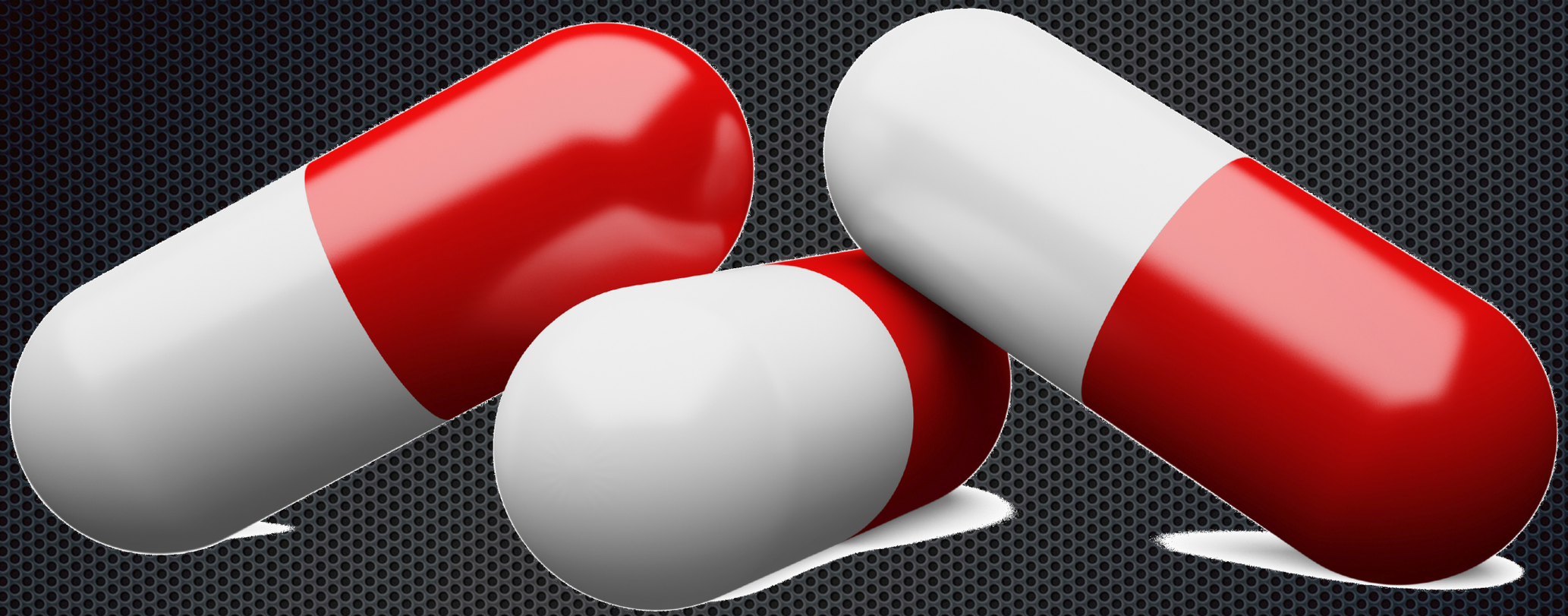

PBS Developers' Forum

20th March 2015

Agenda

- Welcome/Introduction
- Action Items
- PBS XML Schema v2.10
- Community Access
- Authority Review
- PBS Enhancements
- AMT v3
- PBS XML Schema 3.0
- Other Business
- Meeting close

Agenda

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Action Items

- Start dates
  - Test data was made available ?
  - Now in production
- PBS XML Schema v2.10
  - See agenda item 3
- Retain deleted restriction codes in PBS XML

Action Items

- Example of quantities
- Maintain restriction code history in PBS XML
  - Being considered for PBS XML v3.0

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PBS XML Schema 2.10

- Draft available 2014-08-20
- Production 2015-01-15
- Patch release (1) 2015-02-03
- Patch release (2) 2015-02-04
- 1 March 2015 PBS Schedule conformant

PBS XML Schema 2.10

- Hospital Medication Charts
- Included in 1 March 2015 PBS Schedule
- Trial commences 1 April 2015
- Change:
  Written authorities will be included
  April 2015 Schedule

PBS XML Schema 2.10

- Complex Authority Required
- Data will be populated for 1 July 2015 Schedule

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Community Access

- New ‘CA’ program
  - s90-cp, s94-public, s94-private dispensing rules
- Starts 1 July 2015 Schedule

Community Access

- Current arrangements

Private Hospital HS

Public Hospital HB

Private (authority req'd)

Public non-CAR (streamlined)

Public CAR (written)

