Covid Vaccines: Future Strategies

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Scope of the Session

- Evolution of the Covid pandemic – some inferences from ecological data.
- Impact of population level vaccination as ascertained from:
  - Models
  - Real world data and trends.
- An overview of the Covid-19 vaccines
- Covid vaccines and adverse effects – some concerns
- What should be the future strategies?
  - Coverage: Mass or stratified by risk?
  - Voluntary or mandates?
  - Research on efficacy and adverse effects for better vaccines.
  - Improve public health infrastructure and AEFI monitoring system.

Evolution of the Pandemic – Three Gunas

- **Tamas**
  - **Darkness, Destruction & Chaos**
- **Rajas**
  - **Passion, Action, Self-benefit**
- **Sattva**
  - **Goodness, Beingness, Harmony**

Bhagavad Gita Verse 10, Chapter 14

"rajas tamaśh chābhibhūya sattvaṁ bhavati bhārata
rajaḥ sattvaṁ tamaśh chaiva tamaḥ sattvaṁ rajas tathā"

Sometimes goodness (*sattva*) prevails over passion (*rajas*) and ignorance (*tamas*), O scion of Bharat. Sometimes passion (*rajas*) dominates goodness (*sattva*) and ignorance (*tamas)*, and at other times ignorance (*tamas*) overcomes goodness (*sattva*) and passion (*rajas*).

Tamas – Darkness, Destruction, Chaos

- **The Pandemic of Panic Reminiscent of Medieval Era**
- **China became the pacesetter in this marathon**
- **We succumbed to the worst from authoritarian governance from China & worst of market forces from the West.**

Tamas – contd…

- Lethality of the virus grossly overestimated
- Paper in Lancet estimated 20% mortality [1]
- Such distorted inputs went into mathematical models which predicted doomsday [2]

Rajas: Passion, Action, Selfishness

- The stage of blind passion
- Logic and Science were suppressed [3]
- Blind rage towards the virus chasing it at all costs fractured society [4]
- Violence against elderly, women & children increased [5, 6]

Rajas...Contd

- For elderly life is about quality
- Physical contact, social interaction, recreation interrupted.
- Blind restrictive measures tend to increase deaths in the poor to save lives of the rich [7]

Rajas…Contd

- For elderly life is about quality
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DO YOU KNOW THIS FAMOUS CRICKET PERSON ?

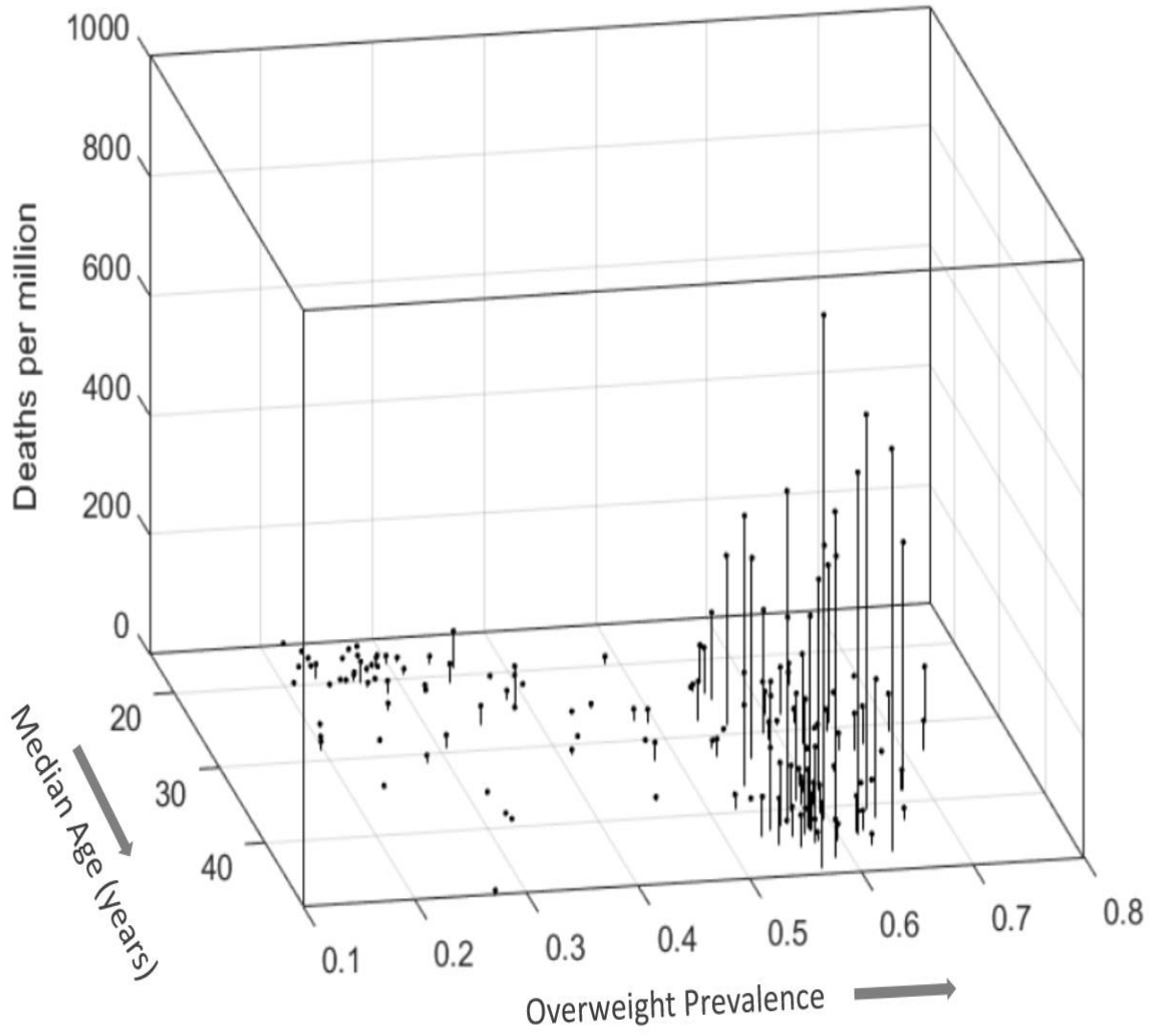
Age wise survival rates of Covid-19

[*Neglibible Threat to young people & Children*]

https://www.medrxiv.org/content/10.1101/2021.07.08.21260210v1

Age in years	Survival Rate (%)
0 – 19	99.9973
20 – 29	99.986
30 - 39	99.969
40 – 49	99.918
50 – 59	99.73
60 – 69	99.41
> 70 years	97.6
> 70 years (in care homes)	94.5

Age and overweight with mortality per million (Aug, 2020) with collaboration with IISER Pune



COUNTRY	DEATHS/1 M (MAY 3, 2020)	DEATHS/ 1 M (AUG 23, 2022)	MEDIAN AGE (IN YEARS)	OVERWT (%)	% FULLY VACCINATED (AUG 23 2022)
USA	204	3207	38.5	67.9	67
UK	414	2724	40.6	63.7	75
Belarus	10	754	40.9	59.4	67
Brazil	35	3164	33.5	57.3	80
Germany	81	1738	47.8	56.8	76
Sweden	265	1920	41.1	56.4	73
Pakistan	2	133	22	28.4	57
Japan	38	297	48.6	27.2	82
Sri Lanka	0.3	771	33.7	23.3	67
Bangladesh	1	174	27.9	20	71
India	1	374	28.7	19.7	67
Egypt	4	231	24.1	63.5	36
South Africa	2	1676	28	53.8	32
Nigeria	0.4	14	18.6	28.9	13
Kenya	0.4	101	20	25.5	11
Ethiopia	0.03	63	19.8	20.9	31

Obesity in COVID-19: A Systematic Review and Meta-analysis

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Affiliations + expand

PMID: 33463658 DOI: 10.47102/annals-acadmedsg.2020299

Free article

Abstract

Objective: Obesity has been shown to be associated with adverse out infection, and infected patients should be monitored closely for adverse outcomes. influenza, but previous studies on coronavirus disease 2019 (COVID-19) had mixed results. The aim of this systematic review is to investigate the relationship between COVID-19 and obesity.

Methods: We performed a systematic review and meta-analysis. A literature search of MEDLINE, EMBASE, Scopus, Web of Science, CENTRAL, OpenGrey and preprint servers medRxiv and bioRxiv was performed, with no restriction on language or date of publication. Primary outcomes of this study were intensive care unit (ICU) admission or critical disease, severe disease and mortality. Secondary outcome was a positive COVID-19 test. Meta-analysis was performed using OpenMeta-Analyst software, and heterogeneity was tested using Cochran's Q test and I2 statistic. The study protocol was registered on PROSPERO (CRD42020184953).

Results: A total of 1,493 articles were identified and 61 studies on 270,241 patients were included. The pooled prevalence of obesity was 27.6% (95% confidence interval [CI] 22.0-33.2) in hospitalised patients. Obesity was not significantly associated with increased ICU admission or critical illness (odds ratio [OR] 1.25, 95% CI 0.99-1.58, P=0.062, I^2 =31.0) but was significantly associated with more severe disease (OR 3.13, 95% CI 1.41-6.92, P=0.005, I^2 =82.6), mortality (OR 1.36, 95% CI 1.09-1.69, P=0.006, I^2=88.5) and a positive COVID-19 test (OR 1.50, 95% CI 1.25-1.81, P<0.001).

Conclusion: Obesity increased the risk of severe disease, mortality and infection with COVID-19. Higher body mass index was associated with ICU admission and critical disease. Patients who are obese may be more susceptible to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Ho JSY, Fernando DI, Chan MY, Sia CH. Obesity in COVID-19: A Systematic Review and Meta-analysis. Ann Acad Med Singap. 2020;49(12):996-1008. doi:10.47102/annals-acadmedsg.2020299

The Vaccine Paradox

- According to models vaccines saved 20 million lives

  [*Watson O J, et al. Global Impact of first year of Covid-19 vaccination: a mathematical modeling study. Lancet 2022; 22: 9: 1293 – 1302]*

- Real world trends tell a different story.
  - *[Banerjee A. Covid-19 Mass Vaccination: How much impact at population level? Med J DY Patil Vidyapeeth 2022; 15: 3: 293 – 298.]*

European Journal of Epidemiology
https://doi.org/10.1007/s10654-021-00808-7

CORRESPONDENCE

Check for updates

Increases in COVID-19 are unrelated to levels of vaccination across 68 countries and 2947 counties in the United States

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Vaccines currently are the primary mitigation strategy to combat COVID-19 around the world. For instance, the narrative related to the ongoing surge of new cases in the United States (US) is argued to be driven by areas with low vaccination rates [1]. A similar narrative also has been observed in countries, such as Germany and the United Kingdom [2]. At the same time, Israel that was hailed for its swift and high rates of vaccination has also seen a substantial resurgence in COVID-19 cases [3]. We investigate the relationship between the percentage of population fully vaccinated and new COVID-19 cases across 68 countries and across 2947 percentage data yielding 2947 counties for the analysis. We computed the number and percentages of counties that experienced an increase in COVID-19 cases by levels of the percentage of people fully vaccinated in each county. The percentage increase in COVID-19 cases was calculated based on the difference in cases from the last 7 days and the 7 days preceding them. For example, Los Angeles county in California had 18,171 cases in the last 7 days (August 26 to September 1) and 31,616 cases in the previous 7 days (August 19–25), so this county did not experience an increase of cases in our dataset. We provide a dashboard of

