



# COVID 19 Report

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Report for  
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## 1 Introduction

Covid19 data Australia is the source where we get all the data. We are analyzing the cases as in 18 of May 2021 where we download all the data needed. We divided our analysis to 4 part, firstly we are going to talk about the total cases within the last 28 days in Australia, secondly we are going to talk about the cases we also analyze the how many people recover due to the disease, after looking at the transmission sources in Australia, and lastly we talked about the vaccination program which starts from February to 18 May.

The purpose of this report is to analyze how well Australia is handling the pandemic, we decided to do this because we all aware that the pandemic is keep on heating from time to time so it's very important for us international students who is studying in Australia be aware of what is happening in Australia.

### Total cases in Australia

## 2 Total COVID 19 cases from each state in the last 28 days

**Table 1:** *Total cases in 28 days*

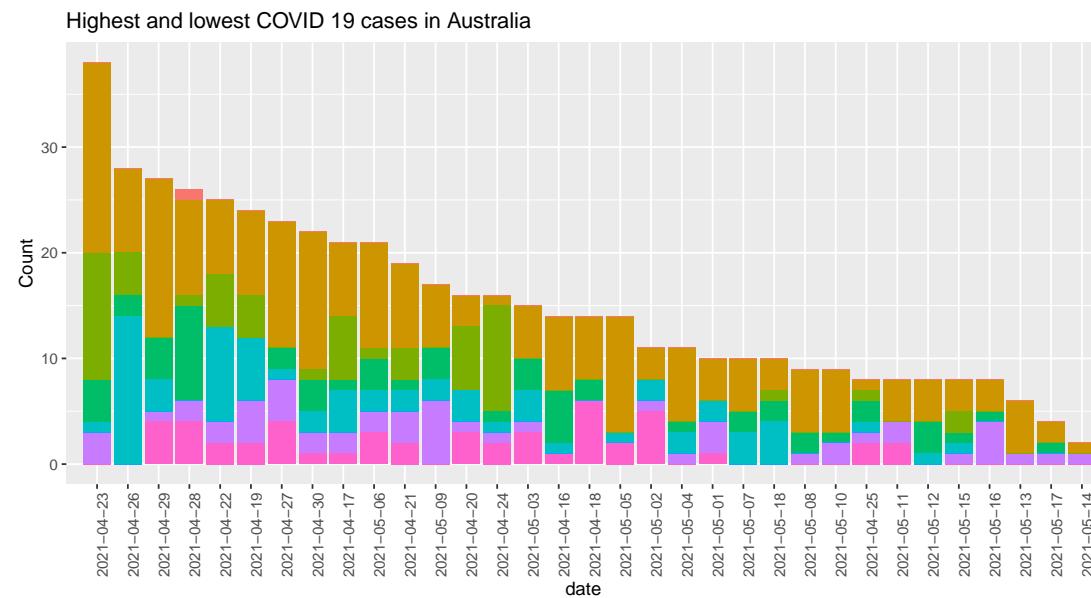
state	total
NSW	211
SA	71
QLD	59
NT	57
VIC	53
WA	50
ACT	1
TAS	0

### 2.1 Analysis

table 1 shows the total number of COVID 19 cases from all the states in Australia in the last 28 days. It clearly shows that in the last 28 days New South Wales (NSW) has added the most number of cases with total of 211 cases. Compared to other states they only at 50's cases with Australian Capital Territory (ACT) and Tasmania (TAS) only added 1 and 0 cases. It reflects that NSW has

been struggling. The data was downloaded as in 18 of May 2021, they really need to increase their attention in order to contain the virus outbreak.

### 3 Highest and lowest COVID 19 cases in Australia



**Figure 1:** Highest and lowest COVID 19 cases in Australia

#### 3.1 Analysis

Figure 1 showing the highest to lowest cases of COVID 19 the X axis acts recorded the date on when the case was recorded. At glance at the 23 of April 2021 the day where Australia adds the higest total cases with NSW is the highest contributor, and the lowest cases was recorded at 14 May 2021.

