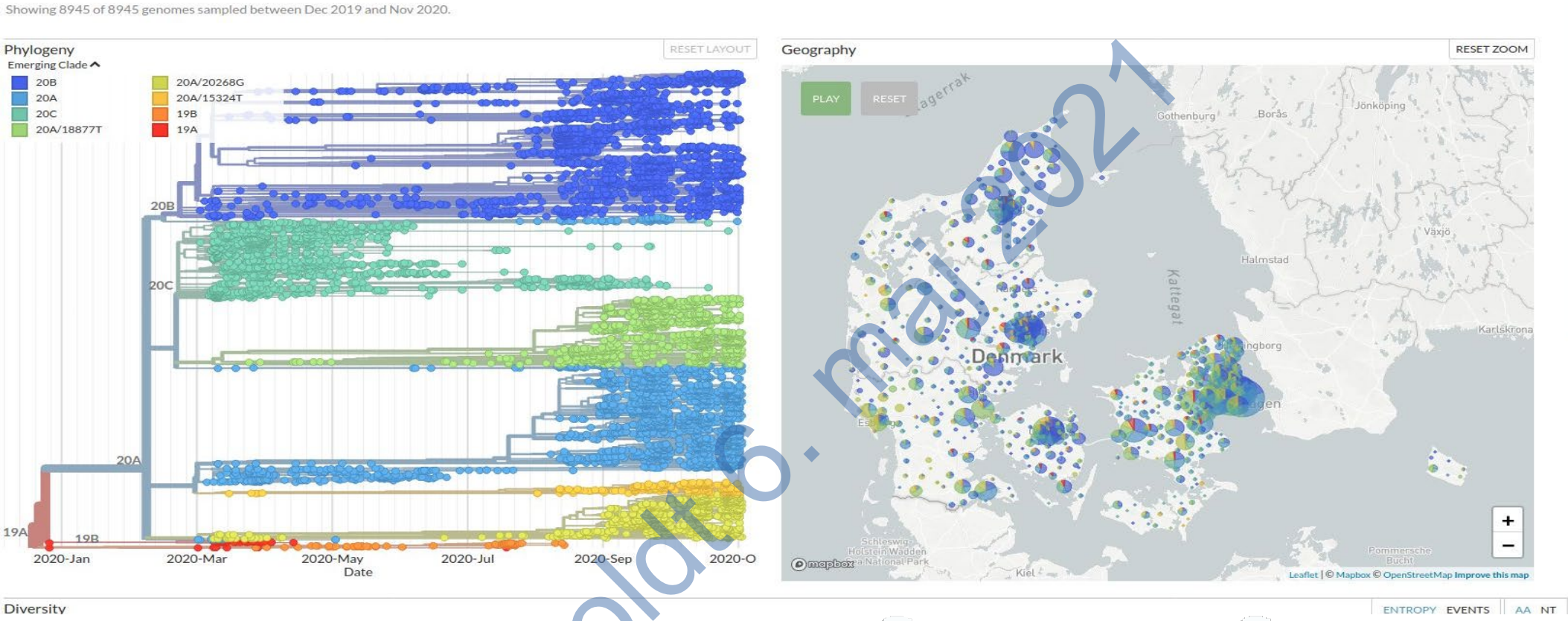
SARS-COV-2 SEKVENTERING I DANMARK

STATENS SERUM INSTITUT



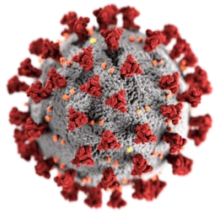
Arholdt 6. maj 2021

Morten Rasmussen, Seniorforsker, PhD
Virus og Mikrobiologisk Specialdiagnostik, SSI

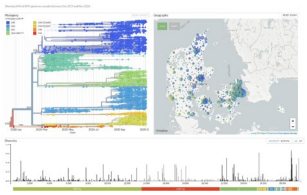
SARS-COV-2 SEKVENTERING I DANMARK

STATENS SERUM INSTITUT

Hvordan det hele startede



Epidemien set gennem sekventering



Rapporteringer

Afholdt 6. maj 2021

DEN FØRSTE BØLGE

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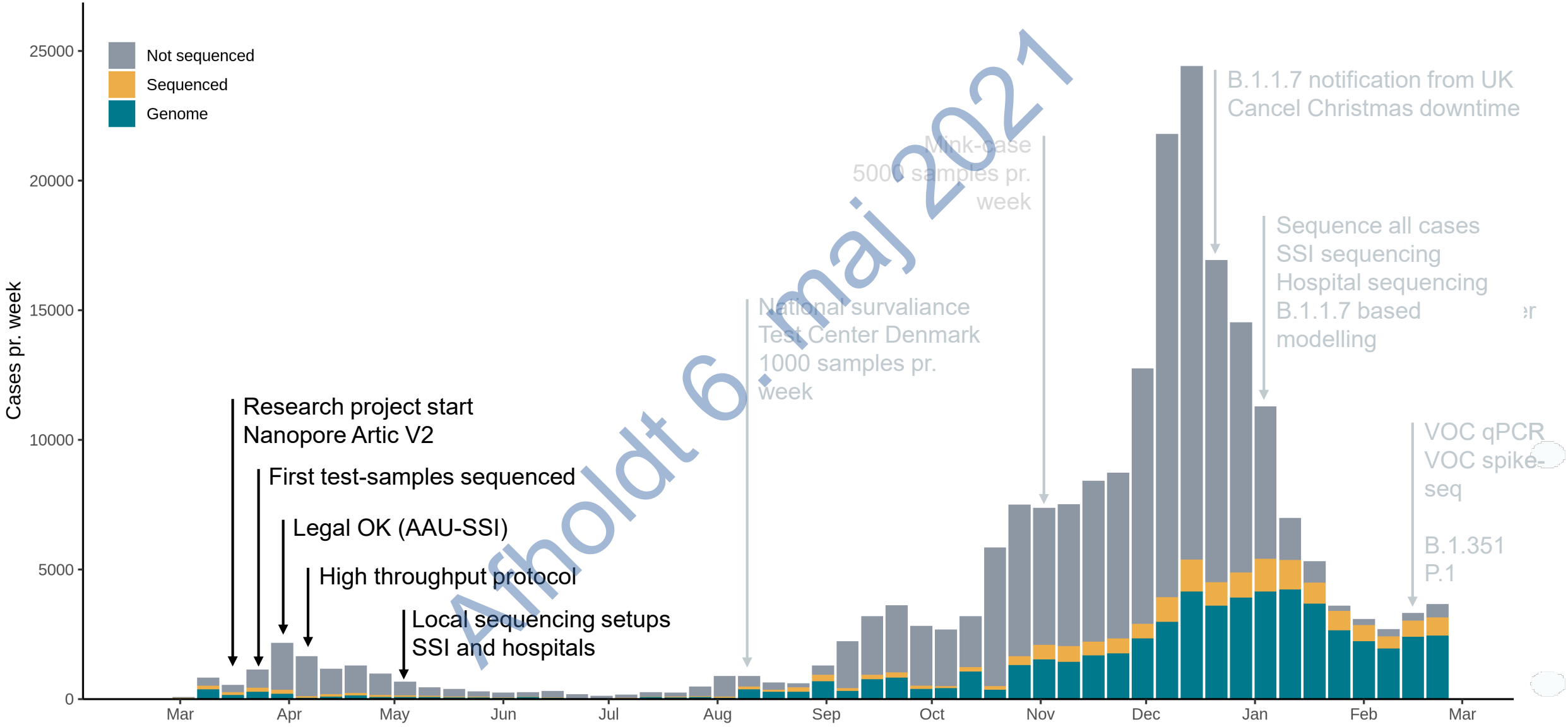


