HL7 V2 → FHIR
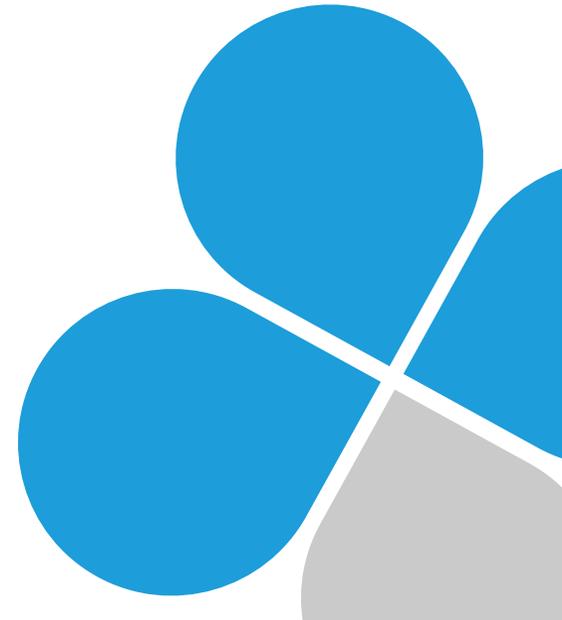## Brücken in die neue Welt
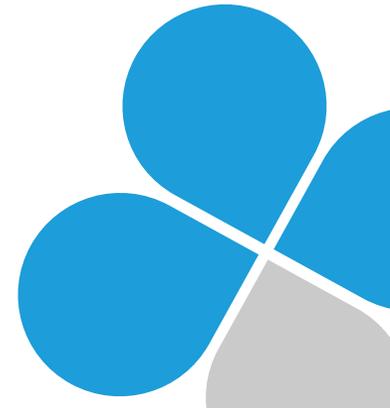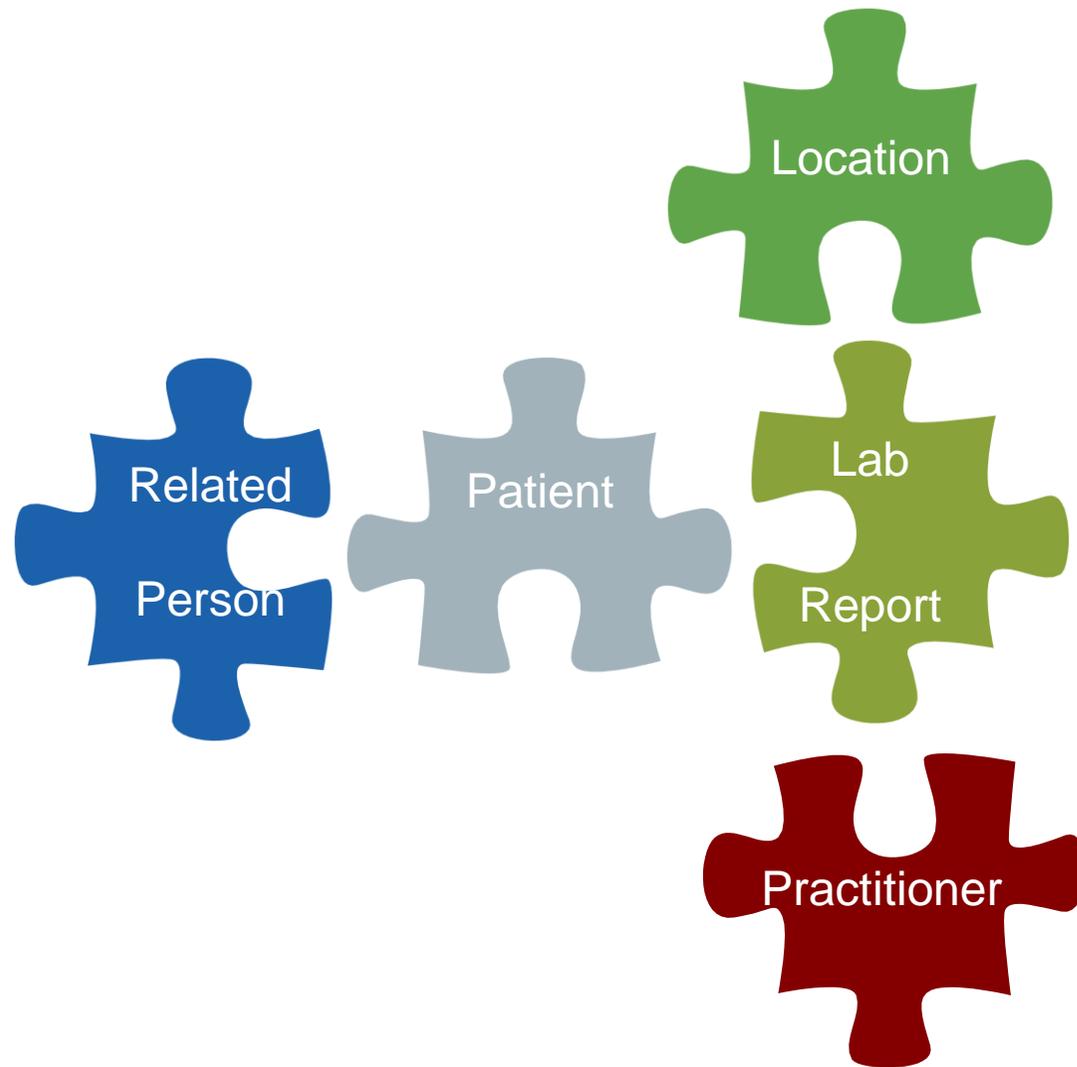
HL7 Jahrestagung 2015
Kassel

