Living healthy and active in an ageing Europe

"Cognitive component in the frailty syndrome (Action A3)"

Laura Calzà

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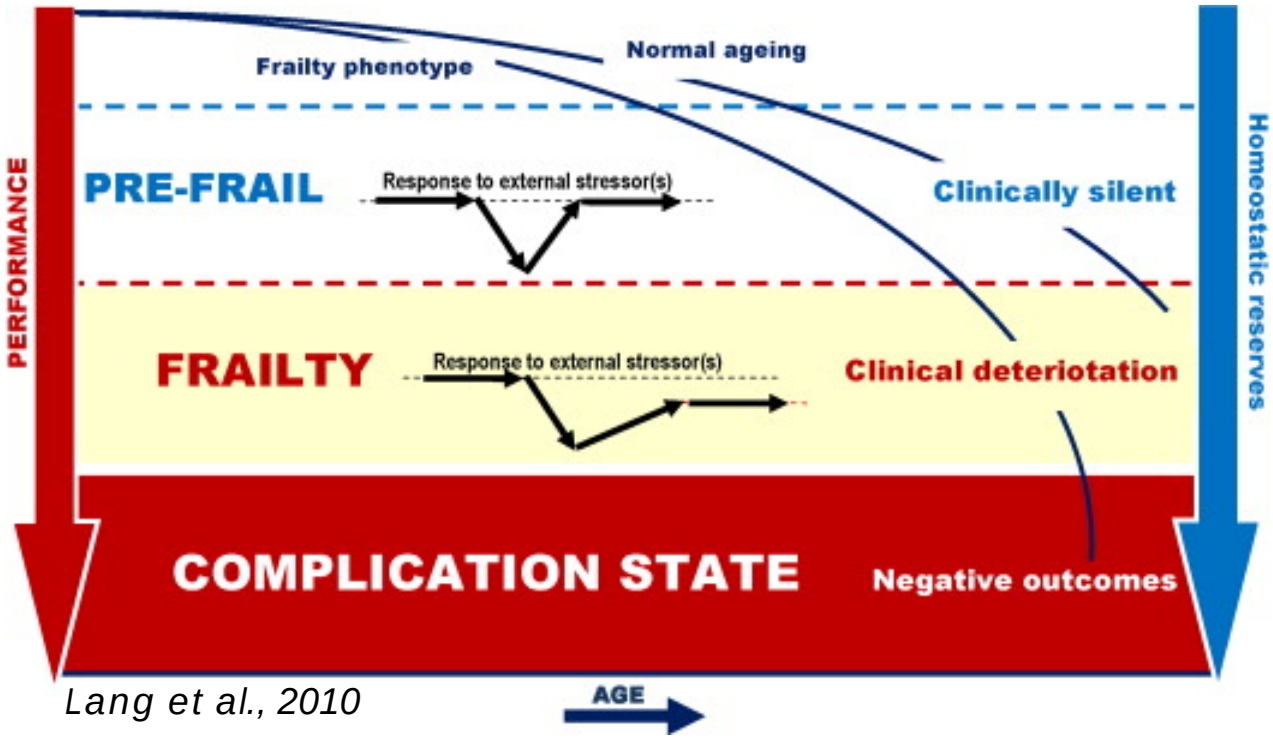
Frailty: a multidimensional condition

In a common medical sense, the frail elderly have an advanced age, chronic pathologies, clinical instability and a certain degree of disability. The condition of "pre-frailty" is present when only a few frailty factors are observed.

