CRD Response Message Formatting Guide

How Epic Expects HTTP 200 Responses from Health Plan CRD Servers

Based on HL7 Da Vinci CRD IG • Epic • CDS Hooks

1. Overview

When a provider wants to check whether certain services are covered by a patient's insurance plan, they can send an electronic message using the Coverage Requirements Discovery (CRD) API to the patient's health plan. The health plan then responds with an electronic message. This response message shares whether the service is covered and if the service requires authorization.

The health plan server must return a valid HTTP 200 response containing coverage guidance so that Epic can notify the provider and guide their next steps.

The HTTP status code in a CRD response communicates whether the transaction itself succeeded — not whether the business outcome was favorable. A 200 means the health plan's server received and processed the request. The actual coverage determination lives inside the response body.

HTTP Code	Meaning	When to Use
200 OK	Success	Request was processed. Coverage guidance is in the body. The body may be empty if not enough information on the request was present. Business-level errors such as "Member Not Found" (where the member ID was received but could not be matched) should be returned as HTTP 200 with an appropriate coverage-information system action — NOT as a 4XX. A 4XX is reserved for cases where processing of the message itself could not take place.
4XX	Client Error	Request cannot be parsed. Response will be discarded by Epic and authorization will be submitted.
5XX	Server Error	Internal health plan-side error prevented processing. Response will be discarded by Epic and authorization will be submitted.

2. CRD 200 Response Structure

Every valid CRD 200 response is a JSON object with two top-level keys. Per spec guidelines neither object is formally required to be included in a response, but to have an actionable response that can be interpreted by Epic systemActions are recommended:

- **cards** — an array of CDS Hooks cards to display to the clinician (can be empty).
- **systemActions** — an array of update actions that Epic applies automatically to the order resource without requiring user input. While not required to be present, this is the suggested means of response because it allows the automation of CRD filing. Without this information the Epic system will not be able to process the request directly into the system.

The coverage-information extension lives inside the systemAction resource update. Epic reads this extension to determine how to file coverage guidance within the provider system.

```
{
  "cards": [ ... ],           // May be empty: []
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "<resource-id-from-request>",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [ ... coverage-information fields ... ]
          }
        ]
      }
    }
  ]
}
```

3. The coverage-information Extension

The coverage-information carries the health plan's assessment and is filed directly to records in Epic. The table below describes each field.

Field (url)	Required?	Type	Description
coverage-assertion-id	Required	String	Unique trace ID for this coverage assertion. Used by Epic to link CRD and DTR calls together.
coverage	Required	Reference	Reference to the Coverage FHIR resource in the EHR's FHIR server that the assertion applies to (e.g., Coverage/abc123). Full or relative URL accepted.
covered	Required	Code	Whether the service is a covered benefit. See Section 4.1 for valid codes.
pa-needed	Situational	Code	Whether prior authorization is required. See Section 4.2 for valid codes.
doc-needed	Situational	Code	Whether additional documentation must be gathered using DTR (clinical, admin, patient, or no-doc-needed). When present, a DTR $questionnaire-package operation will be triggered.
info-needed	Situational	Code	Indicates that more information (e.g., performer, location, date) is needed before a determination can be made.

Field (url)	Required?	Type	Description
reason	Situational	Code	Explains why a conditional or indeterminate result was returned. Required when covered or pa-needed is 'conditional' or 'indeterminate'. See Section 4.3 for codes.
date	Required	Date	Date the coverage assertion was made (format: YYYY-MM-DD).
expiry-date	Situational	Date	Date after which this coverage assertion is no longer valid (format: YYYY-MM-DD).

4.1 covered — Valid Codes

A valid CRD response contains one of these codes to indicate whether the service is a covered benefit.

Code	Meaning / Epic Impact
covered	Service is a covered benefit. Epic files as “No Authorization Required” or “Authorization Required” depending on pa-needed.
not-covered	Service is not a covered benefit. Epic files as “Not a Covered Benefit.” Workflow ends here.
conditional	Coverage depends on additional information (e.g., in/out of network). Must include info-needed and reason.
indeterminate	The health plan received the request but could not determine coverage (e.g., member not found in health plan system). Must include a reason code.

4.2 pa-needed — Valid Codes

A valid CRD response contains one of these codes to indicate whether prior authorization is required.

