

THE ROAD TO RECOVERY REPORT

Volume 2 March 2021



SOUTH AFRICAN TOURISM



EXECUTIVE SUMMARY

With more than a year having passed since the advent of the COVID-19 pandemic, it is important to reflect on the impact of the virus on South Africa's tourism sector, and the significant progress the country, and the world has made in combatting the virus as we face a delayed return to normal travel and tourism.

This report examines developments around COVID-19 variants and the vaccines, the outlook for resumption of international travel to South Africa and the state of recovery of the South African tourism sector on the ground.

Early predictions were that global tourism could start to rebound by Q3 2021, but new variants of the virus, delayed global vaccination rollouts and unpredictable waves of new infections suggest that the recovery of international tourism will occur more gradually.

All regions, including South Africa are still experiencing reductions in international tourism of more than 70% compared to pre-covid.

SOUTH AFRICA'S MEDICAL RESPONSE

Concerns over the 501Y.V2 variant (also known as B.1.351), prevalent in South Africa, resulted in travel restrictions to and from our shores. Short-term, negative impacts of this on our international tourism recovery may have been felt. In the longer term, the early detection of the variant may turn out to be a significant advantage.

Variant 501Y.V2 has specifically been targeted in lab and clinical trials as a benchmark of efficacy against variants. This places South Africa ahead in gaining swift access to booster vaccines specific to the 501Y.V2 variant, which are in many instances already in production and testing.

As the list of variants inevitably grows, the global focus will shift to how vaccines are adapting to ensure protection against COVID-19 variants.

A DELAYED RETURN OF INTERNATIONAL TRAVEL

We provide an analysis of how likely resumption of travel is from South African tourists' key source markets.

AUSTRALASIA: Source markets have very low COVID-19 levels. However, vaccine roll-outs have been slow and restrictions on re-entry after travel to South Africa remain in place.

EUROPE: The UK has the strongest vaccination drive, and is on track to reach herd immunity by August, this will have a strong impact on demand for resuming travel. The outlook for travel in the rest of Europe remains low. Countries are currently entering a 3rd wave of infections, and strong barriers to re-entry after travel remain in place.

AMERICAS: Despite high weekly infection rates in the United States, herd immunity should be reached by September. Requirements only for screening upon re-entry after travel from South Africa make travel more feasible.

AFRICA: Barriers to travel from regional countries is low. Despite arrivals still being reduced, African arrivals are almost 10x higher than international arrivals, highlighting the importance of regional travel for rebuilding tourism.

DOMESTIC TOURISM SHOWS SIGNS OF RECOVERY

Domestic tourism has seen a recovery in overnight trips of 50% compared to 2019.

A preference for travel by road as opposed to air is evident. Movement of light vehicles on South African roads is only 10-20% lower than in 2019 as opposed to the 60% reduction seen in air travel.

Domestic air travel, however, is almost double that of regional and international air travel, indicating tourism's current reliance on domestic movement.

Reduced income in the accommodation sector is linked to reduced occupancies and slightly lower average daily rates when compared to 2019. Bucking this trend are the segments of Caravan & Camping and Guest Houses & Farms, who have maintained their average daily rates, while still seeing a recovery in bookings.

To regain tourism low weekly infection rates and an effective vaccine roll-out are essential. South Africa's weekly case rates are well below the globally accepted high risk threshold. The key focus needs to be the efficient roll-out of the vaccine. South African Tourism will again highlight the need for tourism front-line workers to be prioritised in Phase 2 of the vaccination rollout scheduled to begin in May.



INTRODUCTION

On the 26th March 2020, South Africa took its first decisive actions against the COVID-19 pandemic that was sweeping across the globe implementing one of the most comprehensive national lockdowns, as part of a science-led approach to containing the spread of the virus.

One year on, the pandemic remains volatile and unpredictable in all regions, making it very difficult to predict when tourism will resume.

Several European countries are entering a third wave of infection and facing new bouts of lockdown with Germany, parts of France and Italy imposing renewed restrictions in the last week of March.

The announcement of several viable, effective COVID-19 vaccines, the silver bullet that the world waited for while holding its collective breath, suggested that the beginning of the end of the pandemic was in sight.

However, like much we have experienced with COVID-19, the road to vaccination is not a straight and smooth one.

Eleven vaccines are currently in use in different regions across the globe. How well these vaccines will protect global citizens from the virus, and its variants of concern, remains difficult to gauge due to new hurdles emerging on a regular basis.

In this report, we dive into understanding:

- the vaccines and effectiveness against variants
- the current outlook for resumption of international travel to South Africa,
- the state of recovery of the South African tourism sector on the ground.

We also provide a bonus section as a reference, which provides context and an in depth understanding of variants and vaccines as they relate to South Africa.



THE VACCINES

Vaccines are a critical tool in the fight to bring the COVID-19 pandemic under control. Currently there are 311 candidate vaccines in development. Eighty-six vaccines are in trials and 11 vaccines are in use¹.

311
vaccine
candidates

86
in clinical
testing

11
in use

FIGURE 1: WHICH VACCINES ARE BEING USED AND WHERE?

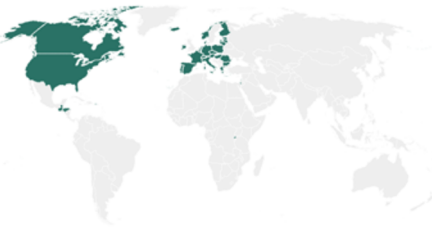
Pfizer/BioNTech

2 -25°C 95% 79 RNA



Moderna

2 -20°C 95% 34 RNA



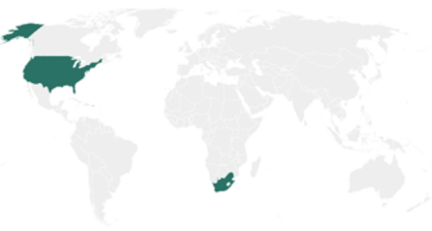
Oxford-AstraZeneca

2 2-8°C 70% 89 VV



Johnson & Johnson

1 2-8°C 66% 2 VV



Gamaleya

2 -18°C 92% 20 VV



Cansino Biologics

1 2-8°C 66% 1 VV



Sinopharm-Beijing

2 2-8°C 79% 20 IWV



Sinopharm-Wuhan

2 2-8°C 73% 2 IWV



Sinovac Biotech

2 2-8°C 50% 14 IWV



Bharat Biotech

2 2-8°C 81% 1 IWV



Vector Institute

2 2-8°C Pending 1 PS



2 Doses required

-25°C Storage temperature

95% Efficacy

79 Number of countries in use

RNA Vaccine type

Source: Adapted from The New York Times Coronavirus Vaccine Tracker²

COVID-19 VARIANTS OF CONCERN

As vaccination programmes have gathered momentum, a major question has arisen of how effective the vaccines are against the emerging variants of concern.

In total, there are currently 15 identified variants prevalent in several regions around the world on the World Health Organisation's watchlist³. However, as the virus continues to persist, spread and mutate, and as countries begin or continue to monitor the mutations even more variants of concern will emerge.

Of the 15 variants, 5 are currently considered variants of concern. Immense research efforts are underway to assess the efficacy of the vaccines on these and other emerging variants.

Current results indicate that the existing vaccines:

- maintain similar efficacy against the B.1.1.7 variant,
- have lower efficacy against 501Y.V2 (B.1.351).
- have mixed effects on the P.1 variant with a need for additional trials⁴,
- require further research on B.1.526 and CAL.20C currently underway.

However, as the list of variants inevitably grows, the focus will need to shift away from who has variants and switch to the core focus of how vaccines are adapting to ensure cross-border protection against the rising tide of COVID-19 variants.

WHAT DOES THIS MEAN FOR SOUTH AFRICAN TOURISM?

- Concerns over the emergence of the 501Y.V2 variant prevalent in South Africa have rippled through international markets and resulted in targeted travel restrictions to and from our shores.
- In the short term, negative impacts of this on our international tourism recovery may have been felt. In the longer term, however, the efficient and early detection of the variant may in fact turn out to be a significant advantage.
- In the efforts of vaccine developers to adapt both new and existing vaccines to ensure efficacy against a broad suite of emerging variants of concern, variant 501Y.V2 has specifically been targeted in lab and clinical trials as a benchmark of efficacy against variants.
- This places South Africa, and those wishing to travel to South Africa, ahead in gaining an updated vaccine specifically targeting 501Y.V2 since the boosters are already in production and testing.
- In regions where new or different variants are only just being revealed, vaccine adaptations may take many more months as additional cycles of development, testing and dissemination would still need to be initiated.

