



Vaccinating  
Elderly for  
Healthy Ageing

# Vaccines and Infectious diseases in The Ageing population (VITAL)

Overview of the project

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# Challenge of Life Course Vaccination Strategy

## AGE GROUPS

## POLICIES

## EXAMPLES OF EXISTING VACCINES

OLDER ADULTS

- Limited recommendations
- Building on Influenza and Pneumococcal policies

Influenza virus  
Pneumococcus  
Varicella Zoster Virus



ADULTS

Generally occupational travel and risk-group focused

Diphtheria  
Hepatitis B Virus  
Influenza Virus  
Meningococcus A, B, C, Y and W135  
Pertussis  
Tetanus



ADOLESCENTS

National recommendations becoming stronger

Diphtheria, Tetanus  
Acellular Pertussis  
Human Papilloma Virus  
Meningococcus A, B, C, Y and W135



INFANTS  
&  
CHILDREN

Strong national and global recommendations in place

Diphtheria, Tetanus,  
Acellular Pertussis  
Human Papilloma Virus  
Meningococcus A, B, C, Y and W135



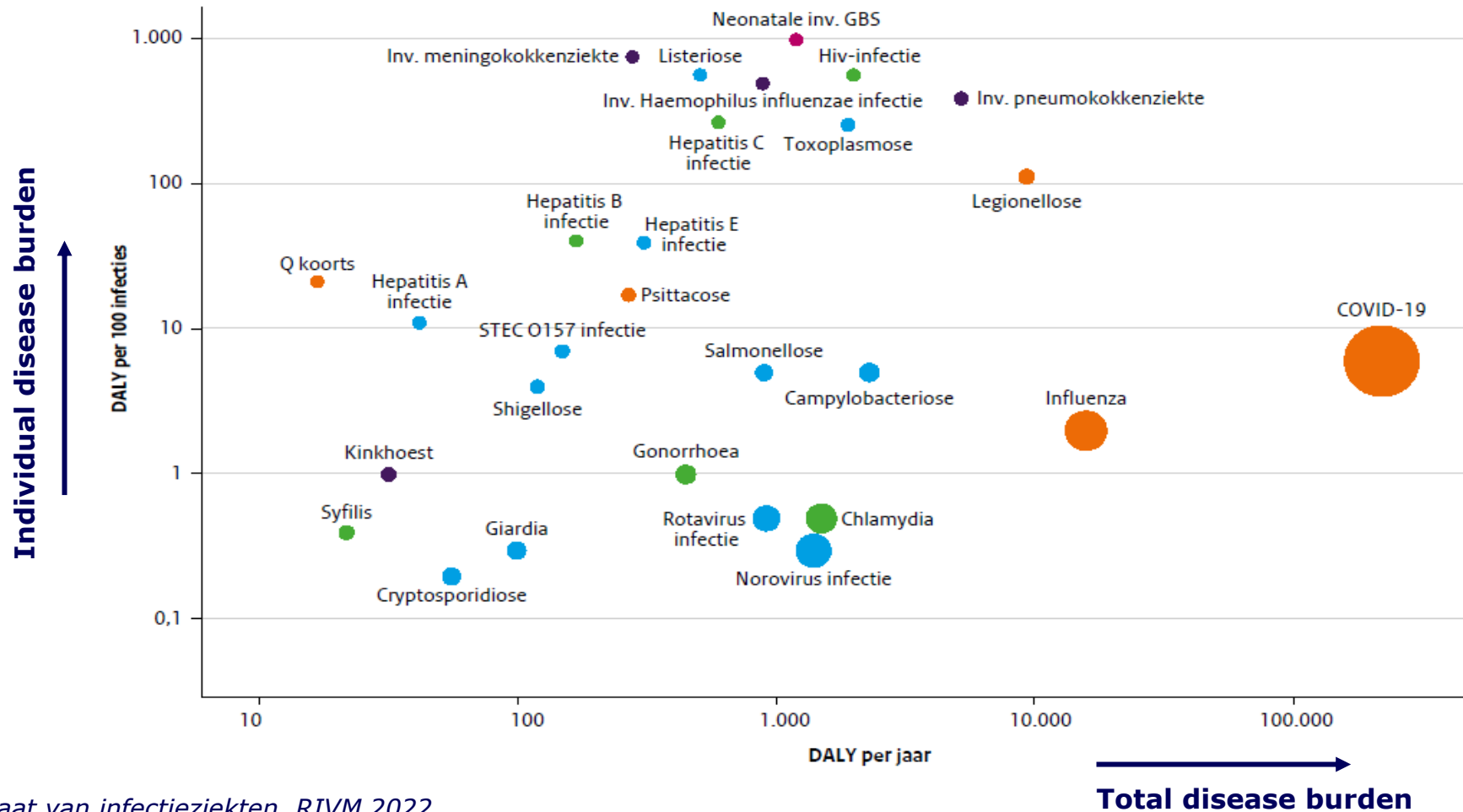
PRE-NATAL

- High emerging interest
- Vaccine policies developing rapidly

Influenza Virus  
Pertussis  
Tetanus



# The Burden of Infectious Diseases without Vaccination



Staat van infectieziekten, RIVM 2022

# The Cost of No Vaccination

## Direct medical impact

- Hospitalisations/Healthcare expenses
- Quality of Life
- Mortality

## Direct non-medical impact

- Patient and caregiver's costs

## Indirect societal impact

- Productivity losses
- Social protection costs
- Foregone taxes

## Macroeconomic impact



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## Direct medical impact

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- Quality of Life
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## Direct non-medical impact

- Patient and caregiver's costs

## Indirect societal impact

- Productivity losses → **Flu and cold ~€1 billion**
- Social protection costs
- Foregone taxes