## 4 COVID 19 cases in Australia in the last 28 days

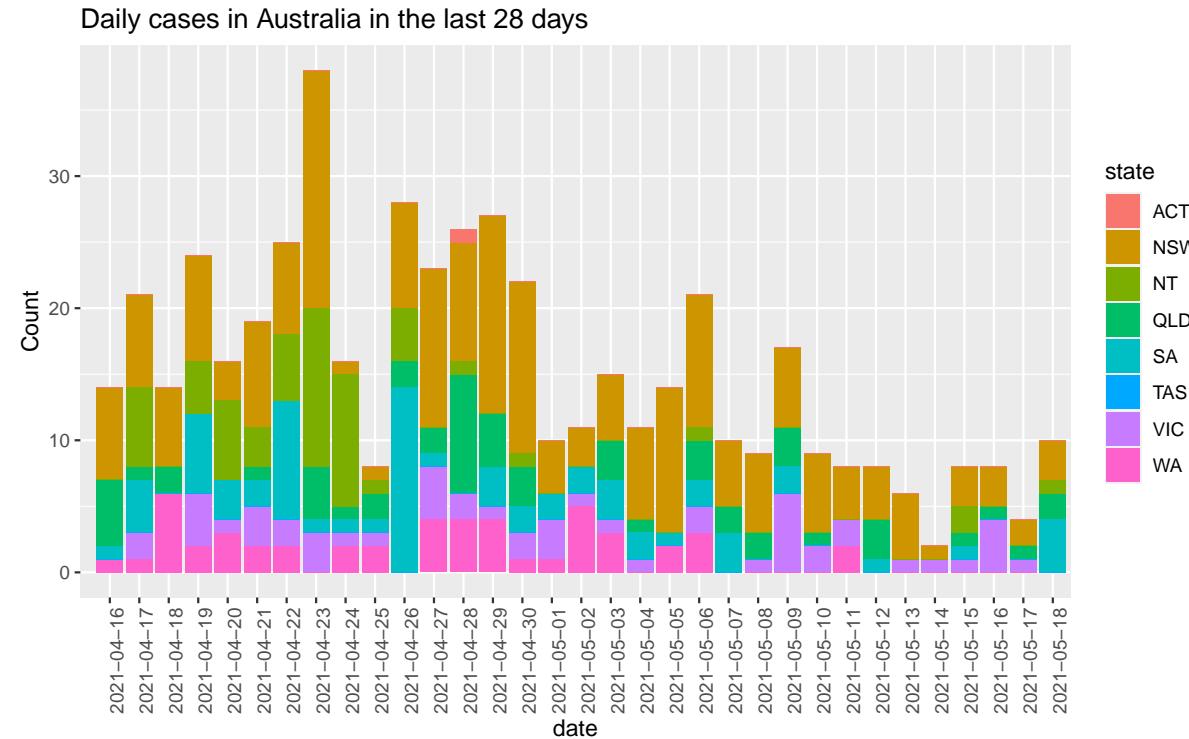


Figure 2: Daily cases in Australia in the last 28 days

### 4.1 Analysis

2 showing the COVID 19 cases trends from 16 of April to 18 of May 2021. During the first few weeks the cases has rises and reaches it's peak on the 22 April 2021. 2 days later it drops and suddenly there has been an increase again. But overall during the last 28 days Australia has shown a great way to contain the outbreak on the first week which showing the efficiency of the government rules and regulation.