Findings

At the country-level, there appears to be no discernable relationship between percentage of population fully vaccinated and new COVID-19 cases in the last 7 days (Fig. 1). In fact, the trend line suggests a marginally positive association such that countries with higher percentage of population fully vaccinated have higher COVID-19 cases per 1 million people. Notably, Israel with over 60% of their population fully vaccinated had the highest COVID-19 cases per 1 million people in the last 7 days. The lack of a meaningful asso-

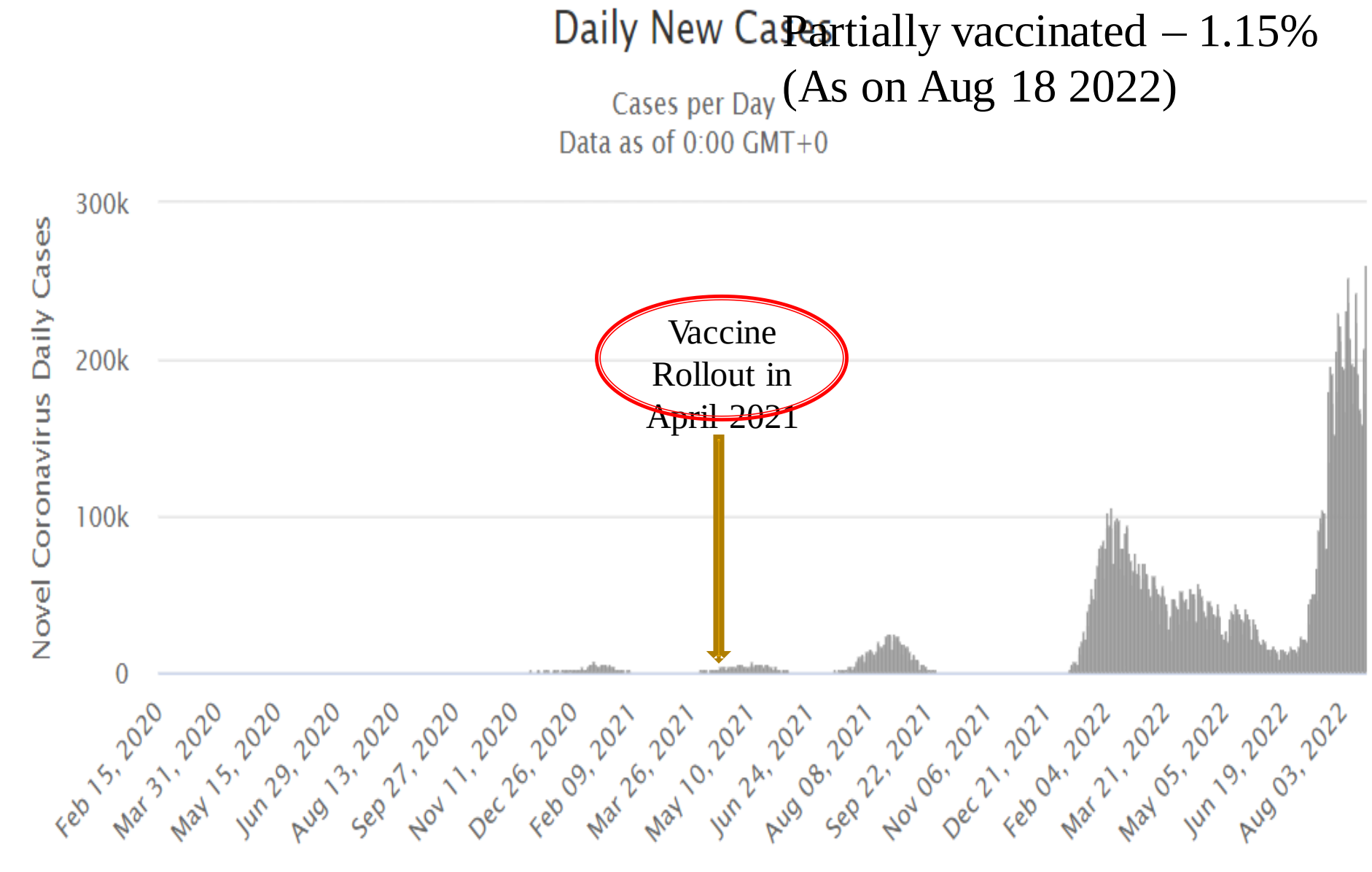
Subramanian, S.V., Kumar, A. Increases in COVID-19 are unrelated to levels of vaccination across 68 countries and 2947 counties in the United States. *Eur J Epidemiol* (2021).

Daily New Cases in Japan

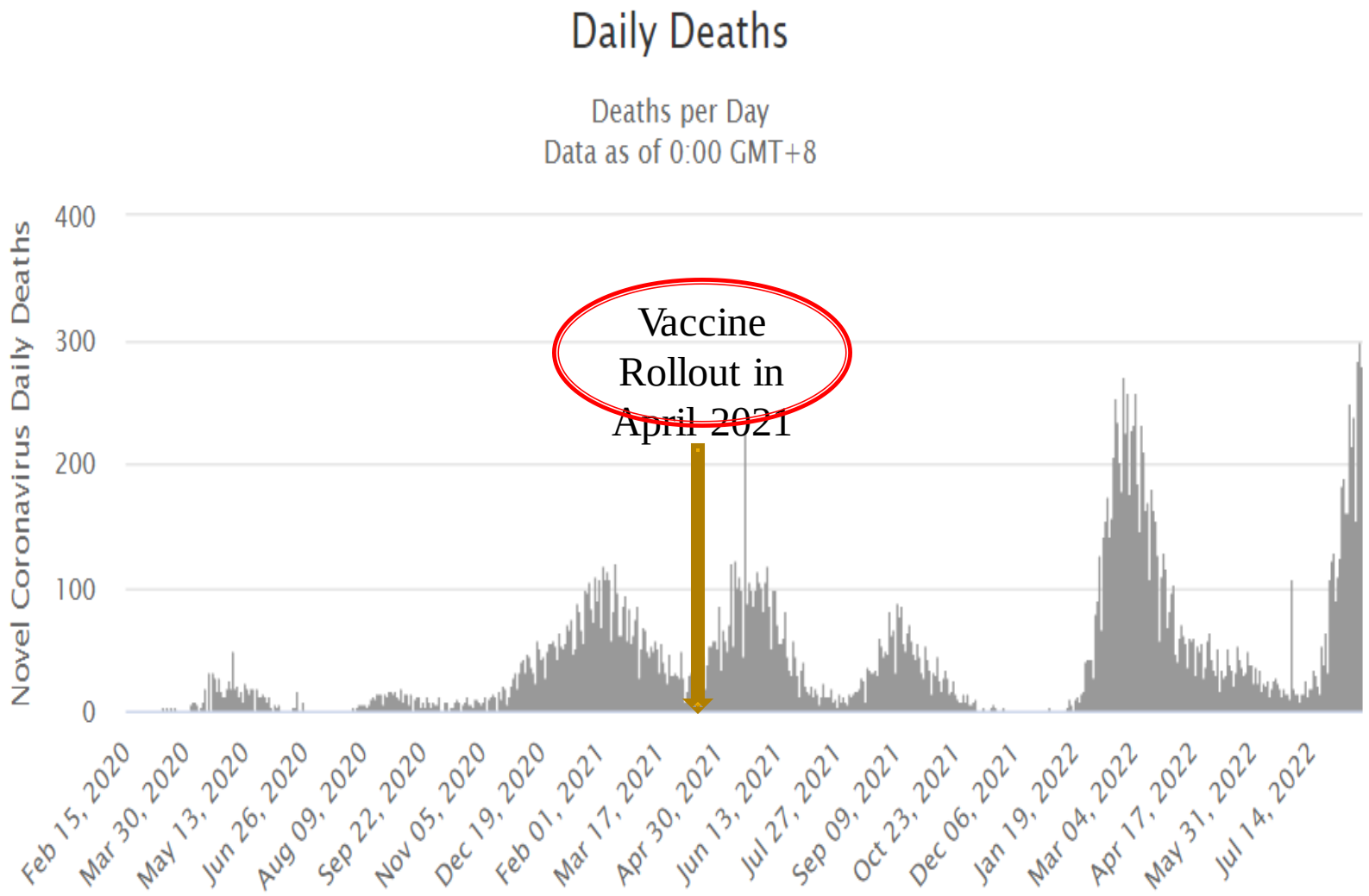
Complete vaccine coverage – 82.33%

Partially vaccinated – 1.15%

(As on Aug 18 2022)

