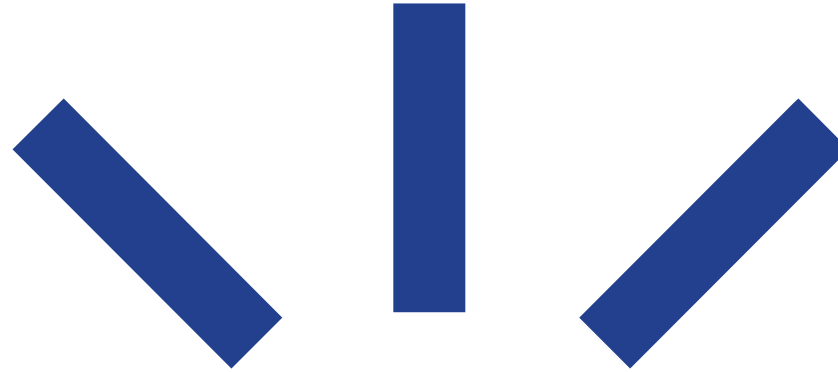




Digital Solutions in Health, Finnish Experience during COVID-19

*Jarmo Reponen, MD, PhD, radiologist;
Professor of Practice in Health Information Systems;
Research Unit of Medical Imaging, Physics and Technology;
University of Oulu;
Finland*



CONTENTS OF THE PRESENTATION:

– DIGITAL BACKOFFICE

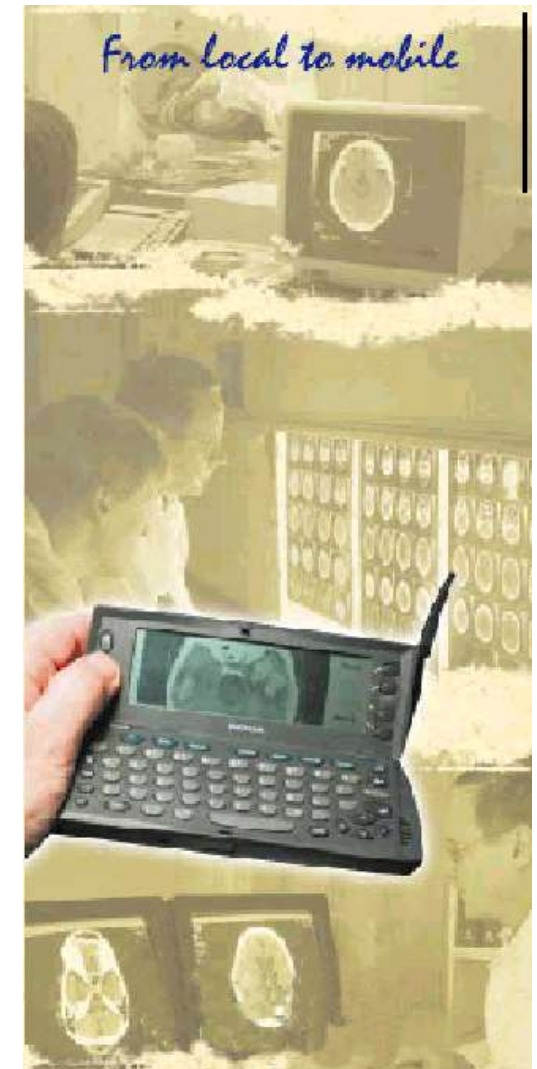
- Existing infrastructure before COVID-19
- The three levels of digitalization in Finnish healthcare

– COVID-19 RESPONSE

- The course of the epidemic in Finland
- The use of mobile corona apps and the use of information resources by citizens

– HOW PHYSICIAN CONSULTATIONS CHANGED

- On-line consultations
- Trends in public and private healthcare



First in the world mobile app for smartphones was developed in Oulu already 1998-2000!

(MOMEDA HC4015, 4th EU R&D framework program) Oulun yliopisto



Digital backoffice

Infrastructure before COVID-19

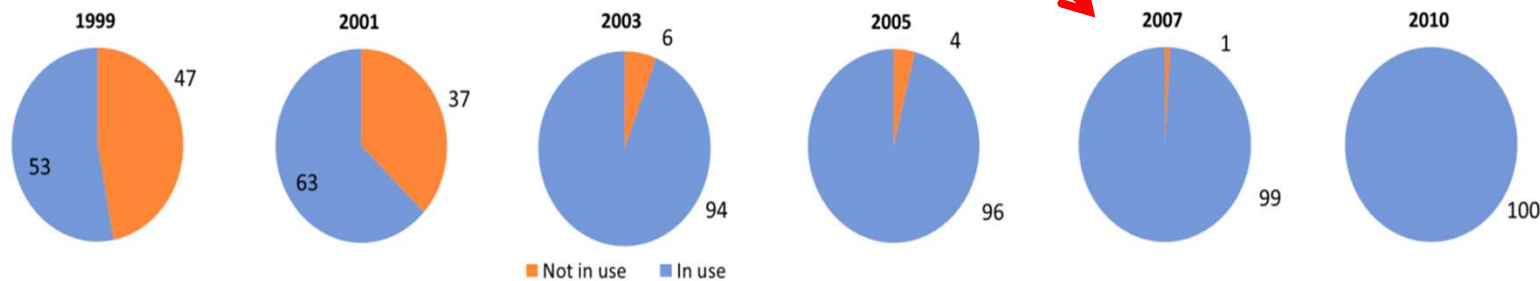


Availability studies are saturated:

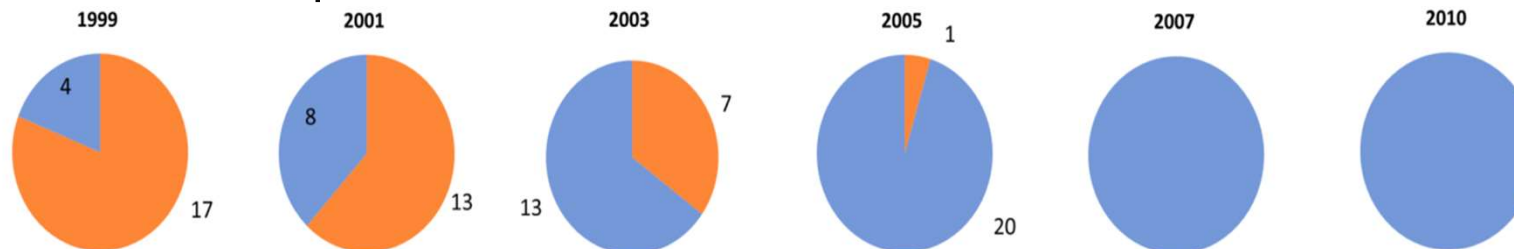


In Finland the local patient record systems were 100% digital by 2007.