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Health·Comm GmbH
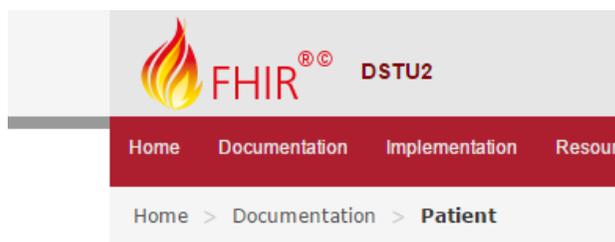Software für das Gesundheitswesen

Die FHIR-Resourcen

Mapping

5.1.12.4 Mappings for HL7 v2 (http://hl7.org/v2)

Patient	
identifier	PID-3
active	
name	PID-5, PID-9
telecom	PID-13, PID-14, PID-40
gender	PID-8
birthDate	PID-7
deceased[x]	PID-30 (bool) and PID-29 (datetime)
address	PID-11
maritalStatus	PID-16
multipleBirth[x]	PID-24 (bool), PID-25 (integer)
photo	OBX-5 - needs a profile
contact	
relationship	NK1-7, NK1-3
name	NK1-2
telecom	NK1-5, NK1-6, NK1-40
address	NK1-4
gender	NK1-15
organization	NK1-13, NK1-30, NK1-31, NK1-32, NK1-41
period	
animal	
species	PID-35

FHIR®© DSTU2

Home Documentation Implementation Resour

Home > Documentation > **Patient**

Content   Examples   Detailed Descriptions

5.1 Resource Patient - Conte

Patient Administration ↗ Work Group

Demographics and other administrative information ab

5.1.1 Scope and Usage 🌐

This Resource covers data about patients and animals

- Curative activities
- Psychiatric care
- Social services
- Pregnancy care
- Nursing and assisted living
- Dietary services
- Tracking of personal health and exercise data

The data in the Resource covers the "who" informatio
necessary to support the administrative, financial and
organization providing care for a patient. A patient or a
present in multiple Patient Resources.

Not all concepts are included within the base resource
in profiles defined for specific jurisdictions (e.g., US Me
Such fields vary widely between jurisdictions and often
similar enough to be able to man and exchange

Das Bundle – eine Resource voller Resourcen

- Eine Bündelung von Resourcen in gemeinsamem Kontext, z.B.:
  - Batch
  - Transaktion
  - Suchergebnisse
  - Nachricht
  - Dokument

Cloverleaf on FHIR

DSTU2_HL7_ADT--FHIR_Transaction.xlt ×

+ New Append ▾

Input Message Format

Format: HL7 2.5/ ADT_A01

- MSH
- [{ SFT }]
- EVN
- PID
  - 1 00104 Set ID - PID
  - 2 00105 Patient ID
  - 3 00106 Patient Identifier List
  - 4 00107 Alternate Patient ID - PI
  - 5 00108 Patient Name
  - 6 00109 Mother_s Maiden Name
  - 7 00110 Date/Time of Birth
  - 8 00111 Administrative Sex
  - 9 00112 Patient Alias
  - 10 00113 Race
  - 11 00114 Patient Address
  - 12 00115 County Code
  - 13 00116 Phone Number - Home
  - 14 00117 Phone Number - Busin
  - 15 00118 Primary Language
  - 16 00119 Marital Status
  - 17 00120 Religion
  - 18 00121 Patient Account Numb

