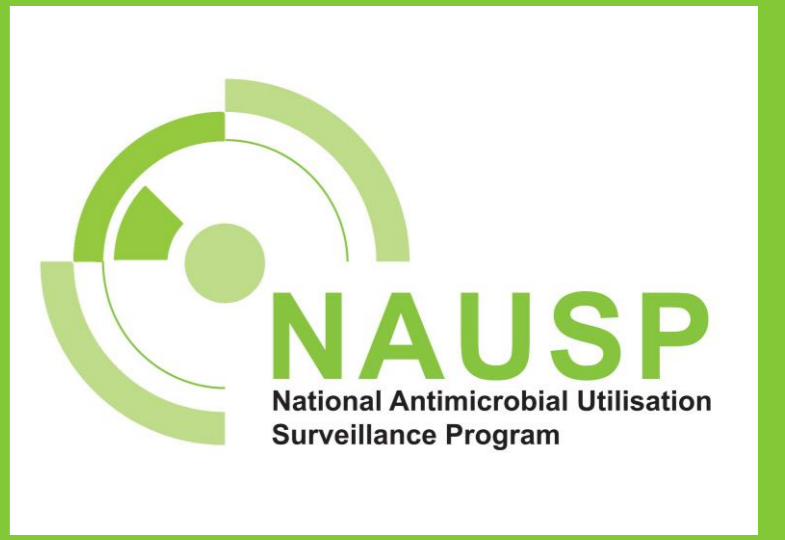




ANTIFUNGAL USAGE RATES IN AUSTRALIAN HOSPITALS



N Hillock, E Connor, A Dalwai

On behalf of the National Antimicrobial Utilisation Surveillance Program

BACKGROUND

- The National Antimicrobial Utilisation Surveillance Program (NAUSP) has been collecting data on antifungal usage in Australian hospitals since 2017.
- Previous analyses of antifungal use in Australian hospitals found usage was trending upwards and substantial variation in usage rates between the states and territories was seen.¹

METHODS

- Usage of antifungals distributed for inpatient use were extracted from pharmacy dispensing systems and uploaded to the NAUSP online portal.
- Total grams of each antifungal were converted to Defined Daily Doses (DDD) as defined by the WHO. Usage rates (DDD per 1,000 Occupied Bed Days (OBD)) were calculated to compare usage trends by state, hospital, and specialty wards.

