

Differences in outcome: The role of structural factors in COVID-19 mortality in care homes in Germany

Webinar:

Taking stock of COVID-19 and the long-term care sector in Germany

Mon, 5 Jul 2021

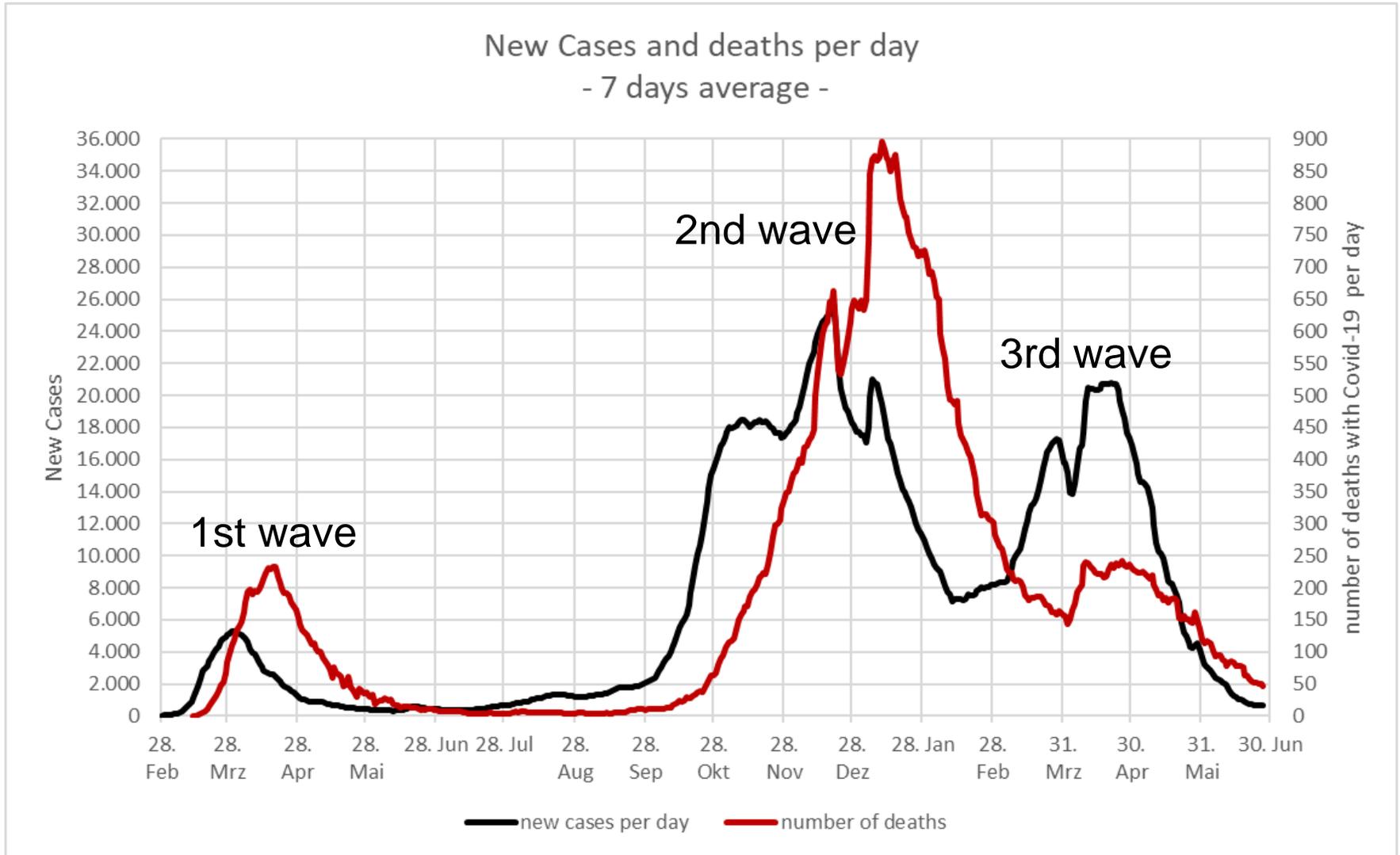
Prof. Dr. Heinz Rothgang

Universität Bremen

SOCIUM