## Macroeconomic impact

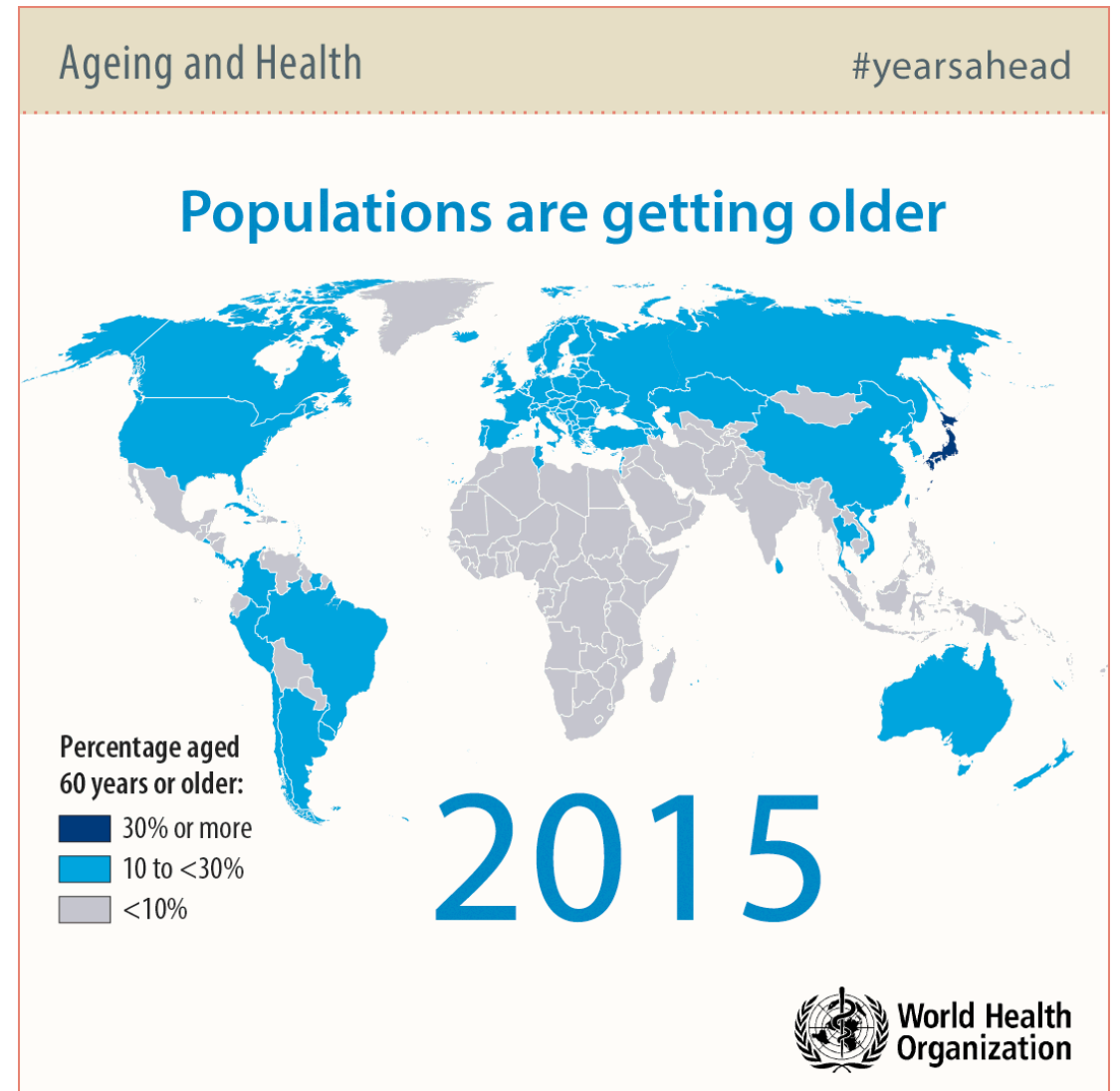


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# The Demographic Challenge

- Increasing infectious disease-related health problems as the percentage of aging adults in the population is increasing
- Decline in vaccination and immune responses with advancing age (Chronological versus biological age)



# Heterogeneity of the Ageing Population



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Continuous distribution



Discrete



Can we predict low/non-responders?  
Are adjusted vaccination strategies needed?

**Personalized vaccination**

Brodin et al.  
2018

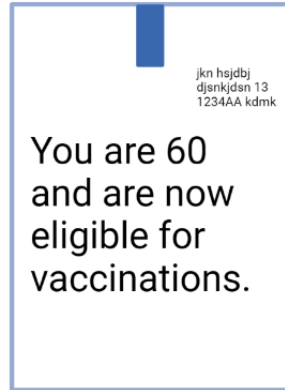
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# Targeted Immunization of Next Generation Vaccines



