Methods

Modeling excess mortality

Overview

Modeling excess mortality

Overview

“Excess” vs “baseline”

Modeling excess mortality

Overview

“**Excess**” vs “**baseline**”

- Excess: actual events – baseline

Modeling excess mortality

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“Excess” vs **“baseline”**

- Excess: actual events − baseline
- Baseline: expected number of events

Modeling excess mortality

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“**Excess**” vs “**baseline**”

- Excess: actual events **–** baseline
- Baseline: expected number of events
    - Seasonal variation

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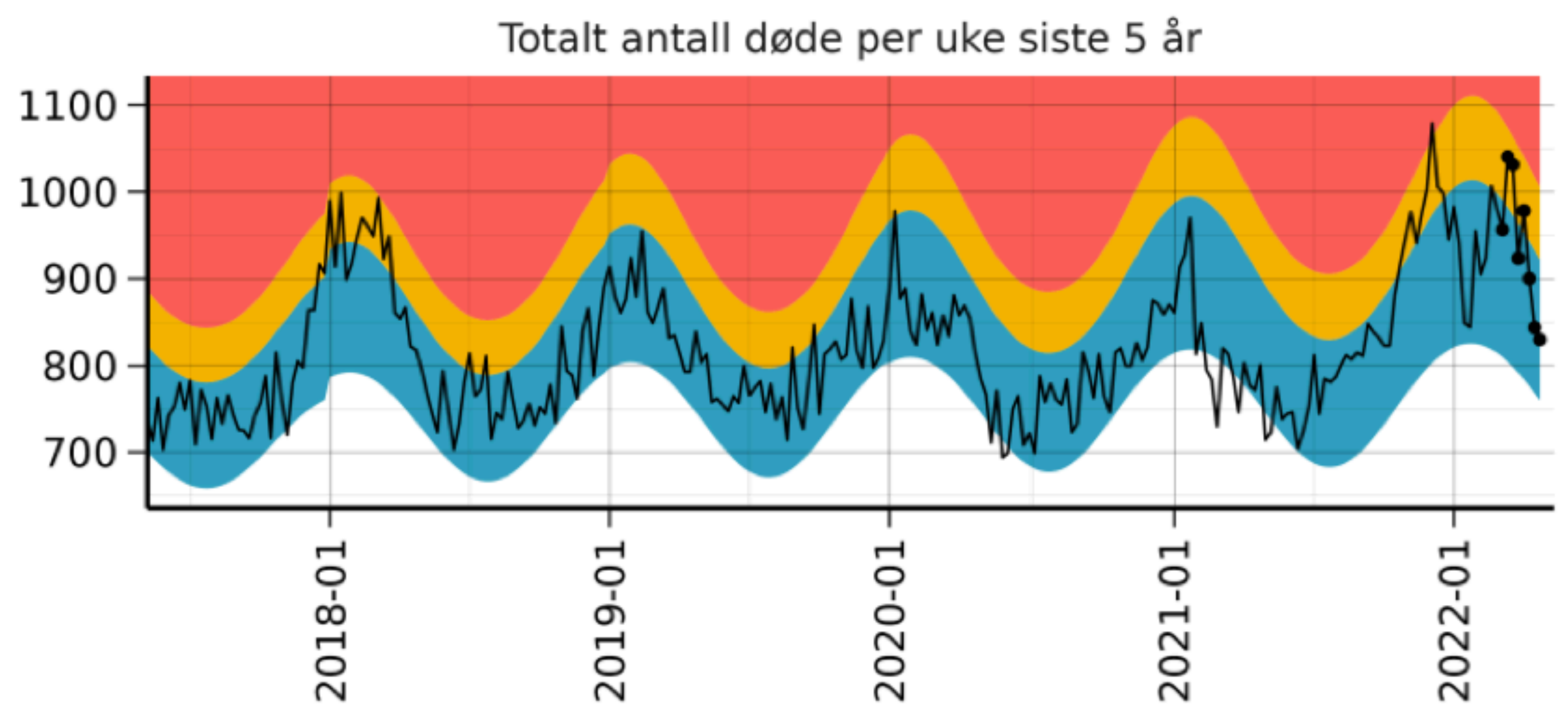

Modeling excess mortality

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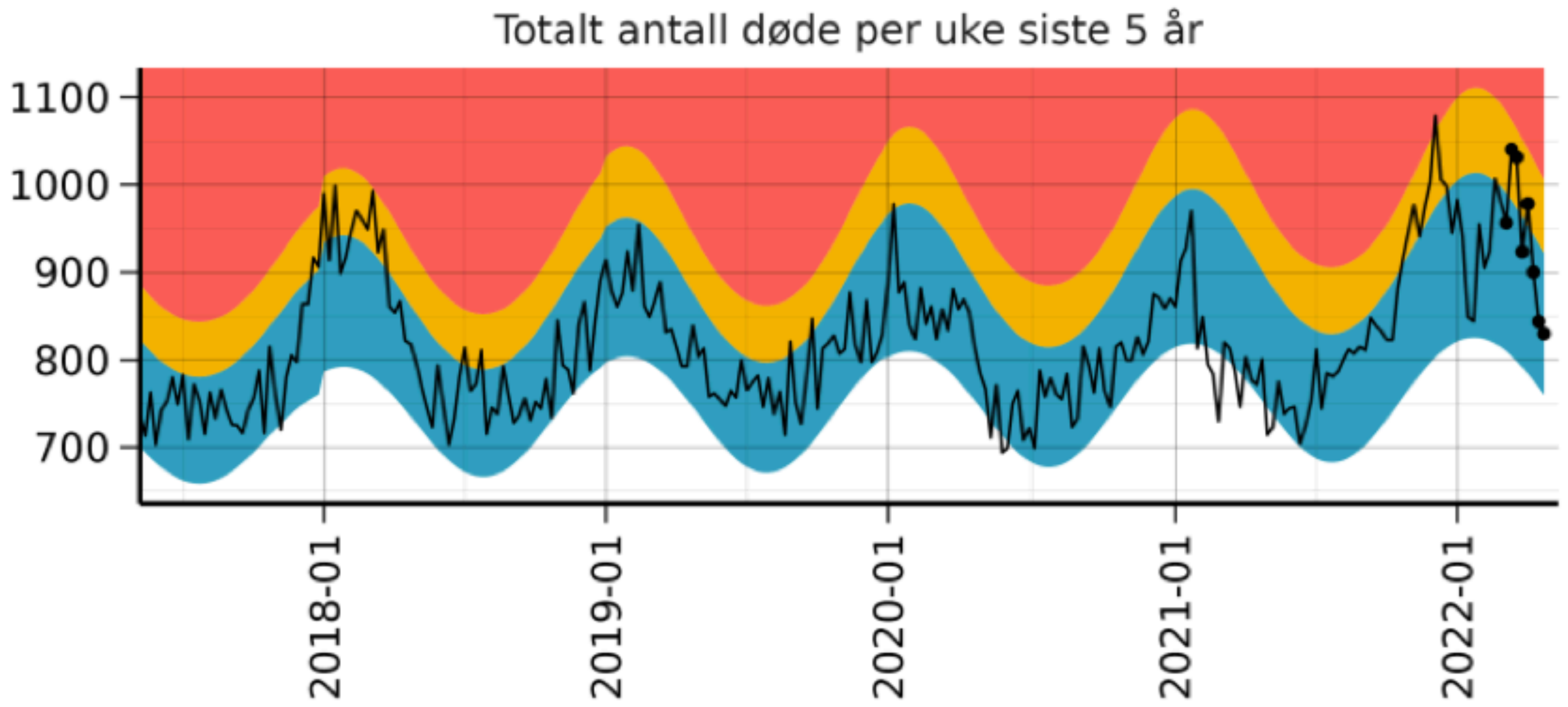

“**Actual** deaths” vs “**reported/registered** deaths”