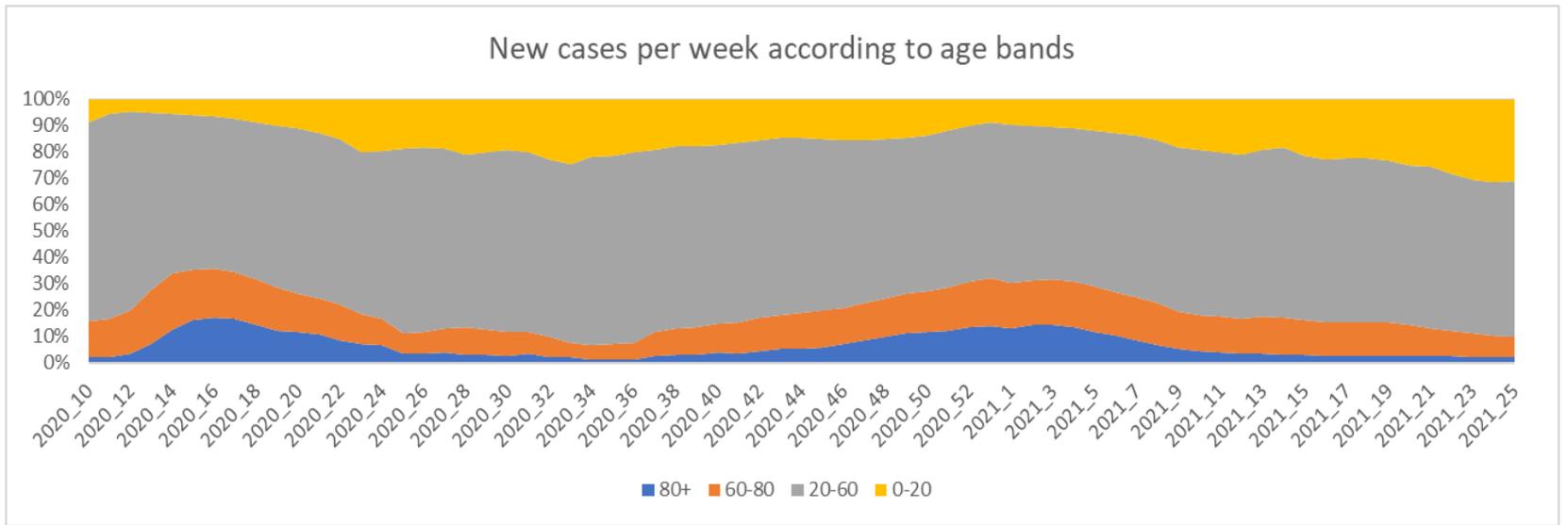
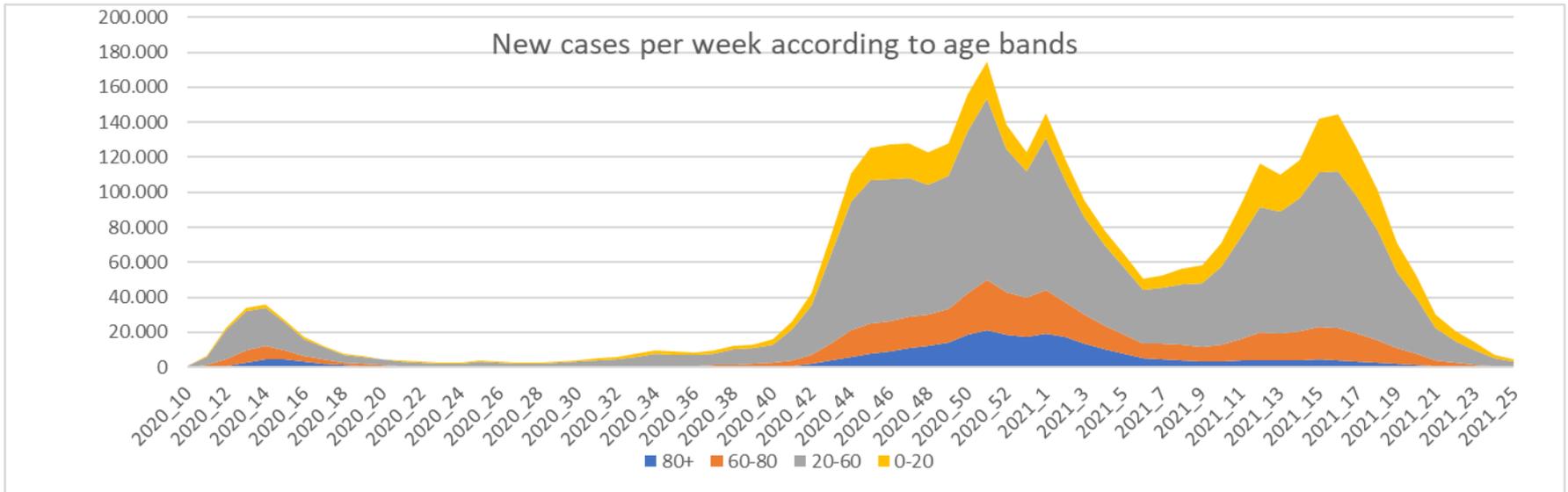
Forschungszentrum Ungleichheit und Sozialpolitik

- I. Covid-19 in Germany: An overview
- II. Excess Mortality in Germany
- III. Covid-19-related mortality among nursing homes
- IV. Explaining differences in mortality between nursing homes



