

# What's the problem?

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# A simple tale...



Pat Wrekin lives in Shropshire (England) and is generally in good health. Pat visits his GP and local hospital regularly: he has a planned programme of care for Type 2 diabetes.

While taking a few days holiday in Derbyshire, Pat goes out walking alone. Pat is found by another walker lying unconscious and injured, apparently due to a fall, and arrives at the local hospital by ambulance, still unconscious.



# Where are the standards?

(1) Without computers

GP practice  
record-keeping



Diabetes National Framework

Clinical  
Terminology

“Pat Wrekin has Type 2 diabetes,  
and [...summary of other relevant  
clinical information...]”

Community of practice and  
common language supports  
effective exchange of  
information between people

National guidelines in  
emergency medicine

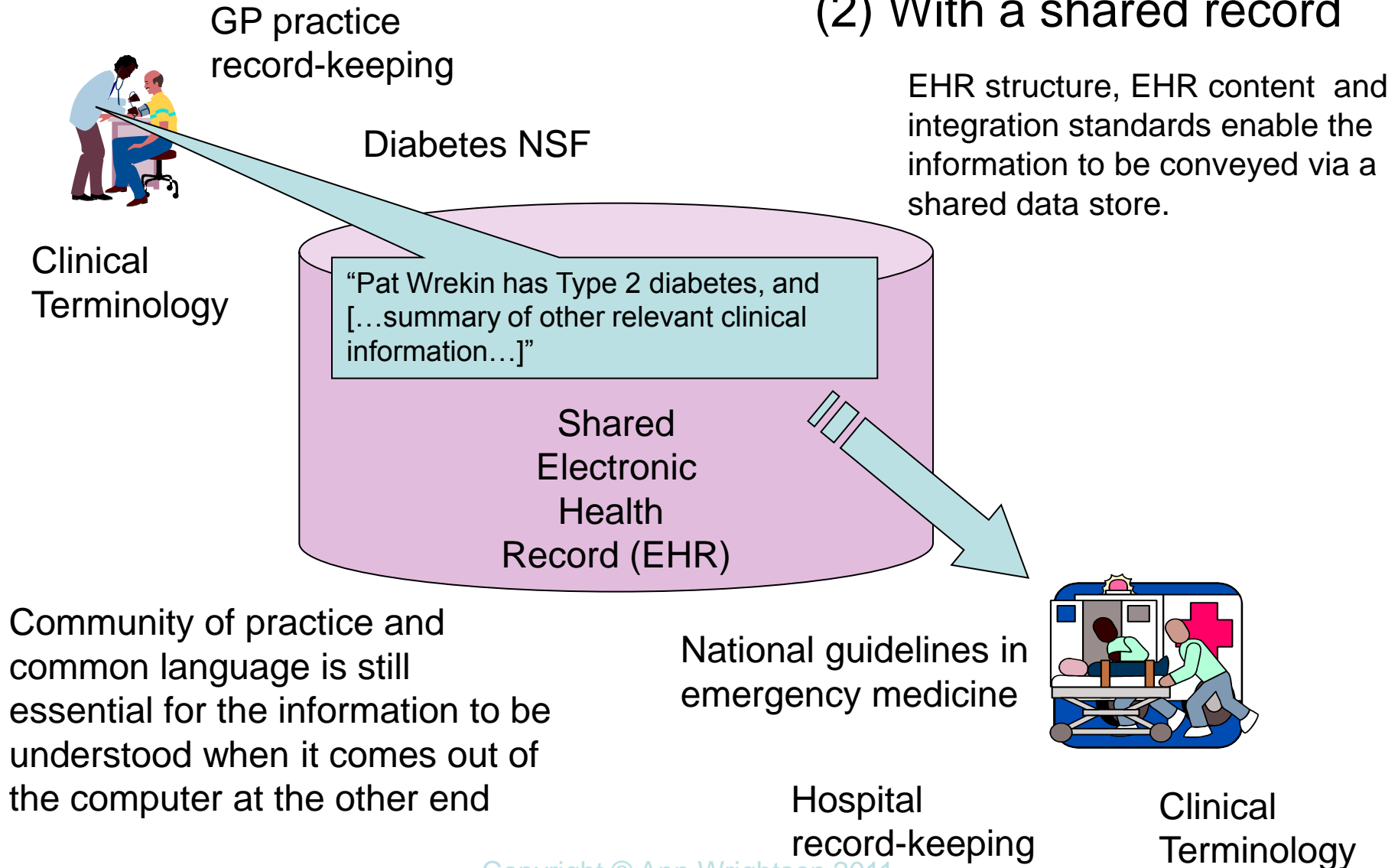


Hospital  
record-keeping

Clinical  
Terminology

# Where are the standards?

## (2) With a shared record



# Accurate, reliable communication using a shared EHR

- Shared EHR and other aspects of ICT interoperability are part of a long tradition of common language and standards of practice
  - The “schools” of Hippocrates and Galen
  - Symbols and codes (written by hand)
  - Professional bodies, recognized qualifications
- Effective concise communication about a complex situation requires:
  - Shared background knowledge
  - Ability to send, receive & understand the communication
  - Enough specific background knowledge about the situation concerned to understand the significance of the communication
  - Confidence in authenticity, confidentiality etc
- EHRs can only work if humans and computers work together

# Where are the standards?

(3) Meaningful communication using data



