WSAS-COVID-study: Longitudinal clinical and registry follow-up of COVID-19 survivors for respiratory, cardiac, and neurological outcomes

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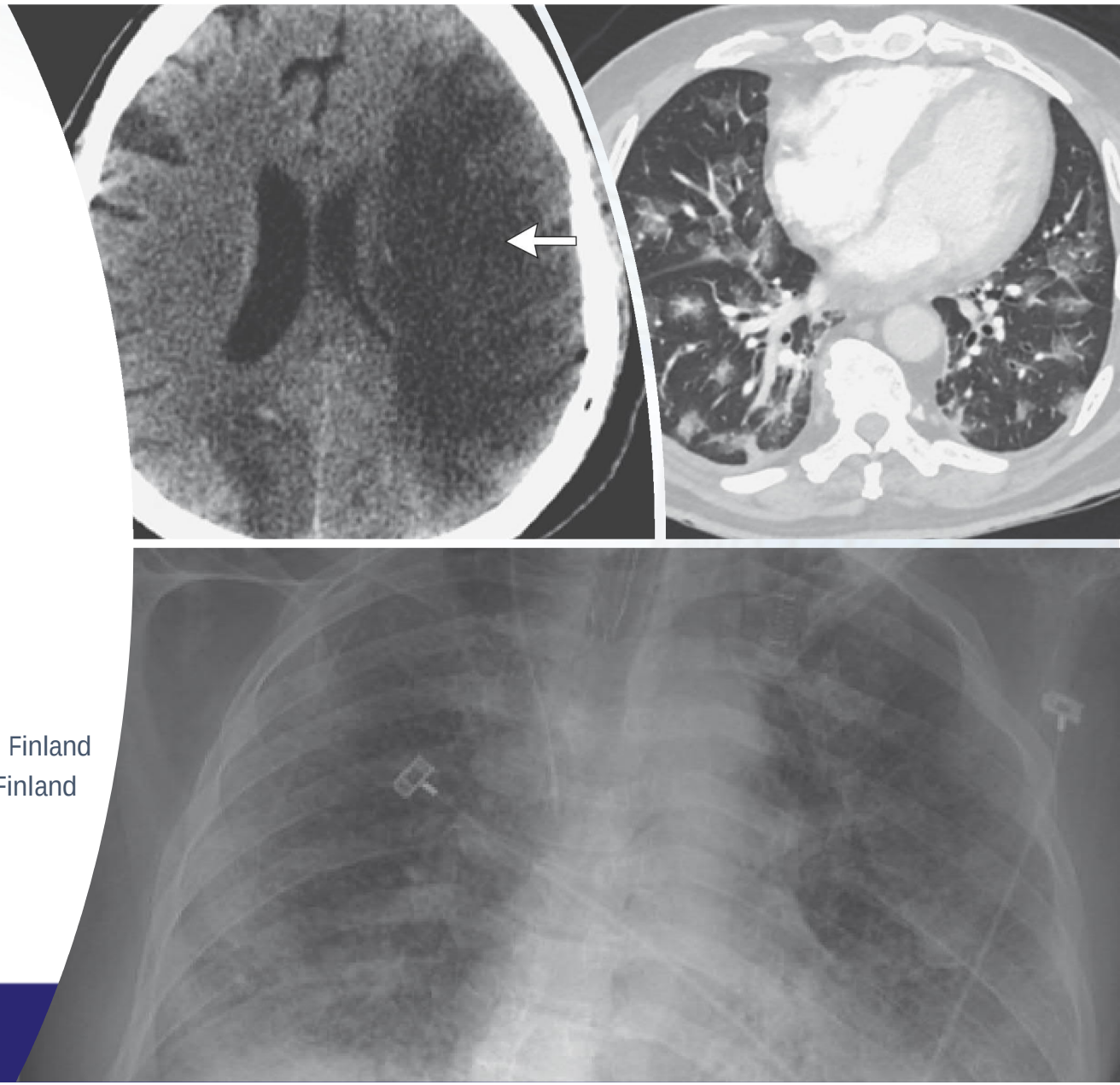

Berlin DA, et al. NEJM 383:2451-2460, 2020

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- COVID-19 infection is associated with cardiac, respiratory and neurological long-term consequences
- Most studies follow hospitalized patients