Health centres, %



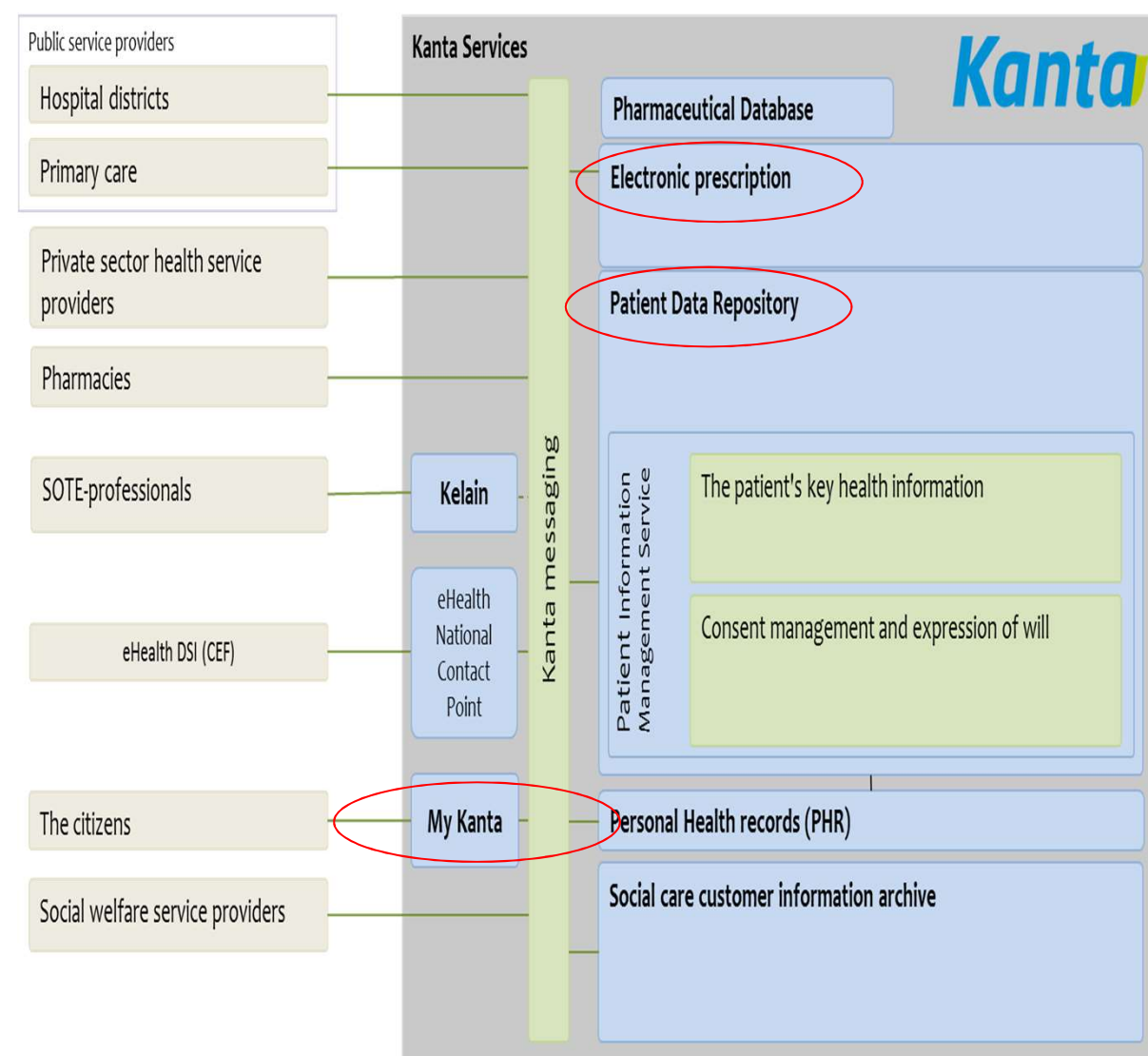
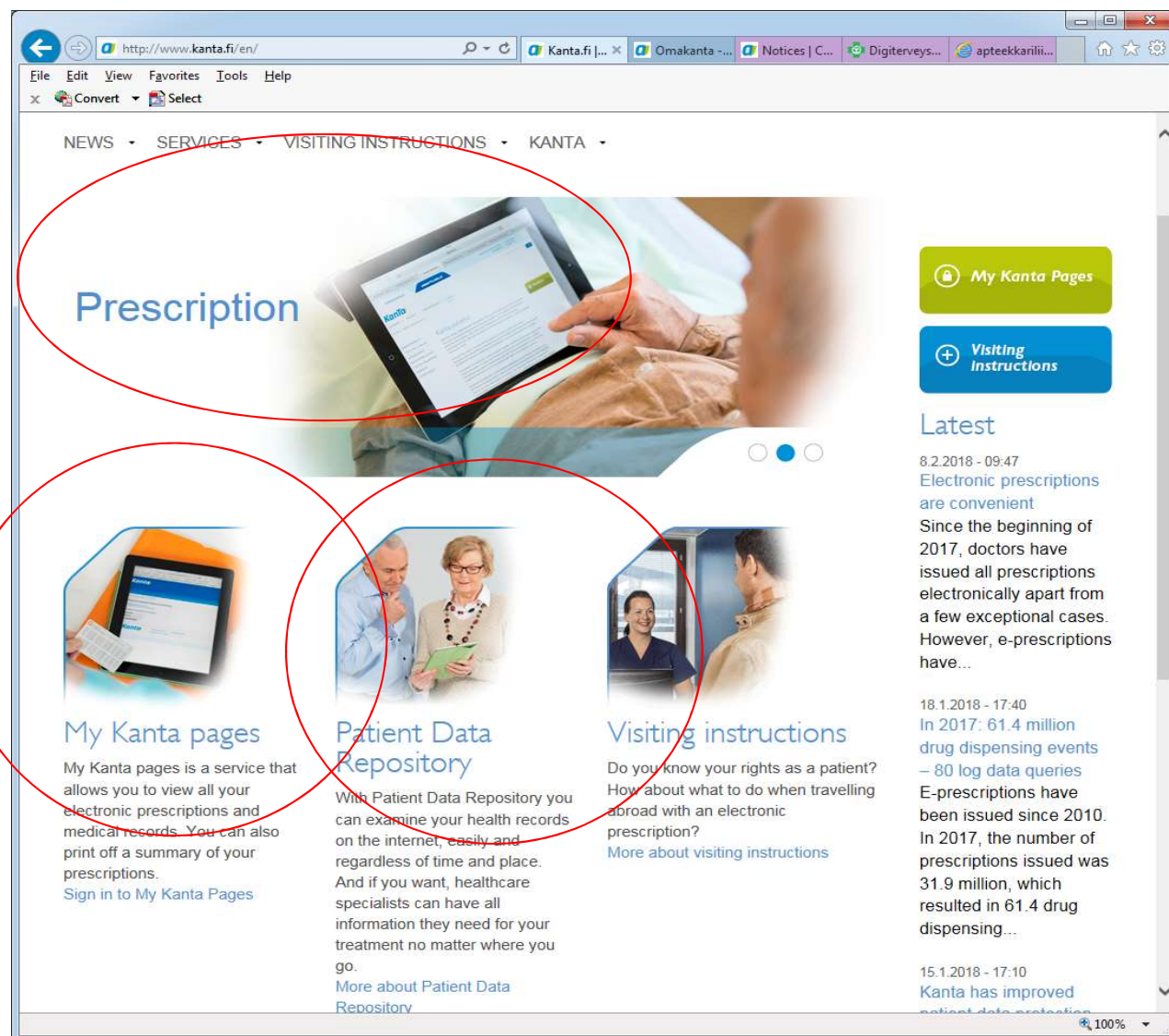
Hospitals districts, n.