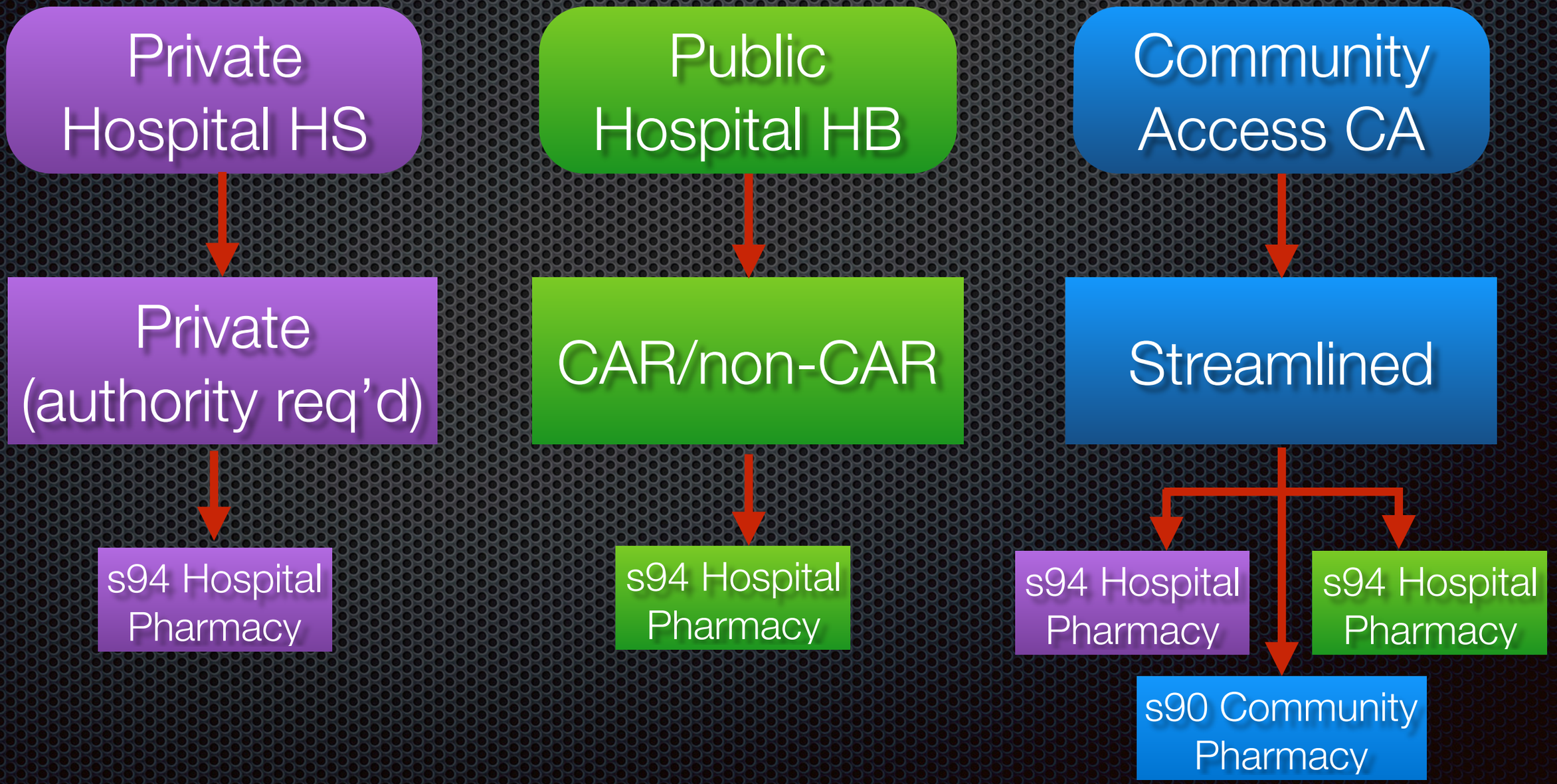
s94 Private Hospital Pharmacy (s90 agent)

s94 Pub Hospital Pharmacy

s94 Pub Hospital Pharmacy (s90)

Community Access

- New arrangements (non-harmonised)