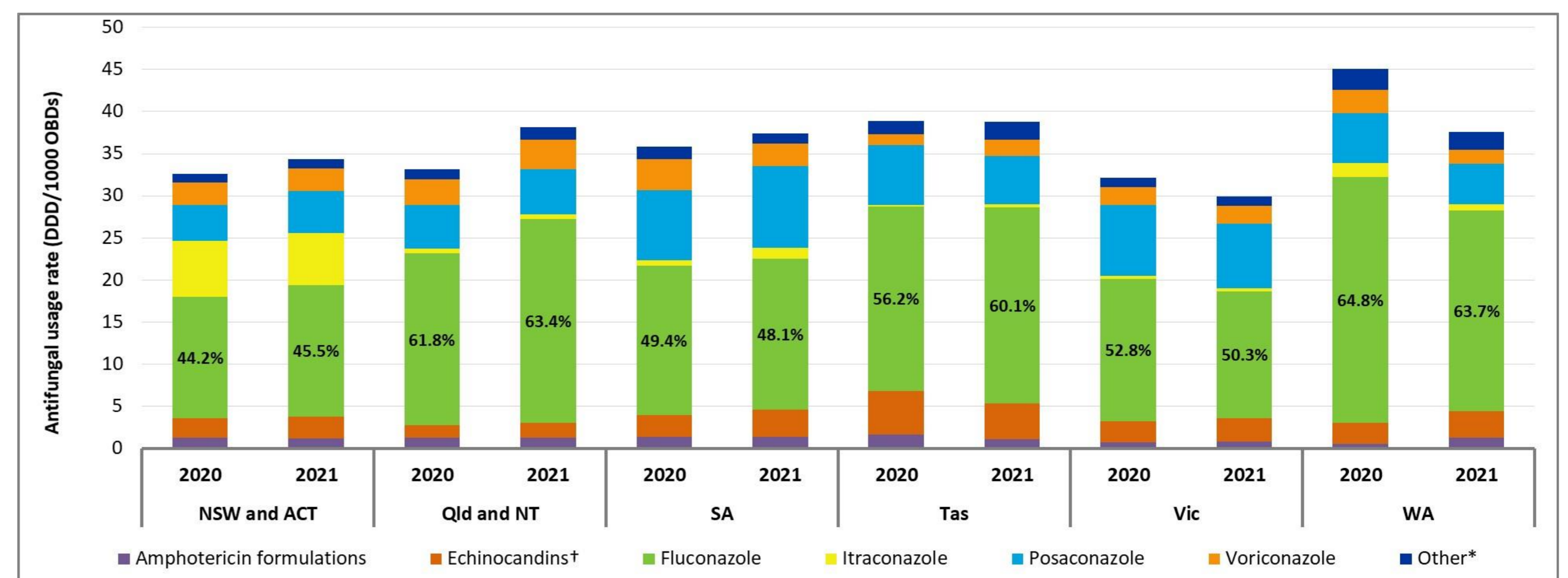
KEY FINDINGS

- Inpatient use of systemic antifungals increased by 1.2% in NAUSP-contributor hospitals between 2020 and 2021.
- Notable differences were observed in the antifungal agents used between the states and territories.
- Fluconazole usage in Australian hospitals is consistently high, however average monthly usage in Principal Referral hospitals declined by 1.6% over the five years to 26.9 DDD/1000 OBD in 2021.
- Use of posaconazole and the echinocandin class of antifungals is trending upwards.

TAKE-AWAY

- Inpatient use of systemic antifungals is increasing in Australian hospitals.
- Increased antifungal use, in conjunction with emergent fungal resistance globally, is increasing the need for antifungal stewardship to ensure appropriate use.

Annual aggregate antifungal usage rates by state and territory, 2020-2021



*other = flucytosine, griseofulvin, isavuconazole, ketoconazole and terbinafine; Echinocandins = anidulafungin, caspofungin and micafungin