TABLE 1: VACCINE EFFICACY AGAINST KNOWN COVID-19 VARIANTS OF CONCERN

	ORIGINAL VIRUS	B.1.1.7 (UK)	B.1.351 (South Africa)	P.1 (Brazil)	B.1.526 (New York)	CAL.20C (California)
Pfizer-BioNTech	95%	Similar efficacy	Mixed results	Similar efficacy	More data needed	More data needed
Oxford-AstraZeneca	60-90%	Similar efficacy	Reduced efficacy	Similar efficacy	More data needed	More data needed
Moderna	95%	Similar efficacy	Reduced (in lab)	More data needed	More data needed	More data needed
Johnson & Johnson	66%	Similar efficacy	Reduced (in lab)	Reduced (in lab)	More data needed	More data needed
Sinovac	50%	Similar efficacy	Reduced (in lab)	Reduced (in lab)	More data needed	More data needed

Source: Adapted from BusinessInsider ⁴

TRACKING THE PANDEMIC IN PRIORITY SOURCE MARKETS

In addition to understanding vaccines and variants, understanding the state of the COVID-19 pandemic in South Africa's prioritised source markets can help predict which countries' citizens will be able to travel safely and when.

In the coming months, key metrics to track will be the combination of how much COVID-19 is still spreading (measured by new cases per week) and progress in vaccination rollouts.

Ideally, countries should be situated in the top left corner of the below graph. This would mean a low number of new cases per week and high levels of vaccination, translating into progress in curbing the COVID-19 pandemic in that country. This would likely lead to a change in consumer mindset and travel demand and behaviour.

- Currently, in key source markets - the United Kingdom and the United States - are making the greatest progress in curbing the COVID-19 pandemic. However, in both countries weekly new case rates are >50 and considered high risk, according to globally accepted standards.
- If South Africa wants to remain an attractive tourism destination, we too will need to start shifting in these metrics at a much faster pace. With our weekly new case rates well below 50, the key area needed is the efficient roll-out of the vaccine. Many players in the tourism industry have highlighted the need for tourism's front-line workers to be prioritised for vaccination. This will aid the recovery of the sector, and help tourism resume its vital role as a key contributor to South Africa's GDP.
- **The revised roll-out plan announced by the South African government in late March⁵, estimates that 35 million people will be vaccinated in a renewed drive from May 2021 to February 2022 taking the country to levels of protection associated with herd immunity by early 2022.**

FIGURE 2: RACE AGAINST TIME: WEEKLY NEW COVID-19 CASES VS NUMBER OF PEOPLE VACCINATED IN SA TOURISM'S PRIORITY SOURCE MARKETS

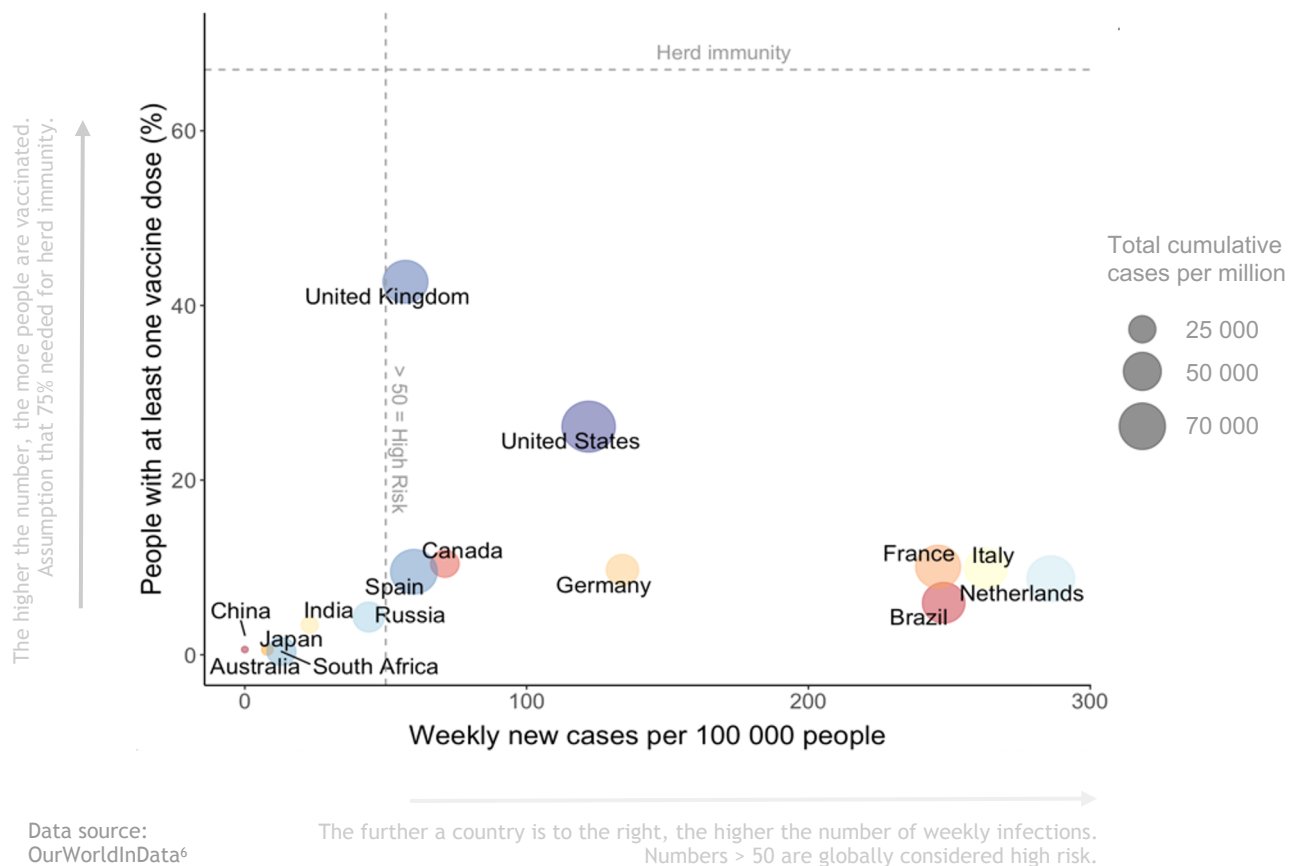


FIGURE 3: NEAR-TERM TRAVEL PROSPECTS FROM SA TOURISM'S PRIORITY SOURCE MARKETS



A holistic view of the information pertaining to the state of the COVID-19 pandemic in SA tourism's 24 priority markets will help identify who is likely to resume travel. In the detailed table (next page) we provide information on:

1. COVID-19:

- Total cumulative COVID-19 cases per million people⁶.
- Weekly new COVID-19 cases per 100 000 people⁶ (rates >50 are considered high risk by global standards).

2. Vaccination metrics

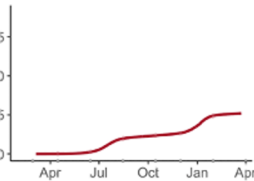
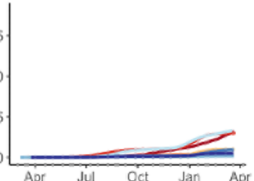
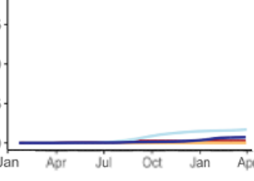
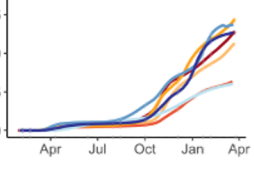
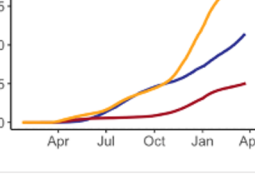
- Percent of the population with at least one vaccine dose⁷.
- Daily vaccination rate per 100 people⁷.
- Estimated number of years to reach 75% of the population vaccinated (herd immunity) extrapolated using current vaccination rate⁸. As many countries are embarking on further vaccinations. This estimation will change significantly in coming weeks.