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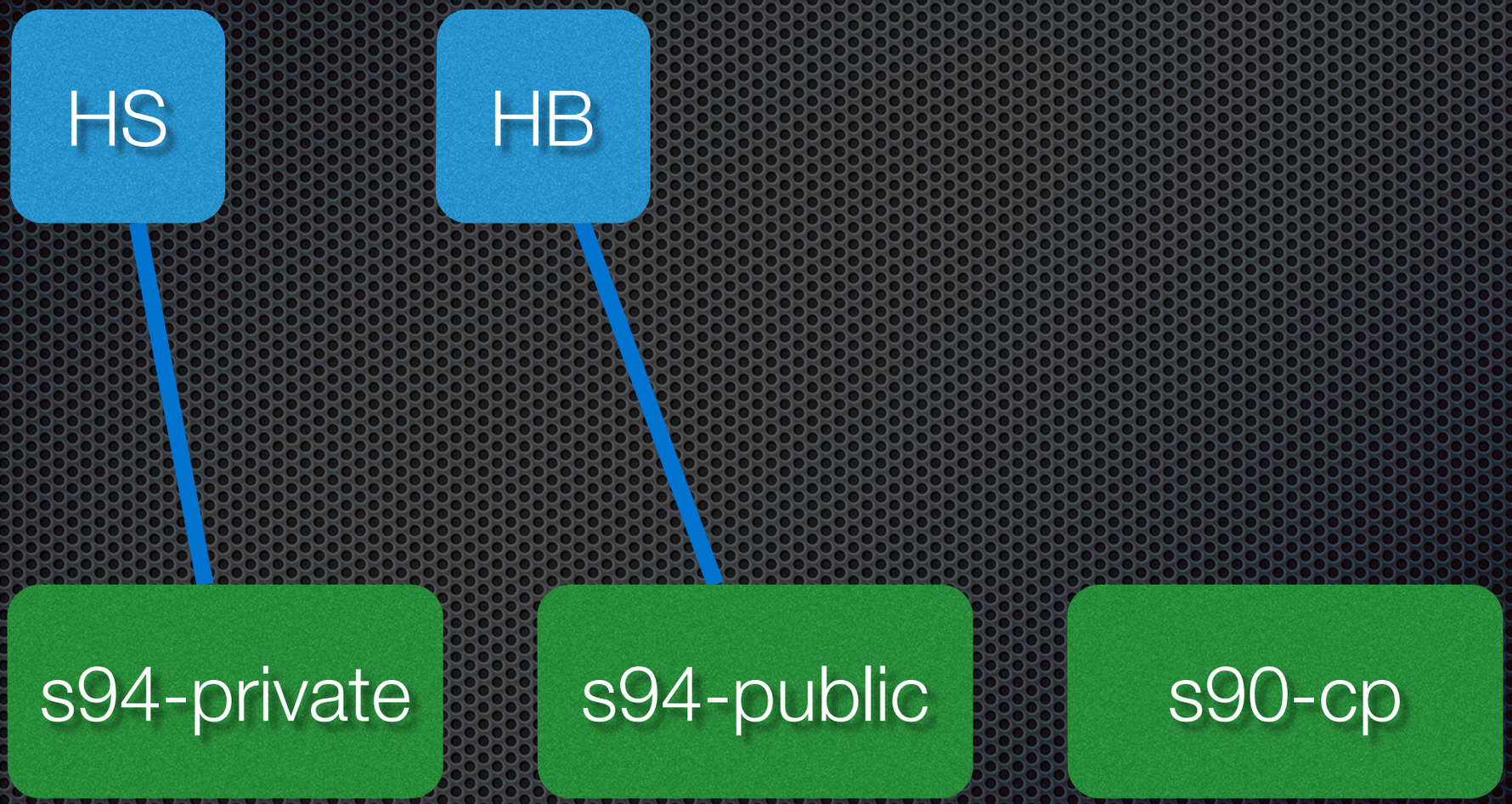
HSD Programmes

- Post-Market Authority Review
- Commenced mid-2014
- Tranches:
  - Change restriction levels to streamlined
  - S100 Harmonisation
  - Initial/continuing authorities