Afholdt 6. maj 2021

”Genome” = less than 3000 N

Danish Covid-19 Genome Consortium

MINK UDBRUD

STATENS SERUM INSTITUT

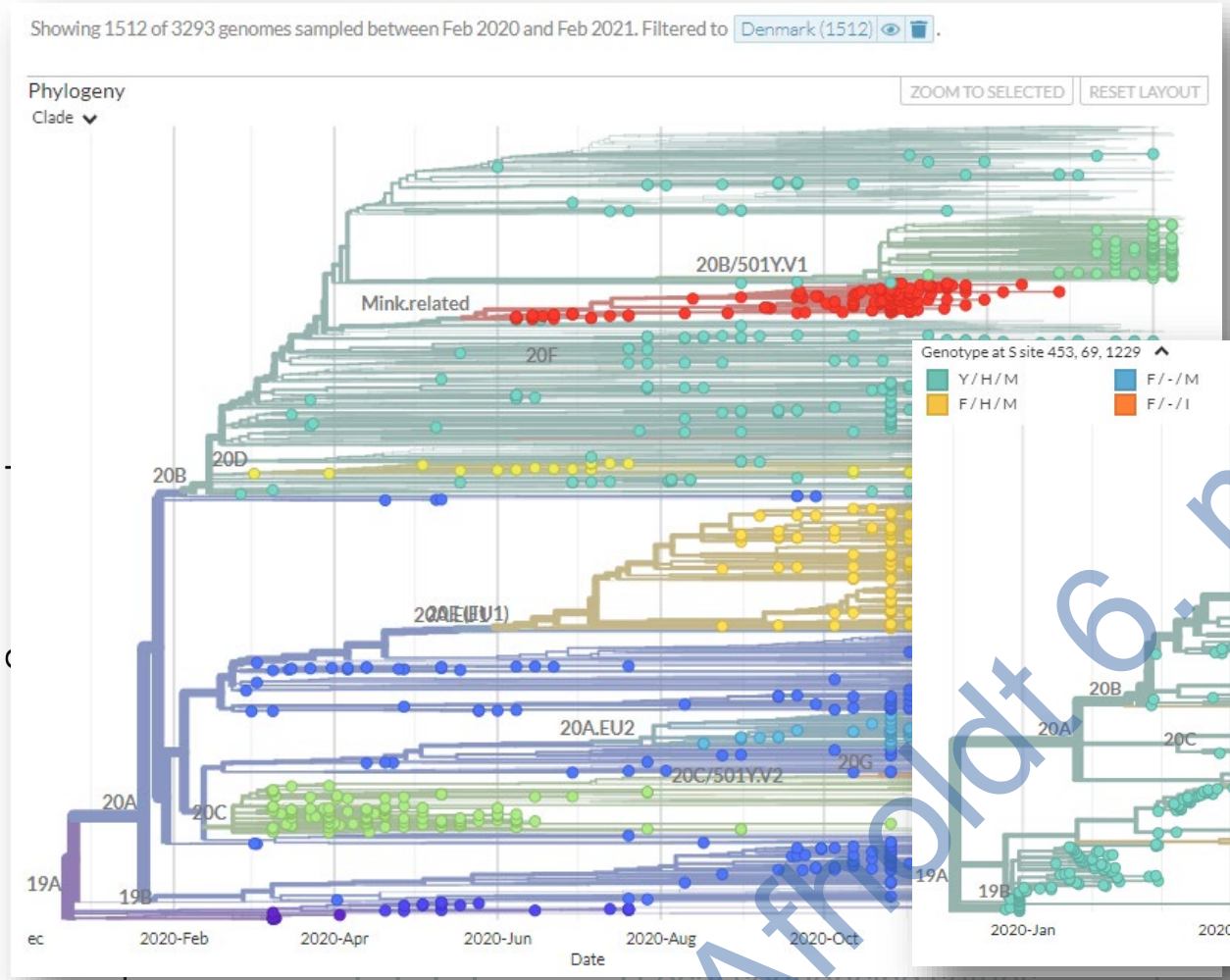
Ændret 6. maj 2021

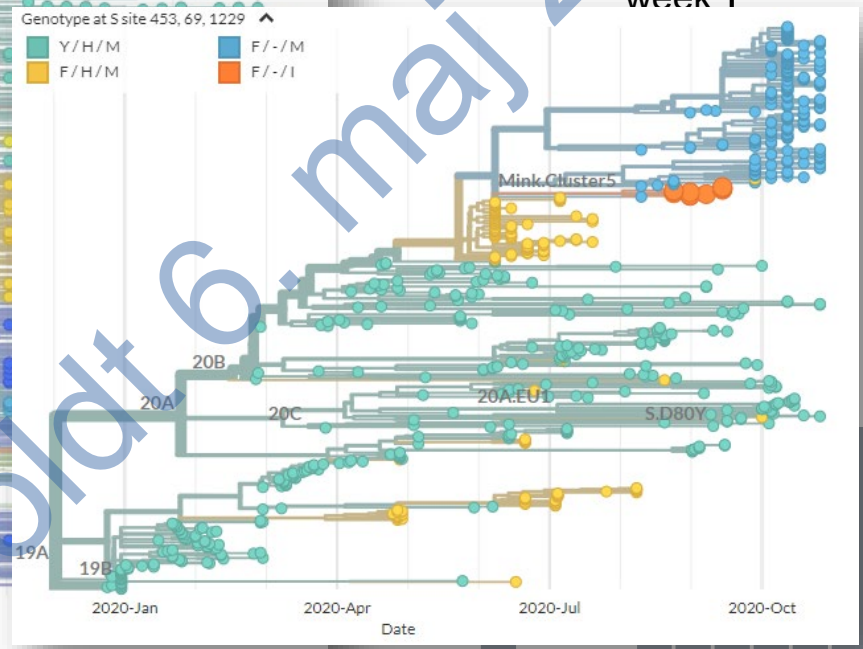
”Genome” = less than 3000 N

Danish Covid-19 Genome Consortium

MINK UDBRUD

STATENS SERUM INSTITUT





Mink-case
5000 samples pr. week

B.1.1.7 notification from UK
Cancel Christmas downtime

Sequence all cases
SSI sequencing
Hospital sequencing