3. Re-entry regulations for each country after travel to South Africa (as at 1 March)⁹.

Based on these metrics, outlook for international travel in the medium-term remains low:

- **AFRICA:** Of all markets, travel from regional African countries is most likely.
- **AUSTRALASIA:** While COVID-19 levels in key Australasian source markets are very low, these countries have been slow in rolling-out vaccinations and restrictions on re-entry after travel to South Africa remain a large barrier to travel.
- **EUROPE:** The United Kingdom (UK) has the lowest weekly new case rate, although still > 50, which is considered high risk. With the strong vaccination drive in the UK, the country should reach herd immunity by August 2021. This will have a strong impact on demand for resuming pre-COVID-19 behaviour patterns, including travel.
The outlook for travel in the rest of Europe remains low, with most countries currently entering a 3rd wave of infections, renewed lockdowns, slow vaccine roll-outs and strong barriers to re-entry after travel.
- **AMERICAS:** At low levels, the United States is the most likely to travel. Despite a high rate of weekly new infections, the country is on track to reach herd immunity by September 2021 and only requires screening upon entry after travel from South Africa, making barriers to re-entry significantly lower than many other regions. Prospects for travel from Canada and Brazil remains low.

TABLE 2: TRAVEL OUTLOOK FROM PRIORITY MARKETS BASED ON COVID-19, VACCINATION, AND BORDER REGULATION METRICS

COVID-19 metrics			Vaccination metrics			Travel metrics	
Cumulative confirmed cases per million people (000s)	Country	Weekly new cases per 100 000 people	Population with at least one dose (%)	Daily vaccinations per 100 people*	Time to reach herd immunity**	Barrier to re-entry after travel to South Africa***	Travel prospect****
	South Africa	13 (-14)	0.3	<0.01	> 10 y	-	-
	Namibia	51 (-45)	-	-	> 10 y	S	L
	Botswana	109 (-89)	-	-	> 10 y	S	L
	Eswatini	5 (4)	-	-	> 10 y	S	L
	Lesotho	7(0)	-	-	> 10 y	S	L
	Zambia	8(-13)	-	-	> 10 y	S + I	L
	Zimbabwe	1 (-2)	0.3	< 0.01	> 10 y	S + I	L
	Mozambique	5 (-7)	-	-	> 10 y	S	L
	Kenya	15 (-10)	0.1	0.01	> 10 y	S	L
	Malawi	2 (-2)	-	-	> 10 y	S	L
	Nigeria	0 (-1)	-	-	> 10 y	S + I	L
	India	21 (-13)	3.3	0.17	2.5 y	S + I	VL
	Japan	7 (-7)	0.6	0.03	> 10 y	S + Q	VL
	Australia	0 (-1)	0.6	0.07	5.7 y	B + Q	VL
	China	0 (0)	2.38*	0.14	2.4 y	S + Q	VL
	UK	57 (-60)	42.2	0.87	4 m	B / Q	VL
	Germany	115 (-98)	9.5	0.26	1.3 y	S + Q	VL
	France	301 (-258)	9.7	0.29	1.3 y	B / S	VL
	Netherlands	275 (-234)	8.7	0.18	2.6 y	S + Q	VL
	Spain	73 (-75)	9.3	0.23	1.4 y	S + Q	VL
	Italy	266 (-261)	9.6	0.3	1.3 y	B + I	VL
	Russia	44 (-46)	4.3	0.28	1.9 y	S	VL
	USA	113 (-116)	25.6	0.74	5 m	S	VL
	Brazil	248 (-226)	5.7	0.22	1.8 y	Q	VL
	Canada	69 (-59)	9.9	0.37	1 y	B / Q	VL

Covid-19 and vaccination metrics correct as at 25 March 2021.

* Daily vaccinations calculated as 7 day rolling average.

** Herd immunity considered 75%. Calculations based on current 7 day vaccination rates.

*** B = Ban, I = Isolation, Q = Quarantine, S = Screening (as at 1 March).

**** VL = Very Low travel prospect, L = Low travel prospect



TRACKING TOURISM SECTOR RECOVERY ON THE GROUND

INTERNATIONAL TOURISM

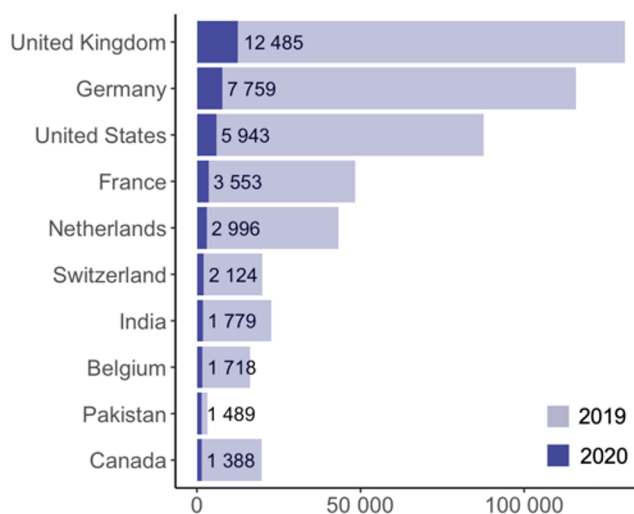
The outlook for resumption of international travel for tourism is still minimal. The rollout of vaccinations will increase consumer trust in travel but the impacts of this on international travel will likely only begin as more countries reach acceptable vaccination thresholds. At current vaccination rates, this may only be expected towards 2022.

International arrivals into South Africa are comparable to international arrivals into other regions across the globe. All regions are still experiencing reductions in international tourism of more than 70% compared to the previous year.

Overseas arrivals

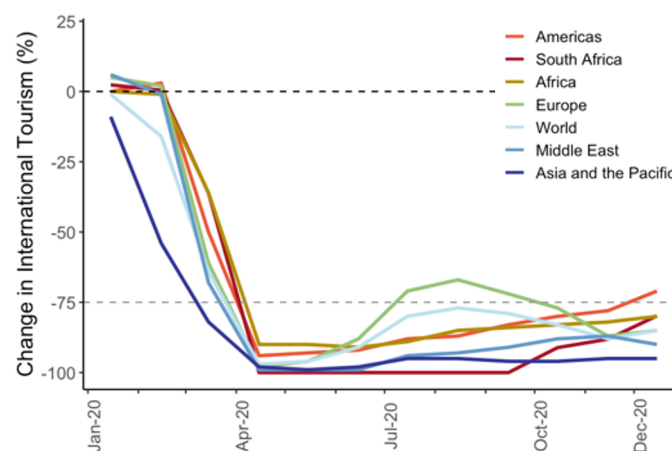
International travel from overseas source markets still remains low. Since opening the borders to International travel (Aug 2020), the top 3 source markets were the United Kingdom, Germany and United States. Most countries, however, are still 90% lower than the previous year.

FIGURE 5: ARRIVALS FROM TOP 10 OVERSEAS MARKETS



Data source: Stats SA¹¹ (Cumulative values from Aug-Dec 2020)

FIGURE 4: CHANGE IN INTERNATIONAL TOURIST ARRIVALS IN EACH WORLD REGION

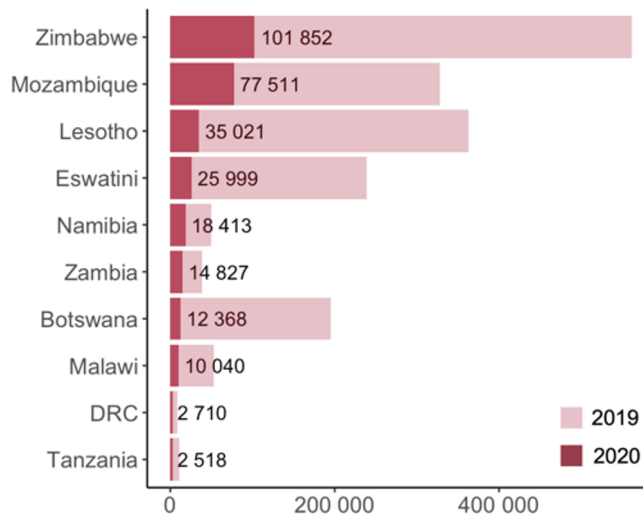


Data source: UNWTO Recovery Tracker¹⁰

African arrivals

Similarly, travel from African countries remains low. The top 3 sources of arrivals into South Africa were Zimbabwe, Mozambique and Lesotho. Arrivals in top African countries are still 62-94% lower than the previous year. African arrivals are however, almost 10x higher than that of international arrivals, highlighting the importance of regional travel for rebuilding the tourism sector.

FIGURE 6: ARRIVALS FROM TOP 10 AFRICAN MARKETS



Data source: Stats SA¹¹ (Cumulative values from Aug-Dec 2020)

DOMESTIC TOURISM

Domestic tourism remains key to the resilience of the tourism sector showing a 10-60% reduction between August and December, as opposed to the 80-100% reduction in international tourism.