<u>Unknown:</u>

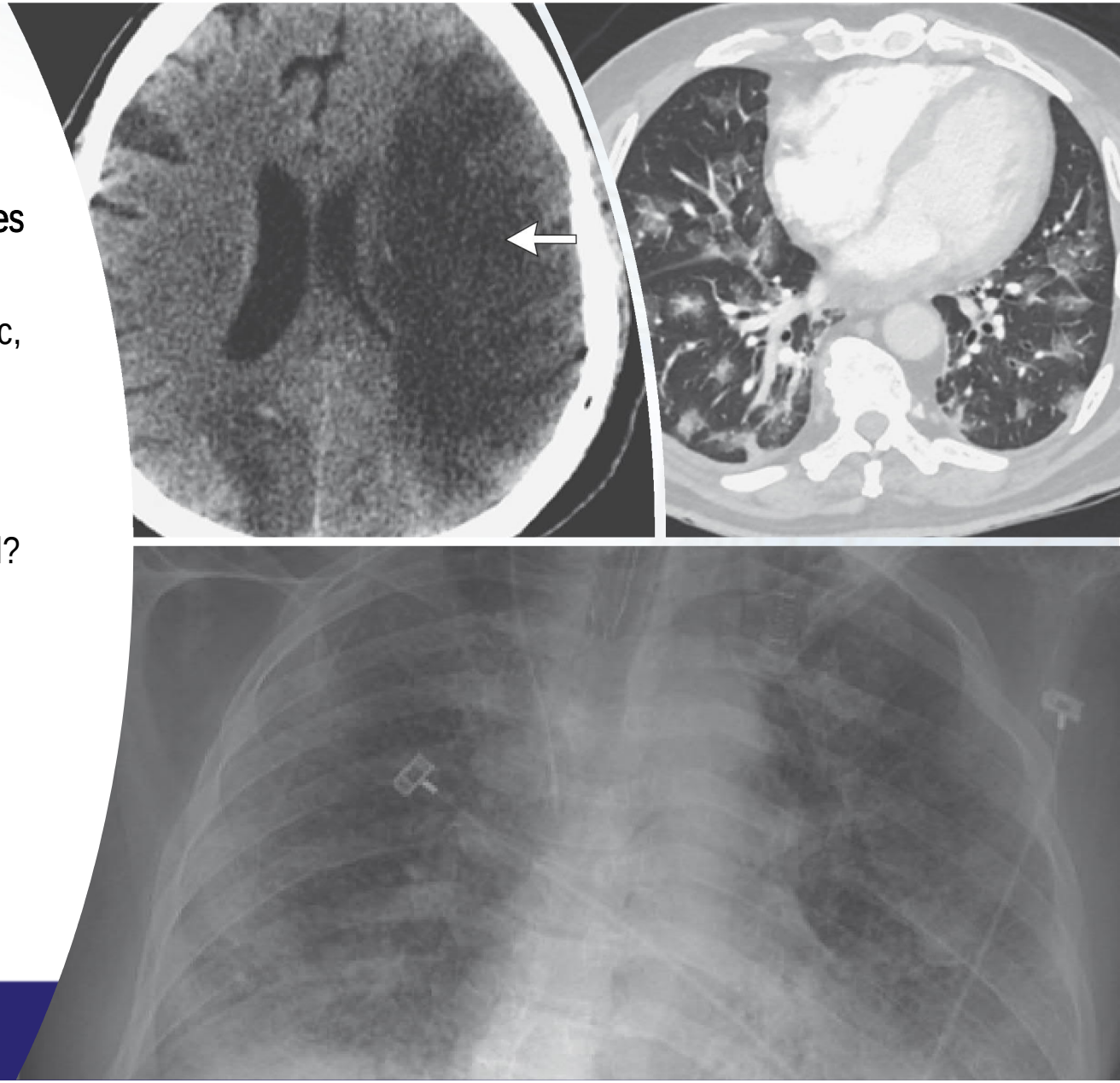
Consequences of COVID-19 at population level?

Severity of COVID-19 infection associated with long-term consequences in population?

Effect of COVID-19 in respiratory cohorts?

Risk factors of COVID-19 infection, its severity and long-term consequences at population level?

Multi-organ long-term COVID-19 outcomes at population level?



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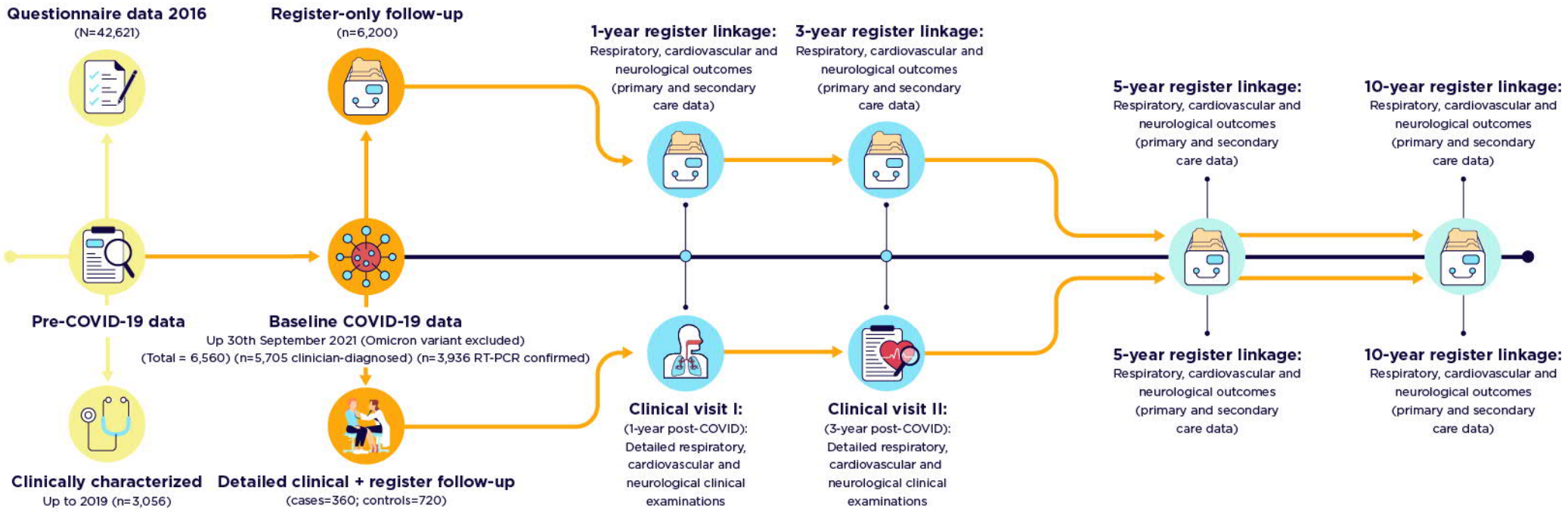

