Experience from the Netherlands:
How the System and Policy Stimulate Innovation in Elderly Care Models, Technology and Products

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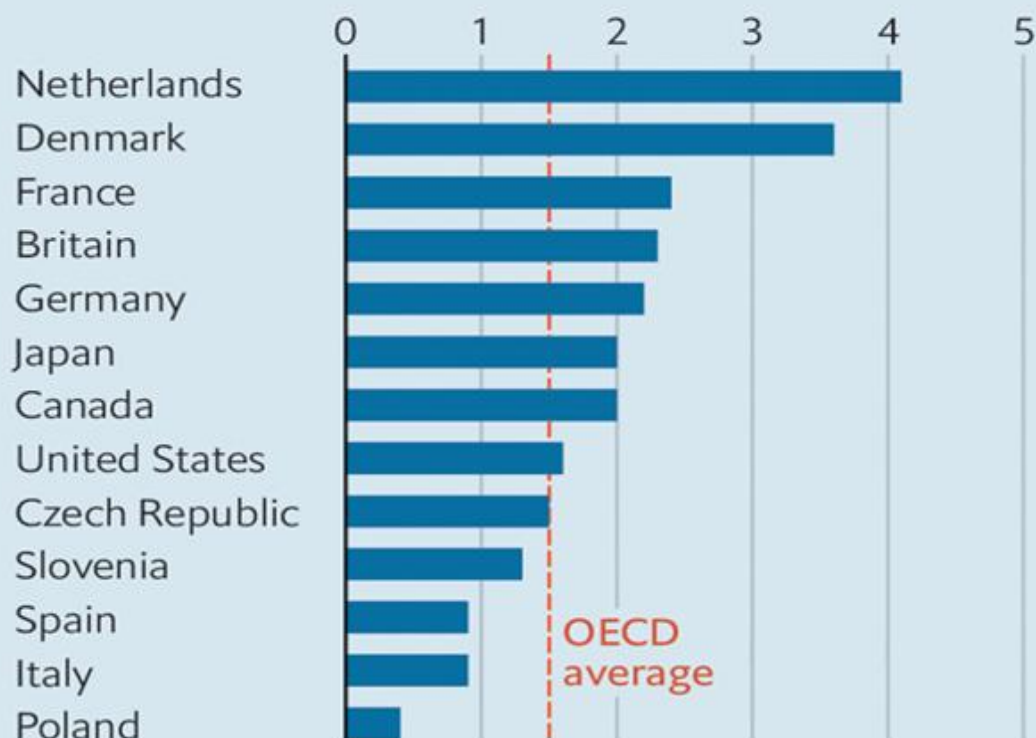
Section I: Welcome to the Netherlands!

DUTCH POPULATION	17.2 MILLION
Population 75+	1,4 million (8% of pop.)
Oldest Old Support Ratio (ratio 50-74 vs. 85 y/o)	15
Population 75+ living alone	660.000
Gross Domestic Product (GDP)	EUR 700 billion / CNY 5.5 trillion
Health expenditure	> 10% of GDP
Long-term care expenditure (health) by government and mandatory health insurance	4% of GDP
Total number of people employed in the healthcare field	1,2 million (13% of working population)

Some care more than others

Total long-term care spending as % of GDP
2019 or latest available year

Country	Spending
Netherlands	~4.1
Denmark	~3.6
France	~2.4
Britain	~2.3
Germany	~2.2
Japan	~2.0
Canada	~2.0
United States	~1.6
Czech Republic	~1.5
Slovenia	~1.3
Spain	~0.9
Italy	~0.9
Poland	~0.4

