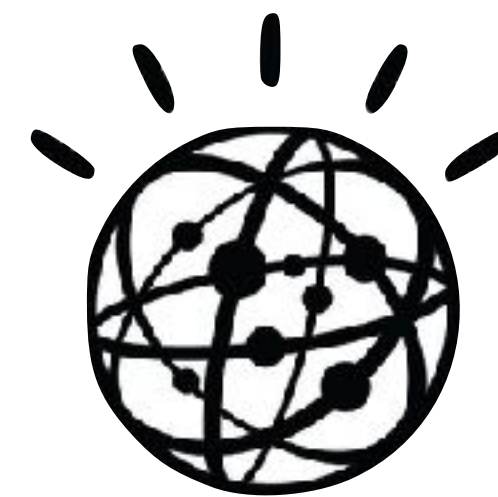


Watson-Aided Non-Linear Problem-Oriented Clinical Visit Preparation on Tablet Computer

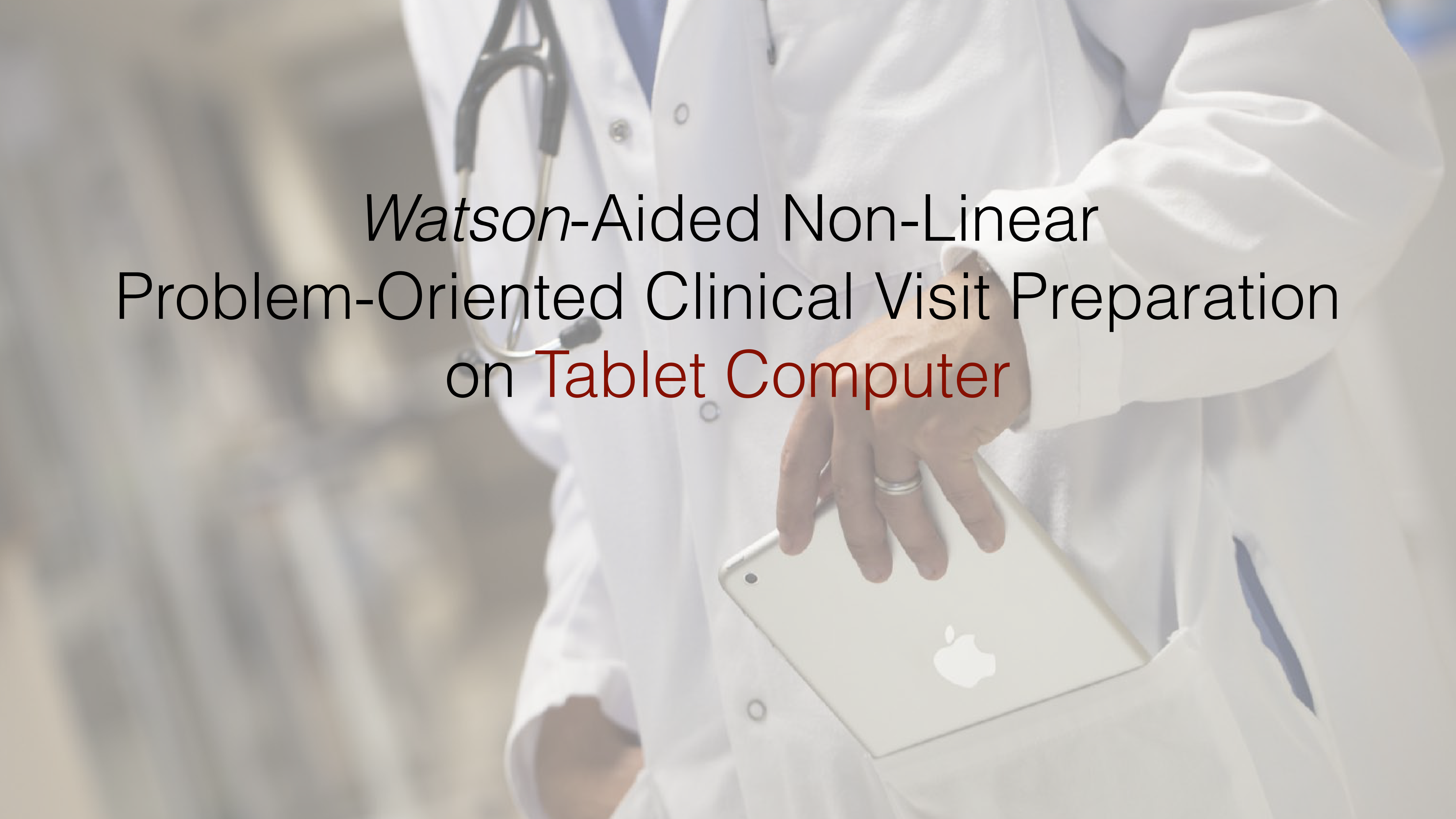
Puripant Ruchikachorn, Jennifer J. Liang
Murthy Devarakonda, and Klaus Mueller



