airfinity
HOME OF NEW SCIENCE

COVID-19 Vaccine Production and surplus doses

Science, trial forecast, production and news analysis

May 19th - Prepared for COVID-19 Intel Subscribers

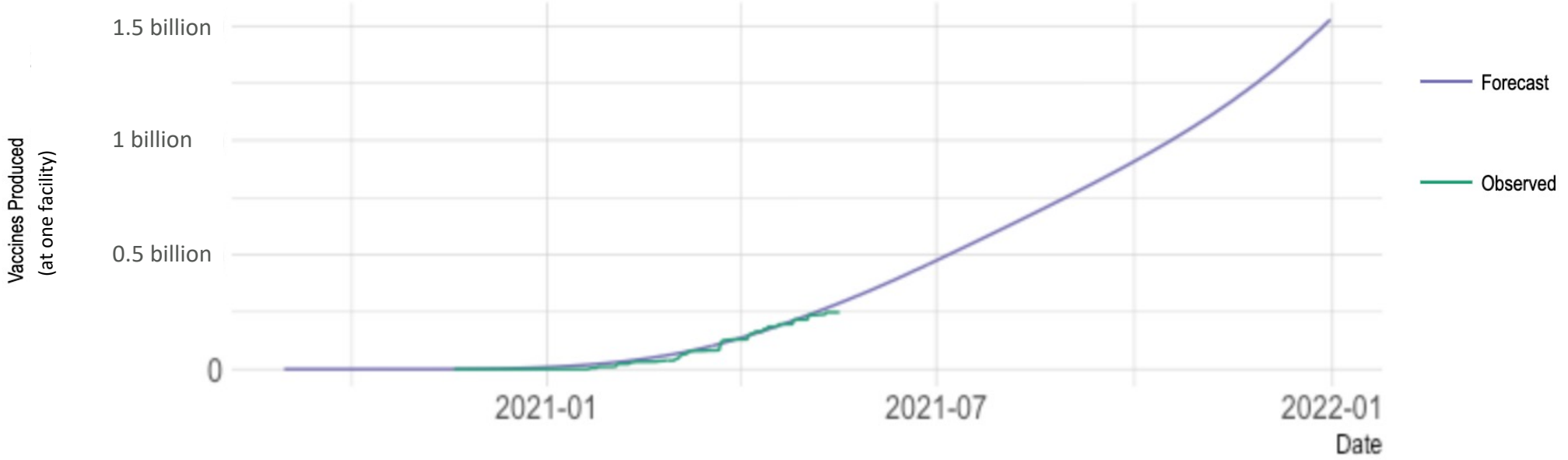
Production forecasts use real-time data

Airfinity production forecast methodology

Data was collected on stated annual production capacity for each vaccine manufacturing facility globally, which is used to build a deterministic model. The three main inputs for each facility are company stated production, real observed production, and assumptions on scale-up time. Airfinity tracks the production and deliveries of vaccine doses by each site where vaccine manufacture is underway. Start dates for the bulk production at sites yet to come online are estimated based on when the relevant vaccine is expected to publish phase 3 efficacy data and be approved. A production facility usually takes 3-4 months to reach capacity, an assumption based on expert insight. When available, a production forecast is matched up to observed data and any discrepancies result in adjustments to the forecasting model. This approach generates forecast over time of the total number of doses produced for each vaccine across the globe.

1. The **observed** deliveries of vaccines to specific countries are collected and timestamped, giving a timeseries of **observed vaccine production**.
2. The supplied countries are linked to production facilities, so we can calculate the **production from each site**.
3. We have assumed start dates for bulk production at each site and we have the assumption, based on expert insight, that it usually takes **3-4 months for each production facility to reach capacity**.
4. When available, we match up our **production forecast** to **observed data**, if the forecast is overperforming we slow it down, whereas if it is underperforming we speed it up. Where there is no observed data we follow the general rule that production will take 3-4 months to output at capacity.