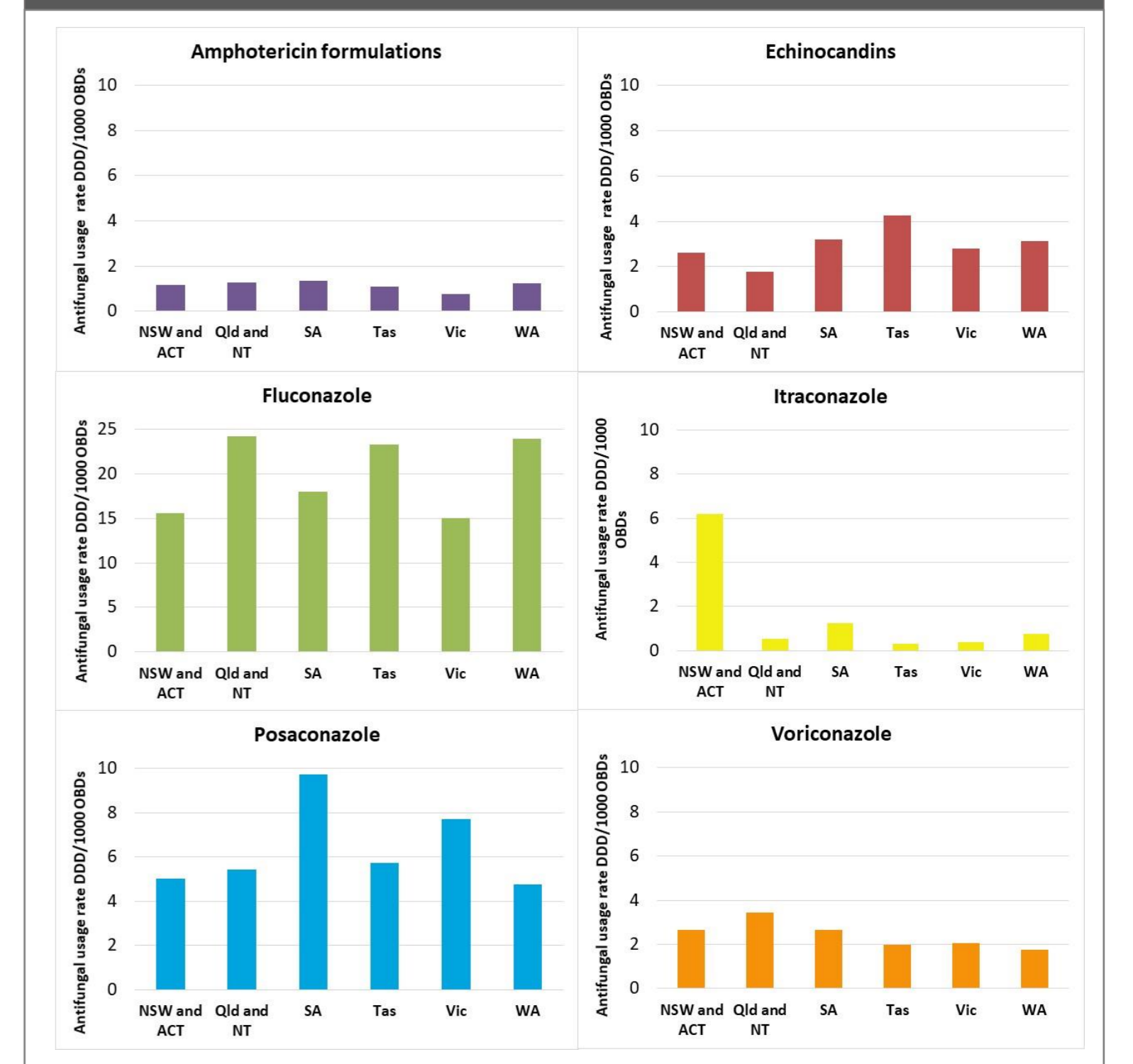
Nationally, the annual usage rate of systemic antifungals in the acute inpatient setting increased to 35.0 DDD/1,000 OBD in 2021, up 1.2% from 34.6 DDD/1,000 OBD in 2020. Antifungal usage increased in Qld/NT (+15.0%), NSW/ACT(+5.0%) and SA (+4.5%) between 2020 and 2021. Decreases were seen in WA (-16.7%) and Victoria (-6.7%).

There continues to be substantial variation in the antifungal agents used across the states and territories. Fluconazole has the highest use of all the antifungals in all jurisdictions, with total annual usage in 2021 ranging from 15.1 DDD/1,000 OBD in Victoria to 24.2 DDD/1,000 OBDs in Qld/NT. Proportionately, fluconazole comprised 45.5% of total systemic antifungal use in NSW/ACT in 2021, compared to 63.7% of total use in WA.

