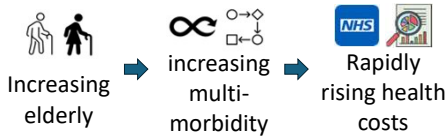# THECOSYSTEM

EE730

A System-wide Health And Social Care Decision Analytical Model To Assess Population-based Interventions For Older People's Care In The United Kingdom

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BACKGROUND

Increasing elderly → increasing multi-morbidity → Rapidly rising health costs

INTRODUCTION

Key problem:

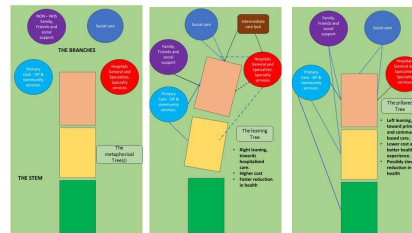How can **health systems** assess the **costs** and **effects** of **interventions** that **benefit communities**?

AIM

To develop a **model** that captures the costs & **health & social care resource use. And perform an economic evaluation** of community-based interventions **for older people in the UK.**
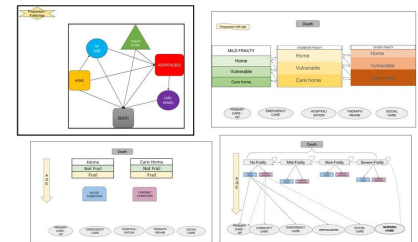
SCOPING REVIEW

- Studies that used **frailty** or assessed health and social **care usage**.
- 6010 records screened - **19** included from 1998 -2023.
- **Themes** - Falls, emergency prevention, hospital at home, telemonitoring, dental services
- Most studies (16) had 2 or 3 services being studied.
- **Six** were UK-based.
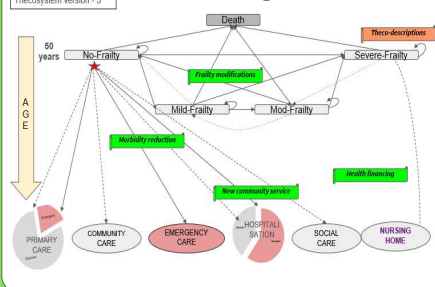- **One** had frailty as a clinical state or primary driver.

THECOSYSTEM

ITERARTIVE MODELS

FINAL MODEL

INPUTS

Secondary evidence and primary data analysis for:

- Baseline distribution
- Transitions
- Service use
- Costs, QALYs
- Frailty (Electronic Frailty index) &
- Age-groups.

INTERVENTION TYPES

1. Frailty retardation (Multifactorial exercise Program) *Spain Tarazona-Santabalbina et al : 2016*
2. Morbidity reduction (Fall prevention program) *Cochrane review 2019.*
3. Hospital At Home initiatives *Cochrane review 2024*
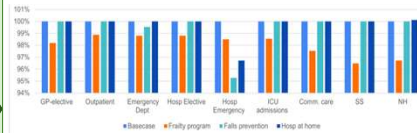4. Financing policy (hypothetical)

RESULTS

Basecase and IT results of costs and outcomes

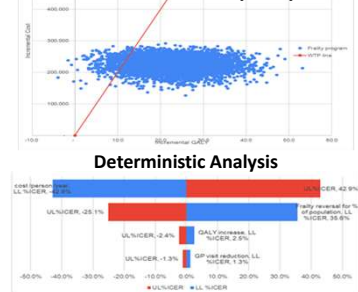| INTERVENTION	Life years	QALYs	HS-Costs	Intervention cost	Total Costs	INC-Costs	INC-QALYs	ICER
Hosp at home	2,046	1,097	12,025,563		15,140,786			
Basecase	2,046	1,097	12,045,803		15,163,067	22,282	0.15	149,400
Financing	2,046	1,097	10,841,222		15,163,067			Basecase
Falls prevention	2,046	1,098	11,965,424	503,590	15,578,680	415,613	1.46	Dominated
Frailty program	2,057	1,120	11,841,072	463,267	15,378,795	215,727	23	9,366

Frailty retardation programs were the most cost-effective option.

Comparison of services used

Frailty retardation programs have the most reduction in service use

Probabilistic Sensitivity analysis

Deterministic Analysis

CONCLUSIONS

- THECOSYSTEM provides **projections** of a population and service needs with **versatility** to study multiple **scenarios**.
- **Preventive** interventions that **reduce the progression of frailty** provide better outcomes in cost-effectiveness and service use.
- This proof of concept opens the dialogue for more **health-system based models** that can evolve to needs of policymakers.

Feedback & Author Bio

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