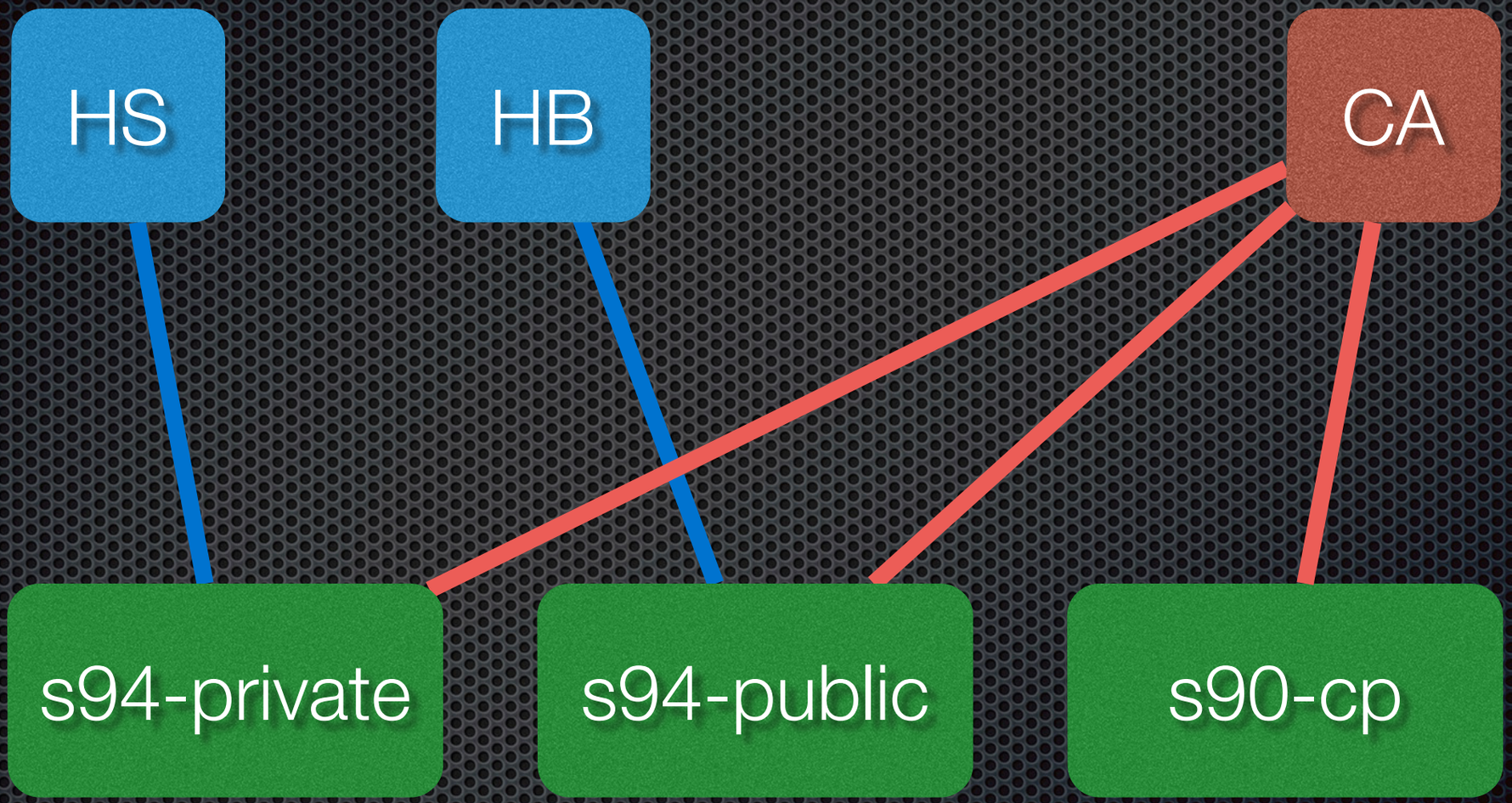
HSD Programmes

- PBAC Recommendation: S100 Harmonisation
- Existing ‘HB’, ‘HS’ programs deprecated
- New ‘HP’ program
  - s94-public, s94-private dispensing rules
- Starts 1 August 2015 (?)