Reponen Jarmo; Kangas Maarit; Hämäläinen Päivi; Keränen Niina. Tieto- ja viestintäteknologian käyttö terveydenhuollossa vuonna 2014 - Tilanne ja kehityksen suunta. THL Raportti: 2015_012.
<http://www.julkari.fi/handle/10024/126470>

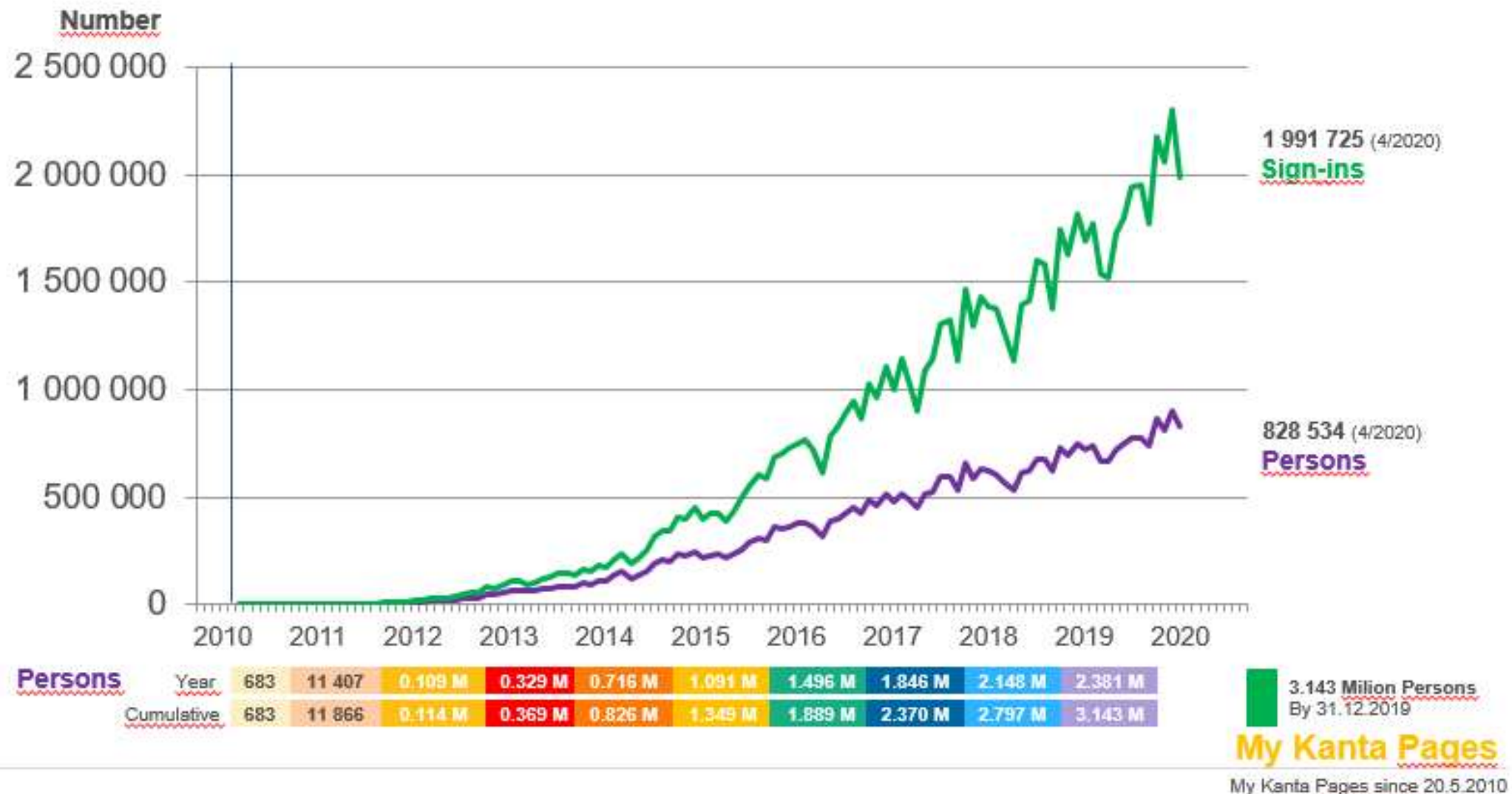


Kanta –archive and communication platform National Health Information Exchange, HIE)



People are accessing their own data!

- My Kanta Pages, **log-ons** and **different users**
per month 2010 - 2020



Modified from a source by Vesa Jormanainen and Jarmo Reponen

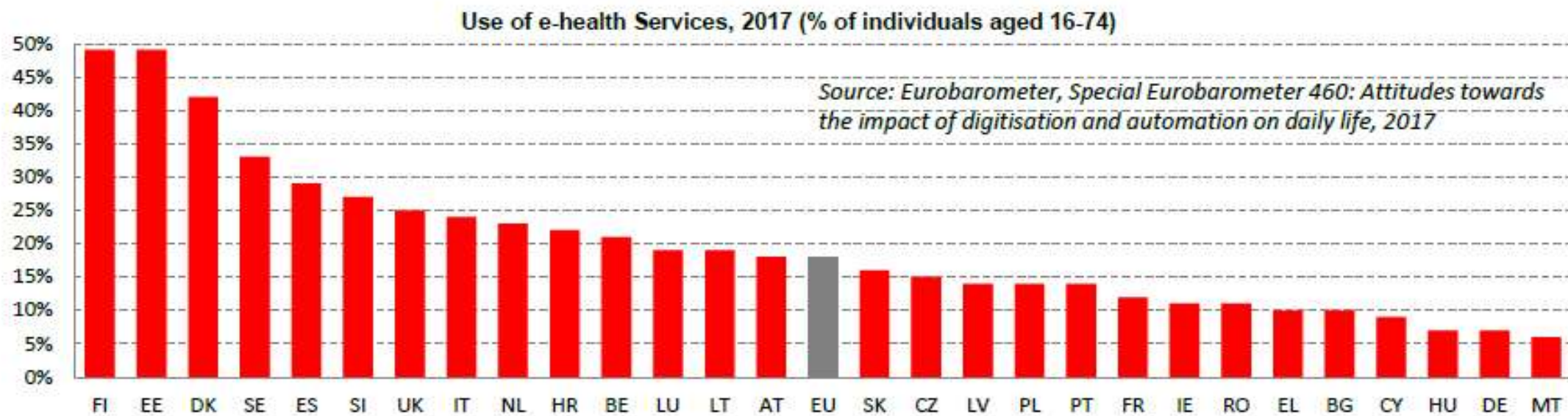
Twitter: @reponenjarmo



Use of on-line health and care services

Only 18% of people in the EU have used on-line health and care services without having to go a hospital or a doctors surgery.

