



Informatics for Health 2017

Venue : Manchester, UK

Date : 24th - 26th April 2017

Extracting evidence from clinical free text: opportunities and challenges

Clinical Free Text

ALLERGIES: To IV contrast, penicillin for which she has a hive reaction, valproic acid and sulfa drugs. Demerol causes hypertension.

FAMILY HISTORY: Her mother died from complications from hypertension. Her father died from a cerebrovascular accident.

OTHER DIAGNOSES PERIPHERAL VASCULAR DISEASE, HYPERTENSION.



Routinely collected narrative data

Clinician notes, letters are part of routinely collected data

- People communicate most efficiently in narrative text
- Not everything can be captured in pull-down menus or check-lists
- Codes and terminologies can be difficult to navigate – even for experts

What's in clinical narrative?

Diseases, problems, symptoms

acute dizziness, nausea

Anatomy

upper eyelid, tongue, throat

Drugs/medications

steroids, desloratadine, zoladex

Adverse drug events

differentiate from symptoms

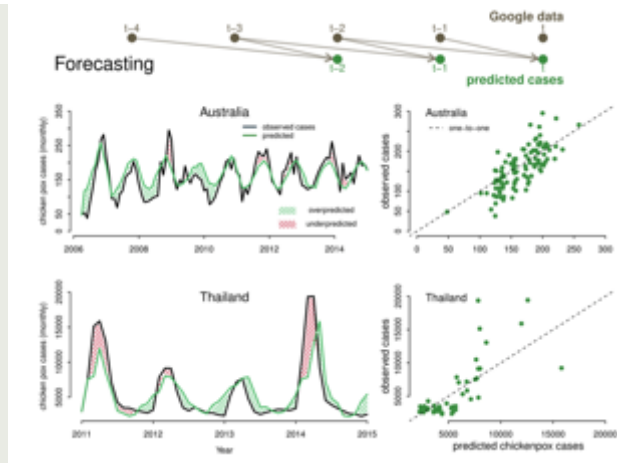
Diagnostic/therapeutic procedures

hysterectomy

Behaviour/quality of life

anxiety, problems at work, poor sleep

What use cases we have?



State of the art

Progression of CAD Risk Factors in Diabetic Patients Results

	Min	Mean	Median	Max	Std. Dev.
Micro Precision	.455	.808	.852	.913	.119
Micro Recall	.203	.835	.908	.969	.175
Micro F1	.305	.815	.872	.928	.145
Macro Precision	.455	.800	.849	.914	.121
Macro Recall	.258	.834	.904	.968	.162
Macro F1	.365	.812	.870	.928	.137

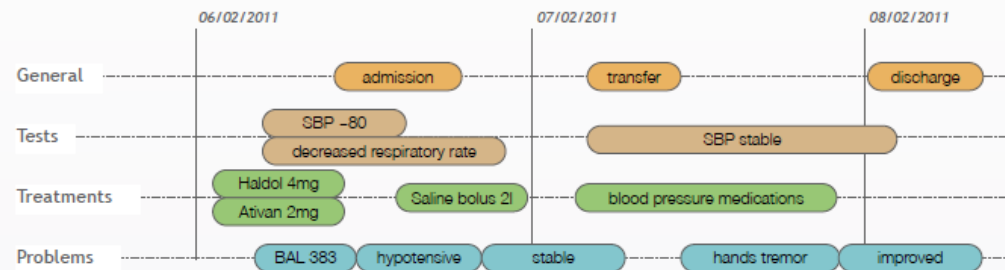
i2b2 2014 challenge

Where are the challenges and barriers?

ADMISSION DATE: 2011-02-06;

DISCHARGE DATE: 2011-02-08;

HISTORY OF PRESENT ILLNESS: Mr. Pohl is a 53 - year-old male with history of alcohol use and hypertension. Blood alcohol level was 383. Agitated in emergency room requiring 4 leather restraints, received 5 mg of Haldol, 2 mg of Ativan. He became hypotensive in the emergency room with a systolic blood pressure in the 80 's and had decreased respiratory rate. He received a normal saline bolus of 2 litres of good blood pressure response. The patient was then admitted to the medical Intensive Care Unit for observation and then transferred to our service on medicine when the blood pressures remained stable overnight...



What next – how to proceed?



What next – how to proceed?

- HEXAnord in the Nordic and Baltic countries
- GMDS in Germany
- UK's Healtex

Plan

Introduction

Examples of clinical text mining projects

Break out session

Plenary discussion