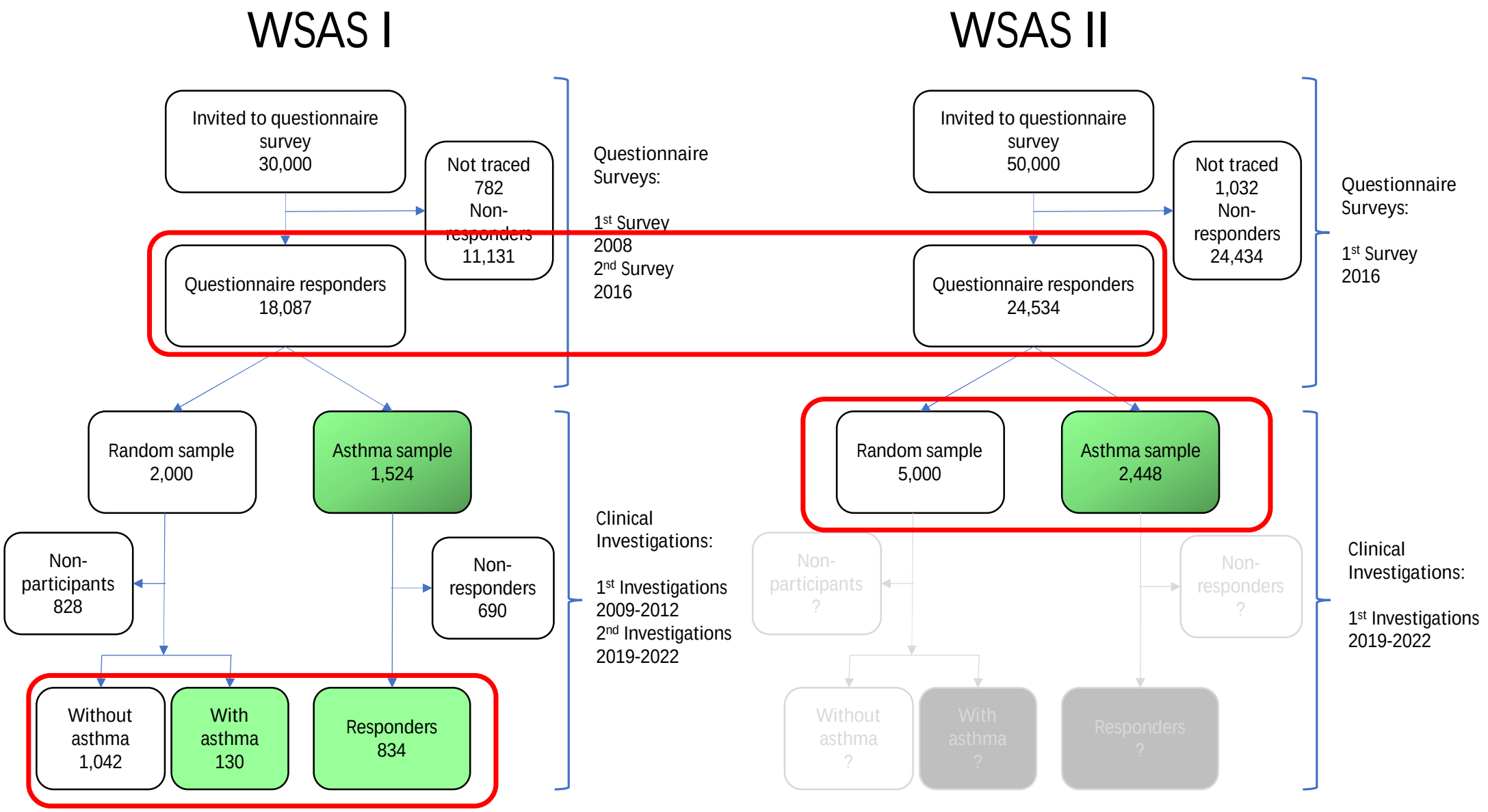

Nwaru BI, et al. BMJ Open 9:e027808, 2019

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Objectives of the study

By collecting new clinical and lab data to be added to already collected extensive historical questionnaire and clinical data, we will investigate the:

1. Long-term prognosis of COVID-19 disease with focus on cardio-respiratory and neurolopsychological morbidity and mortality
2. Phenotypic features or clusters of underlying co-morbid conditions related to COVID-19 disease severity
3. Differences in long-term prognosis (cardio-respiratory-neuropsychological morbidity and mortality) between phenotypic clusters of COVID-19 severity spectrums
4. Effects of COVID-19 infection in patients with asthma and/or COPD
5. Multi-organ (lung, heart, neurological) consequences of COVID-19 infection
6. Physiological, biochemical and immunological features related to severity and susceptibility to COVID-19 disease

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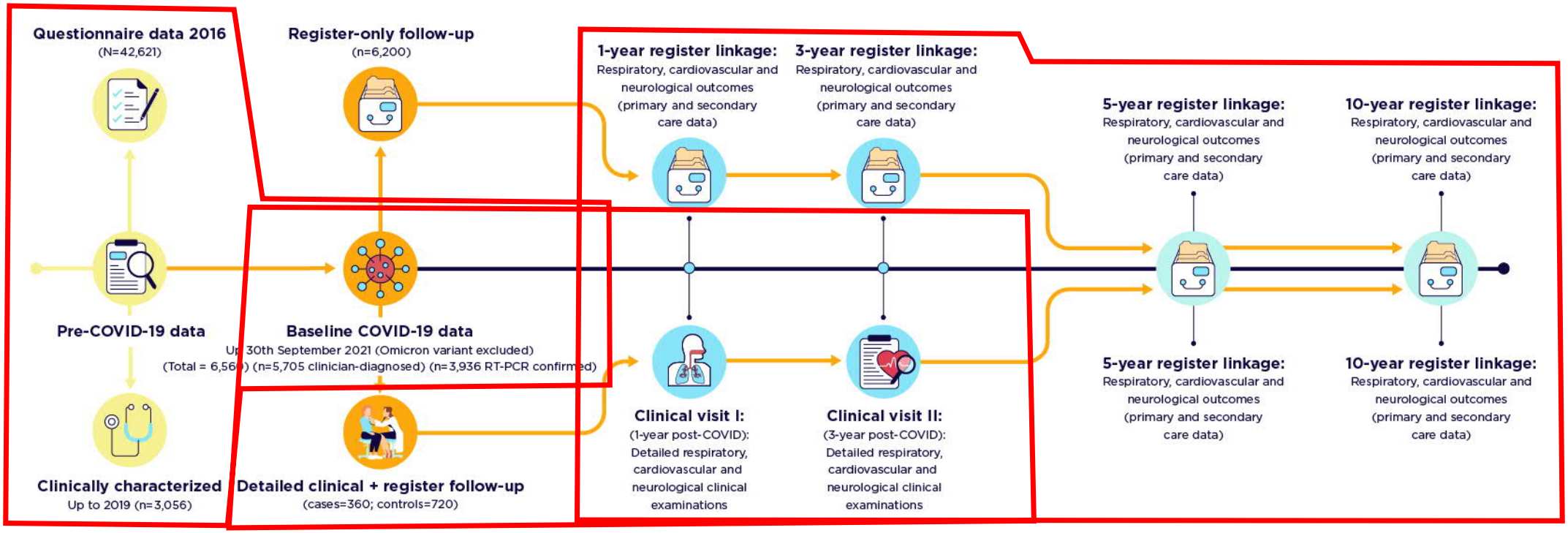
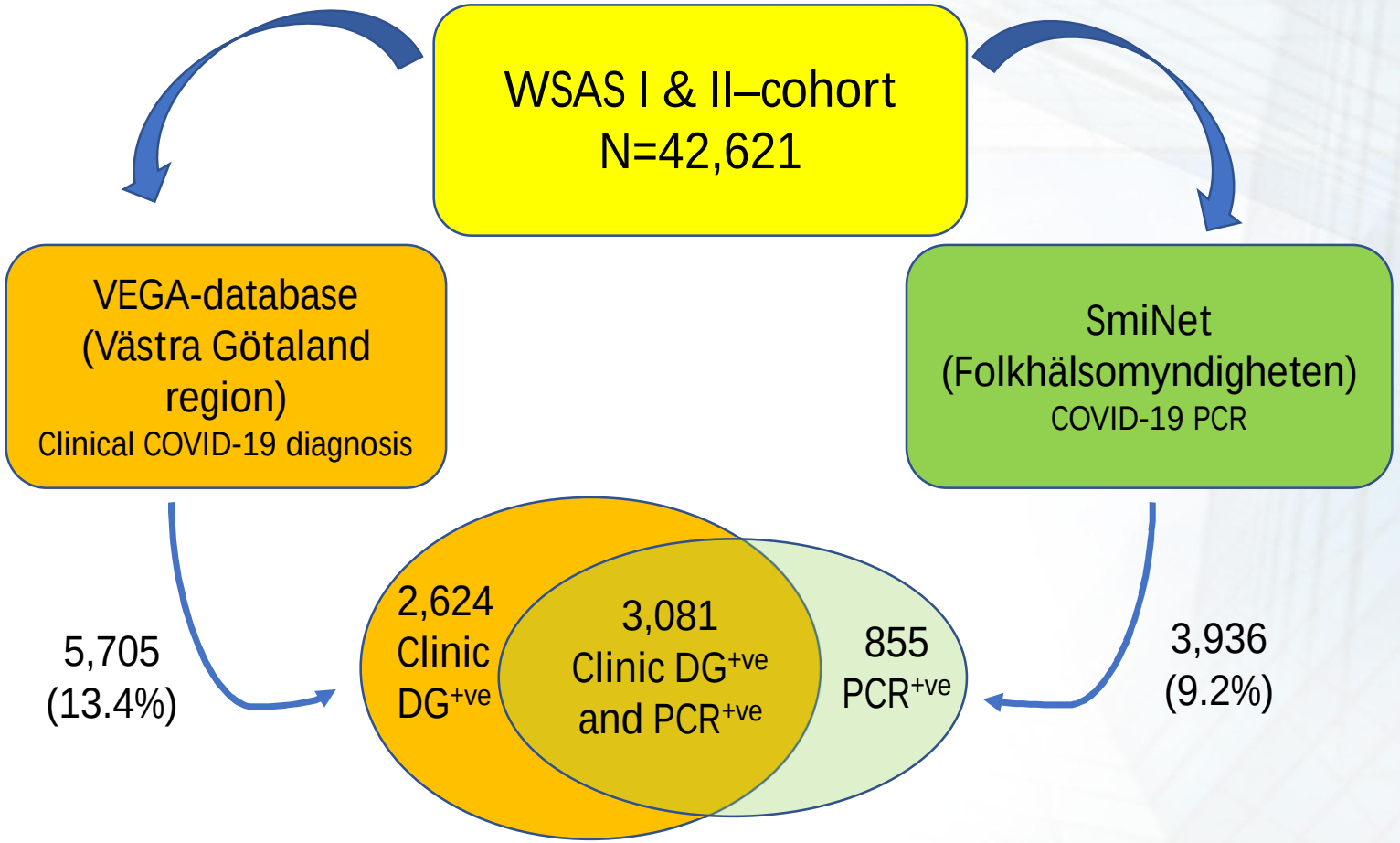
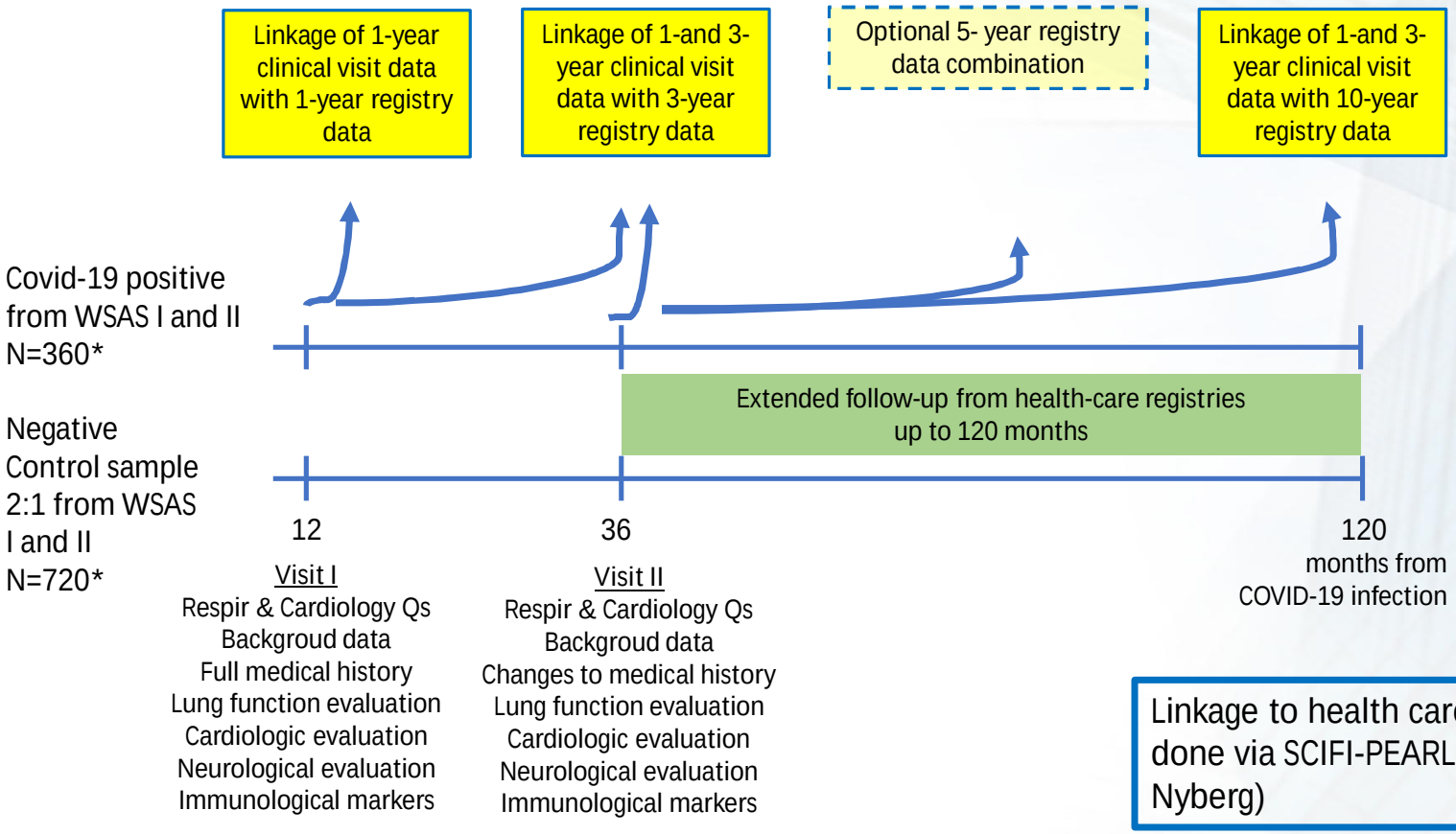


