...and I have struggled with DATEDIFF()
Large academic medical center (Bronx, New York), 11th Largest provider in the U.S.

- 4 hospitals, 1491 beds
- 94,000 discharges
- 300,000 ED visits
- 21 clinics, 2.6M clinic visits

- 225,000 covered lives through IPA

- Pioneer ACO

- University Hospital of the Albert Einstein College of Medicine
One tool to unify:

- Diabetes, Asthma mgmt
- LOS, hospital workflow
- Readmission

- 40+ articles
- $18M grant awards

- Resident Training
- CME at Montefiore

- 700 active users
- 5K analysis/month
CLG Study

Groups

Analysis

Male diabetics

2 year survival

Female diabetics

% days A1C in control

5 yr visit hx per MD
What % of new diabetic patients were controlled in the year 2010? 4 / 10 = 40%
Alignment: cohort study design

Diabetes Control

0 = index date
(start therapy)

+ = outcome
(achieve lab value)

0 - + = patient experience

(same data, re-sorted)

What % of new diabetic patients were controlled within 1 year? 5 / 10 = 50%
Recapitulate research in the Bronx

Risk of Adverse Outcomes Associated With Concomitant Use of Clopidogrel and Proton Pump Inhibitors Following Acute Coronary Syndrome

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Li Wang, MS
Stephan D. Fihn, MD, MPH
Robert L. Jeske, MD, PhD
Eric D. Peterson, MD, MPH
John S. Rumsfeld, MD, PhD

Context  Prior mechanistic studies reported that omeprazole decreases the platelet inhibitory effects of clopidogrel, yet the clinical significance of these findings is not clear.

Objective  To assess outcomes of patients taking clopidogrel with or without a proton pump inhibitor (PPI) after hospitalization for acute coronary syndrome (ACS).


Main Outcome Measures  All-cause mortality or rehospitalization for ACS.

Results  Of 8205 patients taking clopidogrel after discharge, 63.9% (n = 5244) were prescribed PPI at discharge, during follow-up, or both and 36.1% (n = 2961) were not prescribed PPI. Death or rehospitalization for ACS occurred in 20.8% (n = 615) of patients taking clopidogrel without PPI and 29.8% (n = 1561) of patients taking clopidogrel plus PPI. In multivariable analyses, use of clopidogrel plus PPI was associated with an increased risk of death or rehospitalization for ACS compared with use of clopidogrel alone.

JAMA, March 4, 2009—Vol 301, No. 9 937
## Demo

<table>
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<th>Studies, Cohorts, Outcomes</th>
<th>Concepts</th>
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<tr>
<td>Clopidogrel and PPI</td>
<td>Study Designer</td>
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<td>Multi-group comparison</td>
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<td>Statistics (Relative Risk, baseline)</td>
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<td>HIPAA challenge for PHI</td>
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<td>GROUPS:</td>
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<td>ICU Pain Mgmt</td>
<td>WHEN IN system duration</td>
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<td>Event Collections</td>
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</tbody>
</table>
Advanced temporal complexity

- Logical subgroups
- AND/OR/NOT
- Temporal rules b/w events
- Anchor events in calendar time
- Group definition
- Outcome definition
DISCUSSION

Ask me later about:

- **Time in Range (TIR) method**
  - Track lab or finding values over time
  - Interpolate between observations
  - Summarize time the value was in given quality ranges

- **Predictive Analytics Modeling**
  - Temporal requirements for data procurement

- **CLG Automation via API**
More Info

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