Modeling excess mortality

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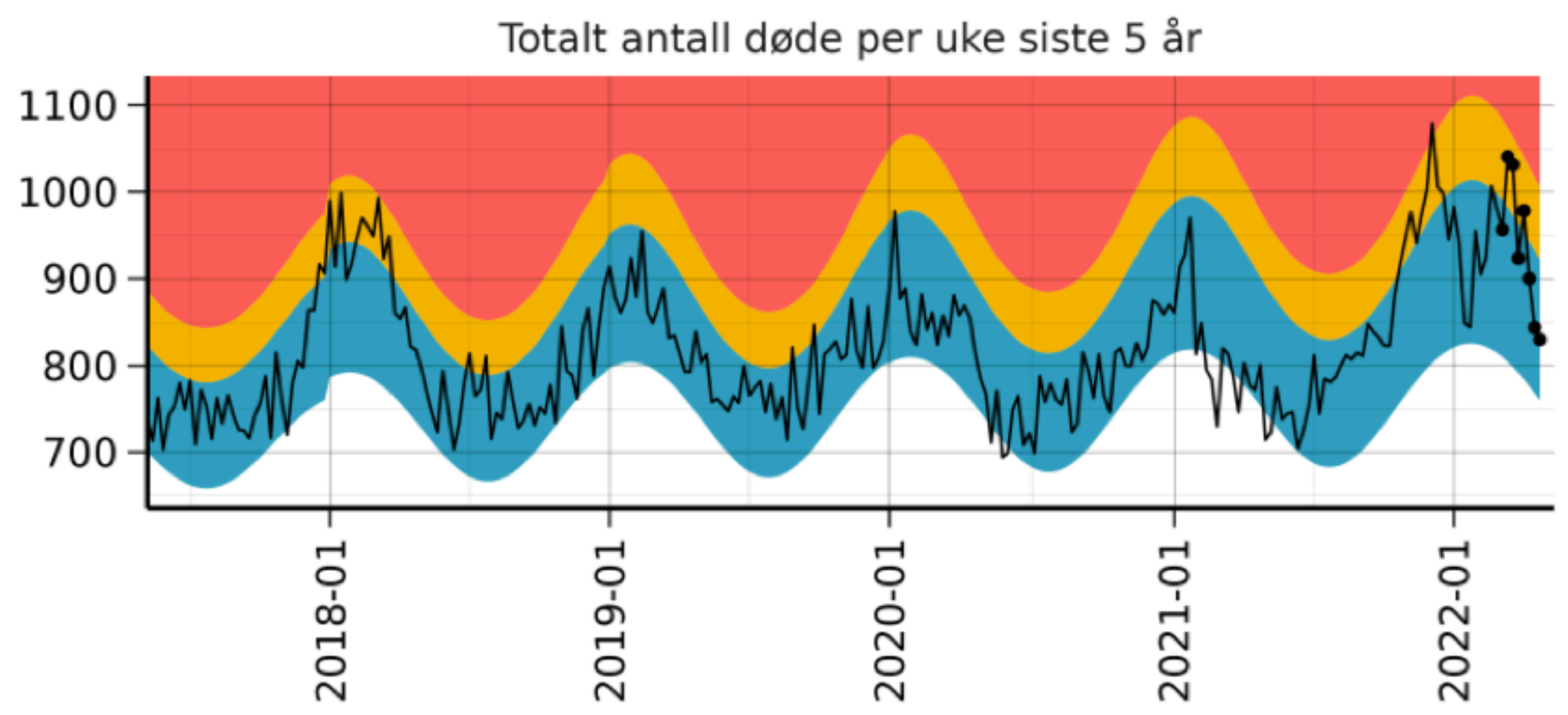

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- Reporting coverage
  - Rich countries, almost 100%
  - Only 2/3 countries register at least 90% deaths

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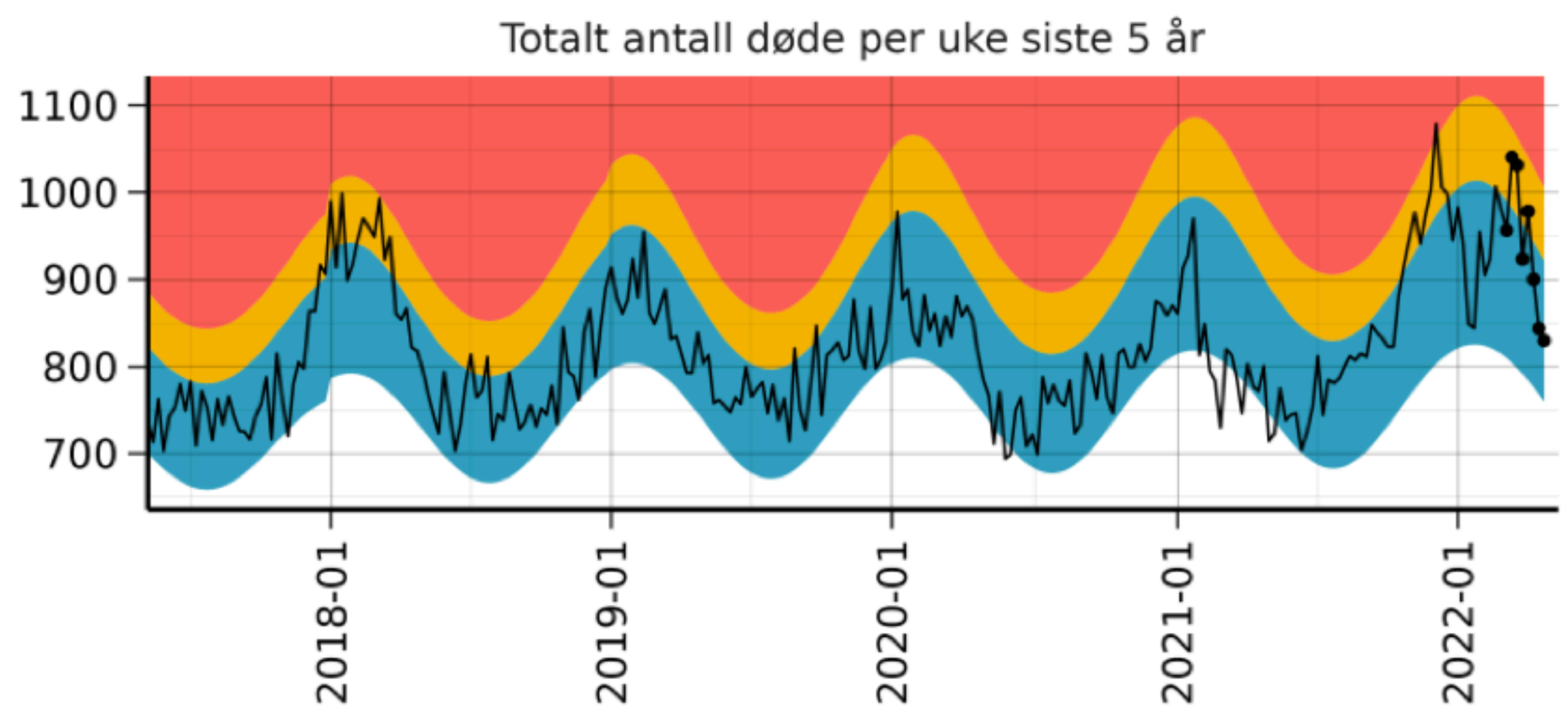

“**Actual** deaths” vs “**reported/registered** deaths”

- Reporting coverage
  - Rich countries, almost 100%
  - Only 2/3 countries register at least 90% deaths
- Reporting delay
  - paper based / electronic reporting
  - cause of death examination

Modeling excess mortality

Reporting delay and correction

Modeling excess mortality

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A common problem

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Modeling excess mortality

Baseline estimation, excess reporting

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    - Simple model: 5 year weekly average (Bernard 2021)
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    - Estimates with intervals for risk levels
    - Z <= 2, no excess
    - 2−4: low excess; 4−7 moderate excess; 7−10 high excess

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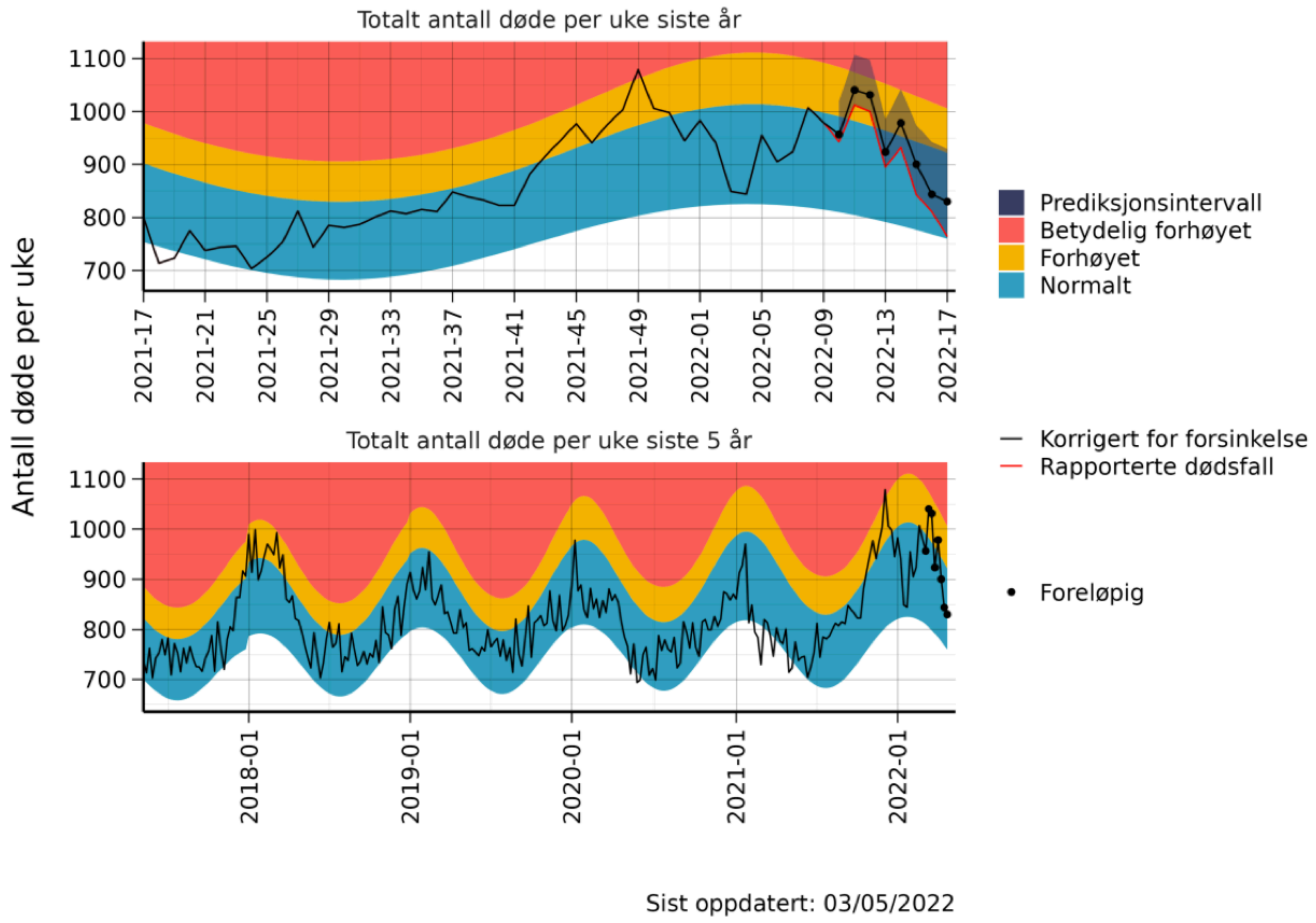

