Design Health Challenge

Rethinking the Medical Record

Submission from Mathew Sanders
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mathewsanders.com
A Temporal Structure

Instead of grouping content by type (e.g. lab results / plan of care / encounters) the proposed structure takes a temporal approach of what is upcoming, what's happening now, and what has happened in the past. This does lead to some repetition of content (mainly for medication), a small cost for greater understanding of information for the individual, caregiver or medical professional.

Who?

**Personal Health Record**

**Ellen Ross**

**Printed May 8, 2007**

**Known Allergies**

- **Penicillin**: Causes anaphylactic shock
- **Peanuts**: Causes anaphylactic shock
- **Sulfa Drugs**: Causes anaphylactic shock
- **Latex**: Causes hives & difficulty breathing
- **Codeine**: Causes sneezing and runny nose
- **Pollen**: Causes hives & difficulty breathing
- **Dogs/Pets**: Causes sneezing & runny nose
- **Aspirin**: Causes hives & difficulty breathing
- **Codeine**: Causes hives & difficulty breathing
- **MODERATE REACTIONS**
  - Peanuts
  - MODERATE TO SEVERE REACTIONS
  - Codeine

**Your Details**

- **Birth Date**: March 15, 1942
- **Gender**: Female
- **Languages**: English, Spanish
- **Ethnicity**: Asian
- **Address**: 1357 Amber Drive, Beaverton, OR 97006

**Guardian's Contact Details**

- **Name**: Martha Shan
- **Phone**: (415) 555-1200
- **Visit**: 1002 Healthcare Dr, Portland, OR 97266

**Medical History**

- **Diabetes**: Blinding pain and sensitivity to light
- **Cholecystitis (observed)**
- **Vertigo**
- **Diabetes (observed)**
- **Immunizations**

<table>
<thead>
<tr>
<th>Date</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 15, 2000</td>
<td>Insulin NPH Human (100 u/ml injection)</td>
</tr>
<tr>
<td>August 15, 2003</td>
<td>Gall Bladder Surgery</td>
</tr>
<tr>
<td>June 15, 2005</td>
<td>Cesarian Section</td>
</tr>
<tr>
<td>June 15, 2005</td>
<td>Gall Bladder Surgery</td>
</tr>
<tr>
<td>June 15, 2005</td>
<td>Gall Bladder Surgery</td>
</tr>
<tr>
<td>March 10, 2005</td>
<td>Gall Bladder Surgery</td>
</tr>
</tbody>
</table>

**Procedures**

- **Cesarian Section (with Dr. Tiffany Martinez at Ashby Medical Center)**
- **Emergency Department Visit (with Dr. Bala Venktaraman at Ashby Medical Center)**

**Lab Results**

- **Renal Panel**
- **Sodium Chloride**
- **Creatinine**
- **Urea Nitrogen**
- **Potassium**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Chloride</td>
<td>136</td>
<td>132 — 145 mg/dl</td>
</tr>
<tr>
<td>Creatinine</td>
<td>20</td>
<td>1.0 — 20 mg/dl</td>
</tr>
<tr>
<td>Urea Nitrogen</td>
<td>108</td>
<td>10.0 — 22 mg/dl</td>
</tr>
<tr>
<td>Potassium</td>
<td>6</td>
<td>3.6 — 5.1 mEq/L</td>
</tr>
</tbody>
</table>

**Medication**

- **Prescribed Medications**
  - **Lipitor (CAPSULE)**
  - **Asprin EC (81 mg tablet)**
  - **Ginko Biloba (LIQUID)**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipitor</td>
<td>1 capsule daily</td>
<td>2-3 times a day</td>
</tr>
<tr>
<td>Asprin EC</td>
<td>1 pill</td>
<td>2-3 times daily</td>
</tr>
<tr>
<td>Ginko Biloba</td>
<td>1 puff</td>
<td>2-3 times per day</td>
</tr>
</tbody>
</table>

**To-do**

- **Schedule Colon Cancer Screening**
- **Schedule Influenza Vaccination**

**Your Healthcare Providers**

- **Ashby Medical Center**
  - Phone: (503) 555-1200
  - Visit: 1002 Healthcare Dr, Portland, OR 97266
Common Principles
Avoid label/value approach as much as possible when presenting information. Instead, reformat content so that as often as possible it can be read as an natural sentence.