Almost 50% of people in Finland and Estonia used e-health services, while in Denmark the percentage is slightly lower (42%).

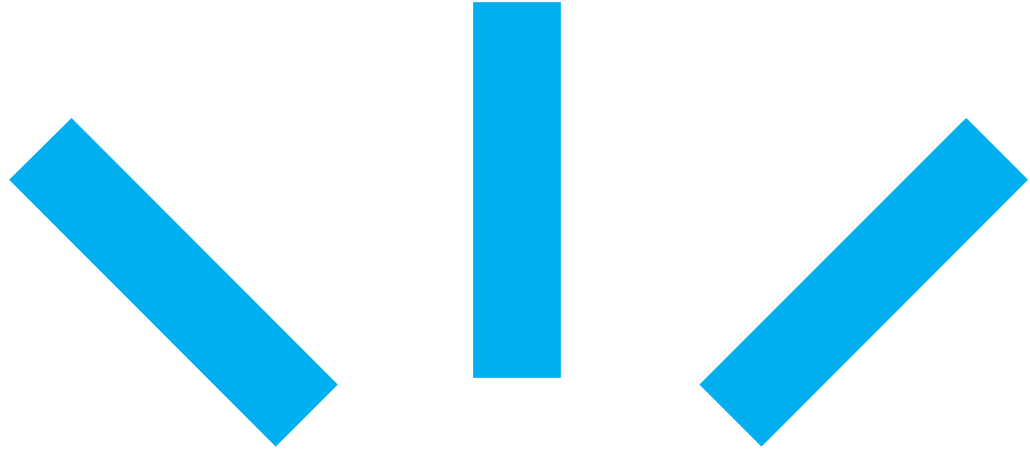


DESI Report 2019 – Digital Public Services

10



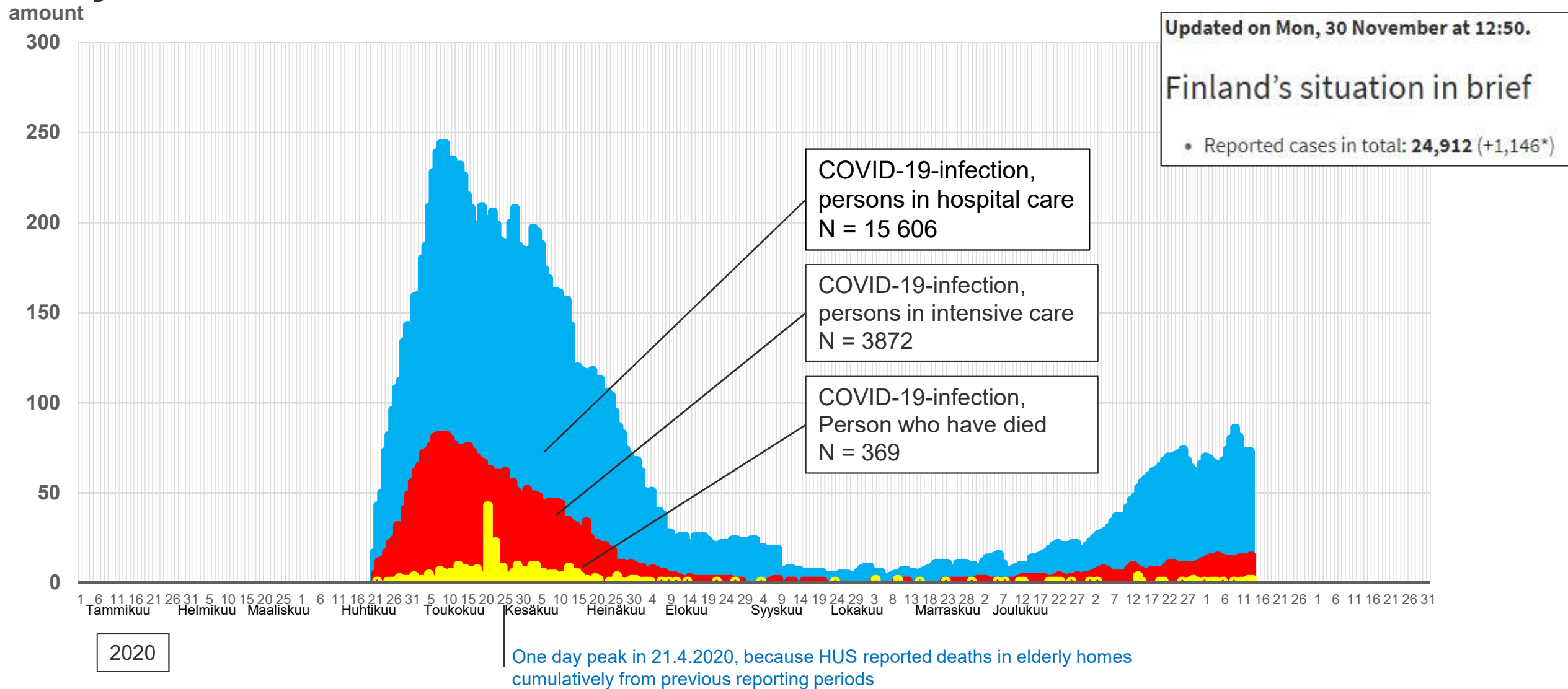
European
Commission



COVID-19 response

**How people learned to use mobile apps
and digital information resources**

All Finland: COVID-19 laboratory confirmed cases in hospital, those of them who are intensive care and and those who have deceased. Daily amounts 1.1.–14.11.2020.



