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European Union

I-MOVE COVID-19

I-MOVE-COVID-19 Network

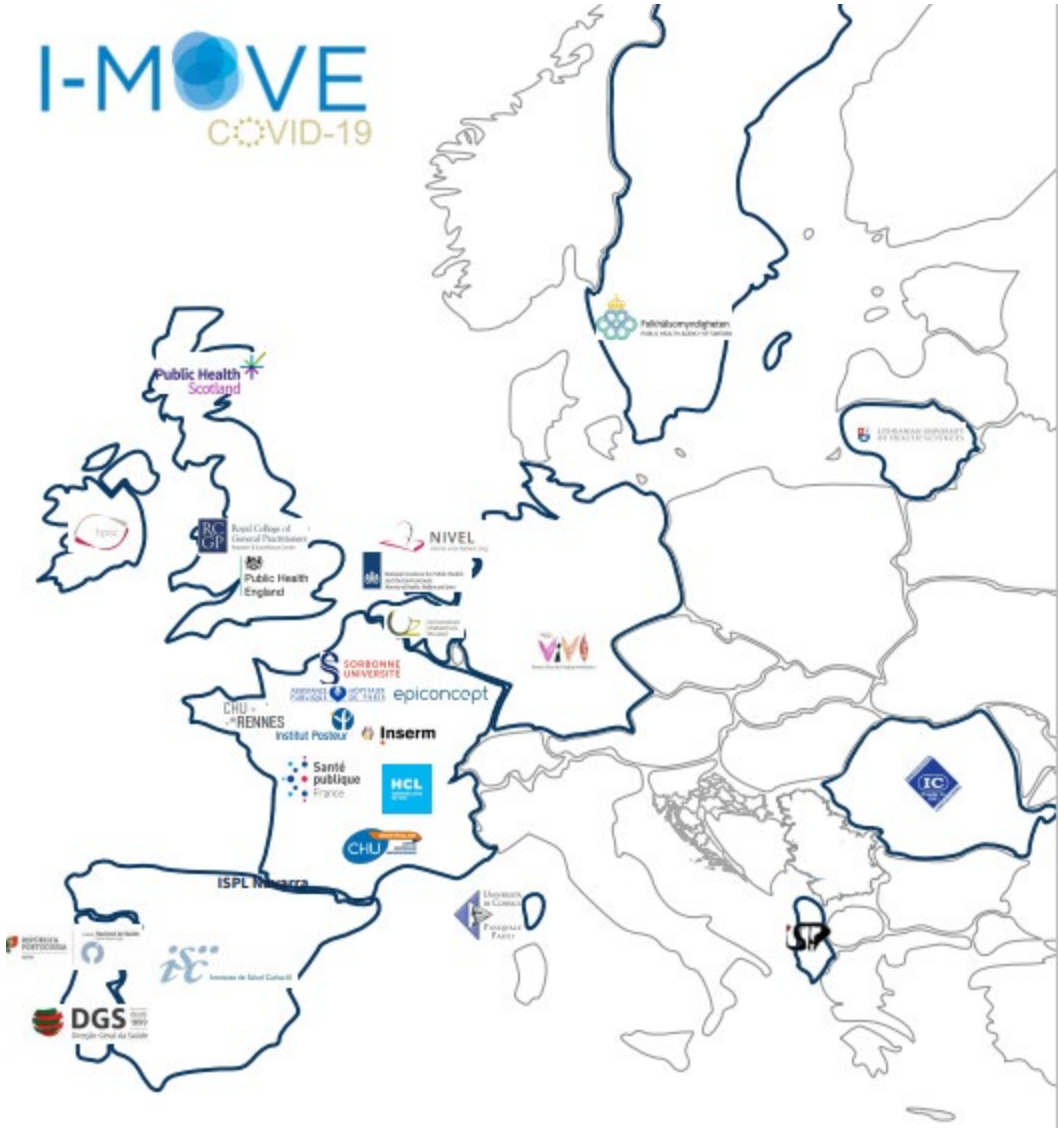
Multidisciplinary European network for research, prevention and control of the COVID-19 pandemic