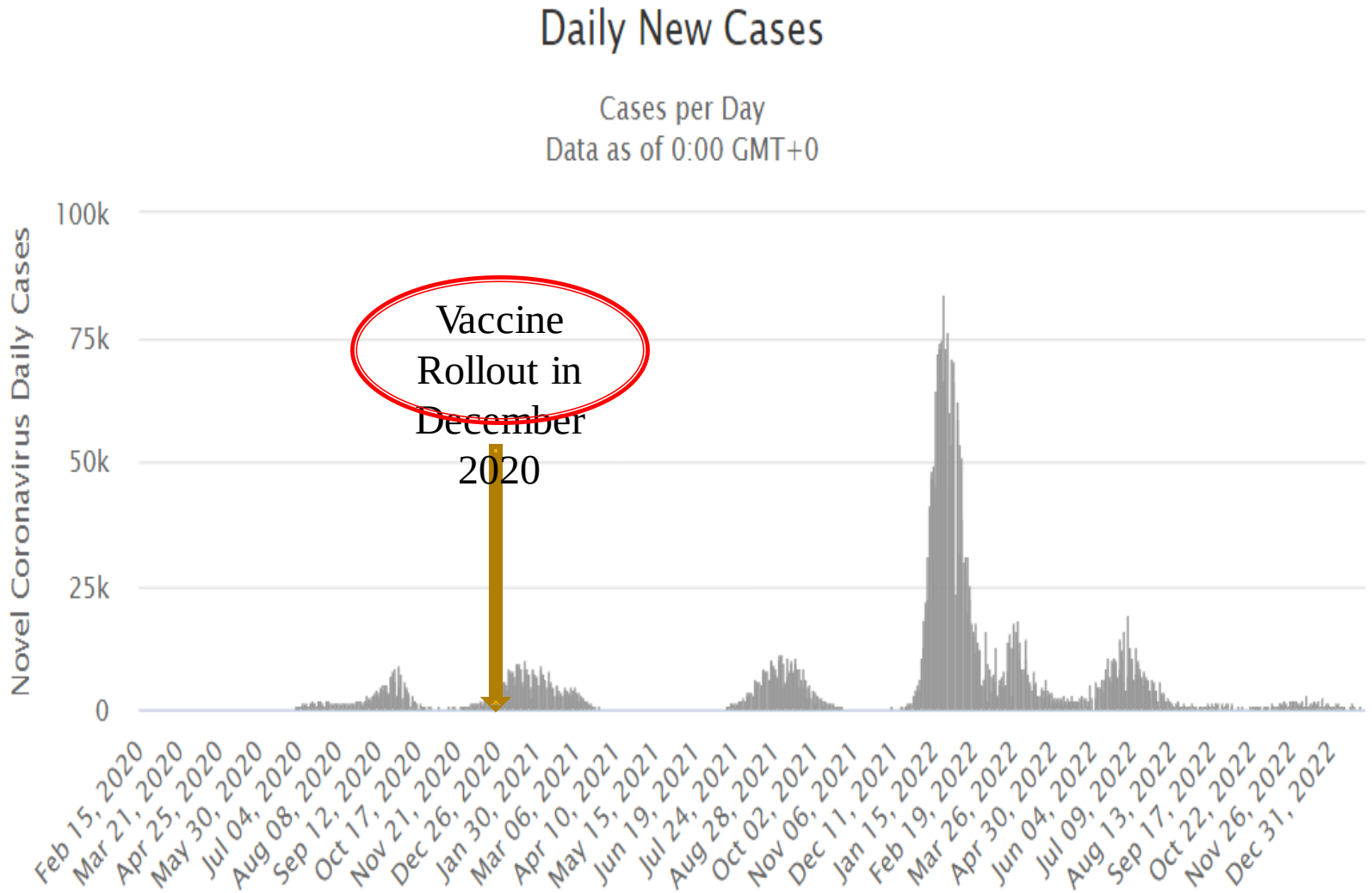


Daily New Deaths in Japan

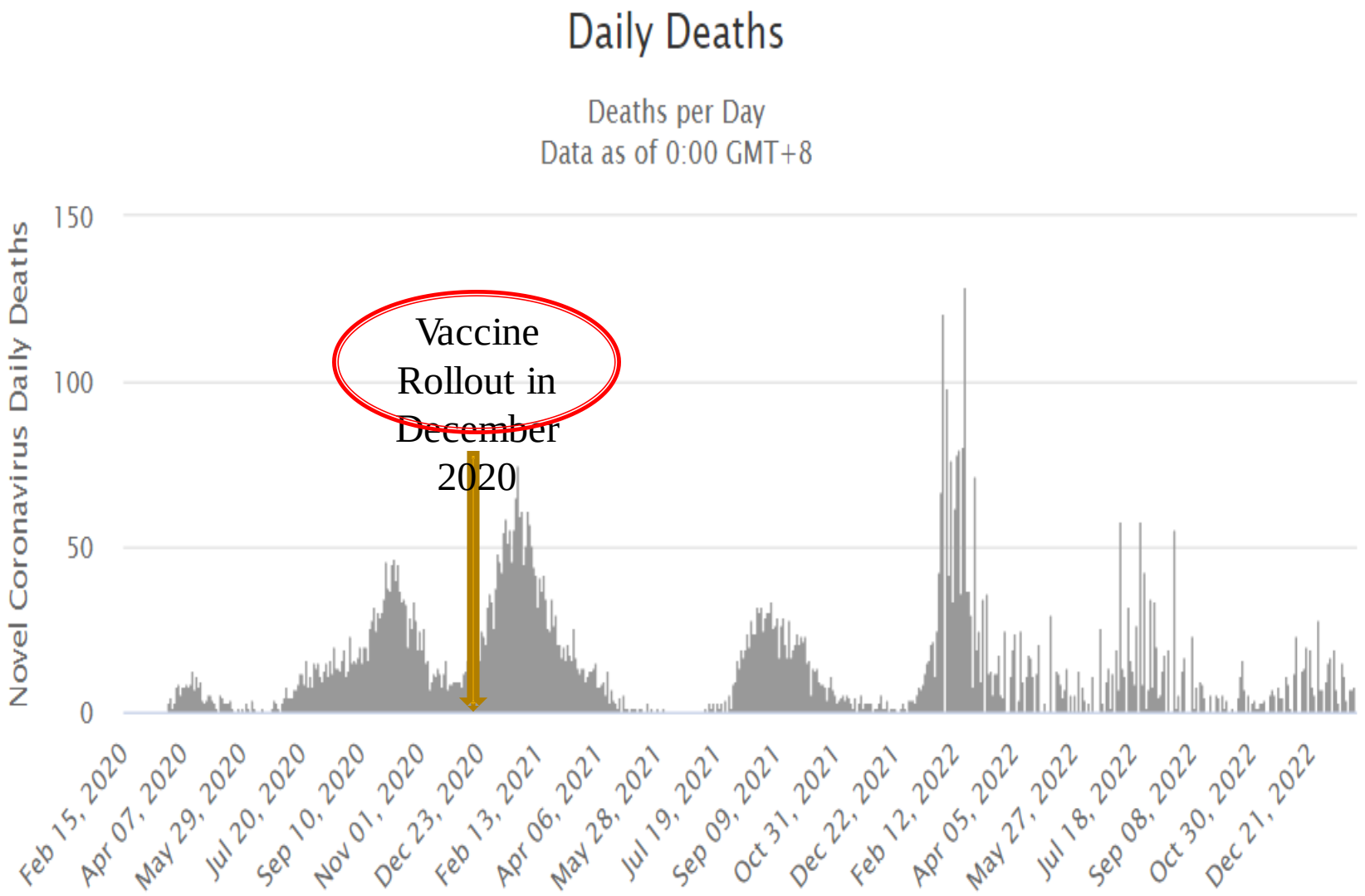


Daily New Cases in Israel

65.17%
Partially vaccinated – 5.97
(As on Jan 30 2023)