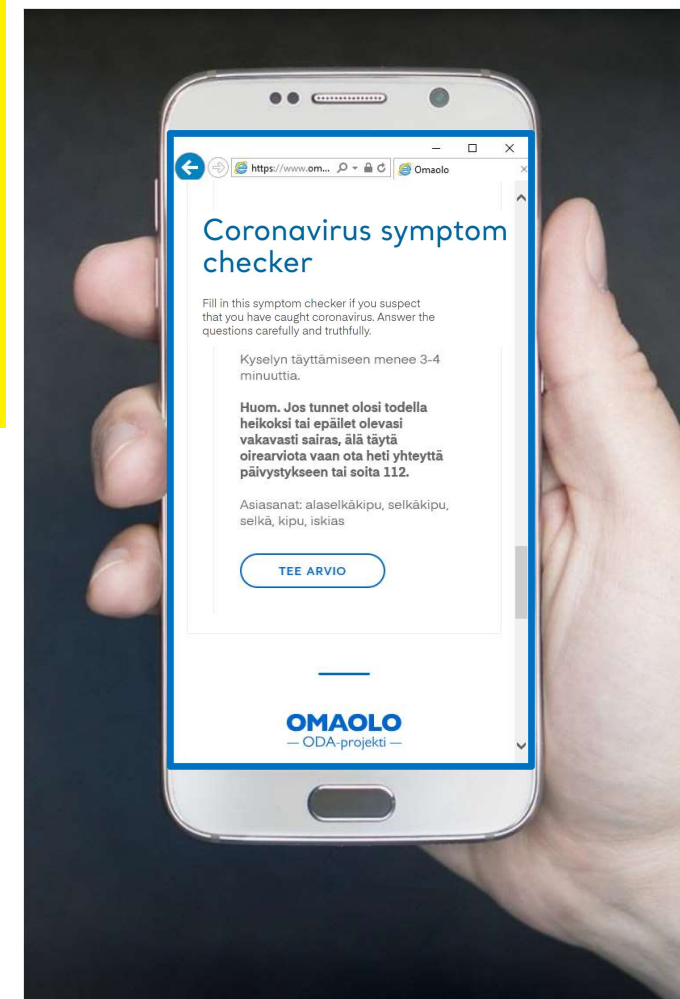


Supporting the Hybrid strategy: Trace, Isolate and Care

1. App (Isolate –Care) since 1st wave: OMAOLO COVID-19 Symptom check-up:

- Use you mobile and connect to health authorities

Situation Information Results Guidance

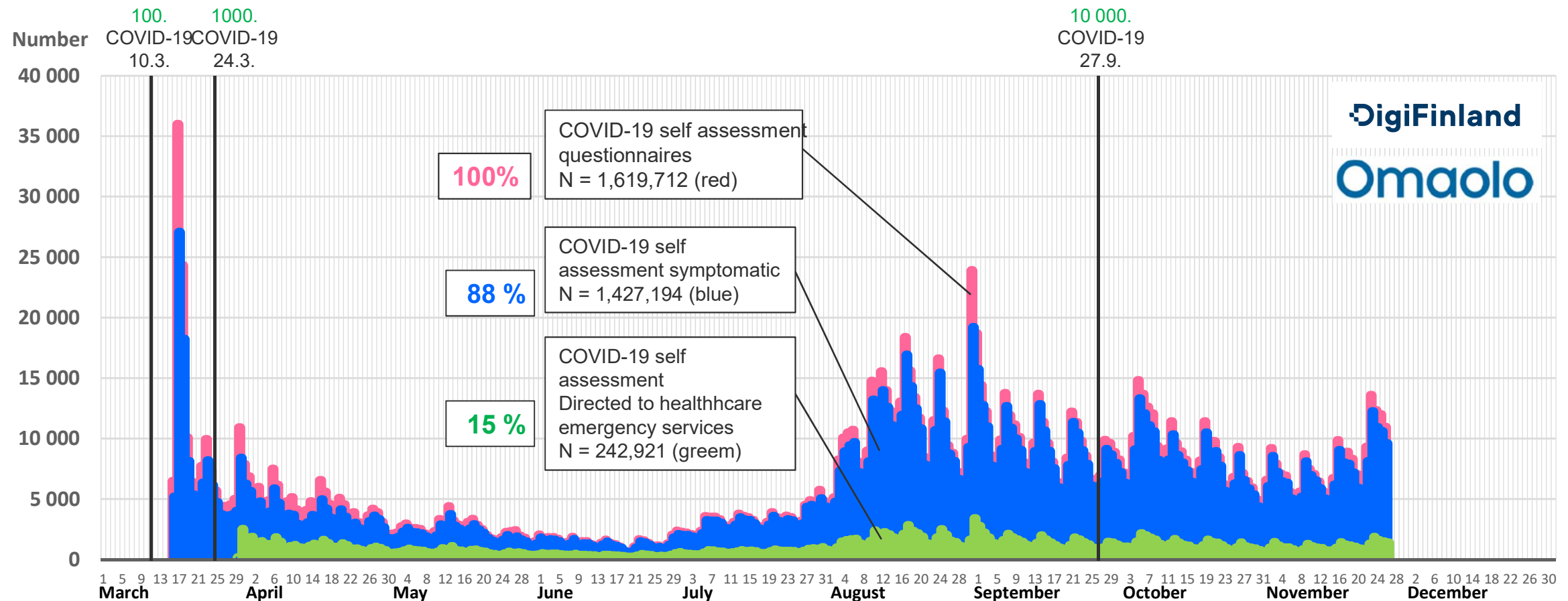


<https://www.omaolo.fi/palvelut/oirearviot/649>

Twitter: @reponenjarmo

The Omaolo COVID-19 symptom assessment medical device (CE-marked) in Finland:

Number of questionnaires (n = 1.620 million) symptomatic (n = 1.427 million) and referred to healthcare emergency services (n = 0.245 million) daily from March 16 to November 25, 2020.