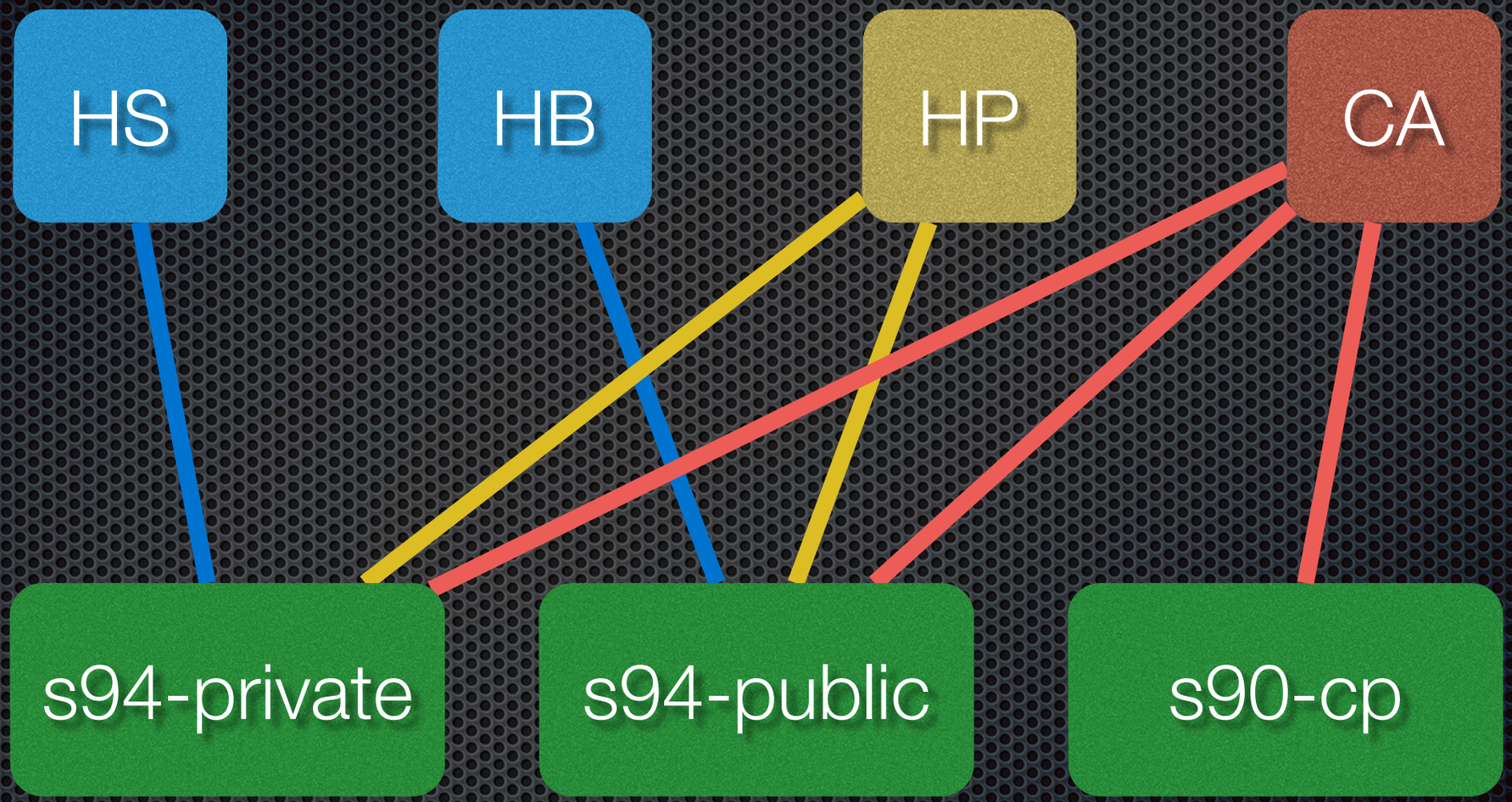
HSD Programmes



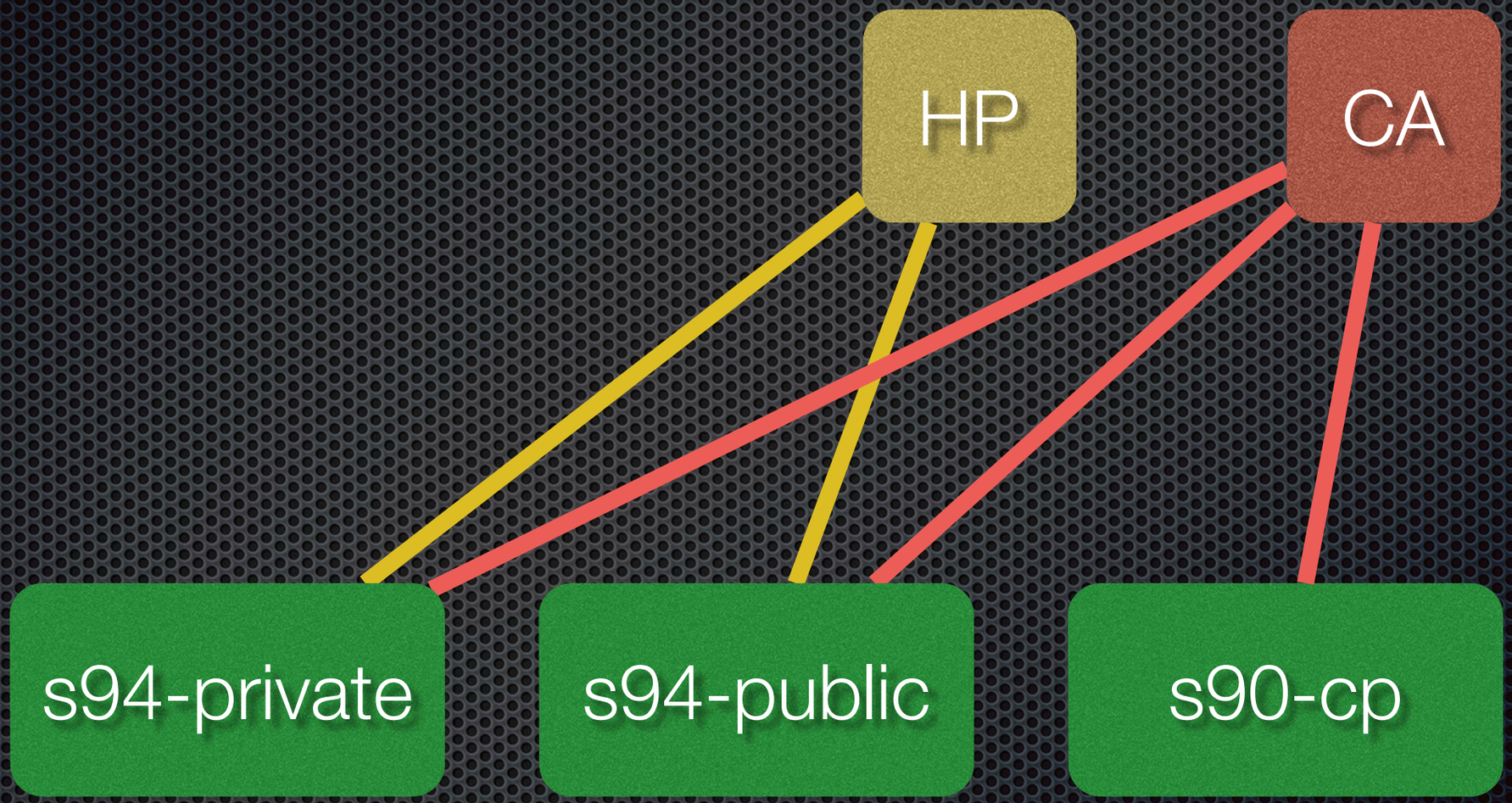
HSD Programmes



HSD Programmes



HSD Programmes



HSD Programmes

- S100 Harmonisation
- Transition
- HB/HS will continue for 12 months
- From 13-18 months HB/HS scripts may be claimed but no new scripts written
- At 18 months HB/HS delisted

HSD Programmes

- PBAC Recommendation: Initial/Continuing authorities
- Normal process to obtain authority for initial treatment
  - Telephone/electronic or in writing
- No need to contact DHS for authority for continuing treatment

HSD Programmes

- Need to review
  - Different for various medicines
  - Up to 2 years?
- Expiry time on continuing authority

HSD Programmes

- Simple alternative:
  - Initial treatment authority required
  - Continuing treatment streamlined authority
- Analysis required

HSD Programmes

- Initial/continuing treatment
- Feedback & suggestions welcome

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PBS Enhancements

- Authorities automation
- DHS

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AMT v3

- PBS XML Schema v2.10 includes dct:references element (child of pbs:root/pbs:info)

  <dct:references>http://snomed.info/sct/900062011000036108/version/20140630</dct:references>

- Will be populated with v3

AMT v3

- PharmCIS implementation underway
- Phase 1
- Planned for June (August 2015 Schedule)

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PBS XML v3.0

- Major release required
- Non-backward compatible changes
- Forced by:
  - AMT v3
  - Restrictions/authorities
- Workshop requirements

PBS XML v3.0

- Opportunity
- Feedback from vendors, stakeholders
- Production release: April 2016

PBS XML v3.0

- Drug modelling ✓
- Restrictions & authorities
- Versioning & validation
- Data delivery ✓
- Ontology
- Temporal data
- Refactoring & clean-up

