical-status (token): Filter by clinical status
  - Allowed values: active, recurrence, remission, resolved, unknown
  - Code system: http://terminology.hl7.org/CodeSystem/condition-clinical
- code (token): Filter by condition code (ICD-10, SNOMED CT)
  - Code system: http://snomed.info/sct or http://hl7.org/fhir/sid/icd-10-cm
  - Example: code=http://snomed.info/sct|73211009 (Diabetes mellitus)
- onset-date (date): Filter by condition onset date
  - Operators: eq (equals), ne (not equals), lt (less than), le (less than or equal), gt (greater than), ge (greater than or equal), sa (starts after), eb (ends before)
  - Format: YYYY-MM-DD or YYYY-MM-DDTHH:MM:SS±HH:MM
- _sort (string): Sort order (-onset-date for descending)
- _count (integer): Number of results to return (default: 25, max: 500)

- _offset (integer): Pagination offset (default: 0)
- _format (string): Response format - application/fhir+json or application/fhir+xml

Return Variables & Types:

- resourceType (string): "Bundle"
- type (code): "searchset"
- total (integer): Total number of matching resources
- entry (BundleEntry[]): Array of matching resources
  - resource (Condition): The Condition resource
    - resourceType (string): "Condition"
    - id (string): Condition resource ID
    - clinicalStatus (CodeableConcept): Clinical status
    - code (CodeableConcept): Condition code (ICD-10, SNOMED CT)
    - subject (Reference): Patient reference
    - onset[x] (dateTime, Period, Range, Age, string): When condition started
    - recordedDate (dateTime): Date recorded
    - severity (CodeableConcept): Severity level
    - note (Annotation[]): Clinical notes

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Condition?patient=12345&clinical-status=active&_count=50
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
    "resourceType": "Bundle",
    "type": "searchset",
    "total": 1,
    "link": [
      {
        "relation": "self",
        "url": "https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Condition?
patient=12345&clinical-status=active&_count=50"
      }
    ],
    "entry": [
      {
        "fullUrl": "https://api.emr.woundtech.net/hapi-fhir-
jpaserver/fhir/Condition/pressure-ulcer-001",
        "resource": {
          "resourceType": "Condition",
          "id": "pressure-ulcer-001",
          "clinicalStatus": {
            "coding": [
              {
                "system": "http://terminology.hl7.org/CodeSystem/condition-
clinical",
                "code": "active",
                "display": "Active"
              }
            ],
            "text": "Active"
          },
```

```
"code": {
  "coding": [
    {
      "system": "http://snomed.info/sct",
      "code": "399912005",
      "display": "Pressure ulcer"
    }
  ],
  "text": "Pressure Injury (Pressure Ulcer)"
},

"subject": {
  "reference": "Patient/12345"
},
"bodySite": [
  {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "46862004",
        "display": "Sacral region"
      }
    ],
    "text": "Sacral region"
  }
],
"onsetDateTime": "2025-09-15",
```

```
          "recordedDate": "2025-09-16T08:45:00Z",
          "severity": {
            "coding": [
              {
                "system": "http://snomed.info/sct",
                "code": "24484000",
                "display": "Severe"
              }
            ],
            "text": "Stage 3 Pressure Injury"
          },
          "note": [
            {
              "text": "Stage 3 pressure injury observed in sacral area. Wound bed shows granulation tissue with moderate exudate. Requires ongoing wound care and offloading."
            }
          ]
        }
      }
    ]
  }
```

Observation Resource - Create Endpoint

Method: POST

Endpoint: /Observation

Resource Type: Observation

Function Name: createObservation

Required Parameters:

- Authorization (header, required): Bearer token with user/*.write or patient/*.write scope
- Content-Type (header, required): application/fhir+json or application/fhir+xml

Request Body (Observation Resource):

- resourceType (string): "Observation" (required)
- status (code): final | preliminary | entered-in-error | unknown (required)
- category (CodeableConcept[]): Type of observation (vital-signs, laboratory, imaging, etc.)
- code (CodeableConcept): Type of observation parameter (required)
  - coding (Coding[]): Codes from LOINC, SNOMED CT, etc.
    - system (uri): Code system (e.g., http://loinc.org)
    - code (string): Code value (e.g., 8310-5 for body temperature)
    - display (string): Human-readable name
- subject (Reference): Patient this observation is about (required)
  - reference (string): Reference to Patient/{id}

- effective[x] (dateTime, Period): When observation was made (required)
- value[x] (Quantity, CodeableConcept, string, boolean): Measured value
- interpretation (CodeableConcept[]): High/low/normal interpretation
- note (Annotation[]): Additional comments
- referenceRange (ObservationReferenceRange[]): Normal range for value
  - low (Quantity): Low bound
  - high (Quantity): High bound
  - text (string): Text explanation

Return Variables & Types (HTTP 201 Created):

- resourceType (string): "Observation"
- id (string): Newly created Observation resource ID
- meta (Meta): Metadata
  - versionId (string): Version ID (typically "1")
  - lastUpdated (instant): Creation timestamp
- [All submitted fields as received]

Example Request:

```
POST https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Observation
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Content-Type: application/fhir+json

{
  "resourceType": "Observation",
  "status": "final",
  "category": [{
    "coding": [{
      "system": "http://terminology.hl7.org/CodeSystem/observation-category",
      "code": "vital-signs"
    }]
  }],
  "code": {
    "coding": [{
      "system": "http://loinc.org",
      "code": "8310-5"
    }]
  },
  "subject": {"reference": "Patient/12345"},
  "effectiveDateTime": "2024-01-15T10:30:00Z",
  "valueQuantity": {
    "value": 98.6,
    "unit": "Fahrenheit",
    "system": "http://unitsofmeasure.org",
    "code": "[degF]"
  }
}
```

Encounter Resource - Read Endpoint

Method: GET

Endpoint: /Encounter/{id}

Resource Type: Encounter

Function Name: getEncounterById

Required Parameters:

- id (string, required): Encounter resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Encounter"
- id (string): Encounter resource ID
- status (code): planned | arrived | triaged | in-progress | finished | cancelled
- class (Coding): Encounter classification (inpatient, outpatient, etc.)
- subject (Reference): Reference to Patient/{id}
- period (Period): Encounter start and end timestamps
- participant (EncounterParticipant[]): Practitioners involved in care
- reasonCode (CodeableConcept[]): Clinical reason for encounter

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Encounter/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Encounter",
  "id": "12345",
  "status": "finished",
  "class": {
    "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",
    "code": "AMB",
    "display": "ambulatory"
  },
  "subject": {
    "reference": "Patient/12345"
  },
  "period": {
    "start": "2026-01-14T10:00:00Z",
    "end": "2026-01-14T10:35:00Z"
  }
}
```