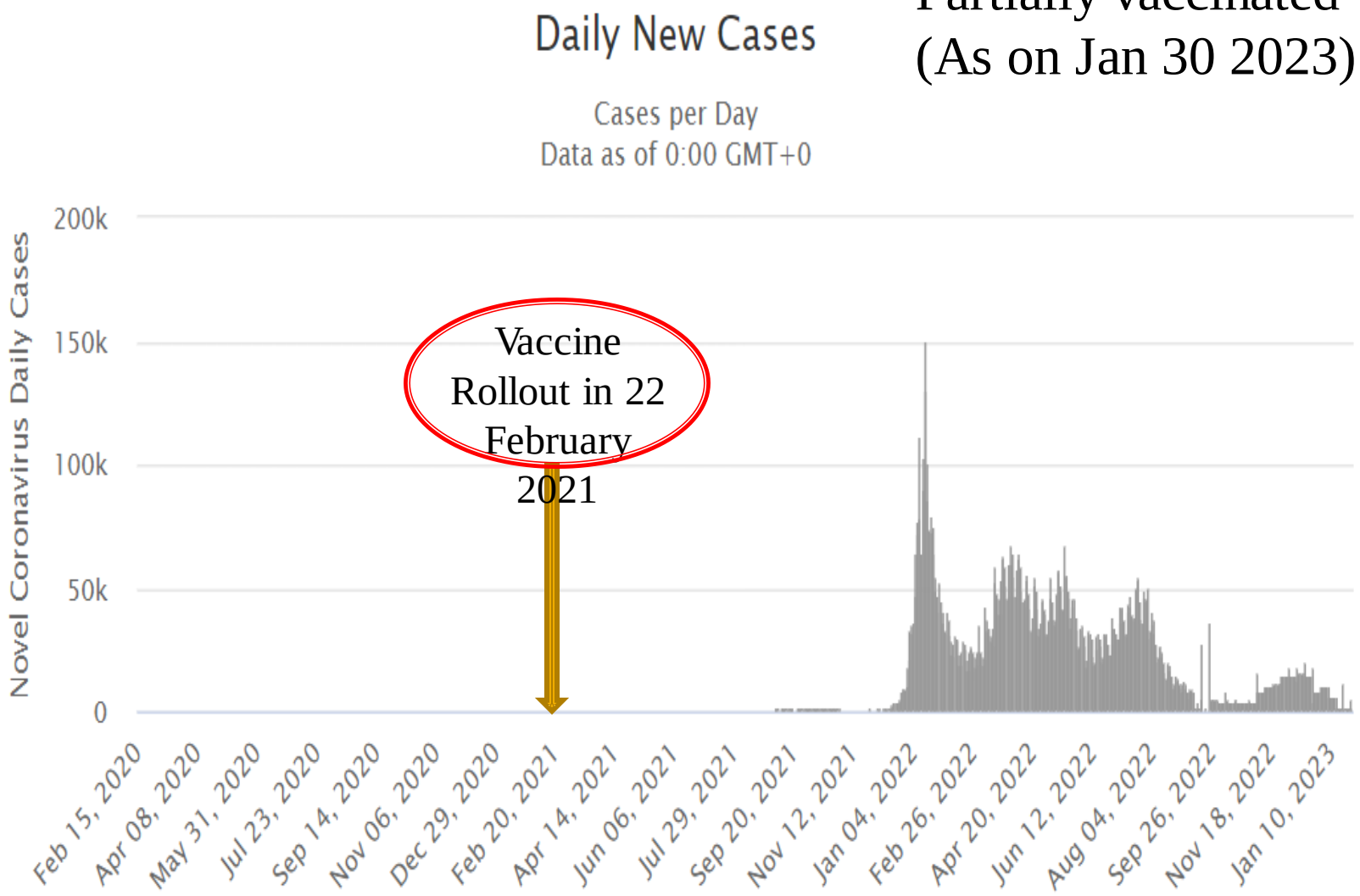


Daily New Deaths in Israel

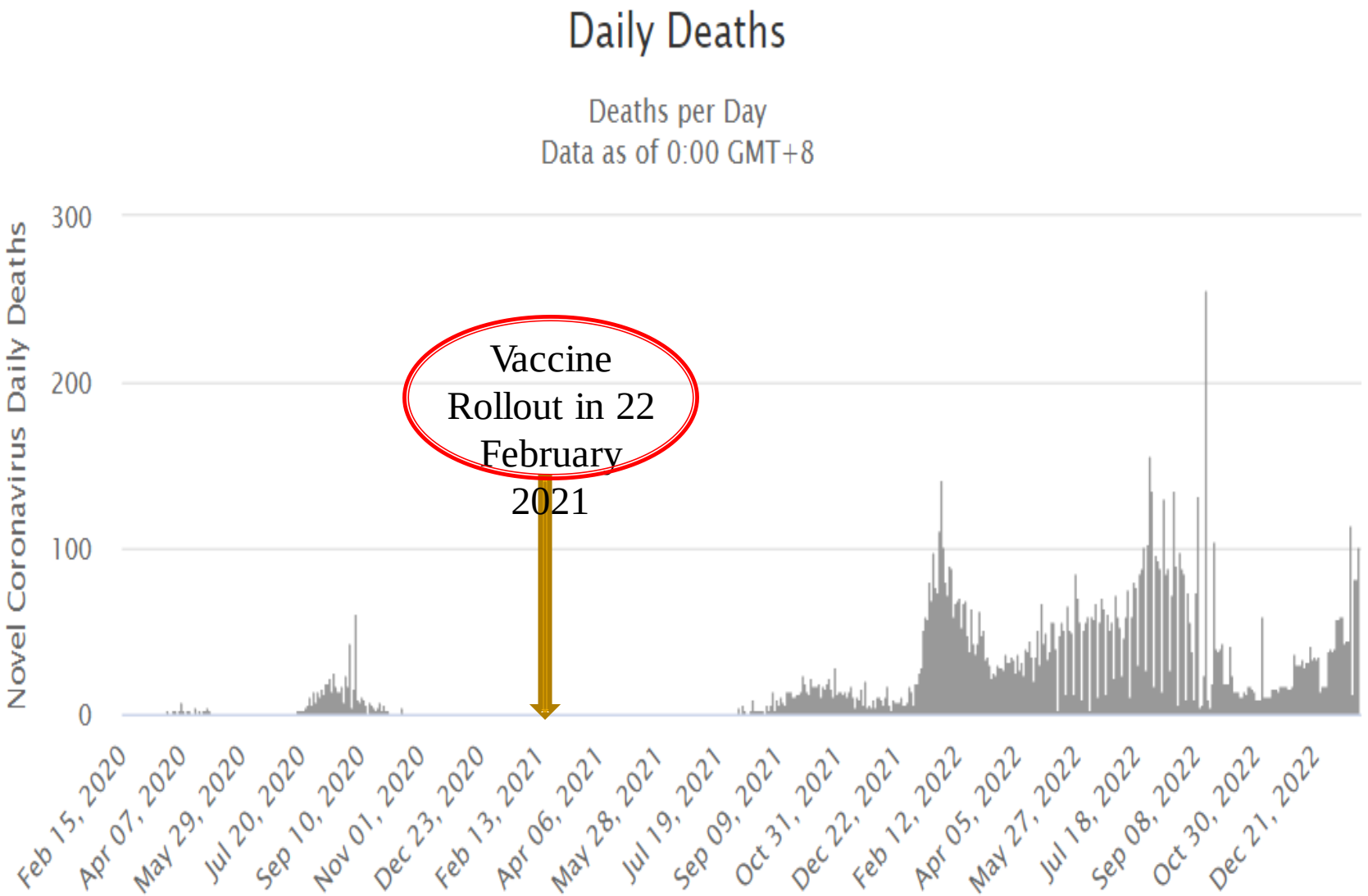


Daily New Cases in Australia

Complete vaccine cov
82.72%
Partially vaccinated – 2.2%
(As on Jan 30 2023)



Daily New Deaths in Australia

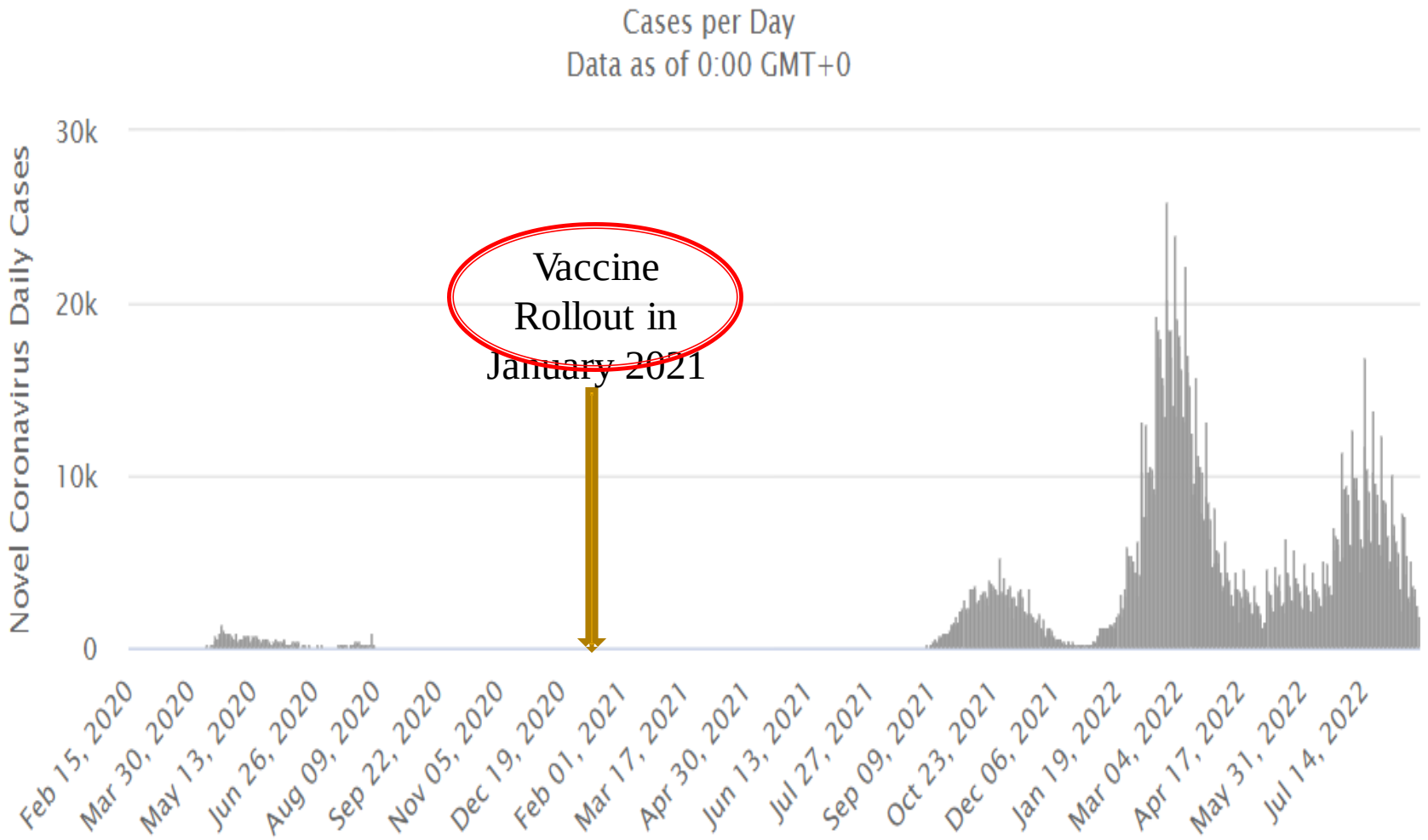


Daily New Cases in Singapore

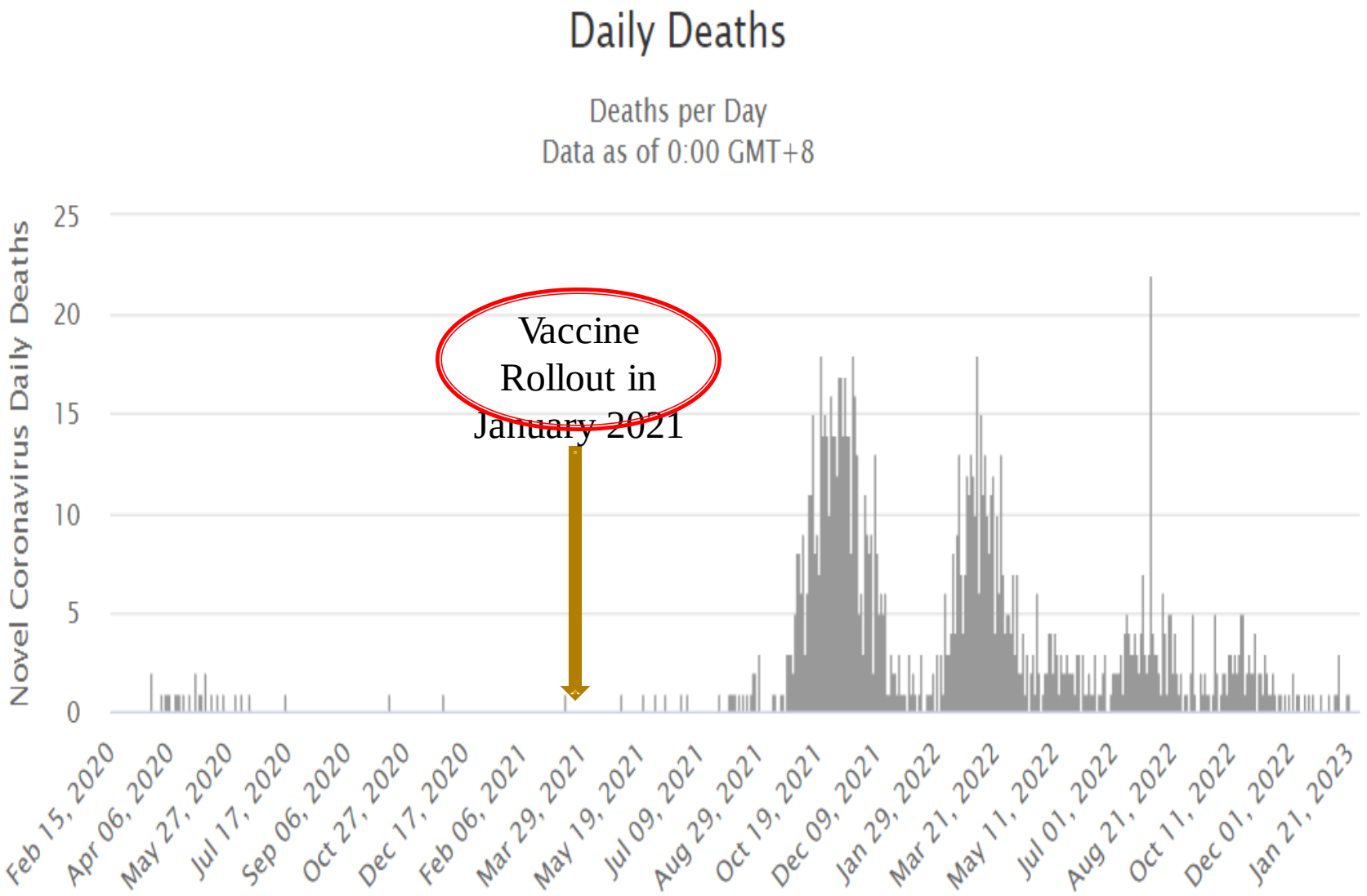
Complete vaccine coverage – 90.83%

Partially vaccinated – 0.71%

(As on Jan 30 2023)

