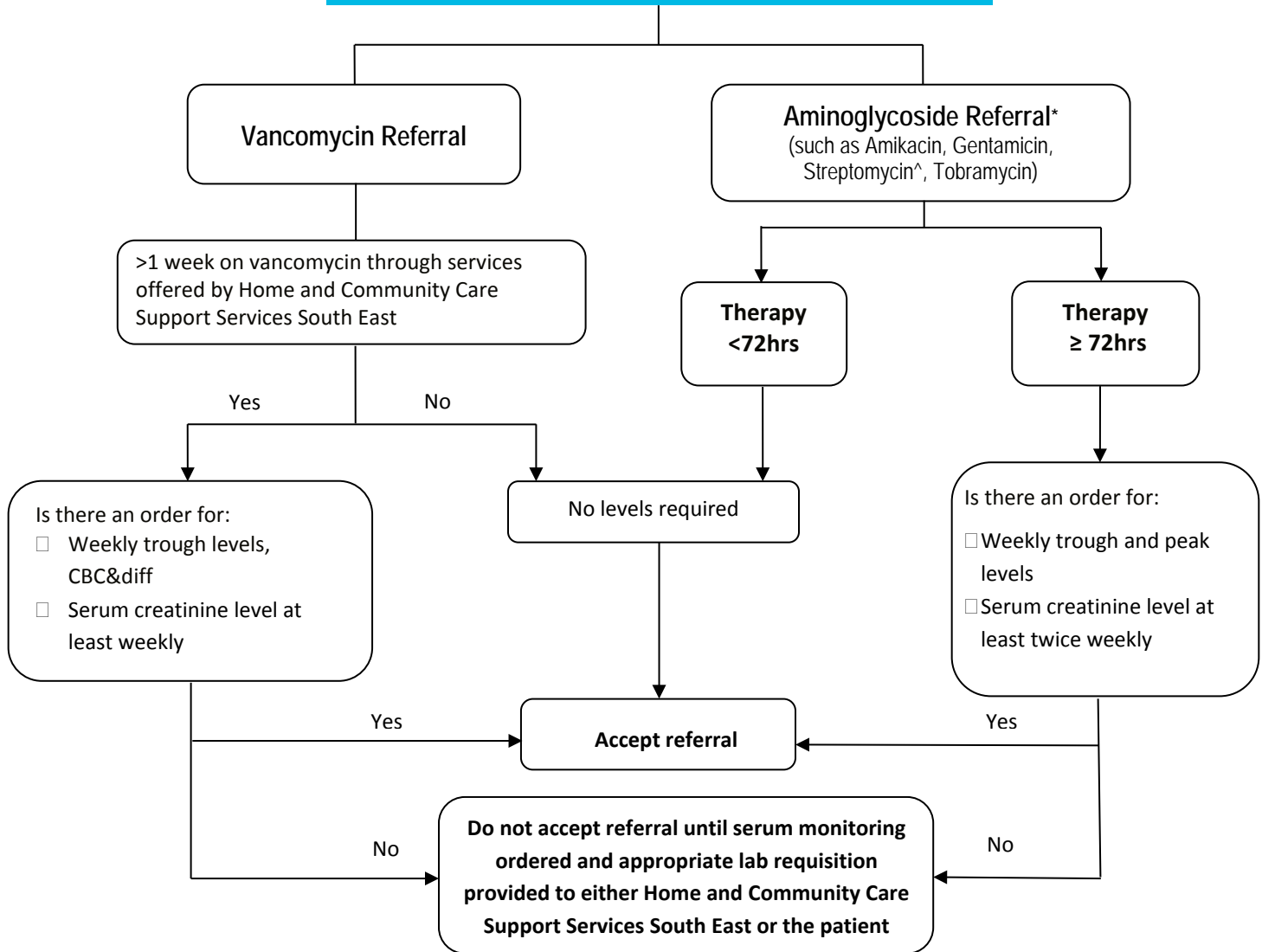


**AMINOGLYCOSIDE/VANCOMYCIN REFERRAL:  
SERUM MONITORING**



- \*Due to high risk nature of aminoglycosides, discuss appropriateness of aminoglycoside with the licensed prescriber, as well as the potential need for auditory testing if therapy > 1 week duration. Document informed verbal patient consent.
- Once daily dosing of aminoglycosides eg. Gentamicin 5-7mg/kg IV, drug level monitoring generally not recommended. If requested, a trough level in patients at risk for nephrotoxicity (elderly, or receiving concomitant nephrotoxic drugs). The target trough for patients on once daily dosing is <1mcg/ml. Once daily dosing NOT recommended for patients with unstable renal function, creatinine clearance <60ml/min, infective endocarditis, meningitis, or in patients with conditions that significantly increase their volume of distribution such as pregnancy, ascites, edema
- ^Note: Streptomycin is also an aminoglycoside and requires the same monitoring of serum creatinine (drug levels not available)
- **Trough (pre-antibiotic) levels** should be drawn within 60 minutes prior to next dose
- If blood sampling from a vascular access device, stop infusion and flush with 0.9% NaCl prior to infusion; use largest lumen and preferentially the catheter lumen not being used for the drug infusion
- Label the blood tube with patient data and drug name, dose, frequency time of last dose given; date, time and route of blood sampling (i.e., Vancomycin 1g BID; last dose 2000-2100; blood drawn via PICC @ 0800h Nov. 14 by Jane Doe RN)
- **Patient must have an OHIP lab requisition for serum monitoring**

## NURSING ASSESSMENT OF PATIENTS RECEIVING AMINOGLYCOSIDES/VANCOMYCIN

ADVERSE EFFECT	SIGNS & SYMPTOMS	
Infection	<ul style="list-style-type: none"> <li>• Fever, chills, hypotension</li> <li>• Signs of worsening infection</li> </ul>	
<b>Impaired renal function</b> (Relationship between vancomycin and nephrotoxicity has been identified but is controversial)	<ul style="list-style-type: none"> <li>• New onset of peripheral edema</li> <li>• Diminished urine output (Consider fluid intake, hydration status, incontinence &amp; inconsistent self-monitoring of urine output. Urine output may be normal with rising serum creatinine and urea during early stages of aminoglycoside-associated nephrotoxicity. Anuria may be a later finding of toxicity.)</li> <li>• Darker urine colour</li> <li>• Thirst</li> <li>• Dry skin</li> </ul>	