Domestic tourism resumed in late July 2020, and since then we have seen total overnight trips recover to levels approximately 50% lower than in 2019. Spikes of holiday travel occurred during October and business travel spiked in September and November. Overnight trips to visit friends and family (VFR) spiked shortly after domestic travel was opened, mostly likely as a result of accumulated demand during lockdown.

The effects of the second wave of COVID-19 infections and the associated regulations can be seen in the contraction in tourism which occurred during December, with total trips tapering to 60% lower than the year before.

Demand for day trips also still remains low, with most months seeing up to a 50% reduction in day trips taken. However, these trips contribute the most trips to the domestic tourism landscape. There is therefore significant potential for stimulating the tourism sector by resuming both overnight and day trips.

FIGURE 7: PERCENTAGE CHANGE IN DOMESTIC TRIPS RELATIVE TO SAME MONTH IN 2019

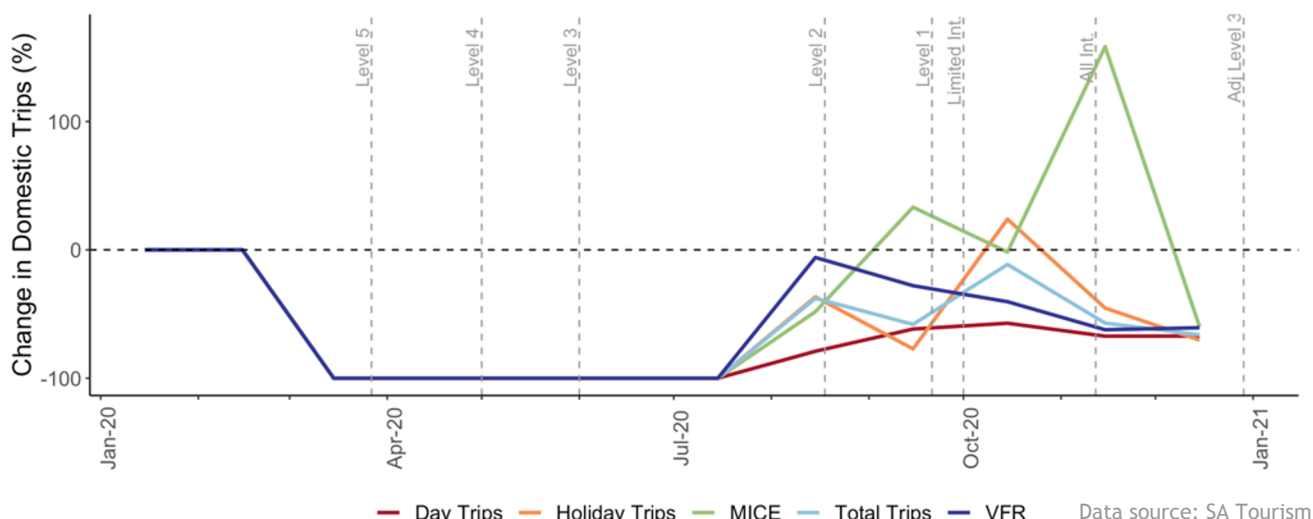
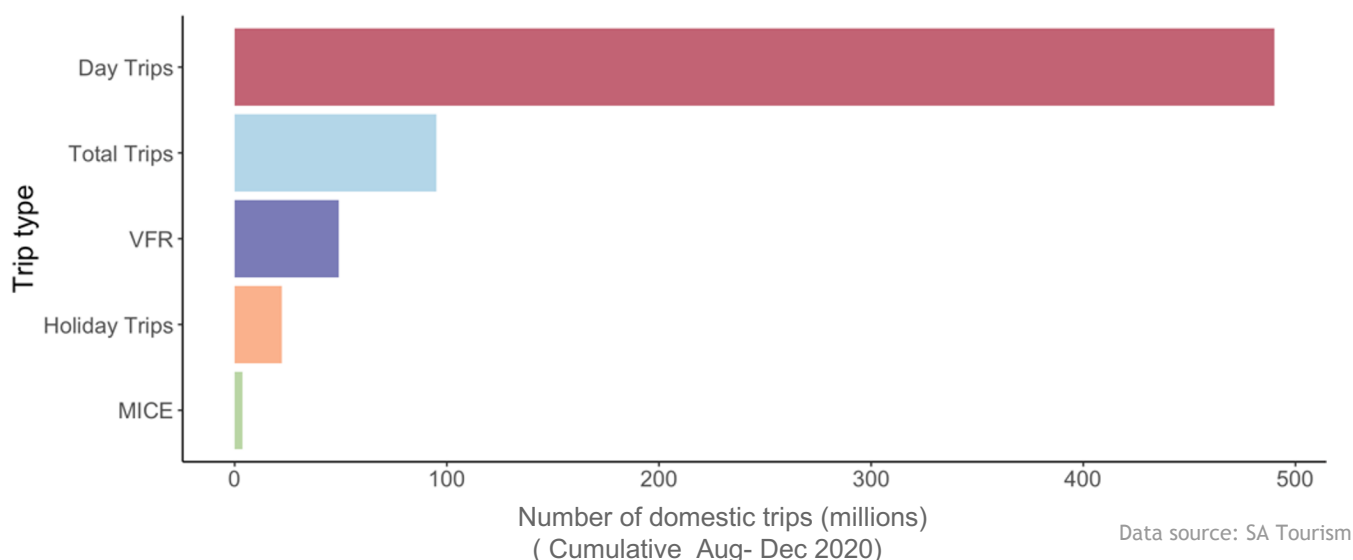


FIGURE 8: NUMBER OF POST-LOCKDOWN DOMESTIC TRIPS

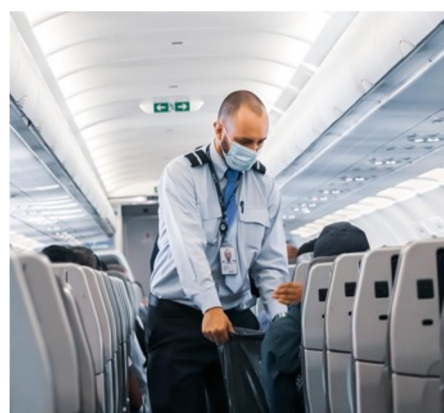
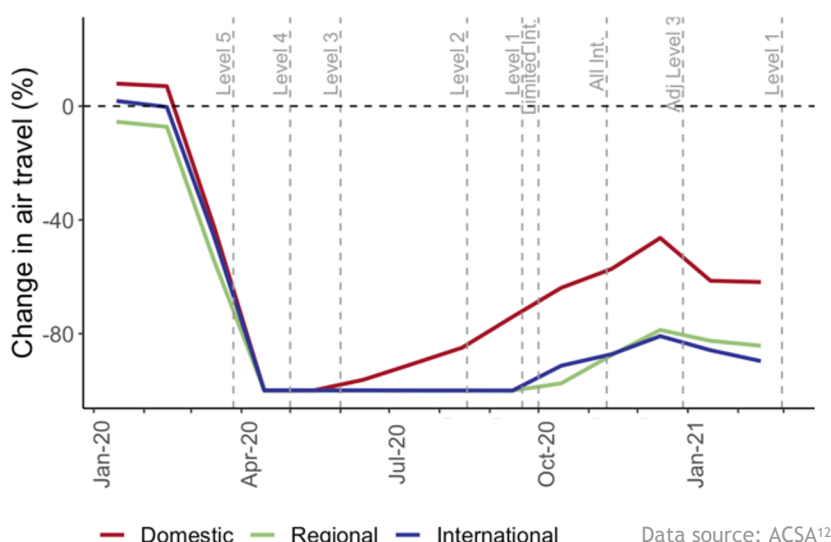


TRANSPORT

Domestic airline travel closely mimics domestic travel patterns, showing a persistent reduction of between 50- 80%. The recovery in domestic air travel, is however almost double that of regional and international air travel. This indicates that the current reliance of the sector is skewed towards domestic movement.