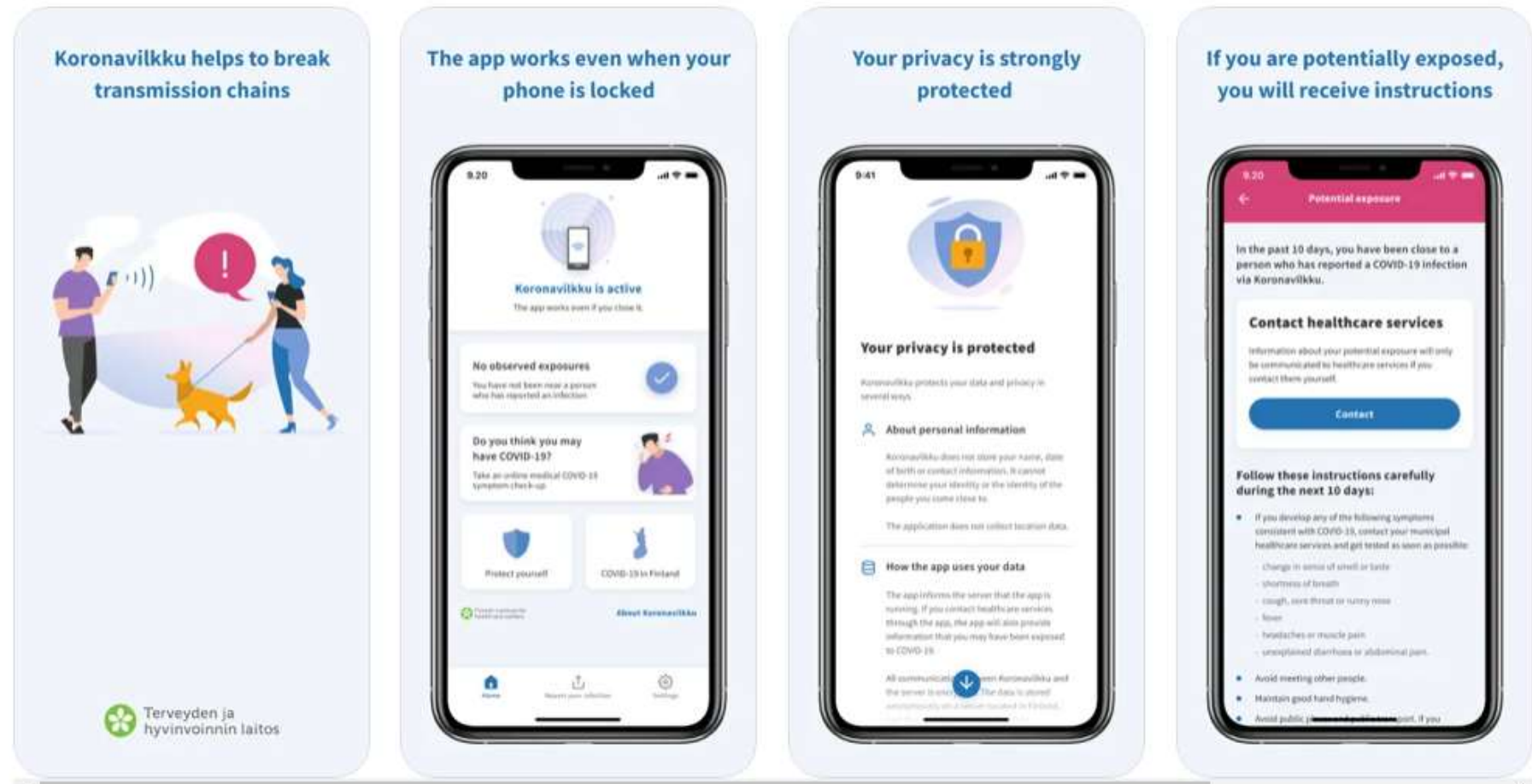


2. App (Trace-Isolate) since 2nd wave: Koronavilkku, Finland's coronavirus app

Koronavilkku has now been published - download the app to your phone!

31 Aug 2020

The Koronavilkku smartphone app has now been published to help break infection chains. You can now download Koronavilkku to your phone free of charge from the most popular app stores.



Source: THL, Apple App Store

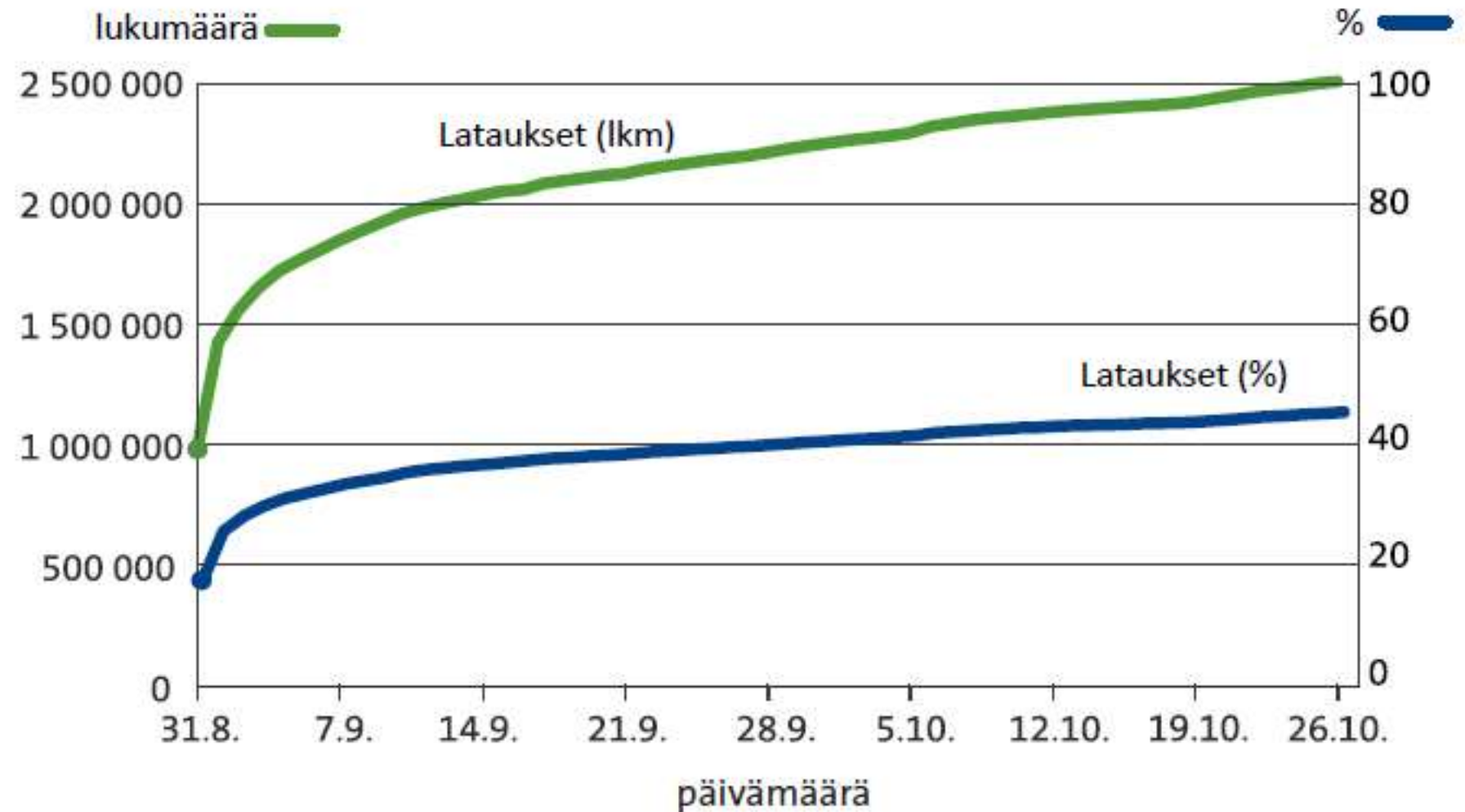
Twitter: @reponenjarmo
8.12.2020

Cumulative loads of Koronavilkku App from app shops (App Store, Google Play) to smart phones in 31.8.–26.10.2020.