Drug Modelling

- See August 2014 minutes

Restrictions & Authorities

- Two problems:
  - Duplicate restriction codes
  - Unstable streamlined codes
- Post-market Authority Review
- DHS requirements

Restrictions & Authorities

- Separate legal from informational
- Separate indication from authority requirements
- Simplify prescribing rule and increase data
- Align terminology with legislation & PharmCIS

Restrictions & Authorities

admin advice

foreword

caution

prescribing rule

increase

treatment-of [SAC]

indication [snomed]

phase [snomed]

purpose [code]

definition

prescriber instruction

criteria

all, any, one-of

authority [method]

all, any, one-of

all, any, one-of

parameter [snomed]

Restrictions & Authorities

- Terminology
  - rwt:restrictions-list ⇒ prescribing-texts-list
  - rwt:restriction ⇒ purpose
  - rwt:circumstance ⇒ authority/treatment-phase
  - requirement ⇒ criteria

Restrictions & Authorities

- Code management
- ‘purpose code’ codifies all legal text
- ‘treatment code’ codifies only indication

- More stable
- Streamlined Authority Code
- Alphanumeric?

Authorities

- Currently under review
- Authority methods
- Align purposes
- Separate channel from assessment?
- Change language?
  - self-assessed, simple assessment, complex assessment

Restrictions & Authorities

- Break down text into components
- i.e. manage as on ontology
- Primitives mapped to (subset of) SNOMED-CT
- Include SNOMED-CT code

Restrictions & Authorities

- Components are ‘yes’/‘no’ questions
- For LIs: statements
- Example:

```
<sex>
  <code>http://snomed.info/248152002</code>
  <value>female</value>
</sex>
```

Is the patient female?
The patient must be female.

Restrictions & Authorities

- Some primitives may require arithmetic comparisons
- Example:

```
<condition-parameter>
  <code>http://snomed.info/312681000</code>
  <value>bone density scan</value>
  <greater-than>10</greater-than>
</condition-parameter>
```

Is the result of a bone density scan greater than 10?
The result of a bone density scan must be greater than 10.

Restrictions & Authorities

- Combine primitive concepts into higher level constructs
- v2: conjunctive and disjunctive elements
- v3: allow different logic at all levels
  - all, any, one-of
  - criteria, parameters

Versioning & Validation

- Backward compatibility
  - vN document works with vN+1 processor
- Forward compatibility
  - vN+1 document works with vN processor
- How to allow extensions without breaking consumers?

Versioning & Validation

- Forward compatibility mechanism
- Isolate extensions using XML Namespace
  - http://extension.schema.pbs.gov.au/
  - ext: prefix
- Always extend using a new element
- All complex & mixed models allow any extension element

Versioning & Validation

- Processing model:
  - Ignore unknown elements
- Introduced in v2.10

Versioning & Validation

- + Old processors can validate new documents
- - No control over extension elements
  Cannot change existing elements
  Cannot change existing attributes

Versioning & Validation

- Example

```
<pbs:prescribing-rule type="authority-required">
  <pbs:code>12345R</pbs:code>
  <ext:authority-access>electronic</ext:authority-access>
  <pbs:ready-prepared>
    …
  </pbs:ready-prepared>
  …
</pbs:prescribing-rule>
```

Versioning & Validation

- Reset schema on major upgrade
- Fold extension elements into main namespace
- Design next major upgrade simultaneously
- Regular major upgrades
  - every 3-4 years? after 4 minor versions?
- Schema Versioning Policy

Ontology

- Feedback
  - Hyperlinks with non-meaningful target
- Must lookup target to understand link

<pbs:member-of xlink:href=“#a1749714477”/>

Ontology

- Ontology = Terminology + meaning
- AMT, ATC
- PBS has many concepts/terms
  - prescriber type, brand substitution, patient categories, formularies, etc
- Use DL, Semantic Web techniques
  - RDF, OWL, SKOS

Ontology

- Separate monthly data from permanent concepts
- Monthly data: http://schema.pbs.gov.au/
- PBS concepts: http://pbs.gov.au/
- Provide copy of PBS concepts in monthly PBS XML
- Provide PBS ontology separately?

Ontology

- Identify concepts
- URI
- Replace controlled vocabularies
- Make (parts of) URI meaningful
  - Enumerate concept subtyping
- http://pbs.gov.au/copayment/general

Ontology

- Concept reference to subtype data items
- <copayment rdf:resource="http://pbs.gov.au/copayment/general" >37.70</copayment>
- v2:

```
<pbs:copayment>
  <pbs:type>copay:general</pbs:type>
  <pbs:amount>37.70</pbs:amount>
</pbs:copayment>
```

Ontology

- <copayment rdf:resource="http://pbs.gov.au/copayment/general" >37.70</copayment>
- <copayment rdf:resource="http://pbs.gov.au/copayment/general" concept="copayment/general" >37.70</copayment>
- <copayment rdf:resource="http://pbs.gov.au/copayment/general" type="copayment" subtype="general" >37.70</copayment>