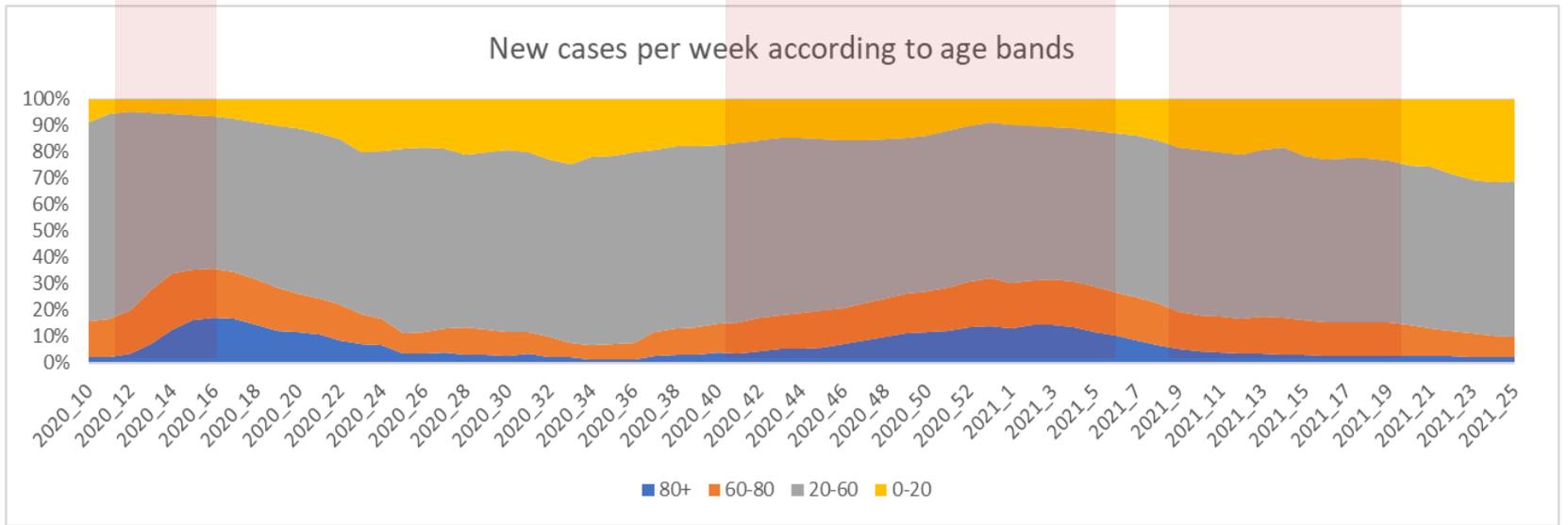
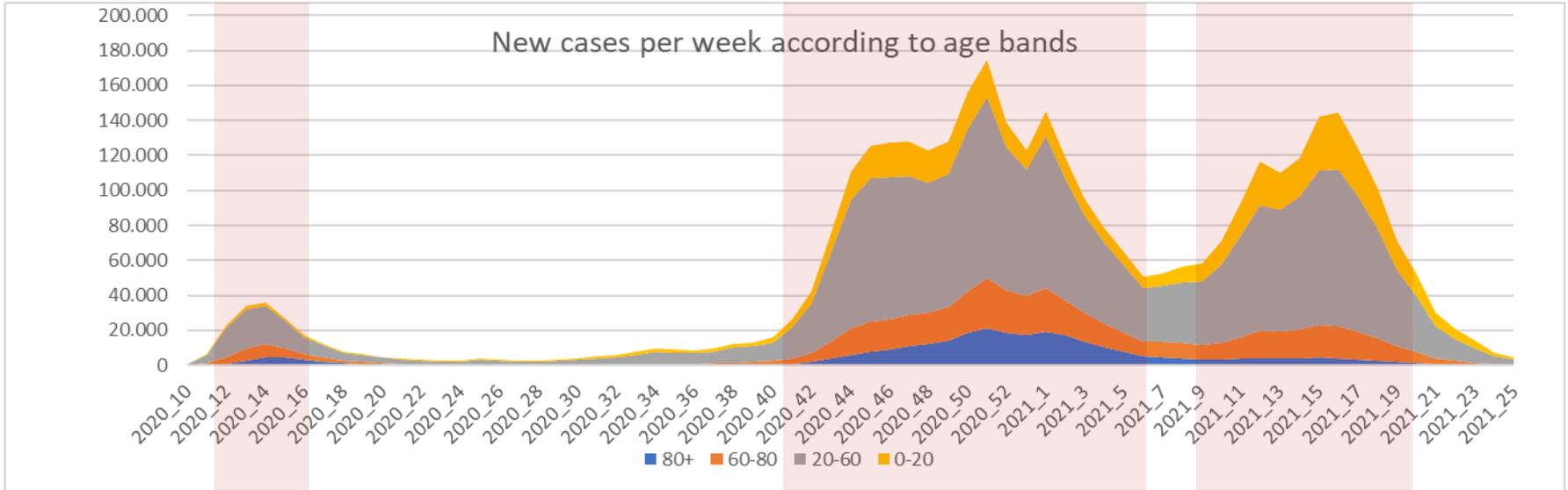
Source: RKI, daily reports

I. Overview: Covid-19 in Germany



Source: RKI 2021

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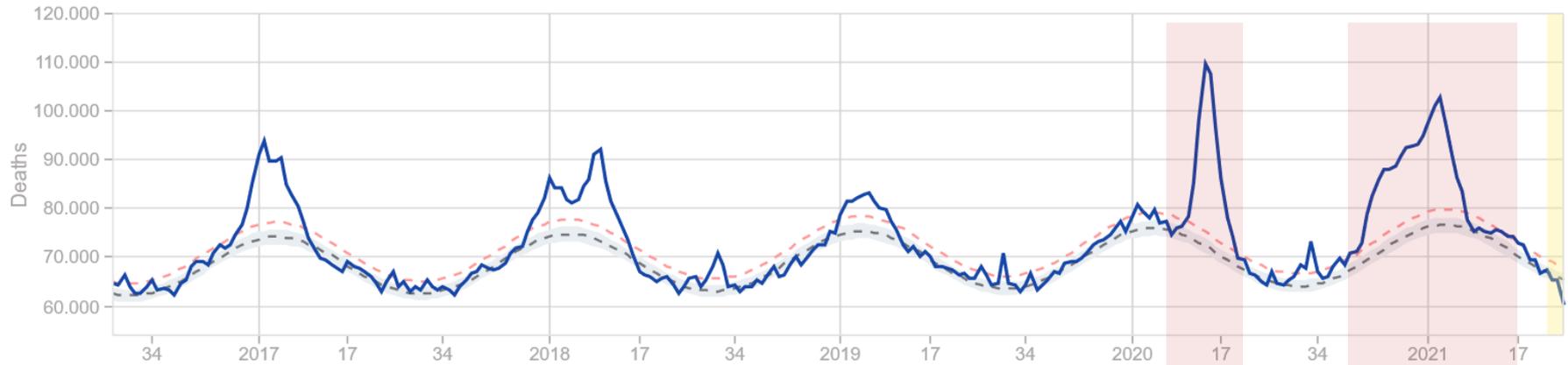


Source: RKI 2021

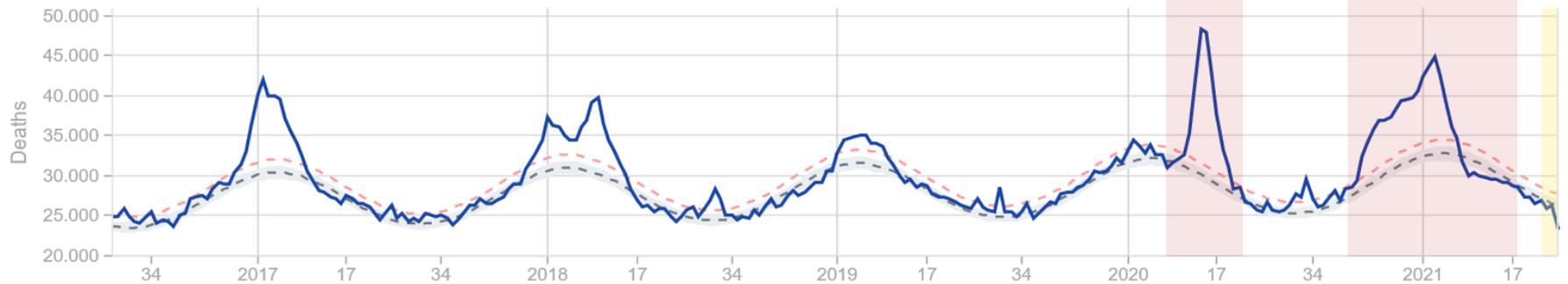
II. Excess mortality

— Pooled deaths ■ Normal range - - - Baseline - - - Substantial increase ■ Corrected for delay in registration

