GENERAL VACCINE DISPENSING PATTERNS DURING THE FIRST YEAR OF THE COVID-19 PANDEMIC IN SOUTH AFRICA

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BACKGROUND

Vaccination is one of the most cost-effective health care interventions. Yet, it has been reported that there is a substantial burden of incomplete childhood vaccination in South Africa.[1] An additional challenge has been posed by the ongoing coronavirus disease 2019 (COVID-19) pandemic, which has disrupted immunisation services globally, including in South Africa.[2] It can therefore be expected that vaccination patterns have changed since the start of the COVID-19 pandemic, especially during the first year of the pandemic in 2020.

PRIMARY AIM

The primary aim of the study was to determine which vaccines were claimed and reimbursed from medical insurance schemes in South Africa during 2020, the first year of the COVID-19 pandemic.

METHODOLOGY

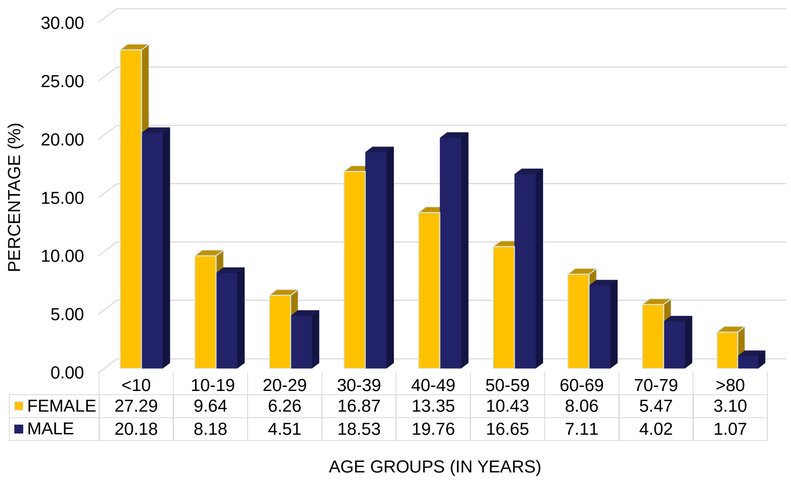
- A retrospective drug utilisation study on electronic medicine records obtained from a medical insurance scheme administrator in South Africa for 2020 was conducted. The database represents a section of the private healthcare sector in South Africa. The database contained more than 2.6 million records in 2020.
- The ATC Classification System[3], Monthly Index of Medical Specialities (MIMS)[4] and the South African Medicines Formulary[5] were used to classify medicines.
- All products in Anatomical Therapeutic Chemical (ATC) group J07 (vaccines)[3] were extracted and analysed. Only the products that were claimed and reimbursed by the different medical insurance schemes were included in the study.
- Each medication record contained information on the age and gender of the patient, with a unique number to identify each patient, the date of the prescription, detailed information on the dispensed drug (name, package size, formulation, strength and quantity) and cost.
- Microsoft Access® and Excel® were used to analyse the data. Descriptive statistics were calculated.
- Limitations included that the study only covered a period of one year. No clinical information or diagnoses were available.
- Ethical approval to conduct studies on electronic databases was obtained from the Research Ethics Committee (Human) of the university (ethics clearance number: H08-HEA-PHA-005).

RESULTS AND DISCUSSION

Demographic information of patients

A total of 7 066 vaccines were dispensed to 5 250 patients (58.7% male patients) during 2020, at a total amount paid of R1 809 734.32. The average age of patients was 34.45 (SD=23.14) years. The age and gender distribution of patients is given in Figure 1.