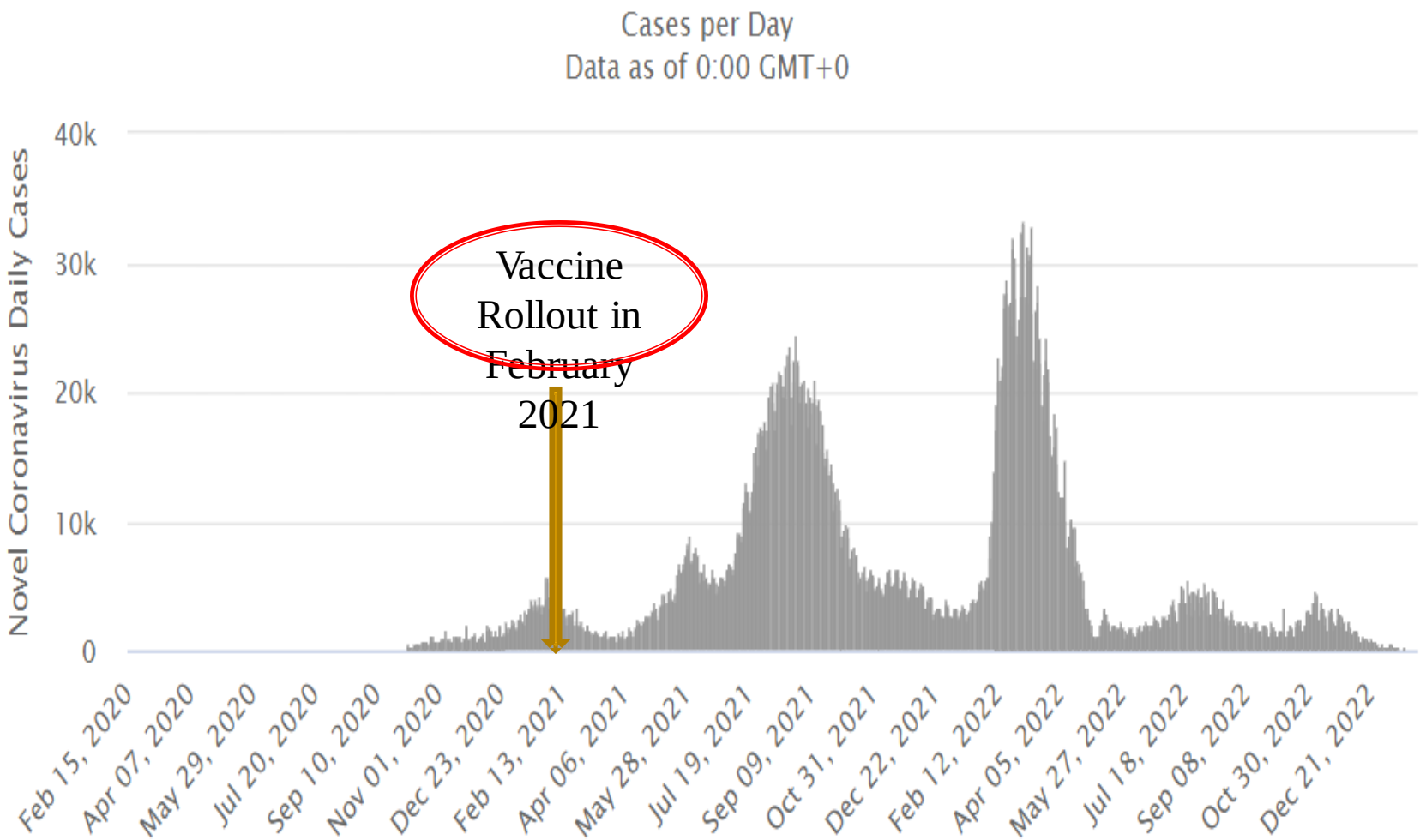


Daily New Deaths in Singapore

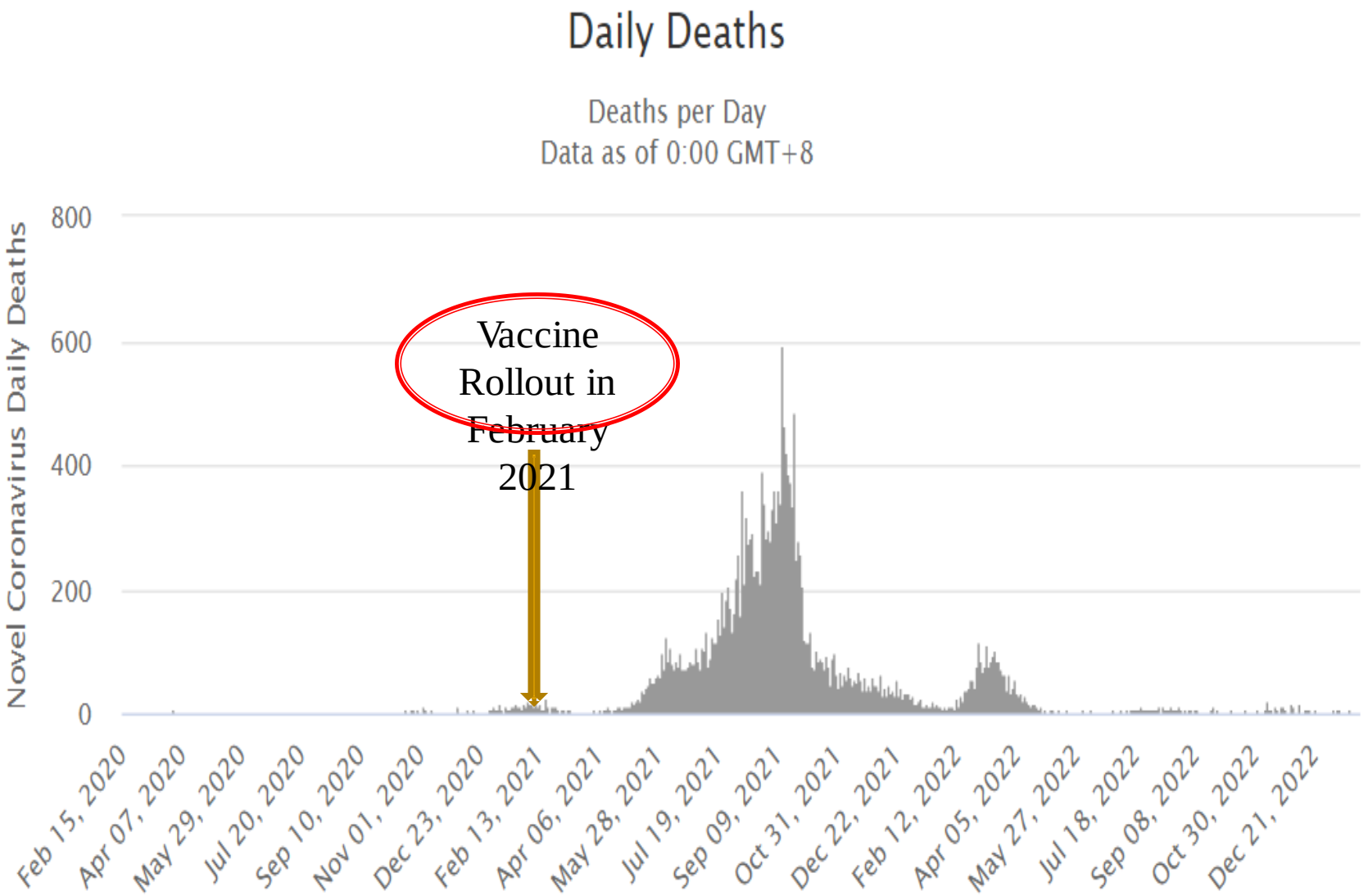


Daily New Cases in Malaysia

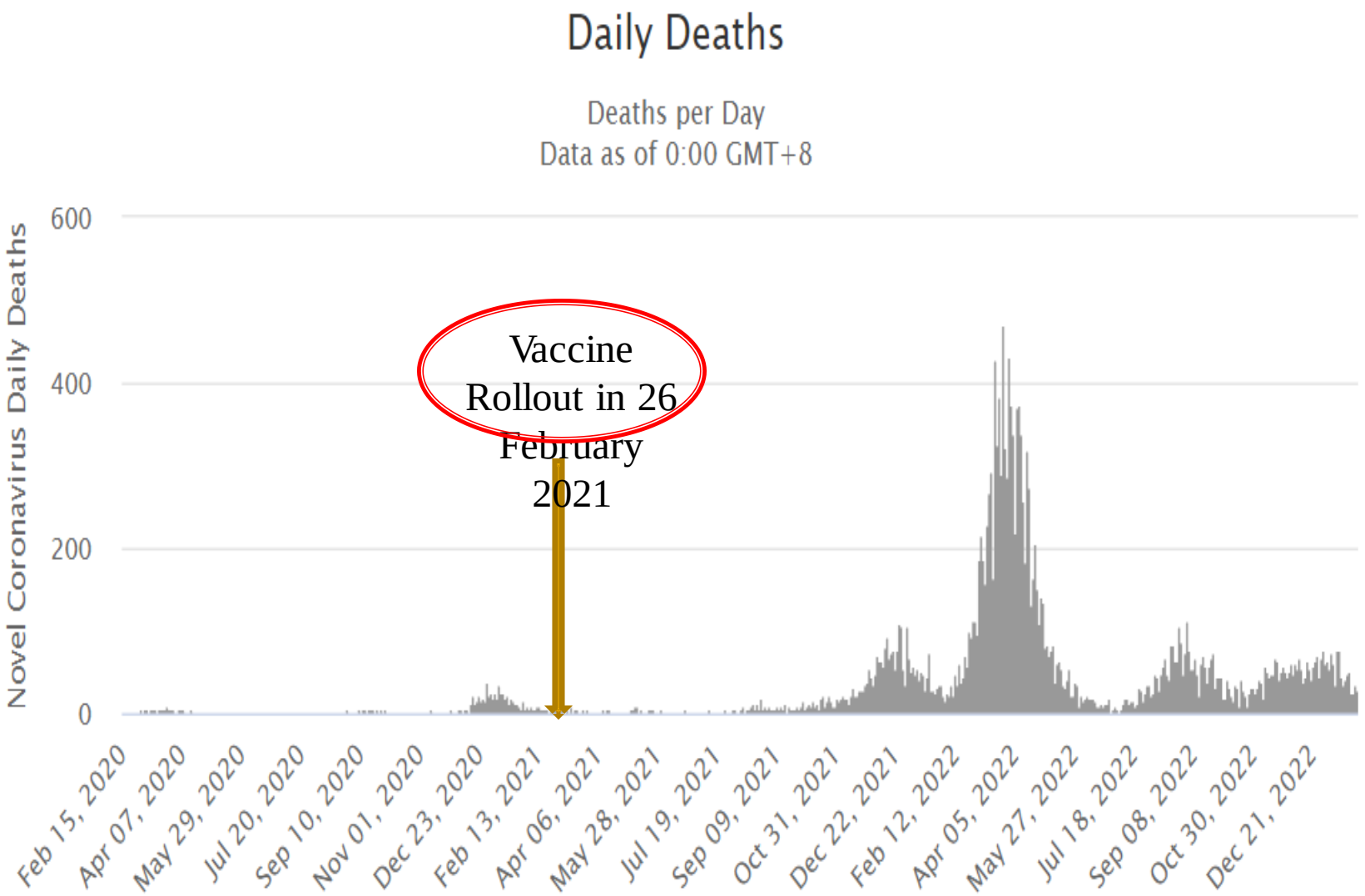
Complete vaccine coverage
81.14%
Partially vaccinated – 1.73%
(As on Jan 30 2023)