All ages



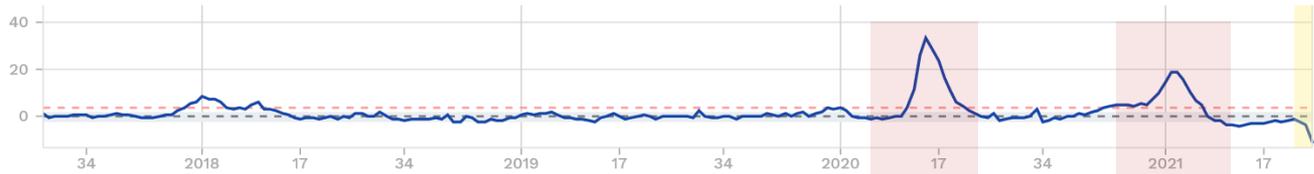
85+ years



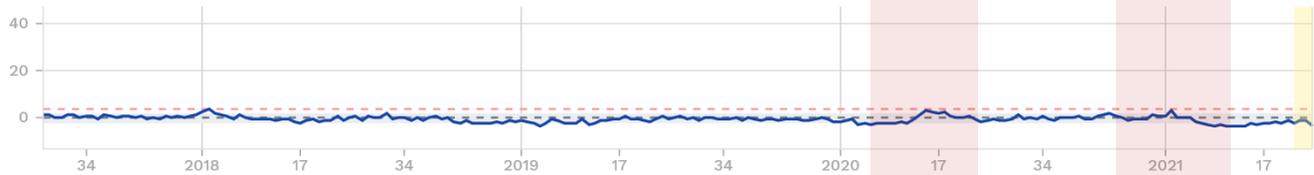
Source: EuroMomo

II. Excess mortality: Z-Score

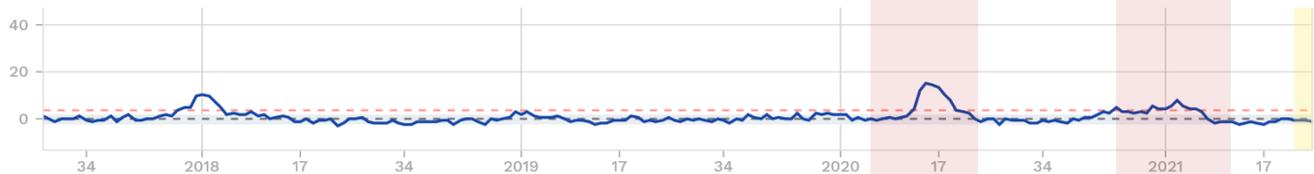
UK (England)



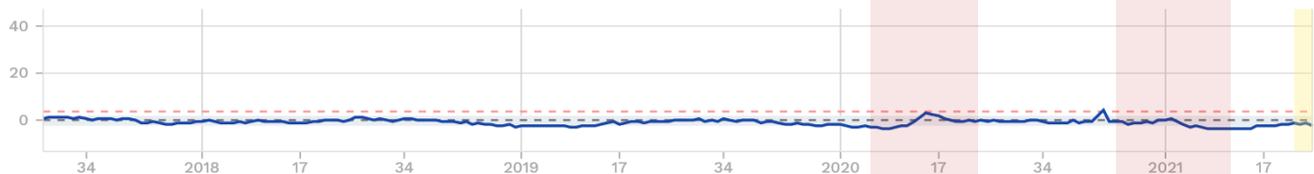
UK (Northern Ireland)



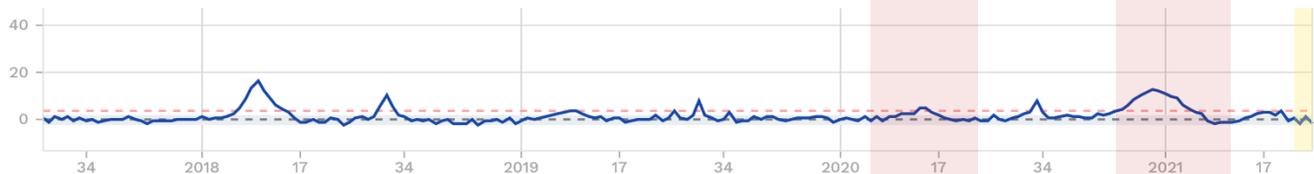
UK (Scotland)



UK (Wales)