Medication Resource - Read Endpoint

Method: GET

Endpoint: /Medication/{id}

Resource Type: Medication

Function Name: getMedicationById

Required Parameters:

- id (string, required): Medication resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Medication"
- id (string): Medication resource ID
- code (CodeableConcept): Medication coding details
- status (code): active | inactive | entered-in-error
- manufacturer (Reference): Manufacturer organization reference
- form (CodeableConcept): Medication dose form (tablet, capsule, liquid)

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Medication/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Medication",
  "id": "12345",
  "code": {
    "coding": [
      {
        "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
        "code": "1049630",
        "display": "Acetaminophen 500 MG Oral Tablet"
      }
    ]
  },
  "status": "active"
}
```

MedicationRequest Resource - Read Endpoint

Method: GET

Endpoint: /MedicationRequest/{id}

Resource Type: MedicationRequest

Function Name: getMedicationRequestById

Required Parameters:

- id (string, required): MedicationRequest resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "MedicationRequest"
- id (string): MedicationRequest resource ID
- status (code): active | on-hold | cancelled | completed | entered-in-error
- intent (code): proposal | plan | order | original-order
- medication[x] (CodeableConcept|Reference): Medication being requested
- subject (Reference): Patient reference
- requester (Reference): Ordering clinician reference

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationRequest/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "MedicationRequest",
  "id": "12345",
  "status": "active",
  "intent": "order",
  "subject": {
    "reference": "Patient/12345"
  },
  "requester": {
    "reference": "Practitioner/789"
  }
}
```

MedicationStatement Resource - Read Endpoint

Method: GET

Endpoint: /MedicationStatement/{id}

Resource Type: MedicationStatement

Function Name: getMedicationStatementById

Required Parameters:

- id (string, required): MedicationStatement resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "MedicationStatement"
- id (string): MedicationStatement resource ID
- status (code): active | completed | entered-in-error | intended | stopped
- medication[x] (CodeableConcept|Reference): Reported medication
- subject (Reference): Patient reference
- effective[x] (dateTime|Period): Time medication use is relevant

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationStatement/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "MedicationStatement",
  "id": "12345",
  "status": "active",
  "subject": {
    "reference": "Patient/12345"
  },
  "effectivePeriod": {
    "start": "2026-01-01",
    "end": "2026-01-15"
  }
}
```

AllergyIntolerance Resource - Read Endpoint

Method: GET

Endpoint: /AllergyIntolerance/{id}

Resource Type: AllergyIntolerance

Function Name: getAllergyIntoleranceById

Required Parameters:

- id (string, required): AllergyIntolerance resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "AllergyIntolerance"
- id (string): AllergyIntolerance resource ID
- clinicalStatus (CodeableConcept): active | inactive | resolved
- verificationStatus (CodeableConcept): unconfirmed | confirmed | refuted
- type (code): allergy | intolerance
- category (code[]): food | medication | environment | biologic
- criticality (code): low | high | unable-to-assess
- patient (Reference): Patient reference

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/AllergyIntolerance/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "AllergyIntolerance",
  "id": "12345",
  "clinicalStatus": {
    "text": "active"
  },
  "code": {
    "text": "Penicillin"
  },
  "patient": {
    "reference": "Patient/12345"
  }
}
```

Procedure Resource - Read Endpoint

Method: GET

Endpoint: /Procedure/{id}

Resource Type: Procedure

Function Name: getProcedureById

Required Parameters:

- id (string, required): Procedure resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Procedure"
- id (string): Procedure resource ID
- status (code): preparation | in-progress | not-done | on-hold | stopped | completed
- code (CodeableConcept): Procedure type code
- subject (Reference): Patient reference
- performed[x] (dateTime|Period|string|Age|Range): Procedure timing
- performer (ProcedurePerformer[]): Individuals/entities who performed procedure

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Procedure/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Procedure",
  "id": "12345",
  "status": "completed",
  "code": {
    "text": "Wound debridement"
  },
  "subject": {
    "reference": "Patient/12345"
  },
  "performedDateTime": "2026-01-14T10:20:00Z"
}
```

Immunization Resource - Read Endpoint

Method: GET

Endpoint: /Immunization/{id}

Resource Type: Immunization

Function Name: getImmunizationById

Required Parameters:

- id (string, required): Immunization resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Immunization"
- id (string): Immunization resource ID
- status (code): completed | entered-in-error | not-done
- vaccineCode (CodeableConcept): Vaccine identifier and display
- patient (Reference): Patient reference
- occurrence[x] (dateTime|string): Administration date/time
- lotNumber (string): Vaccine lot identifier (if available)

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Immunization/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Immunization",
  "id": "12345",
  "status": "completed",
  "vaccineCode": {
    "text": "Influenza vaccine"
  },
  "patient": {
    "reference": "Patient/12345"
  },
  "occurrenceDateTime": "2025-10-12T09:00:00Z"
}
```

Practitioner Resource - Read Endpoint

Method: GET

Endpoint: /Practitioner/{id}

Resource Type: Practitioner

Function Name: getPractitionerById

Required Parameters:

- id (string, required): Practitioner resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Practitioner"
- id (string): Practitioner resource ID
- identifier (Identifier[]): NPI or internal identifiers
- active (boolean): Active/inactive status
- name (HumanName[]): Clinician name values
- telecom (ContactPoint[]): Contact details
- qualification (PractitionerQualification[]): Professional certifications

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Practitioner/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Practitioner",
  "id": "12345",
  "active": true,
  "name": [
    {
      "family": "Doe",
      "given": ["Jane"]
    }
  ]
}
```

Organization Resource - Read Endpoint

Method: GET

Endpoint: /Organization/{id}

Resource Type: Organization

Function Name: getOrganizationById

Required Parameters:

- id (string, required): Organization resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Organization"
- id (string): Organization resource ID
- active (boolean): Active/inactive organization status
- type (CodeableConcept[]): Organization category/type
- name (string): Organization display name
- telecom (ContactPoint[]): Organization contact details
- address (Address[]): Organization address information

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Organization/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Organization",
  "id": "12345",
  "active": true,
  "name": "WoundTech Clinical Services",
  "telecom": [
    {
      "system": "phone",
      "value": "+1-800-555-0100"
    }
  ]
}
```