B.1.1.7 based modelling

VOC qPCR
VOC spike-seq

B.1.351
P.1

Local sequencing setups
SSI and hospitals

0
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar

Arnoldt 6. maj 2021

”Genome” = less than 3000 N

Danish Covid-19 Genome Consortium

OVERSIGT SARS-COV-2 SEKVENTERING

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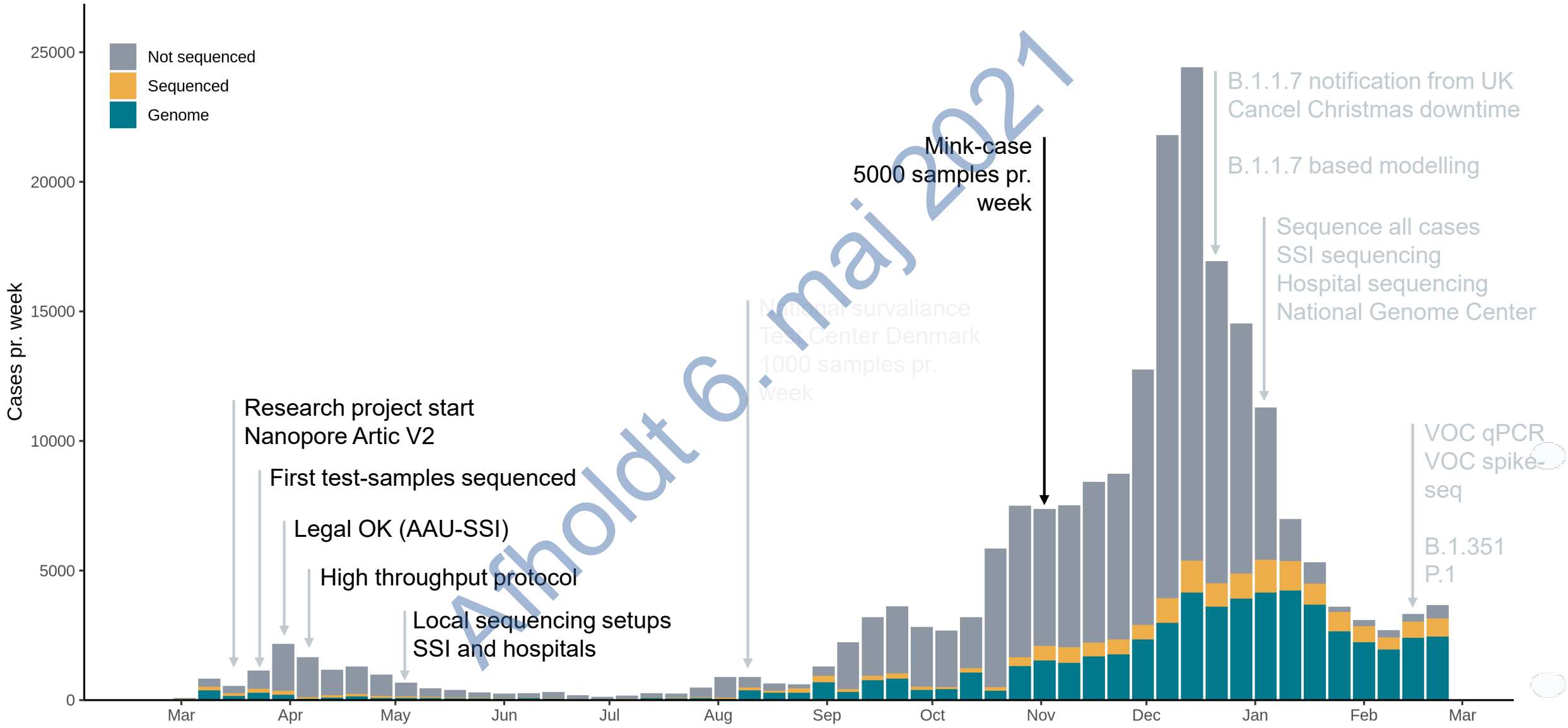

Arholdt 6. maj 2021

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Danish Covid-19 Genome Consortium