Code	Meaning / Epic Impact
auth-required	Prior authorization is required before the service is performed.
no-auth-required	No prior authorization needed. Workflow ends here.
conditional	Whether authorization is needed depends on additional context. Must include info-needed and reason.

4.3 reason — Codes for Indeterminate / Conditional / Error Scenarios

When covered or pa-needed is indeterminate or conditional, the reason field must be populated using the Da Vinci CRD temporary code system:

Code System URL: https://hl7.org/fhir/us/davinci-crd/en/CodeSystem-temp.html

Reason Code	Description
no-member-found	The member ID was received but could not be matched to a member in the health plan’s system. Use with covered = indeterminate.

Reason Code	Description
auth-out-network-only	Authorization is required only if the service is performed out-of-network. Use with covered/pa-needed = conditional.
out-network-not-covered	Service is not covered when performed out-of-network. Use with covered = conditional.
benefit-limit-reached	The patient has reached their benefit limit for this service period.
policy-terminated	The patient's policy has been terminated or is inactive.

5. Using Cards in a 200 Response

Cards are optional CDS Hooks display elements shown to the clinician in their workflow. They are not required for coverage-information responses — the system action alone is sufficient. We recommend passing empty cards and instead putting all relevant information into the system action.

> **NOTE:** *The Da Vinci CRD specification states that coverage-information system actions SHALL NOT use a card for the same information. Do not duplicate system action data inside a card.*

6. Response Examples

6.1 Prior Authorization Required (Normal Response)

In this example, the health plan confirmed coverage and determined prior authorization is needed. DTR documentation (clinical) is also required before PAS submission.

```
{
  "cards": [],
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "example-resource-id",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [
              { "url": "coverage-assertion-id", "valueString": "example-id-123" },
              { "url": "coverage", "valueReference": { "reference": "Coverage/abc123" }
},
              { "url": "covered", "valueCode": "covered" },
              { "url": "pa-needed", "valueCode": "auth-required" },
              { "url": "doc-needed", "valueCode": "clinical" },
              { "url": "date", "valueDate": "2026-05-14" }
            ]
          }
        ]
        <other resource fields>
      }
    }
  ]
}
```

Epic result: Interpreted as Authorization Required. DTR is triggered to collect clinical documentation before PAS submission.

6.2 No Authorization Required

In this example, the service is covered and no prior authorization is needed. The workflow ends here — neither DTR nor PAS are invoked.


```
{
  "cards": [],
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "example-resource-id",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [
              { "url": "coverage-assertion-id", "valueString": "example-id-456" },
              { "url": "coverage", "valueReference": { "reference": "Coverage/abc123" }
},
              { "url": "covered", "valueCode": "covered" },
              { "url": "pa-needed", "valueCode": "no-auth-required" },
              { "url": "date", "valueDate": "2026-05-14" }
            ]
          }
        ]
      }
    }
  ]
}
```


Epic result: Interpreted as No Authorization Required. No further steps are taken.

6.3 Service Not Covered

In this example, the health plan confirmed this service is not a covered benefit under the patient's plan. This is a valid business outcome, not an HTTP error.


```
{
  "cards": [],
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "example-resource-id",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [
              { "url": "coverage-assertion-id", "valueString": "example-id-111" },
              { "url": "coverage", "valueReference": { "reference": "Coverage/abc123" }
},
              { "url": "covered", "valueCode": "not-covered" },
              { "url": "date", "valueDate": "2026-05-14" }
            ]
          }
```

```
        ]
      }
    }
  ]
}
```

Epic result: Interpreted as Not a Covered Benefit. No further steps are taken.

6.4 Conditional Response (Network-Dependent)

In this example, the health plan cannot make a definitive determination because the answer depends on whether the service provider is in-network. A card is included to inform the clinician. Both the card and the system action are returned together.

```
{
  "cards": [],
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "example-resource-id",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [
              { "url": "coverage-assertion-id", "valueString": "example-id-222" },
              { "url": "coverage", "valueReference": { "reference": "Coverage/abc123" }
},
              { "url": "covered", "valueCode": "conditional" },
              { "url": "pa-needed", "valueCode": "conditional" },
              { "url": "info-needed", "valueCode": "performer" },
              { "url": "reason", "valueCodeableConcept": {
                  "coding": [{
                    "system": "https://hl7.org/fhir/us/davinci-crd/en/CodeSystem-
temp.html",
                    "code": "auth-out-network-only",
                    "display": "Authorization required if out-of-network"
                  }]
                }
              },
              { "url": "date", "valueDate": "2026-05-14" }
            ]
          }
        ]
      }
    }
  ]
}
```

Epic result: Authorization is marked as required. Authorization is submitted if the CRD request was automatically triggered.