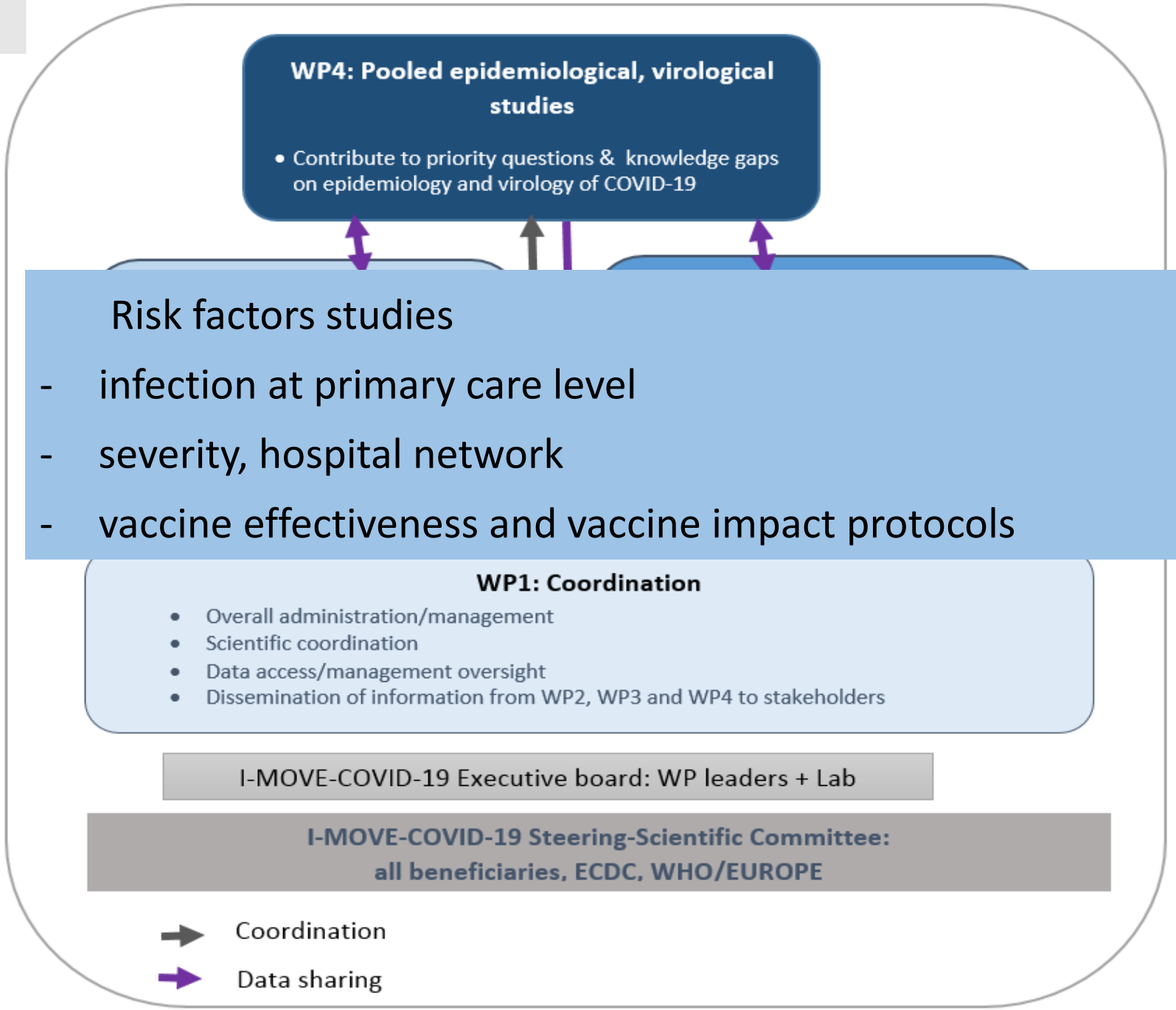
COVID-19 vaccine effectiveness

I-MOVE-COVID-19 Consortium
WP4 (research)