<b>Ototoxicity</b> (Greater risk with aminoglycosides; risk with vancomycin if receiving other ototoxic agents concurrently i.e., aspirin, quinine, loop diuretics (furosemide))	<b>Auditory</b> <ul style="list-style-type: none"> <li>• Tinnitus (ringing or roaring in the ears)</li> <li>• Loss of high-tone sounds</li> <li>• Hearing loss</li> </ul>	<b>Vestibular</b> <ul style="list-style-type: none"> <li>• Oscillopsia (bouncing and blurring of vision)</li> <li>• Vertigo (a sensation of spinning or swaying while the body is stationary)</li> <li>• Difficulty balancing</li> <li>• Pressure/ fullness/ pain in ears</li> </ul>
	<ul style="list-style-type: none"> <li>• Ask if there is a personal or family history of hearing loss or balance problems related to ototoxicity as the patient may be at increased risk</li> </ul>	
<b>CNS toxicity</b> (Aminoglycosides)	<ul style="list-style-type: none"> <li>• Headache</li> <li>• Lightheadedness</li> <li>• Dizziness</li> <li>• Nausea/vomiting</li> <li>• Unsteady gait</li> </ul>	
<b>Red Man Syndrome*</b> (Vancomycin)	<ul style="list-style-type: none"> <li>• Vancomycin-related non-allergic histamine reaction</li> <li>• Erythematous rash to face, neck &amp; upper torso; itching; tachycardia; hypotension</li> </ul>	
Phlebitis	<ul style="list-style-type: none"> <li>• Redness/pain/swelling at insertion site</li> </ul>	
Therapy Response	<ul style="list-style-type: none"> <li>• Signs/symptoms of improvement/deterioration of wound/disease</li> </ul>	

\* Red Man Syndrome (RMS) is usually associated with rapid administration of vancomycin. To minimize risk of RMS, vancomycin should be administered over a period of not less than 60 minutes per gram. Should RMS occur, it can be managed by stopping the infusion with or without administration of an antihistamine (e.g., Diphenhydramine). Future reactions for the patient may be attenuated by lengthening the infusion duration, reducing the dose and/or premedication with Diphenhydramine.

### References:

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