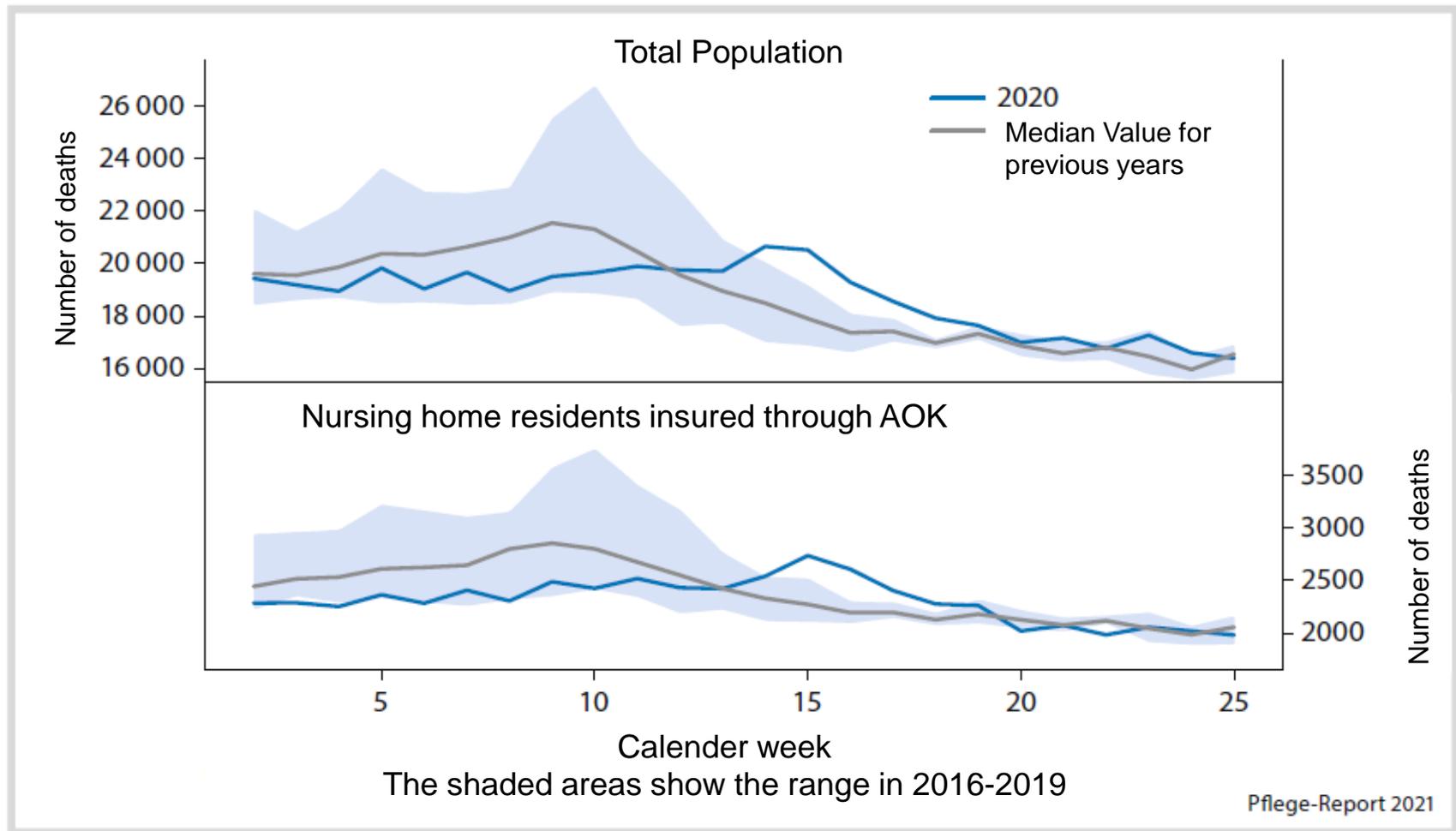


Germany



Source: EuroMomo

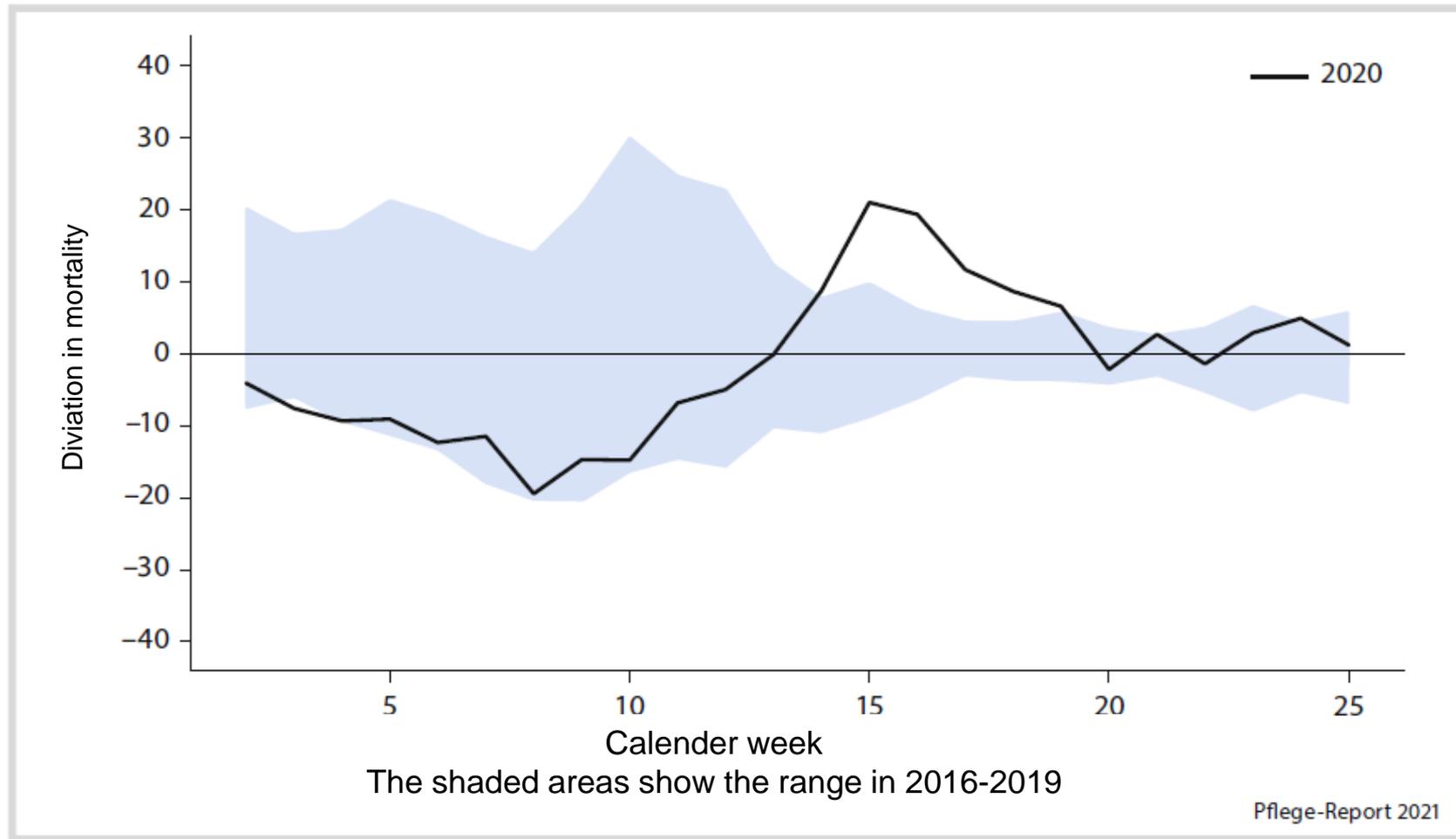
III.1 Excess mortality among German nursing homes: 1st wave 8