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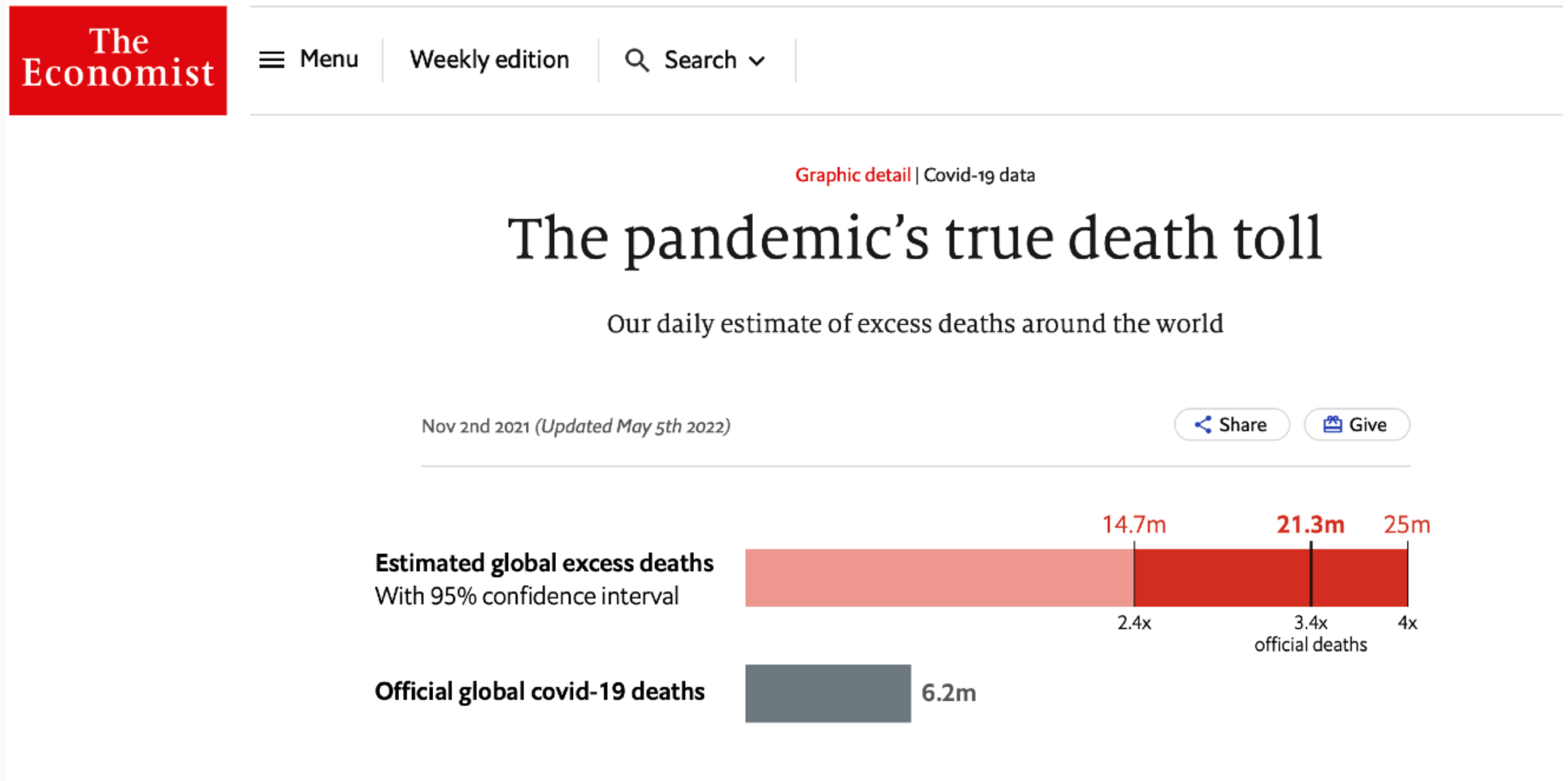

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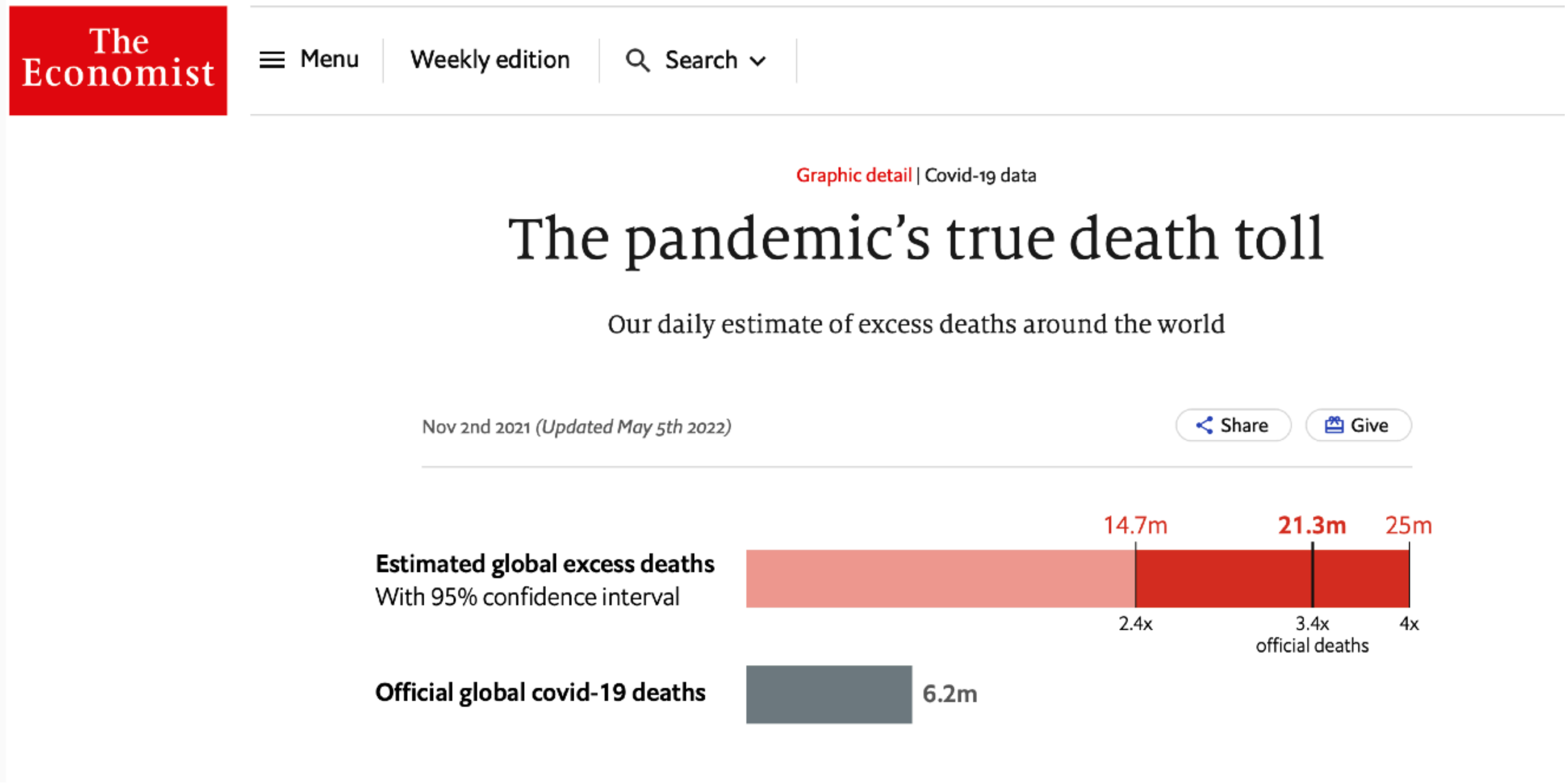