Stony Brook
University

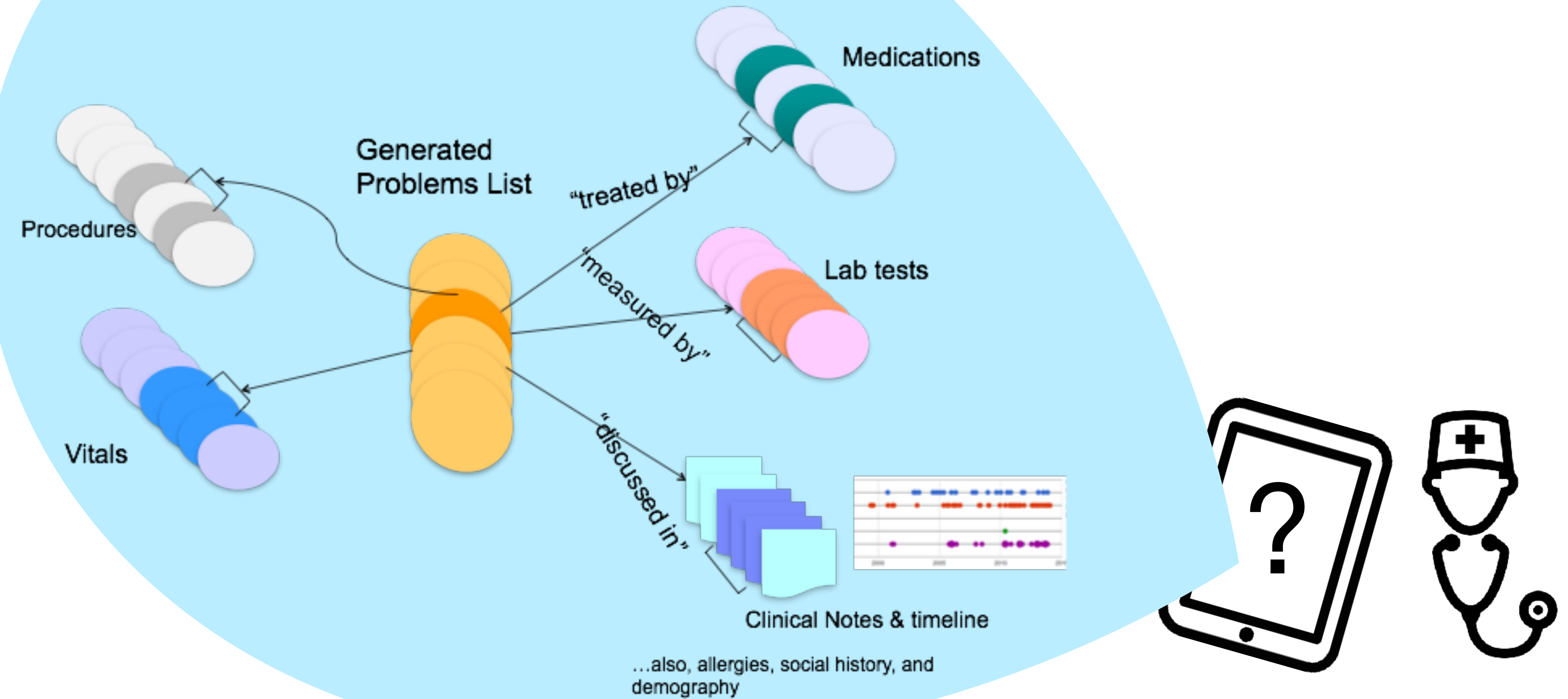


IBM **WATSON**

A close-up photograph of a doctor in a white lab coat. The doctor is holding a silver tablet computer with their right hand. A stethoscope is visible around the doctor's neck. The background is blurred, showing other people in white lab coats.

Watson-Aided Non-Linear
Problem-Oriented Clinical Visit Preparation
on **Tablet Computer**