Mortality among nursing home residents and in the whole population in 2020 in comparison to the median value of the years 2016-2019

Source: WIdO
2021, own
translation

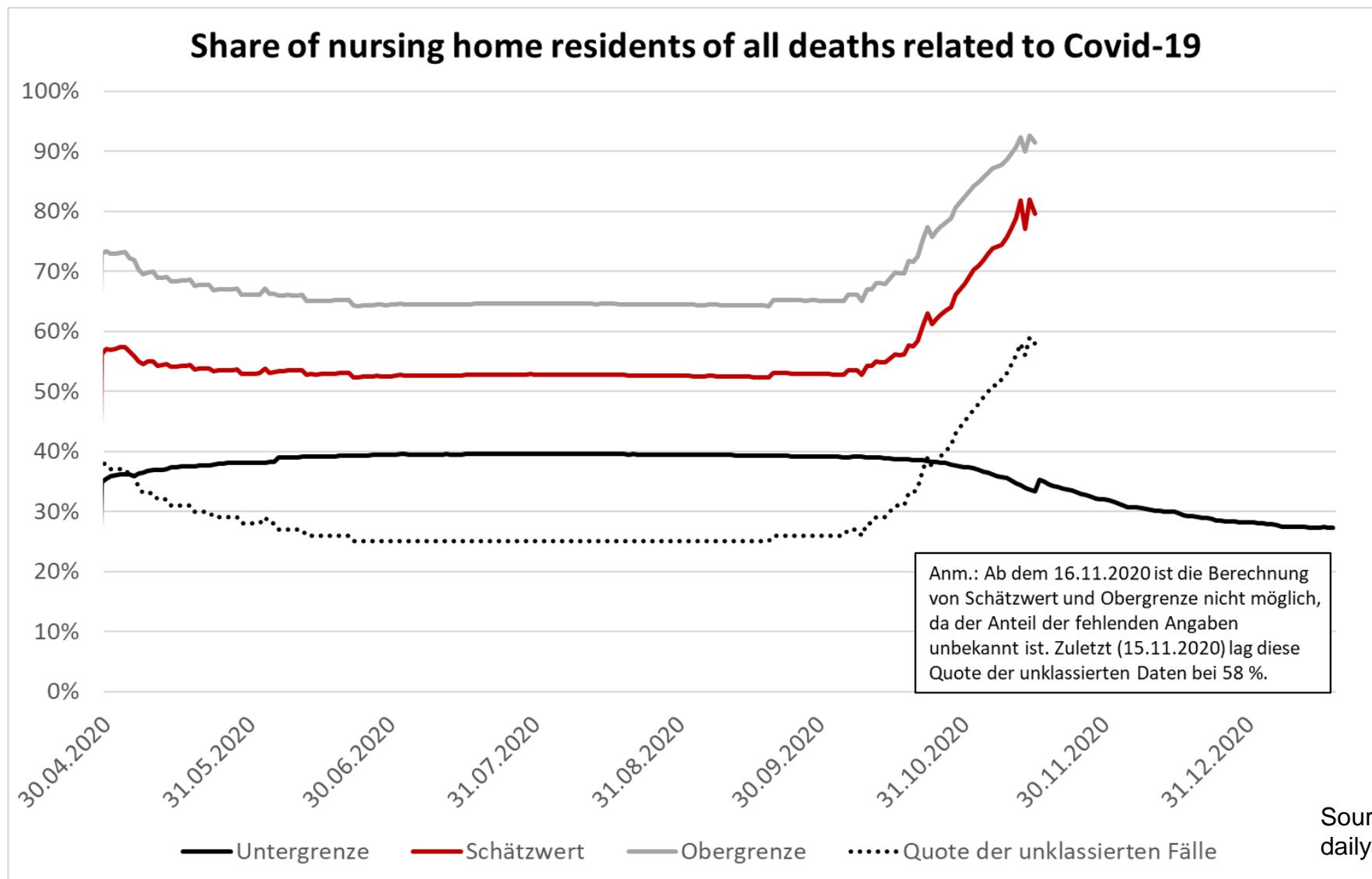
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Mortality among nursing home residents and in the whole population in 2020 in comparison to the median value of the years 2016-2019