# Allergies
Allergy Name: Penicillin
Reaction: Hives
Severity: Moderate to severe

1. Starting labels/values

# Allergies
Allergy Name: Penicillin
Reaction: Hives
Severity: Moderate to severe

2. Remove labels

# Allergies
Penicillin
Causes Hives
Moderate to severe reactions

3. Add text to give context

Known Allergies

MODERATE TO SEVERE REACTIONS
Penicillin. Causes hives
Latex. Causes hives & difficulty breathing

4. Reorder and separate content with visual weight
Another Example...

1. **Remove labels**

   # Medication
   Date: March 28, 2005
   Type: Liquid
   Name of Medication: Acetaminophen with codeine
   Instructions: 2 puffs once a day
   Dose Quantity (value / unit): 2 / puffs
   Rate Quantity (value / unit): 1 / day
   Name of Prescriber: Ashby Medical Center

2. **Add text to give context**

   # Medication
   March 28, 2005
   Liquid
   Acetaminophen with codeine
   NOTES 2 puffs once a day
   TAKE 2 puffs
   HOW OFTEN 1 day
   Ashby Medical Center

3. **Reorder content**

   TAKE 2 puffs
   Liquid
   Acetaminophen with codeine
   HOW OFTEN 1 day
   NOTES 2 puffs once a day
   Ashby Medical Center
   March 28, 2005

4. **Add visual hierarchy**

   **Prescribed Medications**

<table>
<thead>
<tr>
<th>TAKE</th>
<th>LIQUID</th>
<th>HOW OFTEN</th>
<th>NOTES</th>
<th>ASHBY MEDICAL CENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 puffs</td>
<td>Acetaminophen with Codiene</td>
<td>each day</td>
<td>2 puffs once a day</td>
<td>March 28, 2005</td>
</tr>
</tbody>
</table>
**Known Allergies**

- **SEVERE REACTIONS**
  - **Bee stings.** Causes anaphylactic shock
  - **Peanuts.** Causes anaphylactic shock

- **MODERATE TO SEVERE REACTIONS**
  - **Penicillin.** Causes hives
  - **Latex.** Causes hives & difficulty breathing

- **MODERATE REACTIONS**
  - **Codeine.** Causes shortness of breath
  - **Dogs/Pets.** Causes sneezing and running nose

- **MILD REACTIONS**
  - **Pollen.** Causes watery eyes, itchy nose (self reported)

**Your Details**

- **Gender:** Female
- **Marital Status:** Married
- **Religious Affiliation:** Christian

**Martha Shan (sister)**

**Primary Contact Details**

- **Phone:** (816) 276-6909
- **Address:** 1357 Amber Drive, Beaverton, OR 97006

**Ellen Ross**

**Printed May 8, 2007**
### Upcoming Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 28</td>
<td>Office Consultation</td>
<td>9:30 a.m. at Ashby Medical Center</td>
</tr>
<tr>
<td></td>
<td>Consultation with Dr. George Potomac for Asthma</td>
<td></td>
</tr>
<tr>
<td>June 1</td>
<td>Chest X-Ray</td>
<td>9:00 a.m. at Ashby Medical Center</td>
</tr>
<tr>
<td>June 16</td>
<td>Refill prescriptions this week</td>
<td>Indomethacin (50 mg Tablet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prescribed by Ashby Medical Center</td>
</tr>
<tr>
<td>July 3</td>
<td>Compensation &amp; Pension Appointment</td>
<td>11:00 a.m. at Ashby Medical Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With Dr. Eliza Morrin</td>
</tr>
</tbody>
</table>

### To-do

1. **Schedule Colon Cancer Screening**
   - Schedule with Ashby Medical Center
2. **Schedule Influenza Vaccination**
   - Schedule with Ashby Medical Center
   - Last completed May 8, 2000

### Your Healthcare Providers

- **Ashby Medical Center**
  - Phone: (415) 555-1200
  - Visit: 1002 Healthcare Dr; Portland, OR 97266

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The Health Planner
This page aggregates any content in the health report that is timestamped for the future.

For core CCD fields this is only planned care, but other providers (such as VA can extend to include additional data such as wellness reminders and prescriptions due for renewal).

Ideally this page would become a living document that individuals or caregivers would stick on their fridge or pinboard as a visual reminder.

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**Space for notes**

Leave a space as an affordance for individuals or caregivers to write notes. This could be questions to bring up in the appointment, or updates to the appointment times.