### Recovery

```
rec <- read_csv(here::here("Data/recovery.csv"))

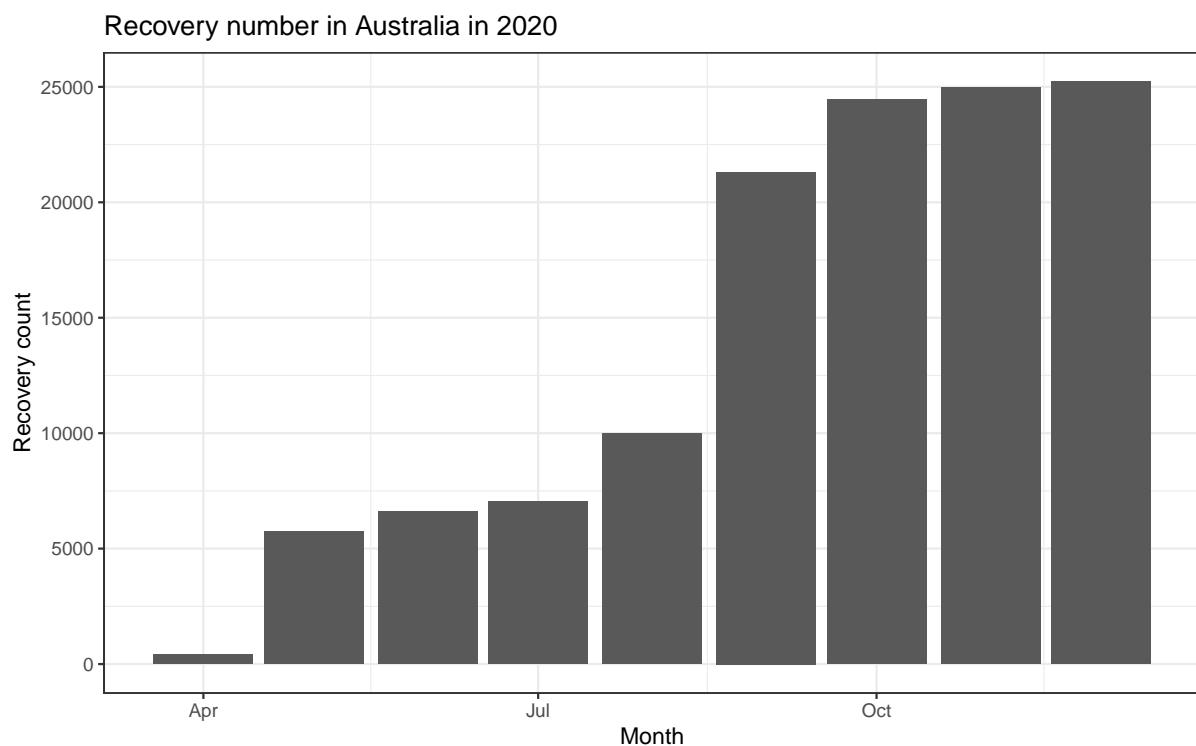
rec <- rec[1:292,]

rec_clean <- rec %>%
  mutate(date = as.Date(date, '%d-%b')) %>%
  mutate(date = str_replace_all(date, "2021", "2020")) %>%
```

```
mutate(date = as.Date(date, '%Y-%m-%d'))  
  
date <- unique(sort(rec$date))  
rec$date <- factor(rec$date, ordered = T)  
  
rec_clean[is.na(rec_clean)] <- 0
```

## 5 Recovery count

```
rec_tidy <- rec_clean %>%  
  filter(str_detect(date, "-01"))  
  
rec_tab <- rec_tidy %>%  
  group_by(date) %>%  
  summarise(Recoveries)
```