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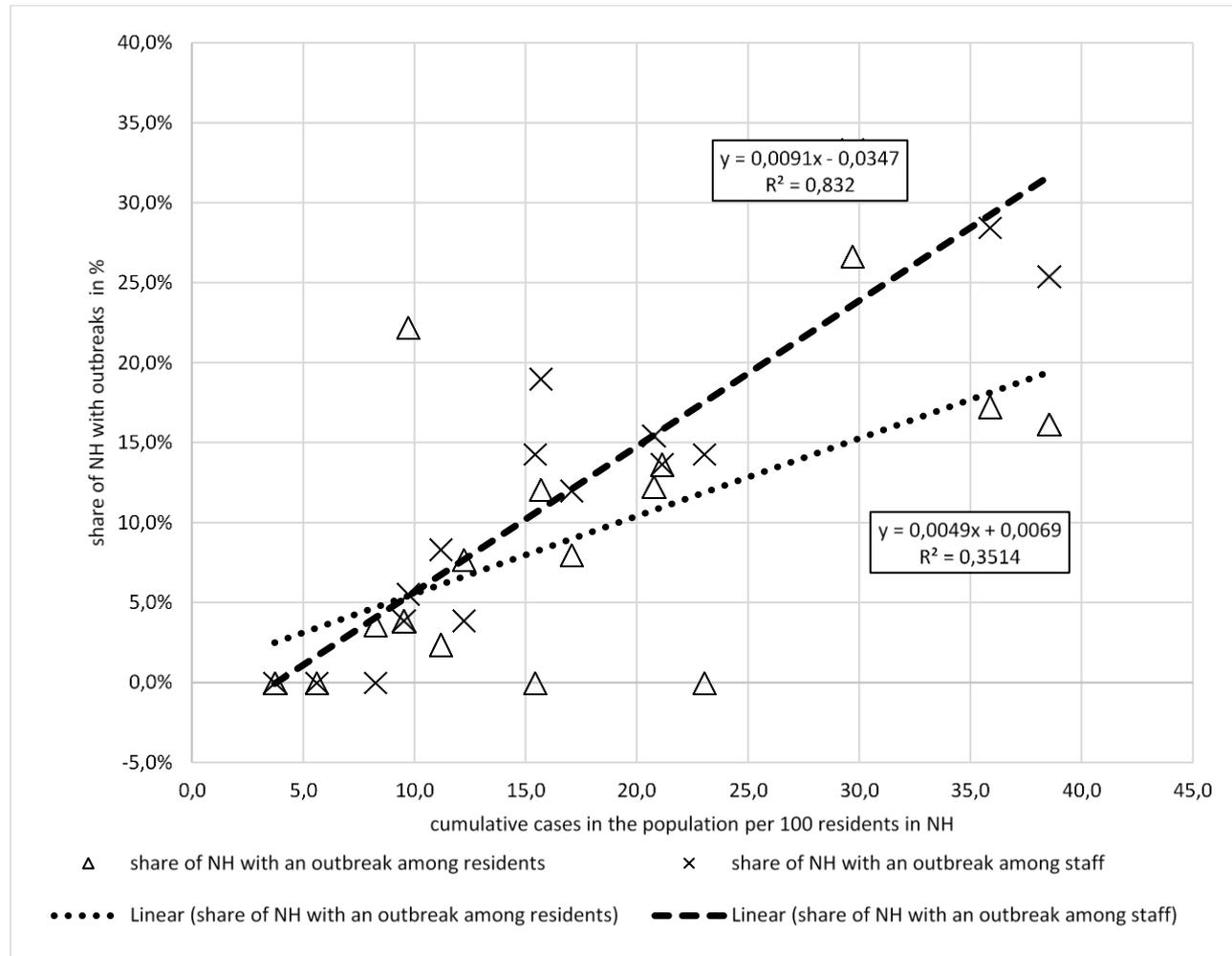
- 1st wave:
 - According to an online Survey of LTC providers of home care (n=824) from 28th April until 12th March, about half of all deaths with Covid-19 have been nursing home residents.
 - Robert-Koch-Institute (RKI) data suffer from a high number of unclassified cases. Among those classified more than half of all deaths with Covid-19 have been nursing home residents.
- 2nd wave:
 - According to RKI 3the 2nd wave
- 3rd wave:
 - RKI data underestimate the share of nursing home residents.
 - As the share of those aged 80+ among newly infected is low, the share of home residents among deaths with Covid-19 can also expected to be comparatively low.



Source: RKI, daily reports

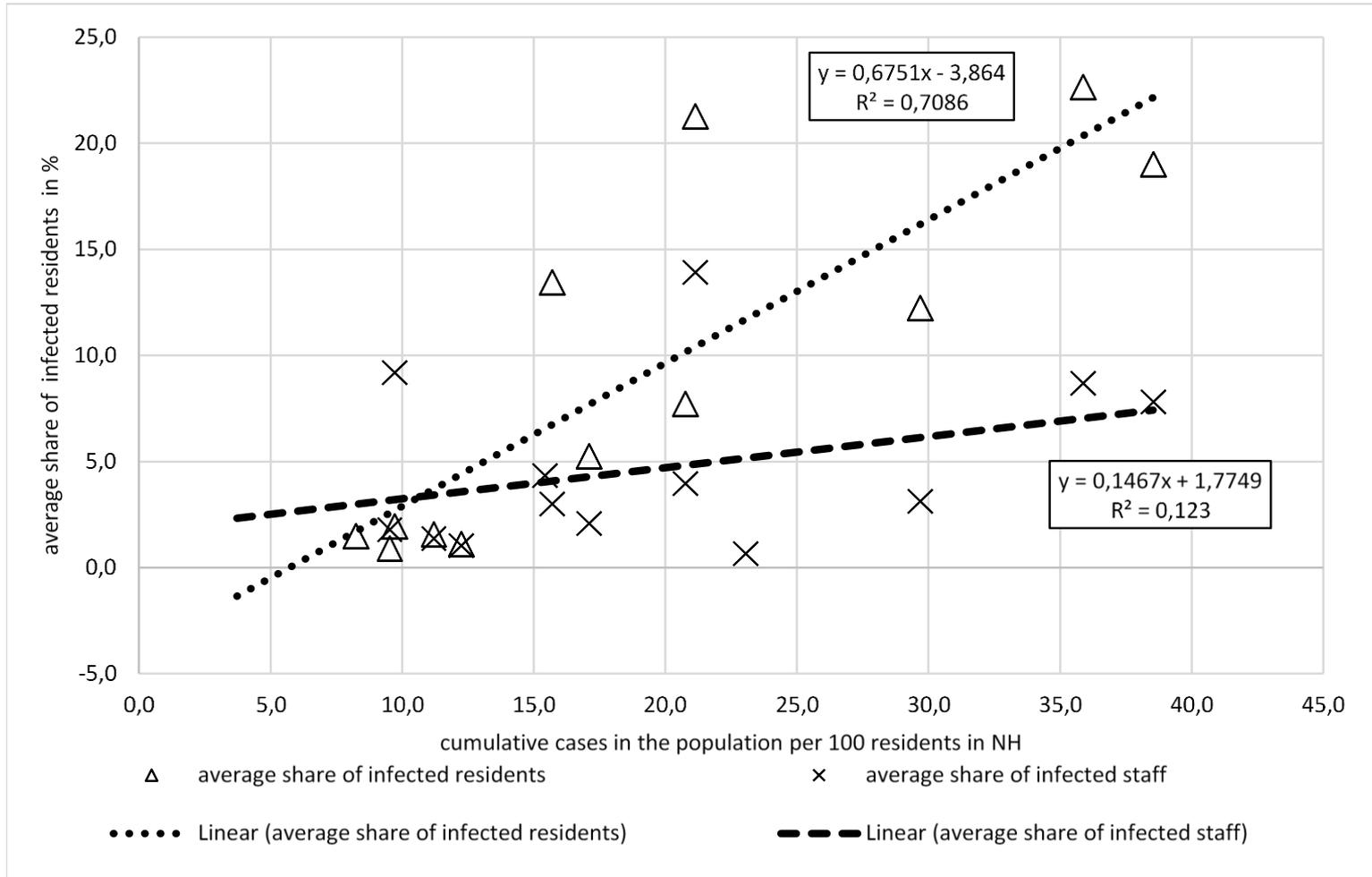
- During the first wave the majority of nursing homes had no case of Sars-CoV-2 at all.
- The exposition to the virus was the major determinant of outcomes (deaths, cases) of the respective nursing home.