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**If changes are needed**

If the patient or caregiver needs to make an update, contact details for their healthcare providers are quickly accessed from the same page.
**Current Medications**
This page shows prescribed medications and self reported medications and supplements.

For individuals and caregivers it's a easy view of what medications need to be taken each day.

For healthcare professionals it's a single view of all medications that the patient is currently taking.

If current medications can not be calculated from the core CCD data, then this would be a list of all medications historically prescribed.

### Prescribed Medications

<table>
<thead>
<tr>
<th>Take</th>
<th>How Often</th>
<th>Notes</th>
<th>First Prescribed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIQUID</strong></td>
<td><strong>2 puffs Acetaminophen with Codiene</strong> each day</td>
<td>2 puffs once a day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td><strong>TABLET</strong></td>
<td>50 mg Indomethacin</td>
<td>2 times per day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td><strong>CAPSULE</strong></td>
<td>1 pill Lipitor</td>
<td>each day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td><strong>CAPSULE</strong></td>
<td>1 pill Klonopin</td>
<td>2-3 times a day</td>
<td>June 15, 2005</td>
</tr>
</tbody>
</table>

### Self Reported

- **Ginko Biloba**
  - Two capsules taken once a day
  - Take in the morning with breakfast

- **Asprin EC 81 mg tablet**
  - One tablet daily
  - Daily regime for heart health

- **Notes**
  - Taken since June 15, 2005
**Ellen Ross**

**Medical Conditions & History**

- **40 today**
  - March 7, 2000
- Immunization: Tetanus & Diphtheria Toxoids
  - 50 mcg intramuscular injection
  - Mild pain or soreness in the local area
  - April 4, 2000
  - Monday

- **41 today**
  - March 7, 2001
- Immunization: Influenza Virus Vaccine
  - 50 mcg intramuscular injection
  - Possible flu-like symptoms for three days
  - May 8, 2000
  - Monday

**Overview of Medical Conditions 2000 — 2007**

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pregnancy</td>
<td>March 7, 2000</td>
<td>9 months</td>
</tr>
<tr>
<td>2</td>
<td>Cholecystitis</td>
<td>March 7, 2001</td>
<td>13 months</td>
</tr>
<tr>
<td>3</td>
<td>Migraine Headaches</td>
<td>July 19, 2000</td>
<td>4 years, 3 months</td>
</tr>
<tr>
<td>4</td>
<td>Diabetes</td>
<td>October 28, 2001</td>
<td>2 years, 2 months</td>
</tr>
<tr>
<td>5</td>
<td>Ankle Sprain</td>
<td>June 19, 2007</td>
<td>1 week</td>
</tr>
<tr>
<td>6</td>
<td>Vertigo</td>
<td>December 7, 2007</td>
<td>1 year, 7 months</td>
</tr>
</tbody>
</table>

**Medical History 2000 — 2007**

- **March 7, 2000**
  - 40 today
- **April 4, 2000**
  - Monday
  - Immunization: Tetanus & Diphtheria Toxoids
  - 50 mcg intramuscular injection
  - Mild pain or soreness in the local area
- **March 7, 2001**
  - 41 today
- **May 8, 2000**
  - Monday
  - Immunization: Influenza Virus Vaccine
  - 50 mcg intramuscular injection
  - Possible flu-like symptoms for three days
- **July 19, 2000**
  - Wednesday
  - Office Consultation
  - with Dr. Balu Venkatacharan at Ashby Medical Center
  - Pregnancy observed
- **October 28, 2001**
  - Saturday
  - Emergency Department Visit
  - with Dr. Henry Seven at Community Hospital
- **March 7, 2002**
  - 42 today

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**Medical Conditions**

While the health planner looks at what is happening in the future, and medications look at the present, medical conditions examine the medical history for an individual.

By listening items in a chronological order instead of grouping by functional type **cause and effect** can be seen (for example new medications prescribed following lab results) and **context** can bring an otherwise complex list of data to life.

Additionally, presenting items in a timeline format immediately helps start to tell a story about the individual.

For example, a medical professional reviewing the history may notice the Emergency Department visit during pregnancy and **emphasize** with the patient the stress they would have experienced.

**Problem List**

A quick summary of resolved and active problems gives a high-level view of the individual.

A medical professional can then drill down deeper into the medical history for more detailed information and possible context around the problem.

