Da Vinci Plan-Net
(AKA Provider Directory)

Implementation Guide Overview

Sean Mahoney
MITRE


CMS Interoperability and Patient Access Final Rule

• A Provider Directory API is required by the CMS Interoperability and Patient Access Final Rule
  – Includes:
    • Medicare Advantage organizations, state Medicaid and Children’s Health Insurance Program (CHIP) fee-for-service (FFS), Medicaid managed care plans, and CHIP managed care entities
  – Must include, at a minimum:
    • Provider names, addresses, phone #'s and specialties
    • Pharmacy names, addresses, phone numbers, and type
  – Must be updated within 30 calendar days of payer receiving updates

• CMS is strongly encouraging the use of the Da Vinci Plan-Net Implementation Guide as one way to meet Provider Directory API requirement.
What is a Plan-Net?

• Plan-Net defines a FHIR interface to a health insurer’s insurance plans, their associated networks, and the organizations and providers that participate in these networks. In other words, it is a Payer Provider Directory.

• Enables 3rd parties to develop applications through which consumers and providers can query the participants in a payer’s network that may provide services that address their health care needs
Plan-Net Key Concepts

• This is a query only API (GET) and does not support PUT or POST.
• This implementation guide was written for a US audience and profiles resources from US Core STU 3.1, where available (Practitioner, Organization and Location), and otherwise from R4 (OrganizationAffiliation, PractitionerRole, HealthCareService, Endpoint)
• The Provider Directory API is publicly available and excludes the security protocols related to user authentication and authorization
Targeted Users

• Members
  – Looking for information about providers in their current network

• Potential Members
  – Looking or information about current providers in insurers’ networks

• 3rd Party App Developers
  – Aggregating information from multiple plans
  – Add value by augmenting directory content with additional data or functionality
# Plan-Net Search Types

<table>
<thead>
<tr>
<th>#</th>
<th>Search Description</th>
<th>Example</th>
<th>Focal Resource and Field</th>
<th>Qualifications of Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>General Search</td>
<td>Pharmacy</td>
<td>HealthcareService.category, HealthcareService.specialty</td>
<td>Location, network, name</td>
</tr>
<tr>
<td>#2</td>
<td>Provider by Name</td>
<td>“Joe Smith”</td>
<td>Practitioner.name</td>
<td>Location, network, specialty/role</td>
</tr>
<tr>
<td></td>
<td>Organization by Name</td>
<td>“Montgomery Cardiology” or CVS</td>
<td>Organization.name</td>
<td>Location, network, specialty</td>
</tr>
<tr>
<td>#3</td>
<td>Provider by Specialty</td>
<td>Cardiologist</td>
<td>Practitioner.qualification, PractitionerRole.specialty</td>
<td>Location, network, name</td>
</tr>
<tr>
<td></td>
<td>Organization by Specialty</td>
<td>Compounding Pharmacy</td>
<td>Organization.qualification, OrganizationAffiliation.specialty</td>
<td>Location, network, name</td>
</tr>
</tbody>
</table>
PLAN-NET PROFILES
## Implementation Guide Profiles (1)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Based On</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PlannetEndpoint</td>
<td>Endpoint (R4)</td>
<td>Endpoint that can be used for electronic services, such as a portal or FHIR REST services, messaging or operations, or DIRECT messaging.</td>
</tr>
<tr>
<td>PlannetHealthcareService</td>
<td>HealthcareService(R4)</td>
<td>The HealthCareService resource describes services offered by an organization/practitioner at a location and includes services covering the entire healthcare spectrum.</td>
</tr>
<tr>
<td>Profile</td>
<td>Based On</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PlannetInsurancePlan</td>
<td>InsurancePlan (R4)</td>
<td>Describes a package of health insurance coverage benefits that are offered under specific networks.</td>
</tr>
<tr>
<td>PlannetLocation</td>
<td>Location(USCore)</td>
<td>A physical place where healthcare services are provided, practitioners are employed, organizations are based.</td>
</tr>
</tbody>
</table>
## Implementation Guide Profiles (3)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Based On</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PlannetNetwork</td>
<td>Organization <em>(USCore)</em></td>
<td>A network is an aggregation of organizations and individuals that deliver a set of services across a geography through health insurance products/plans</td>
</tr>
<tr>
<td>PlannetOrganization</td>
<td>Organization <em>(USCore)</em></td>
<td>A formal or informal grouping of people or organizations with a common purpose</td>
</tr>
</tbody>
</table>
# Implementation Guide Profiles (4)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Based On</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PlannetOrganizationAffiliation</td>
<td>OrganizationAffiliation(R4)</td>
<td>Describes relationships between organizations, including the services one organization provides another.</td>
</tr>
<tr>
<td>PlannetPractitioner</td>
<td>Practitioner(USCore)</td>
<td>Practitioner is a person who is directly or indirectly involved in the provisioning of healthcare.</td>
</tr>
<tr>
<td>PlannetPractitionerRole</td>
<td>PractitionerRole(R4)</td>
<td>PractitionerRole describes the role a practitioner plays at an organization</td>
</tr>
</tbody>
</table>
# Implementation Guide Key Extensions

