

# GBA: Its Role in the Health Silk Road

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*July 2021*

# How Much Vaccine Will Be Needed/Produced in 2021?

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## *May 2021*

- According to Airfinity, 10.8 billion doses are needed to inoculate 75% of the world's population aged 5 or over (WHO estimated 11 billion doses)
- As at May, 18 vaccines were in phase III trials: projections based on experience calculates to 11.1 billion doses being produced by year end 2021 (our updated numbers below)
- In February, COVAX (92 lower income countries) signed an MoU to receive 1.1 billion doses by year end 2021<sup>(1)</sup>
- By the end of 2021, the largest surplus of doses will be held by the EU (885 million), the USA (539 million), Japan (300 million), the UK (297 million), Brazil (177 million) and Canada (175 million)
- Together, these six jurisdictions are expected to account for 89.7% of the likely global surplus of COVID-19 vaccines at the end of 2021, which is estimated to exceed 2.6 billion doses

(1) On 13<sup>th</sup> June, the G7 announced pledges of 870 million vaccine doses to be delivered to COVAX by the end of 2022, with at least half delivered by 31/12/2021.

Source: Airfinity May 2021

# Major Vaccine Producers (2021-2022)

## Non-Chinese

Company	2021 Total Doses (Billion)	2022 Forecast Doses (Billion)
BioNTech/Pfizer	3.0 (up from 2.5)	4.5
Oxford/AstraZeneca	2.7	3.8
Novovax	1.3	2.4
Janssen (J&J)	1.0	1.8
Sputnix V (Russia)	0.4	1.6
Moderna	0.9	1.4 <sup>(1)</sup>
Bharat Biotech	0.6	1.1
Sanofi/GSK	Q4	0.7
Curevax	0.3	0.6
	<b>10.2</b>	<b>17.9</b>

(1) Have also seen more projections as high as 3.0

Sources: Airfinity; Financial Times June 2021

# Production and Distribution Obstacles

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## *Limiting Factors*

- Commencing in April, India, a global hub for vaccine production, erupted in chaos related to an internal COVID outbreak. It now needs 1.8 billion (75%) doses for its own population to deal with its own crisis – severely reducing vaccine supplies previously available to COVAX
- In May, WHO and COVAX acknowledged that there were a several African countries which received vaccines with short shelf lives – leading the countries to destroy important doses
- In June, the US FDA forced J&J (USA) to destroy 60 million doses due to possible contamination
- On 22<sup>nd</sup> June, VeryWell Health published an article that millions of COVID-19 vaccine doses are in danger of expiring this summer (to be destroyed as vaccine waste) as many USA states, particularly in the South and the Midwest, reject injections<sup>(1)</sup>
- African Union (AU) – in early July an AU special envoy blasted the EU “*not one dose, not one vial, has left a European factory for Africa*”.

(1) As at 11<sup>th</sup> July, there were 14 USA states under 40% double vaccinated and 5 USA states single vaccinated; Source; Bloomberg

Source: Airfinity May 2021

# Biotech/Healthcare Capital Raising GBA

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## 2018-H1 2021

- In April 2018, HKEX instituted major rule changes which permitted IPOs for pre-revenue biotech companies. In 2018, six of the world's top 10 biotech IPOs listed on the HKEX
- Since the 2018 HKEX changes through to Feb 2021, roughly 25% of all biotech capital raised globally was via HKEX; some \$13.5 billion
- At the end of 2020, the 28 biotech companies listed on HKEX had a collective market capitalization of almost \$90 billion
- Through the first six months of 2021, HKEX raised \$27.3 billion capital (ranking it #3 in the world); 5 of the 10 largest deals were Chinese biotech/healthcare
- Both ChiNext in Shenzhen and Star Market in Shanghai, two NASDAQ style tech exchanges, followed HKEX's 2018 reforms targeting "red chip companies"; advantages include listing approval times and (frequently) VAL levels
- In 2020, 7 pre-profit biotech companies were listed in the STAR market