**Color**

Color is used sparingly so that when it is used it has even greater emphasis.
Birthdays are shown on the timeline as a natural way to show the age at onset for a problem, and also as a reminder for individuals to provide some context around appointments and medical events.

Showing birthdays also helps create a rhythm to the timeline and illustrate periods where there has been no medical events (itself interesting information.)

Give context of problems

Have events occurred in the recent past for this patient (procedures, medication?) that may be associated with a newly observed problem?

What actions were taken after the onset of a problem? e.g. example a prescription of a new medication or ordering of a lab test.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 17, 2005</td>
<td>Office Consultation (follow up)</td>
<td>with Dr Bala Venktaraman at Ashby Medical Center</td>
</tr>
<tr>
<td>March 28, 2005</td>
<td>Emergency Department Visit</td>
<td>with Dr Henry Seven at Community Hospital</td>
</tr>
<tr>
<td>October 14, 2005</td>
<td>Vertico observed</td>
<td>Feels dizzy while at work</td>
</tr>
</tbody>
</table>

Diabetes observed
- Insulin NPH Human (100 u/ml injection)
  - Inject 16 units under the skin every morning and inject 18 units at bedtime
  - Prescribed by Ashby Medical Center

Ankle sprain observed
- Slipped on ice and fell
- Acetaminophen with codeine (liquid)
  - 2 puffs / once a day
  - Prescribed by Ashby Medical Center

"Yesterday"

Context / Stories
Grouping data chronologically instead of by type (e.g. encounters, problems or prescriptions) tells a story that is greater than the sum of all it's parts.
# Lab Results

A simple grid-based layout with careful use of text alignment can convey a rich amount of information to health professionals while at the same time providing a clear layout of details for a patient.

## Test order

Ordering of test results from critically high → high → normal → low → critically low could help professionals interpret results\(^1\).

## High & Low Valves

Color and text alignment indicate if the value for this test is low, critically low, high, or critically high.

## Lab Results: Renal Panel

<table>
<thead>
<tr>
<th>TEST</th>
<th>LOW</th>
<th>TARGET RANGE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>110</td>
<td>136</td>
<td>145</td>
</tr>
<tr>
<td>Glucose</td>
<td>65</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>Creatinine EGFR</td>
<td>58</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Creatinine</td>
<td>1.4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Urea Nitrogen</td>
<td>6</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Chloride</td>
<td>98</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Potassium</td>
<td>3.6</td>
<td>5.1</td>
<td>50</td>
</tr>
<tr>
<td>Calcium</td>
<td>8.6</td>
<td>10.5</td>
<td>150</td>
</tr>
</tbody>
</table>

## Target Ranges

The target range is shown by the shaded area. Edges are labeled with low and high bounds for the range.

Careful use of text alignment (left, centered, right aligned) provides additional visual information about if the value is in the high or low end of the target range.

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\(^1\) Unless tests have a standard convention of order or there is a purposeful order of tests with relationships to each other, e.g. Creatinine and Creatinine EGFR.
Lipid Panel Results

### November, 2000

<table>
<thead>
<tr>
<th>TEST</th>
<th>LOW</th>
<th>TARGET RANGE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>119</td>
<td>&lt;200</td>
<td>mg/dl</td>
</tr>
<tr>
<td>HDL</td>
<td>39</td>
<td>40+</td>
<td>mg/dl</td>
</tr>
<tr>
<td>Cholesterol, NON–HDL</td>
<td>76</td>
<td></td>
<td>mg/dl</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>49</td>
<td>&lt;150</td>
<td>mg/dl</td>
</tr>
<tr>
<td>LDL</td>
<td>66</td>
<td></td>
<td>mg/dl</td>
</tr>
</tbody>
</table>

Current value for cholesterol is high, but the last 2 tests showed values in the normal target range.

### November, 2003

<table>
<thead>
<tr>
<th>TEST</th>
<th>LOW</th>
<th>TARGET RANGE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>180</td>
<td>&lt;200</td>
<td>mg/dl</td>
</tr>
<tr>
<td>HDL</td>
<td>60</td>
<td>40+</td>
<td>mg/dl</td>
</tr>
<tr>
<td>Cholesterol, NON–HDL</td>
<td>76</td>
<td></td>
<td>mg/dl</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>112</td>
<td>&lt;150</td>
<td>mg/dl</td>
</tr>
<tr>
<td>LDL</td>
<td>149</td>
<td></td>
<td>mg/dl</td>
</tr>
</tbody>
</table>

Current value for HDL is normal, but two tests ago it was low.