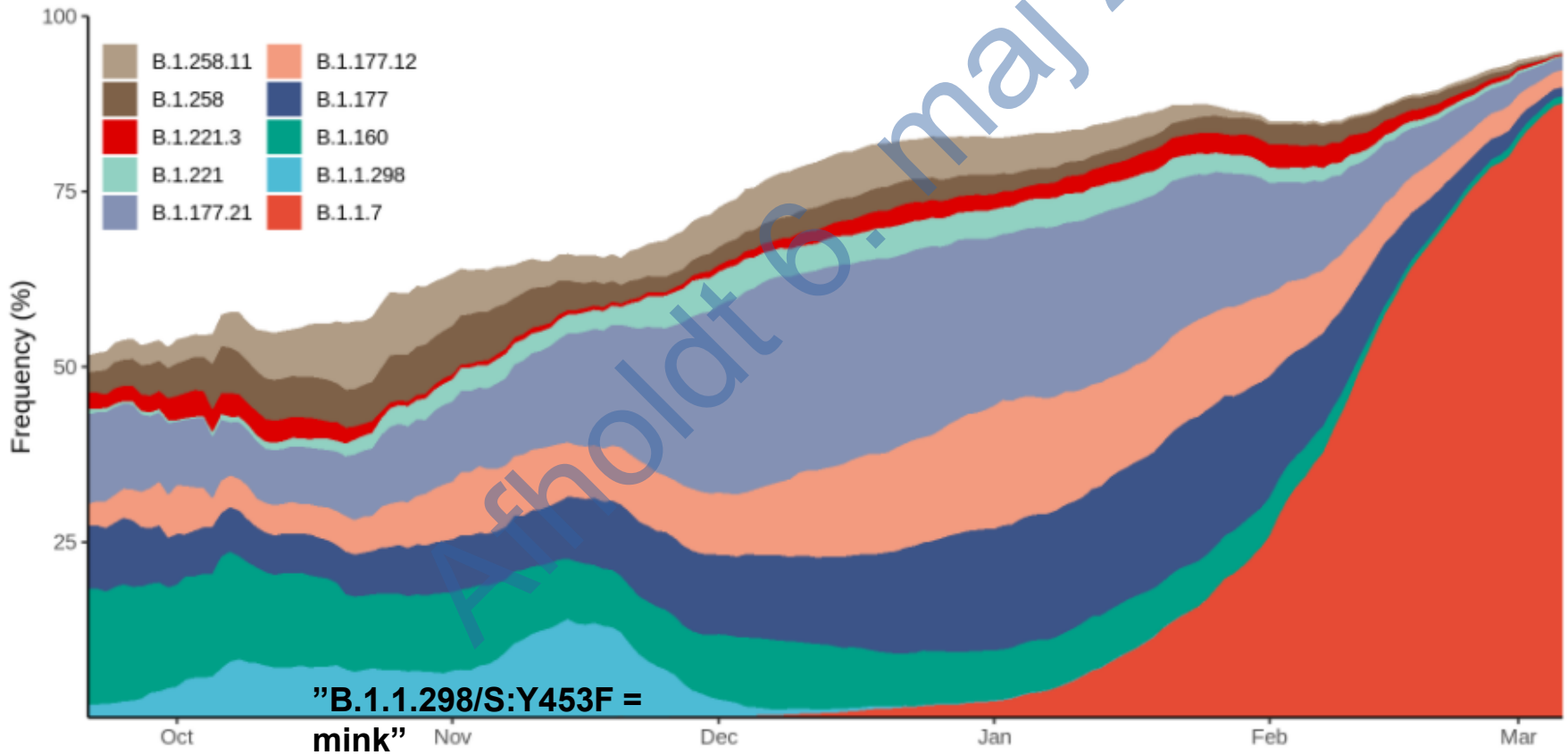
MINK UDBRUD

STATENS SERUM INSTITUT

Dominating lineages

Frequency of the 10 most abundant PANGO lineages across Denmark within the last 6 months. The frequency is calculated as a centered 14-day rolling average. Note that some regions have low case-counts in some periods, which can make small absolute changes look dramatic on a relative scale.

Whole Denmark | Hovedstaden | Midtjylland | Nordjylland | Sjælland | Syddanmark



”B.1.1.298/S:Y453F = mink”

Afholdt 6. maj 2021

MINK UDBRUD

STATENS SERUM INSTITUT

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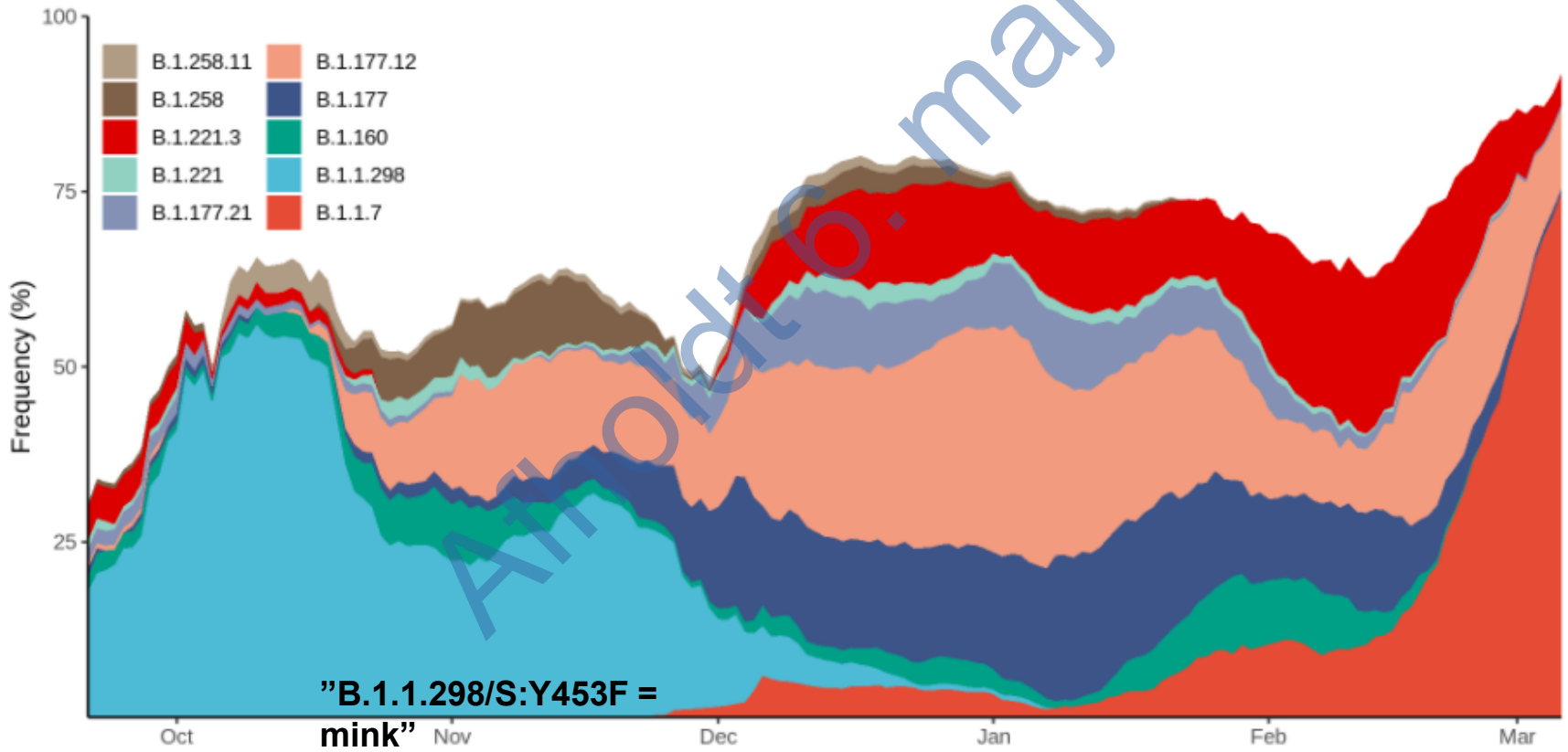
Frequency of the 10 most abundant PANGO lineages across Denmark within the last 6 months. The frequency is calculated as a centered 14-day rolling average. Note that some regions have low case-counts in some periods, which can make small absolute changes look dramatic on a relative scale.

Whole Denmark | Hovedstaden | Midtjylland | **Nordjylland** | Sjælland | Syddanmark



”B.1.1.298/S:Y453F = mink”