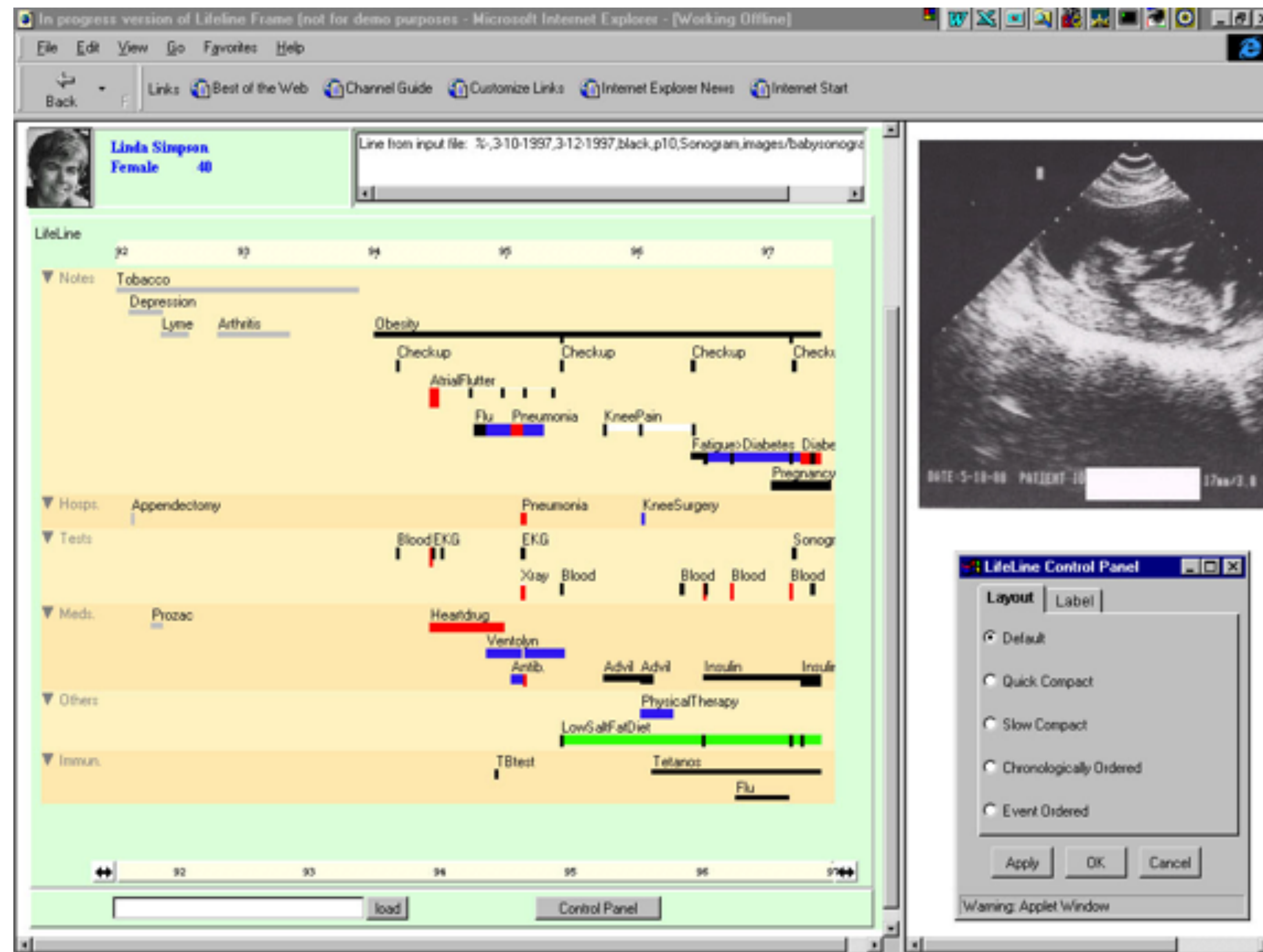
Clinical Visit Preparation



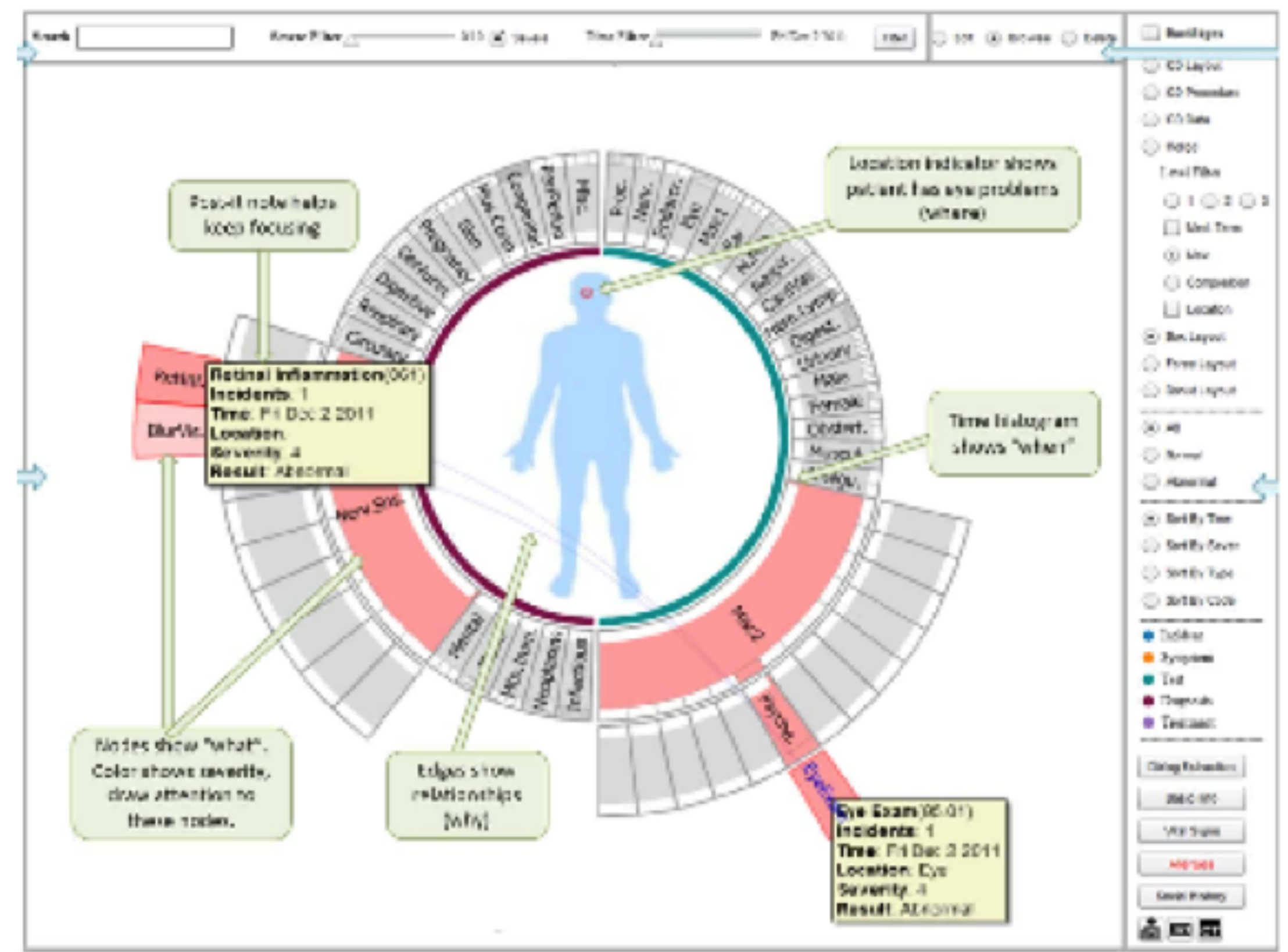
Related EMR Systems

LifeLine (1998)

Five W's (2013)



Timeline-based



Hierarchical

User Interface Design

- Focusing on relations between items
- Drill-down information architecture
- Timeline for temporal comparison

John Smith

70-year-old male

ID 19:4068

DOB mm/dd/yyyy

Admitted mm/dd/yyyy

Allergies

Erythromycin

81.33 kg, 172 cm

Temp 97.7 06/28/2013

Pressure 95/68 08/06/2013

Pulse 89 08/06/2013

Oximetry 97 02/16/2011

Problems

Diabetes mellitus, n...