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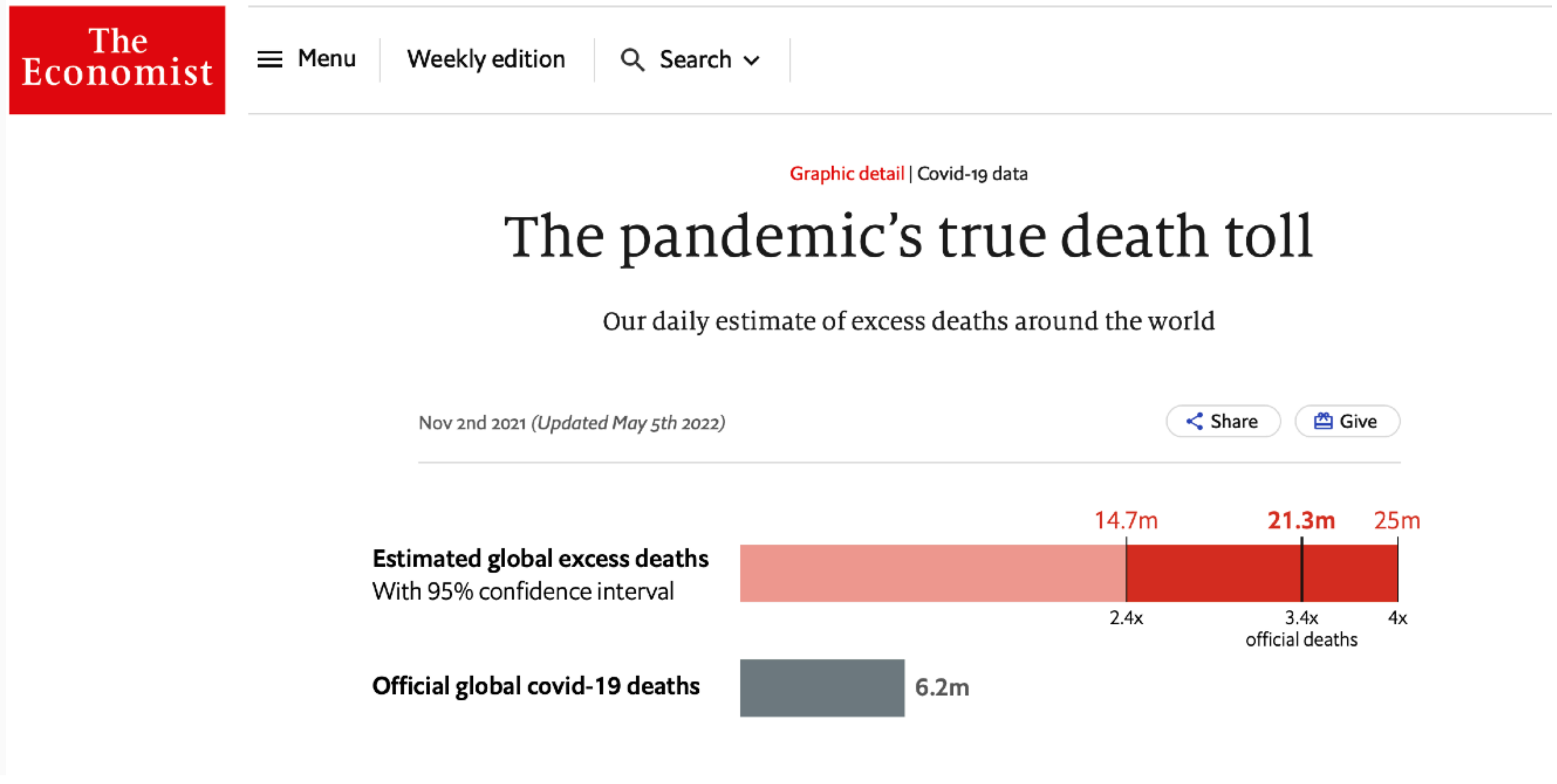

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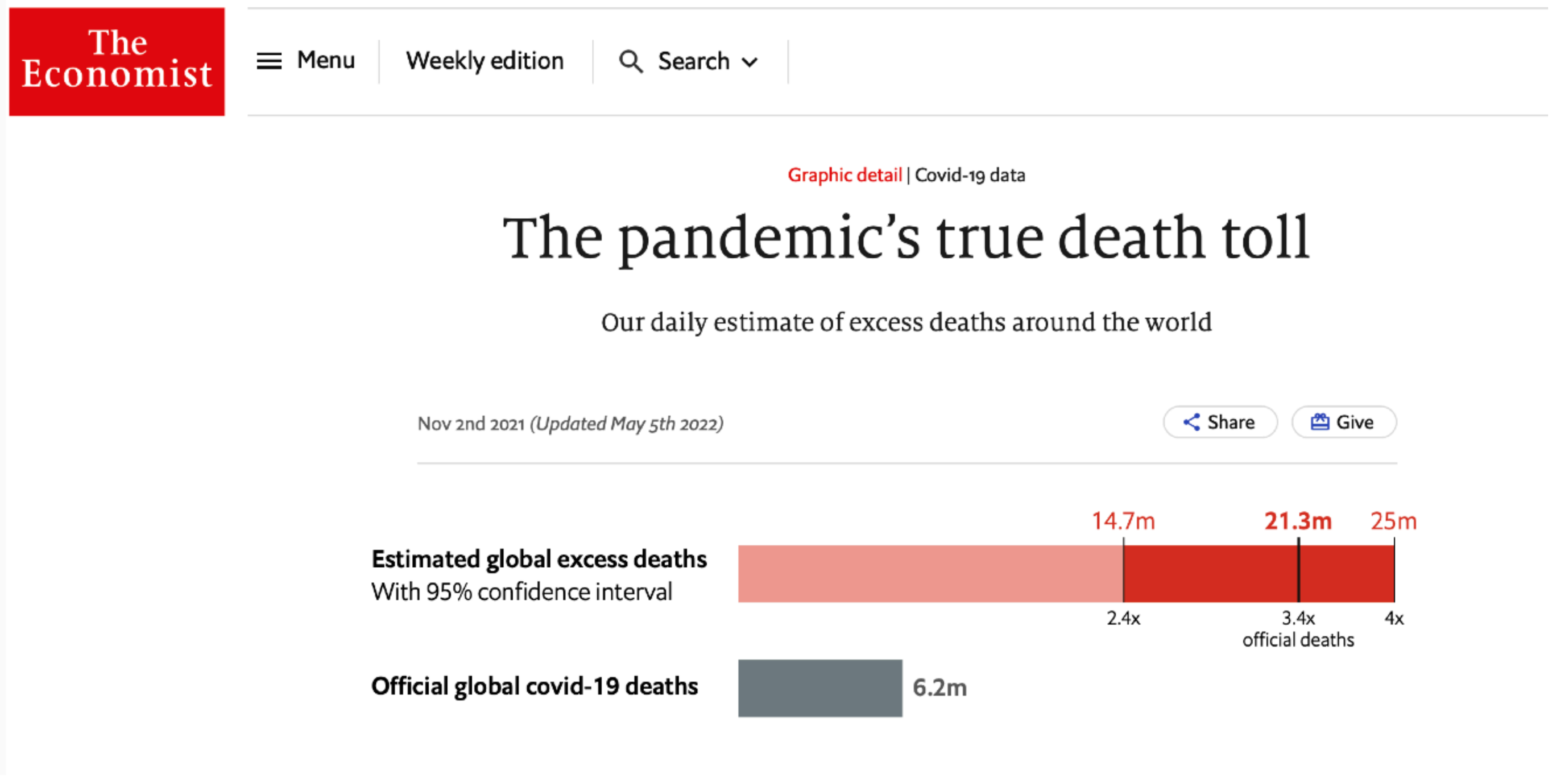