“Pat Wrekin has Type 2 diabetes, and [...summary of other relevant clinical information...]”

What do I need to know to understand this data?

Controlled vocabularies

```
<Summary date="20-05-2006">  
<GPid>12341234</GPid>  
<Patient>  
<Name>Pat Wrekin</Name>  
<NHSnumber>12345674567</NHSnumber>  
</Patient>  
<Diagnosis code="abcabc">Diabetes: Type 2</Diagnosis>  
<Allergy>None recorded</Allergy>  
<Alert>None recorded</Alert>  
</Summary>
```

This is a simplified format compared to real data (eg HL7 CDA)

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XML data format

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## (3) Meaningful communication using data



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Reference information Model (HL7v3 RIM)

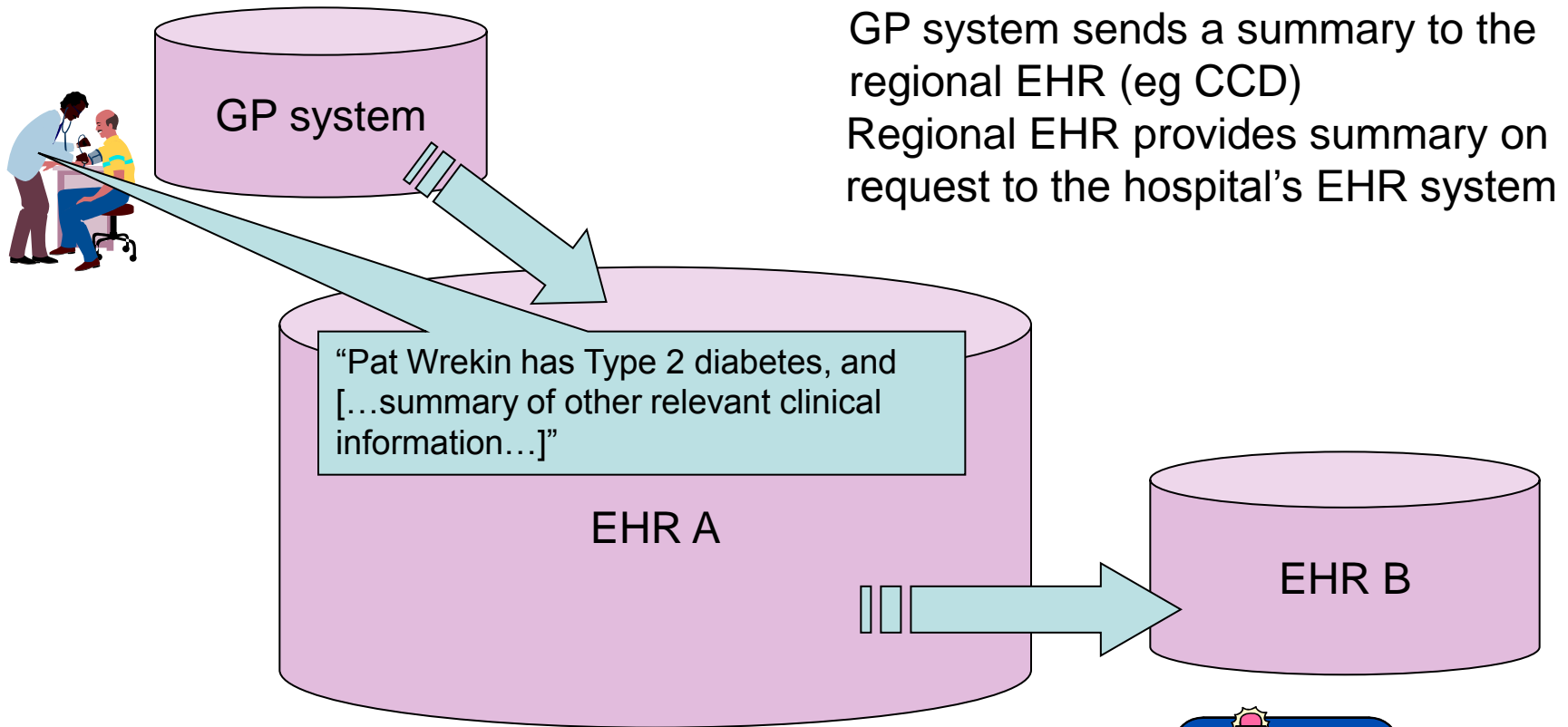
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# One more step...