COVID-19 in West Sweden: Longitudinal clinical and registry follow-up of COVID-19 survivors for cardiac, respiratory and neurological outcomes



COVID-19 in West Sweden: Longitudinal clinical and registry follow-up of COVID-19 survivors for cardiac, respiratory and neurological outcomes



Linkage to health care registry data will be done via SCIFI-PEARL structures (prof. F Nyberg)

Setting

1:2 case-control setting
Controls matched for gender, age and place of residence

Aim:
To have data from clinical visit with:
360 COVID-patients
720 non-COVID controls

Reasonable number of patients for evaluation:
180 COVID-patients
360 non-COVID controls

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General:
Informed consent
Safety procedures
COVID-19 antigen
COVID Qs (2 pages)

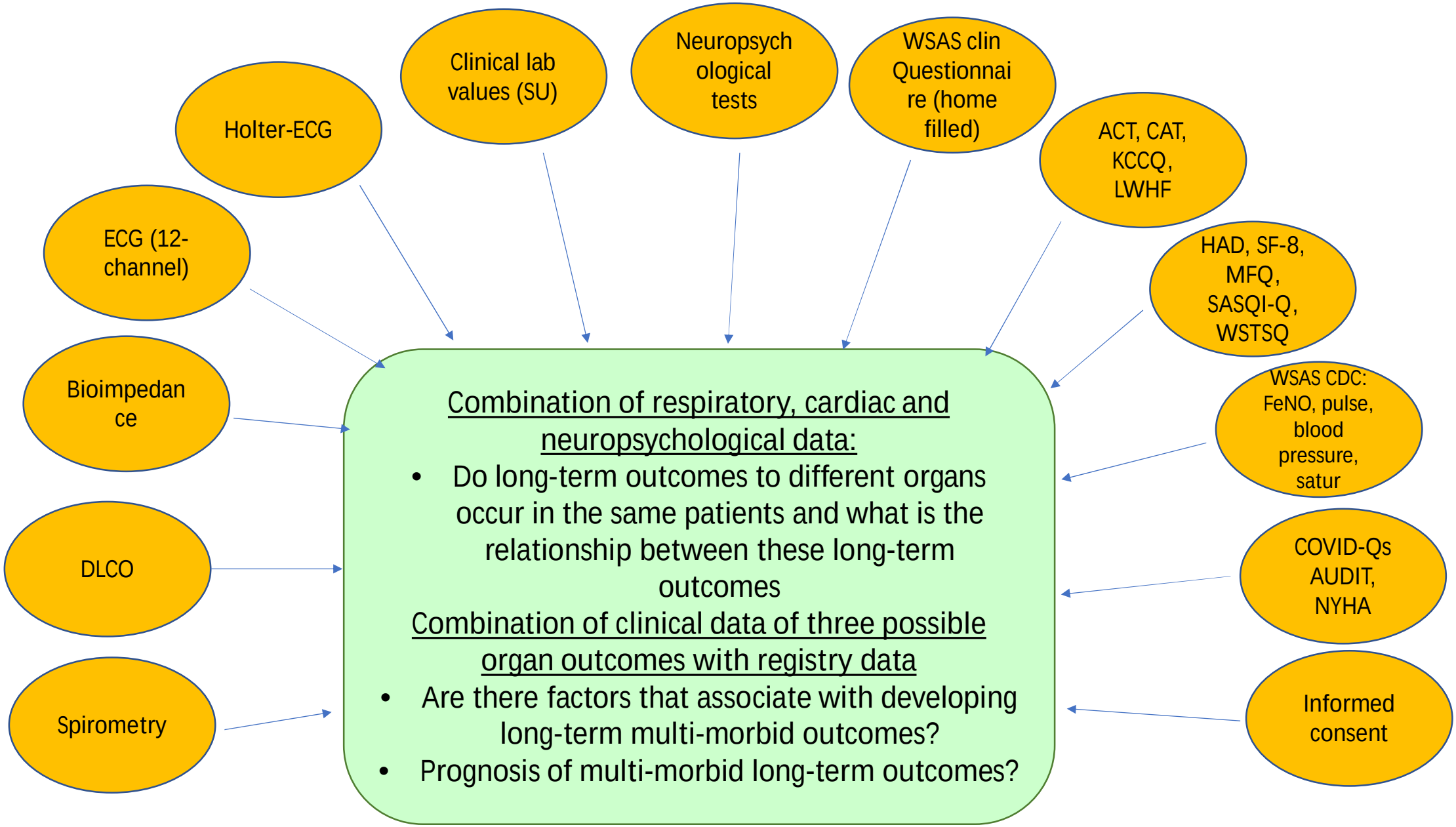
Respiratory questionnaires & measurements:
ACT
CAT
WSAS clin interview
WSAS clin questionnaire
Spirometry
DLCO
FeNO
SaO_2