Sources; Charltons Law September 2019; Skadden; KPMG December 2020

# Selected GBA Exchanges Biotech Capital Raises

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## 2020-2021

- In August 2020, CanSino Biologics Inc., which developed its vaccine jointly with the Beijing Institute of Biotechnology (part of the PLA's Academy of Military Medical Sciences) launched its \$748 million IPO in Shenzhen's high tech STAR market, after previously IPOing in Hong Kong in 2019. CanSino's share price rose by 88% on its first day of trading
- In September 2020, BeiGene, Ltd., a China and USA based biotechnology company focused on innovative medicines worldwide, announced that its shares, which trade on the HKEX, will now be included in the *Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect*
- In April, Sichuan Clover Biopharmaceuticals, a China based biotech start-up, submitted an IPO application to the HKEX. Goldman Sachs and CICC were named co-sponsors for the deal
- On 30<sup>th</sup> June, AIM Vaccine, China's 2<sup>nd</sup> largest private vaccine maker, filed its IPO application with the HKEX to finance its vaccine R&D and the build-out of new production facilities. AIM kicked off its IPO tutoring on the STAR market in Shenzhen in December 2020
- Also on 30<sup>th</sup> June, Hutchmed Ltd. (Hong Kong), already listed in the US and London, completed its 3<sup>rd</sup> IPO, this one on the HKEX, that raised \$537.2 million. Shares increased 53% on the first day of trading

# Major Vaccine Producers (2021-2022)

## Chinese

Company	2021 Total Doses (Billion)	2022 Forecast Doses (Billion)
Sinovac (China)	1.7	3.1
Sinopharm	1.0	1.5
CanSino	0.5	0.7
	<b>3.2</b>	<b>5.3</b>

- Does not include Fosun Pharma/BioNTech JV 1 billion in 2022 (described below)
- As at 10<sup>th</sup> July, there are an estimated 35 Chinese vaccines under consideration

Source: Airfinity; Financial Times

# Chinese Vaccines Approved/Trialing

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- Sinopharm (Beijing) – *approved 53 countries*; trials; Egypt, UAE, Peru, Jordan, Argentina
- Sinopharm (Wuhan) (vero cells) – Approved China; trials 7 countries Egypt, UAE, Peru, Jordan, Mexico, Bahrain, China
- SinoVac/Corona/Vac – *approved 32 countries*; 7 trials, Hong Kong, Philippines, Brazil, Turkey, Indonesia, China, Chile
- CanSino – *approved 8 countries*; Argentina, Chile, China, Ecuador, Hungary, Malaysia, Mexico, Pakistan trials: Argentina, Chile, Mexico, Pakistan, Russian Federation
- Anhui Zhifei – approved China, Uzbekistan trials: China, Ecuador, Indonesia, Pakistan, Uzbekistan
- Minhai Biotechnology Co: SARS-CoV-2 Vaccine (Vero Cells) – approved China; trials China
- mRNA vaccine is not yet approved (triallying in Mexico)

Source: McGill University (Canada) COVID 19 tracker



# Chinese Dosages

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- On 3<sup>rd</sup> July, Foreign Minister Wang Yi urged the international community to build a “Great Wall of Immunity” to battle the COVID-19 pandemic

## *Within China*

- As at 8<sup>th</sup> July, China had administered 1.34 billion doses of vaccine domestically
- China is forecasted to have 75% of its population fully vaccinated in Q4 of 2021