Arnoldt 6. maj 2021

MINK UDBRUD

STATENS SERUM INSTITUT

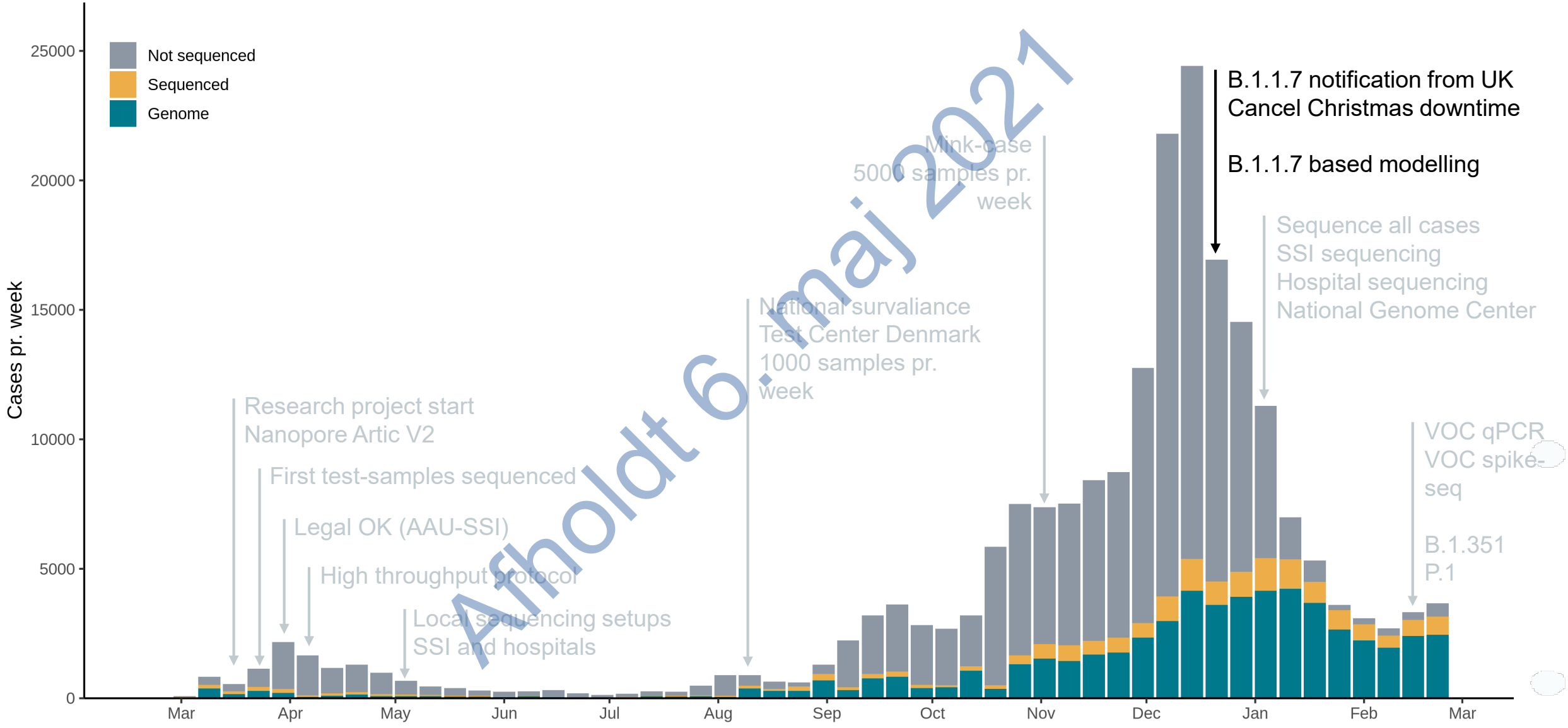
Afmeldt 6. maj 2021

”Genome” = less than 3000 N

Danish Covid-19 Genome Consortium

DEN ENGELSKE VARIANT

STATENS SERUM INSTITUT



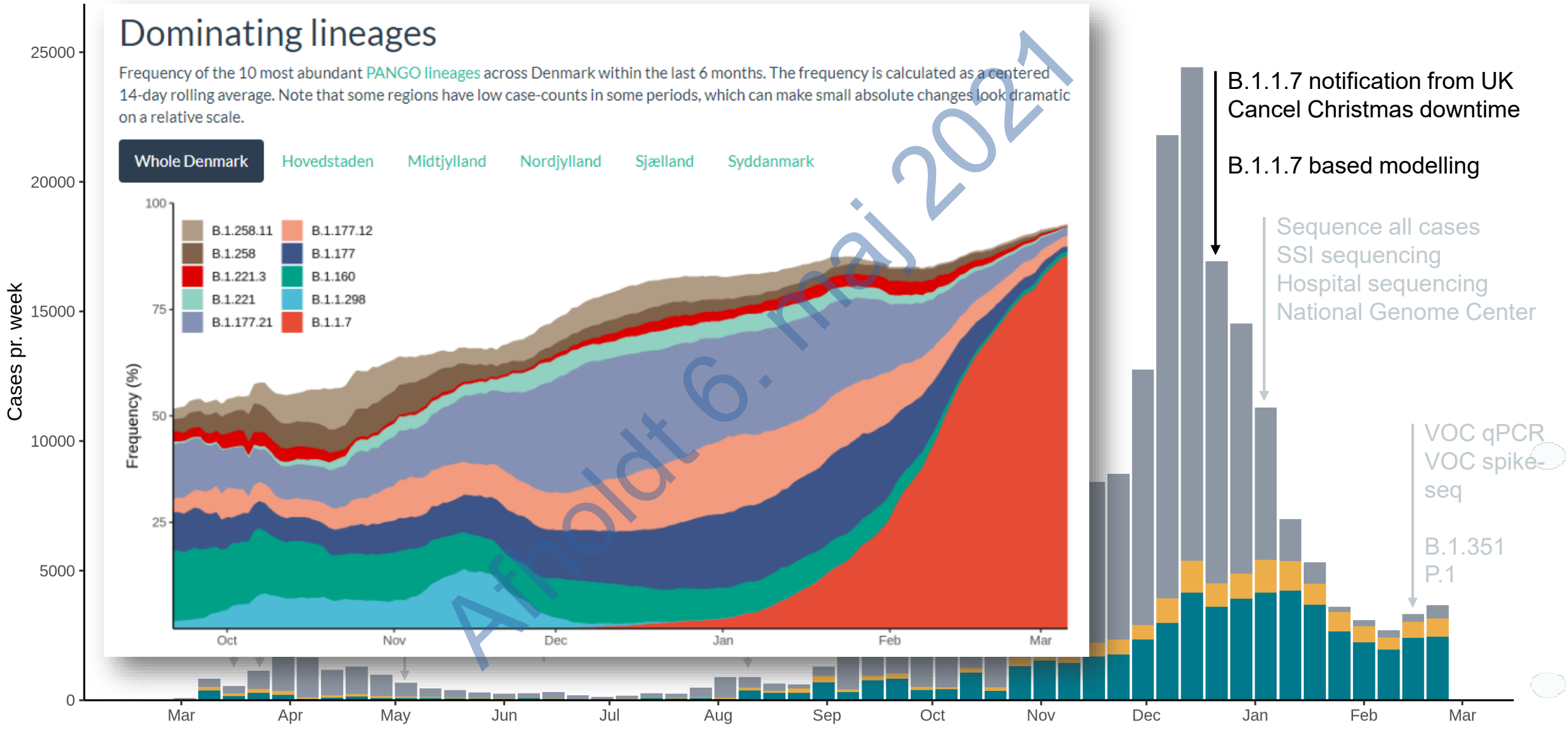
Afholdt 6. maj 2021

”Genome” = less than 3000 N

Danish Covid-19 Genome Consortium

DEN ENGELSKE VARIANT

STATENS SERUM INSTITUT



Aftoldt 6. maj 2021

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DEN ENGELSKE VARIANT

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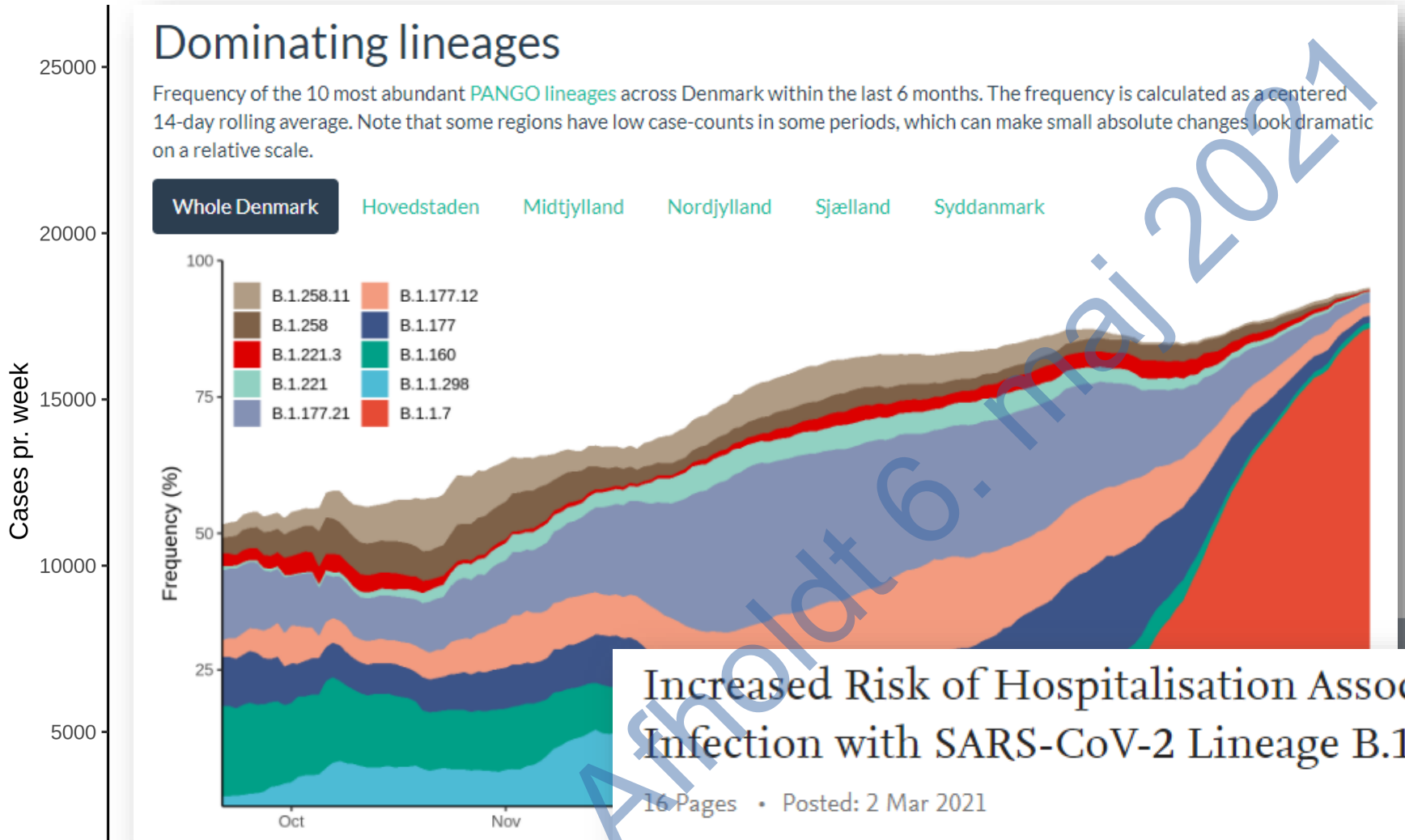


Arnoldt 6. maj 2021

B.1.1.7 notification from UK
Cancel Christmas downtime

B.1.1.7 based modelling

Sequence all cases
SSI sequencing
Hospital sequencing
National Genome Center