GP system sends a summary to the regional EHR (eg CCD)  
Regional EHR provides summary on request to the hospital's EHR system

EHR structure, EHR content and integration standards enable the information to be conveyed from computer to computer

Security and access policies are essential for confidence in the authenticity and confidentiality of information shared

# Interoperability = “It just works”



Mr Wrekin? ah yes,  
he has Type 2  
diabetes, he's  
controlling his diet  
well...

This is the swan gliding  
serenely along; the many  
standards involved are the feet  
paddling energetically below  
the surface...

OK, he's  
diabetic...



# Well-behaved standards are...

- **Adoptable**
  - Easy to learn about & evaluate
  - Well defined in scope, conformance etc.
  - Minimum of specialist skills and tools needed for implementation
- **Harmonized**
  - Talk about the same kinds of things in the same way
  - Easy to map/translate common subject matter
- **Compact and Modular**
  - I can adopt just the stuff I need without too much brainache, special setup or performance overhead
  - If I need more later, it's an easy upgrade
- **Orthogonal & loosely coupled**
  - My standard doesn't mess up your standard when they're used together

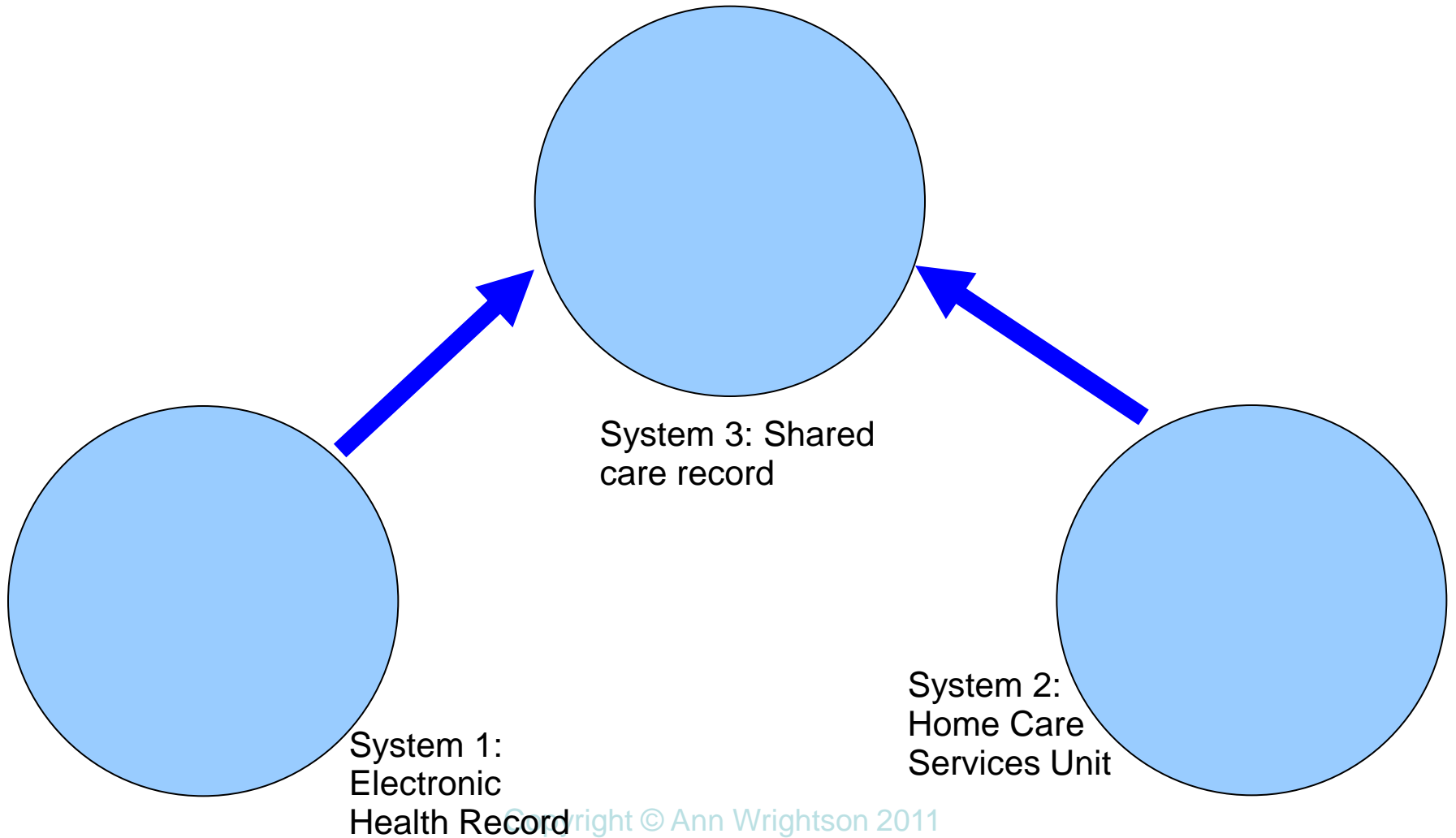
# Back to Pat Wrekin...



Mr Wrekin? He's recovering well, but he won't be able to drive for a while. He's worried about his old aunt Mrs Upton, who lives in a little village in Cheshire. She's housebound and he's been driving there every week-end to do her shopping, cook for her and leave meals in the freezer...

Mrs Upton is being cared for by both health services and social care services. They share information, and know that Pat does her shopping and cooks for her.

In our ideal world, Pat Wrekin's GP sends a message to Mrs Upton's local social care team to advise them of the new situation.

