Prevention of age-related disabilities : frailty ouptpatient clinics presentation and technological opportunities

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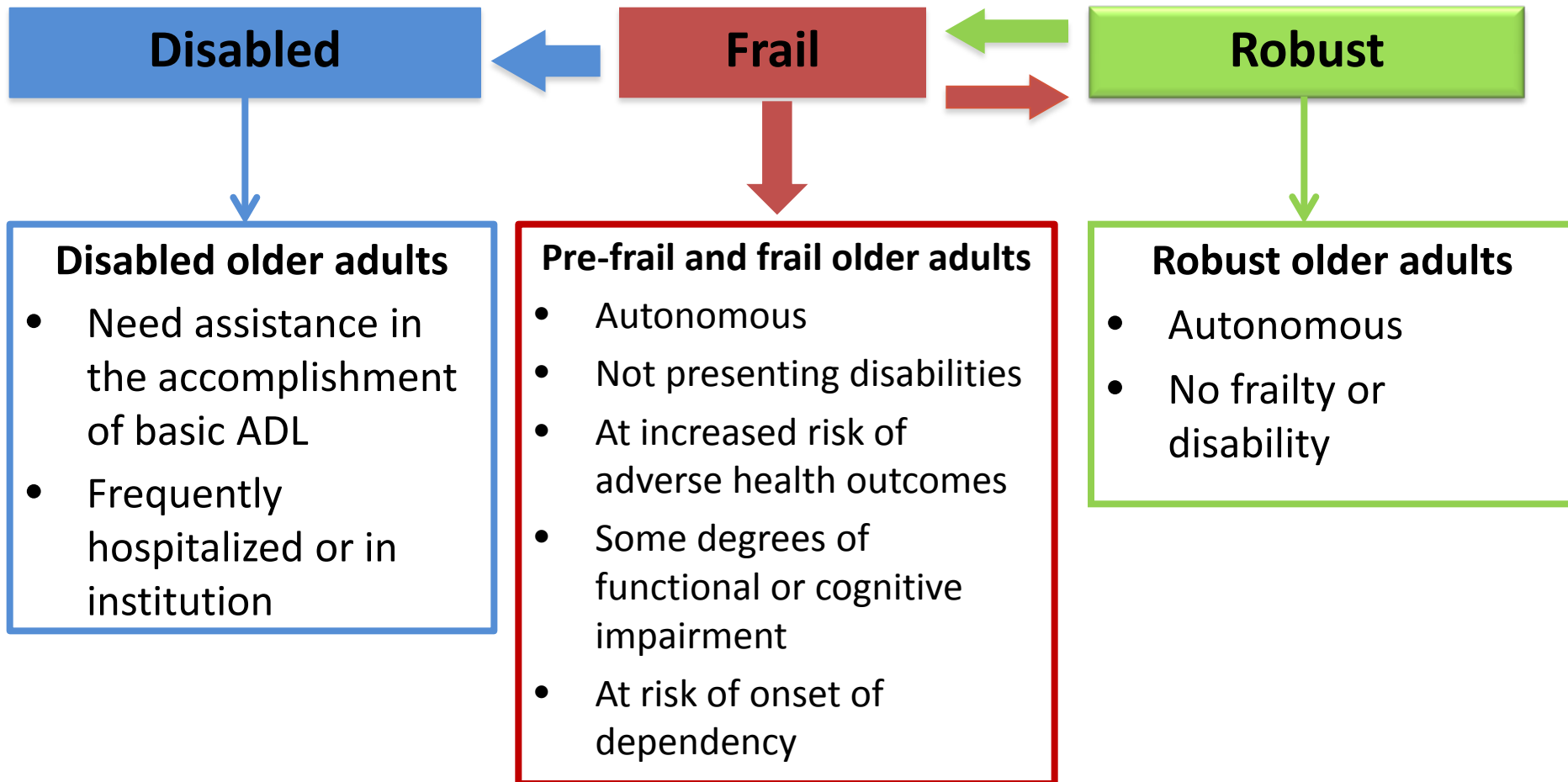
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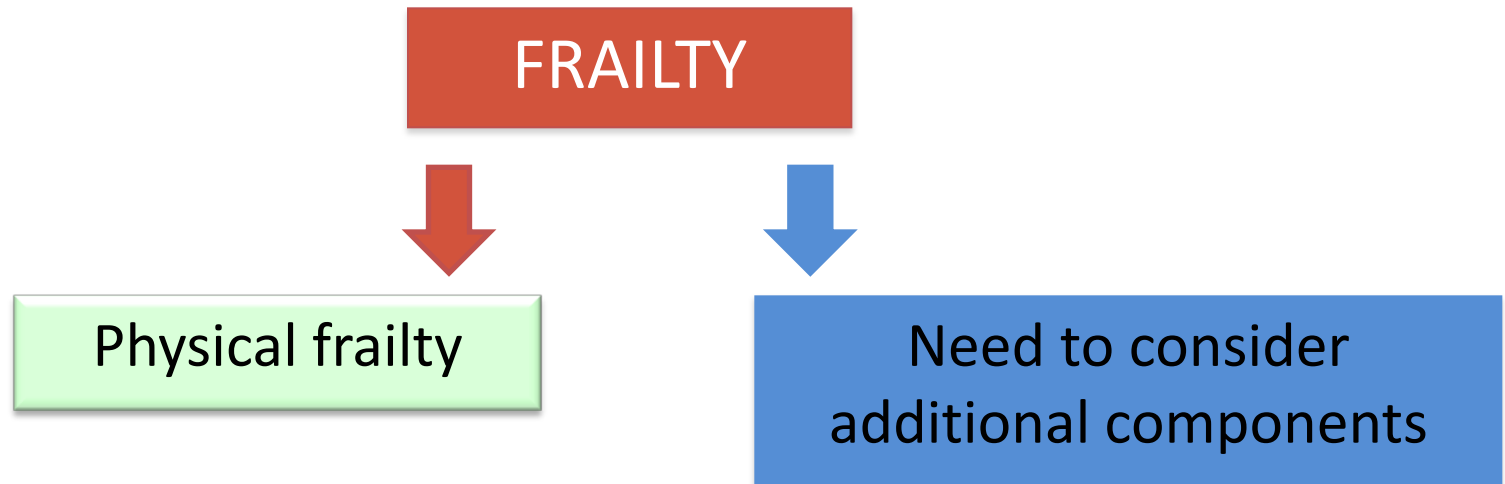3- Université de Toulouse, UTM, LAAS, F-31400 Toulouse, France