CarePlan Resource - Read Endpoint

Method: GET

Endpoint: /CarePlan/{id}

Resource Type: CarePlan

Function Name: getCarePlanById

Required Parameters:

- id (string, required): CarePlan resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "CarePlan"
- id (string): CarePlan resource ID
- status (code): draft | active | on-hold | revoked | completed | entered-in-error
- intent (code): proposal | plan | order | option
- subject (Reference): Patient reference
- period (Period): Care plan effective period
- activity (CarePlanActivity[]): Planned interventions and tasks

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CarePlan/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "CarePlan",
  "id": "12345",
  "status": "active",
  "intent": "plan",
  "subject": {
    "reference": "Patient/12345"
  },
  "period": {
    "start": "2026-01-01",
    "end": "2026-03-31"
  }
}
```

CareTeam Resource - Read Endpoint

Method: GET

Endpoint: /CareTeam/{id}

Resource Type: CareTeam

Function Name: getCareTeamById

Required Parameters:

- id (string, required): CareTeam resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "CareTeam"
- id (string): CareTeam resource ID
- status (code): proposed | active | suspended | inactive | entered-in-error
- subject (Reference): Patient reference
- participant (CareTeamParticipant[]): Team members and roles

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CareTeam/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "CareTeam",
  "id": "12345",
  "status": "active",
  "subject": {"reference": "Patient/12345"},
  "participant": [{"member": {"reference": "Practitioner/987"}}]
}
```

Coverage Resource - Read Endpoint

Method: GET
Endpoint: /Coverage/{id}
Resource Type: Coverage

Function Name: getCoverageById

Required Parameters:
- id (string, required): Coverage resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "Coverage"
- id (string): Coverage resource ID
- status (code): active | cancelled | draft | entered-in-error
- beneficiary (Reference): Patient reference
- payor (Reference[]): Payer organizations
- period (Period): Coverage effective period

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Coverage/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "Coverage",
  "id": "12345",
  "status": "active",
  "beneficiary": {"reference": "Patient/12345"},
  "payor": [{"reference": "Organization/2001"}]
}
```

DiagnosticReport Resource - Read Endpoint

Method: GET
Endpoint: /DiagnosticReport/{id}
Resource Type: DiagnosticReport

Function Name: getDiagnosticReportById

Required Parameters:
- id (string, required): DiagnosticReport resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "DiagnosticReport"
- id (string): DiagnosticReport resource ID
- status (code): registered | partial | preliminary | final | amended
- code (CodeableConcept): Report category/type
- subject (Reference): Patient reference
- result (Reference[]): Related Observation resources

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/DiagnosticReport/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "DiagnosticReport",
  "id": "12345",
  "status": "final",
  "subject": {"reference": "Patient/12345"},
  "result": [{"reference": "Observation/obs-101"}]
}
```

DocumentReference Resource - Read Endpoint

Method: GET
Endpoint: /DocumentReference/{id}
Resource Type: DocumentReference

Function Name: getDocumentReferenceById

Required Parameters:
- id (string, required): DocumentReference resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "DocumentReference"
- id (string): DocumentReference resource ID
- status (code): current | superseded | entered-in-error
- type (CodeableConcept): Document type
- subject (Reference): Patient reference
- content (DocumentReferenceContent[]): Attachment metadata and references

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/DocumentReference/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "DocumentReference",
  "id": "12345",
  "status": "current",
  "subject": {"reference": "Patient/12345"},
  "content": [{"attachment": {"contentType": "application/pdf"}}]
}
```

Device Resource - Read Endpoint

Method: GET
Endpoint: /Device/{id}
Resource Type: Device

Function Name: getDeviceById

Required Parameters:
- id (string, required): Device resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "Device"
- id (string): Device resource ID
- status (code): active | inactive | entered-in-error | unknown
- deviceName (DeviceDeviceName[]): Device display names
- patient (Reference): Patient reference
- type (CodeableConcept): Device classification

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Device/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "Device",
  "id": "12345",
  "status": "active",
  "patient": {"reference": "Patient/12345"},
  "type": {"text": "Glucose meter"}
}
```

Goal Resource - Read Endpoint

Method: GET

Endpoint: /Goal/{id}

Resource Type: Goal

Function Name: getGoalById

Required Parameters:

- id (string, required): Goal resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Goal"
- id (string): Goal resource ID
- lifecycleStatus (code): proposed | active | completed | cancelled | entered-in-error
- description (CodeableConcept): Goal description
- subject (Reference): Patient reference
- target (GoalTarget[]): Goal targets and measures

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Goal/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "Goal",
  "id": "12345",
  "lifecycleStatus": "active",
  "subject": {"reference": "Patient/12345"},
  "description": {"text": "Reduce wound size by 30% in 8 weeks"}
}
```

Location Resource - Read Endpoint

Method: GET
Endpoint: /Location/{id}
Resource Type: Location

Function Name: getLocationById

Required Parameters:
- id (string, required): Location resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "Location"
- id (string): Location resource ID
- status (code): active | suspended | inactive
- name (string): Location display name
- type (CodeableConcept[]): Location type classification
- address (Address): Location address

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Location/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "Location",
  "id": "12345",
  "status": "active",
  "name": "WoundTech Dallas Clinic",
  "address": {"city": "Dallas", "state": "TX"}
}
```

MedicationDispense Resource - Read Endpoint

Method: GET

Endpoint: /MedicationDispense/{id}

Resource Type: MedicationDispense

Function Name: getMedicationDispenseById

Required Parameters:

- id (string, required): MedicationDispense resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "MedicationDispense"
- id (string): MedicationDispense resource ID
- status (code): preparation | in-progress | cancelled | completed
- medication[x] (CodeableConcept|Reference): Dispensed medication
- subject (Reference): Patient reference
- whenHandedOver (dateTime): Dispense handover timestamp