## Current practice

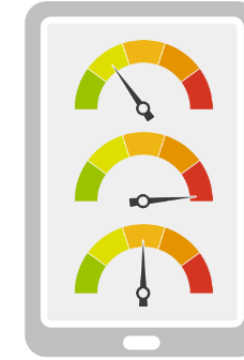


**Standard letter only**

## Future perspective



and



**Personal immunization profile**

Offered to all 60+ within NIP:



**Influenza (seasonal)**  
> inactivated split virus



**Pneumococci**  
> polysaccharide subunit



**COVID-19**  
> mRNA

Offered to 60+ and recommend to those in need, choice available:



**Influenza (seasonal)**  
> inactivated split virus  
> adjuvans, mRNA



**Pneumococci**  
> polysaccharide subunit  
> conjugated vaccine



**COVID-19**  
> mRNA  
> subunit



**Diphtheria, tetanus, pertussis**  
> subunit+adjuvans



**Herpes zoster (*gordelroos*)**  
> live attenuated  
> subunit



**RS virus (>2023)**  
> subunit  
> mRNA



**Emerging**



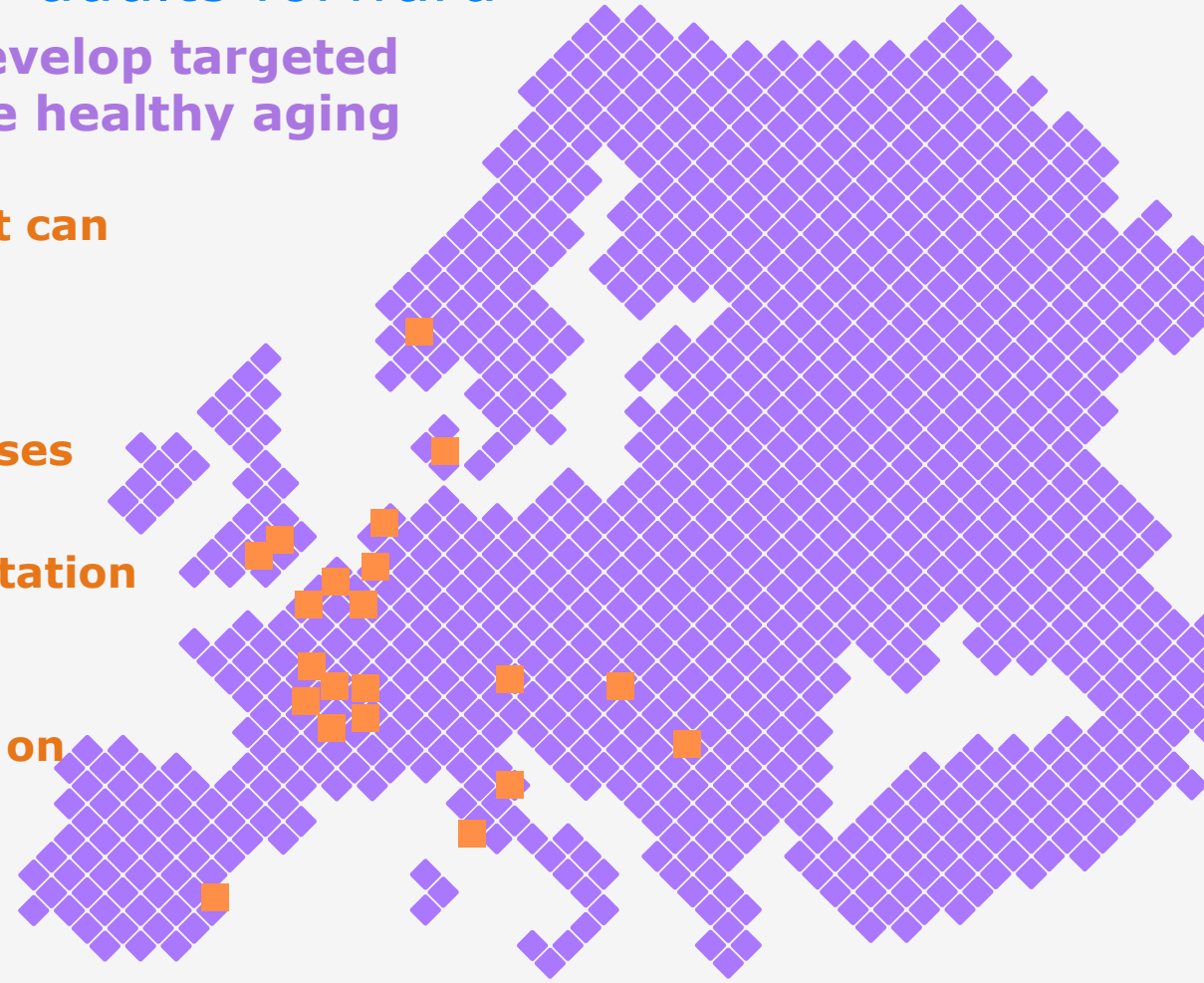
# VITAL consortium:

Moving a vaccination program for older adults forward



**Aim: Provide evidence-based knowledge to develop targeted and efficient vaccination strategies to improve healthy aging**

- **Identify and construct vaccination strategies that can effectively protect the ageing population**
- **Visualize the burden of disease and potential downstream effects of vaccine preventable diseases**
- **Present efficiency scenarios in vaccine implementation through modelling exercises**
- **Enable persuasive communication and education on results and solutions to those concerned**
- **Demonstrating that a multidisciplinary approach may increase vaccine use**



24 partners: 17 public, 7 private

Standard **METHODS** and **PROTOCOLS** for assessment of infectious disease burden in ageing adults

**WP1**



**DATABASE** on infectious disease variables in ageing adults across Europe

**WP2**

**BIOMARKERS** and other factors of age-related changes in vaccine response

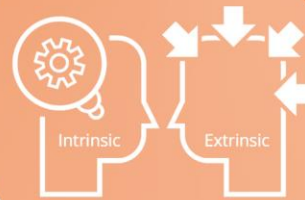
**CLINICAL** study on changes in response to **INFLUENZA** and **PNEUMOCOCCAL** vaccines with age



# KEY OUTPUTS



**OUTCOME** models with scenario-testing of strategies for vaccination of ageing adults

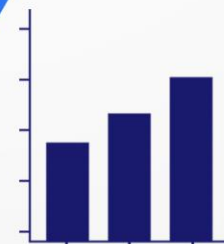


Build sustainable health-care professional **TRAINING** and **EDUCATION** on vaccination of ageing adults

**WP4**

Understand **PERCEPTIONS** of ageing adults and health care professionals on vaccine acceptance

Prepare to **TRANSFER** outcome models across **EUROPE**



**WP3**



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# Learnings

- **Insight** into immune responsiveness in the ageing population and the contributing intrinsic and extrinsic factors
- **Links** to be made between frailty-level, type of infection, health care exposure, and age, with the vaccine immune response for their economic value assessment.
- **Strategies** to communicate with and educate all stakeholders working with older adults
- **Strengthening** the competitiveness and leadership role on vaccine research & implementation in Europe
- **Interaction** with regulatory agencies to update the impact of the results on future regulatory approaches



# Optimization of national vaccination programs

- **Heterogeneity** of population in (personalized) vaccination
- **Regular and dynamic** (re)assessments
- **Early and proactive** (economic) evaluations
- Account for the wide **range of benefits**
- Trade-off between **data dependency and uncertainty**
- Consider vaccination to be an **investment** in the health and economy of tomorrow



# Thank you!

**J.van.der.Schans@umcg.nl**

## Country score tool to assess readiness and guide evidence generation of immunization programs in aging adults in Europe

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