ARCHITECTURE OF A DECISION SUPPORT SYSTEM

AN APPLICATION TO LIVER DISEASES

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Introduction: Making a diagnosis

- Signs
- Symptoms
- Test results

Disease A
- Z
- A

Disease B
- D
- E
- X

Disease C
- Q
- C
What is special about the liver?

Disease A
- 36
- 90.1

Disease B
- 11.8
- 455
- 667

Disease C
- 2073
- 1389
Background

Geneva – Clinical Information System (CIS):

- Strong expertise (“in-house” development)
- High flexibility of the CIS
- High number of cases processed

Liver diseases:

- High prevalence
- High morbidity/mortality
- Laboratory values relevance
Our project

Goals:

• Improve clinician’s interpretation of abnormal liver function tests and patients’ management

Aimed characteristics:

• Safe
• Autonomous
• Integrated in clinical workflow
• Easy to use
Functioning

1. **Laboratory values** → **DATA**
2. **Algorithm**
3. **Diagnosis**: A, B, C
4. **Drugs**
5. **Patterns**
6. **Match vs No match?**
   - **CDSS Report**
Algorithm

Architecture

- Tree-like classifier
- Knowledge based

Characteristics

- 11 different biological parameters
- 24 diseases
- >100 hepatotoxic drugs
- 8 patterns of Drug Induced Liver Injury (DILI)
Example and Results: Drugs

Patient possibly suffering from Acute Hepatitis with **Minocycline** as a possible cause of the abnormality.

Future: Implementation and Test in 2012 (hopefully)
Outcome
Integration in clinical workflow
Autonomous
Safe
Thanks for your attention...

“We are not interested in the fact that the brain has the consistency of cold porridge.”

Alan Turing