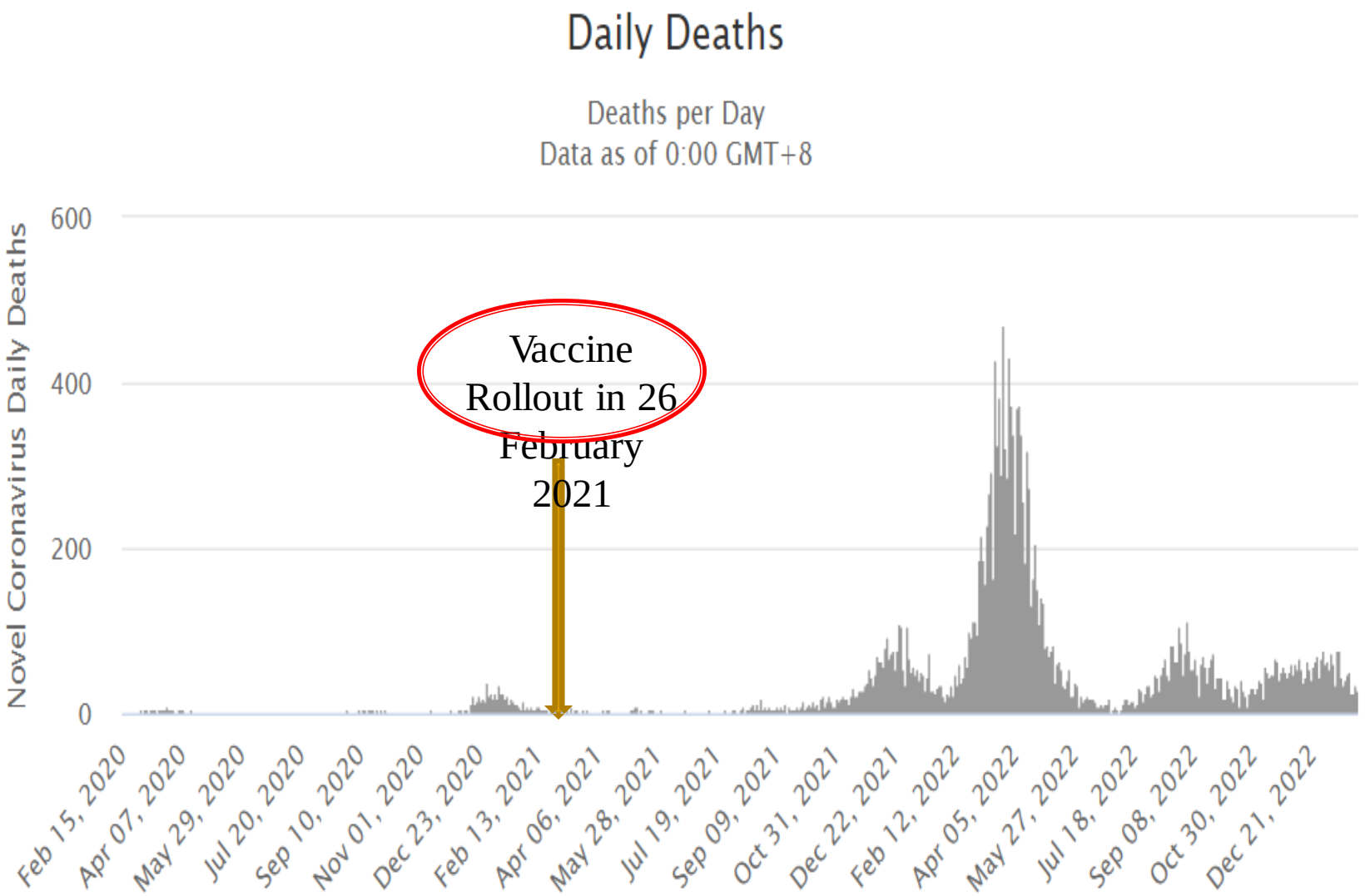
Daily New Deaths in Malaysia



Daily New Deaths in South Korea

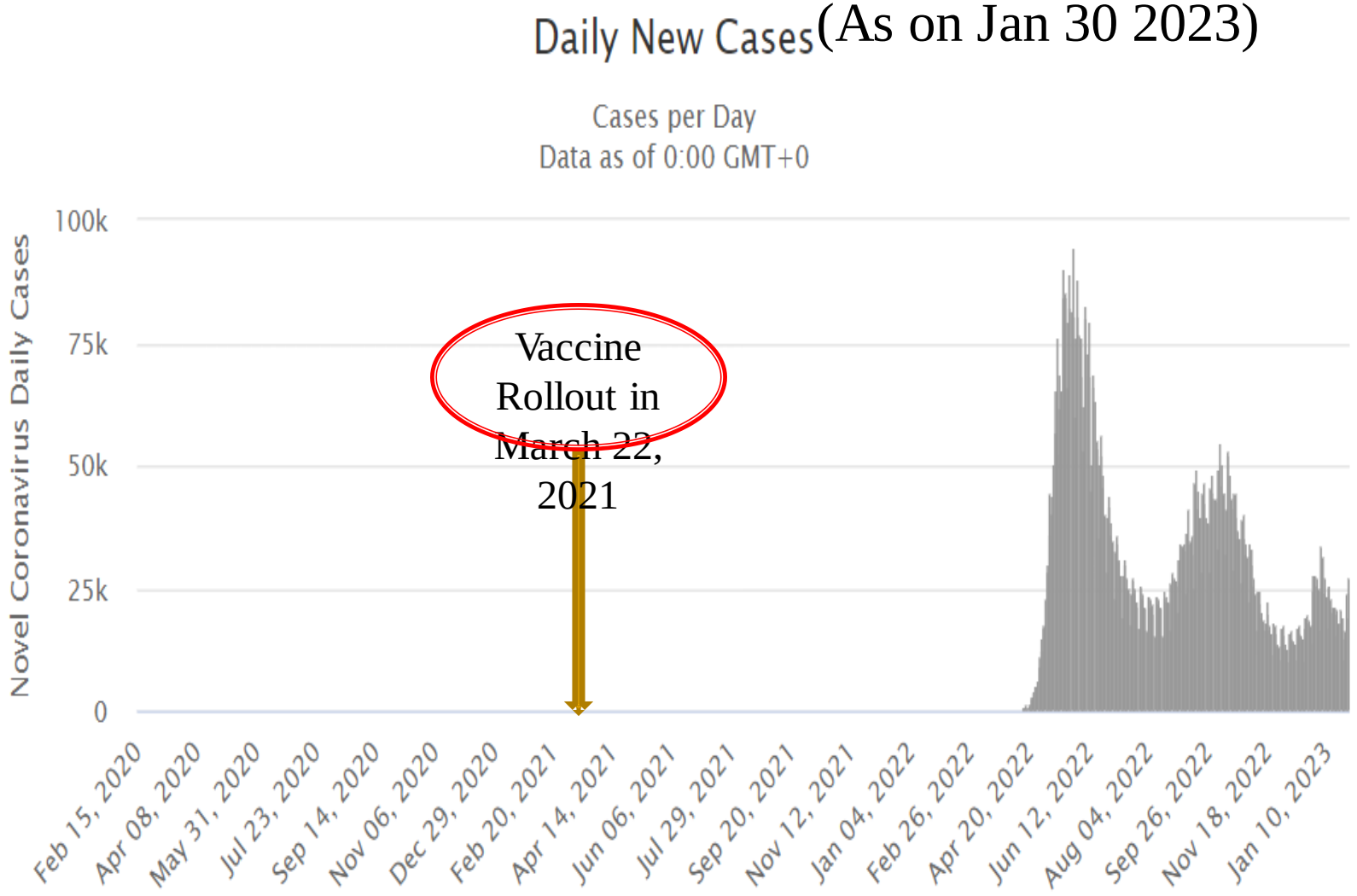


Daily New Deaths in South Korea

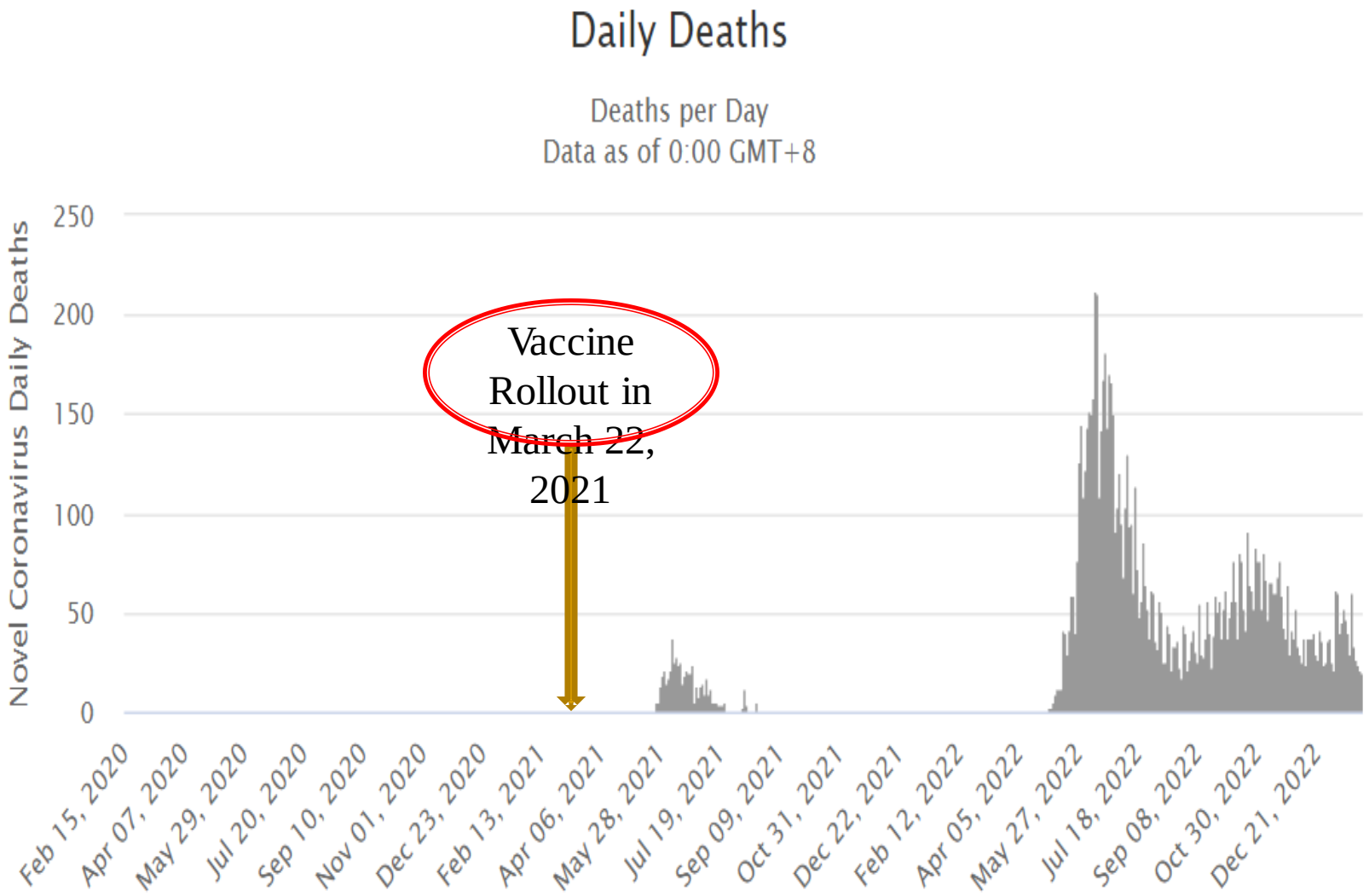


Daily New Cases in Taiwan

Complete vaccine coverag
86.33%
Partially vaccinated – 5.03
(As on Jan 30 2023)

