



STONEY HEALTH SERVICES POLICY AND PROCEDURES

B12 INJECTION PROCEDURE

Effective: July 17,2018	Policy No.:	Applies To:	<input type="checkbox"/> Leadership & Operations
Review: July 17,2021	Sheet: 1 of 5		<input checked="" type="checkbox"/> Programs & Services
Next Review: July 17,2024	Approval: ED		<input type="checkbox"/> Client, Family & Community

Related Polices & Procedures: SHS Medication Management Policy -

- 1. STANDARD:** Authorised SHS Nursing personnel shall administer injectable B12 as per medical order and other applicable regulations as well as the conditions of their scope of practice and those stipulated in the SHS Medication Management Policy.
- 2. RATIONALE:** Vitamin B12 (Cyanocobalamin) is vital for the formation of red blood cells, as well as for the proper functioning and health of nerve tissue. It also helps our bodies absorb folic acid, which facilitates the release of energy. People with Vitamin B12 deficiency need to have vitamin B12 injections which go straight into the bloodstream, bypassing the stomach. If left untreated, Vitamin B12 deficiency can lead to anemia, as well as nerve and brain damage, which may eventually become irreversible.
- 3. POLICY:** Authorised SHS personnel shall administer B12 injections as prescribed using the following procedure. Due consideration shall be paid to the Contradictions, Complications/Side Effects and Clinical alerts/Special Considerations (on pages 1 & 2).
- 4. CONTRAINDICATIONS:** Vitamin B12 supplements should be avoided in people sensitive or allergic to vitamin B12, cobalt, or any other product ingredient.
- 5. COMPLICATIONS & SIDE EFFECTS:**
 - Pink or red skin discoloration
 - Facial flushing.
- 6. CLINICAL ALERTS & SPECIAL PRECAUTIONS**
 - **Clinical Alerts:**
 - Use cautiously in people with :
 - who are breastfeeding (NB: B12 may pass into breast milk)
 - with low serum levels of potassium (NB: the correction of megaloblastic anemia with vitamin B12 may result in fatally low potassium levels);
 - with a history of cancer and skin disorders (NB: rash, itching, and burning have been reported)
 - with gastrointestinal concerns (NB: nausea, difficulty swallowing, and diarrhea have been reported.
 - with high blood pressure and blood disorders (NB: it has been reported that treatment of vitamin B12 deficiency may lead to an increase in blood volume and the number of red blood cells);
 - with a history of gout, or elevated uric acid levels (NB: the correction of megaloblastic anemia with vitamin B12 may start a gout attack).



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- Watch for serum aluminum build-up with B12 use extended periods of time (especially in newborns or people with kidney disease) ;
- The following medications/herbs/dietary supplements, have been associated with reduced absorption / serum levels of vitamin B12:
 - ACE inhibitors
 - acetylsalicylic acid (aspirin)
 - alcohol
 - antibiotics
 - anti-seizure agents
 - bile acid sequestrants
 - chloramphenicol
 - colchicine
 - H2 blockers
 - metformin
 - neomycin
 - nicotine and tobacco
 - nitrous oxide
 - oral contraceptives
 - para-aminosalicylic acid
 - potassium chloride
 - proton pump inhibitors (PPIs);
 - vitamin
 - zidovudine (AZT, Combivir®, Retrovir®).
- **Special Considerations/Precautions :**
 - Initially, B12 injections may be given every other day for two weeks. After this, the dosage will and frequency (usually monthly) will depend on the cause of the vitamin B12 deficiency;
 - To prevent recurrence of pernicious anemia, vitamin B12 therapy must be continued for life;
 - Urine discoloration has been reported.

7. PROCEDURE:

- a) Wash hands.
- b) Verify clients' identification using 2 client identifiers.
- c) Ensure that the client has a valid medical prescription.
- d) Verify client's medical history and allergies with attention to pre-existing :
 - low potassium blood levels (hypokalemia);
 - gout;
 - Polycythemia Vera (bone marrow disorder that mainly causes overproduction of red blood cells);
 - Leber's Disease (hereditary optic atrophy);
 - other vitamin/mineral deficiencies, especially folic acid and iron.