In Italy, there are one million frail patients whose number will double in next 20 years (ISTAT 2006)



Lang et al., 2010

Regione Emilia-Romagna

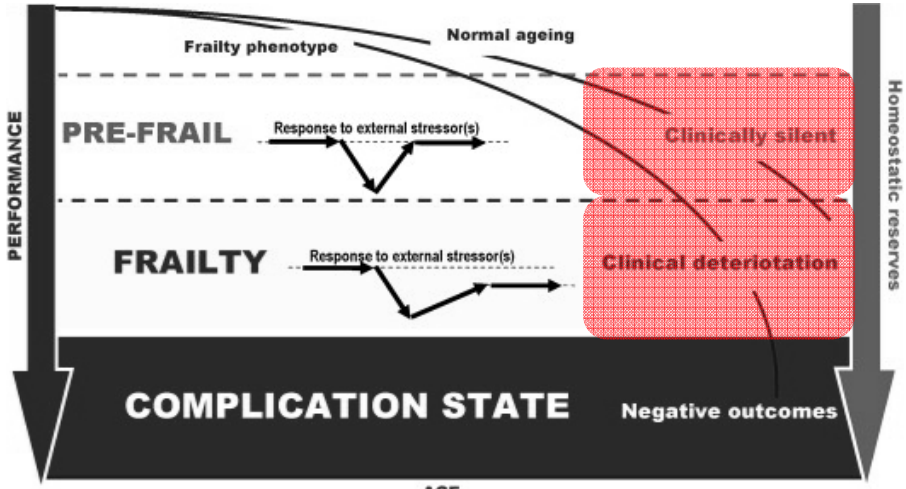
Social domain: socio-economic context of the elderly

Physical domain: Strength (handgrip), Walking speed, weight loss, Easily exhausted, physical activity…..

Ex: Short Physical Performance Battery, SPPB

Cognitive domain

Ex: Cognitive status evaluated with the Short Portable Mental Status Questionnaire (SPMSQ)



Lang et al., 2010

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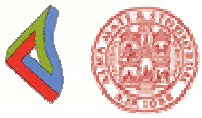
Social domain

1)filtering and aggregating of pre-existing health-clinical-administrative databases originally built for other studies
E-care; FSE; rete SOLE

2) analysing socially-critical situations and extrapolating common health and working traits helping disease outbreak

3) using proper and validated tools to quickly highlight frailty traits in a population base yet unknown to socio-sanitary services



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Physical domain

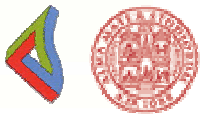
1) To spread the use of the **simple functional evaluation tools** in the everyday clinical practice in the different clinical settings of the regional health system also according to comorbidities

2) To implement more **objective tools** for physical performance assessment (i.e. wearable and ambient sensors)

3) To realize the rational (and **indices**) for the development and implementation of intervention aimed at preventing functional decline, hospitalization and disability in older frail people

4) Maximise use of **ICT** to deliver **screening**, triage, assessment

5) Use the same ICT platform to deliver and monitor **treatment** / rehabilitation interventions at scale



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Cognitive domain

Table 1. Alzheimerology in 2020

Risk assessment at around age 50 and then every 10 years:
History (emphasizing family history) and neurological exam
Brief cognitive screen and neuropsychological testing
Gene screen on "AD risk chip" (+ other familial dementias)
Imaging—Aβ scan, tau scan, MRI
Blood "Aβ antibody challenge": basal and evoked Aβ levels
CSF assays for Aβ, tau, and other biomarkers
Outcome: a numerical AD risk score

Holtzman et al, 2012

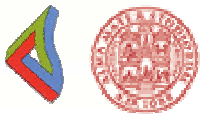
Screening

Brief test at GP level

New cognitive tests

Extensive use of ICT devices

Validation programs



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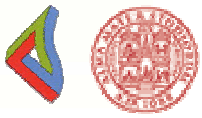
Cognitive domain

Validation for a screening use of neuropsychological tests which are widely employed in our territory: Clock Drawing Test (CDT), MMSE, MoCa, 3O3P, Gpcog,

Development of a new screening technique based on the discourse analysis and computational analysis of linguistic corpora