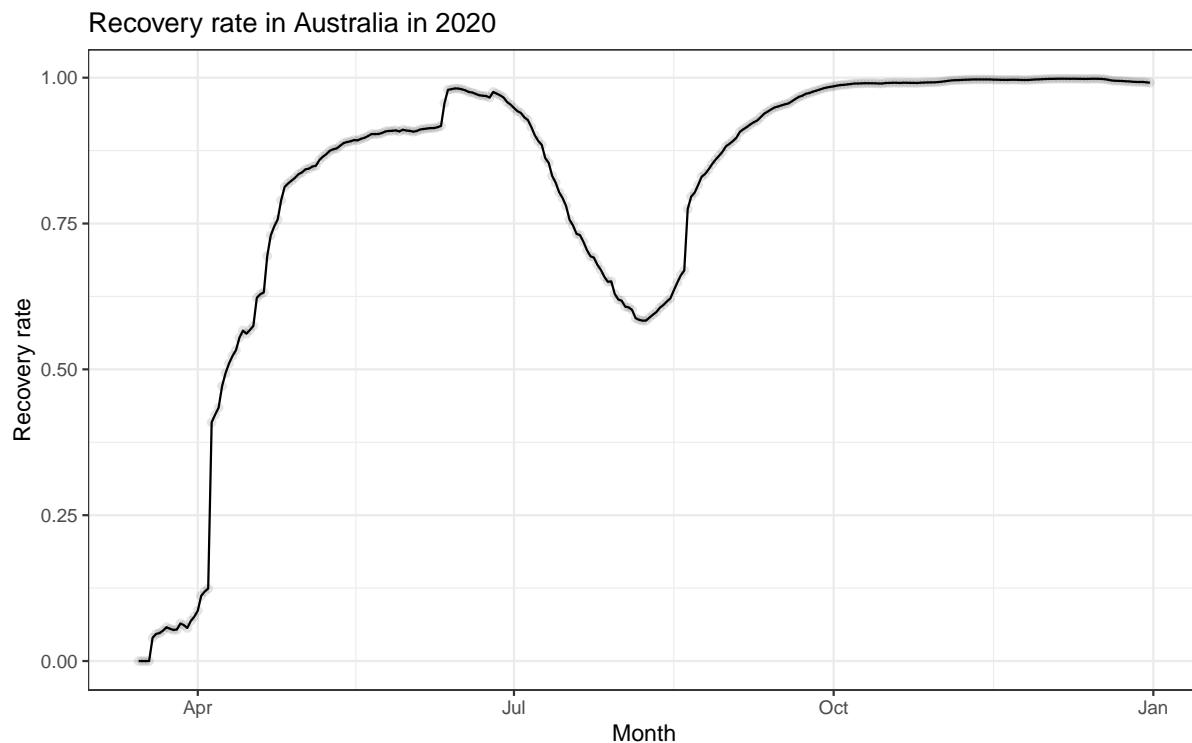
## Analysis

Figure?? shows that the number of recoveries from 2020.3 to 2021.5. It is not hard to find there was a slow climb before 2020.07(248918), after which a double recoveries appeared which is referred to

the focus and good care on COVID-19 among countries. Then the number kept constant with some fluctuation.

## 6 Recovery Rate

```
rec_rate_tab <- rec_clean %>%
  group_by(date) %>%
  summarise(rec_rate = Recoveries/(Recoveries + `Active Cases`))
```