OECD average

Source: OECD

The Economist

Can rich countries care for the old without going bust? | The Economist

Denmark and the Netherlands hope technology and planning will bail them out

August 4th 2022

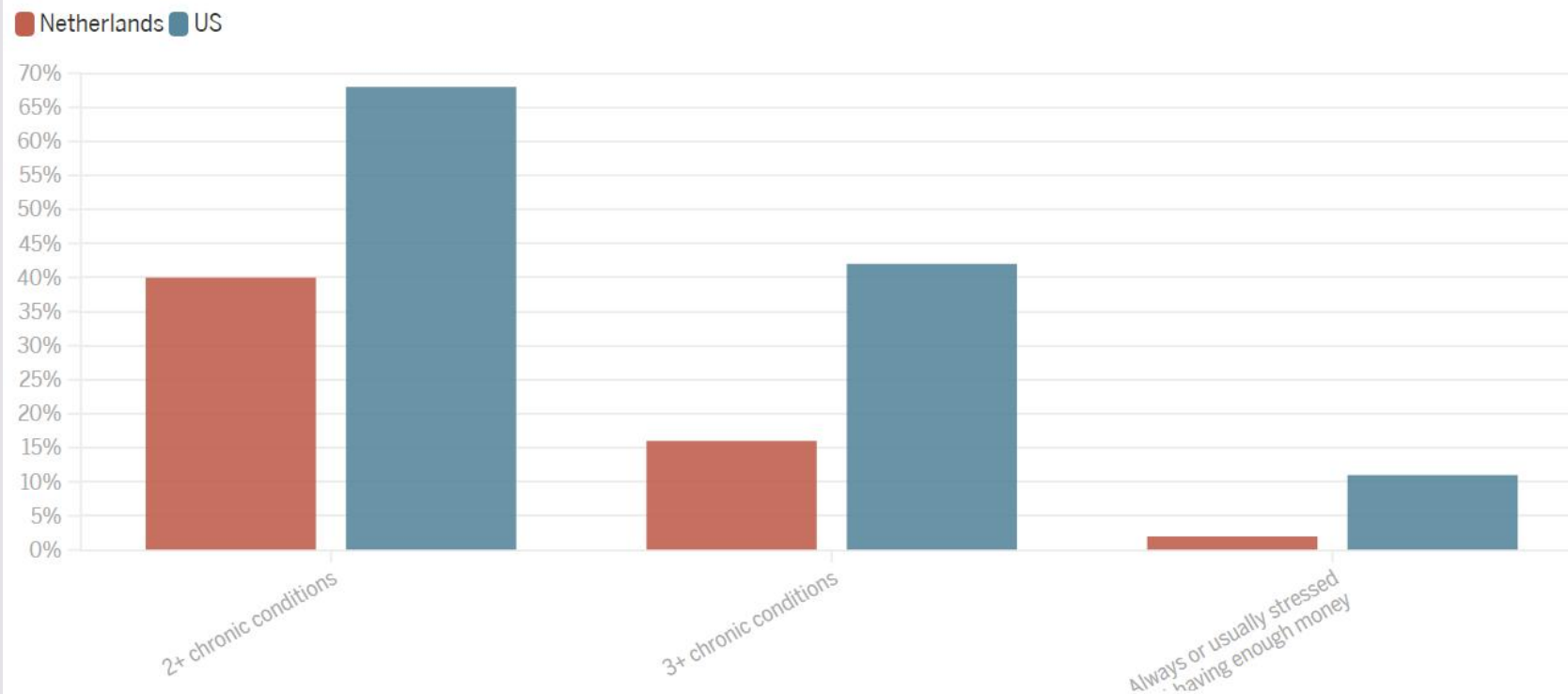https://www.bostonglobe.com/2022/08/18/world/netherlands-national-plan-makes-aging-long-term-care-priority/

Dutch older adults are healthier and less stressed about paying the bills

Sixty-eight percent of Americans over 65 reported two or more chronic health conditions versus 40 percent of their Dutch counterparts, while 2 percent of Dutch over 65 and 11 percent of Americans were stressed about having enough money for food, rent or bills.

■ Netherlands ■ US

Source: 2021 Commonwealth Fund International Health Policy Survey of Older Adults. • 630 respondents in the Netherlands and 1,609 in the United States were surveyed.
Christina Prignano/Globe staff

Data suggest that big spending pays dividends in:
- happier,
- healthier and
- longer lives

August 18, 2022

Section I: Welcome to the Netherlands!

Act	Health Insurance	Social Support	Long Term Care	Public Health
What?	Insurance for all	Pers. solutions	**24h care & supervision**	Prevention and health promotion
By whom?	Insurers (package by law)	Municipalities	**MoH, Care Assessment Agency, Healthcare Admin Office**	Central gov. Local health auth
Who is paying?	RMB 812/month RMB 2604 excess 5,75-7% income - 18: gvmt HC allowance	Municipal fund	**9,65% income tax (solidarity) Co-payment (income) Gvmt tops up**	National budget Municipal fund
Elderly care?	District nursing + temp care at home. Geriatric rehab. Aids and facilities (dementia)	General support, eg. domestic help. Provider or pers. budget	**Stay in a care facility Personal care Care for self-reliance Nursing care, treatment Transport**	Screenings (colon cancer) Vaccines

Section I: Welcome to the Netherlands!