Medications

Metformin

Glipizide

Lab Tests

Hgb a1c

Hemoglobin a1c

Comp metabolic panel

Glucose

Anion gap

Trypsinogen

Trypsinogen

Lipid panel basic

Procedures

Vitals

Encounters

Consults/subspecialty

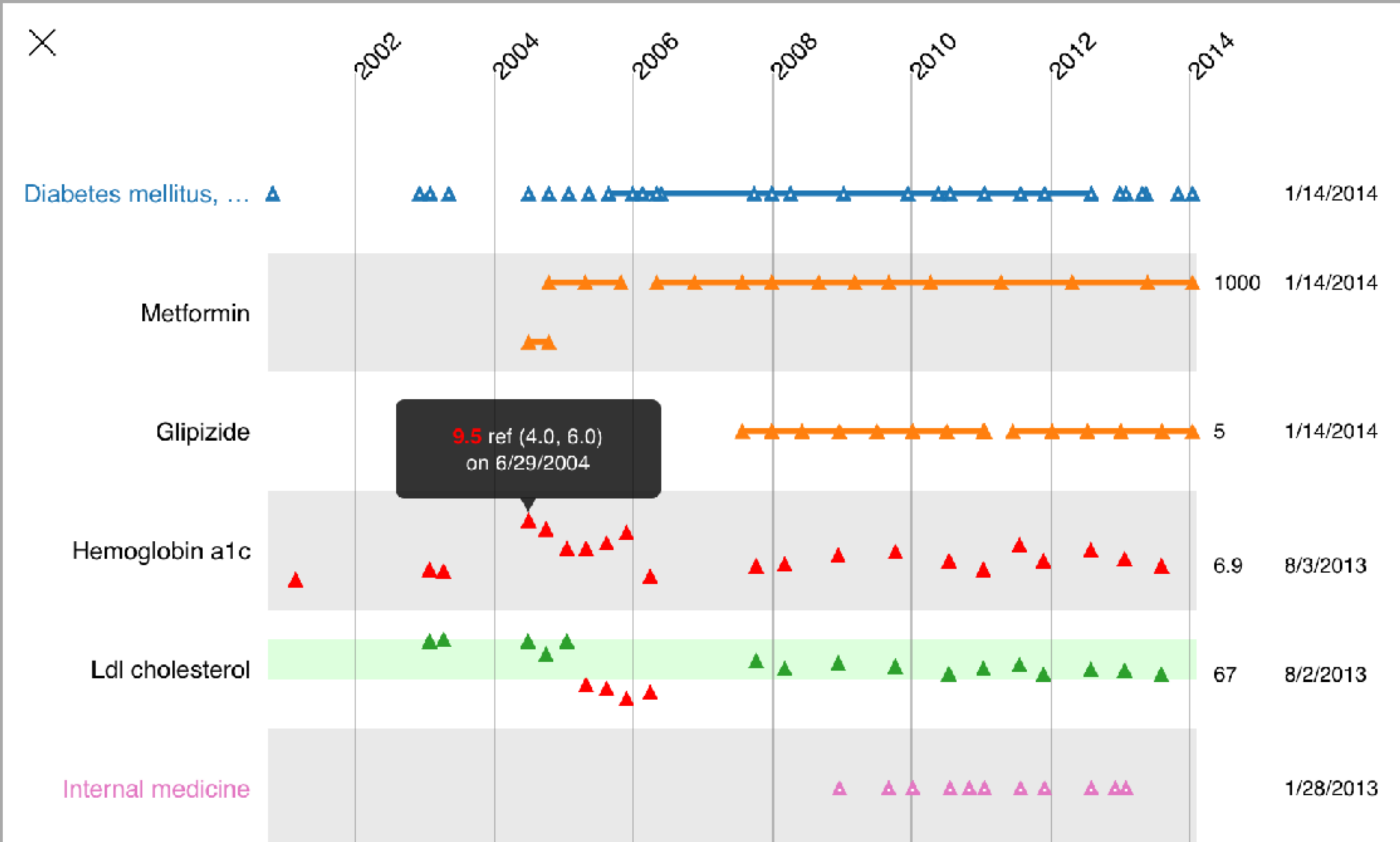
No type

Dermatology

Internal medicine

Orthopedics

General surgery



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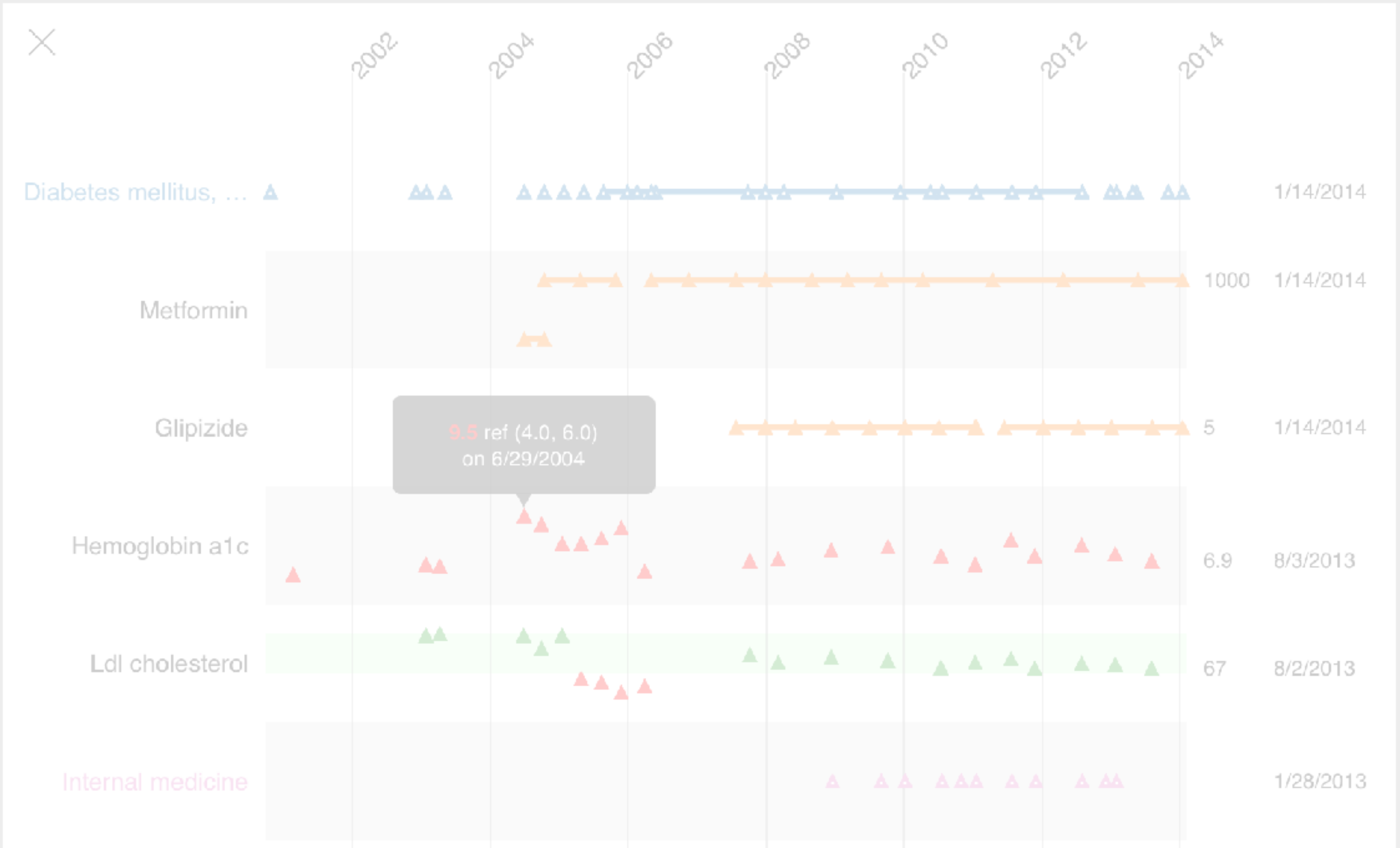
Pressure 95/68 08/06/2013

Pulse 89 08/06/2013

Oximetry 97 02/16/2011

- Problems**
 - Diabetes mellitus, n...
- Medications**
 - Metformin
 - Glipizide
- Lab Tests**
 - Hgb a1c
 - Hemoglobin a1c
 - Comprehensive panel
 - Uric acid
 - Anion gap
 - Trypsinogen
 - Trypsinogen
 - Lipid panel basic
- Procedures**
- Vitals**
- Encounters**
 - Consults/subspecialty
 - No type
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Patient Profile