### November, 2005

<table>
<thead>
<tr>
<th>TEST</th>
<th>LOW</th>
<th>TARGET RANGE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>&lt;200</td>
<td>240</td>
<td>mg/dl</td>
</tr>
<tr>
<td>HDL</td>
<td>43</td>
<td>40+</td>
<td>mg/dl</td>
</tr>
<tr>
<td>Cholesterol, NON–HDL</td>
<td>76</td>
<td>&lt;150</td>
<td>mg/dl</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>&lt;150</td>
<td>202</td>
<td>mg/dl</td>
</tr>
<tr>
<td>LDL</td>
<td>241</td>
<td></td>
<td>mg/dl</td>
</tr>
</tbody>
</table>

Current value for cholesterol is high, but the last 2 tests showed values in the normal target range.
Example record for Ellen Ross follows with sample data provided from:
http://blue-button.github.com/challenge/files/more-fields.txt

Personal Health Record
Ellen Ross

Known Allergies

- **SEVERE REACTIONS**
  - Bee stings. Causes anaphylactic shock
  - Peanuts. Causes anaphylactic shock

- **MODERATE TO SEVERE REACTIONS**
  - Penicillin. Causes hives
  - Latex. Causes hives & difficulty breathing

- **MODERATE REACTIONS**
  - Codeine. Causes shortness of breath
  - Dogs/Pets. Causes sneezing and running nose

- **MILD REACTIONS**
  - Pollen. Causes watery eyes, itchy nose (self-reported)
Known Allergies

- **SEVERE REACTIONS**
  - **Bee stings.** Causes anaphylactic shock
  - **Peanuts.** Causes anaphylactic shock

- **MODERATE TO SEVERE REACTIONS**
  - **Penicillin.** Causes hives
  - **Latex.** Causes hives & difficulty breathing

- **MODERATE REACTIONS**
  - **Codeine.** Causes shortness of breath
  - **Dogs/Pets.** Causes sneezing and running nose

- **MILD REACTIONS**
  - **Pollen.** Causes watery eyes, itchy nose *(self reported)*

Your Details

- **Born**
  - March 7, 1960

- **Languages Spoken**
  - English, Spanish

- **Ethnicity**
  - Asian

- **Gender**
  - Female

- **Marital Status**
  - Married

- **Religious Affiliation**
  - Christian

- **Primary Contact Details**
  - Phone (415) 555-1229
  - 17 Daws Road, Portland, OR 97006

- **Guardian’s Contact Details**
  - Martha Shan *(sister)*
  - Phone (816) 276-6909
  - 1357 Amber Drive, Beaverton, OR 97006
Upcoming Dates

**May 28**
Office Consultation
9:30 a.m. at Ashby Medical Center
Consultation with Dr. George Potomac for Asthma

Sputum Culture
10:00 a.m. at Ashby Medical Center

**June 1**
Chest X-Ray
9:00 a.m. at Ashby Medical Center

**June 16**
Refill prescriptions this week
Indomethacin (50 mg Tablet)
℞ 271 89 54
Prescribed by Ashby Medical Center

**July 3**
Compensation & Pension Appointment
11:00 a.m. at Ashby Medical Center
With Dr. Eliza Morrin

To-do

1. Schedule Colon Cancer Screening
   Schedule with Ashby Medical Center

2. Schedule Influenza Vaccination
   Schedule with Ashby Medical Center
   Last completed May 8, 2000

Your Healthcare Providers

Ashby Medical Center • Phone: (415) 555-1200 • Visit: 1002 Healthcare Dr, Portland, OR 97266
### Prescribed Medications

<table>
<thead>
<tr>
<th>Take</th>
<th>Liquid</th>
<th>How Often</th>
<th>Notes</th>
<th>Ashby Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 puffs</td>
<td>Acetaminophen with Codiene</td>
<td>each day</td>
<td>2 puffs once a day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pill</td>
<td>Lipitor</td>
<td>each day</td>
<td>one pill a day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 mg</td>
<td>Indomethacin</td>
<td>2 times per day</td>
<td>50mg bid with food</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pill</td>
<td>Klonopin</td>
<td>2-3 times a day</td>
<td>2-3 times per day</td>
<td>June 15, 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Self Reported