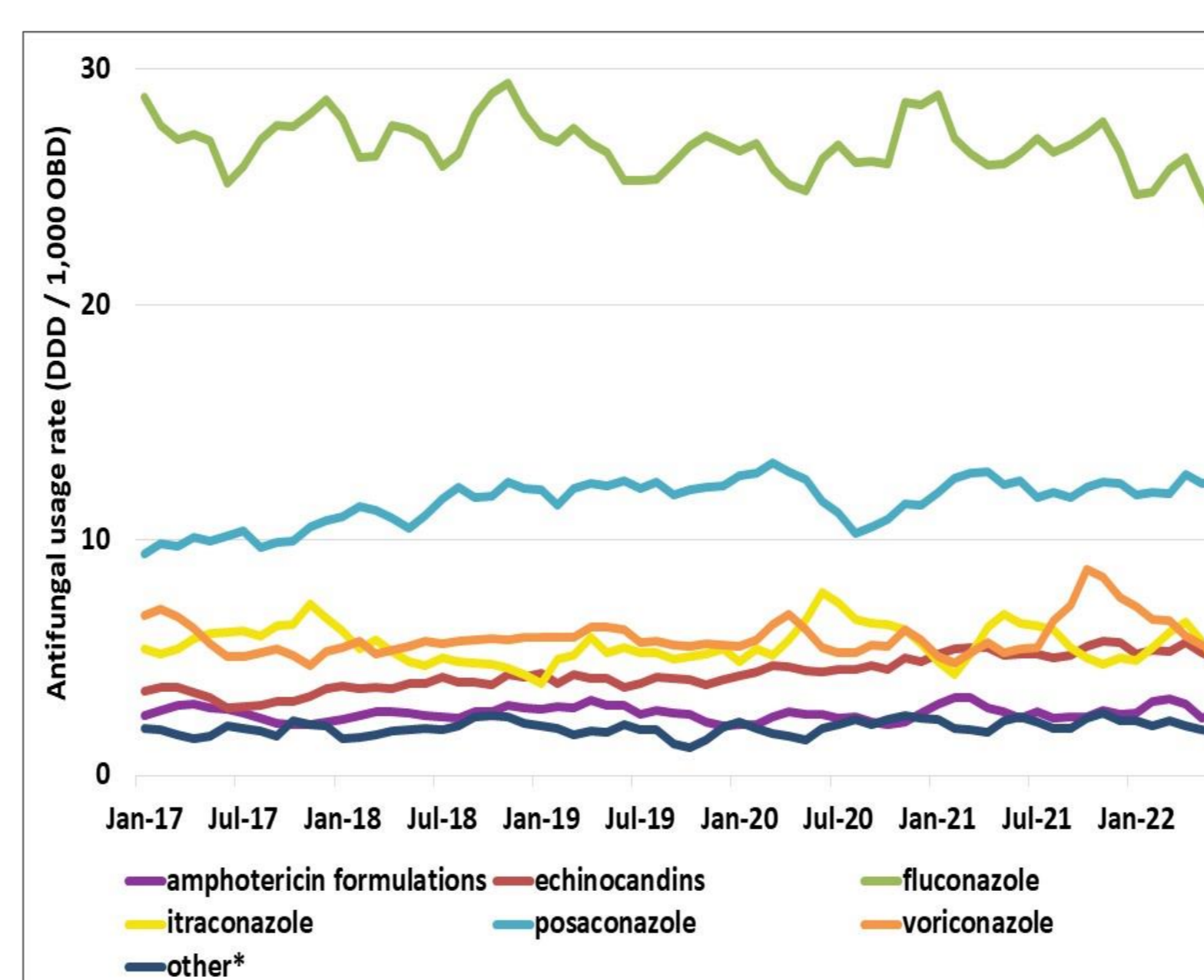
A notable difference is observed in the inpatient use of itraconazole; usage in NSW/ACT is almost ten times the average use in other states.

Inpatient use of posaconazole is 9.7 DDD/1,000 OBDs in SA, which is 1.7 times higher than the average use in other states (5.7 DDD/1,000 OBD).

State-wise annual acute inpatient usage rate, by antifungal/antifungal class, 2021