Ontology

- Semantic Web section provides detail

```
<rdf:Description rdf:about="http://pbs.gov.au/patient">
  <db:title>Patient Category</db:title>
  <db:para>Categories of patients.</db:para>
</rdf:Description>
<p:patient rdf:about="http://pbs.gov.au/patient/general">
  <db:title>General Patient</db:title>
  <db:para>General category of patients.</db:para>
</p:patient>
<p:patient
    rdf:about="http://pbs.gov.au/patient/concessional">
  <db:title>Concessional Patient</db:title>
  <db:para>Those patients with concession card.</db:para>
</p:patient>
```

Ontology

- Semantic Web section provides detail

```
<rdf:Description rdf:about="http://pbs.gov.au/copayment">
  <db:title>Copayment</db:title>
  <db:para>The amount that the patient contributes towards
the cost of a medicine.</db:para>
</rdf:Description>
<p:copayment rdf:about="http://pbs.gov.au/copayment/general">
  <db:title>General Patient Charge</db:title>
  <db:para>The amount that a general patient contributes
towards the cost of a medicine.</db:para>
  <p:applies-to
    rdf:resource="http://pbs.gov.au/patient/general"/>
</p:copayment>
```

Ontology

- Groups also rely on semantic concepts
- Reimplement groups using PBS Ontology
- [discussion coming later]

Temporal Data

- Current PBS XML: monthly snapshot
- Scripts are valid for 12 months
- Vendor RFE: supply previous 12 month deprecated data
- Streamlined Authority codes

Temporal Data

- Transitional arrangements
- Allow scripts & repeats to be supplied
- No new scripts
- “Inactive” items

Temporal Data

- Ideas:
  - Populate pbs:effectivity/pbs:non-effective
  - + no change to schema
  - - makes processing harder
    doesn’t help transitional items

Temporal Data

- Ideas:
  - Populate pbs:effectivity/pbs:non-effective
    Add pbs:effectivity/pbs:supply-only
  - + handles transitional items
  - - makes processing harder

```
<prescribing-rule>
  <effectivity>
    <start>2000-01-01</start>
    <supply-only>2015-03-01</supply-only>
    <non-effective>2016-03-01</non-effective>
```

Temporal Data

- Ideas:
  - Add new elements: pbs:supply-only, pbs:delisted
  - + handles transitional items
    separate from current items
  - - other objects? restriction-refs, product listings

```
<prescribing-rule>
  <ready-prepared>…
<supply-only>
  <ready-prepared>…
<delisted>
  <ready-prepared>…
```

Re-factoring

- Re-structure XML for simplicity
- Pricing
  - Rationalise ready-prepared & infusible

Re-factoring

- v2 Pricing
- Ready prepared
- Normalised for prescribing rule
  - pbs:reimbursement, pbs:lowest
- Product listing(s)
  - pbs:prices

Re-factoring

- v2 Pricing
- Ready prepared
- Exceptions for variant pricing models
  - no-premium
  - no-premium-no-charge