**Ginko Biloba**
- Two capsules taken once a day
- Take in the morning with breakfast

**Asprin EC 81 mg tablet**
- One tablet daily
- Daily regime for heart health

<table>
<thead>
<tr>
<th>Taken Since</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 15, 2005</td>
</tr>
</tbody>
</table>
### Overview of Medical Conditions

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Date</th>
<th>Age</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pregnancy</td>
<td>March 7, 2000</td>
<td>40</td>
<td>9 months</td>
</tr>
<tr>
<td>2</td>
<td>Cholecystitis</td>
<td>March 7, 2001</td>
<td>41</td>
<td>13 months</td>
</tr>
<tr>
<td>3</td>
<td>Migraine Headaches</td>
<td>July 19, 2000</td>
<td>42</td>
<td>4 years, 3 months</td>
</tr>
<tr>
<td>4</td>
<td>Diabetes</td>
<td>May 8, 2000</td>
<td>41</td>
<td>2 years, 2 months</td>
</tr>
<tr>
<td>5</td>
<td>Ankle Sprain</td>
<td>October 28, 2001</td>
<td>45</td>
<td>1 week</td>
</tr>
<tr>
<td>6</td>
<td>Vertigo</td>
<td>March 7, 2002</td>
<td>42</td>
<td>1 year, 7 months</td>
</tr>
</tbody>
</table>

### Medical History

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 7, 2000</td>
<td>40 today</td>
</tr>
</tbody>
</table>
| April 4, 2000 | Immunization: Tetanus & Diphtheria Toxoids  
50 mcg intramuscular injection  
Mild pain or soreness in the local area |
| March 7, 2001 | 41 today                                                             |
| May 8, 2000  | Immunization: Influenza Virus Vaccine  
50 mcg intramuscular injection  
Possible flu-like symptoms for three days |
| July 19, 2000 | Office Consultation  
with Dr. Bala Venktaraman at Ashby Medical Center  
Pregnancy observed |
| October 28, 2001 | Emergency Department Visit  
with Dr. Henry Seven at Community Hospital |
| March 7, 2002 | 42 today                                                             |

*medical history continues on next page*
Gall Bladder Surgery
with Dr. Bala Venktaraman at Ashby Medical Center

September 28, 2002
Saturday

Indomethacin (50 mg Tablet)
50 mg / two times per day
Prescribed by Ashby Medical Center

December 10, 2003
Wednesday

Migrane Headaches observed
Blinding pain and sensitivity to light

February 4, 2003
Monday

ACL Surgery
with Dr. John Kindle at Ashby Medical Center

March 7, 2004
44 today

March 7, 2005
45 today

March 10, 2005
Thursday

Office Consultation
with Dr. Bala Venktaraman at Ashby Medical Center

Lab Results: Renal Panel

<table>
<thead>
<tr>
<th>TEST</th>
<th>LOW</th>
<th>REFERENCE RANGE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>8.6</td>
<td>10.5</td>
<td>150</td>
</tr>
<tr>
<td>Potassium</td>
<td>3.6</td>
<td>5.1</td>
<td>50</td>
</tr>
<tr>
<td>Creatinine</td>
<td>0.5</td>
<td>1.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Urea Nitrogen</td>
<td>6</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Glucose</td>
<td>65</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>Chloride</td>
<td>96</td>
<td>98</td>
<td>108</td>
</tr>
<tr>
<td>Creatinine EGFR</td>
<td>58</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Sodium</td>
<td>110</td>
<td>136</td>
<td>145</td>
</tr>
</tbody>
</table>

medical history continues on next page
March 17, 2005
Office Consultation (follow up)
with Dr. Bala Venktaraman at Ashby Medical Center

4
Diabetes observed

Insulin NPH Human (100 u/ml injection)
Inject 16 units under the skin every morning and inject 18 units at bedtime
Prescribed by Ashby Medical Center

March 28, 2005
Emergency Department Visit
with Dr. Henry Seven at Community Hospital

5
Ankle sprain observed
Slipped on ice and fell

Acetaminophen with codeine (liquid)
2 puffs / once a day
Prescribed by Ashby Medical Center

October 14, 2005
Vertico observed
Feels dizzy while at work

March 7, 2006
46 today

March 7, 2007
47 today

May 8, 2007
Today
Thank you
Thank you for this interesting challenge!