<table>
<thead>
<tr>
<th>Extension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>Describes accessibility options offered by a practitioner or at a location.</td>
</tr>
<tr>
<td>Communication Proficiency</td>
<td>Expresses a practitioner’s spoken proficiency with the language indicated in practitioner.communication</td>
</tr>
<tr>
<td>Contactpoint Available Time</td>
<td>Represents the days and times a contact point is available</td>
</tr>
<tr>
<td>Delivery Method</td>
<td>Describes the physical/virtual service delivery method.</td>
</tr>
<tr>
<td>Endpoint Use Case</td>
<td>Describes the specific use cases (service descriptions) supported by the endpoint.</td>
</tr>
<tr>
<td>New Patients</td>
<td>Indicates whether a provider accepts new patients by location and network.</td>
</tr>
<tr>
<td>Qualification</td>
<td>Used to add qualifications for an organization (e.g. accreditation) or practitionerRole (e.g. registered to prescribe controlled substances).</td>
</tr>
<tr>
<td>Via-Intermediary</td>
<td>A reference to an alternative point of contact</td>
</tr>
</tbody>
</table>
## Required Search Capabilities (1)

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Supported Profiles</th>
<th>Supported Searches</th>
<th>Supported _includes</th>
<th>Supported _revincludes</th>
<th>Supported Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endpoint</td>
<td>Plan-Net Endpoint</td>
<td>organization, _id, _lastUpdated</td>
<td>Endpoint:organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Plan-Net Location</td>
<td>partof, organization, endpoint, address-city, address-state, address-postalcode, address, type, _id, _lastUpdated</td>
<td>Location:endpoint, Location:organization, Location:partof</td>
<td>HealthcareService:location, InsurancePlan:coverage-area, OrganizationAffiliation:location, PractitionerRole:location</td>
<td></td>
</tr>
</tbody>
</table>
## Required Search Capabilities (2)

<table>
<thead>
<tr>
<th>Role</th>
<th>Plan-Net Type</th>
<th>Searchable Fields</th>
<th>Role</th>
<th>Plan-Net Type</th>
<th>Searchable Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Plan-Net Network</td>
<td>partof, endpoint, address, name, _id, _lastUpdated, type, coverage-area</td>
<td>Organization</td>
<td>Plan-Net Network</td>
<td>partof, Organization:endpoint, coverage-area</td>
</tr>
<tr>
<td>OrganizationAffiliation</td>
<td>Plan-Net Network</td>
<td>primary-organization, participating-organization, location, service, network, endpoint, role, specialty, _id, _lastUpdated</td>
<td>OrganizationAffiliation</td>
<td>Plan-Net Network</td>
<td>primary-organization, OrganizationAffiliation:participating-organization</td>
</tr>
<tr>
<td></td>
<td>Organization</td>
<td></td>
<td></td>
<td>Organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affiliation</td>
<td></td>
<td></td>
<td>Organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affiliation</td>
<td></td>
<td></td>
<td>Affiliation</td>
<td></td>
</tr>
<tr>
<td>PractitionerRole</td>
<td>Plan-Net Practitioner</td>
<td>practitioner, organization, location, service, network, endpoint, role, specialty, _id, _lastUpdated</td>
<td>PractitionerRole</td>
<td>Plan-Net Practitioner</td>
<td>practitioner, Organization:location, PractitionerRole:organization, PractitionerRole:network, PractitionerRole:endpoint</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STU1 UPDATE IG CHANGES
Manage Provider Directory for Incoming/Outgoing Providers

• Requirements
  – Ability for consumer app to show coverage for providers for a next enrollment period
  – Support requirement to show removal/addition to network within 2 business days