	Operation	Pre	Post	Source/Destination
35	COPY			@tag -> nm1:Bundle.0.nm1:entry(%g1).1.nm1:resourc...
36	COMMENT			*Temporary ID for internal referencing*
37	CONCAT			@patient_id -> nm1:Bundle.0.nm1:entry(%g1).1.nm1:f...
38	COMMENT			*#Identifier*
39	COMMENT			*There may be more than one identifier in PID.#3...*
40	ITERATE			
41	TABLE			0(0).PID(0).#3(%f1).[3] -> @identifier_system
42	COPY			=usual =http://hl7.org/fhir/identifier-type 0(0).PID(0).#3...
43	COMMENT			*If this is an MR type identifier, this is also our criter...*
44	IF			0(0).PID(0).#3(%f1).[4] eq =MR
45	COPY			=PUT -> nm1:Bundle.0.nm1:entry(%g1).1.nm1:request...
46	CONC			=Patient =?identifier= @identifier_system =| 0(0).PID(0...
47	COMMENT			*# Name*
48	COPY			=official 0(0).PID(0).#5(0).[0] 0(0).PID(0).#5(0).[1] -> n...
49	COMMENT			*# Birthdate*
50	STRING: HC_xla			0(0).PID(0).#7(0).[0] -> nm1:Bundle.0.nm1:entry(%g1)...
51	COMMENT			*# Address*
52	COPY			0(0).PID(0).#11(0).[0] 0(0).PID(0).#11(0).[2] 0(0).PID(...
53	COMMENT			*# Gender*
54	TABLE			0(0).PID(0).#8(0).[0] -> nm1:Bundle.0.nm1:entry(%g1)...
55	COMMENT			*# Telecom*
56	ITERATE			
57	TABLE			0(0).PID(0).#13(%f1).[1] -> nm1:Bundle.0.nm1:entry(%...
58	TABLE			0(0).PID(0).#13(%f1).[2] -> nm1:Bundle.0.nm1:entry(%...
59	CONCAT			0(0).PID(0).#13(%f1).[0] 0(0).PID(0).#13(%f1).[3] 0(0)...
60	COMMENT			

Output Message Format

Format: XML DSTU2-1.0.1\bundle

- nm1:Organization{nm1:Organ
- nm1:Patient{nm1:Patient} {mi
  - &xsi:type {Opt.}(str)
  - nm1:id{nm1:id} {min:0,m
  - nm1:meta{nm1:Meta} {m
  - nm1:implicitRules{nm1:u
  - nm1:language{nm1:code
  - 0 {min:1,max:1}(Seq.)
  - 1 {min:1,max:1}(Seq.)
    - nm1:identifier{nm1:
    - nm1:active{nm1:bo
    - nm1:name{nm1:Hu
    - nm1:telecom{nm1:C
    - nm1:gender{nm1:c
    - nm1:birthDate{nm1
    - 0 {min:0,max:1}(Ch
    - nm1:address{nm1:A
    - nm1:maritalStatus{r
    - 1 {min:0,max:1}(Ch
    - nm1:photo{nm1:Att
    - nm1:contact{nm1:P

```
MSH|^~\&|LegacyKIS||HAPI||201505
EVN|A01|20150502090000|
PID|1||45675675^^^TCPAS^MR||Heal
NK1|1|Cloverleaf^Fan|FTH|||+44 2
PV1||I|INT^0001^02^GENHOS||||010
```

```xml
<Encounter>
    <meta>
        <tag>
            <code value="CLOVERLEAF" />
        </tag>
    </meta>
    <identifier>
        <use value="usual" />
        <type>
            <coding>
                <system value="http://hl7.org/fhir/identifier-type"
                <code value="MR" />
            </coding>
        </type>
        <system value="http://general-hospital.co.uk/Identifiers" />
        <value value="2346374564765767" />
        <assigner>
            <display value="GENHOS" />
        </assigner>
    </identifier>
    <status value="in-progress" />
    <class value="inpatient" />
    <patient>
        <reference value="????????" />
        <display value="Health-Comm, Anwender(*24.05.2015)" />
    </patient>
    <period>
        <start value="2015-05-02T09:00:00+01:00" />
    </period>
</Encounter>
  <gender value="male" />
```