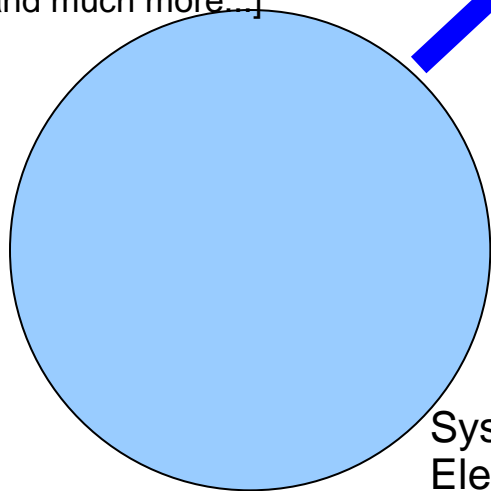


System 1:  
Electronic  
Health Record

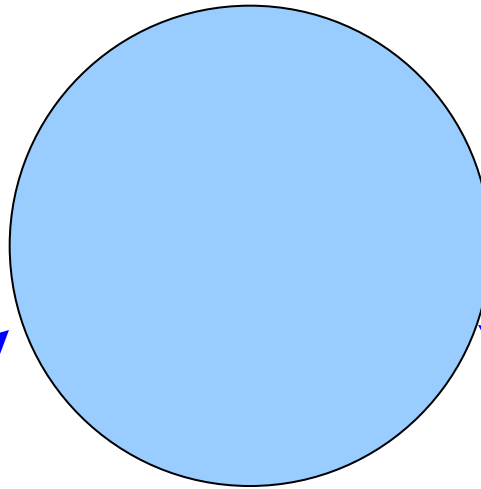
System 3: Shared  
care record

System 2:  
Home Care  
Services Unit

1000100100  
Amy Upton, Mrs  
5 Magnolia Walk...  
23 February 1921  
Heart problem...  
Difficulty walking...  
[and much more...]

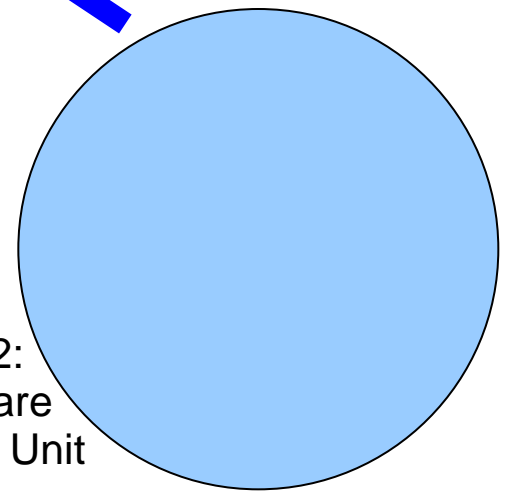


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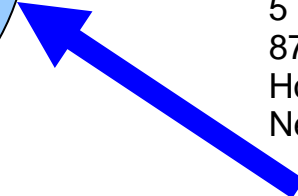
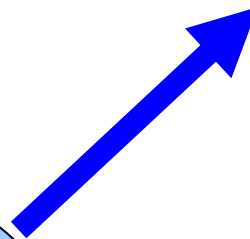


System 3: Shared  
care record

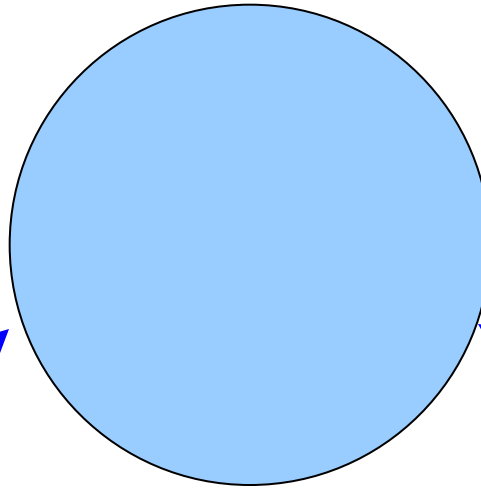
Mrs Amy Upton  
5 Magnolia Walk...  
87, frail, difficulty walking  
Home help...  
Nephew does shopping...



System 2:  
Home Care  
Services Unit

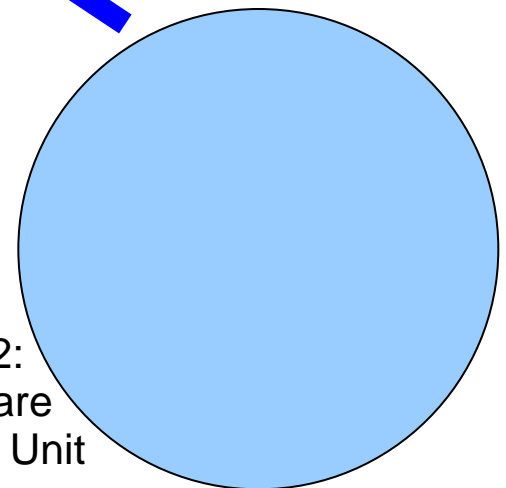


NHS no: 1000100100  
Amy Upton, Mrs  
5 Magnolia Walk...  
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Home help...  
Nephew does shopping...