• Changes Needed
  – Keep Active fixed to True (Active indicates an active record, not an active practitioner)
  – Change Period to MS (for both PlanNetPractitionerRole and PlanNetOrganizationAffiliation)
  – Change NetworkReference to 0..1
  – Change Insuranceplan.period to MS
  – Add guidance on how to use Period to query for active practitioners.
  – (Make the same changes for Organization Affiliation)
Insurance Plan Type - Current

- Current - QHP Based on Metal Levels

**METAL LEVELS**

Each metal level is based on a specified share of the actuarial value of the plan’s essential health benefits. Bronze plans have the least generous coverage, while platinum plans have the most generous coverage. Coverage levels are as follows:

<table>
<thead>
<tr>
<th>Bronze Level</th>
<th>Silver Level</th>
<th>Gold Level</th>
<th>Platinum Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 percent actuarial value</td>
<td>70 percent actuarial value</td>
<td>80 percent actuarial value</td>
<td>90 percent actuarial value</td>
</tr>
</tbody>
</table>

- Current options for Plan Type (extensible)

<table>
<thead>
<tr>
<th>Code</th>
<th>Display</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>platinum</td>
<td>Platinum-QHP</td>
<td>Plan with highest monthly premium and lowest costs when you need care A Qualified Health Plan with the highest monthly premiums and smallest out-of-pocket costs for the member in comparison to other metal-category plans</td>
</tr>
<tr>
<td>gold</td>
<td>Gold-QHP</td>
<td>Plan with high monthly premium and low costs when you need care A Qualified Health Plan with the higher monthly premiums and smaller out-of-pocket costs for the member in comparison to other metal-category plans</td>
</tr>
<tr>
<td>silver</td>
<td>Silver-QHP</td>
<td>Plan with moderate monthly premium and moderate costs when you need care A Qualified Health Plan with the lower monthly premiums and larger out-of-pocket costs for the member in comparison to other metal-category plans</td>
</tr>
<tr>
<td>bronze</td>
<td>Bronze-QHP</td>
<td>Plan with lowest monthly premium and highest costs when you need care A Qualified Health Plan with the lowest monthly premiums and largest out-of-pocket costs for the member in comparison to other metal-category plans</td>
</tr>
<tr>
<td>lowdeductible</td>
<td>Low Deductible</td>
<td>A plan that requires the insured to pay out of pocket a smaller proportion of incurred health care costs.</td>
</tr>
<tr>
<td>highdeductible</td>
<td>High Deductible</td>
<td>A plan that requires the insured to pay out of pocket a larger proportion of incurred health care costs than a traditional insurance plan.</td>
</tr>
</tbody>
</table>
Insurance Plan Type - Updated

- Existing options and definitions will stay unchanged, and the following options will be added:
  - Add Catastrophic-QHP with definition from:
    - https://www.healthcare.gov/choose-a-plan/catastrophic-health-plans/
  - Add Catastrophic to support Non-QHP plans