Paradigmen-Clash

- Server-ID != Business-Identifier
- Referenzen
  - Encounter.patient.reference=Patient/???
- Reidentifikation
  - ADT_A01 → POST http://myfhirserver/Patient {Resource}
  - ADT_A08 → PUT http://myfhirserver/Patient/??? {Resource}
- Snapshot-Verfahren
  - „Lösche alle zuvor übermittelten Allergien und ersetze Sie durch die folgenden..."
  - ADT_A01 →POST http://myfhirserver/AllergyIntolerance {Resource}
  - ADT_A08 → DELETE http://myfhirserver/AllergyIntolerance/???
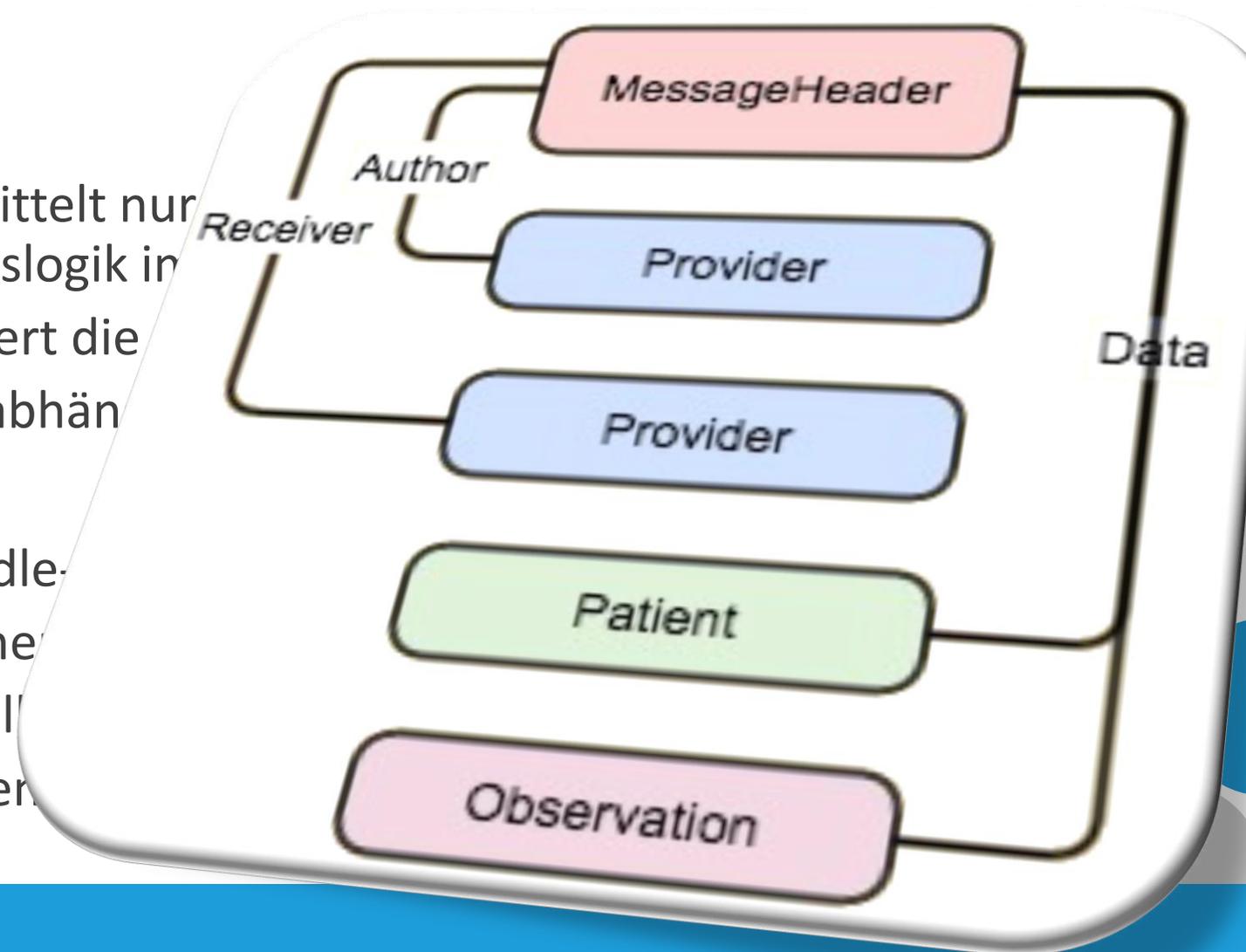 - Reidentifikation