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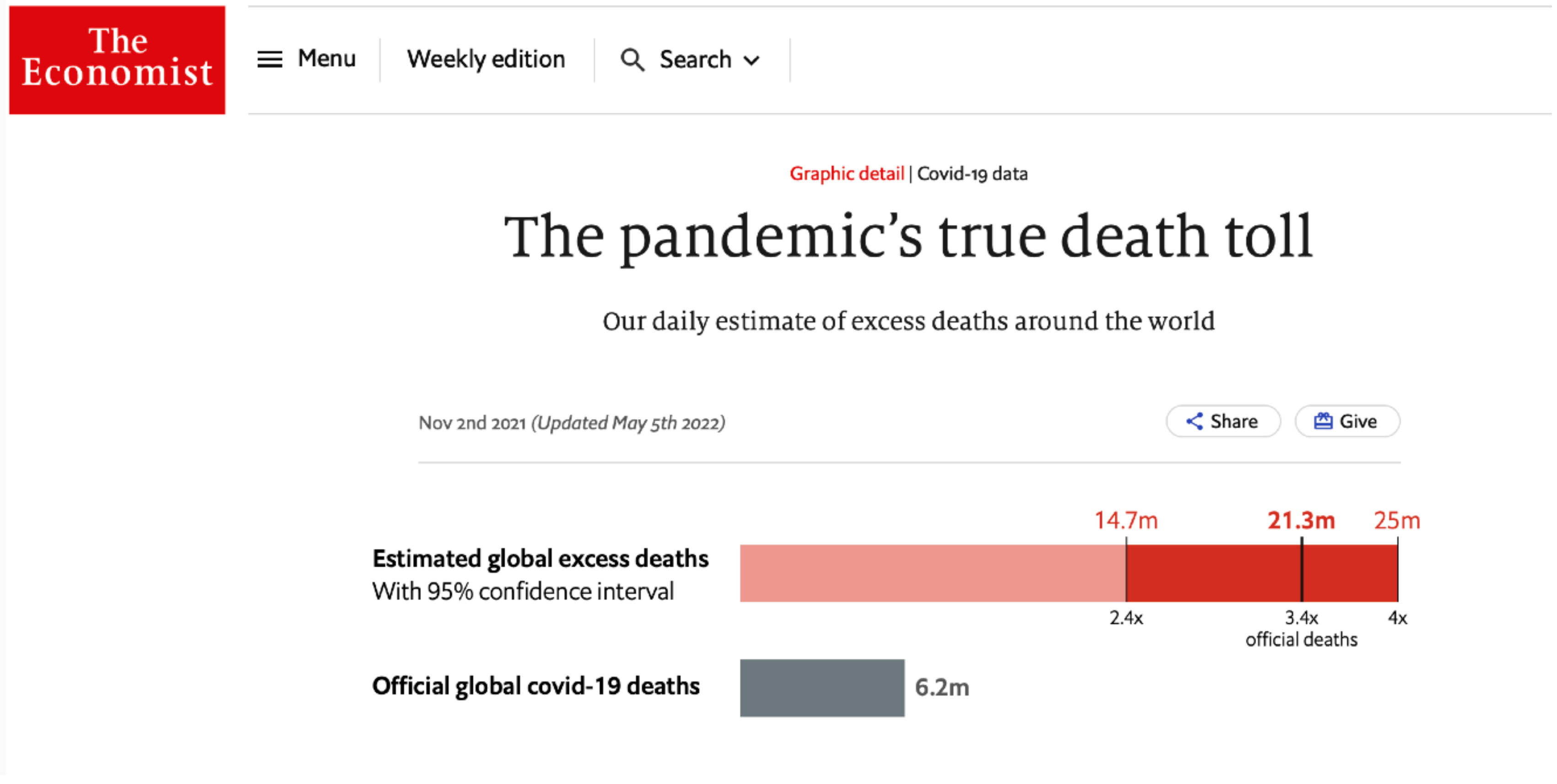

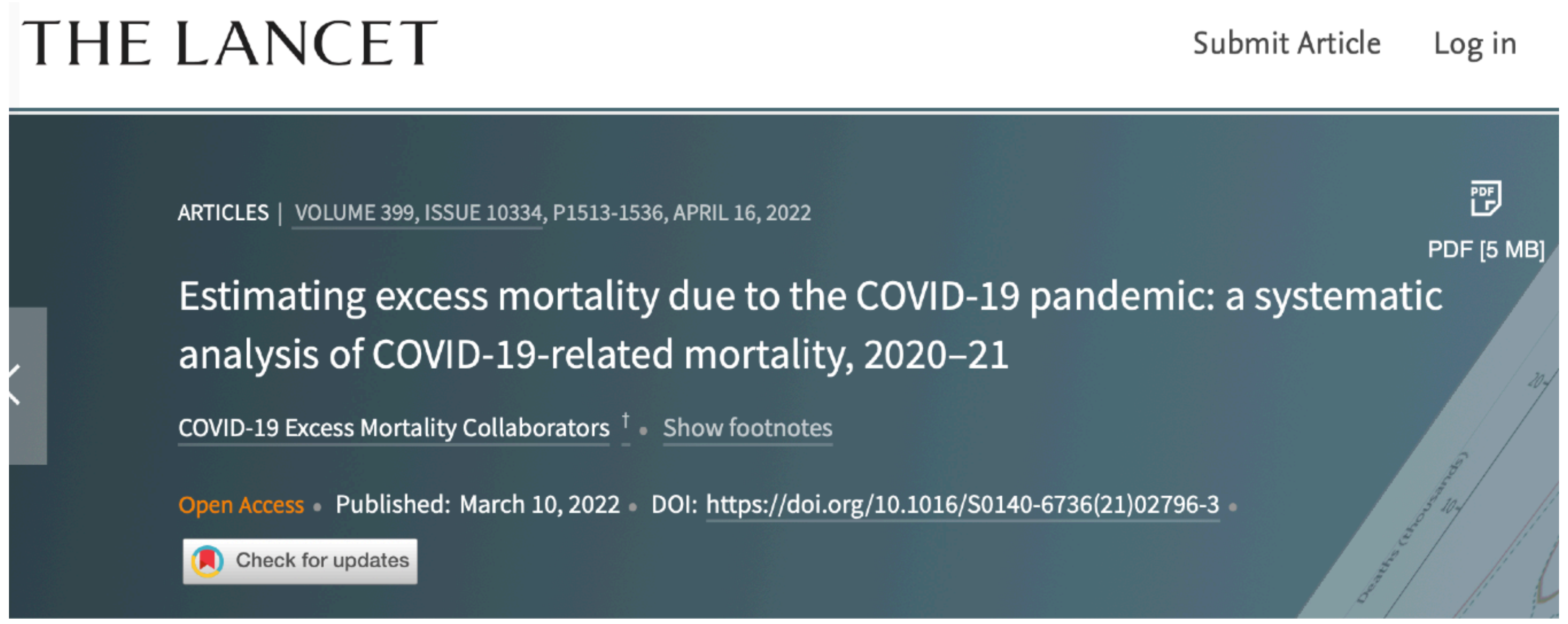

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  - e.g. 1 excess deaths in one week, vs high level of ‘normal’ deaths in one month

Normomo with Sykdomspulsen

Workflow at Sykdomspulsen

Data and processing

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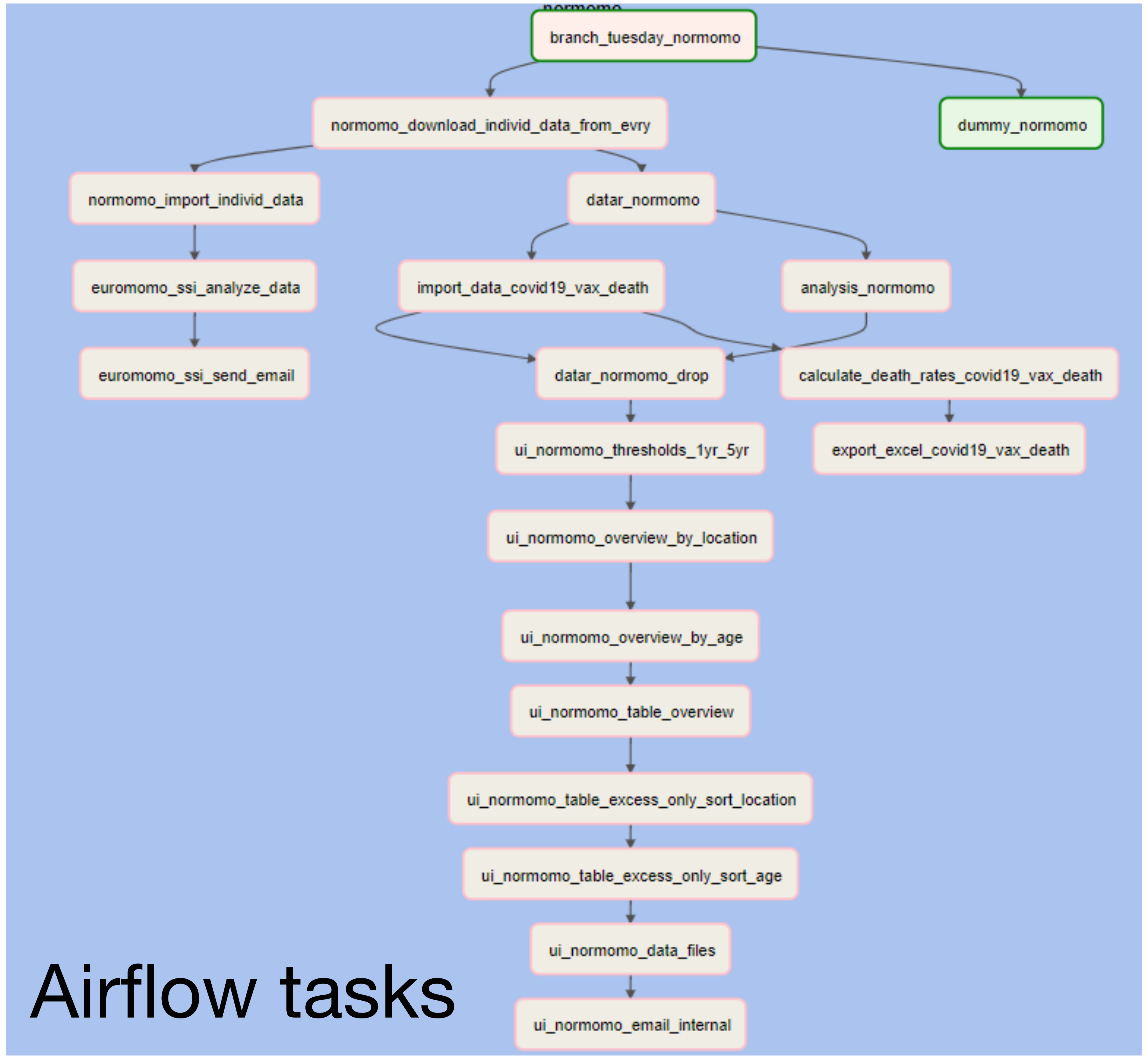
    - EuroMOMO (MOMO pkg), ours (nowcast pkg), …