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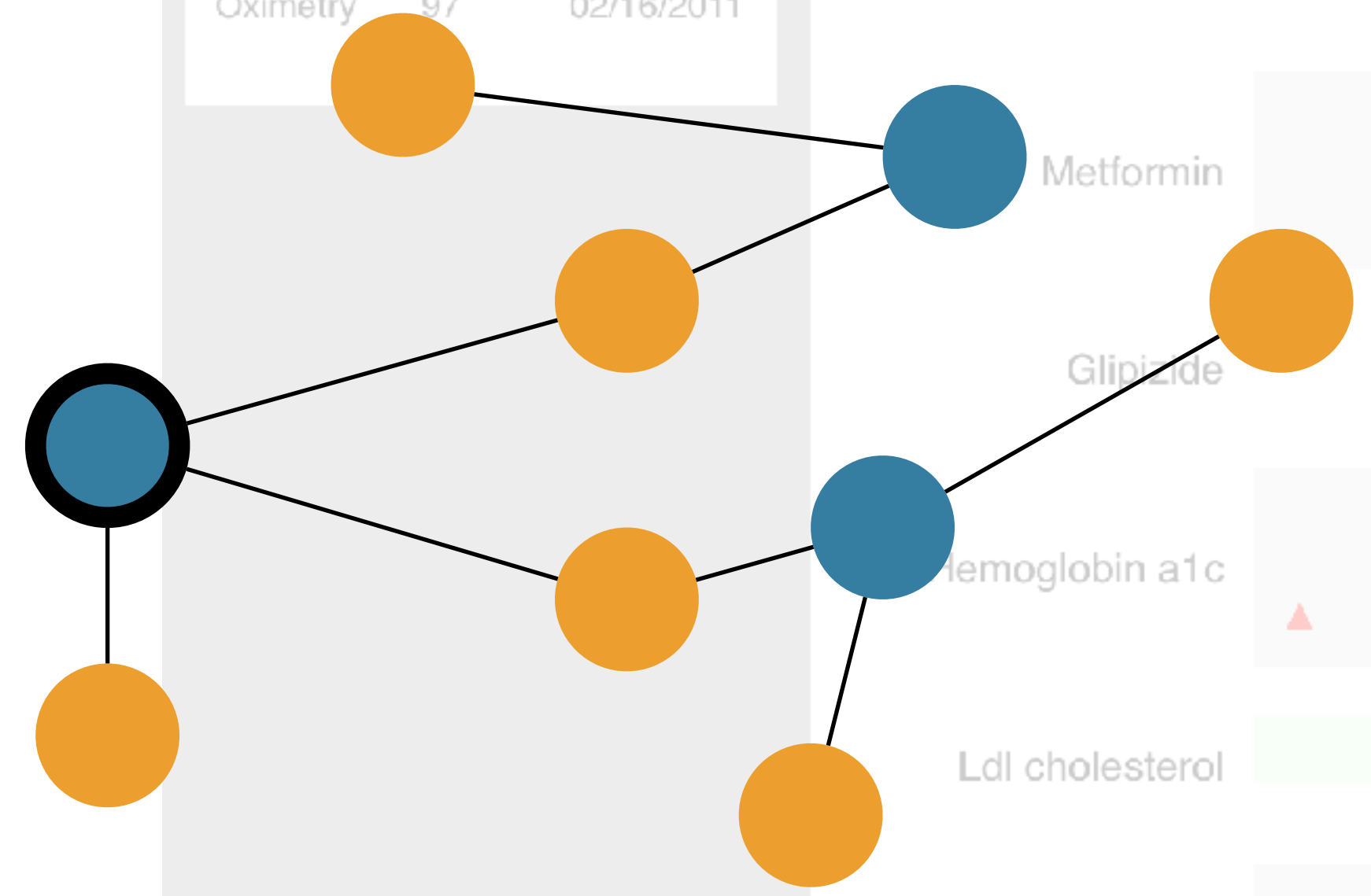
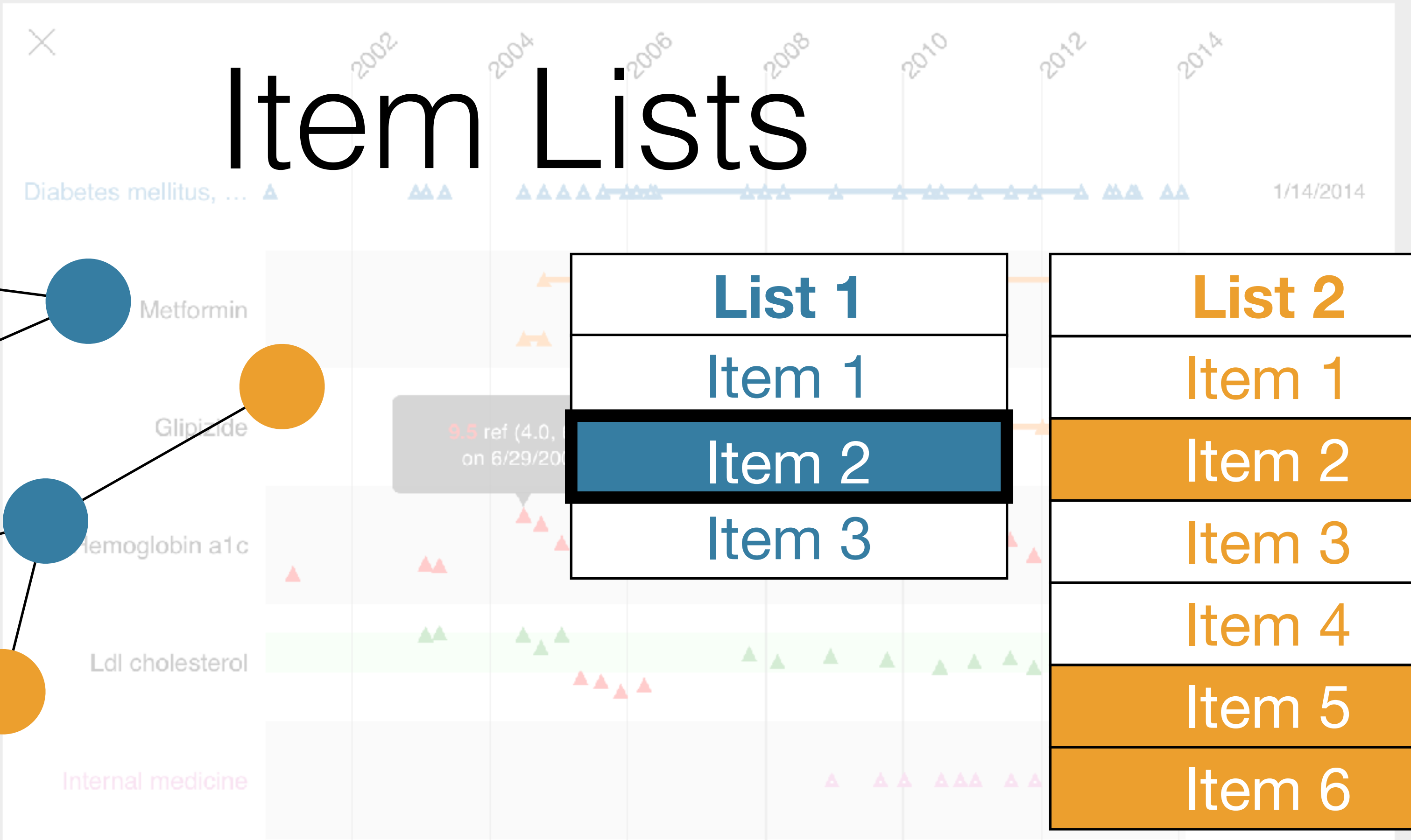
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Item Lists