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationDispense/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "MedicationDispense",
  "id": "12345",
  "status": "completed",
  "subject": {"reference": "Patient/12345"},
  "whenHandedOver": "2026-01-15T13:00:00Z"
}
```

PractitionerRole Resource - Read Endpoint

Method: GET

Endpoint: /PractitionerRole/{id}

Resource Type: PractitionerRole

Function Name: getPractitionerRoleById

Required Parameters:

- id (string, required): PractitionerRole resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "PractitionerRole"
- id (string): PractitionerRole resource ID
- practitioner (Reference): Practitioner reference
- organization (Reference): Organization reference
- code (CodeableConcept[]): Role code(s)
- specialty (CodeableConcept[]): Specialty code(s)

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/PractitionerRole/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "PractitionerRole",
  "id": "12345",
  "practitioner": {"reference": "Practitioner/987"},
  "organization": {"reference": "Organization/2001"},
  "specialty": [{"text": "Wound Care"}]
}
```

Provenance Resource - Read Endpoint

Method: GET
Endpoint: /Provenance/{id}
Resource Type: Provenance

Function Name: getProvenanceById

Required Parameters:
- id (string, required): Provenance resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "Provenance"
- id (string): Provenance resource ID
- target (Reference[]): Target resources affected
- recorded (instant): Provenance record timestamp
- agent (ProvenanceAgent[]): Responsible actors and roles

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Provenance/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "Provenance",
  "id": "12345",
  "recorded": "2026-01-15T13:05:00Z",
  "target": [{"reference": "Observation/obs-101"}],
  "agent": [{"who": {"reference": "Practitioner/987"}}]
}
```

RelatedPerson Resource - Read Endpoint

Method: GET
Endpoint: /RelatedPerson/{id}
Resource Type: RelatedPerson

Function Name: getRelatedPersonById

Required Parameters:
- id (string, required): RelatedPerson resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):
- resourceType (string): "RelatedPerson"
- id (string): RelatedPerson resource ID
- patient (Reference): Linked patient reference
- relationship (CodeableConcept[]): Relationship to patient
- name (HumanName[]): Related person names
- telecom (ContactPoint[]): Contact information

Example Request:
```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/RelatedPerson/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:
```
{
  "resourceType": "RelatedPerson",
  "id": "12345",
  "patient": {"reference": "Patient/12345"},
  "relationship": [{"text": "Spouse"}],
  "name": [{"family": "Doe", "given": ["John"]}]
}
```

ServiceRequest Resource - Read Endpoint

Method: GET

Endpoint: /ServiceRequest/{id}

Resource Type: ServiceRequest

Function Name: getServiceRequestById

Required Parameters:

- id (string, required): ServiceRequest resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "ServiceRequest"
- id (string): ServiceRequest resource ID
- status (code): draft | active | on-hold | revoked | completed | entered-in-error
- intent (code): proposal | plan | directive | order
- subject (Reference): Patient reference
- code (CodeableConcept): Requested service/procedure

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/ServiceRequest/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:

```
{
  "resourceType": "ServiceRequest",
  "id": "12345",
  "status": "active",
  "intent": "order",
  "subject": {"reference": "Patient/12345"},
  "code": {"text": "Skilled nursing wound follow-up"}
}
```

Specimen Resource - Read Endpoint

Method: GET

Endpoint: /Specimen/{id}

Resource Type: Specimen

Function Name: getSpecimenById

Required Parameters:

- id (string, required): Specimen resource identifier (FHIR compliant UUID)
- Authorization (header, required): Bearer token with patient/*.read or user/*.read scope

Return Variables & Types (HTTP 200 OK):

- resourceType (string): "Specimen"
- id (string): Specimen resource ID
- status (code): available | unavailable | unsatisfactory | entered-in-error
- type (CodeableConcept): Specimen type code
- subject (Reference): Patient reference
- receivedTime (dateTime): Specimen received timestamp

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Specimen/12345
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9...
Accept: application/fhir+json
```

Example Response:


```
{
  "resourceType": "Specimen",
  "id": "12345",
  "status": "available",
  "subject": {"reference": "Patient/12345"},
  "type": {"text": "Wound swab"}
}
```

Resource-wise Patient ID Search Endpoints

Each applicable resource below supports patient-scoped search for ONC/US Core style retrieval evidence. Response payloads are returned as Bundle searchset results.

Encounter - Search by Patient ID

Endpoint: GET /Encounter?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Encounter?patient=12345&status=finished

Example Response:

{"resourceType":"Bundle","id":"enc-search-001","meta":{"lastUpdated":"2026-01-15T13:10:00Z"},"type":"searchset","total":1,"link":[{"relation":"self","url":"https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Encounter?patient=12345&status=finished"}],"entry":[{"fullUrl":"https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Encounter/enc-1001","resource":{"resourceType":"Encounter","id":"enc-1001","status":"finished","subject":{"reference":"Patient/12345"},"period":{"start":"2026-01-15T12:00:00Z","end":"2026-01-15T12:30:00Z"}}}]}

Condition - Search by Patient ID

Endpoint: GET /Condition?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Condition?patient=12345&clinical-status=active

Example Response:

{"resourceType":"Bundle","id":"cond-search-001","type":"searchset","total":1,"entry":[{"fullUrl":"https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Condition/cond-101","resource":{"resourceType":"Condition","id":"cond-101","clinicalStatus":{"text":"active"},"code":{"text":"Pressure ulcer"},"subject":{"reference":"Patient/12345"}}}]}

Observation - Search by Patient ID

Endpoint: GET /Observation?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Observation?patient=12345&status=final

Example Response:

{"resourceType":"Bundle","id":"obs-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Observation","id":"obs-101","status":"final","code":{"text":"Body temperature"},"subject":{"reference":"Patient/12345"},"valueQuantity":{"value":98.6,"unit":"F"}}}]}

MedicationRequest - Search by Patient ID

Endpoint: GET /MedicationRequest?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationRequest?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"medreq-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"MedicationRequest","id":"mr-1001","status":"active","intent":"order","subject":{"reference":"Patient/12345"},"requester":{"reference":"Practitioner/987"}}}]}

MedicationStatement - Search by Patient ID

Endpoint: GET /MedicationStatement?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationStatement?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"medstmt-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"MedicationStatement","id":"ms-1001","status":"active","subject":{"reference":"Patient/12345"},"effectivePeriod":{"start":"2026-01-01","end":"2026-01-31"}}}]}

AllergyIntolerance - Search by Patient ID

Endpoint: GET /AllergyIntolerance?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/AllergyIntolerance?patient=12345&clinical-status=active

Example Response:

{"resourceType":"Bundle","id":"allergy-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"AllergyIntolerance","id":"alg-1001","clinicalStatus":{"text":"active"},"code":{"text":"Penicillin"},"patient":{"reference":"Patient/12345"}}}]}

Procedure - Search by Patient ID

Endpoint: GET /Procedure?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Procedure?patient=12345&status=completed

Example Response:

{"resourceType":"Bundle","id":"proc-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Procedure","id":"proc-1001","status":"completed","code":{"text":"Wound debridement"},"subject":{"reference":"Patient/12345"}}}]}

Immunization - Search by Patient ID

Endpoint: GET /Immunization?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Immunization?patient=12345&status=completed

Example Response:

{"resourceType":"Bundle","id":"imm-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Immunization","id":"imm-1001","status":"completed","vaccineCode":{"text":"Influenza vaccine"},"patient":{"reference":"Patient/12345"}}}]}

CarePlan - Search by Patient ID

Endpoint: GET /CarePlan?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CarePlan?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"cp-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"CarePlan","id":"cp-1001","status":"active","intent":"plan","subject":{"reference":"Patient/12345"},"period":{"start":"2026-01-01","end":"2026-03-31"}}}]}

CareTeam - Search by Patient ID

Endpoint: GET /CareTeam?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CareTeam?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"ct-search-001","meta":{"lastUpdated":"2026-01-15T13:12:00Z"},"type":"searchset","total":1,"entry":[{"fullUrl":"https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/CareTeam/ct-1001","resource":{"resourceType":"CareTeam","id":"ct-1001","status":"active","subject":{"reference":"Patient/12345"},"participant":[{"member":{"reference":"Practitioner/987"},"role":[{"text":"Primary clinician"}]}]}}]}

Coverage - Search by Patient ID

Endpoint: GET /Coverage?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Coverage?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"cov-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Coverage","id":"cov-1001","status":"active","beneficiary":{"reference":"Patient/12345"},"payor":[{"reference":"Organization/2001"}],"period":{"start":"2026-01-01","end":"2026-12-31"}}}]}

DiagnosticReport - Search by Patient ID

Endpoint: GET /DiagnosticReport?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/DiagnosticReport?patient=12345&status=final

Example Response:

{"resourceType":"Bundle","id":"dr-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"DiagnosticReport","id":"dr-1001","status":"final","subject":{"reference":"Patient/12345"},"result":[{"reference":"Observation/obs-101"}]}}]}

DocumentReference - Search by Patient ID

Endpoint: GET /DocumentReference?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/DocumentReference?patient=12345&status=current

Example Response:

{"resourceType":"Bundle","id":"docref-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"DocumentReference","id":"doc-1001","status":"current","subject":{"reference":"Patient/12345"},"type":{"text":"Clinical note"},"content":[{"attachment":{"contentType":"application/pdf"}}]}}]}

Device - Search by Patient ID

Endpoint: GET /Device?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Device?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"dev-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Device","id":"dev-1001","status":"active","type":{"text":"Glucose meter"},"patient":{"reference":"Patient/12345"},"manufacturer":"Acme Medical"}}]}

Goal - Search by Patient ID

Endpoint: GET /Goal?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Goal?patient=12345&lifecycle-status=active

Example Response:

{"resourceType":"Bundle","id":"goal-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Goal","id":"goal-1001","lifecycleStatus":"active","subject":{"reference":"Patient/12345"},"description":{"text":"Reduce wound size by 30% in 8 weeks"}}}]}

MedicationDispense - Search by Patient ID

Endpoint: GET /MedicationDispense?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/MedicationDispense?patient=12345&status=completed

Example Response:

{"resourceType":"Bundle","id":"md-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"MedicationDispense","id":"md-1001","status":"completed","subject":{"reference":"Patient/12345"},"whenHandedOver":"2026-01-15T13:00:00Z"}}]}

Provenance - Search by Patient ID

Endpoint: GET /Provenance?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Provenance?patient=12345

Example Response:

{"resourceType":"Bundle","id":"prov-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Provenance","id":"prov-1001","recorded":"2026-01-15T13:05:00Z","target":[{"reference":"Observation/obs-101"}],"agent":[{"who":{"reference":"Practitioner/987"}}]}}]}

RelatedPerson - Search by Patient ID

Endpoint: GET /RelatedPerson?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/RelatedPerson?patient=12345

Example Response:

{"resourceType":"Bundle","id":"rp-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"RelatedPerson","id":"rp-1001","patient":{"reference":"Patient/12345"},"relationship":[{"text":"Spouse"}],"name":[{"family":"Doe","given":["John"]}]}}]}

ServiceRequest - Search by Patient ID

Endpoint: GET /ServiceRequest?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/ServiceRequest?patient=12345&status=active

Example Response:

{"resourceType":"Bundle","id":"sr-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"ServiceRequest","id":"sr-1001","status":"active","intent":"order","subject":{"reference":"Patient/12345"},"code":{"text":"Skilled nursing wound follow-up"}}}]}

Specimen - Search by Patient ID

Endpoint: GET /Specimen?patient={patientId}

Example Request: GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Specimen?patient=12345&status=available

Example Response:

{"resourceType":"Bundle","id":"spec-search-001","type":"searchset","total":1,"entry":[{"resource":{"resourceType":"Specimen","id":"spec-1001","status":"available","subject":{"reference":"Patient/12345"},"type":{"text":"Wound swab"},"receivedTime":"2026-01-15T09:00:00Z"}}]}

Exception Handling & Error Responses

This section is global and applies to **all API endpoints** in this document. Exception behavior is not specific to any single resource (including Patient) and is enforced uniformly across read, search, create, update, and bulk export operations.

Exception Handling Methods and Returns (Global)

Method	When Triggered	HTTP Status	Return Type
Request Validation Exception	Malformed request body/query/header, invalid value, missing required field	400 Bad Request / 422 Unprocessable Entity	OperationOutcome
Authentication Exception	Missing token, invalid token, expired token	401 Unauthorized	OperationOutcome
Authorization Exception	Insufficient SMART scopes or disallowed resource access	403 Forbidden	OperationOutcome
Resource Not Found Exception	Requested resource ID does not exist	404 Not Found	OperationOutcome
Rate Limit Exception	Client exceeds configured request threshold	429 Too Many Requests	OperationOutcome
Server Processing Exception	Unhandled runtime/server-side processing failure	500 Internal Server Error / 503 Service Unavailable	OperationOutcome

Standard HTTP Status Codes

The API implements standard HTTP status codes with OperationOutcome resources for detailed error information:

Success Codes (2xx)

- **200 OK:** Request succeeded, response body contains requested resource or search results
- **201 Created:** Resource was successfully created, Location header contains URI of new resource

Client Error Codes (4xx)

- **400 Bad Request:** Request parameters or body are malformed or invalid
- **401 Unauthorized:** Missing, expired, or invalid access token
- **403 Forbidden:** User lacks required permissions/scopes for requested resource
- **404 Not Found:** Requested resource does not exist
- **429 Too Many Requests:** Rate limit exceeded (default: 1000 requests per hour per client)

Server Error Codes (5xx)

- **500 Internal Server Error:** Unexpected server error during request processing
- **503 Service Unavailable:** Server temporarily unavailable (maintenance, overload)

OperationOutcome Error Response Format