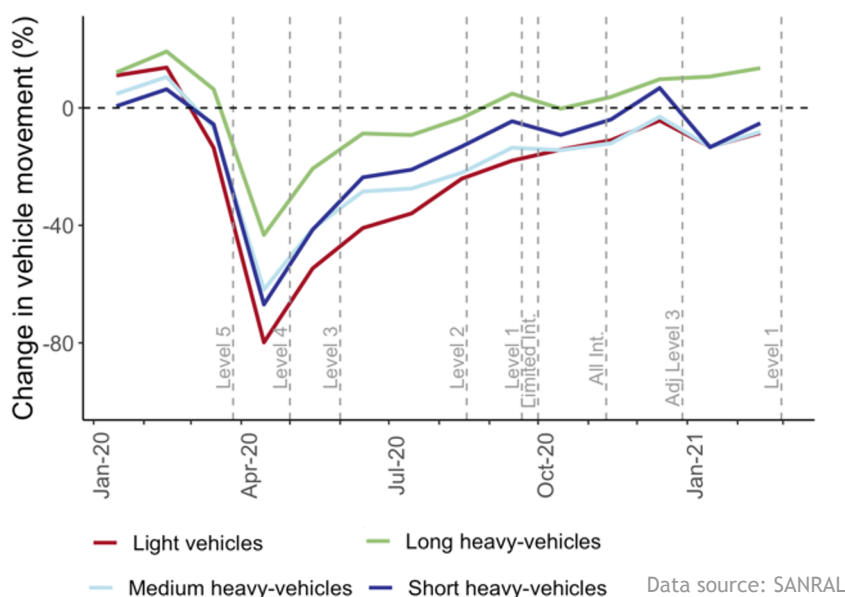
Conversely, travel by light motor vehicle, recorded as the number of vehicles moving through toll gates across the country, has steadily increased since April last year. Since September, the number of light vehicles on the roads has only been 10-20 % lower than in 2019, indicating a preference for road travel as opposed to air. A small dip in January 2021 can be seen, most likely due to the reintroduction of level 3 regulations but by February, this had evened out.

FIGURE 9: PERCENTAGE CHANGE IN AIR TRAVEL RELATIVE TO SAME MONTH IN 2019



Lukas Souza/Unsplash

FIGURE 10: PERCENTAGE CHANGE IN ROAD TRAVEL RELATIVE TO SAME MONTH IN 2019



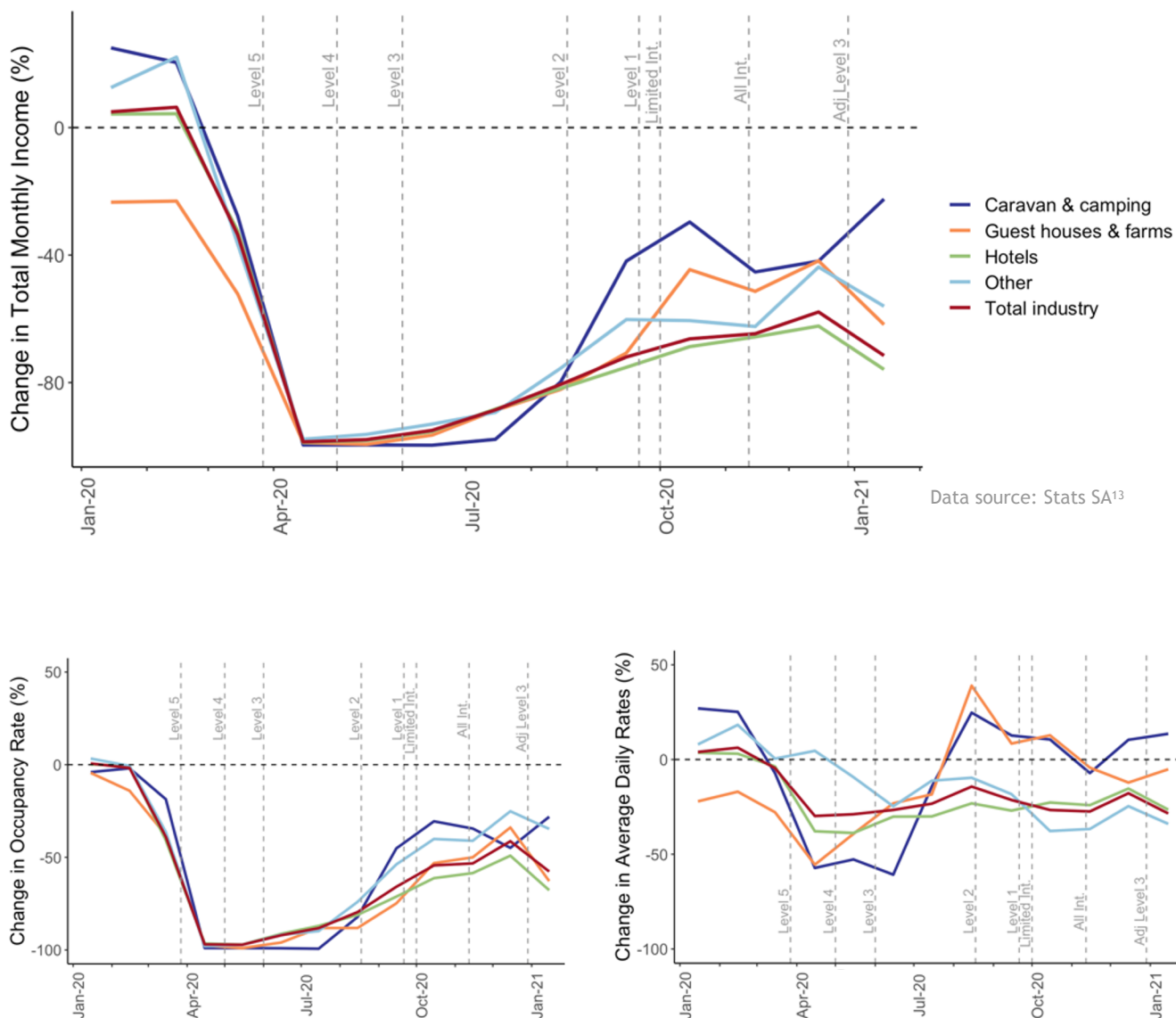
Ashraf Hendriks/GroundUp (CC BY-ND 4.0)

ACCOMMODATION

Accommodation trends provide an indication of the level of engagement with tourism services. A steady recovery was seen after lifting of level 3 regulations in August 2020. By December, however, income generated across the accommodation sector was still 60% lower than when compared to 2019, highlighting the struggle that formal establishments are facing. In addition to reduced income for establishments that managed to keep doors open, a count of how many establishments have had to close their doors has been difficult to ascertain.

Reduced total income is driven not only by reduced occupancies but also for much of the sector through average daily rates approximately 25% lower when compared to 2019. Bucking this trend are the segments of Caravan & Camping and Guest houses & Farms, who have managed to maintain their average daily rates, while still seeing recovery in booking occupancy.