FIGURE 1
AGE AND GENDER DISTRIBUTION OF PATIENTS (N=5 250)



	<10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	>80
FEMALE	27.29	9.64	6.26	16.87	13.35	10.43	8.06	5.47	3.10
MALE	20.18	8.18	4.51	18.53	19.76	16.65	7.11	4.02	1.07

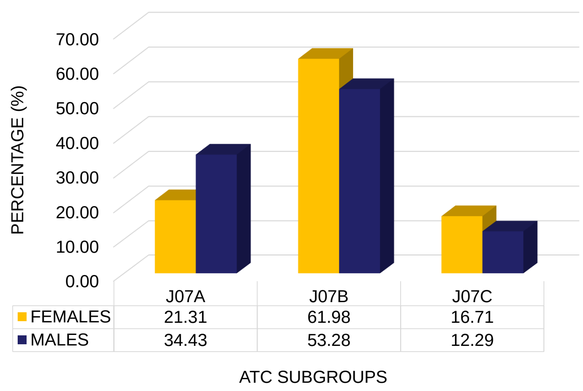
The number of vaccines dispensed were the highest for children under 10 years of age, as was expected, since this is the age at which children are administered the vaccines in the Expanded Programme on Immunisation in South Africa (EPI(SA)).[6]

General dispensing patterns of vaccines

Most vaccines were dispensed by pharmacies (35.30%), followed by nurses (29.63%), medical practices (21.45%) and hospitals (13.61%). The percentage of vaccines dispensed in each ATC subgroup is shown in Figure 2. Most vaccines dispensed were viral vaccines (53.28%). The single most often dispensed vaccine was the influenza, inactivated, whole virus vaccine (J07BB01). Male patients were proportionally dispensed slightly more influenza vaccines (J07BB01), and female patients more polio vaccines (J07BF04).

The most often dispensed bacterial vaccine was the tetanus single dose 0.5 ml vaccine (J07AM01), accounting for 63.45% (n=1 290) of all bacterial vaccines. The high percentage of bacterial vaccines dispensed to males is specifically as a result of the tetanus toxoid, which may be related to the working conditions of the males in this specific patient sample.

FIGURE 2
DISPENSING PATTERNS OF VACCINES IN THE DIFFERENT ATC SUBGROUPS (N=7 066)

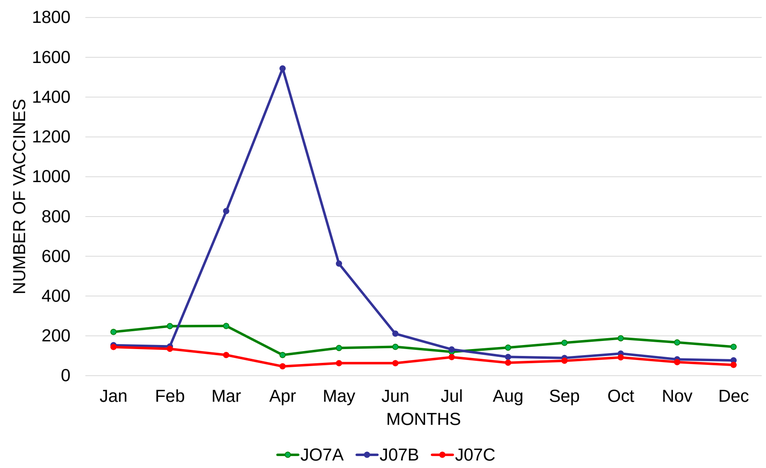


	J07A	J07B	J07C
FEMALES	21.31	61.98	16.71
MALES	34.43	53.28	12.29

Vaccine dispensing over the 12 months of the study

The dispensing of the three vaccine subgroups over the 12 months of the study is shown in Figure 3. There was an increase in the dispensing of viral vaccines (J07B) in the period just before the winter months (March and April 2020), specifically the influenza vaccine. This pattern was similar to a study conducted on 2017 data.[7] This peak appeared just before hard lockdown was introduced into South Africa. It can be seen that for all three vaccine groups, the dispensing patterns plateaued for the rest of 2020, possibly due to the fear of health-seeking behaviour during the pandemic.

FIGURE 3
VACCINE DISPENSING OVER THE 12 MONTHS OF THE STUDY (N=7 066)



CONCLUSION AND RECOMMENDATIONS

The three main categories of vaccines followed a similar dispensing pattern to previous studies conducted on 2015 and 2018 data, with influenza vaccines dominating in March and April 2020. It, however, seems as if fewer people were vaccinated in 2020, the year when the COVID-19 pandemic caused strict lockdowns in South Africa. A follow-up study investigating vaccine prescribing post-pandemic may be relevant, also to investigate post-pandemic vaccine hesitancy, if any.

ACKNOWLEDGEMENTS

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