Principal Referral hospital antifungal usage rates 2017 – 2021



*other = flucytosine, griseofulvin, isavuconazole, ketoconazole and terbinafine

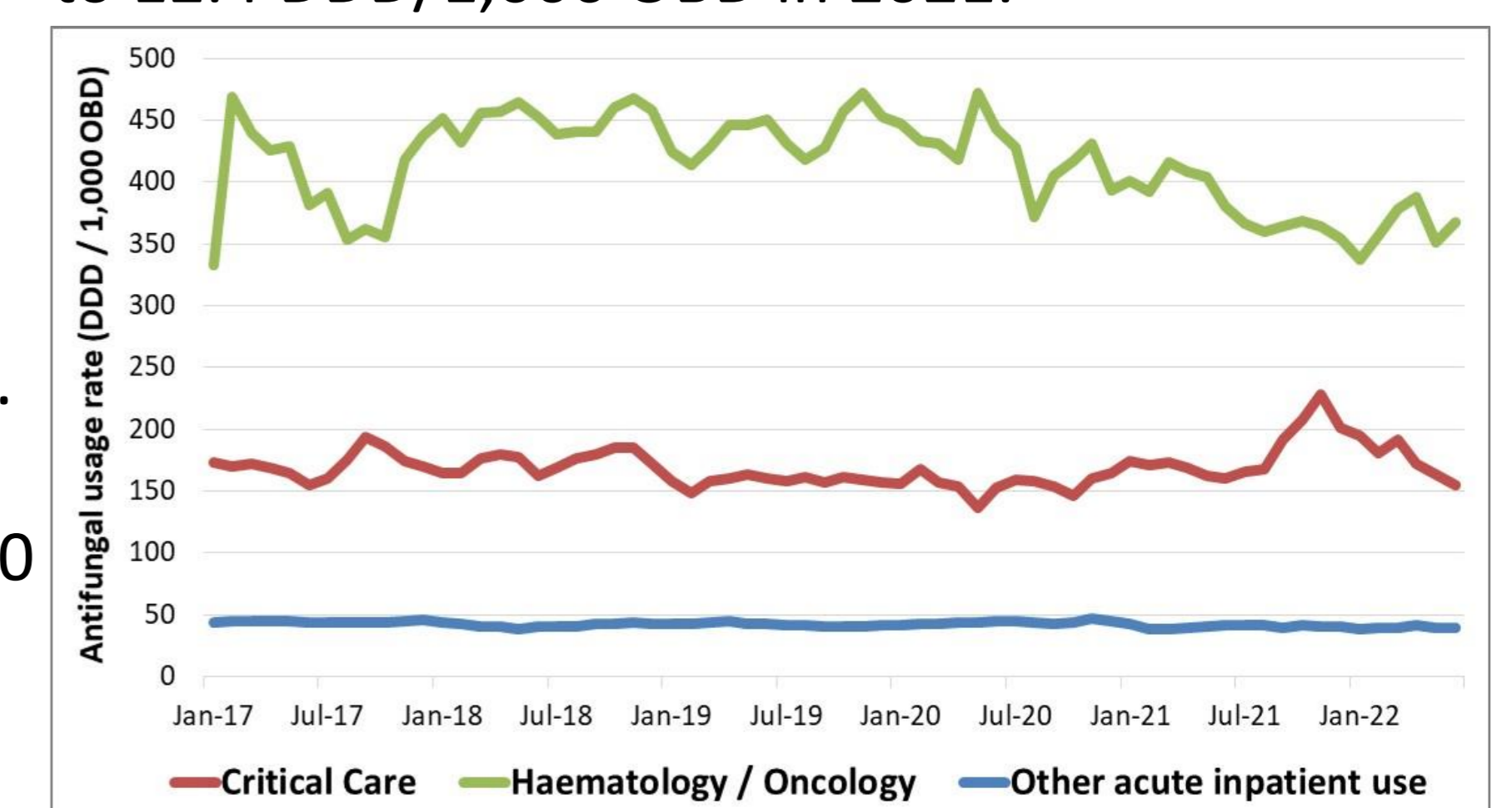
In 2021 the average monthly aggregated usage rate for all systemic antifungals on haematology / oncology wards in Principal Referral hospitals was 381.8 DDD/1,000 OBD. This was more than twice the average monthly rate in critical care (181.2 DDD/1,000 OBD) and almost ten times higher than the usage rate in other acute areas (40.6 DDD/1,000 OBD).

Although total inpatient antifungal use increased between 2020 and 2021, a 10.0% decrease was observed in the average monthly usage rate in haematology/oncology wards in Principal Referral hospitals, from 424.3 DDD/1,000 OBD to 381.8 DDD/1,000 OBD.

Fluconazole is the antifungal with the highest usage in Australian Principal Referral hospitals, however the average monthly usage rate fell 1.6% over the five years from 2017, to 26.9 DDD/1,000 OBD in 2021.

The average monthly usage rate for the echinocandin class is low (5.3 DDD/1,000 OBDs in 2021), but has increased almost 60% from an average monthly usage rate of 3.3 DDD/1,000 OBD in 2017.

Posaconazole usage is trending upwards, with the monthly average increasing 22.9% since 2017 to 12.4 DDD/1,000 OBD in 2021.



* Other acute inpatient use excludes emergency department and theatre from 2021