```
HTTP/1.1 422 Unprocessable Entity
Content-Type: application/fhir+json

{
  "resourceType": "OperationOutcome",
  "id": "exception-12345",
  "issue": [
    {
      "severity": "error",
      "code": "required",
      "details": {
        "coding": [{
          "system": "http://terminology.hl7.org/CodeSystem/operation-outcome",
          "code": "required",
          "display": "Required element missing"
        }],
        "text": "Patient reference is required for Condition resource"
      },
      "diagnostics": "Missing required field: subject (Patient reference)",
      "location": ["Condition.subject"],
      "expression": ["Condition.subject"]
    }
  ]
}
```

```
OperationOutcome Structure:
  - resourceType (string): "OperationOutcome"
  - issue (Issue[]): Array of issues (errors, warnings, information)
    - severity (code): fatal | error | warning | information
    - code (code): Invalid, structure, required, value, invariant, security, login,
unknown, expired,
                   forbidden, suppressed, processing, not-supported, duplicate,
not-found, too-long,
                   code-invalid, extension, too-costly, business-rule, conflict,
incomplete, transient,
                   lock-error, no-store, exception, timeout, throttled,
informational
    - details (CodeableConcept): Human-readable explanation with codes
    - diagnostics (string): Detailed technical error information
    - location (string[]): Path to problematic element (e.g., "Condition.subject")
    - expression (string[]): FHIR path expression pointing to error location
```

Exception Handling Best Practices

- **Always check HTTP status code:** 2xx indicates success, 4xx indicates client error, 5xx indicates server error
- **Parse OperationOutcome for details:** Detailed error information provided in issue.diagnostics and issue.details.text
- **Implement retry logic:** Retry 5xx errors with exponential backoff; do not retry 4xx errors without fixing the request
- **Handle rate limiting:** Respect 429 responses and implement backoff strategy; check Retry-After header if present
- **Log error details:** Log diagnostic information for troubleshooting and support
- **User-facing errors:** Display issue.details.text or issue.diagnostics to end users; never expose internal system details

Woundtech

Secure Refresh Token Issuance for Native Applications

Refresh Token Issuance Methods

Our Health IT Module implements secure refresh token issuance methods for native applications per OAuth 2.0 Security Best Current Practices (RFC 8252):

Method 1: Authorization Code Flow with PKCE (Recommended)

Process:

1. Native application generates code_verifier (cryptographically random string, 128 characters)
2. Application computes code_challenge = BASE64URL(SHA256(code_verifier))
3. User directed to authorization endpoint with code_challenge and code_challenge_method=S256
4. User authenticates and grants consent
5. Authorization code returned to application via redirect URI
6. Application exchanges authorization code for tokens using:
   - code (authorization code from step 4)
   - code_verifier (original value from step 1)
   - client_id (application identifier)
   - client_secret (application secret - only for confidential clients)
   - grant_type: "authorization_code"
   - redirect_uri (must match original redirect URI)

Response includes:

- access_token (JWT with exp claim for expiration, expires in 3600 seconds)
- token_type: "Bearer"
- expires_in: 3600
- refresh_token (long-lived token for getting new access tokens)
- scope (granted scopes)
- id_token (OpenID Connect identity token, if openid scope requested)
- refresh_expires_in: 2592000 (30 days)

Method 2: System Browser with Custom URI Scheme

Process: 1. Native application opens system default browser (not embedded WebView) 2. Directs browser to authorization endpoint with PKCE parameters (code_challenge, code_challenge_method) 3. User authenticates directly with authorization server 4. User grants application permissions 5. Authorization server redirects to custom URI scheme registered by application (e.g., myapp://oauth-callback?code=AuthCode&state=random-state) 6. OS routes redirect to native application 7. Application exchanges authorization code for tokens using PKCE **Benefits:** - User credentials never shared with application - Browser cookies and cached sessions automatically available - System-wide security policies applied - Single sign-on across apps **Refresh Token Details:** - Refresh tokens issued with scope: offline_access - refresh_token stored securely in device keychain/secure storage - refresh_token rotated on each use (new refresh_token returned with new access token) - refresh_token has expiration: 30 days; automatic re-authentication after expiration - refresh_token invalidated on user logout/app uninstall

Method 3: Proof Key for Native Apps (Dynamic Client Registration)

Process (for first-time app launch):

1. Native application registers dynamically with authorization server
   POST /oauth2/register with:
     - application_type: "native"
     - redirect_uris: ["myapp://oauth-callback"]
     - response_types: ["code"]
     - grant_types: ["authorization_code", "refresh_token"]
     - token_endpoint_auth_method: "none" (public client, no secret)

2. Server returns client_id and confirms settings

3. Application proceeds with Authorization Code + PKCE flow
4. Refresh tokens issued automatically with offline_access scope

Token Endpoint Response includes refresh_token:


```
{
  "access_token": "access-token-jwt",
  "token_type": "Bearer",
  "expires_in": 3600,
  "refresh_token": "very-long-random-secure-string",
  "scope": "patient/*.read openid fhirUser offline_access",
  "id_token": "id-token-jwt",
  "refresh_expires_in": 2592000
}
```

Security Considerations for Native Apps

- **Never use client_secret in native apps:** Secrets cannot be securely stored in client-side code
- **Always use PKCE:** Code verifier protects against authorization code interception
- **Use system browser:** Never use embedded WebView; OS security policies apply in system browser
- **Store refresh tokens securely:** Use OS keychain/secure storage; never hardcode or log
- **Validate redirect URIs:** Match exact custom URI scheme to prevent token interception
- **Implement token refresh proactively:** Request new access token before expiration
- **Handle token expiration:** Gracefully re-authenticate if refresh fails
- **Log security events:** Monitor for unusual token refresh patterns (possible compromise)

OAuth 2.0 Authentication

Authorization Endpoints

Endpoint	URL	Purpose
Authorization	`https://onc-auth.emr.woundtech.net/realms/emr-g10/protocol/openid-connect/auth`	User authorization and consent
Token	`https://onc-auth.emr.woundtech.net/realms/emr-g10/protocol/openid-connect/token`	Exchange auth code for access token and refresh token
Revocation	`https://onc-auth.emr.woundtech.net/realms/emr-g10/protocol/openid-connect/revoke`	Revoke tokens and sessions

Supported Grant Types

- **Authorization Code Grant (with PKCE):** For web applications and native applications
- **Refresh Token Grant:** For obtaining new access tokens without re-authentication
- **Client Credentials Grant:** For service-to-service authentication

Supported Scopes

```
launch                          - Used with EHR launch flow
launch/patient                  - EHR launch with patient context
openid                          - OpenID Connect identity token
fhirUser                        - Access to authenticated user resource
offline_access                  - Request refresh token

patient/*.read                  - Read access to all patient resources
patient/Patient.read            - Read Patient resource
patient/Encounter.read          - Read Encounter resource
patient/Condition.read          - Read Condition resource
patient/Medication.read         - Read Medication resource
patient/MedicationRequest.read - Read MedicationRequest resource
patient/AllergyIntolerance.read - Read AllergyIntolerance resource
patient/Observation.read        - Read Observation resource
patient/Procedure.read          - Read Procedure resource
patient/Immunization.read       - Read Immunization resource

user/*.read                     - Provider read access to all resources
user/Practitioner.read          - Read Practitioner resource
user/Organization.read          - Read Organization resource
```

Bulk Data Access (FHIR Bulk Export / SMART Backend Services)

Introduction

The FHIR Bulk Data Access API is used to export large volumes of FHIR resources for analytics, research, quality reporting, and operational interoperability workflows aligned with ONC § 170.315(g)(10).

Authentication and Authorization

Protocol: OAuth 2.0 + SMART on FHIR Backend Services
Access Token: Bearer token required for all bulk export calls
Typical Scopes: system/*.read or group/*.read (as configured)

API Endpoints

1) Bulk Export Kick-off (Group Export)

Method: POST

Endpoint: /Group/{groupId}/$export

Example Request:

```
POST https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/Group/123/$export?
_type=Patient,Observation,MedicationRequest,AllergyIntolerance,Encounter,CarePlan,CareT
Accept: application/fhir+json
Prefer: respond-async
Authorization: Bearer {access_token}
```

Parameters:

- groupId (string, required): FHIR Group resource ID representing patient cohort
- _type (string, optional): Comma-separated resource types to include
- _typeFilter (string, optional): Resource-level filters (date/code/status constraints)
- _since (instant, optional): Export records updated since timestamp

Response (HTTP 202 Accepted):

```
{
  "status": "202 Accepted",
  "content-location": "https://api.emr.woundtech.net/hapi-fhir-
jpaserver/fhir/$export-status/txn-987654"
}
```

2) Bulk Export Status Check

Method: GET

Endpoint: /$export-status/{transactionId}

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/$export-status/txn-987654
Authorization: Bearer {access_token}
Accept: application/json
```

Response (HTTP 200 OK):


```
{
  "transactionTime": "2026-04-28T09:30:00Z",
  "request": "https://api.emr.woundtech.net/hapi-fhir-
jpaserver/fhir/Group/123/$export",
  "requiresAccessToken": true,
  "output": [
    {
      "type": "Patient",
      "url": "https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/$export-
file/txn-987654/patient-1.ndjson"
    },
    {
      "type": "Observation",
      "url": "https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/$export-
file/txn-987654/observation-1.ndjson"
    }
  ],
  "error": []
}
```

3) Bulk Export File Download

Method: GET

Endpoint: /$export-file/{transactionId}/{fileName}

Example Request:

```
GET https://api.emr.woundtech.net/hapi-fhir-jpaserver/fhir/$export-file/txn-987654/patient-1.ndjson
Authorization: Bearer {access_token}
Accept: application/fhir+ndjson
```

Response (HTTP 200 OK):

- Content-Type: application/fhir+ndjson
- Body: NDJSON stream, one FHIR resource JSON object per line

Supported Resource Types for Bulk Export

- Patient
- Observation
- MedicationRequest
- AllergyIntolerance
- Encounter
- CarePlan
- CareTeam
- Condition
- Device
- DiagnosticReport
- Immunization
- Procedure

Performance and Error Handling

Operational Guidance:

- Exports are asynchronous and may produce multiple NDJSON output files
- Clients should poll status endpoint until output links are available
- Clients should download files immediately when URLs are returned

Common Errors:

- 400 Bad Request: Invalid parameters/resource types
- 401 Unauthorized: Missing or invalid token
- 404 Not Found: Unknown Group or transactionId
- 500 Internal Server Error: Export processing failure

USCDI Data Elements

All U.S. Core Data for Interoperability (USCDI) v3 required data elements are available through the API, including:

- Patient demographics, identifiers, contact information, and relationships
- Clinical observations: vital signs, laboratory results, physical examination findings
- Problem/diagnosis lists with status and dates
- Medications: active medications, medication history, prescriptions
- Allergies and adverse reactions
- Procedures and interventions performed
- Immunizations with dates and status
- Care plans and treatment goals
- Encounter details: type, dates, diagnoses, providers
- Provider information: identifiers, roles, specialties

API Terms and Conditions Notice: The following sections address API Transparency Conditions required by §170.404(A)(2). These terms and conditions may be updated from time to time to ensure continued compliance with applicable healthcare regulations. Material changes will be communicated to registered developers with appropriate notice. For API access requests or technical support, please contact: api.support@woundtech.net

API Terms and Conditions

This section addresses API Transparency Conditions required by §170.404(A)(2).