NorMOMO with Sykdomspulsen

From data to reports



Airflow tasks

NorMOMO with Sykdomspulsen

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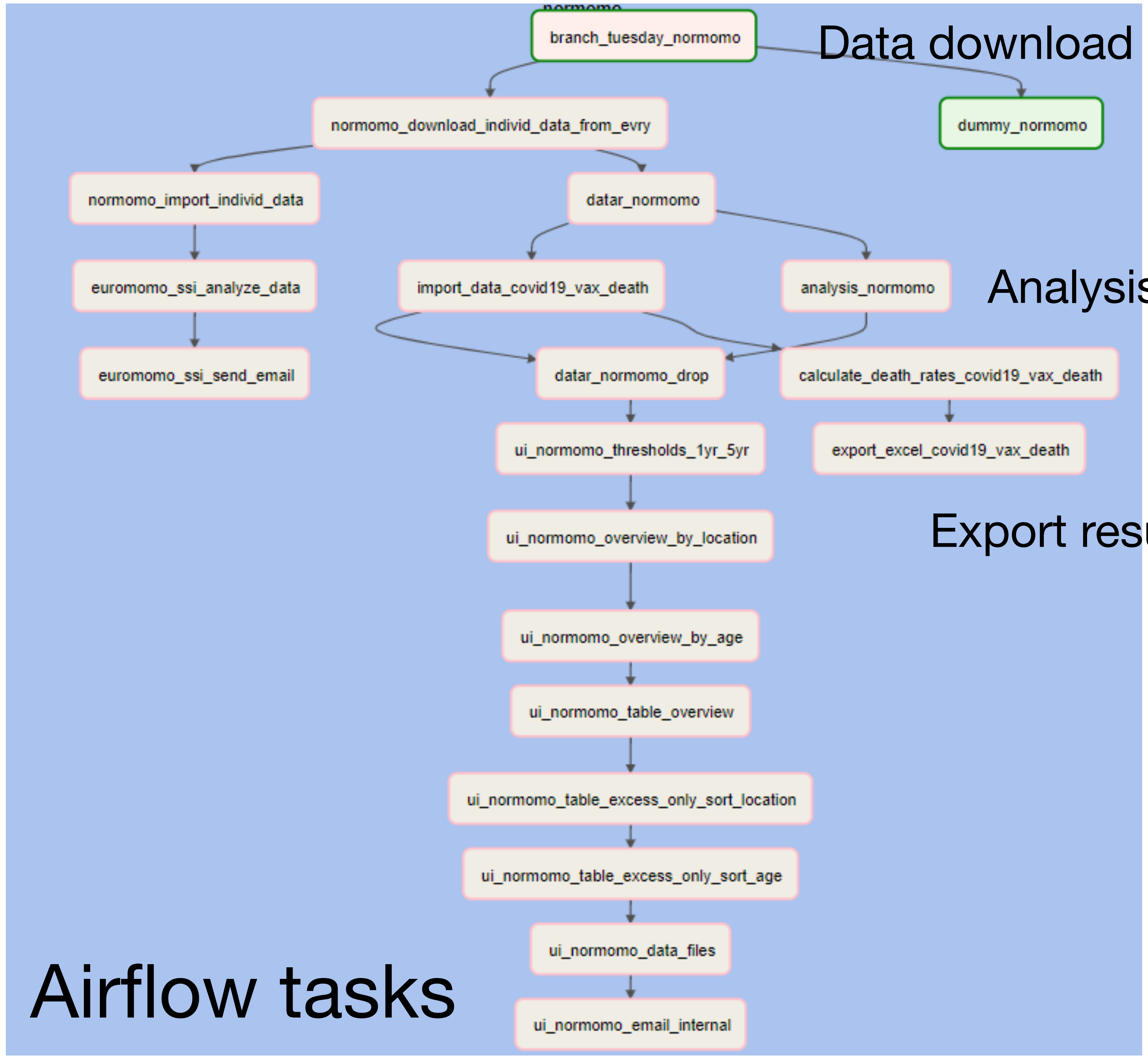

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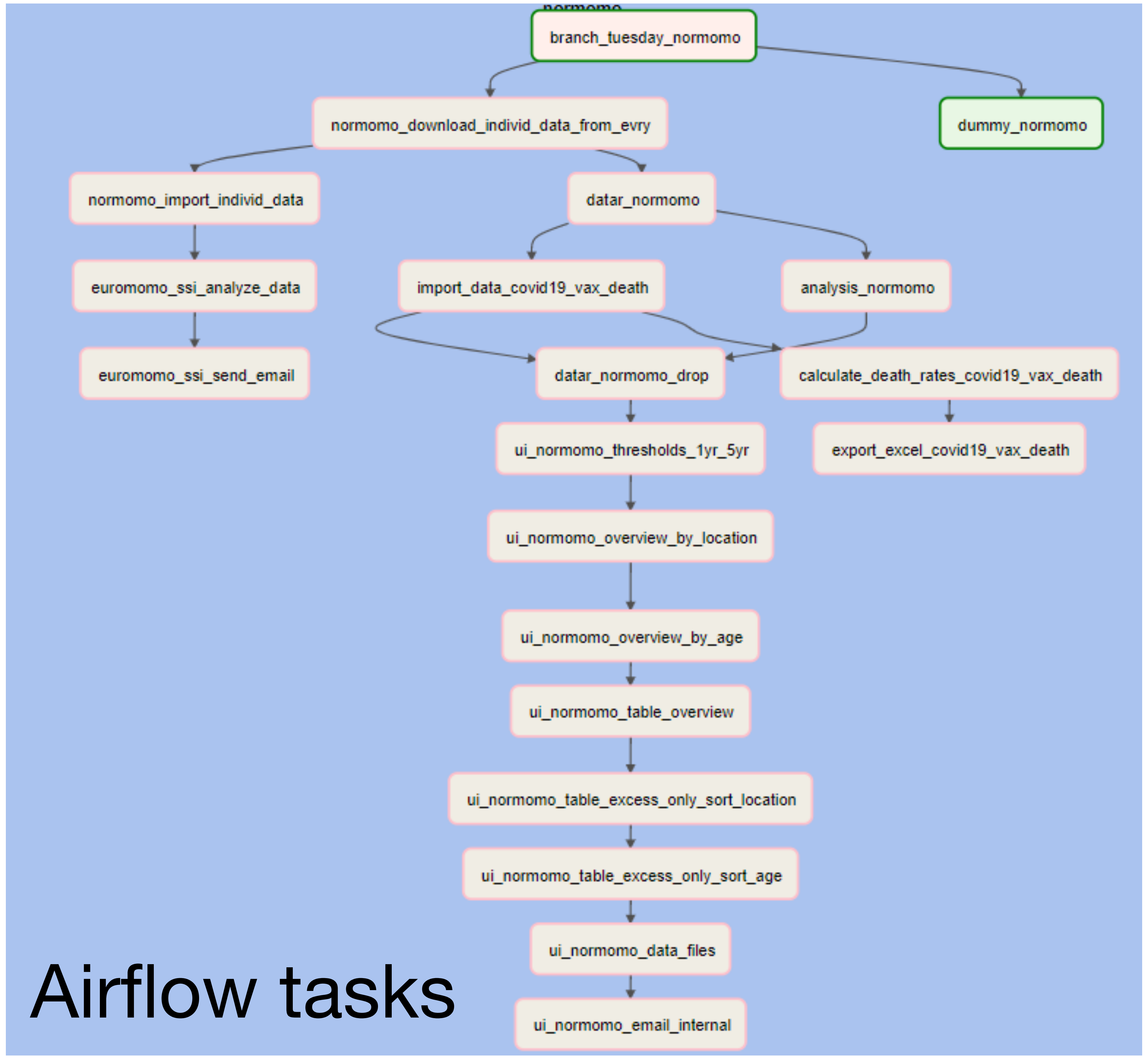