I-MOVE-COVID-19 network

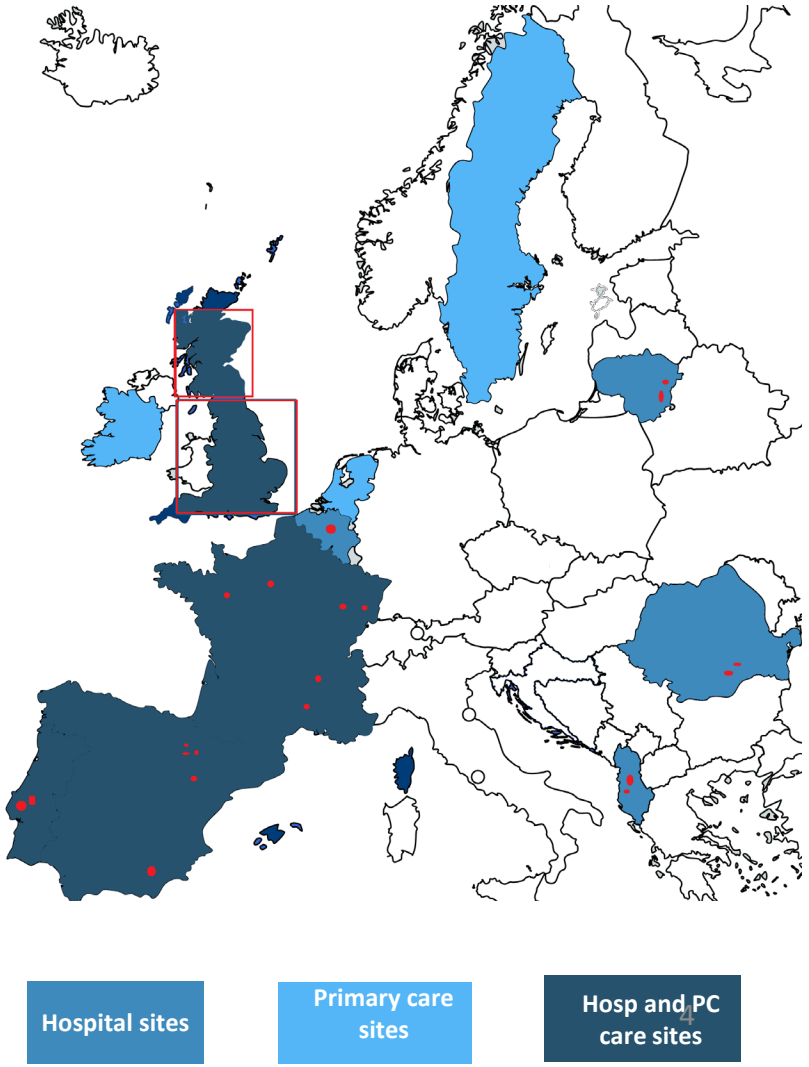
- 27 partners, 11 European countries
  - Public Health Institutes
  - National Reference Laboratories
  - University hospitals
  - Most are I-MOVE partners (influenza)
  - Coordination: Epiconcept
- Primary care sentinel networks
  - EN, ES, FR, NA, NL, IE, PT, SC, SE
- Hospital sites
  - AL, BE, EN, ES, FR-V, FR-R, LT, NA, PT, RO, SC
- ECDC, WHO/EUROPE
  members of Steering Committee




WP4: Pooled epidemiological, virological studies
• Contribute to priority questions & knowledge gaps on epidemiology and virology of COVID-19
Risk factors studies
- infection at primary care level
- severity, hospital network
- vaccine effectiveness and vaccine impact protocols
WP1: Coordination
• Overall administration/management
• Scientific coordination
• Data access/management oversight
• Dissemination of information from WP2, WP3 and WP4 to stakeholders
I-MOVE-COVID-19 Executive board: WP leaders + Lab
I-MOVE-COVID-19 Steering-Scientific Committee: all beneficiaries, ECDC, WHO/EUROPE
Coordination
Data sharing

I-MOVE-COVID-19: vaccine effectiveness

- Development of two draft protocols
  - discussed with and under review by study sites
  - in line with WHO/EURO, ECDC protocols
- Two multicentre test-negative design studies
  - primary care level, 9 networks
  - hospital level, 11 sites
- Primary outcome
  - COVID-19 patient (SARI or ARI) PCR confirmed
- Test-negative controls
  - SARI or ARI SARS-CoV-2 PCR negative



