South Africa will receive 31.2 million Pfizer vaccines this year — we’ll get 30-million directly from Pfizer and 1.2 million via COVAX. [Source: National health department, April 19]

Of these, almost 6.5-million doses will arrive between April and June.

Each person needs two shots, about three weeks apart.

So the 31.2-million doses will immunise 15.6-million people in total.

Last year, Pfizer became the first company to announce results for its COVID-19 vaccine.

New data, released from a Pfizer study in April, showed that the jab has 100% efficacy against symptomatic COVID cases in South Africa.

The data, from a small group of people, includes cases caused by the 501Y.V2 variant which is now dominant in South Africa.

Pfizer jabs will mainly be used in urban areas in South Africa.

There are three ways to store the shots and all of these have a different purpose.

1. Temporary storage in shipping containers

Pfizer created specialised thermal shipping containers because the jabs need to be stored below freezing if they need to last for longer than five days.

The shipping boxes use dry ice to keep the shots stored at -70 °C.

The jabs can be kept in these containers for up to 30 days. But the dry ice has to be refilled every five days.

Each box requires 138 kgs of dry ice for a month’s storage.

Restocking this amount of dry ice for the millions of doses coming into the country is therefore not a great long-term option.

After the 30 days in the shipping containers have passed, the doses can be transferred to a normal refrigerator and kept between 2 to 8 °C for five more days.

2. Short-term storage in standard freezers
The vials can be stored between **-25 and -15 °C for up to two weeks**.

But this only works if the doses are kept frozen throughout this time period.

Once the vaccines have been thawed, they cannot be re-frozen and must be kept in a fridge between 2 to 8 °C for up to five days.

Vaccine sites that do not have access to freezers will need to store the jabs in a defrosted state and use up their doses within five days.

**3. Long-term storage in ultra-cold freezers**

Large volumes of doses, which can't be used up quickly, might have to be stored for longer periods.

But for this, we'll need specialised ultra-cold freezers to keep the jabs at -70 °C.

The shots can be kept in such freezers until their expiry date, which is currently estimated to be around six months.

Ultra-cold freezers are commercially available in big cities such as Cape Town, Durban and Johannesburg.

These cities could serve as drop-off points for long-term storage before the doses are transported to vaccination sites.