FIGURE 11: PERCENTAGE CHANGE IN ACCOMMODATION INCOME, OCCUPANCY, AND AVERAGE DAILY RATE RELATIVE TO SAME MONTH IN 2019

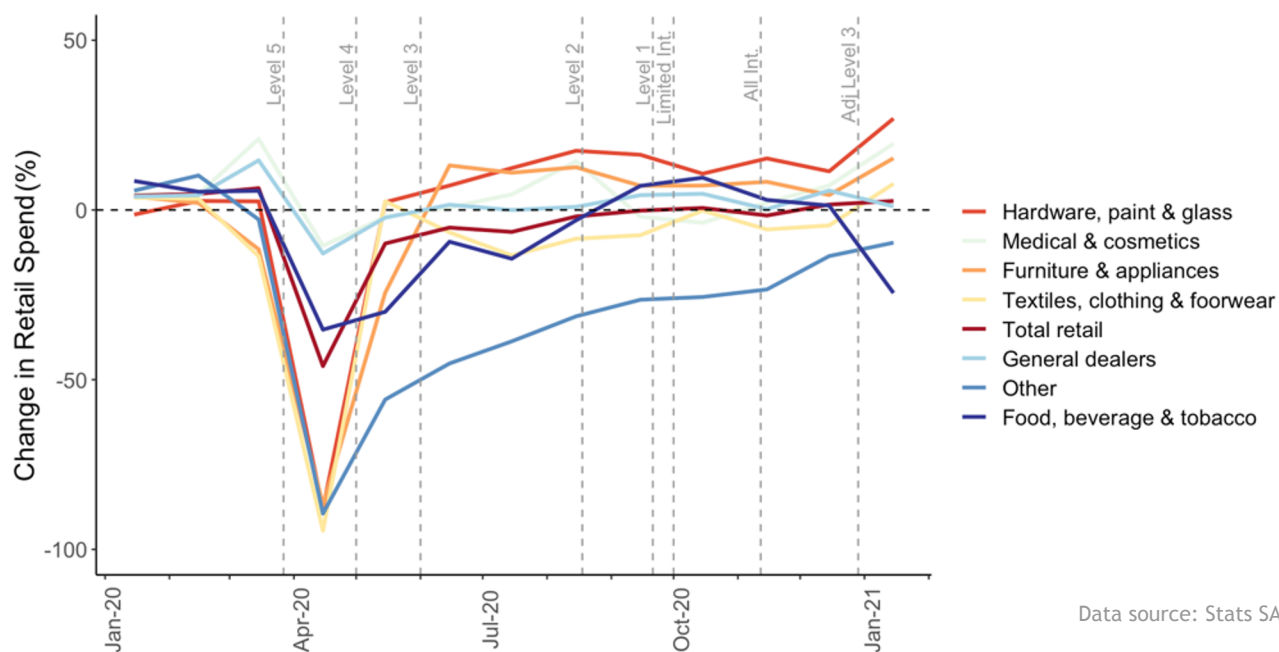


SPEND

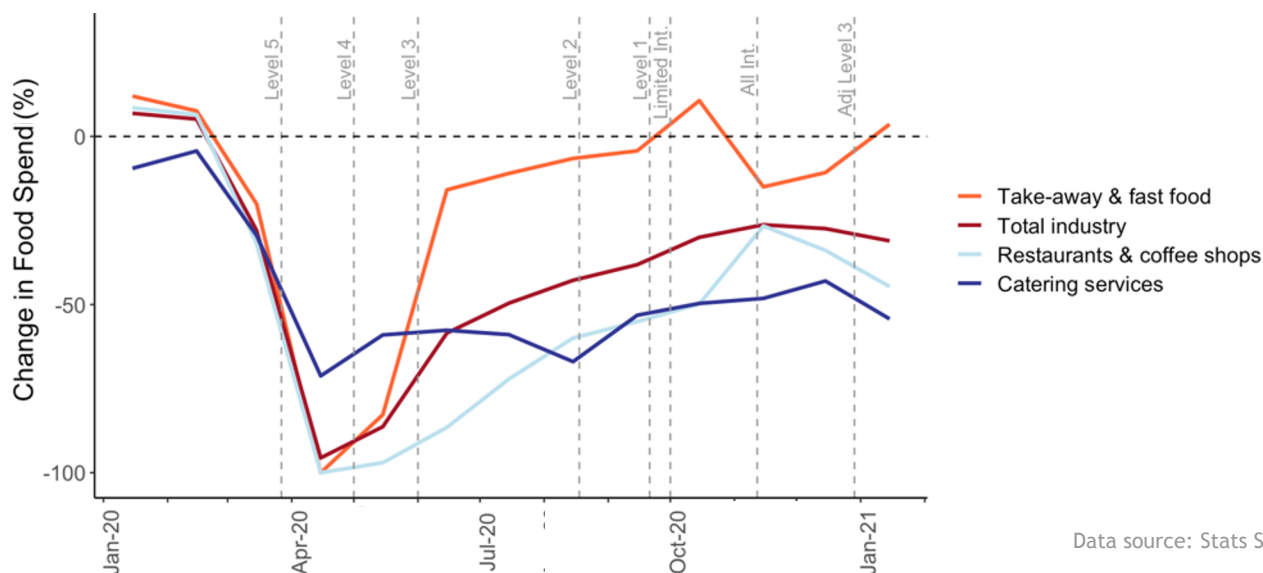
Spend indicators can signal consumers' economic readiness to engage in pre-COVID-19 spending behaviours. Interestingly, directly after level 4 regulations were lifted in April 2020, total retail spend recovered to only 15% lower than 2019 levels. Since then, retail spend has increased steadily, and by September had all but recovered. This indicates that consumers' retail behaviour may have normalised.

However, spending in the food and hospitality sector, is still severely impacted. Although increasing steadily since lockdown, restaurants and catering services have stabilised at levels 40-60% lower than in 2019, casting light on the struggles of the service industry, which appears to have been hit harder than many others. The only winner in this sector is take-away & fast foods. This further signals the preference for consumers to stay away from public areas.

FIGURE 12: PERCENTAGE CHANGE IN RETAIL AND FOOD SPEND RELATIVE TO SAME MONTH IN 2019



Data source: Stats SA¹⁴



Data source: Stats SA¹⁵

OUTLOOK

Before the pandemic, South Africa was one of the world's most popular tourism destinations, and the tourism sector represented a major source of trade to South Africa. The sector is a \$8.5 billion industry, and the ability of the sector to “build back better” post the pandemic is receiving South African Tourism, government and the industry's full attention.

The global outlook for a return to 2019's levels of travel for tourism levels remains uncertain, with a wide variety of factors influencing government travel policies and consumer behaviour.

The recovery in international tourism recovery will strongly depend on the pandemic's trajectories, travel restrictions, and vaccination developments. There is thus major risk in expecting that international travel will tangibly return during 2021.

Instead, we as a sector and a community will continue working to seize the gap to re-imagine and redefine the role that domestic and regional tourism can play in the sector's recovery. Continued adherence to the strictest, world-class health protocols, and the promotion of South Africa's diverse and affordable destinations to domestic and regional travelers will remain priorities for the industry.

In SA's February budget the government announced a free mass vaccination campaign, for which R9bn has been allocated over the next two years. As this campaign rolls out, and similar campaigns in priority source markets gain pace, South Africa will stand ready to welcome global travelers once again.

BONUS SECTION: READ ON FOR AN IN DEPTH ASSESSMENT ON THE COVID-19 VARIANTS & VACCINES RELATING TO THE OUTLOOK FOR SOUTH AFRICAN TOURISM

THE RISE OF THE VARIANTS

Coronaviruses, like all viruses, can change over time. Each time the virus multiplies in the body, there is a chance it may change slightly. This can lead to thousands of tiny changes in the genetic coding of the COVID-19 virus. While most of these changes are harmless, a small few can cause significant changes in how the virus behaves. Changes that lead to the virus becoming more infectious or causing more severe symptoms are cause for concern.

The United Kingdom, on the 14th December, were the first to announce that a COVID-19 variant thought to spread more readily had been identified.

Just a few days later, on the 18th December 2020, South Africa also announced that a more infectious COVID-19 variant had been found.

The early identification of these variants, in part, is likely due to the high quality and well coordinated research networks that had been set up to monitor and track variants in each respective country¹⁶.

As early as March 2020, the UK, with an initial investment of approximately \$27 million set up COG-UK, a scientific consortium that coordinated a national program to track mutations of COVID-19 across the region. By January 2021, the consortium had mapped up to 45% of all COVID-19 virus sequences across the world.

The intensive effort to track the genetic evolution of the virus is likely why the UK was the first to identify a new variant, because it was also the first to be looking.

Similarly, in South Africa, the new variant was identified by the Network for Genomic Surveillance in South Africa (NGS-SA) that was created in May 2020 with grants from the South Africa Medical Research Council and the South African Department of Science and Innovation.

The NGS-SA was extremely proficient and by September 2020, South Africa was ranked 9th for the total number of sequences submitted across the world, punching well above its weight in comparison to the many wealthier nations further down the rankings¹⁷.

In contrast to the UK and South Africa, many countries have lagged in their efforts to develop a robust and coordinated program to identify genetic COVID-19 variants leaving these countries in essence blind to potential new threats¹⁶.

"The South African genomic-surveillance network is a model for low- or middle-income countries with limited resources. What we did was not large numbers. It was a small number, but consistent and methodical" ~ Tulio de Oliveira¹⁶

Of particular concern was the United States (US), which despite having the highest cumulative confirmed COVID-19 cases of any country in the world, had by proportion one of the lowest shares of sequences submitted to the [GISAID](#) database, a global repository used to track COVID-19 virus mutations. By early January 2021, the US had only contributed 0.3% of sequences to the GISAID database (as opposed to the 45% of the UK) leaving it ranked 43rd among contributing countries^{16,18}

This raised alarm bells across networks of medical researchers since the greater the number of times the virus spreads between people, the more opportunities it has to mutate. With the largest case load in the world largely going unmonitored, fears were that a hotbed of variants had been growing largely unnoticed.

In recent weeks, the US has ramped up its sequencing efforts leading to the identification and announcement of seven growing lineages of COVID-19 virus variants that appear to have originated in the US with two main variants of concern found in New York and California³.

In total, there are currently 15 identified variants of concern or potential concern in several different regions around the world³. However, as the virus continues to persist, spread and mutate, and as countries begin or continue to monitor the mutations, it is inevitable that even more variants of concern will emerge.

As the list grows, the focus will need to shift away from who has variants and switch to the core focus of how vaccines are adapting to ensure cross-border protection against the rising tide of COVID-19 variants.

