Linezolid

**Antibiotic Class:**
Oxazolidinone

**Antimicrobial Spectrum:**
Mainly active against gram-positive organisms (See Table 1, pg. 209)

**Mechanism of Action:**
Inhibition of bacterial ribosomal protein synthesis by binding to the 23S portion of the 50S ribosomal subunit. (See Figure 4, pg. 214)

**Pharmacodynamics:**
The percentage of time the concentration of the drug is greater than the MIC of the organism (%T>MIC) and area under the plasma concentration-time curve to MIC ratio (AUC/MIC) have shown to be correlated with outcomes (See Figure 2, pg. 211)

**Pharmacokinetics:**
(See Table 3, pg. 216)

**Adverse Reactions:**
(See Table 4, pg. 218)

**Dosing forms:**
Intravenous:
Premixed bags with latex free ports as 600mg/300ml, 400mg/200ml, and 200mg/100ml
Oral:
Tablets as 400 and 600mg strengths.
Powder for reconstitution oral suspension as100mg/5ml, total volume 150ml. Orange flavored.

**Dosing:**
**Adults:**
VRE and MRSA infections, nosocomial or community acquired pneumonia, complicated skin and skin structure infections: 600mg IV or PO every 12 hours
Uncomplicated skin and skin structure infections: 400mg IV or PO every 12 hours

**Pediatrics:**
Pediatric dosing regimen that provide a pharmacokinetic profile similar to adults have not been determined. However, 10mg/kg three times daily may be effective based on previous studies in patients aged 3 months to 16 years of age.

**Disease state based dosing:**
Hepatic failures: No dosage adjustment for patients with mild to moderate hepatic insufficiency is necessary. In patients with severe hepatic insufficiency (Childs-Pugh class C) the pharmacokinetics have not been evaluated.
Renal failures: No dosage adjustment necessary.

**Dosing during Continuous Renal Replacement Therapy**

CVVH (Continuous venovenous hemofiltration): 600mg q12h
CVVHD (Continuous venovenous hemodialysis): 600mg q12h
CVVHDF (Continuous venovenous hemodiafiltration) 600mg q12h

Note: CVVH is mainly for fluid removal alone. Many institutions will employ more CVVHD or CVVHDF which combine dialysis with fluid removal.

**Contraindications/Warnings/Precautions:**
Linezolid is a weak, non-selective, reversible inhibitor of monoamine oxidase. Therefore linezolid has the potential to interact with adrenergic and serotonergic agents. Also, an exaggerated pressor response may be seen with the ingestion of foods high in tyramine content. Ingestion of more than 100mg of tyramine at a single meal should be avoided.

**Drug Interactions:**
Linezolid does not interact with cytochrome P450 isoenzymes 1A2, 2C9, 2C19, 2D6, 2E1, or 3A4. No drug interactions with the CYP450 system are expected.

**Pregnancy Risk Factor:**
Category C

**Monitoring parameters:**
In patients receiving linezolid, weekly complete blood counts with differential are recommended to monitor for myelosuppression related adverse events, particularly in those that receive the drug for greater than 2 weeks.

**Brand names/Manufacturer:**
Zyvox/Pfizer pharmaceuticals
- The above trade name applies to linezolid available in the following countries: United Kingdom, Australia, Brazil, U.S.A., Israel, Hong Kong, Singapore, New Zealand, Ireland, Chile

Zyvoxam
- The above trade name applies to linezolid available in the following countries: Mexico, Canada

Zyvoxid
- Finland, Sweden, Norway, France, Netherlands, Denmark, Italy, Spain, Portugal, Switzerland, Hungary, Austria, Belgium, Germany, Czech Republic