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<td>Bronze-QHP</td>
<td>Plan with lowest monthly premium and highest costs when you need care A Qualified Health Plan with the lowest monthly premiums and largest out-of-pocket costs for the member in comparison to other metal-category plans</td>
</tr>
<tr>
<td>catastrophic</td>
<td>Catastrophic-QHP</td>
<td>A plan with low monthly premiums and very high deductibles and are available only to those under 30 or with certain special exemptions.</td>
</tr>
<tr>
<td>lowdeductible</td>
<td>Low Deductible</td>
<td>A plan that requires the insured to pay out of pocket a smaller proportion of incurred health care costs than a traditional insurance plan.</td>
</tr>
<tr>
<td>highdeductible</td>
<td>High Deductible</td>
<td>A plan that requires the insured to pay out of pocket a larger proportion of incurred health care costs than a traditional insurance plan.</td>
</tr>
<tr>
<td>catastrophicplan</td>
<td>Catastrophic Plan</td>
<td>A plan that requires the insured to pay out of pocket a much larger proportion of incurred health care costs than a traditional insurance plan.</td>
</tr>
<tr>
<td>Ticket</td>
<td>Description</td>
<td>Proposed Disposition</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| FHIR-33206      | **Ability to manage Provider Directory List for incoming/outgoing providers** | *Persuasive* – Keep Active fixed to True (Active indicates an active record, not an active practitioner)  
- Change PlanNetPractitioner Period to MS (both providerRole and OrgAffiliation)  
- Change NetworkReference to 0..1  
- Change Insuranceplan.period to MS  
- Add guidance on how to use Period to query for active practitioners.  
(Make the same changes for Organization Affiliation) |
| 8/17/21         | Ability for consumer app to show coverage for providers for a next enrollment period  
- Support CAA requirement that 2 business days to show remove/adding to network |                                                                                      |
<p>| 8/17/21         | Sean Mahoney                                                                |                                                                                      |
| FHIR-33205      | <strong>Expand current options for InsurancePlan Plan Type</strong>                      | <em>Persuasive</em> - add options to support non-QHP plans and catastrophic plans            |
| 8/17/21         | Proposal to add: Catastrophic-QHP, Catastrophic-NonQHP                      |                                                                                      |
| 8/17/21         | Sean Mahoney                                                                |                                                                                      |
| FHIR-34140      | <strong>HealthcareService delivery-method is too restrictive</strong>                    | <em>Persuasive</em> - Change delivery-method.type to 0..* (make it optional)                |
| 10/16/21        | Most virtual visits began in 2020 and majority of the healthcare ecosystem did not care about it before. Also, from the payer standpoint, it was billed the same way. With that fact some EMR data models do not support it. Is it possible to add an &quot;unknown&quot; concept to the DeliveryMethodVS or relax the HealthcareService.delivery-method.type binding? |                                                                                      |
| 10/16/21        | Shamil Nizamov                                                              |                                                                                      |
| FHIR-31570      | <strong>Cardinality of Organization.address in Plan-net Network profile</strong>         | <em>Persuasive</em> – make changes                                                          |
| 3/18/21         | Cardinality of Organization.address in Plan-net Network whereas the same field's cardinality is 0..* for Organization (Plan Net Organization &amp; Base). |                                                                                      |
| 3/18/21         | Saul Kravitz                                                                |                                                                                      |</p>
<table>
<thead>
<tr>
<th>Ticket</th>
<th>Description</th>
<th>Proposed Disposition</th>
</tr>
</thead>
</table>
| FHIR-31494 – FHIR-31499 3/10/21 Gail Kocher | **Update specialty value sets based on changes to the referenced code system**  
- New taxonomy codes was added to the code set, effective April 1, 2021 that belongs in this value set:  
- Taxonomy codes within this value set had a change in display name: | **Persuasive** – Make Updates |
| FHIR-28919 10/02/20 Saul Kravitz | **Plan-Net Network and Organization profiles are based on US Core Organization.** Only ways to discriminate between the two are:  
By meta.profile (if declared)  
By relationship to other instances – An Organization that has an InsurancePlan that refers to it through its network reference is a network. | **Persuasive** – We will change to a fixed type binding. |
| FHIR-34288 11/10/21 Sean Mahoney | **Upgrade plan-net to US Core 4.0.1 where using US Core** | **Persuasive** – Make Updates |
| FHIR-34289 11/10/21 Sean Mahoney | The **Resource Relationships** diagram on the Home page is outdated I think. For example, the Network to “partOf” Organization relationship is 1..1 in the Network profile but shown as an optional on the diagram. This confuses readers when they refer to the diagram telling that everything is optional there. | **Persuasive** – Make Updates |
| FHIR-33140 08/04/21 Mark Scrimshire | **Spelling error in OrganizationAffiliationRoleCS**  
#transport "Transportation Provider" "A provider which transports patients to or from a medical facility, e.g., ambulance." | **Persuasive** – fix error |
Tour of the IG

• STU1 Update Implementation Guide:
  – https://build.fhir.org/ig/HL7/davinci-pdex-plan-net/branches/stu1update/

• Zulip Stream:
  – https://chat.fhir.org/#narrow/stream/229922-Da.2B Vinci.2BPDex.2BPlan-Net (Davinci+Pdex+Plan+Net)
Plan-Net Profiles

* = profiles not based on USCore

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Example: Group Providing Service at Hospital

Represents:
Hartford Orthopedics (is a group) providing Orthopedics for Network Acme of CT at Hartford General Hospital and is in-network for Acme of CT’s standard network.
Example: Clinic That is Owned by a Hospital

Represents:
Hamilton Clinic, owned by Hartford General Hospital, provides Family Medicine Services at Hospital Location 1
Example: Clinic Provides Services to a Hospital

Network
AcmeofCTStd Net

Organization
BurrClinic

Healthcare Service
- category: Outpatient
- Specialty: Family Medicine (207Q00000X)

Burr Clinic Services

Network
providedBy

Location
HospLoc1
type: Hospital

Network

managingOrganization

Organization
Hospital

Organization
AcmeofCTStd Net

Organization
BurrClinic

Organization
Hospital

OrganizationAffiliation
Code: Outpatient

BurrnClinicAffil

Location

Hospital

organization

participatingOrganization

Network

represents:

Burr Clinic is located at Hartford General Hospital’s site #1 and provides outpatient family medicine services. It is in network for Acme of CT’s standard network.
Example: Clinic Belongs to an HIE

- Burr Clinic belongs to the Connecticut HIE
Example: Pharmacy Chain

Network
- AcmeofCTStdNet

Organization
- Type: Provider
  - PharmChain

Healthcare Service
- category: Pharmacy
- Specialty: Retail Pharmacy
  - PharmChainRetailService

OrganizationAffiliation
- Code: Pharmacy
- Specialty: Retail Pharmacy
  - PharmChainAffil1

Represents:
- Chain of pharmacies provided by PharmChain
- Only 2 of the pharmacy locations are in-network for Acme of CT Standard Network
- 2 of the pharmacy locations are managed by BigBox
Represents:
- Chain of Compounding pharmacies provided by PharmChain
- 2 of the pharmacy locations are in-network for Acme of CT Standard Network
Example: MailOrder Chain

Network

AcmeofCTStdNet

Organization

PharmChain

participatingOrganization

providedBy

Healthcare Service

category: Pharmacy

Specialty: Mail Order

PharmChainMailService

OrganizationAffiliation

Specialty: Mail Order

PharmChainAffil3

Represents:

- Mail order pharmacy provided by Pharmchain
- In-Network for Acme of Connecticut PPO Network
Dr. Smith works at the Burr Clinic during the week and moonlights at the Hartford Hospital on the weekend in the ER. He has admitting privileges at Harford Hospital.
Practitioner

Name: Jane Smith
Qualifications:
- Medical Doctor (issuer IL)
- Internal Medicine (issuer ABIM)
- Cardiology (issuer ABIM)

PractitionerRole
code: Physician
Specialty: Internal Medicine
Available: M-W-F

Network
Name: Acme
Network of IL

Organization
Name: Internal Medicine LLC
Type: Provider Group

PractitionerRole
code: Physician (PH)
Specialty:
- Internal Medicine
- Cardiology
Available: Tu-Th

Location
123 Main St Ste 4
Chicago IL 60601

HealthCareService
category: Group
specialty: Internal Medicine

Organization
Name: Multi-specialty Group Assoc
Type: Provider Group

Organization
Name: Physicians’ Group LTD
Type: Provider Group

PractitionerRole
code: Admitting Privileges (AP)
Specialty:
- Internal Medicine
- Cardiology

Location
123 Main St Ste 1
Chicago IL 60601

HealthCareService
category: Group
specialty: Cardiology, Internal Medicine, etc

Not Implemented
Solo Practitioner

Practitioner
HansSolo

PractitionerRole
HansSoloRole1

Location
HansSoloClinic

HealthCareService
HansSoloService

Network
AcmeofCTStdNet
PractitionerRole – Example #4

PractitionerRole without a specific Practitioner. Specifying a role.

- **PractitionerRole**
  - code: Physician
  - Specialty: Internal Medicine
  - AnonRole

- **Network**
  - AcmeofCTStd Net

- **Location**
  - CancerClinicLoc

- **HealthCareService**
  - CancerClinicService

- **Organization**
  - CancerClinic

- **providedBy**
- **organization**
- **healthcareservice**
- **location**
Example: Insurance Plan and Network. Acme of CT Medicare Advantage

Organization
name: Acme of CT

Network
Acme of CT Standard Network

InsurancePlan
Name: Acme Medicare Advantage
Type: MedicareAdvantage

Location
name: State of CT
location-boundary-geojson: shape of CT
address: CT

coverageArea

ownedBy

Endpoint
name:Acme Formulary
Connection-type: hl7-fhir-rest
payloadtype: NA
address: url of formulary
Usecase.type = TREAT
Usecase.standard = Formulary IG URL
Example: Insurance Plan and Network. Acme QHP Plans

Network
AcmeofCTPremNet

network

InsurancePlan
Type: QHP
Plan.type: Gold
AcmeQHPGold

InsurancePlan
Type: QHP
Plan.type: Bronze
AcmeQHPBronze

Network
AcmeofCTStdNet

ownedBy

Organization
Acme

coverageArea

Location
StateOfCTLocati
on

Endpoint
Connection-type: non-fhir-rest
payloadtype: NA
Usecase.type = HOPERAT

AcmeOfCTPortalEndpoint