- **The frailty syndrome**

- The Platform for Evaluation of Frailty and Prevention of Disability

- Technological opportunities

Three subgroups of older adults

Disabled ← **Frail** ⇄ **Robust**

Disabled older adults
- Need assistance in the accomplishment of basic ADL
- Frequently hospitalized or in institution

Pre-frail and frail older adults
- Autonomous
- Not presenting disabilities
- At increased risk of adverse health outcomes
- Some degrees of functional or cognitive impairment
- At risk of onset of dependency

Robust older adults
- Autonomous
- No frailty or disability

Operational clinical criteria

FRAILTY

Physical frailty

Need to consider additional components

5 Fried Frailty Criteria (Fried 2001)
- Weakness
- Low energy
- Slow walking speed
- Low physical activity
- Weight loss

➤ **Cognitive impairment without dementia**
(Langlois and al. Int Psychogeriatr, 2012; Langlois and al. J Gerontol B Psychol Sci Soc Sci , 2013, Gray and al. J Gerontol A Biol Sci Med Sci, 2013; Samper-Ternent and al. J AM Geriatr Soc, 2008)

➤ **Poor social conditions and support**
(Lang and al. J Am Geriatr Soc, 2009, Andrew and al. PLoS One, 2008)

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Platform for Evaluation of Frailty and Prevention of Disability

In close connection with general practitioner

Multidisciplinary evaluation:

Identification of specific causes of frailty

→

Perzonalized preventive intervention program:

- Nutrition

- Physical exercise

- Social support

- Education

→

Phone contact and structured interview:

Assessment of the efficacy of the interventional plan

→

Reassessment after one year

- The frailty syndrome

- The Platform for Evaluation of Frailty and Prevention of Disability

- **Technological opportunities**

At each stage....