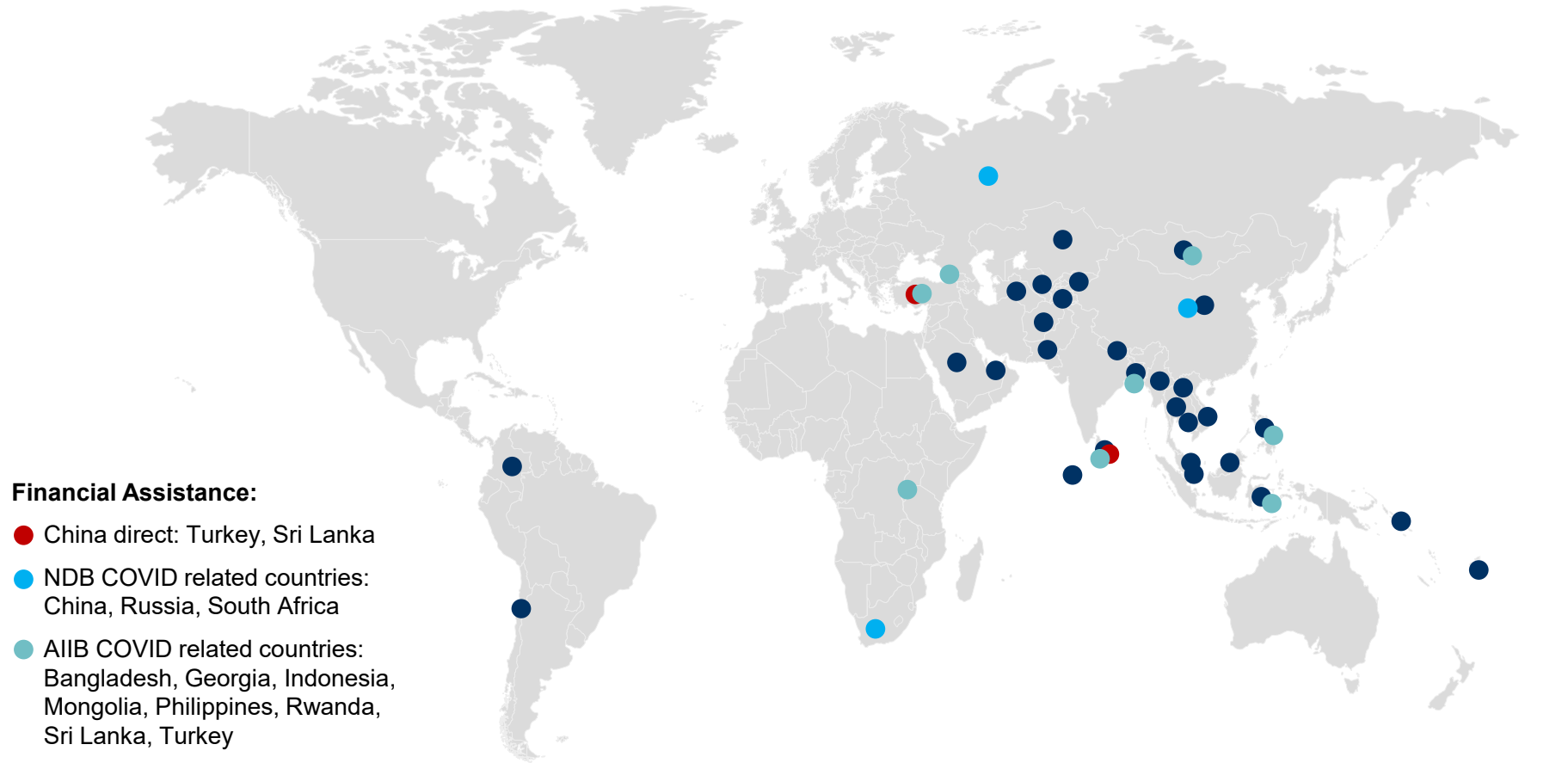
## *Internationally*

- By 23<sup>rd</sup> June, China had administered 37.4% of all vaccines globally
- As at 3<sup>rd</sup> July China has supplied more than 480 million vaccine doses to other nations

Source: Airfinity

# Belt and Road Vaccine Partnership Initiative

June 2021



*These 29 countries represent total population of 2.743 billion; 35% of world's 7.9 billion people*