Figure 1: Correlation between spread of the virus in the population and the probability of an outbreak



Source: unpublished own calculations, based on data from online survey (Rothgang et al. 2020)

Figure 1: correlation between spread of the virus in the population and the intensity of an outbreak



Source: unpublished own calculations, based on data from online survey (Rothgang et al. 2020)

- During the first wave the majority of nursing homes had no case of Sars-CoV-2 at all.
- The exposition to the virus was the major determinant of outcomes (deaths, cases) of the respective nursing home.
- **Apart from this**
 - the number of beds and
 - the staff ratio (nurses per 100 residents)have an influence. Alas, the explanatory power of these factors is not very high

Table 1: Binomial logistic regression models

Variable	Model 1 (characteristics only)			Model 2 (control spread)		
	OR	p	r ²	OR	p	r ²
Outbreak among residents						
Ownership (non-profit)	2.076	.012	.071	1.650	.094	.096
Number of beds	1.009	.001		1.008	.002	
Nurses per 100 resident ratio	1.019	.007		1.016	.027	
Spread of the virus	-	-		2.372	.004	
Short term care offer	-	-	-	-	-	
Outbreak among staff						
Ownership (non-profit)	1.814	.012	.068	1.425	.150	.109
Number of beds	1.007	.002		1.007	.005	
Nurses per resident ratio	1.020	.001		1.016	.013	
Spread of the virus	-	-		2.787	.000	

Source: unpublished own calculations, based on data from online survey (Rothgang et al. 2020)

Table 1: Multiple linear regression models

dependent variable	independent variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	r ²
		B	Std. Error	Beta			
share of infected residents (model 1)	constant	-8.236	9.321		-.884	.380	
	number of beds	-.103	.039	-.255	-2.612	.011	.209
	Nurses per100 resident ratio	.504	.123	.401	4.110	.000	
share of infected residents (model 2)	Constant	-10.705	9.527		-1.124	.265	
	number of beds	-.107	.039	-.265	-2.709	.008	.220
	Nurses per 100 residents ratio	.461	.127	.365	3.641	.000	
	spread of virus	7.228	4.812	.151	1.502	.137	
constant	-1.735	8.609		-.202	.841		
share of resident deaths (model 1)	number of beds	-.080	.037	-.294	-2.168	.036	.210
	Nurses per 100 resident ratio	.249	.099	.343	2.530	.015	
	constant	3.247	4.123		.787	.433	
share of infected staff (model 1)	number of beds	-.036	.018	-.178	-1.982	.050	.061
	Nurses per 100 residents	.101	.050	.182	2.024	.045	
	constant	1.107	4.259		.260	.795	
share of infected staff (model 2)	number of beds	-.035	.018	-.172	-1.918	.058	.077
	Nurses per 100 resident ratio	.091	.051	.162	1.779	.078	
	spread of virus	3.331	2.022	.148	1.647	.102	
	constant	3.331	2.022		1.647	.102	

Source: unpublished own calculations, based on data from online survey (Rothgang et al. 2020)

- In the first wave excess mortality was low in Germany. However, about half of all deceased related to Covid-19 were nursing home residents.
- For the second wave data excess mortality is much higher, while data concerning nursing homes is scarce. At least for the end of 2020 the share of nursing home residents among those who have died with Covid-19 is still very high.
- The third wave shows little excess mortality, particularly among the elderly due to ongoing vaccination. Nursing homes therefore are no longer a major hotspot of fatalities.
- While the spread of infection is the major determinant for nursing home outcomes, the size of the facility and the staffing ratio have a significant additional influence on outcomes.

- EuroMomo** [European Mortality Monitoring Activity] (2021): Graphs and maps, <https://www.euromomo.eu/graphs-and-maps/>
- RKI** [=Robert Koch Institute]: Corona Disease 2019 (COVID -19) – Situation Report of the Robert Koch Institute. Daily reports, https://www.rki.de/EN/Content/infections/epidemiology/outbreaks/COVID-19/Situationsberichte_Tab.html.
- RKI** [=Robert Koch Institute]: (2021): COVID-19-Fälle nach Altersgruppe und Meldewoche; https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Daten/Altersverteilung.xlsx?__blob=publicationFile
- Rothgang**, Heinz / Domhoff, Dominik / Friedrich, Anna-Carina / Heinze, Franziska / Preuss, Benedikt / Schmidt, Annika / Seibert, Kathrin / Stolle, Claudia / Wolf-Ostermann, Karin (2020): Pflege in Zeiten von Corona: Zentrale Ergebnisse einer deutschlandweiten Querschnittsbefragung vollstationärer Pflegeheime, in: Pflege, 33 (5), 265-275; <https://doi.org/10.1024/1012-5302/a000760>
- WIdO** [Wissenschaftliches Institut der AOK] (2021): Pflege-Report 2021: Sicherstellung der Pflege: Bedarfslagen und Angebotsstrukturen, herausgegeben von Klaus Jacobs, Adelheid Kuhlmeier, Stefan Greß, Jürgen Klauber und Antje Schwinger. <https://link.springer.com/book/10.1007/978-3-662-63107-2>

Thank you for your attention!