TABLE 1: KNOWN GENETIC COVID-19 VARIANTS OF CONCERN

Variant	First identified in	More contagious?	Ability to evade vaccine	CDC/WHO classification
B.1.1.7	United Kingdom	Yes	Minimal	Concern
B.1.351 (501Y.V2)	South Africa	Yes	Moderate	Concern
P.1	Brazil	Yes	Moderate	Concern
B.1.526	New York	Unknown	Potentially	Interest
B.1.525	New York	Unknown	Potentially	Interest
P.2	Brazil	Unknown	Potentially	Interest
B.1.427	California	Yes	Moderate	Concern
B.1.429	California	Yes	Moderate	Concern
P.3	Philippines	Yes	Unknown	Under investigation
A.23.1 with E484K	England	Unknown	Unknown	Under investigation
B.1.1.7 with E484K	England	Unknown	Unknown	Under investigation
B.1.525	England	Unknown	Unknown	Under investigation
B.1.1.318	Unknown	Unknown	Unknown	Under investigation
B1.324.1 with E383K	Unknown	Unknown	Unknown	Under investigation
B1.111 with E383K and 429S	Columbia	Unknown	Unknown	Unknown

Source: Adapted from Medscape ³

THE VACCINES - THE FACTS

Vaccines are a critical tool in the fight to bring the COVID-19 pandemic under control. Vaccines usually require years of research and testing before reaching the public, but the threat of the COVID-19 pandemic has seen a race to produce safe and effective vaccines.

According to the London School of Hygiene & Tropical Medicine vaccine tracker¹, there are 311 candidate vaccines of 9 different types in development to target COVID-19. Of these, 11 vaccinations (of 4 different types) are currently in use.

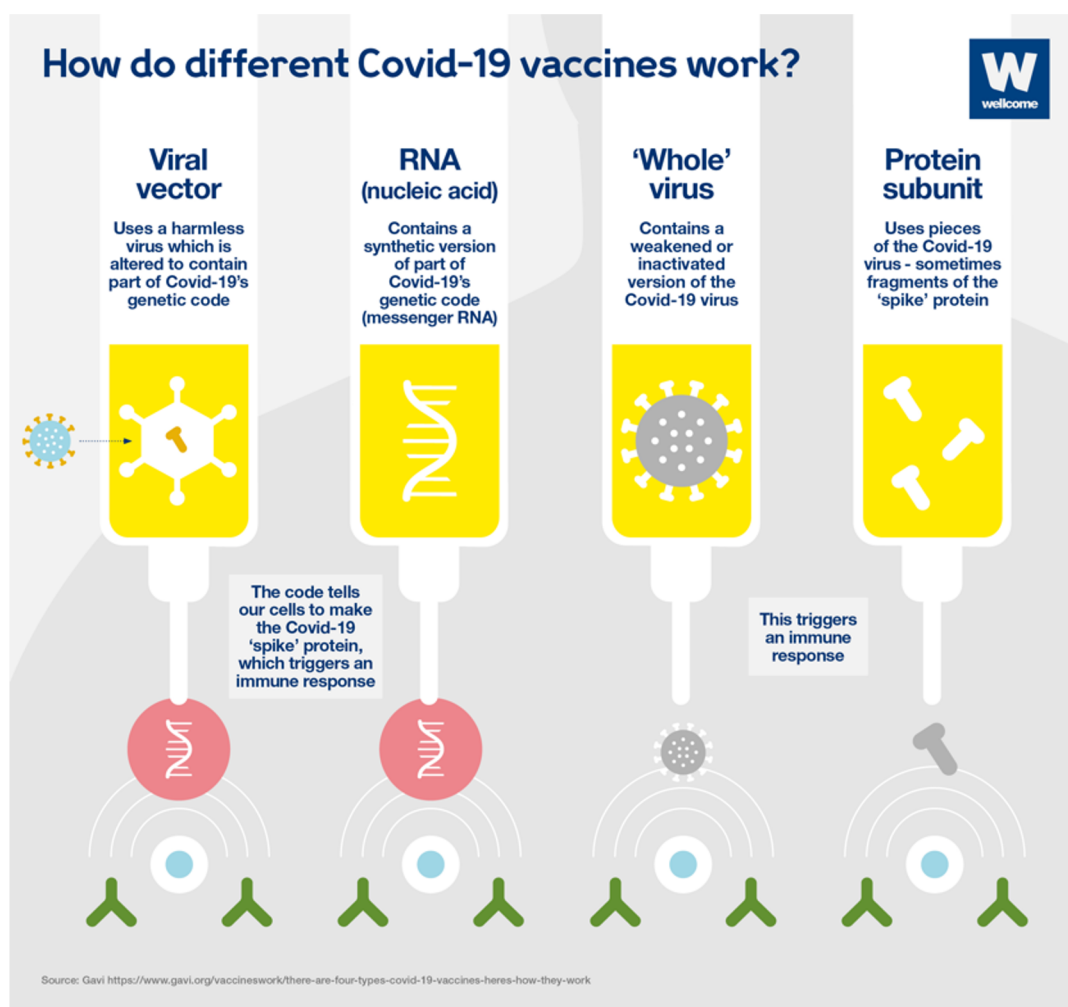
9
vaccine
types

311
vaccine
candidates

86
in clinical
testing

11
in use

FIGURE 1: HOW CURRENT TYPES OF COVID-19 VACCINATIONS WORK

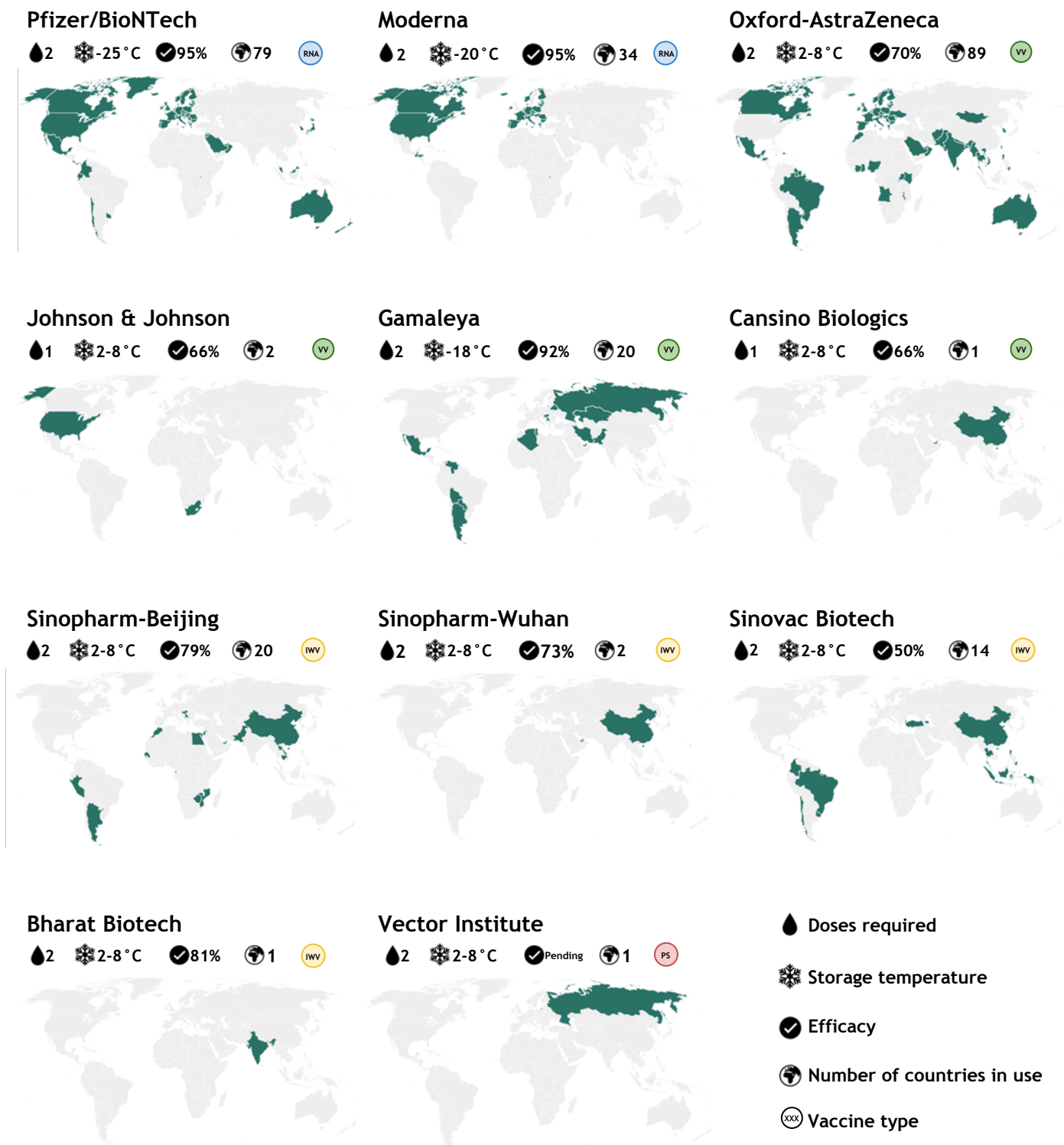


Source: Wellcome Trust⁶

- Eleven main vaccines are currently in use across 146 countries across the globe.
- PfizerBioNTech and Oxford-AstraZeneca are the most widely used so far, with recorded use in 79 and 89 different countries respectively.