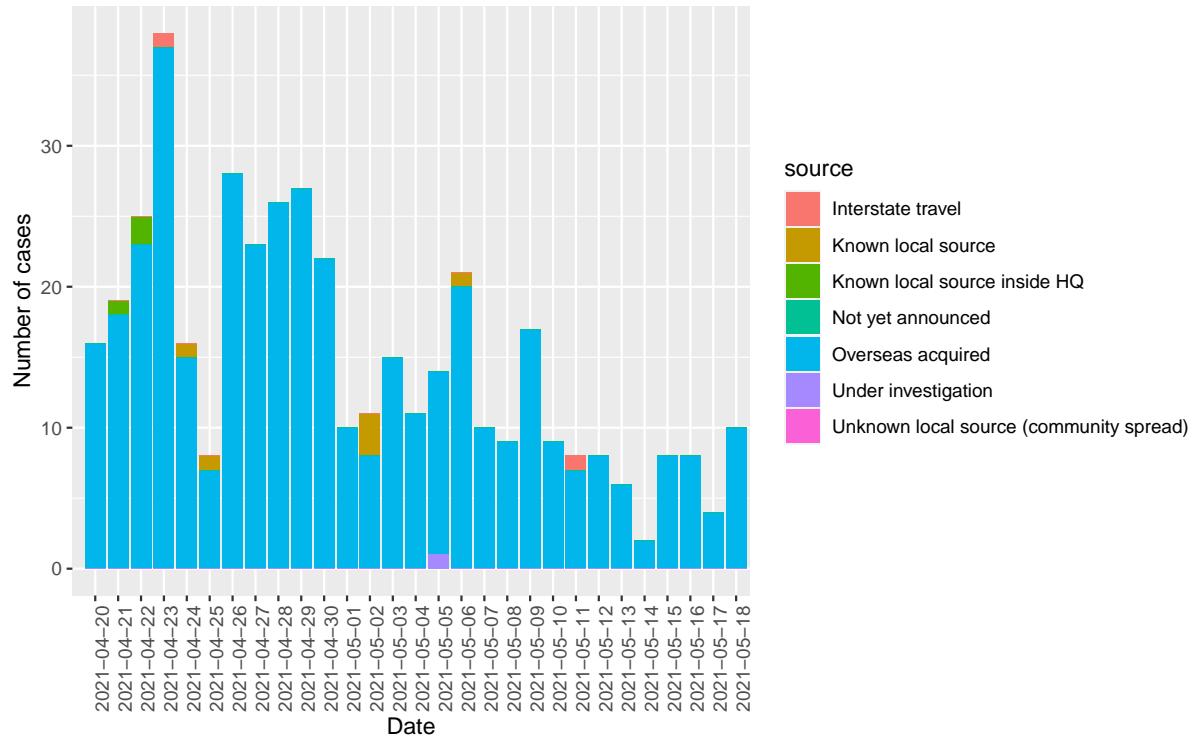
```
## Analysis
```

Figure?? shows that the total recovery rate had an increase before 2020.6(95%), and a downward trend happened due to the decreasing active cases as well as increasing recoveries. However, the recovery rate continued to climbing from 2020.8(71%) and reached at almost 99% after 2020.11 until now. The main reason that the rate kept increasing steep is that the government did control the virus situation to some extend, the less active cases, the higher rate.

## 7 Recovery-death ratio

```
ratio_tab <- rec_clean %>%
  group_by(date) %>%
  summarise(rec_Death_ratio = Recoveries/Deaths)
```