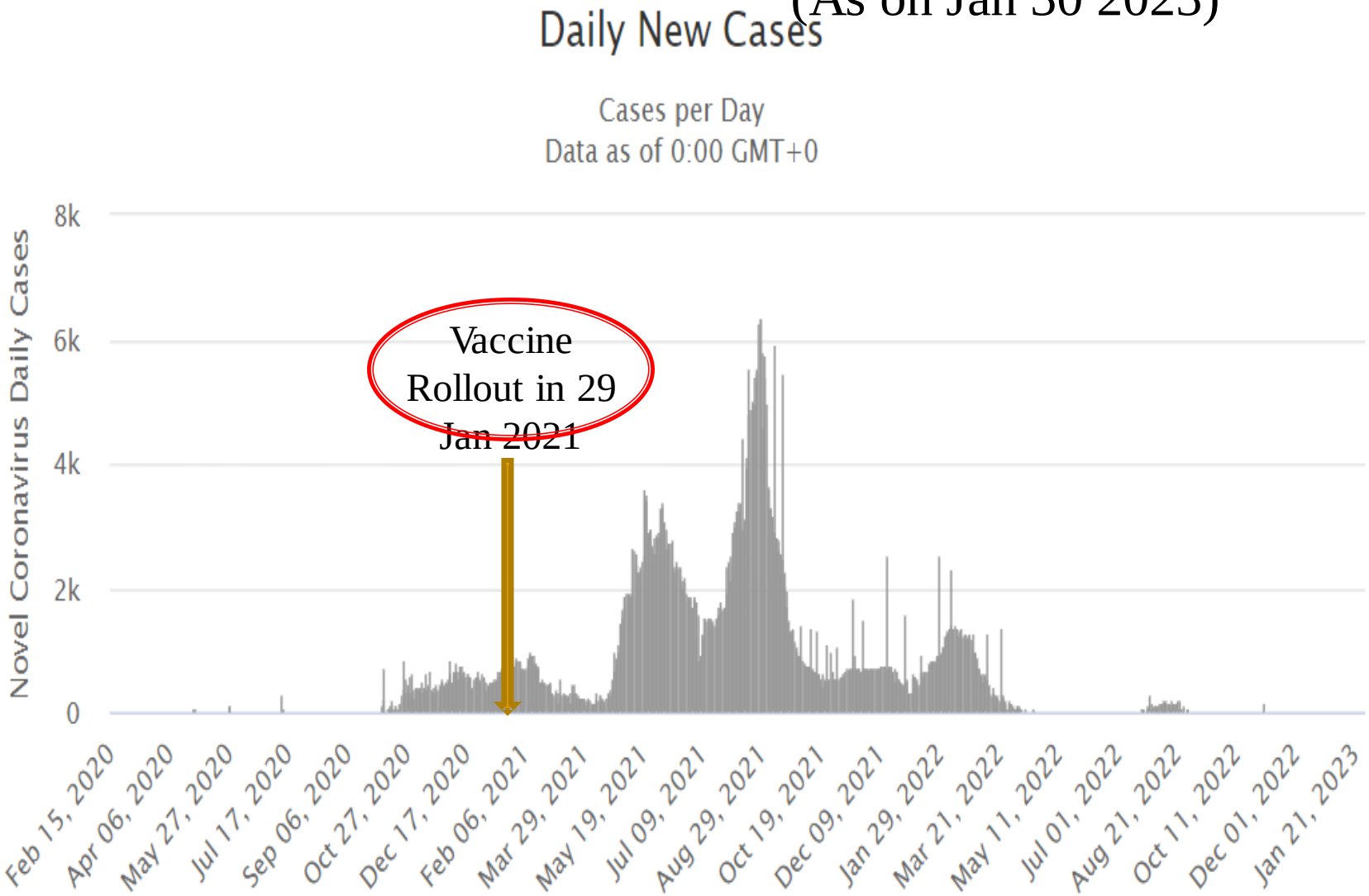


Daily New Deaths in Taiwan

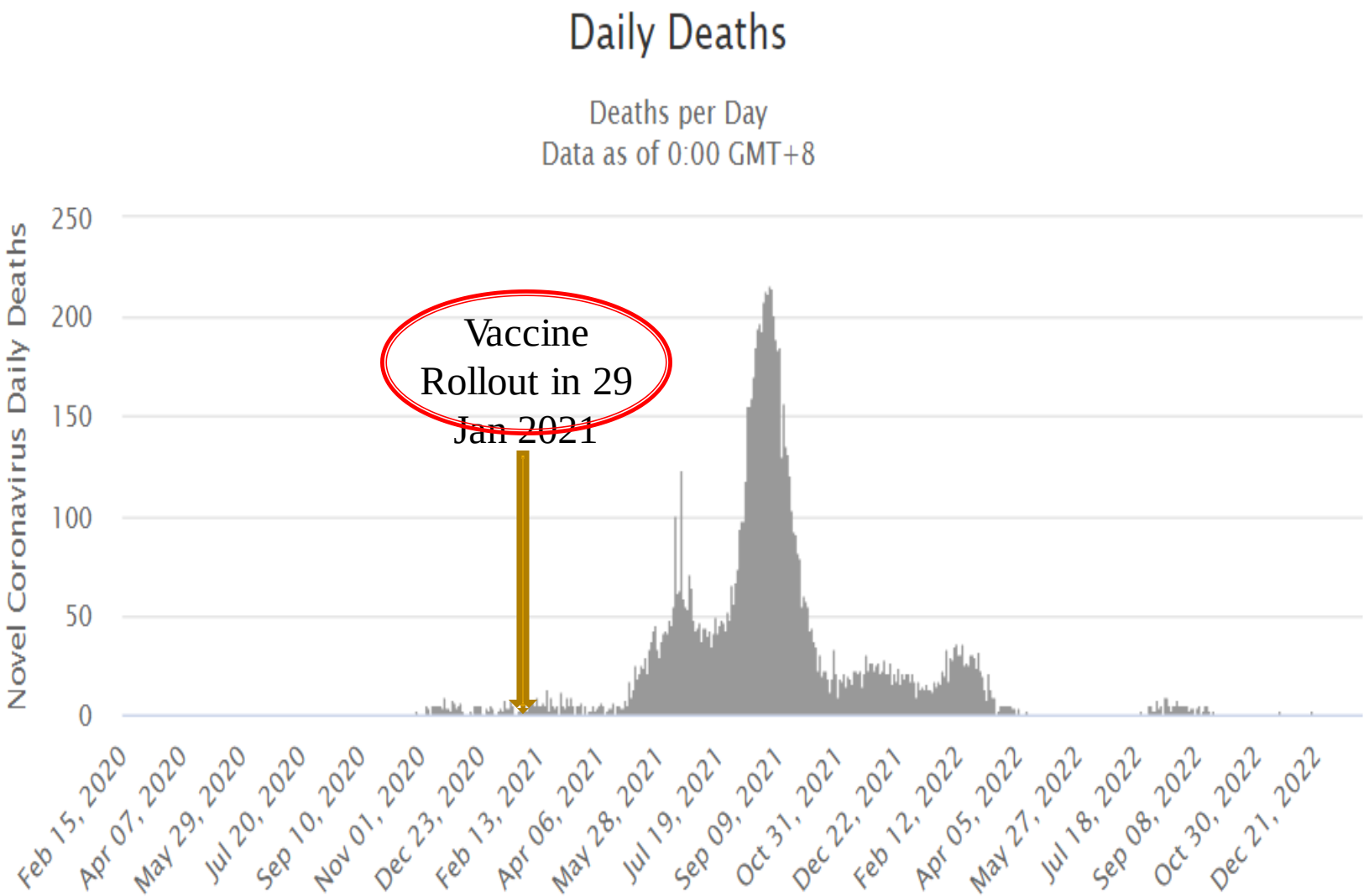


Daily New Cases in Sri Lanka

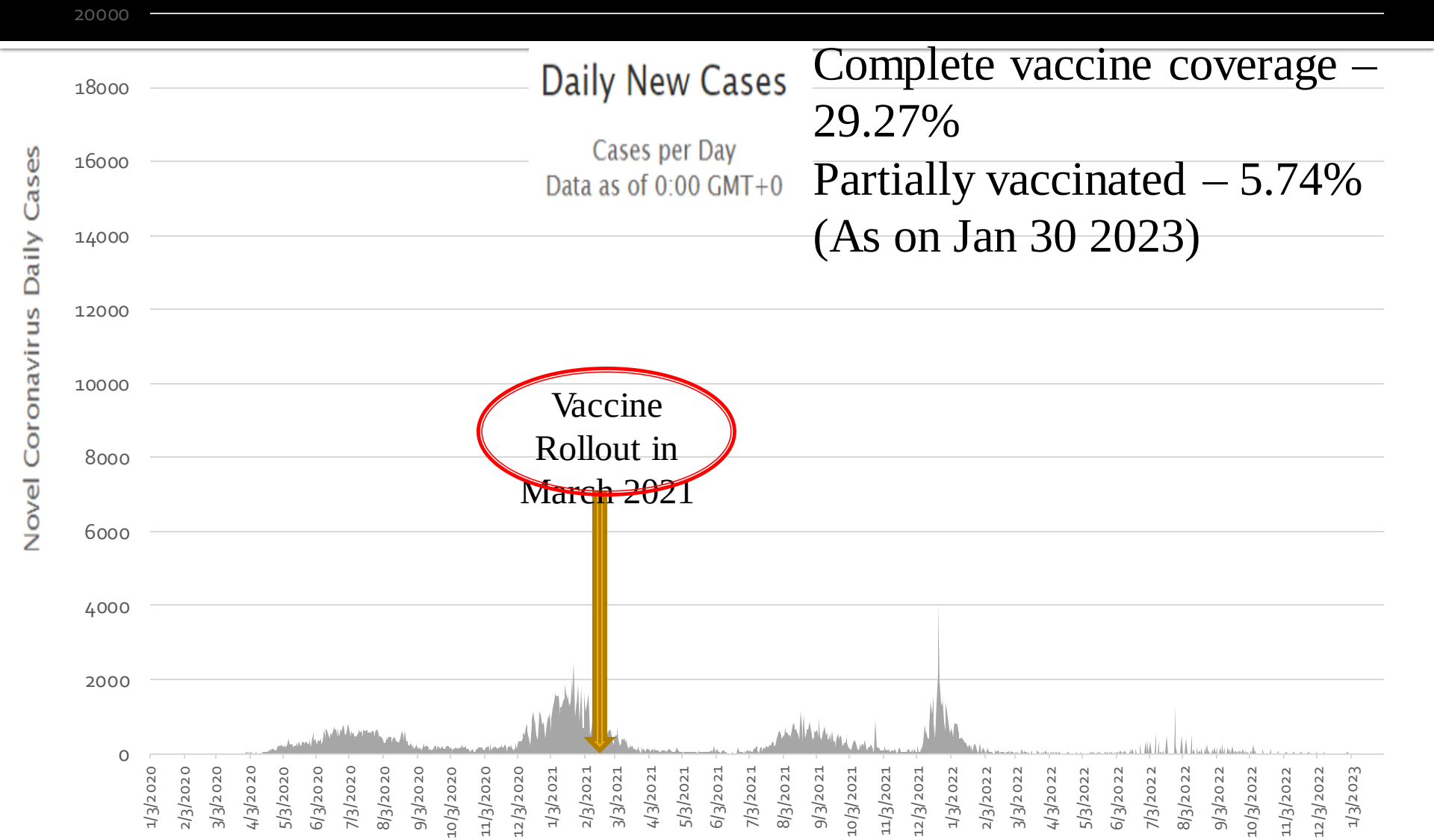
Complete vaccine coverage – 67.57%
Partially vaccinated – 10.95%
(As on Jan 30 2023)