API Usage Fees

- **No Usage Fees:** There are no fees charged for accessing or using this USCDI v3 Application Access API.
- **Free Access:** All authorized applications can access the API without charge once properly registered and authenticated.
- **Infrastructure Costs:** Organizations are responsible for their own infrastructure costs (internet connectivity, computing resources, storage) required to integrate with and use the API.

Usage Restrictions and Limitations

- **Authorized Use Only:** API access is restricted to applications that have completed the registration process and maintain valid authentication credentials.
- **Patient Data Scope:** Applications may only access data for patients who have provided appropriate consent or for whom the application is authorized to act.
- **Request Limits:**
  - Maximum request body size: 10 MB
  - Connection timeout: 90 seconds
  - Document generation timeout: Recommended minimum 30 seconds client-side timeout

- **Data Usage Restrictions:**
  - Downloaded C-CDA documents contain Protected Health Information (PHI) and must be handled according to HIPAA requirements.
  - Pre-signed download URLs are time-limited and must not be stored, logged, or shared.
  - API responses and PHI data must not be cached beyond what is necessary for application functionality.
- **Prohibited Activities:**
  - Attempting to access data for unauthorized patients.
  - Sharing, selling, or redistributing patient data without proper authorization.
  - Using the API for purposes other than authorized healthcare operations.
  - Attempting to circumvent authentication or access controls.

Developer Obligations

- **Compliance Requirements:**
  - Maintain compliance with HIPAA Privacy and Security Rules.
  - Implement appropriate technical and administrative safeguards for PHI.
  - Report any suspected data breaches according to organizational policies.
  - Follow applicable state and federal healthcare regulations.
- **Technical Requirements:**
  - Implement secure token storage and management.
  - Use only approved authentication methods (OAuth 2.0).
  - Maintain current API client implementations compatible with documented specifications.
  - Implement proper error handling and user notifications.

- **Operational Obligations:**
  - Keep registration information current and accurate.
  - Notify the organization of any changes to application functionality or data usage.
  - Maintain audit logs of API access and patient data handling.
  - Respond promptly to security or compliance inquiries.

Developer Registration Process

Registration Requirements

- **Application Information**:
  - Application name, version, and description
  - Developer/organization contact information
  - Intended use case and patient population
  - Technical architecture and integration approach
- **Security Documentation**:
  - Data security and privacy policies
  - HIPAA compliance documentation
  - Technical security controls implementation
  - Incident response procedures
- **Legal Requirements**:
  - Business Associate Agreement (BAA) execution
  - Terms of Use acceptance
  - Liability and insurance documentation
  - Regulatory compliance attestations

Registration Process Steps

1. **Initial Application Submission**:
   - Complete developer registration form
   - Provide required documentation and attestations
   - Submit for initial review

2. **Security and Compliance Review**:
    - Technical architecture assessment
    - Security controls validation
    - HIPAA compliance verification
    - Legal documentation review
3. **Testing and Validation**:
    - Sandbox environment access provided
    - Integration testing with test data
    - API functionality validation
    - Security testing and penetration testing (if required)
4. **Production Approval**:
    - Final compliance review
    - Production credentials issuance
    - Go-live authorization

Approval Criteria and Timeline

- **Approval Criteria**:
    - Complete and accurate registration information
    - Demonstrated HIPAA compliance capabilities
    - Appropriate technical security controls
    - Valid business justification for API access
    - Successfully completed testing and validation

- **Review Timeline**:
  - Initial review: 5-10 business days
  - Security assessment: 10-15 business days
  - Testing phase: 15-30 business days (developer-dependent)
  - Final approval: 3-5 business days
  - Total process: Typically 30-60 business days

14. Business Policies and Support

14.1 Support and Contact Information

- **Technical Support**:
  - Business hours: Monday-Friday 9:00 a.m. – 5:00 p.m. (EST Time)
  - Response time: Within 4 business hours for critical issues
  - Support channels: Email

14.2 Liability and Warranties

By accessing and using the application, the user agrees to the following service disclaimers, limitation of liability, and developer responsibilities.

- **Service Disclaimers**:
  - API provided "as is" without warranties, express, implied, or statutory, including implied warranties of merchantability, non-infringement, and fitness for a particular purpose.
  - No guarantee of uninterrupted service or error-free operation.
  - Clinical decisions should not be based solely on API data without proper validation
- **Limitation of Liability**:
  - No liability for consequential or indirect damages, exemplary, indirect, incidental, or special damages arising out of the access and use of the application or any API, or of the delivery, installation, use, maintenance, or operation of the application, API, any other software, or professional services provided hereunder even if Woundtech has been advised of the possibility of such damages.
  - In no event shall Woundtech have any liability for any medical treatment decisions made based upon use of the API or any other software, including, without limitation, any claims for negligence, medical, dental or podiatric malpractice, wrongful death, bodily harm or any other personal injury or property damage.
  - Maximum liability capped at amount specified in Business Associate Agreement.

- **Developer Responsibilities**:
  - Developers assume responsibility for proper data handling.
  - Indemnification of Woundtech by user for unauthorized use or data breaches as specified within the Business Associate Agreement, and User agrees to defend, indemnify and hold Woundtech harmless including its officers, directors, agents, employees and their respective representatives, successors, and permitted assigns from and against any and all third-party investigations, claims, demands, suits, actions, and proceedings, and any debts, liabilities, obligations, expenses, losses, damages, assessments, orders and judgments (including without limitation reasonable attorneys' fees and all legal costs and disbursements) of any kind or nature whatsoever resulting from any such claims and/or liabilities, known or unknown, fixed, contingent, accrued, absolute, threatened or otherwise, to the extent sustained, suffered or incurred by or made against Woundtech after the access and use of the application and/or API.
  - Compliance with all applicable healthcare regulations, including but not limited to Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), U.S. Export Control Laws, and all applicable laws and regulations.
  - User acknowledges that any use of artificial intelligence, machine learning, and automated decision-making technologies (collectively, "AI Technologies") will be in compliance with HIPAA, applicable laws and regulations, and industry standards.