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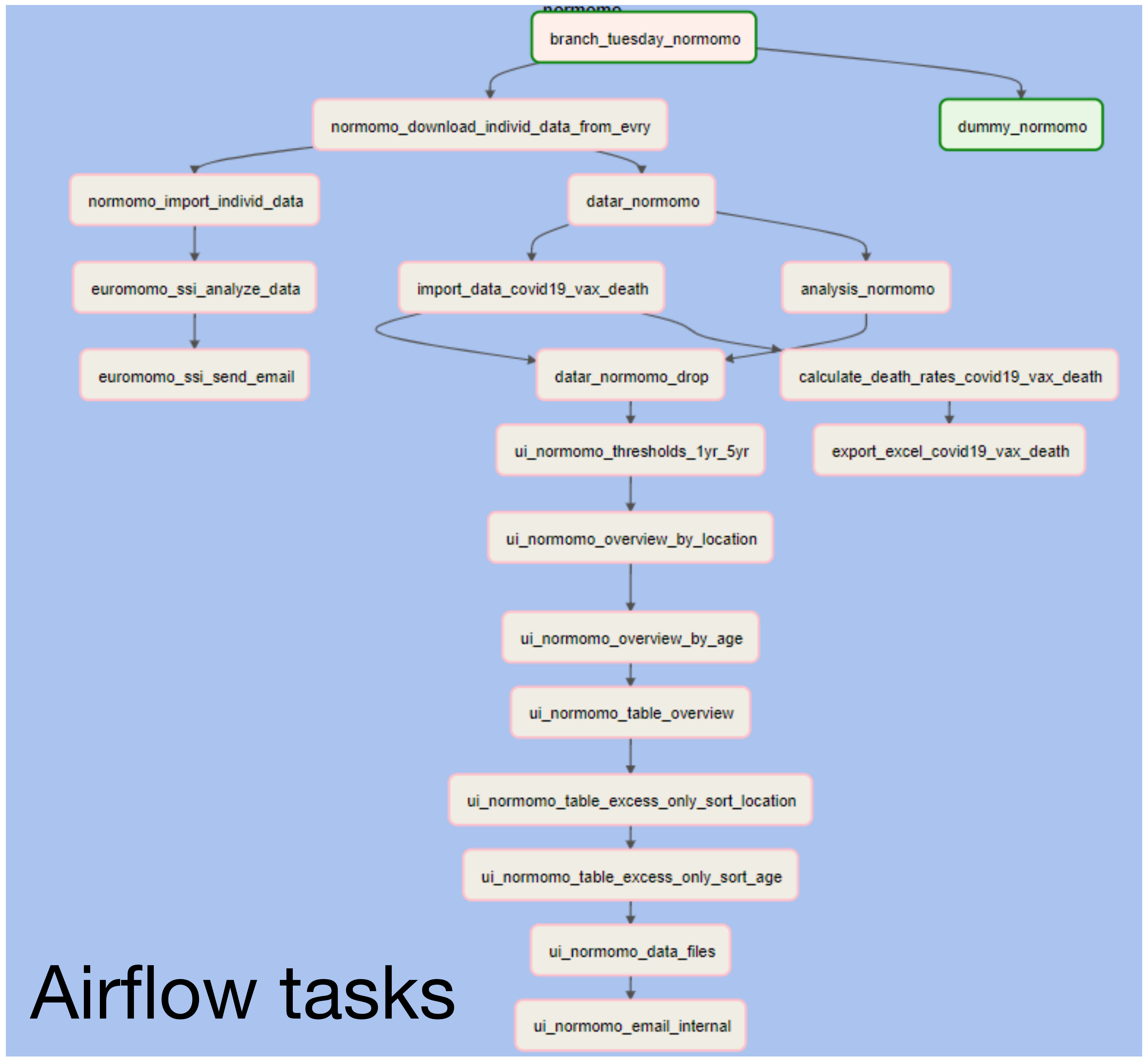
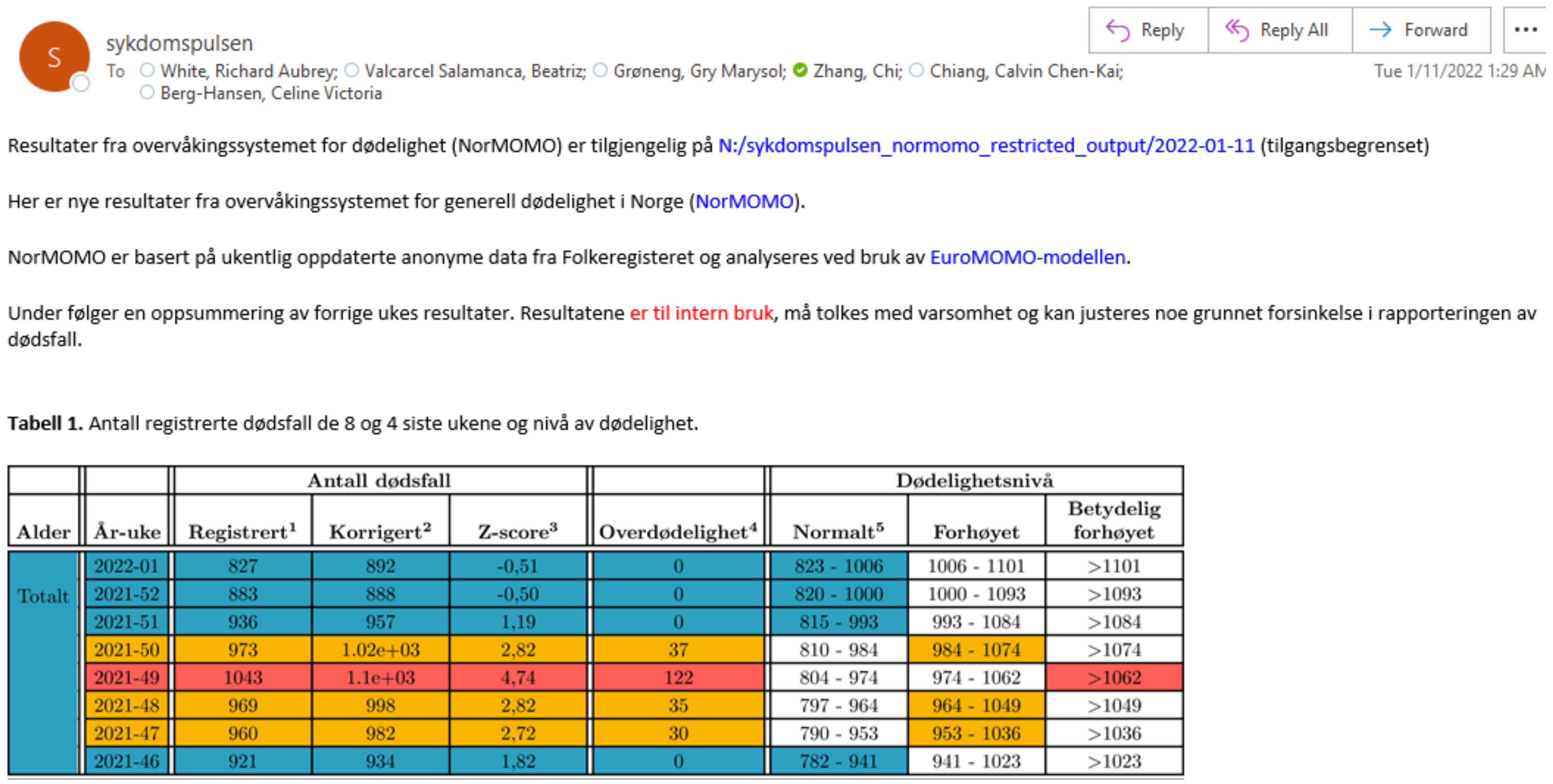


Airflow tasks

Email (internal)



Resultater fra NorMOMO 2022-01-11

sykdomspulsen

To White, Richard Aubrey; Valcarcel Salamanca, Beatriz; Grøneng, Gry Marysol; Zhang, Chi; Chiang, Calvin Chen-Kai; Berg-Hansen, Celine Victoria

Reply | Reply All | Forward | ...