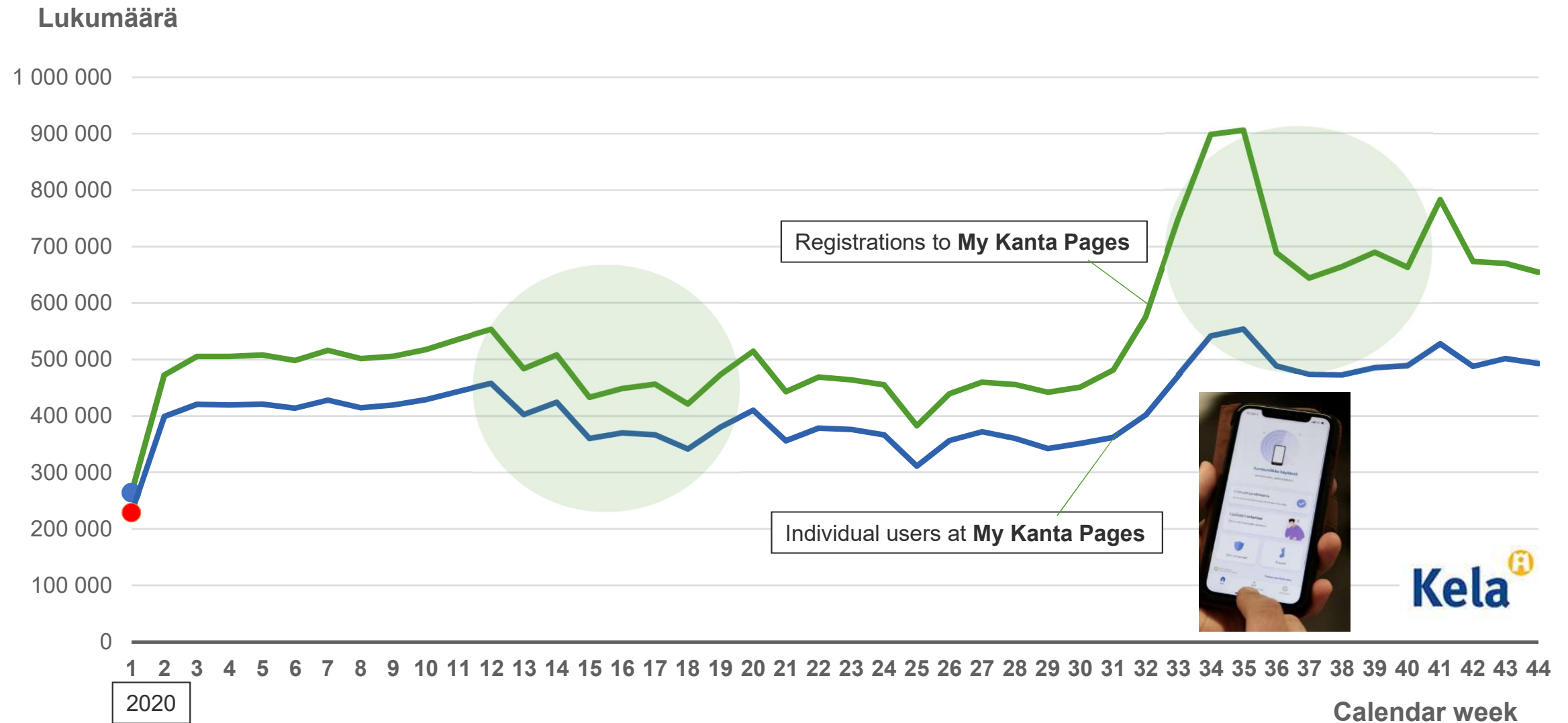
5th Nov 2020:

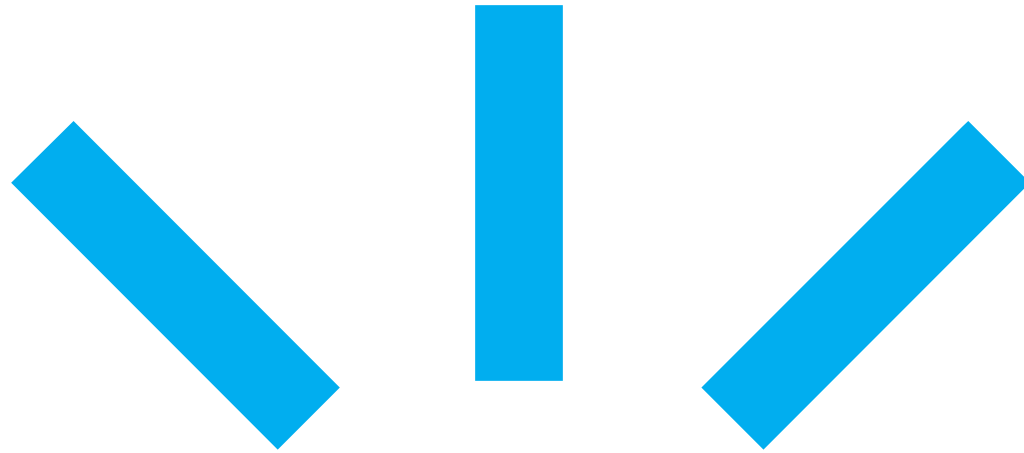
The Koronavilkku app has been downloaded more than 2.5 million times. The app was published just over two months ago.

Relative to population size, Koronavilkku is one of the most-downloaded coronavirus applications in the world.



Finland: registrations and individual users in the national My Kanta Pages during weeks 1–44 in 2020. Note the relation to Coronavirus Apps

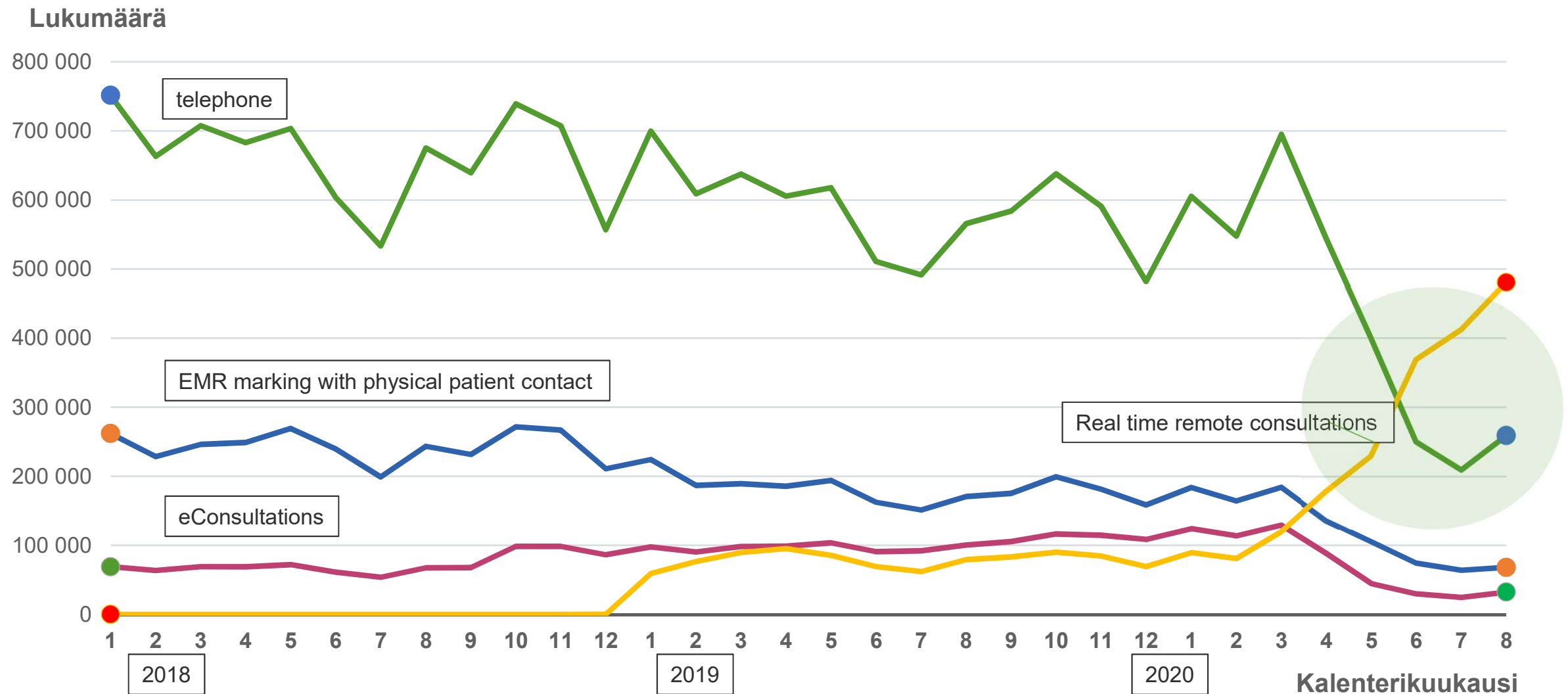




How physician consultations changed

**Effect to remote consultations in public
and private health care sector**

Finland: Public primary care (Primary CareHealth Centres) telephone consultations, EMR markings without patient contact, eConsultations and real time remote consultations (video, chat) per month in 2018–2020.