Draft protocols: objectives

- Objective(s)
  - Pooled VE against laboratory-confirmed SARS-CoV-2
  - VE by (depending on sample size)
    - ✓ vaccine product
    - ✓ vaccine dose
    - ✓ risk group
    - ✓ age group
    - ✓ time since vaccination
    - ✓ genetic variant
- Study population
  - catchment area for each participating site
  - eligible for vaccination (depends on vaccine roll-out)
  - no contra-indication for vaccination
- Study period
  - H2020 funding until March 2022
  - exploring other public funding sources

Draft protocols: vaccination status

- Definitions
  - fully vaccinated against COVID-19, vaccinated one dose: corresponding dose more than X days before SARI symptom onset
  - unvaccinated: did not receive any COVID-19 vaccine dose
  - product-specific vaccinated (one dose, fully)
- Vaccination status ascertainment
  - depends on how vaccination will be registered in each site
- VE by time since vaccination
  - vaccination date collected

Draft protocols:
Clinical case definitions

- Primary care
  - cough OR fever OR shortness of breath OR sudden anosmia/ageusia/dysgeusia

- SARI case definition
  - WHO: a hospitalised person with acute respiratory infection, with

    ✓ a history of fever or measured fever of ≥ 38 C° and cough
    ✓ with onset within the last 10 days

  - ECDC: a hospitalised person with **at least one** of the following symptoms
    ✓ cough
    ✓ fever
    ✓ shortness of breath, or
    ✓ sudden onset of anosmia, ageusia or dysgeusia

Draft protocols: laboratory tests

- All or systematic selection of clinical cases: respiratory specimens tested for
  - SARS-CoV-2 (RT-PCR)
  - influenza
  - other respiratory viruses

- All or random sample of SARS-CoV-2 sequenced
- Documentation
  - type of specimen
  - GP, self-swab, etc

Draft protocol:
effect modifiers, confounding factors

- Effect modifiers - confounding factors
  - time
  - age, sex
  - pre-existing chronic conditions
  - chronic medications
  - severity of underlying conditions (# of hospitalisations)
  - health care utilisation (# GP consultations)
  - smoking
  - previous influenza, pneumo vaccination, BCG
  - functional impairment

Draft protocols: analysis

- Country-specific analysis
- Pooled analysis
- Logistic regression (study site, time always included)
- Or multilevel logistic regression: GP / hospital as random effect
- Sensitivity analyses
  - different test-negative control groups
  - different cut-offs of numbers of days between
    - ✓ onset and swabbing
    - ✓ vaccination and onset of symptoms
  - including and excluding those with
    - ✓ previous positive tests, previously clinically diagnosed as COVID-19
    - ✓ different delays between previous test and enrolment in the current study

Draft protocols: challenges

- Unknowns
  - vaccination programme organisation
  - vaccination coverage
  - natural immunity
  - incidence
- Primary care reorganisation
  - GP face-to-face interview and face-to-face swab
  - GP phone consultation, swab in lab/COVID-19 centres
  - extraction of medical records based on laboratory tests
  - swab in lab/COVID-19 centre and no prior contact with GP
- Hospitals
  - designated COVID/non-COVID
- Teams overloaded
  - clinicians
  - laboratories
  - public health institutes

Next steps

- Continue developing the protocols
  - adjusting with new information
  - integrating experts' comments
- Discussions with other sites willing to join
- Some study sites still need to confirm feasibility
- Study sites
  - ethics committee
  - adapt protocol to local context
- Other control groups?

Back up

Sample size, precision lower CI boundary 10% case/control ratio 1

in source population/ controls	Number of cases	Number of controls	VE	CI
70	985	985	60	50–68
70	1346	1346	50	40–58
70	1764	1764	40	30–49
70	2240	2240	30	20–39
60	786	786	60	50–68
60	1098	1098	50	40–58
60	1466	1466	40	30–49
60	1891	1891	30	20–39
50	262	262	80	70–87
50	447	447	70	60–78
50	687	687	60	50–68
50	983	983	50	40–58