Daily New Deaths in Sri Lanka



Daily New Cases in Nigeria

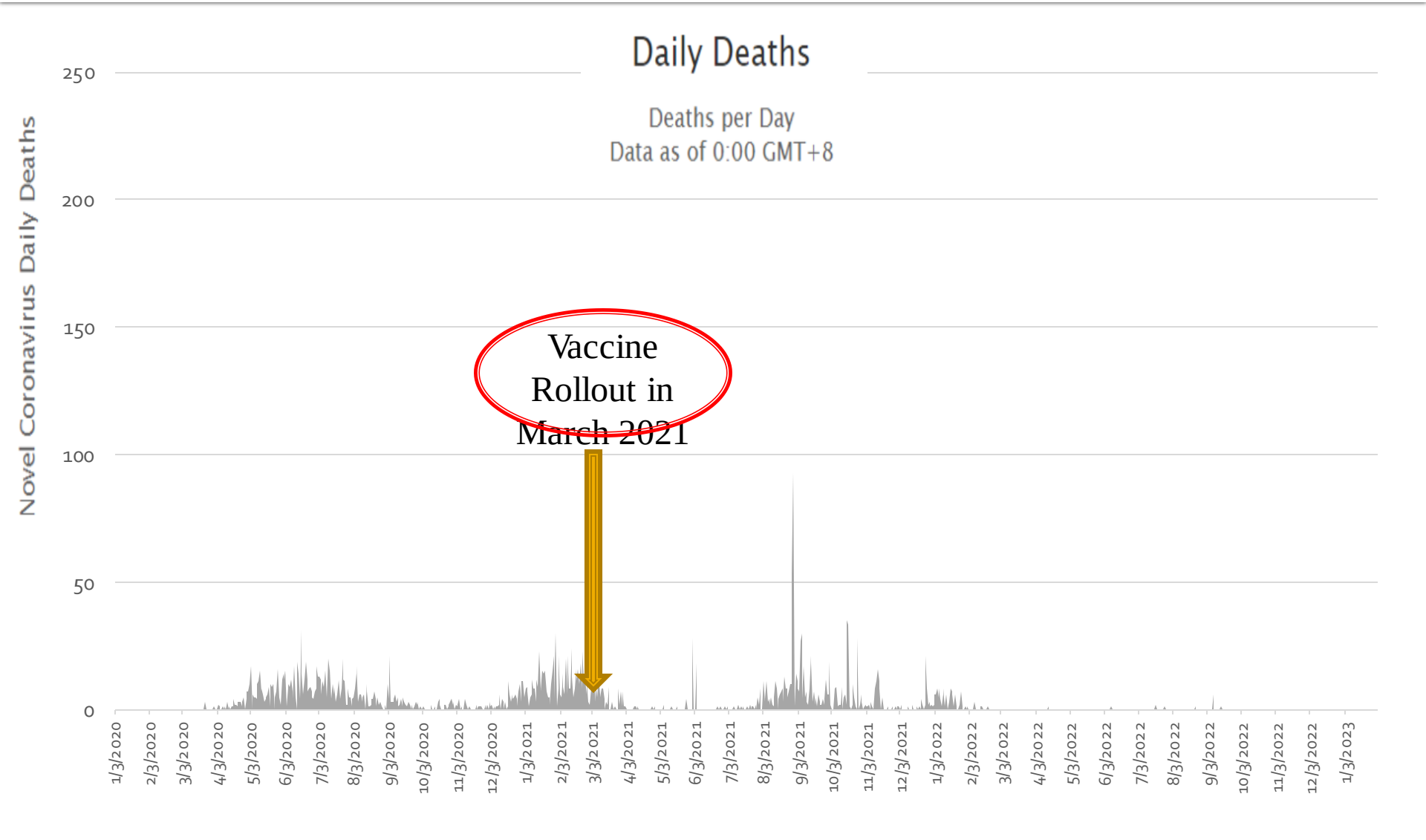


Complete vaccine coverage – 29.27%

Partially vaccinated – 5.74%

(As on Jan 30 2023)

Daily New Deaths in Nigeria



Lessons from the Data

- Overweight appears to be a bigger risk factors than age (suggested by outliers Brazil, Japan)
- Despite different strategies and vaccination the mortality gap over 2 years among different continents remains same.
- Future strategy: review of mass vaccination can be considered

Overview of Covid-19 Vaccines

- **mRNA vaccines** – instructs host cells to produce the "S" protein
  - Pfizer, Moderna
- **Vector Vaccine –** material from the Covid-19 virus is transmitted by a viral vector (adenovirus) which gives instructions to host cells to make the "S" protein.
  - AstraZeneca (Covishield in India), Johnson and Johnson
- **Traditional Vaccine** – inactivated viral particles
  - Covaxin

Concerns about Serious Adverse Events

- mRNA vaccines
  - Pericarditis
  - Myocarditis
  - Guillain-Barre Syndrome
- Viral Vector Vaccines (AstraZeneca, Covishield)
  - Clotting disorders
  - Stroke
  - Myocarditis, pericarditis.

[Faksova K et al. Covid-19 vaccines and adverse events of special interest: A multinational Global Vaccine Data Network cohort study of 99 million vaccinated individuals Vaccine 2024; (in press) https://doi.org/10.1016/j.vaccine.2024.01.100]

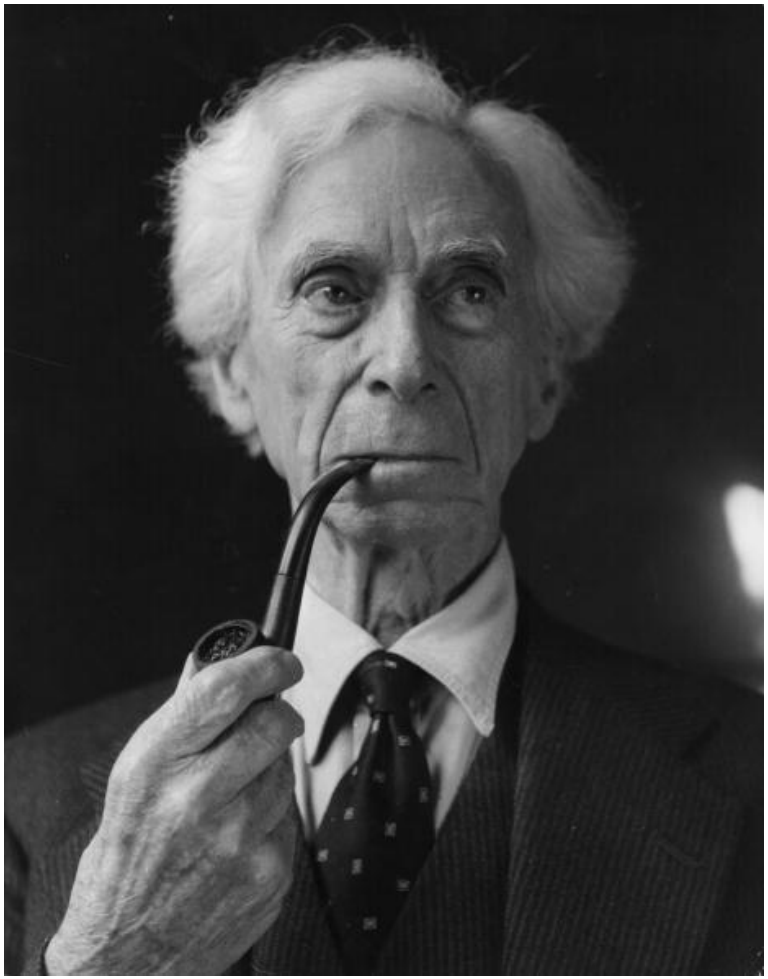
All cause excess deaths in many Europe, USA, Australia, NZ

- **A matter of concern is excess deaths since past 2-3 years and particularly among young adults below 40 years in many highly vaccinated countries.**
- **This require thorough investigations, including autopsy studies.**
  - [Elijah S. The veil of silence over excess deaths. Oct 26, 2023. https://brownstone.org/articles/veil-of-silence-over-excess-deaths/]

Covid-19 Vaccines: What should be future strategies

- More research on safety and efficacy
- Need for robust AEFI system in place.
- Mass vaccination or risk based approach?
  - Shall we vaccinate the young and children without co-morbidities?
  - Shall we vaccinate those who have recovered from natural infection?
  - Shall we impose vaccine mandates or offer it on voluntary basis? Supreme Court of India has turned down vaccine mandates: https://www.livelaw.in/top-stories/nobody-can-be-forced-to-get-vaccinated-vaccine-mandates-not-proprortionate-supreme-court-198032
- Shall we blindly follow the West ignoring the local epidemiology in our coutry?

Conclusion: Who is he?



Conclusion…Bertrand Russell's three stages of conflict coming true

- Man and nature (environment, infections)
  - Interface with veterinary public health
- Man and Man (violence, wars, lab origins?)
  - Sanctions against "gain of function research."
- Man and self (Obesity & lifestyle diseases).
  - Population approach, primordial prevention

- Have we have arrived?

Sun Tzu in Art of War

"The Art of War teaches us not on the likelihood of the enemy's not coming, but on our readiness to receive him; not on the chance of his not attacking, but rather on the fact that we have made our position unassailable. "

Take home message…contd

- Control of obesity biggest challenge in the West
- Obesity creeping up in developing economies like Brazil (lesson for other developing economies like India), and need for primordial prevention in these countries.
- Lack of public health infrastructure challenge in poor countries.

Agneepath – truce with the virus Mutants are milder

"Apna ussool kehta hai…jab dushman ki umar badh jaaye toh usse dosti karlo…apni umar badh jaati hai."

Stop chasing the virus, else we will fall off the cliff like an elephant chasing the Covid Cat!

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Thank you

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