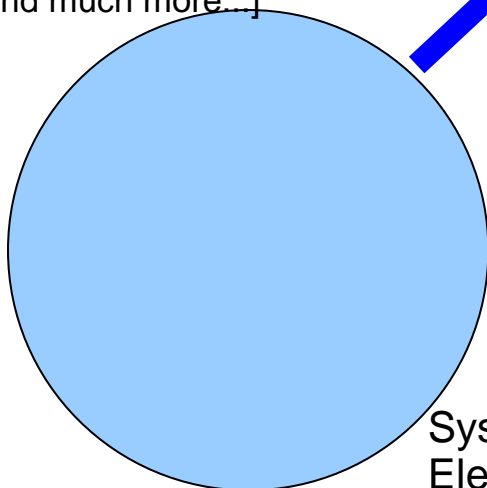
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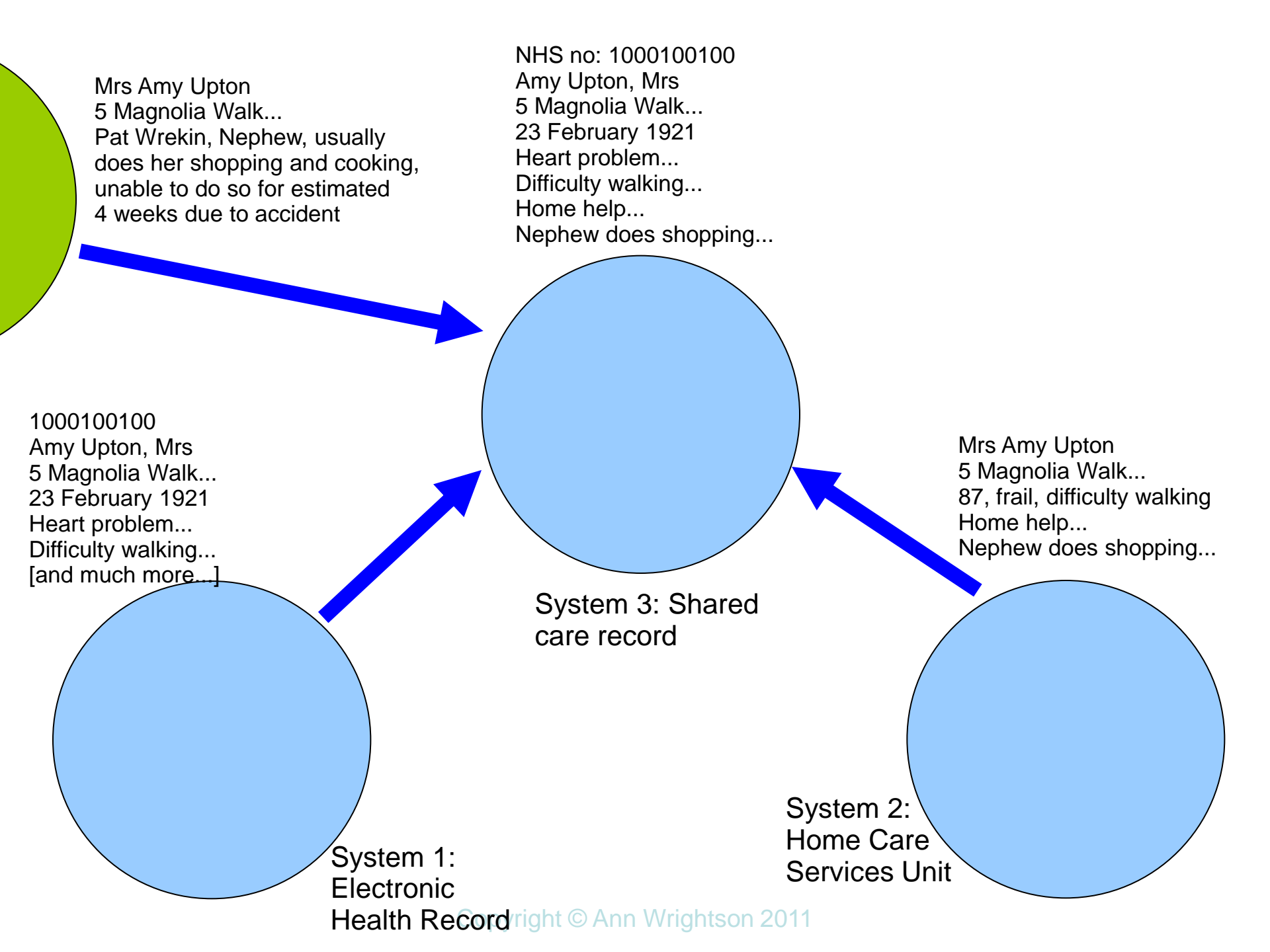