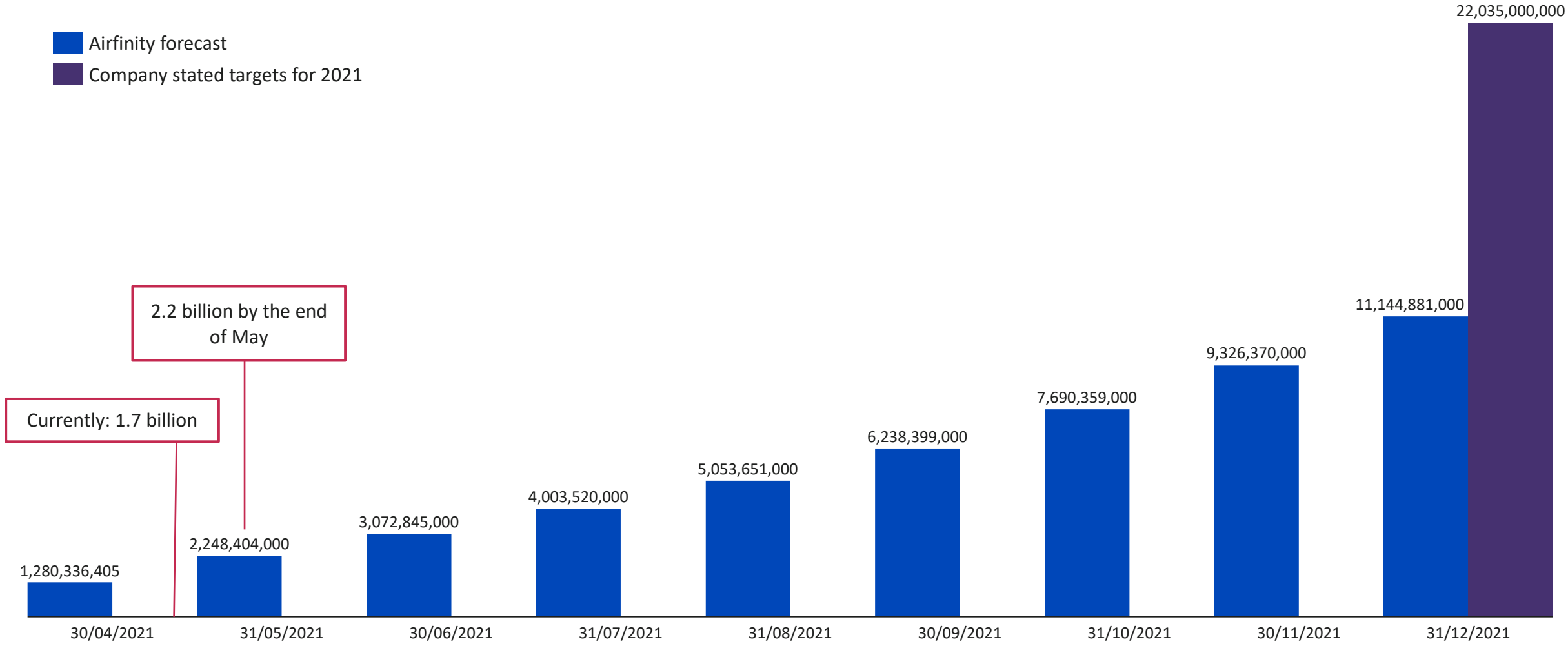
Below is an example of production scale up and observed data for **one facility**:



Global production forecasts are calculated by summing all production facility forecasts

Vaccine production could exceed 10 billion, if more vaccines come through the pipeline