# China COVID-19 Vaccine Manufacturers – Selected Countries

July 2021

## One Belt One Road Vaccine Partnership

Region	Country	Population (millions)	World Ranking	Local Partner Information		
				Data	Yes/No	2021 Dosage
Asia	Indonesia	226	4	April	Y	154 <sup>(1)</sup>
Asia	Pakistan	212	5	April	Y	36 <sup>(2)</sup>
Asia	Bangladesh	168	8	June	Y	Trial Only
Asia	Uzbekistan	33	42	July	TBD	TBD
Asia	Malaysia	33	45	April	Y	2
Asia	Sri Lanka	21	58	May	Y	ND
Asia	UAE	10	93	March	Y	24 <sup>(3)</sup>

(1) Produced by year end 2021

(2) June annualised

(3) 2022 projection is 200 million

# China COVID-19 Vaccine Manufacturers – Selected Countries

July 2021

## Other Non-BRI Vaccine Partnership Countries

Region	Country	Population (millions)	World Ranking	Local Partner Information		
				Data	Yes/No	2021 Dosage
LAC	Brazil	214	6	May	Y	25 <sup>(4)</sup>
Africa	Egypt	104	14	May	Y	40 <sup>(5)</sup>
Asia/Europe	Turkey	184	17	June	Discussion	TBD

(4) Two different vaccines / production; 100 million/year by 2022

(5) Within 12 months

# Fosun/BioNTech Vaccine Partnership

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***Started with GBA trials – expanded to 1 billion doses produced in China for Greater China***

- In March 2020 – Fosun Pharma and BioNTech announced a strategic collaboration and an exclusive licensing agreement for the Chinese market with BioNTech's mRNA vaccine
- In August 2020 – BioNTech and Fosun Pharma announced an intended commercial rollout of 10 million doses of their vaccine to Hong Kong (SAR) and Macao (SAR)
- In December 2020 – BioNTech SE and Fosun Pharma announced an agreement to supply mainland China with 100 million doses initially of the BioNTech vaccine candidate
- In January 2021 – BioNTech and Fosun Pharma announced that the Hong Kong SAR authorised for emergency use BioNTech's COVID vaccine in its COVID-19 Vaccination Program
- In May 2021 – Fosun Pharma agreed to form a US\$200 million 50/50 JV with BioNTech to build a plant in China capable of supplying up to 1 billion doses of vaccine/year (to mainland China, Hong Kong, Macau and Taiwan). Fosun will contribute up to US\$100 million, including cash and a manufacturing facility, while BioNTech brings the licences and IP. The production line, co-developed by both companies, is expected to begin production in August

# Interim Conclusions

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## July 2021

- Non-Chinese companies are expected to produce an estimated 28 billion doses by y/e 2022: 10 billion in 2021 and 18 billion in 2022. In June 2021, G7 countries pledged 870 million doses to lower income countries before the end of 2022, 50% to be distributed before the end of 2021, which represents *3.1% of their total 2021/2022 production*
- Western vaccine manufacturers are planning to realise over \$60 billion in 2021 vaccine related revenues (concentrated at the top)
- Six western jurisdictions are expected to account for 89.7% of the likely global surplus of COVID-19 vaccines at y/e 2021, or 2.6 billion doses
- Meanwhile Chinese companies are expected to produce 8.5 billion doses by y/e 2022: 3.2 billion in 2021 and 5.3 billion in 2022 (excluding the Fosun JV). On 12<sup>th</sup> July, the Vaccine Alliance signed agreements with Sinopharm (170 million) and Sinovac (380 million) for immediate supply to COVAX through to the middle of 2022. *This pledge represents 6.5% of Chinese total 2021 and 2022 production*
- It is clear that China, by itself, cannot bridge the 10 billion WHO vaccine gap, even when including the 29 country Belt and Road Vaccine Alliance will take time to realise 1+ billion annual dosage

*In the interim, Western countries need to Tear Down Your Already Porous Vaccine Walls*

**THANK YOU**