Long-term Care Act (LTCA), effective as of 2015

Who: permanent or 24-hour home care

What:
- ✓ Stay in a care facility
- ✓ Personal care: washing, dressing, using toilet, etc.
- ✓ Care that increases self-reliance: assisting sturcturing the day
- ✓ Nursing care: tending to wounds, injections
- ✓ Treatment: (para)medical, behaviour treatment specific condition
- ✓ Transport to / from day program & day treatment

Section II: Prevention (increase quality of life, reducing hc expenditure)

Ministry of Health Welfare and Sport (VWS) Municipalities join forces → **municipal public health services** (GGD, in Dutch)

Policies

- Organized through **public health act**
- Monitors and stimulates health
- E.g., screenings and vaccinations
- National Prevention Agreement 2018

Practical implementation

- **Master Vitality and Ageing: open to China**
- …

Training and education

- Physician 'society and health'
- **Fall prevention training (eg Otago practice pgm)**

Research

- Prevention programmes: evidence, implementation, innovation
- Cohort studies (Lifestyle)
- Academic workplaces
- **Nutrition for healthy ageing**

Technological innovation

- Mobile applications
- E-health supported by **Artificial Intelligence (AI): eg PERISCOPE platform for prevention of post-surgery complications**
- **Lifestyle monitoring** for dementia

Section II: Integrated Care (networks)

1990s: integrated care provision. Care = personalized + complementary care domains: care prof, GP, med spec, physical therapists, …
Goal: support **needs** & **wishes** + increase the **quality of life of the individual**

Policies

- People-centred: multidimensional/multidisc
- Shift **from care to social** support perspective
- Programs: diabetes 2, vascular risk management, COPD, dementia, frail elderly …

Training & education

- Part of most health care education programmes
- Integrated care case management
- **Online Free Learning – Integrated Care**

Practical implementation

BUURTZORG

umcg

- Neighbourhood care
- Medical and social
- Patient-centric home nursing
- Regain independence
- Smart ICT back-office
- number of care hours/patient 34% lower than market average
- Home hc cost / client / year = 20% less than oher providers
- Overhead 8% vs 25%
- 10 cities in China

Research

- Conducted in **care networks**, e.g., **cardiovascular** disease network, **dementia**
- Also in universities and knowledge and research institutes

Technological innovation

omaha system support

MedMij

Guardian

PERSONAL HEALTH TRAIN

- Electronic Client Record
- Access health data
- Smart glasses
- Smart incontinence material
- **Airbags around the hips**

Section II: Care at Home (affordable high quality tech, role nurses)

Policies

- People-centred: multidimensional/multidisc
- Shift **from care to social** support perspective
- Programs: diabetes 2, vascular risk management, COPD, dementia, frail elderly …
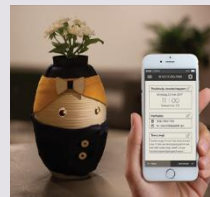
Training & education

- Free learnings: practical & soft skills
- Elderly clients: self-management (**seniorweb**)

Social care and support, **medical devices**, **nursing care + personal care** provided to independently-living people with impairments.
Household help, adult day care, primary care, district nursing

Practical implementation

- Personal Medication Card: monitoring medication from a distance
- **Social care robot Tessa: self-reliance of people w/dementia**

Research

- National database & research panel
- GPs & paramedics

Technological innovation

- Screen-to-screen care
- Social robotics
- Electronic client records
- **Medicine dispensers: saves RMB 6203/M/client/insurer**

Section II: Dementia Care (tech & social innovations, high standard –care-homes)

Major **socio-economic challenge**, will **grow exponentially**.

Policies

- 'National Dementia Strategy **2021-2030**' (in Chinese!)
- *A world without dementia*
- *Persons w/ dementia matter*
- *Tailor-made support*
- = > Innovation: tech + social

Training & education

- Geriatric specialists
- Dementia case manager
- Dementia care in community: also in **China**

Practical implementation

- Care farms
- CRDL: **interactive instrument**
- Care Quality + Quality of Life

Research

- 'Memorabel', R&D + innovation w/ > RMB 464M
- NL consortium dementia cohorts
- Brain bank (1985)
- Biomarkers, imaging, CDV, genetics, neuroscience
- Social health
- **ABOARD: early diagnostics**