Vaccine production forecast split by candidate



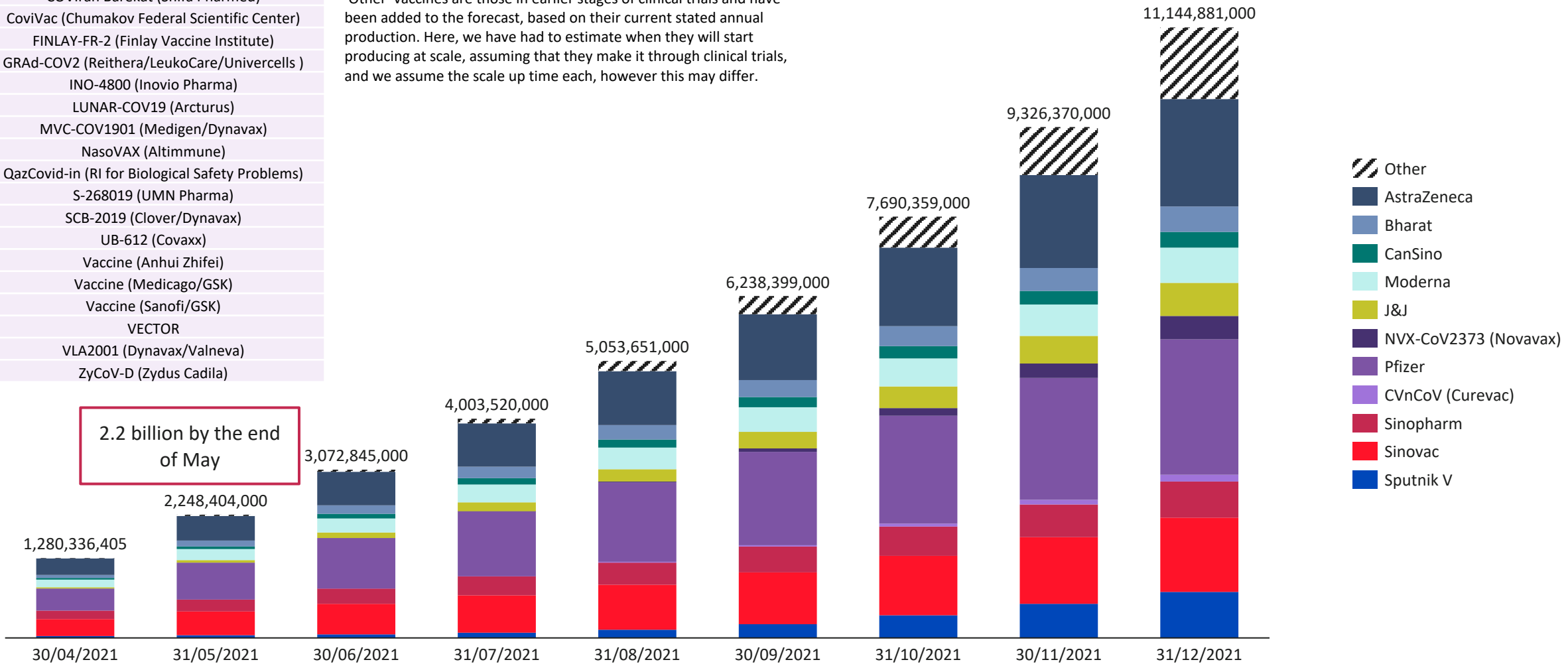
Forecasted on 19/05/2021

Vaccine production could exceed 10 billion, if more vaccines come through the pipeline

Vaccine production forecast split by candidate

Other vaccines
COVIran Barekat (Shifa Pharmed)
CoviVac (Chumakov Federal Scientific Center)
FINLAY-FR-2 (Finlay Vaccine Institute)
GRAd-COV2 (Reithera/LeukoCare/Univercells)
INO-4800 (Inovio Pharma)
LUNAR-COV19 (Arcturus)
MVC-COV1901 (Medigen/Dynavax)
NasoVAX (Altimmune)
QazCovid-in (RI for Biological Safety Problems)
S-268019 (UMN Pharma)
SCB-2019 (Clover/Dynavax)
UB-612 (Covaxx)
Vaccine (Anhui Zhifei)
Vaccine (Medicago/GSK)
Vaccine (Sanofi/GSK)
VECTOR
VLA2001 (Dynavax/Valneva)
ZyCoV-D (Zydus Cadila)

