

|                                                                                                           | Gram Positive                                                                                                                             | Gram Negative                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Colour on Gram Stain                                                                                      | BLUE<br>                                               | PINK<br>                                     |
| Thickness of peptidoglycan layer                                                                          | 90% of cell wall, each cable is about 50nm wide                                                                                           | 10% of cell wall                                                                                                                |
| Outer membrane                                                                                            | NO                                                                                                                                        | YES                                                                                                                             |
| Type of crosslinks in peptidoglycan                                                                       | Occurs through short peptide interbridge                                                                                                  | Formed by peptide bond from amino group of DAP of glycan chain to carboxyl group of terminal D-alanine on adjacent glycan chain |
| Example of species                                                                                        | <i>Staphylococcus aureus</i>                                                                                                              | <i>Escherichia coli</i>                                                                                                         |
| Symptoms associated<br> | Staphylococcal food poisoning, presents with more prominent severe vomiting than diarrhoea. Apparent after 1-8hrs rapid incubation period | Traveller's diarrhoea, UTI, neonatal meningitis.<br><br>Only cause diarrhoea                                                    |
| How to Gram stain                                                                                         | Smear onto slide, stain with crystal violet, add iodine                                                                                   | Smear onto slide, stain with crystal violet, add iodine, wash with organic solvent (counterstained with safranin)               |