General measurements & questionnaires
Weight & height
Waist & neck circumference
Audit (alcohol)
SF-8 (QoL)

Cardio-metabolic & questionnaires
NYHA
KCCQ
MLHFQ
Pulse & blood pressure
12-channel ECG
Holter ECG (single channel)
Bioimpedance

Laboratory:
Full blood count
GHbA1c
Kreatinin (GFR)
N-terminal pro-BNP, Troponin I (TnI)
ESR, hsCRP
ALAT, ASAT, GGT, AFOS
Serum and plasma to freezer

Neuropsychological
Trail-making test
Rey Auditory verbal Learning test (RAVLT)
Stroop Color-Word Test (VST)
HAD
Mental Fatigue Scale (MFS)
Sahlgrenska Academy Self-reported Cognitive Impairment Q (SASCI-Q)
West Sweden Taste and Smell Questionnaire


Holter-ECG
Clinical lab values (SU)
Neuropsychological tests
WSAS clin Questionnaire (home filled)
ACT, CAT, KCCQ, LWHF
ECG (12-channel)
HAD, SF-8, MFQ, SASQI-Q, WSTSQ
Bioimpedance
WSAS CDC: FeNO, pulse, blood pressure, satur
DLCO
COVID-Qs AUDIT, NYHA
Spirometry
Informed consent
Combination of respiratory, cardiac and neuropsychological data:
• Do long-term outcomes to different organs occur in the same patients and what is the relationship between these long-term outcomes
Combination of clinical data of three possible organ outcomes with registry data
• Are there factors that associate with developing long-term multi-morbid outcomes?
• Prognosis of multi-morbid long-term outcomes?

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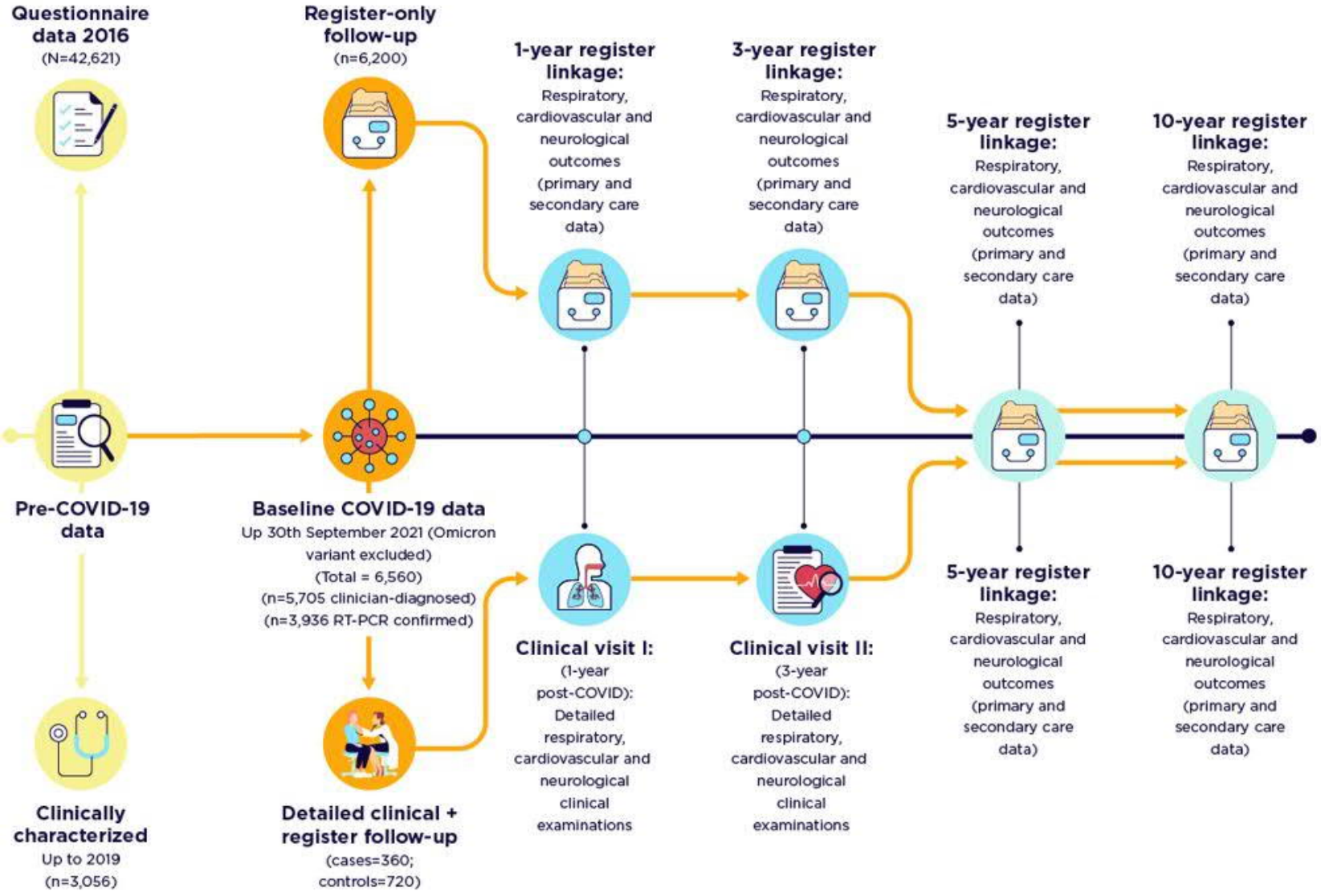