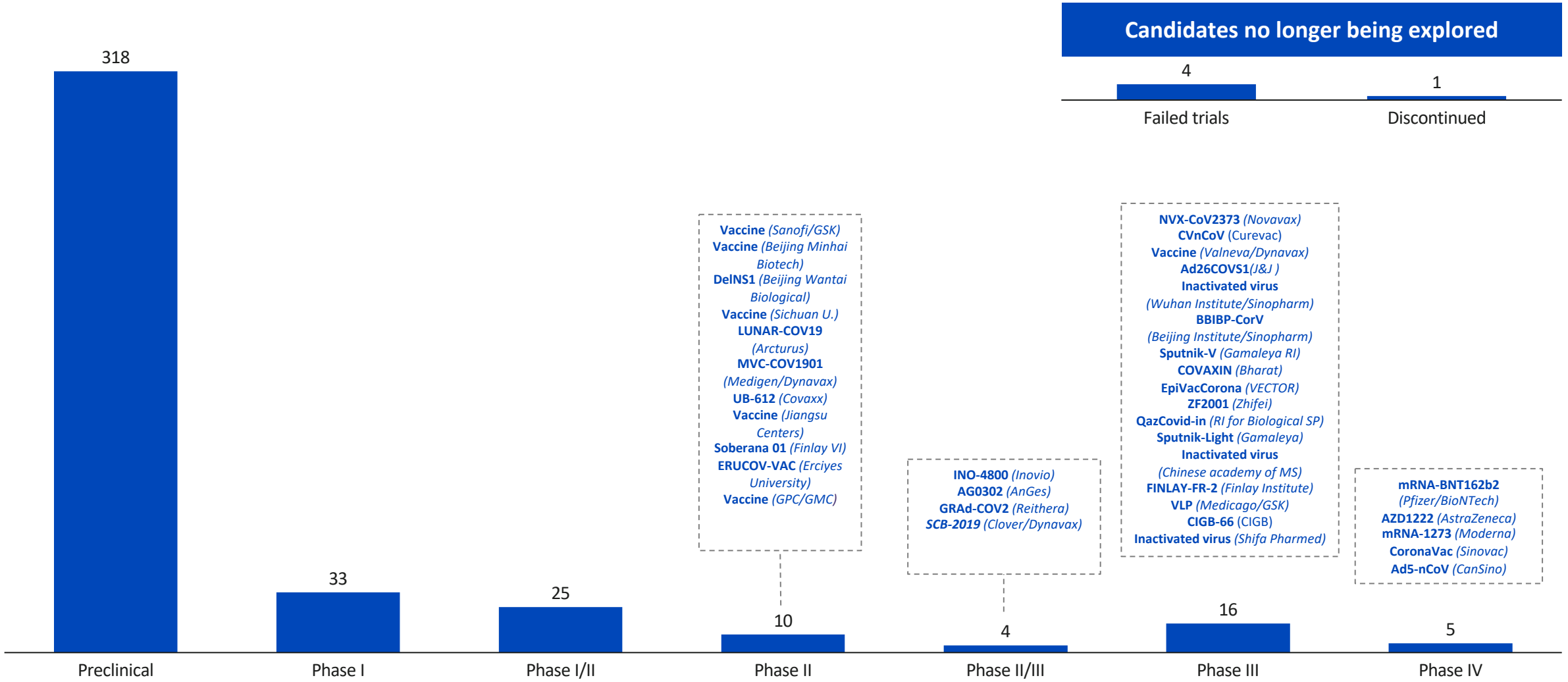
'Other' vaccines are those in earlier stages of clinical trials and have been added to the forecast, based on their current stated annual production. Here, we have had to estimate when they will start producing at scale, assuming that they make it through clinical trials, and we assume the scale up time each, however this may differ.