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e) Prepare supplies as follows:

- Vial containing the medication
- 1 alcohol swab
- 1 nonsterile gauze pad
- 1 x 21 G or 22 G needle, 1 inch or 1 1/2 inch long, depending on the client's adiposity
- 1 x 3 mL syringe.

f) Verify client's understanding regarding the B12 injection & **obtain informed consent.**

g) Inject B12 : Follow instructions for Injectable Medications in the Medication Management Policy preferably using the intramuscular method preferably into the ventrogluteal or deltoid muscle. For clients with low muscle mass (i.e. elderly clients, clients with wasting disease etc.) , subcutaneous injections may be given.

h) Counsel the client post injection to:

- Seek immediate medical attention :
 - if having symptoms of a **serious allergic reaction** (i.e. rash, itching, swelling (especially of the face/tongue /throat), severe dizziness, trouble breathing
 - if any /some of the following **rare but serious side effects** occur: muscle cramps, weakness or unusual tiredness, irregular heart beat and/or chest pain (especially if accompanied by shortness of breath), weakness on one side of the body, sudden changes in vision, mental changes, slurred speech and /or swelling of the ankles/feet;
- Observe the injection site for redness, swelling and/or pain as and to contact the nurse/doctor promptly if these symptoms worsen; ***NB** Applying a cold compress to the site may help to decrease swelling and relieve pain.*
- Continue with the B12 injection schedule (***NB**: gastric atrophy associated with pernicious anemia increases the risk of gastric carcinoma*) as well as with ongoing medical follow-up;
- Store B12 in his/her refrigerator and protected from the light (i.e. silver foil, opaque container);
- Be mindful of self-management issues related to the symptoms of Vitamin B deficiency and therefore to:
 - Report difficulties with gait, stability and coordination (see SHS Fall Prevention Policy);
 - Avoid excessive heat and cold when sensation is altered;
 - Eat bland, soft foods and to eat small amounts frequently, when oral symptoms are present.



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- i) **Document :** Document the B12 administration in the client's EMR and including the date, time, amount, injection site location of the B12 as well as the client's reaction , client/family teaching done and any follow-ups required.

8. INDICATORS AND FORMULAE :

Indicators /Measures	Calculation
Rate of adverse events related to B12 injections per quarter	$\frac{\text{Number of adverse events related to B12 per quarter} \times 100\%}{\text{Total number of B12 injections per quarter}}$

9. DEFINITIONS:

- Pernicious Anemia:** The body usually stores enough vitamin B12 to last for approximately two to four years. if a person takes in and is able to absorb regular vitamin B12 in his/her diet in order to ensure that this store of the vitamin is kept at a healthy level. Pernicious anaemia is an autoimmune disease that affects the stomach wherein individuals cannot produce enough IF (intrinsic factor) in their stomach to enable the body to absorb vitamin B12.

Vitamin B12 is vital for the formation of red blood cells, as well as for the proper functioning and health of nerve tissue; it also helps our bodies absorb folic acid ,which facilitates the release of energy. If left untreated, vitamin B12 deficiency can lead to anemia, as well as nerve and brain damage, which may eventually become irreversible.

Other contributing causes of vitamin B12 deficiency include: alcoholism, gastric bypass surgery; prolonged treatment with Metformin for persons with Type 2 diabetes mellitus, prolonged or critical illness that place massive demands on the body's metabolism ,inflammatory bowel disease, and HIV. The latter patients can have poor nutrition and/or chronic diarrhea. Infants, when breastfed by a vitamin B12-deficient mother, are at risk for many health issues such as severe developmental disorders, growth failure, and anemia. Some research has reported that vitamin B12 levels during pregnancy have effects on mental function in infants.

Most people who have pernicious anaemia are over 60 years of age. The condition also tends to affect slightly more women than men. Around 30% of people with pernicious anaemia have a close relative with the condition.



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10. REFERENCES:

- Bryan RH (2010) Are We Missing Vitamin B₁₂ Deficiency in the Primary Care Setting? *J Nurse Pract.* 2010;6:519-52
- Mayo Clinic Website: <http://www.mayoclinic.org/drugs-supplements/vitamin-b12/methodology/hrb-20060243>
- Nursingtimes.net (2009) Anaemia, Vitamin B12 and Folate Deficiency, February
- webMD.com : <http://www.webmd.com/drugs/2/drug-6550/vitamin-b-12-injection/details#imagesW>
- Wolters Kluwer Health / Lippincott Williams & Wilkins (2010) Handbook For Brunner & Suddarth's Textbook of Medical-Surgical Nursing; p.45
- Wolters Kluwer Health / Lippincott Williams & Wilkins, (2011) , NCLEX: RN-Review-Made-Incredibly-Easy-Fifth-Edition.pdf

11. RESPONSIBILITIES:

- The Executive Director shall approve this policy.
- The Manager of Community Health & Wellness, Primary Care & Public Health and the Manager of Home & Community Care shall jointly ensure the application of this policy.
- All authorized SHS Nursing Personnel and Consultants (Physicians, Nursing personnel etc.) shall comply with this policy.

12. REVISED BY:

- K. Nelson (Home Care Nurse, M. Evans (TB Nurse) & S. Khan, Nurse Practitioner

13. APPROVALS:

A. Khan
Chief Executive Officer
Executive Director

Date