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System 1:  
Electronic  
Health Record



Mrs Amy Upton  
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Pat Wrekin, Nephew, usually  
does her shopping and cooking,  
unable to do so for estimated  
4 weeks due to accident

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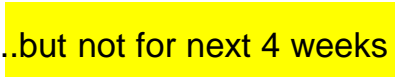
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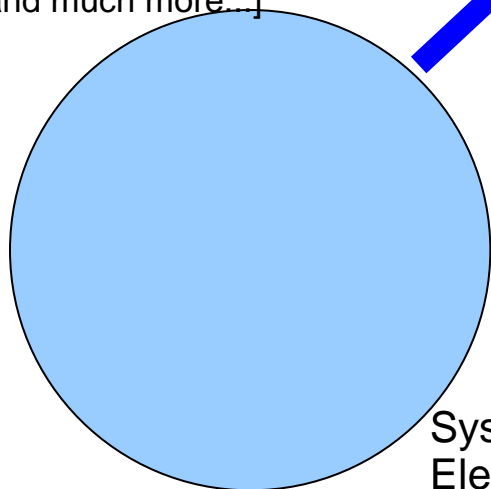
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 4 weeks due to accident

NHS no: 1000100100  
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 23 February 1921  
 Heart problem...  
 Difficulty walking...  
 Home help...  
 Nephew does shopping...but not for next 4 weeks

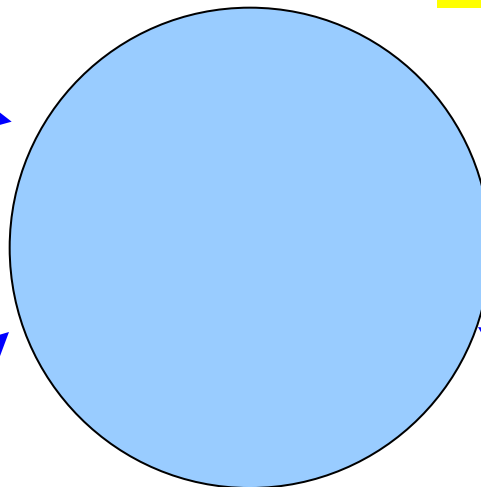


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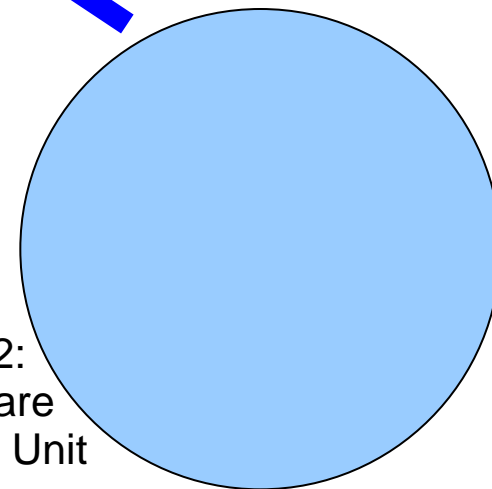
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# So why doesn't it happen?

- All this can be stitched together using secure record exchange services with various summary records as payloads
- At least in the UK, the major blockers are not technical but social-political
  - Who pays for what
  - Who is allowed to see what
  - Who is afraid of what

End of slide set 2