- Johnson & Johnson, one of the only single shot vaccines, is the primary vaccine being used in the South African market due to a better performance against the widespread 501Y.V2 variant prevalent in South Africa.

FIGURE 2: WHICH VACCINES ARE BEING USED AND WHERE?



Source: Adapted from The New York Times Coronavirus Vaccine Tracker²

HOW WILL VACCINES AND VARIANTS AFFECT GLOBAL TOURISM RECOVERY?

The race to develop COVID-19 vaccines began shortly after the virus emerged in late 2019. The speed of COVID-19 vaccine development was the quickest in human history. Just one year later, in December 2020, public mass vaccination campaigns began.

Many hoped this was the beginning of the end of the pandemic and placed high hopes that the efficient delivery of a global vaccination programme could see life and travel returning to some level of normalcy.

However, as vaccination programmes have gathered momentum, progress has been hampered by the emergence of treatment-evading variants, bottlenecks in vaccine production and distribution, and concerns regarding the health and safety of the vaccines. In a sea of information that changes daily, the only thing that has become clear is that vaccinations will not be the immediate silver bullet we had hoped for.

While early predictions had estimated that global tourism could start to rebound as early as Q3 2021²⁰, the developments of the virus, the delays in vaccination rollouts across the world and the unpredictable waves of new infections suggest that recovery of international tourism will occur more gradually over the next few years.

Two major questions will influence how quickly tourism demand will resume:

1. How effective are different vaccines against the variants?
2. How will vaccines adapt to facilitate cross-border travel?

VACCINE EFFICACY

The largest question as vaccines roll out around the world is how effective the vaccines are against the emerging variants.

The subject of feverish research and additional trials, results suggest that against the existing vaccines:

- maintain similar efficacy against the B.1.1.7 variant,
- are less effective against B.1.351 (501Y.V2), and
- have mixed effects on the P.1 variant with a need for additional trials⁴.

In particular, results from a small study sample, showed that Oxford-AstraZeneca offered minimal protection (as low as 10%) against mild and moderate cases caused by the 501Y.V2 variant (also known as B.1.351) prevalent in South Africa. This resulted in a decision by the South African government to suspend the scheduled roll-out of the Oxford-AstraZeneca vaccine.

Preliminary results for the Pfizer-BioNtech vaccine indicate that the vaccine offers similar protection against 501Y.V2. However, some evidence exists from lab studies that antibodies made in response to the vaccine are less effective. Results are currently not conclusive and additional research is needed.

TABLE 2: VACCINE EFFICACY AGAINST KNOWN COVID-19 VARIANTS OF CONCERN

	ORIGINAL VIRUS	B.1.1.7 (UK)	B.1.351 (South Africa)	P.1 (Brazil)	B.1.526 (New York)	CAL.20C (California)
Pfizer-BioNtech	95%	Similar efficacy	Mixed results	Similar efficacy	More data needed	More data needed
Oxford-AstraZeneca	60-90%	Similar efficacy	Reduced efficacy	Similar efficacy	More data needed	More data needed
Moderna	95%	Similar efficacy	Reduced (in lab)	More data needed	More data needed	More data needed
Johnson & Johnson	66%	Similar efficacy	Reduced (in lab)	Reduced (in lab)	More data needed	More data needed
Sinovac	50%	Similar efficacy	Reduced (in lab)	Reduced (in lab)	More data needed	More data needed

Source: Adapted from BusinessInsider ⁴

IS EFFICACY A VALID COMPARISON?

While nations are making decisions with the best information available, experts have warned that efficacy is innately difficult to compare and that it is not as simple as comparing one number to another²¹.

This is mainly because clinical trials can only offer a snapshot of how effective a vaccine was against the variants that were present or dominant in that specific place at that specific time.

Therefore, efficacy of a vaccine at one point in time may not represent efficacy to the general population several months later, leading early efficacy numbers to misrepresent current world scenarios. This makes it difficult to compare between treatments that were developed and tested months apart.

In addition, different trials or treatments may differ in definitions of, for example, what constitutes a mild or a moderate case yielding different thresholds for reporting.



Jeffrey Abrahams/GroundUp (CC BY-ND 4.0)

TABLE 3: DIFFERENCES IN CLINICAL TRIALS OF COVID-19 VACCINES

Vaccine	Measures of efficacy	Efficacy*, %	Key differences
Pfizer-BioNTech	Symptomatic covid-19 from seven days after the 2nd dose	95	Trial mostly in the US†, before resistant variants spread
Moderna	Symptomatic covid-19 from 14 days after the 2nd dose	94	Trial in the US, before resistant variants spread
Johnson & Johnson	Severe covid-19 from 28 days after dose	85	One dose; some trial locations with resistant variants (Brazil, South Africa)
	Moderate/severe covid-19 from 28 days after dose	66	
AstraZeneca-Oxford	Symptomatic covid-19 from 14 days after the 2nd dose	82	Some trial locations with resistant variants (Brazil, South Africa)
		Doses 12+ weeks apart	
		63	Doses 4-12 weeks apart

*Reduction in frequency relative to placebo group †130 of 152 sites

Source: Adapted from The Economist²²

VACCINE ADAPTATION

Vaccine developers are hard at work addressing ways existing vaccines (First-Generation vaccines) can be adjusted to ensure efficacy against both current and future variants²³.

First-Generation vaccines

- Moderna have developed an updated vaccine that is specifically designed to match the 501Y.V2 variant. Testing the updated vaccine in a renewed Phase 1 trial began in March 2021.
- Oxford/AstraZeneca are working towards updating their vaccine to be effective against known variants by using genetic material matching that of the new variants.
- Pfizer/BioNTech(RNA-based) are going the route of testing whether a third dose of the original vaccine is safe and improves efficacy against emerging variants.
- Johnson & Johnson's vaccine showed better efficacy towards the 501Y.V2 variant. Trials are continuing to determine whether updates will be needed.

For many vaccines, the scientific process to update the vaccines is not complicated. However, updated vaccines will still be delayed reaching the public since the new vaccine boosters would need to enter the cycle of manufacturing, testing and approval once again.

Second-generation vaccines:

While single variant vaccinations were quick out the door for development, testing and use, several other makers of vaccinations opted for a slow process taking time to develop vaccines that would be able to target variants of the virus that were expected to inevitably emerge.

One such vaccine is the ImmunityBio vaccine which will be manufactured locally in South Africa²⁴. The mechanism of this vaccine builds on that of the first-generation vaccines but adds an additional mechanism that triggers virus infected cells to be killed, thus preventing the virus from replicating. Phase 1 clinical trials of ImmunityBio in South Africa are currently underway in collaboration with University of Cape Town²⁴.

WHAT DOES THIS MEAN FOR SOUTH AFRICA?

- Concerns over the emergence of the B.1.351 variant prevalent in South Africa have rippled through international markets and resulted in targeted travel restrictions to and from our shores.
- In the short term, negative impacts of this on our international tourism recovery may have been felt. In the longer term, however, the efficient and early detection of the variant may in fact turn out to be a significant advantage.
- In the efforts of vaccine developers to adapt both new and existing vaccines to ensure efficacy against a broad suite of emerging variants of concern, variant 501Y.V2 has specifically been targeted in lab and clinical trials as a benchmark of efficacy against variants.
- This places South Africa, and those wishing to travel to South Africa, ahead in gaining an updated vaccine specifically targeting 501Y.V2 since the boosters are already in production and testing.
- In regions where new or different variants are only just being revealed, vaccine adaptations may take many more months as additional cycles of development, testing and dissemination would still need to be initiated.



Daniel Schludi/Unsplash

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