Tue 1/11/2022 1:29 AM

Resultater fra overvåkingssystemet for dødelighet (NorMOMO) er tilgjengelig på N:/sykdomspulsen_normomo_restricted_output/2022-01-11 (tilgangsbegrenset)

Her er nye resultater fra overvåkingssystemet for generell dødelighet i Norge (NorMOMO).

NorMOMO er basert på ukentlig oppdaterte anonyme data fra Folkeregisteret og analyseres ved bruk av EuroMOMO-modellen.

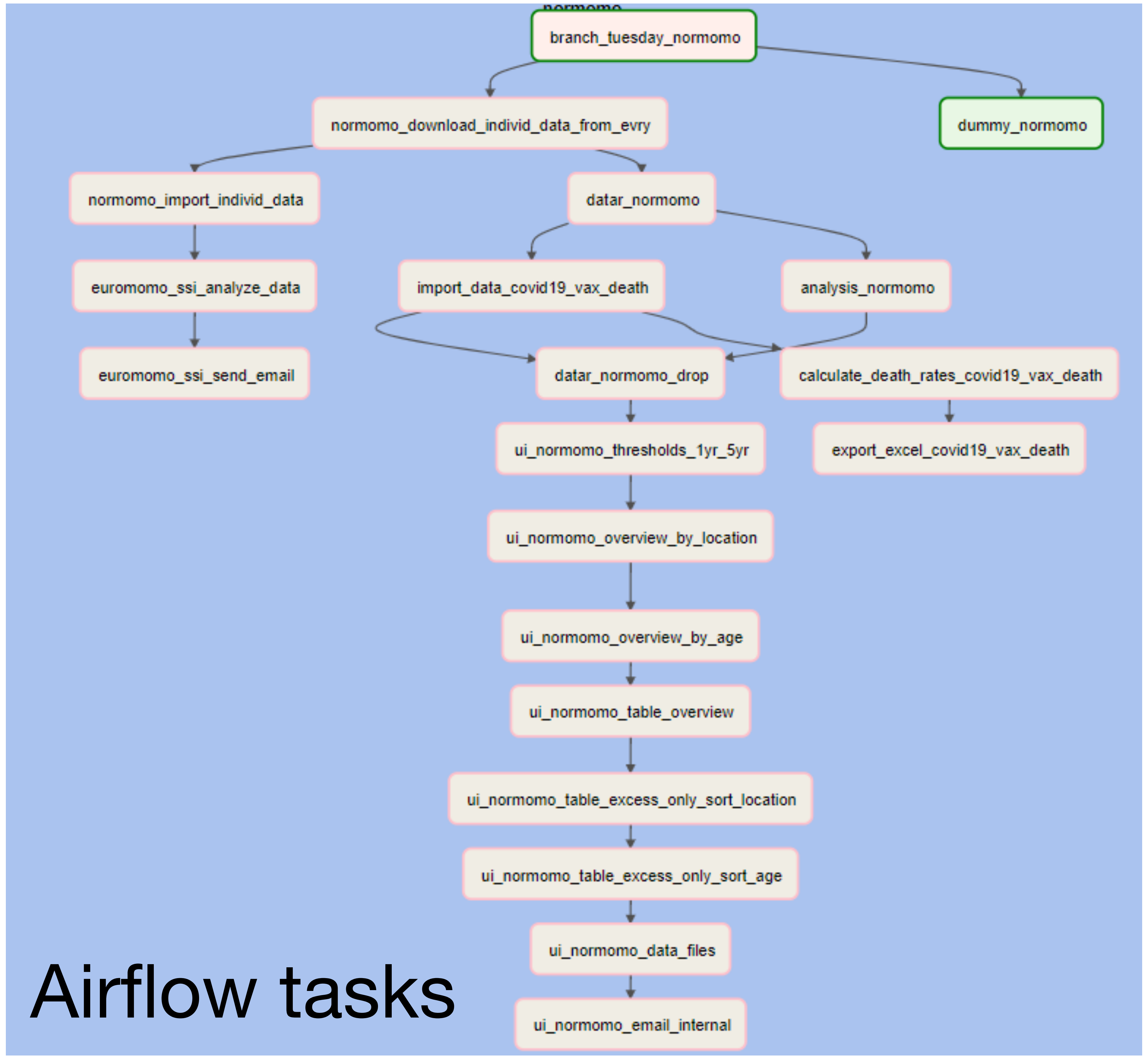
Under følger en oppsummering av forrige ukes resultater. Resultatene er til intern bruk, må tolkes med varsomhet og kan justeres noe grunnet forsinkelse i rapporteringen av dødsfall.

Tabell 1. Antall registrerte dødsfall de 8 og 4 siste ukene og nivå av dødelighet.

		Antall dødsfall				Dødelighetsnivå		
Alder	År-uke	Registrert[1]	Korrigert[2]	Z-score[3]	Overdødelighet[4]	Normalt[5]	Forhøyet	Betydelig forhøyet
Totalt	2022-01	827	892	-0,51	0	823 - 1006	1006 - 1101	>1101
	2021-52	883	888	-0,50	0	820 - 1000	1000 - 1093	>1093
	2021-51	936	957	1,19	0	815 - 993	993 - 1084	>1084
	2021-50	973	1.02e+03	2,82	37	810 - 984	984 - 1074	>1074
	2021-49	1043	1.1e+03	4,74	122	804 - 974	974 - 1062	>1062
	2021-48	969	998	2,82	35	797 - 964	964 - 1049	>1049
	2021-47	960	982	2,72	30	790 - 953	953 - 1036	>1036
	2021-46	921	934	1,82	0	782 - 941	941 - 1023	>1023

NorMOMO with Sykdomspulsen

From data to reports



Airflow tasks

Email (internal)

Resultater fra NorMOMO 2022-01-11

sykdomspulsen

To White, Richard Aubrey; Valcarcel Salamanca, Beatriz; Grøneng, Gry Marysol; Zhang, Chi; Chiang, Calvin Chen-Kai; Berg-Hansen, Celine Victoria

Reply | Reply All | Forward | ...

Tue 1/11/2022 1:29 AM

Resultater fra overvåkingssystemet for dødelighet (NorMOMO) er tilgjengelig på N:/sykdomspulsen_normomo_restricted_output/2022-01-11 (tilgangsbegrenset)

Her er nye resultater fra overvåkingssystemet for generell dødelighet i Norge (NorMOMO).

NorMOMO er basert på ukentlig oppdaterte anonyme data fra Folkeregisteret og analyseres ved bruk av EuroMOMO-modellen.

Under følger en oppsummering av forrige ukes resultater. Resultatene er til intern bruk, må tolkes med varsomhet og kan justeres noe grunnet forsinkelse i rapporteringen av dødsfall.

Tabell 1. Antall registrerte dødsfall de 8 og 4 siste ukene og nivå av dødelighet.

		Antall dødsfall				Dødelighetsnivå		
Alder	År-uke	Registrert^1	Korrigert^2	Z-score^3	Overdødelighet^4	Normalt^5	Forhøyet	Betydelig forhøyet
Totalt	2022-01	827	892	-0,51	0	823 - 1006	1006 - 1101	>1101
	2021-52	883	888	-0,50	0	820 - 1000	1000 - 1093	>1093
	2021-51	936	957	1,19	0	815 - 993	993 - 1084	>1084
	2021-50	973	1.02e+03	2,82	37	810 - 984	984 - 1074	>1074
	2021-49	1043	1.1e+03	4,74	122	804 - 974	974 - 1062	>1062
	2021-48	969	998	2,82	35	797 - 964	964 - 1049	>1049
	2021-47	960	982	2,72	30	790 - 953	953 - 1036	>1036
	2021-46	921	934	1,82	0	782 - 941	941 - 1023	>1023

[euromomo input] [Norway] [2022 1]

sykdomspulsen

To White, Richard Aubrey; Valcarcel Salamanca, Beatriz; Grøneng, Gry Marysol; Zhang, Chi; Chiang, Calvin Chen-Kai; Berg-Hansen, Celine Victoria; euromomo@ssi.dk; Tønnessen, Ragnhild; Paulsen, Trine Hessevik; influensa@fhi.no

Reply | Reply All | Forward | ...

Tue 1/11/2022 1:11 AM

EUROMOMOv4-3-COMPLETE-Norway-2022-1.txt
591 KB

Dear EuroMOMO hub,

Please find attached the current week's results.

Sincerely,

Norway

Email (to Euromomo)

References and links

- **Normomo (FHI)** https://www.fhi.no/sv/influensa/influensaovervaking/overvakingssystem-for-dodelighet-eu/
- **Nowcast package** https://github.com/sykdomspulsen-org/nowcast
- **Euromomo** https://www.euromomo.eu
- **MOMO package** https://github.com/EuroMOMOnetwork/MOMO
- **Economist** https://www.economist.com/graphic-detail/coronavirus-excess-deaths-estimates
- **World Mortality Dataset** https://ourworldindata.org/covid-excess-mortality