6.5 Member Not Found (Business-Level Error — HTTP 200)

In this example, the health plan received a valid CRD request, but the member ID provided in the Coverage resource could not be matched to a member in the health plan's system. This is a business-level error — the HTTP transaction succeeded, so the response is still HTTP 200. The error is communicated through the coverage-information extension using covered = indeterminate and reason code no-member-found. A card should also be returned to inform the provider of the issue.

> **NOTE:** *This is distinct from a 400 scenario. A 400 is returned only when the Coverage resource has no payer.identifier at all, or it is structurally invalid. When a member ID is present but simply cannot be matched, return HTTP 200 with the example below.*

```
{
  "cards": [],
  "systemActions": [
    {
      "type": "update",
      "description": "Update resource with coverage guidance",
      "resource": {
        "resourceType": "ServiceRequest",
        "id": "example-resource-id",
        "extension": [
          {
            "url": "http://hl7.org/fhir/us/davinci-crd/StructureDefinition/ext-coverage-
information",
            "extension": [
              { "url": "coverage-assertion-id", "valueString": "example-id-123" },
              { "url": "covered", "valueCode": "indeterminate" },
              { "url": "reason", "valueCodeableConcept": {
                  "coding": [{
                    "system": "https://hl7.org/fhir/us/davinci-crd/en/CodeSystem-
temp.html",
                    "code": "no-member-found",
                    "display": "Member not found"
                  }]
                }
              },
              { "url": "date", "valueDate": "2026-05-14" },
              { "url": "coverage", "valueReference": { "reference": "Coverage/abc123" } }
            ]
          }
        ]
      }
    }
  ]
}
```

Epic result: Interpreted as Not Covered.

7. How Epic Files Coverage Guidance to the Referral

When Epic receives a CRD 200 response, it reads the coverage-information system action and files the values to the provider system:

covered value	pa-needed value	Epic Interpretation
covered	no-auth-required	No Authorization Required
covered	auth-required	Authorization Required (proceeds to PAS)
not-covered	(n/a)	Not a Covered Benefit
conditional	no-auth-required	Unknown – Authorization may be needed
conditional	conditional	Unknown – Authorization may be needed
indeterminate	(n/a)	No Guidance (Authorization Required)

8. Common Mistakes to Avoid

Mistake	Correct Approach
Returning 400 when member is not found	Return HTTP 200 with covered = indeterminate and reason = no-member-found. A 400 is only for a missing or invalid payer.identifier.
Omitting the system action entirely	A system action with the coverage-information extension is REQUIRED for all primary CRD hooks to be actionable by the Epic system (order-sign, order-dispatch, appointment-book).
Returning only a card without a system action	Cards are optional and supplemental. The system action is what Epic files. Without it, Epic has no coverage guidance.
Using covered = indeterminate without a reason code	The reason field is required whenever covered is indeterminate or conditional. Epic might not be able to show actionable guidance without it.
Duplicating system action data inside a card	Per the CRD spec, coverage-information system actions SHALL NOT use a card for the same information.
Omitting coverage-assertion-id	This ID links the CRD result to subsequent DTR and PAS calls. It is required and must be globally unique per assertion.

9. References

For further reading on the Da Vinci CRD specification, refer to the following resources:

- CDS Hooks Response Profiles: https://build.fhir.org/ig/HL7/davinci-crd/en/cards.html
- HL7 Da Vinci CRD Implementation Guide v2.1.0: https://hl7.org/fhir/us/davinci-crd/
- CDS Hooks STU 2.0 Specification: https://cds-hooks.hl7.org/2.0/
- CRD coverage-information Extension: https://hl7.org/fhir/us/davinci-crd/STU2.1/StructureDefinition-ext-coverage-information.html
- Da Vinci CRD Reason Codes (CodeSystem-temp): https://hl7.org/fhir/us/davinci-crd/en/CodeSystem-temp.html