Implementation of a brief test battery on tablet for ICT platforms

OPLON project (OPportunities for active and healty LONgevity), smart cities



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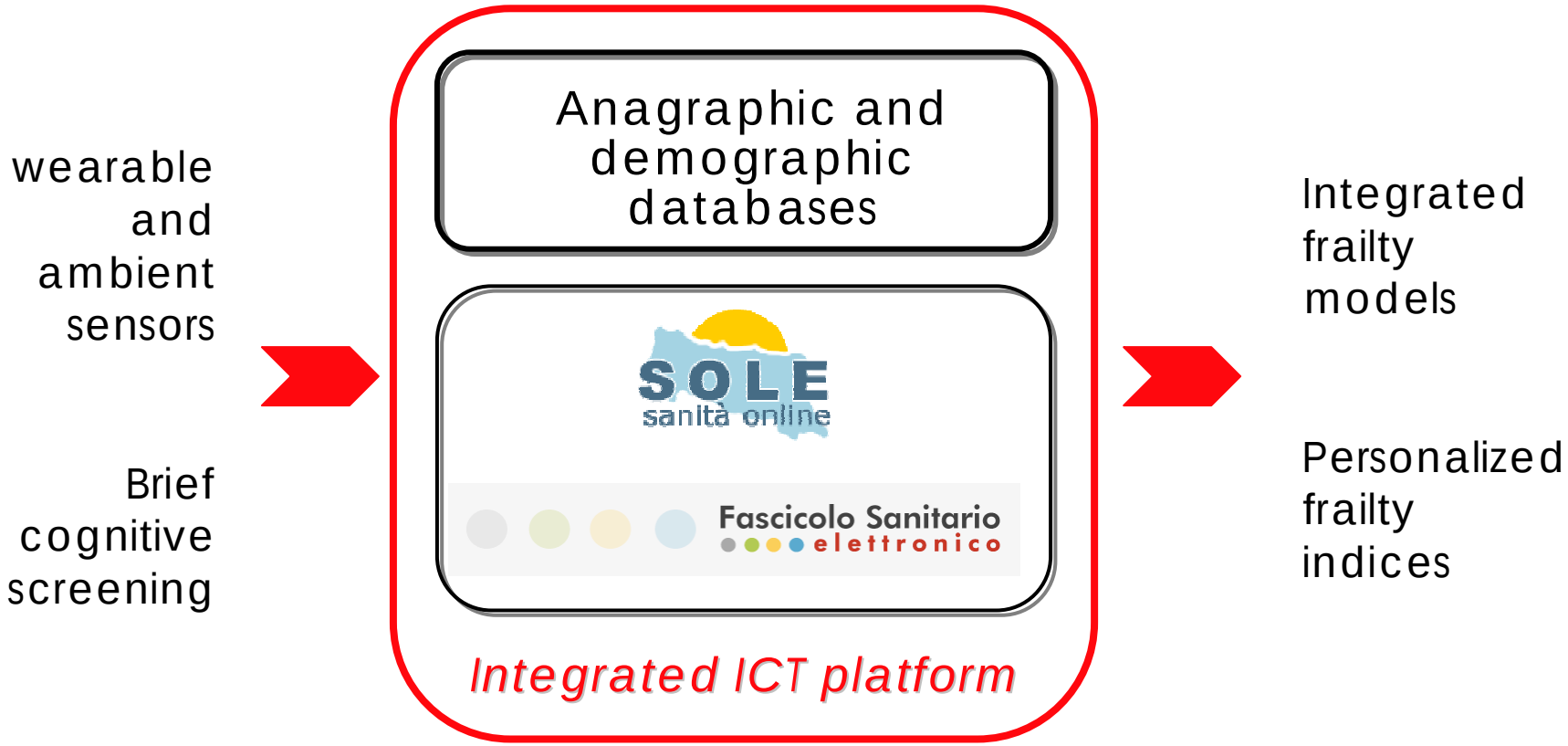

PRODUCTS

1. new brief cognitive tests for screening based on ICT devices;
2. personal and ambient devices for objective evaluation of physical performance;
3. new guidelines for pre- and frailty recognition through personalized index;
4. new guidelines for secondary and tertiary prevention related to frailty risk index.