Medical Sapiens

Web System for

Medical Diagnosis Support

www.medicalsapiens.cl
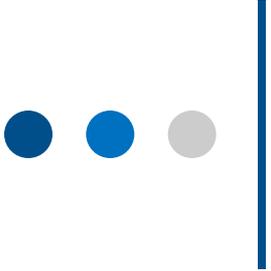
Medical Sapiens Team

- Claudio Garuti:
  - Civil Engineer, MSc. 30 years studying & problem modelling with AHP/ANP

- Mario Sandoval:
  - Medical Doctor MSc. 30 years of Internal Medicine.

- Franca Oppici:
  - Computer Engineer, 30 years of software development.

- Pablo Ahumada:
  - Computer Engineer, 30 years of software development.

- Fernando Manzano:
  - Industrial Engineer, 20 years of business administration

History

- Team uses AHP/ANP to address complex problems since 1990..

- The idea responds to collect the experience of great masters of medicine, add evidence-based medicine and create a system with cardinal measure that synthesizes both sources.

How?

Pair-Comparing: Diagnosis Pattern vs Patient Profile

¿ How much they look alike?
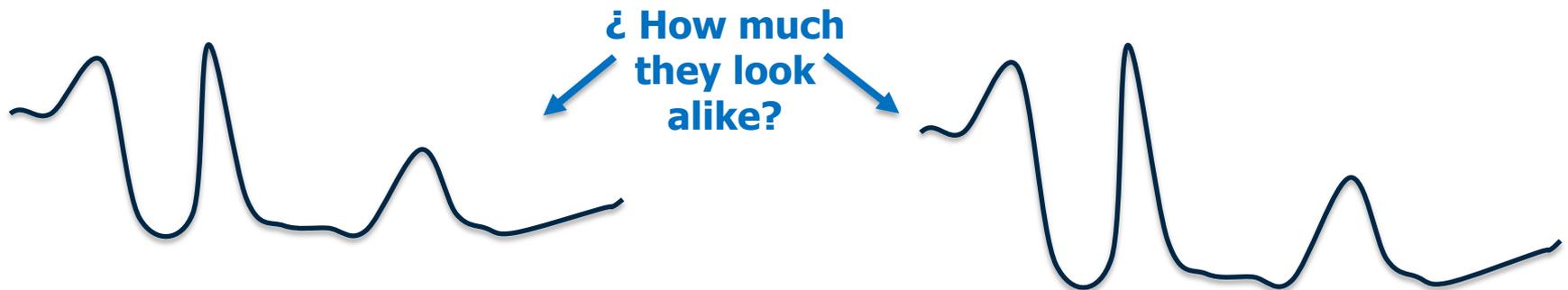
Example

Compatibility between patient disease & medical diagnosis patterns

w1 fever	w2 pain	w3 anguish	w4 evolution	w5 coffee	w6 secretion	w7 allergy	w8 Tobacco	w9 HTA	w10 Diabetes

Weighted Criteria

Scales Of Intensity

Matching Disease B
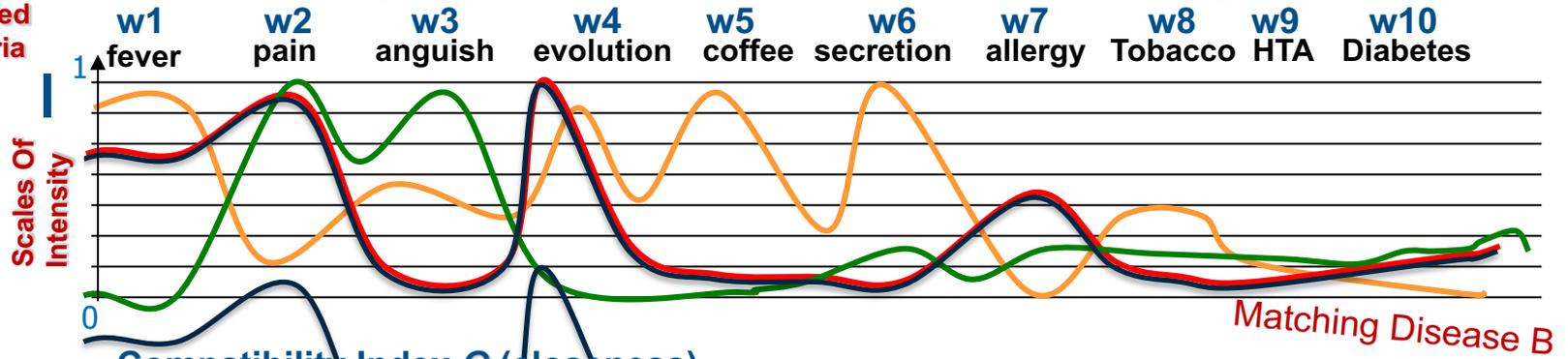
Compatibility Index *G* (closeness)

Disease A	----------	**10% (hepatitis)**
Disease B	----------	**97% (irritable colon)**
Disease C	----------	**73% (ulcer)**
Disease D	----------	**15% (common flu)**
Disease E	----------	**18% (H1N1)**
Disease F	----------	**55% (colitis)**
Disease G	----------	**…% (…..)**

Patient X ---------- **= Disease B (*G*=97%>90%)**
                        (most certain diagnose: *Irritable Colon*)

Compatibility Index (*G*) measures closeness between disease's profile and patient's profile

Note: Higher compatibility implies higher certainty that the patient presents the disease.
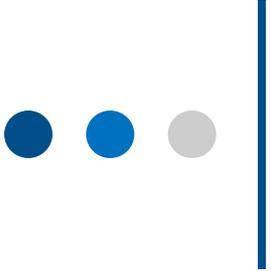
Medical Sapiens System

1. Provides a list of possible diagnoses ordered according to the G-compatibility index to a possible disease.
    (G index = index of closeness based on order topology)

2. Indicates feedback to refine the diagnostic result

3. Create a patient's medical history

4. Record symptoms and signs

5. Stores demographic data

6. It is flexible to create new presentations of diseases and / or new diseases   (creates new recognition patterns).

Note: Points 1, 2 and 6 are the basis of an AI system.
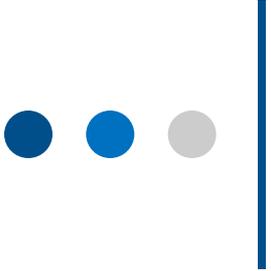
Scalability

- Connection with other systems:
  - Existing clinical records (interconnectivity)
  - UpToDate, Clinical Key, or any.. (treatments)
  - Vademecum (pharmacy)
- Apply Artificial Intelligence to:
  - Detect new diseases or presentations of these
  - Improve weight of signs and symptoms
  - Shorten the diagnostic gap
- Information data for statistics (Analytics)
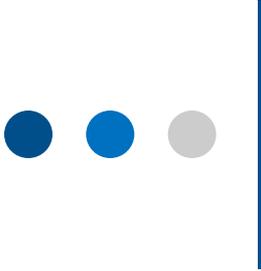
Replicable in Different Countries

- WEB System

- Adaptable to other languages (interface translation)

- Adaptable to local language (local name of the disease, symptoms and/or signs)

- Easy to add specific geographic zone diseases

VISITING THE WEB SITE