Mögliche Lösungen

- Messaging
  - Pro:
    - Client übermittelt nur
      Verarbeitungslogik in
    - Server definiert die
    - Transportunabhän
  - Contra:
    - Events / Bundle-
    - Nicht impleme
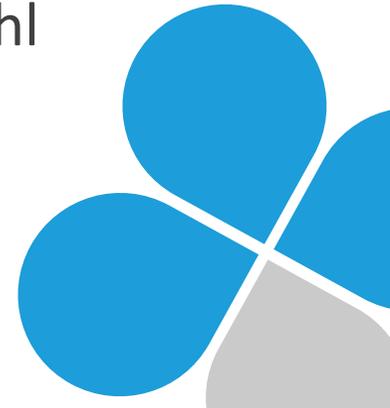   - Nachbilden al
    - Wer impleme

Mögliche Lösungen

- Transaction/Batch
  - Pro:
    - Wird von Testservern unterstützt
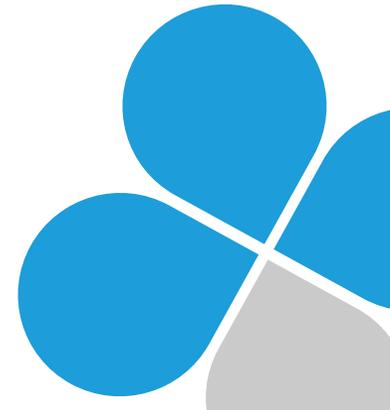   - Anwendbar auf alle V2 Events/Nachrichtenstrukturen
  - Contra:
    - Client muss Event in HTTP Verben übersetzen und die korrekte Reidentifikation gewährleisten durch Auswahl geeigneter Suchkriterien
    - Client „diktiert" den Verarbeitungsprozess
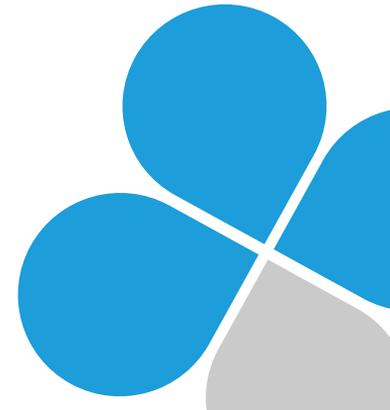
Change Requests für DSTU2

- Conditional Update/Create/Delete

- Anpassung der Verarbeitungsreihenfolge für Transactions

- Änderung der conditional DELETE Bedingungen (multiple delete)

- Vereinfachung der Spezifikation beim Umgang mit temporären IDs (UUIDs)

- Vereinheitlichung der Conditional-URL im Entry.request-Attribut im Transaction Bundles

```xml
<Bundle xmlns="http://hl7.org/fhir">
    <id value="20151015225614" />
    <type value="transaction" />
    <entry>
        <fullUrl value="urn:uuid:35ae17c2-106b-4e18-507f-7bed97ff430d" />
        <resource>
            <Patient>
                ...
            </Patient>
        </resource>
        <request>
            <method value="PUT" />
            <url value="Patient?identifier=http://www.ghh.org/identifiers|45675675" />
        </request>
    </entry>
    <entry>
        <fullUrl value="urn:uuid:b982b4fc-c5da-4e7b-7bf1-57d87c852bb9" />
        <resource>
            <Encounter>
                ...
                <patient>
                    <reference value="urn:uuid:35ae17c2-106b-4e18-507f-7bed97ff430d" />
                    <display value="Health-Comm, Anwender(*24.05.2015)" />
                </patient>
                ..
            </Encounter>
        </resource>
        <request>
            <method value="PUT" />
            <url value="Encounter?identifier=http://general-hospital.co.uk/Identifiers|2346374564765767" />
        </request>
    </entry>
```

Quo vadis, FHIR Messaging?

- Derzeitige Diskussion im Implementer's Channel
- Identifikation von Use Cases, in denen Messaging dem Transaction Bundle überlegen ist
- Definition von Events und Profilen für diese UseCases
- Beispielimplementierungen auf Connectathon (möglicherweise bereits im Januar)
- Abgrenzung zum Operations Framework
- Festlegung des Scopes für die Kernspezifikation
- AID best practice Whitepaper

Links

- FHIR:
  http://hl7.org/fhir

- Development team wiki home:
  http://wiki.hl7.org/index.php?title=FHIR

- Twitter:
  https://twitter.com/search?q=%23FHIR

- Stack Overflow:
  http://stackoverflow.com/questions/tagged/hl7-fhir

- Watchblog:
  http://www.fhirabend.de