Private sector: information delivery, case 1



2.12.2020

Source: <https://share.geckoboard.com/dashboards/4BCOFKAYZPKGVDSEB>

Private sector: information delivery, case 2



Terveystalo

NÄIN SUOMI VOI - KORONAEPIDEMIA

Muut raportit ▼

YLÄHENGITYSTIEINFEKTIOITA (J06)

1.3.2020 alkaen

135 313 ^{118 284}₂₀₁₉

TERVEYSTALO JULKAISEE PÄIVÄKOHTAISTA DATAA KORONAEPIDEMIAAN LIITTYEN

Koronaepidemian seurannassa ja hallinnassa oleellista on, että päiväkohtaista testauskapasiteettia on riittävästi, ja viive tartuntaepäilystä testaukseen ja tulokseen on mahdollisimman lyhyt. Näin saamme varmistuneet positiiviset testitulokset mahdollisimman nopeasti tietoon ja tartuntaketjut voidaan jäljittää.

Olemme tuoneet koronaosoitustestin rinnalle vasta-ainetestin. Vasta-ainetestin tehdään yli 3 viikkoa oireiden tai altistumisen jälkeen ja antaa myös tietoa siitä onko sairastanut taudin. Vasta-ainetestin ei auta akuutissa tartuntaketjujen jäljityksessä, mutta on tärkeä osa epidemian seurannassa. Koronadiagnoosien lisäksi seuraamme myös ylähengitystieinfektioiden diagnooseja ja niiden kehitystä epidemian aikana.

Data perustuu Terveystalossa tehtyjen koronavirustestien tuloksiin, lääkärin vastaanotoilla tehtyihin läheteisiin ja potilastietojärjestelmään kirjattuihin diagnooseihin 1.3.2020 alkaen. Aikasarjoissa data on järjestetty näytteenottopäivän mukaan. Data päivitetty viimeksi 31.8.2020 07:30.

Lue lisätietoa, miten Terveystalossa olemme järjestäneet [asioinnin ja testauksen](#). Yhteydenotot: viestinta@terveystalo.com

Suodata: **Kaikki** **Virusosoitustestit** Vasta-ainetestit

DIAGNOOSIT VIIKOITTAIN

J06 Useissa tai määrittämättömissä ylähengitysteiden kohdissa esiintyvä akuutti infektio



AIKASARJA

Lähetteenä näytteenotto, tulokset ja positiiviset näytteenotot kumulatiivisesti (vain virusosoitustestit)

	Koronan virusosoitus-testi	Koronan vasta-ainetestin
Lähetteenä	67994	4815
Otetut näytteet	60824	4017
Analysoidut näytteet	59826	3922
Positiiviset tulokset	650	211
Positiivisten osuus	1,1%	5,4%

Henkilöt, joilta otettu aiemmin negatiivinen koronavirusesoitustestin tulos

Negatiivisia Positiivisia

OTETUT NÄYTTEET

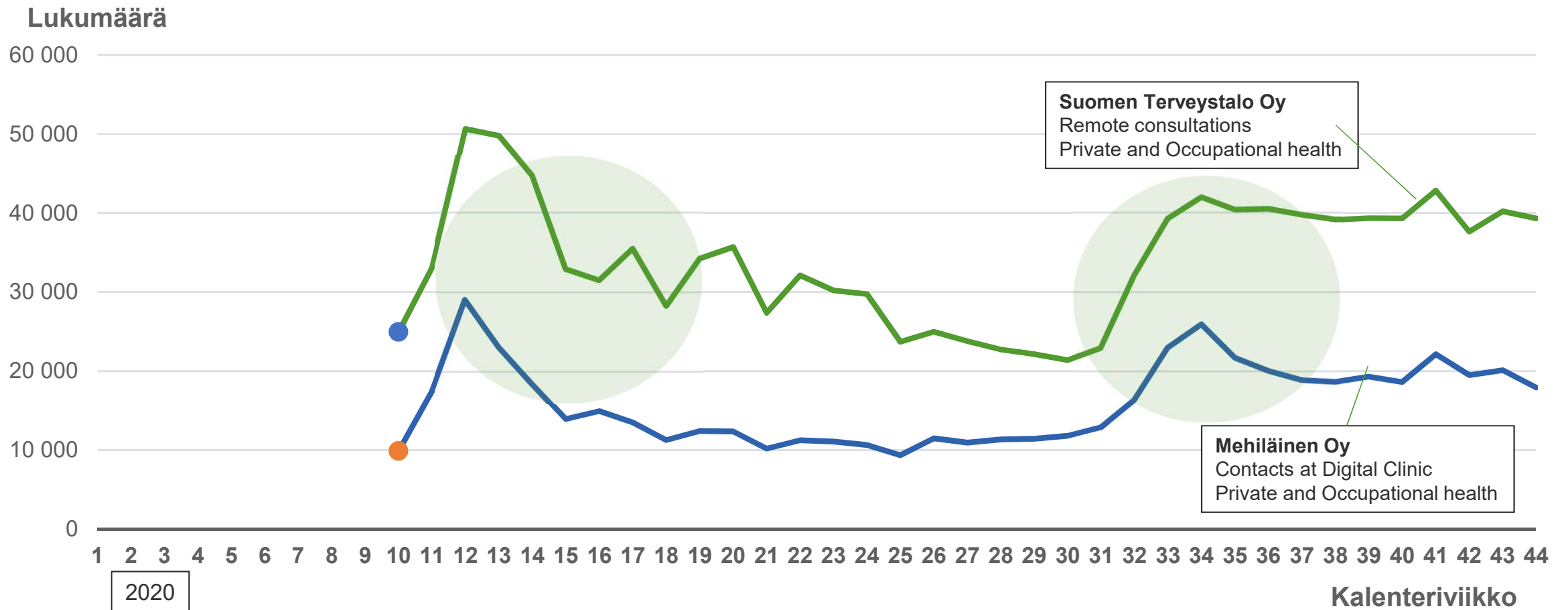
Otetut näytteet sairaanhoitopiireittäin (vain virusosoitustestit)



2.12.2020

Source: <https://avoinraportointi.terveystalo.com/korona/>

Private sector: Digital health remote consultations (chat, video, etc) weeks 10–44 (1.3.–1.11.2020).



Thank you!

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