Technological innovation

- E.g., Magic Table, smart diapers
- JAIN challenge: competition for eHealth and **AI**

Bed sensor:

- Insight into elderly lying quietly in bed, out of bed, in same position for long time
- Helps, for example, to prevent falls and pressure ulcers (bedsores)
- Helps to adapt care plan + interventions
- Application gives daily and weekly overviews

Target group:

- Intramural dementia care
- Dementia: groups 8-12 residents, common living room
- People with disabilities in group home

Financing:

Long Term Care Act

Soft benefits

- Better night rest
- More personal (morning) care
- More privacy due to fewer checks
- More active client during the day
- Better insight into sleeping behavior
- More rest in shifts for care worker
- More targeted interventions
- Better monitor interventions
- More job satisfaction

Hard benefits

- Fewer check-ups at night
- Fewer unnecessary checks
- Fewer false alarms
- Preventing falls
- Preventing pressure ulcers
- Targeted interventions
- Evaluating interventions
- Monitoring patterns
- More time for care moments

Electronic Access Management / Control:
- Opening the door (with permission).
- Electromagnetic lock to open or close the door (smart door locks).
- Authorizations per care organization and user per door, day and period.
- Electronic key safe on the outside of the house
- Opening the locker with a card or tag or remotely with an app.

Target group:
- Home care (planned care).
- Elderly with personal alarms at home
- Care provider in case of an emergency
- Preventing entering another room.

Financing:
- Long Term Care Act
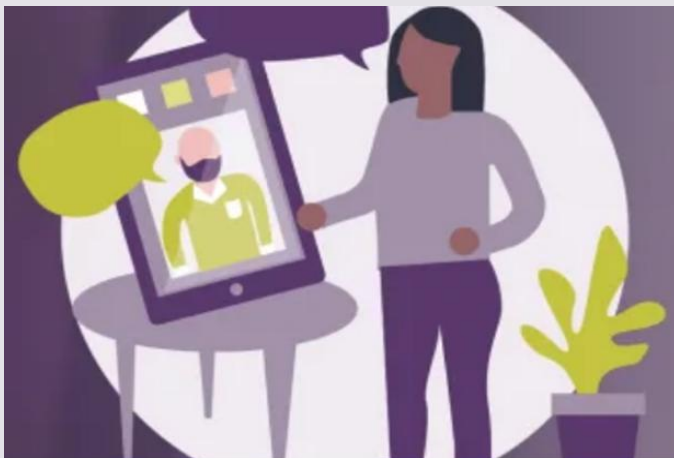
Soft benefits
- *For electronic safe and electromagnetic lock:*
  - Privacy in intramural use.
  - Access control.
  - Faster deployment of professionals.
  - More logging data

- *Only for electromagnetic lock:*
  - Sense of security for elderly

Hard benefits
- Less travel time
- Faster access to the home
- Less administration costs.

Videoscreen care:

- Remote assistance with general, daily activities via a screen with a camera.
- Via a tablet or laptop.
- Monitor and camera allow to see and speak to each other.

Target group:

- Elderly living at home with cognitive, psychological or somatic problems.
- People with disabilities living at home.
- People with chronic diseases (COPD, diabetes, heart failure, ...).

Financing:

- Health Insurance Act
- Social Support Act
- Long Term Care Act

Soft benefits

- More personal control for the client
- More digital contact moments
- Peace and tranquility for care/relatives
- Increased sense of safety for client
- Increased well-being (psychosocial)

Hard benefits

- Less travel time
- More capacity to help other clients
- Shortened care moments/treatment
- Possible prevention of care (prevention and early detection)
- Deployment of employees at home

Hip Airbag:

- Belt or pants with air cushions on both sides of hip ensuring a soft landing
- Sensors in belt monitor every movement and immediately recognize a fall.
- CO_2 cartridges in belt cause airbags to inflate. After a fall, replacement of cartridges.

Target group:

- Elderly with an increased risk of falling
- Elderly in wheelchairs
- Elderly with the urge to walk.

Financing:

- Social Care Act
- Long Term Care Act

Soft benefits

- Greater sense of freedom
- Rest for the client
- Greater sense of security
- Attention to specific fall policy.

Hard benefits

- Fewer care moments
- Possible prevention of care (prevention & early detection)
- Less consultation
- Less control/supervision.

[Prevention of hip fractures in older adults residing in long-term care facilities with a hip airbag: a retrospective pilot study (biomedcentral.com)](#)

Section III: Funding, which Act?