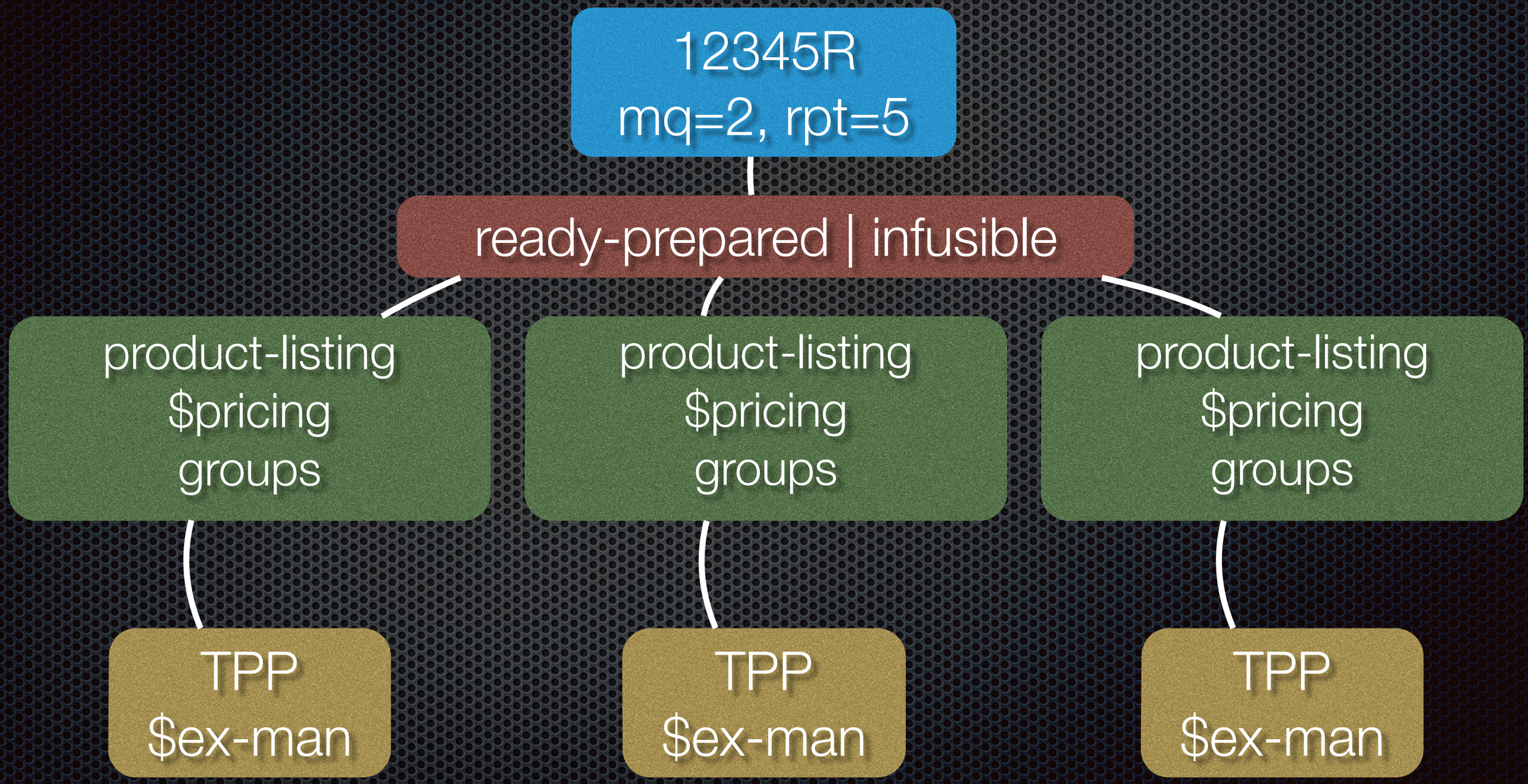
Re-factoring

- v2 Pricing
- Infusible
- Originally designed for cost-efficient algorithm
  - pbs:prices, pbs:tpp-list
- Not useful for final algorithm

Re-factoring

- v3 Pricing
- Focus on product listing
- Make more explicit
- Denormalise
- Works for both ready-prepared and infusible

Re-factoring: Product Listing



Re-factoring

- v3 Pricing

```
<prescribing-rule>
 <ready-prepared>
  <product-listing>
<tpp-reference xlink:href="#a20047385"/>
<code>BQ</code>
<reimbursement>
 <ex-manufacturer>…</ex-manufacturer>
 …
 <dpmq>…</dpmq>
</reimbursement>
<lowest>
 <ex-manufacturer>…</ex-manufacturer>
 …
 <dpmq>…</dpmq>
</lowest>
```

Re-factoring

- v3 Pricing

```
<manufacturer>
  <ex-manufacturer>…</ex-manufacturer>
  …
  <dpmq>…</dpmq>
</manufacturer>
<maximum-safety-net-value>
 …
</maximum-safety-net-value>
<member-of-list>
  <member-of ref:resource="http://pbs.gov.au/brand-substitution/8735"/>
</member-of-list>
```

Re-factoring: Groups

- Reimplement groups
- Use Semantic Web, ontology

Re-factoring: Groups

- Groups have three components:
  - Group type
  - Group type instance
  - Group members

Re-factoring: Groups

- Group type definition
- Description, default value, other values

```
<rdf:Description rdf:about="http://pbs.gov.au/pack-breakability">
  <db:title>Pack Breakability</db:title>
  <db:para>Whether a pack may be broken</db:para>
  <p:default rdf:resource="http://pbs.gov.au/pack-breakability/breakable"/>
  <p:member-type ref:resource="http://schema.pbs.gov.au/ready-prepared"/>
</rdf:Description>
```

Re-factoring: Groups

- Group type instance
- Identified by URI

```
<p:pack-breakability rdf:about="http://pbs.gov.au/pack-breakability/breakable">
  <db:title>Pack Breakable</db:title>
  <db:para>The pack may be broken</db:para>
</p:pack-breakability>
<p:pack-breakability rdf:about="http://pbs.gov.au/pack-breakability/not-breakable">
  <db:title>Pack Not Breakable</db:title>
  <db:para>The pack must not be broken</db:para>
</p:pack-breakability>
```

Re-factoring: Groups

- Group membership
- Missing membership uses default

```
<prescribing-rule>
  <ready-prepared>
    <member-of-list>
      <member-of ref:resource="http://pbs.gov.au/pack-breakability/breakable"/>
    </member-of-list>
  </ready-prepared>
</prescribing-rule>
```

Re-factoring: Groups

- Example: brand substitution

```
<rdf:Description rdf:about="http://pbs.gov.au/brand-substitution">
  <db:title>Brand Substitution</db:title>
  <db:para>The circumstances under which a TPP may be substituted</db:para>
  <p:member-type ref:resource="http://schema.pbs.gov.au/product-listing"/>
</rdf:Description>

<p:brand-substitution rdf:about="http://pbs.gov.au/brand-substitution/7625143">
  <db:title>Brand Substitution Group 7625143</db:title>
</p:brand-substitution>

<product-listing>
  <member-of-list>
    <member-of rdf:resource="http://pbs.gov.au/brand-substitution/7625143"/>
  </member-of-list>
</product-listing>
```

Clean-up

- Rationalise XML Namespaces
- Remove redundant, obsolete elements
- Consistency

Clean-up

- Rationalise XML Namespaces
- Use default namespace
- Merge redundant definitions
  - g2g, rwt
- Remove extraneous definitions
  - contrib, admin, dr, container, sn, etc

Clean-up

- Remove redundant, obsolete elements
- See revision history

Clean-up

- Consistency
- Make sure content models are defined consistently
- Remove attributes: use elements instead
  - Only xml:id, xlink:href, rdf:resource

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Remote Area Services

- Reporting requirements for remote areas

Private Scripts

- Collection of data on private scripts

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