VOC qPCR
VOC spike-seq

B.1.351
P.1

Increased Risk of Hospitalisation Associated with Infection with SARS-CoV-2 Lineage B.1.1.7 in Denmark

16 Pages • Posted: 2 Mar 2021

Peter Bager
Statens Serum Institut

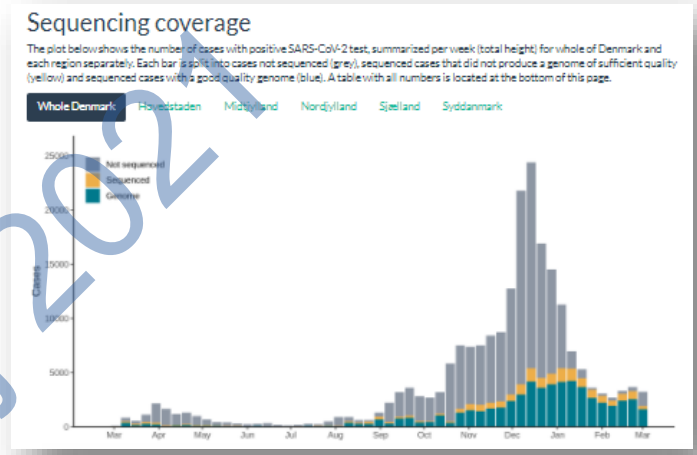
”Genome” = less than 3000 N

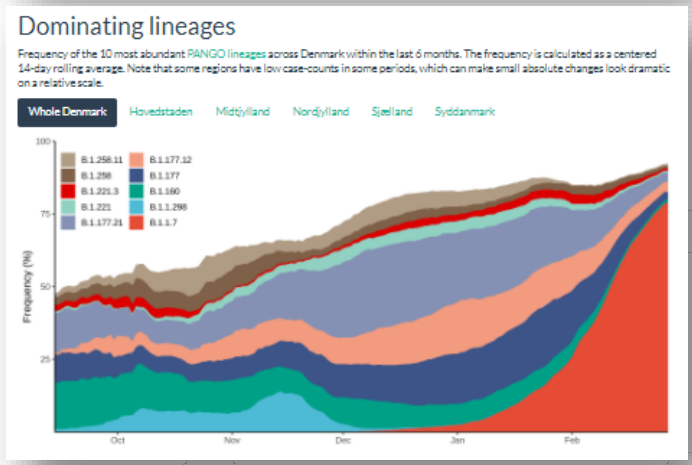
Danish Covid-19 Genome Consortium

RAPPORTERINGER

STATENS SERUM INSTITUT

- **Daglige data opdateringer kl 12.**
- **Oversigtsrapporter**
  - Status på sekventering og VOC/VOIs
- **Udbruds og variant rapporter**
  - Epikurver + fylogeni
- **Data til modelleringsgruppen**
  - Beregning af kontakttal
- **Breakthruogh infektioner**
  - Overvågning af infektioner post vaccination
- **Overvågning af diagnstiske assays**
  - Primer/probe statistikker.