Life Style Monitoring:
- Insight into the lifestyle of people living alone with dementia.
- Sensors in different places in the home track activities (no cameras).
- Computer program analyzes the client's lifestyle for a number of weeks.
- System can show a striking deviation in the daily living pattern.
- Sensors connected to an online dashboard for dementia case manager.
- Informal carers can watch via an app.
- A traffic light system shows the findings (green, yellow, red)

Target group:
- People living alone with dementia
- Other neurodegenerative disease.
- Alzheimer, Parkinson, Huntington.

Soft benefits
- Rest for client
- More insight in and agreement on new information for care/relatives
- Reassurance for care/relatives
- More customization / tailor-made

Hard benefits
- Fewer care moments
- Less travel time
- Prevention & early detection
- Postponement of admission
- Enable Full Home Package / Modular Home Package.

- Timely identification and prevention of crisis situations
  - occurrence of urinary tract infection + delirium (confusion)
  - early detection of restlessness
  - tailor-made care based on data = fewer home visits

Financing:
- Health Insurance Act
- Social Support Act
- Long Term Care Act

Section III: Funding, which Act?

Medicine Dispenser:
- Device that prevents a client from forgetting to take medicine.
- Medication roll with bags of the medication for a specific time of the day.
- The pharmacy supplies the medication roll.
- The home care or informal carer regularly refills the medicine dispenser.
- Dispenser gives a sound and light signal.
- Informal caregiver, family or healthcare professional receive a notification.
- Associated app or a portal (website) for monitoring.

Target group:
- Elderly at home
- Dementia
- Parkinson's
- Rheumatism
- Nursing home (inpatient), increasingly.

Financing:
- Health Insurance Act
- Long Term Care Act

Soft benefits
- More self-management
- Elderly feel more independent
- Better management of medication

Hard benefits
- Decrease in care "burden"
- Less travel time
- More capacity for other elderly

Section III: Funding, which Act?

Support Day Structure:
- Personal daily planning (reminders for daily actions and appointments).
- Connection between the technology and the care file.
  - Screen: reminders appear in texts and symbols.
  - Social robot with some human features.
  - Combination of screen and social robot.

Target group:
- Memory loss (dementia)/brain damage.
- Mental condition (depression, autism)
- Korsakoff's syndrome
- Huntington's syndrome
- Intramural elderly.
- Support workload caregivers

Financing:
- Health Insurance Act
- Social Support Act (some municipalities)
- Long Term Care Act

Soft benefits
- More personal control
- Rest for elderly
- Peacefulness and reassurance for care/relatives
- Better regulation of medication/ensuring medication adherence

Hard benefits
- Lower care burden
- Less travel time
- More capacity for other elderly

Smart Incontinence Material:
- Carbon tracks linked to a sensor measuring incontinence material
- Internal or external sensor forwards info to an app.
- Care worker knows exactly when to replace the material.
- Reduces physical strain on healthcare workers (plus less urine odor).
- A lot of rest and less physical discomfort for elderly.

Target group:
- Elderly suffering from incontinence.
- Cannot indicate saturation
- Restless behaviour.

Soft benefits
- Less physical discomfort
- Tranquility for elderly
- Attention to incontinence care
- Less physical strain employees
- Less urine odor in the ward

Hard benefits
- Lower care burden
- Shortened care moments/treatment
- Prevention and early detection
- Less control/supervision of elderly
- Reduction of wet beds

Financing:
- Health Insurance Act (not all insurers)
- Long Term Care Act (demonstrate time saving)

Section IV: Take Aways

- Working side by side in reforming care for the elderly: elderly change, environment has to change
- New generation of elderly: *Life Travellers*, staying in control of their own lives and remaining meaningful
- "Thé elderly person" does not exist: no one-size-fits-all => diversity in approach and solutions
- Societal challenges: shortage of healthcare personnel, number of informal carers will drop, shortage of beds, care expenditure expected to double in 2040
- Future perspective:
  - Connecting care and support to needs of elderly & their environment
  - Self-management where possible; home where possible, digitally where possible
  - New concepts for housing, (day)care and activity centres
- Technology and innovation can:
  - improve the quality of life of the elderly and their environment
  - avoid increasing expenditures and
  - avoid a continuous increase in staffing in the elderly care sector.

  And yes, *cold technology* can lead to **warm care**

  If we replace i by we, then even illness becomes … wellness!