FHIR chapter for HL7 on-line training

# Introduction

FHIR is draft – will change rapidly until DSTU (September 2013)

Specification in on-line – fully hyperlinked & v easy to follow

Always refer to spec – this doc is just a guide. Links may not always work.

Other on-line resources – blogs (grahame, Ewout), list, skype implementers chat (list here)

Acknowledge source of info (eg core team preso )

# Why FHIR?

## Background

Fresh Start

Issues with v2 / v3

New demands from sector – online, mobile

Need for speed

## Scope (content, infrastructure, business use)

All aspects of healthcare interoperability

Common scenarios

## Methodology

Humab readable instances (CDA lesson)

Focus on implementers – not modellers

Make sense to clinicians

Easy to understand spec

Examples

80% rule with extensions – avoid resource bloat

Connectathons

Reference implementations

Reference Servers

Skype implementers chat

FHIR versions

## Governance

FGB, FMG

Get picture from Lloyds preso

## Relationship with other SDO

IHE

openEHR

DICOM

W3C

## License

Open source – more so than HL7

Creative Commons

Do as you wish but give credit

# Key Concepts

## Resources

### What is a resource

### Types of Resource in FHIR

Summarize this link http://www.hl7.org/implement/standards/fhir/resourcelist.htm

### Definition & Documentation in the Specification

How the specification defines a resource

Representations in Lloyds preso (slide 51)

### Representation on the wire

#### XML

#### FHIR

### Key Parts of a resource

#### Narrative

#### Core content

##### Datatypes

(copy of graphic)

based on w3c schema & ISO

can be extended (same mechanism as resource extensions)

example of CD datatype

##### choice (value[x])

##### Vocabulary / Terminology

##### Resource references

##### Contained resources

When you don’t have a reference to a real resource

#### Extensions

Core concept

Formal definitions available via URL – machine and human readable

Governance hierarchy

#### Versions

#### Defined searches

### Resource Identity

## Bundles

Any collection (history, search result, batch update, document, message)

## Profiles

## Bundling Resources

Use of ATOM

JSON Atom format

## Conformance Statement

# Paradigms

Describe the 4 paradigms (REST, Document, Message, Service)

When would you use each one

Content is the same

Most work so far done on REST

# REST

Ewouts preso is great reference

## Description of REST in general

Define REST in general

Difference to SOAP

Works best in trust relationship with client control

### Significance of HTTP

REST is more than just XML / JSON over HTTP

#### HTTP Methods/verbs

CRUD

Get, put, post, delete

#### HTTP headers

#### Status codes

## REST identity

Include history

Cross server identity

## Server

Server can choose what it will do – what resources/operations/ business processes

Conformance statement (also for other paradigms)

In particular versions are optional

## Operations

Link to the on-line spec http://www.hl7.org/implement/standards/fhir/http.htm

For each of these sections, give an example with the expected headers (request & response) and the status codes.

Note the use of headers & url parameters for resource format (xml/json)

### Get a single resource

### Update a resource

Conflict resolution

### Get history of changes (versions)

### Get a specific version

### Delete a resource

What delete really means

### Search

Single resource

chaining

### Batch update / transaction

### The Binary resource

Significance for documents (FHIR & non-FHIR) – eg CDA

### Save a document (XDS)

Document to binary endpoint plus documentReference resource

### Sync

## Miscellaneous

### Local copy of resources

### XDS resources

### Synchronizing between servers

## Security

oauth

# FHIR Documents

## What is a document

Definition

Relationship to CDA

## The Document resource

Purpose and structure

## The List resource

A general resource, but especially useful in documents

## The

## The Document package (bundle)

Ie the atom bundle

Including a resource in a bundle or referencing it

# FHIR Messages

## What is a message

Closely analogous to v2 messaging

Event driven

Request / response (can be async)

## The message resource

## Events

## The message package (bundle)

# Services

# Migration from other versions

Review grahams blog entry

## V2

## V3 messaging

## CDA

# Exercises

tehs