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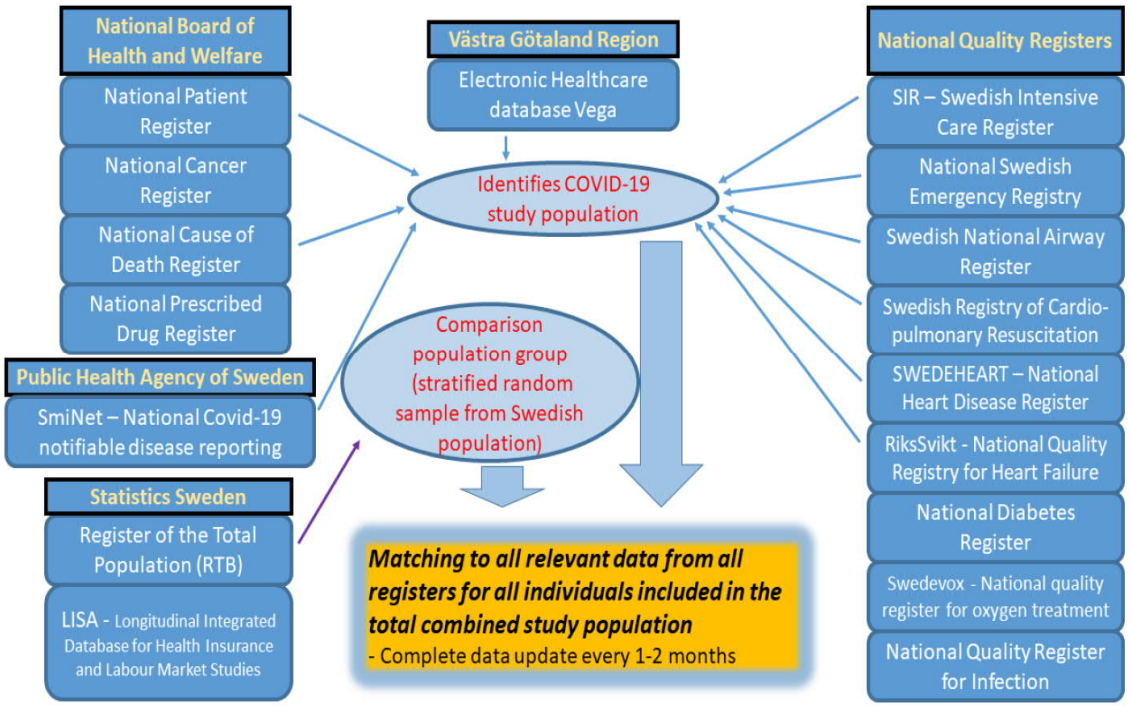

SCIFI-PEARL

Register linkage analysis

- Hospitalizations (respiratory reasons, cardiovascular reasons, all reasons)
- Emergency visits (respiratory reasons, cardiovascular reasons, all reasons)
- Medicine use (respiratory, cardiovascular, diabetes)
- Mortality (respiratory, cardiovascular, all-cause mortality)
- Absence of work (sick-leaves, pensions; respiratory & CV reasons, all-cause)
- COVID-19-related costs (direct health-care costs and indirect costs)
- Socioeconomic outcomes (employment, income, taxes, social benefits)

Where we are? -1

- Decision to make COVID-study in 2020 by KRC steering meeting
  - Co-PIs: Hannu Kankaanranta and Bright I Nwaru
- Research plan ready & ethical application submitted 5-6/2021
  - Ethical acceptance 27-07-2021
- Applications to SmiNet and VEGA 8-9/2021
  - Positive decisions and data on COVID-infected obtained 9-10/2021
- Ethical amendment application (patient number and neuropsychology) 11-12/2021
  - Accepted 2021-12-23

Where are we now? -2

- New application to VEGA 1-2/2022 to get full COVID-19 related background data
  - Acceptance 09.05.2022
- 2nd amendment done to ethical committee 3-4/2022
  - Some COVID-related Qs
  - Changes in cardiology evaluation
  - Some changes to WSAS questionnaire
  - Accepted April 5, 2022
- First abstracts sent to ERS 2022 congress

- Next: Protocol paper & registration to ClinicalTrials register

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First scientific abstracts have been sent to
European Respiratory Society Congress 2022

- Does the accuracy of clinician diagnosis of COVID-19 compared to RT-PCR in adults depend on the number and severity of comorbidities?
- Pre-COVID-19 obesity-related asthma phenotypes and risk of COVID-19 infection
- Pre-COVID-19 asthma phenotypes and risk of COVID-19 diagnosis
- Pre-COVID-19 lung function in a general adult population between COVID and non-COVID-19 cases

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First patient in May 9, 2022

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