

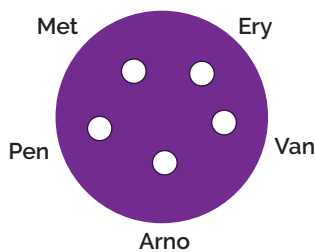


Agar Experiment Teacher Answer Sheet

Plate Results

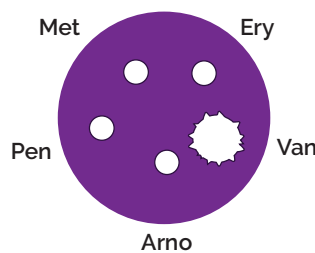
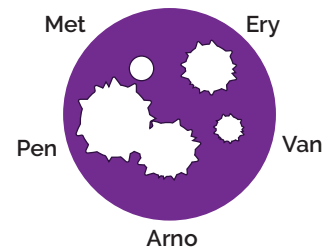
Patient	Organism sensitivity to antibiotics					Diagnosis
	Penicillin	Methicillin	Erythromycin	Vancomycin	Ampicillin	
A	✗	✗	✗	✗	✗	Influenza
B	✓	✓	✓	✓	✓	Strep throat
D	✗	✓	✓	✓	✗	Staphylococcus wound infection
C	✗	✗	✗	✓	✗	MRSA

Plate Results Explained



Patient A:
Influenza is caused by a virus and as such none of the antibiotics will have an effect as antibiotics can only be used on bacterial infections.

Patient B:
Sore throat infections are quite common and generally get better on their own. In severe cases, most antibiotics will treat this infection. Penicillin is the antibiotic of choice for this infection as the group of bacteria responsible (*Streptococcus*) have yet to develop a mechanism of resistance. Antibiotics should not be given unnecessarily for mild sore throats as 80% of sore throats are due to viruses and other bacteria can develop resistance during treatment.



Patient C:
Methicillin Resistant *Staphylococcus aureus* (MRSA) infections are becoming increasingly difficult to treat. These *S. aureus* bacteria have developed resistance to Methicillin, the previous antibiotic of choice. Vancomycin is one of the last lines of defence against these potentially fatal bacteria however some organisms have been detected which also show resistance to this antibiotic.

Patient D:
Penicillin was the first antibiotic discovered and produced, unfortunately many people viewed it as a 'wonder drug' and used it to treat many common infections. This resulted in the majority of *Staphylococcal* bacteria quickly developing resistance to this antibiotic. As Ampicillin is a derivative of penicillin, *Staphylococcus* bacteria are resistant to it as well. Methicillin is the drug of choice for this sensitive *Staphylococcus* infection.