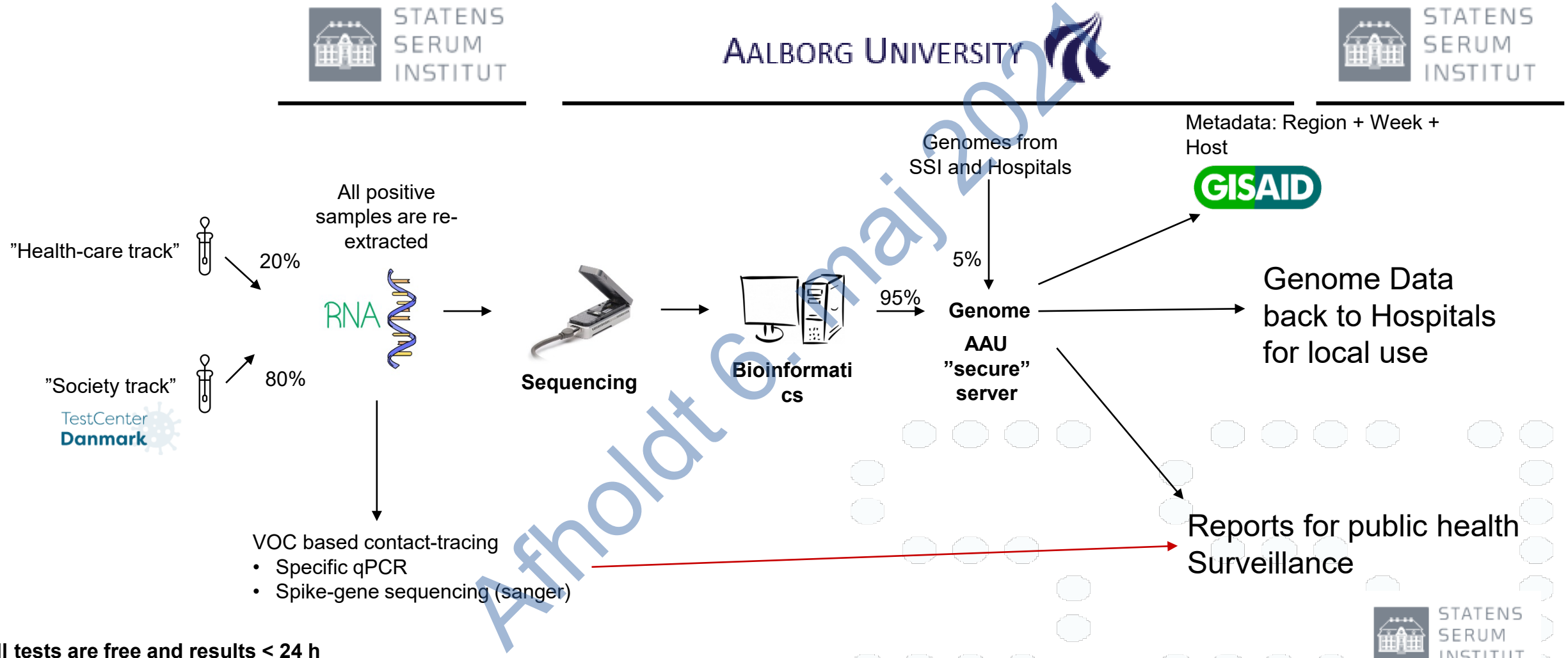
Afholdt 6. maj 2021

FROM PATIENT TO DATA

STATENS SERUM INSTITUT

AALBORG UNIVERSITY

STATENS SERUM INSTITUT



Afholdt 6. maj 2021

All tests are free and results < 24 h
RT-qPCR: 150.000 test/day
Antigen: 150.000 test/day
0.3% positive

LÆRINGSPUNKTER

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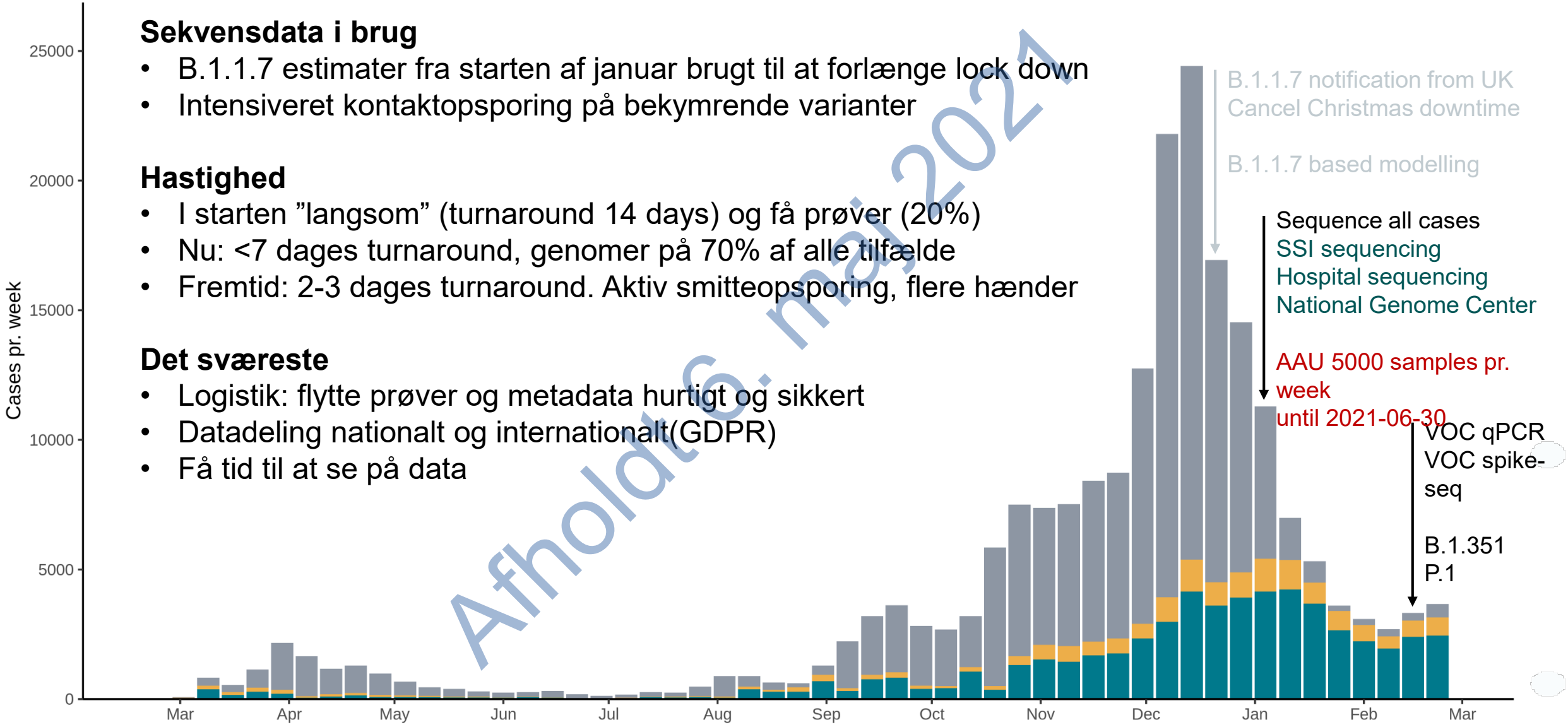
Sekvensdata i brug
- B.1.1.7 estimater fra starten af januar brugt til at forlænge lock down
- Intensiveret kontaktopsporing på bekymrende varianter