- List 1
- Item 1
- Item 2**
- Item 3

- List 2
- Item 1
- Item 2
- Item 3
- Item 4
- Item 5
- Item 6

iPad 9:31 AM 97%

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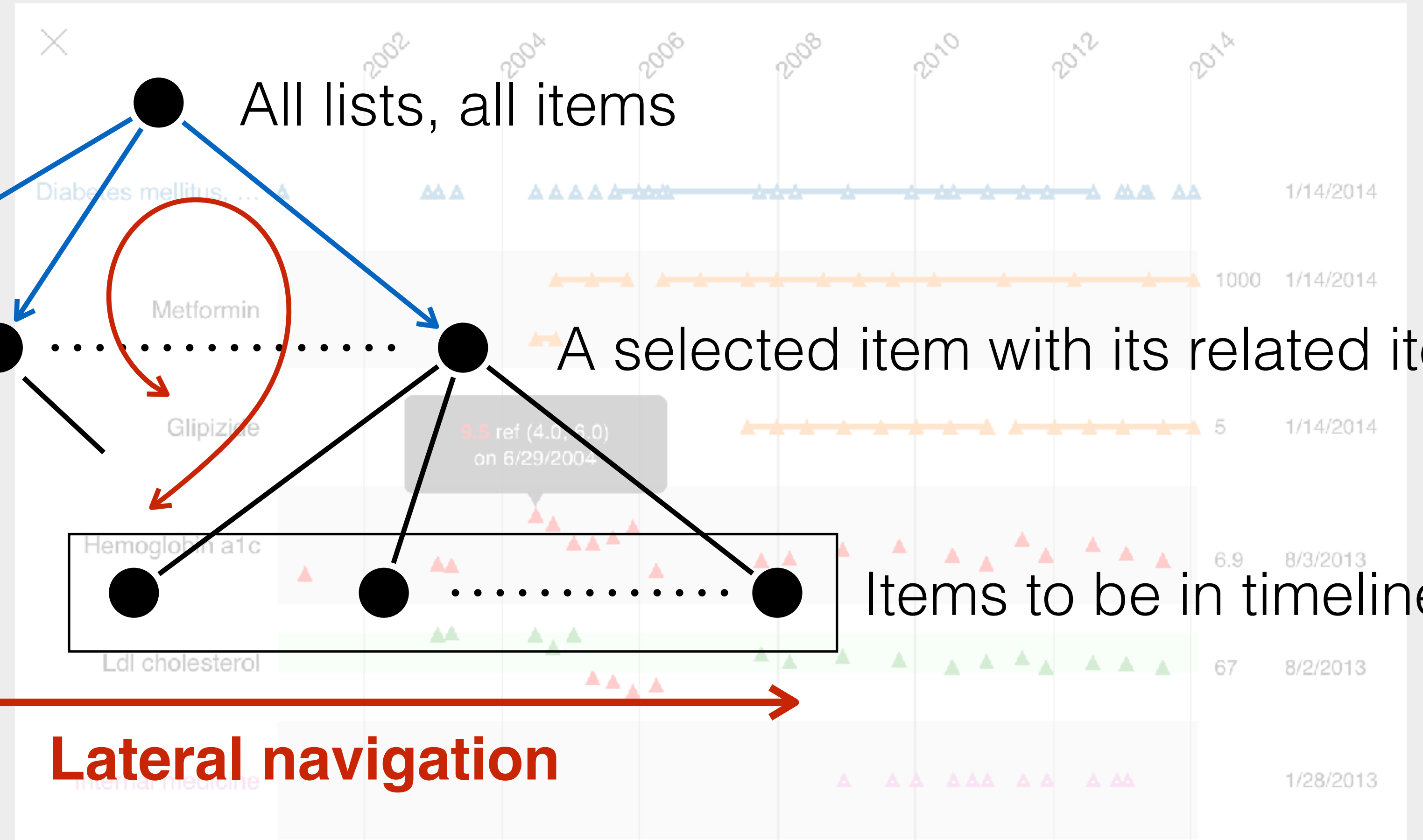
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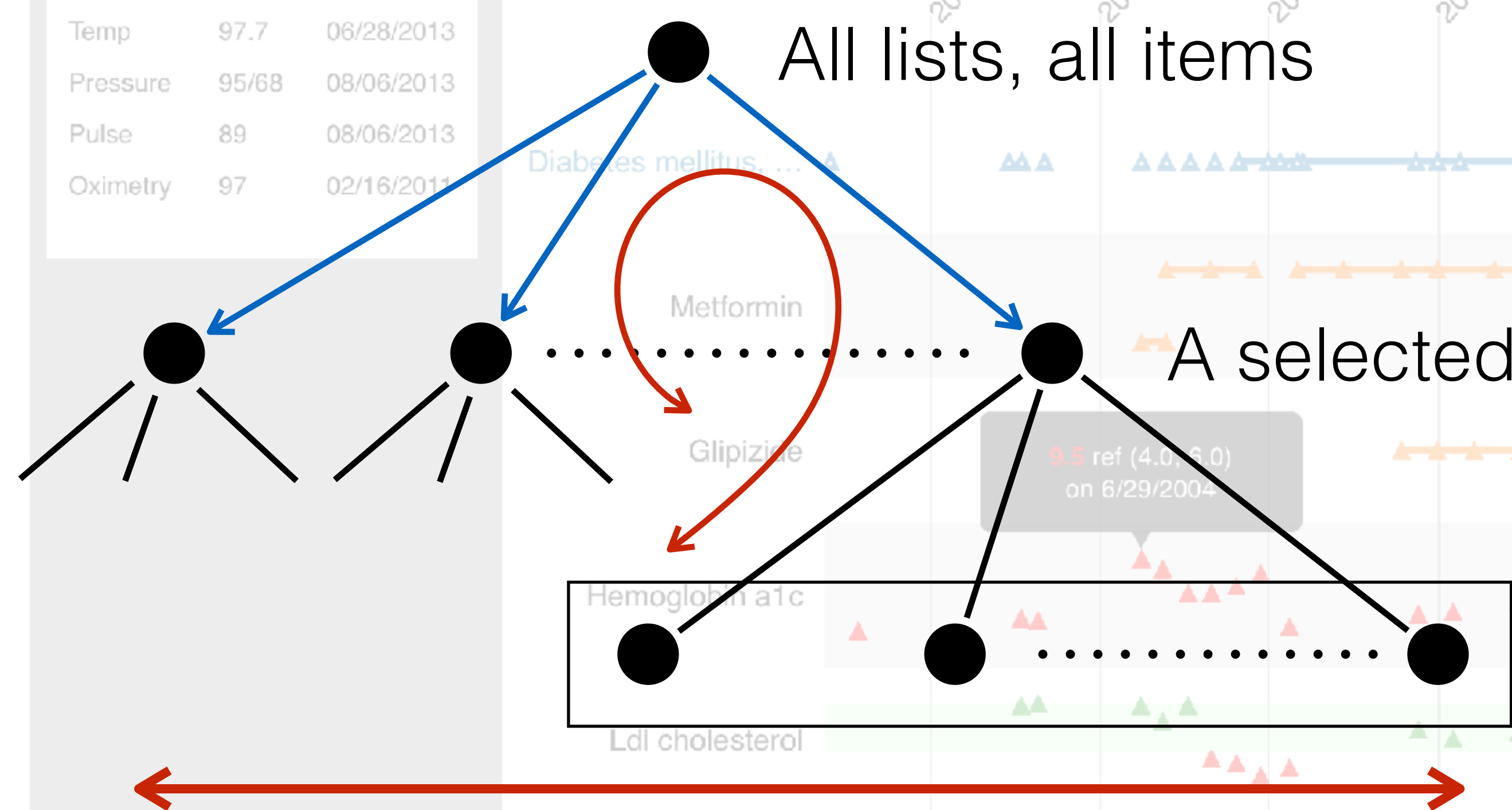
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Filtering