## Transmission sources of daily cases in Australia

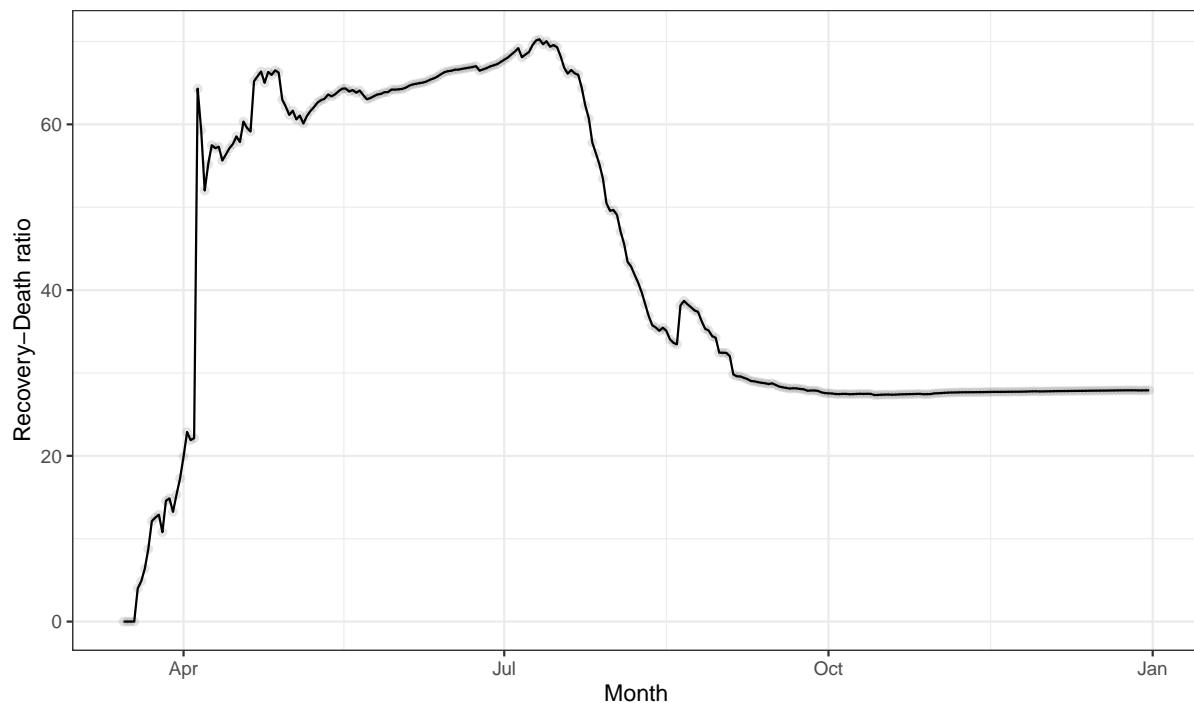


**Figure 3:** Transmission sources of daily cases 20 April 2021 - 18 May 2021

The figure 3 indicates that the most of transmissions were from overseas. Especially, there were more than 35 cases from overseas recorded and one case was due to the interstate travel in 23 April. Only One case is under investigation which has been recorded in 5 May.

Luckily, there are no more local community spread in Australia from 20 April 2021 to 18 May 2021.

Recovery–Death ratio in Australia in 2020

**Figure 4:** Recovery-Death ratio in Australia in 2020

## 7.1 Analysis

Figure 4 demonstrates the ratio of total recoveries and total deaths, which it kept zero in the earlier Mar because An early outbreak in March left the recovery rate at zero and the death rate rising. As the ratio continued rising until July(70), then it started dropping which means that as the active cases decreased, the recoveries number became less.

## 7.2 Vaccination Rates

```
library(hrbrthemes)

## Warning: package 'hrbrthemes' was built under R version 4.0.5

## NOTE: Either Arial Narrow or Roboto Condensed fonts are required to use these themes.

##      Please use hrbrthemes::import_roboto_condensed() to install Roboto Condensed and
##      if Arial Narrow is not on your system, please see https://bit.ly/arialnarrow

vaccine <- read_csv(here::here("Data/Total doses.csv"))

## 
## -- Column specification -----
```

```
## cols(  
##   date = col_character(),  
##   `Total doses (left axis)` = col_number(),  
##   `Per 100 people (right axis)` = col_double()  
## )
```

```
8 {r FigRefplot, fig.cap = "Vaccination Rates Over  
Time", warning = FALSE, eval=TRUE, echo=FALSE,  
warning=FALSE, message=FALSE } #   ggplot(vaccine_long,  
#       aes(x=date,y=`Per 100 people (right axis)`))+  
#   geom_point(size=2,alpha=0.3,color='#b3699f')+  
#   ylab("vaccination Rates(per 100 people)")+ #  
xlab("Date")+ #   theme(plot.title = element_text(h  
= 0.5))+ #   scale_color_manual(values = colors)+ #  
theme_ipsum() + theme(axis.text.x = element_text(angle =  
90, vjust = 1, hjust = 1)) #
```

The graph ?? shows a general upward trend in vaccination, with the vaccination rate starting to show a faster increase in early April. The vaccination rate grows faster and faster over time. The number of vaccinations reached 12.39% on May 18. The increase in vaccination rates illustrates the importance the government places on the outbreak.

## 8.1 Vaccination Coverage

```
9 r FigRefz, fig.align = "center",fig.cap = "Increase  
in vaccination coverage over time",message=FALSE,  
warning=FALSE} # ggplot(vaccine_long, #           aes(x =  
date, #           y = `Total doses (left axis)`)) + #  
geom_col() + #     xlab("Date") + #     ylab("Vaccine") + #  
theme_ipsum() + theme(axis.text.x = element_text(angle  
= 90, vjust = 1, hjust = 1))+ theme(axis.text.x =  
element_text(angle = 90, vjust = 1, hjust = 1)) #
```

We can see from the graph ?? that the number of inoculations continues to grow, from 20 people on February 21 to 3,183,324 people on May 18. The rate of growth has been accelerating since the beginning of April.

## 10 Conclusion and References

### 10.1 Conclusion

Given the analysis above, the number of the confirmed cases and their sources were very stable. Besides, with the high recovery rate and more people are taking the vaccines, it can be proved that the reactions Australian government made were effective.

### 10.2 Data

COVID-19 in Australia. (2021). Retrieved 18 May 2021, from <https://www.covid19data.com.au/>

### 10.3 Software

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