Hastighed
- I starten ”langsom” (turnaround 14 days) og få prøver (20%)
- Nu: <7 dages turnaround, genomer på 70% af alle tilfælde
- Fremtid: 2-3 dages turnaround. Aktiv smitteopsporing, flere hænder

Det sværeste
- Logistik: flytte prøver og metadata hurtigt og sikkert
- Datadeling nationalt og internationalt(GDPR)
- Få tid til at se på data



Afholdt 6. maj 2021

DANISH COVID-19 GENOME CONSORTIUM

STATENS SERUM INSTITUT

Coordination (AAU)
Mads Albertsen (PI)

Laboratory (AAU)
Simon Knuttson
Emil A. Sørensen
Trine Sørensen
Celine Petersen
Jakob Brandt
Clarisse Chiche-Lapierre
Frederik Teilfeldt Hansen
Emilio Fuster Collados
Mantas Serika
Wagma Sei
Susan Hove Hansen
Susanne Remmer Bieldt
Thomas Bygh Nymann Jensen

Bioinformatics (AAU)
Thomas Y. Michaelsen
Vang Le-Quy
Rasmus H. Kirkegaard
Kasper S. Andersen
Martin H. Andersen

SSI
Anders Fomsgaard (PI)
Morten Rasmussen
Jannik Fonager
Søren M. Karst
Marc Stegger
Raphael Sieber
Thor Bech Johannesen
Anna Ingham
(+ Lab technicians, bioinformaticians)

Hvidovre Hospital
Kristian Schønning (PI)
Martin S. Pedersen
Sarah Mollerup
Nana Gry Jacobsen

Aalborg University Hospital
Henrik Krarup (PI)

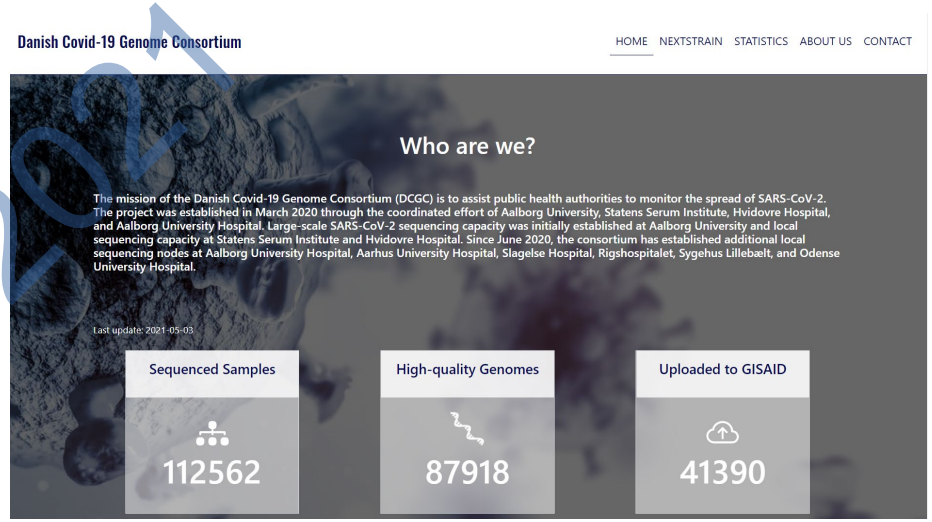
Danish Hospitals
All local KMA's shipping samples to SSI
All local KMA's conducting sequencing

AAU CLAUDIA / IT
Karsten K. Hansen
Mads Boye
Mads P. Bach
Peter Dissing
Michael Collin
Finn Büttner

AAU legal
Susanne Andersen

AAU Computer Science
Katja Hose
Tomer Sagi
Miroslaw Pakanec

AAU SUND
Martin Bøgsted
Rasmus Brøndum



www.covid19genomics.dk/

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POUL DUE JENSEN GRUNDFOS FOUNDATION

Uddannelses- og Forskningsministeriet

DANISH COVID-19 GENOME CONSORTIUM

STATENS SERUM INSTITUT

Formål

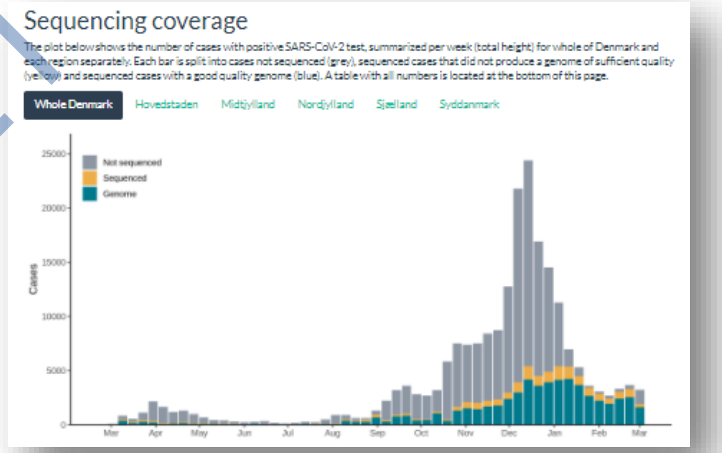
- Opbygning af sekventeringskapacitet
- Bruge helgenomsekventering aktivt som overvågningsværktøj
- Assistere med at etablere Nanopore sekventering på landets sygehuse

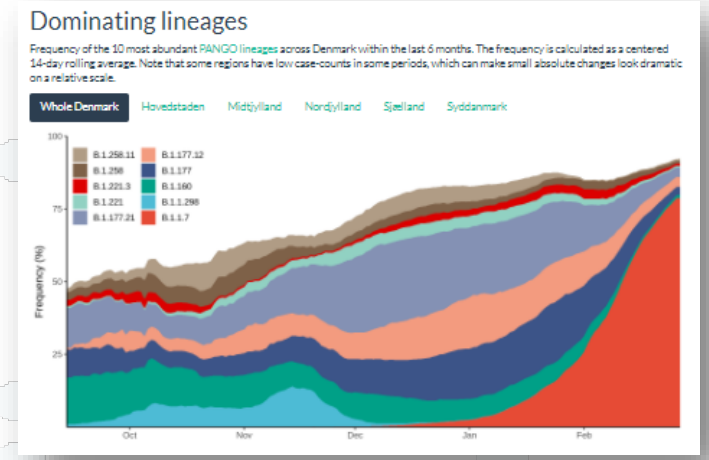
Afholdt 6. maj 2021

REPORTING SYSTEM

STATENS SERUM INSTITUT

- **Outbreak report**
  - In depth reports covering specific outbreaks
- **Data to modelling group**
  - Modelling R-numbers and reopening scenarios
- **Breakthruogh infections after vaccination**
  - Surveillance of infections post vaccination
- **Surveillance of diagnostic assays**
  - Primer/probe statistics
- Information to ministery of health





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