All lists, all items

A selected item with its related items

Items to be in timelines

Lateral navigation

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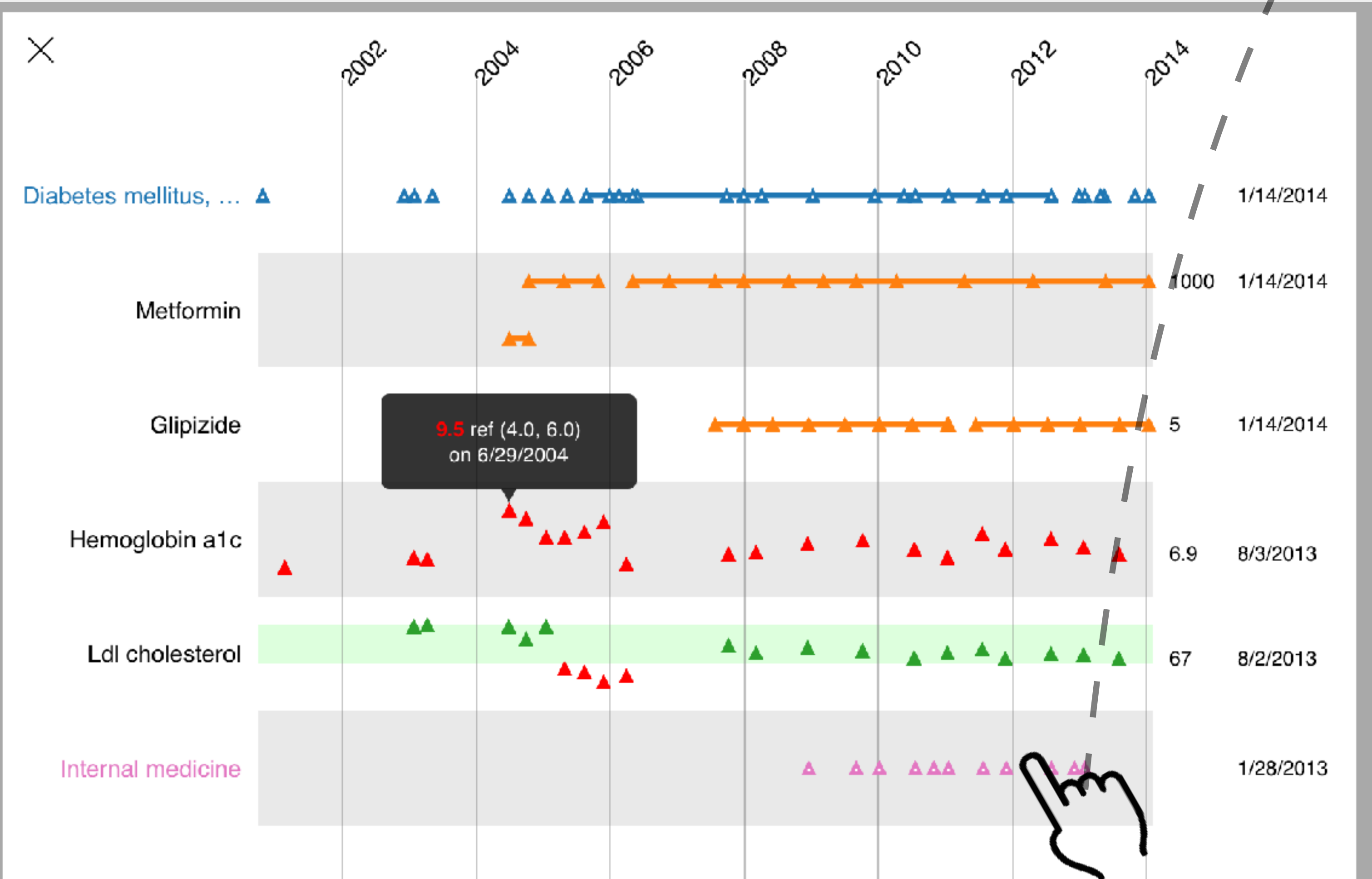
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Timelines



Implementation & User Study

- D3.js then Cordova to run on iPad
- One physician used it to review a profile of 70-year-old patient

Future Work

- More integration with machine learning
 - Feedback from physician-edited relations
- Evaluation with more physicians in a hospital environment
- More clinical workflow support