Forecasted on 19/05/2021

Many vaccine candidates in early phase trials are coming through pipeline and expected in 2021

Overview of candidates and clinical trial phase and news this week

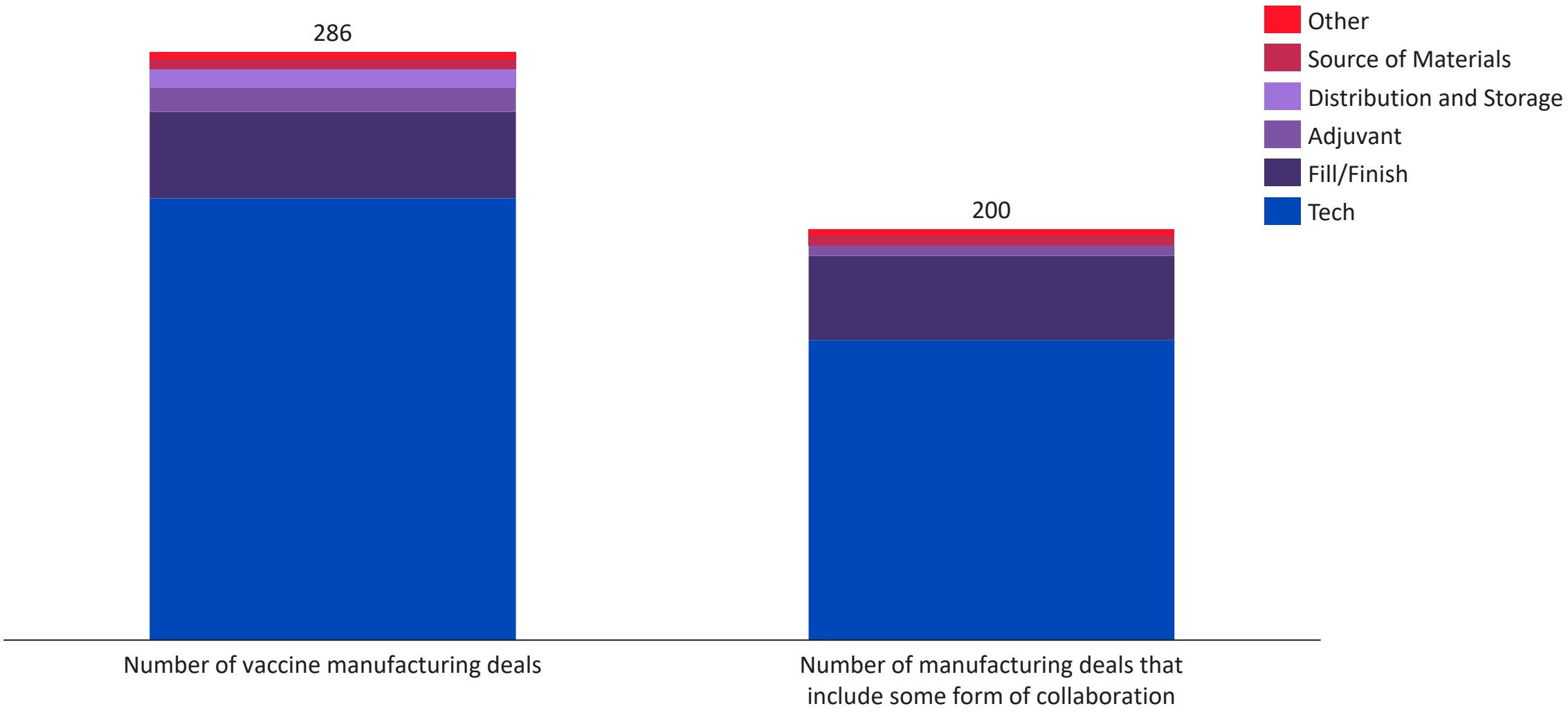


The repurposed BCG, VPM1002, RUTI, Polio and MMR vaccines have been excluded from this view.
*Only new changes shown for phase I and I/II – see appendix for full list

Data updated 19th April

Vast majority of vaccine manufacturing deals have involved a collaboration

An analysis of the number of collaborations confirmed for vaccine manufacturing



Includes public collaborations; many source material suppliers are not public

Data as of 19/05/2021

Copyright and disclaimer notice

Production forecast disclaimer the research team collect information of deliveries and source of supply from publicly available sources and use this as a proxy to estimate how many doses have been exported from a certain manufacturing facility. Airfinity are not able to assess if stockpiles of vaccines have accrued at certain facilities. Production estimates are for production of the vaccine product and does not include the fill/finish of vaccines.

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