- Screening
- Diagnostic
- Therapeutic interventions
- **Follow up and adherence**
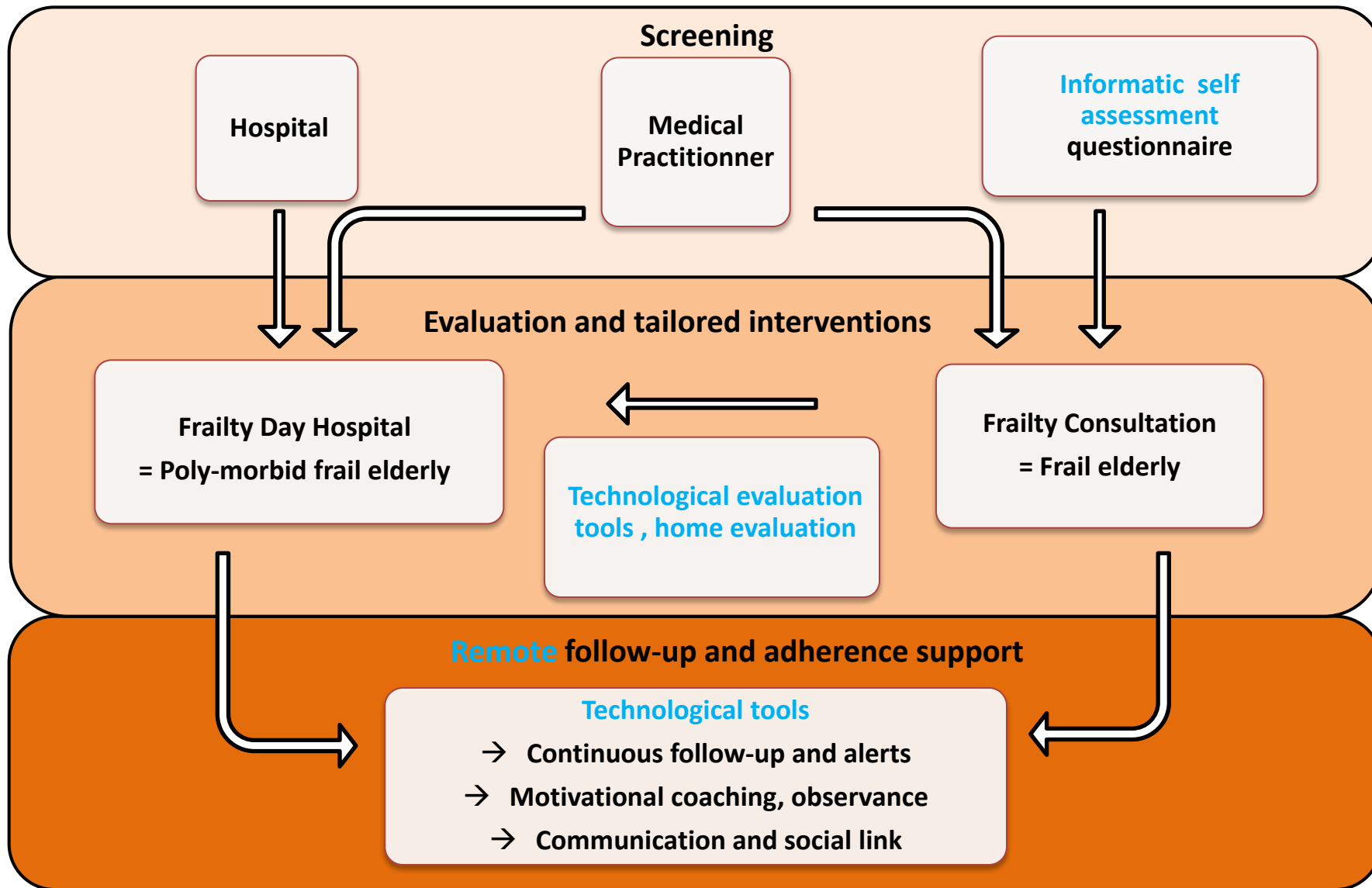- Research

Diagnostic and interventions

- Technological tools could potentially improve the diagnostic :
  → More accuracy
  → Automation to save medical time?
  → **Ecological assessment (e.g. sensors) at home, to limit bias**

- And also interventions :
  → Coordination of multidimensionnel intervention
  → Remote intervention at home: E-learning

Follow-up and adherence

- Remote monitoring (worn sensors) of frailty criteria allow us to :

  → Accurately assess patient's evolution,

  → React before autonomy loss (artificial intelligence).

- After the hospital evaluation frail elderly are all alone to perform physical interventions.

  → ICT for remote coaching together with worn sensors to provide feedback could support interventions implementation.

Technological support for frail and pre-frail intervention

Screening

Hospital

Medical
Practitionner

**Informatic self
assessment** questionnaire

Evaluation and tailored interventions

Frailty Day Hospital

= Poly-morbid frail elderly

**Technological evaluation
tools , home evaluation**

Frailty Consultation

= Frail elderly

Remote follow-up and adherence support

Technological tools

→ **Continuous follow-up and alerts**

→ **Motivational coaching, observance**

→ **Communication and social link**

- **Motivational coaching**
- **Personal objectives adaptation**

Geriatrician

- **Feedback**
- **Motivational coaching**

Internet

Telecare platform

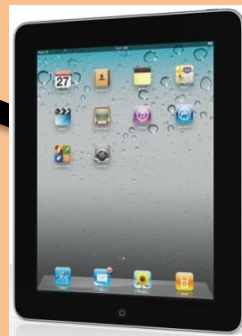**Touch pad**

Sensors

- **Frailty indicators follow-up**
- **Observance follow-up**
- **Interventions follow-up**
- **Alerts**