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| **DEFINITION****Silver Nitrate** – A poisonous colourless crystalline compound, AgNO3 that becomes greyish black when exposed to light in the presence of organic matter. Silver nitrate is used as a cautery and works by causing the skin to shed. (The American Heritage® Dictionary, 2000) Silver nitrate sticks are not recommended in the treatment as best practice and should only be considered when all other options have failed .**Hypergranulation (over-granulation) tissue** An abundance of granulation tissue that becomes proud or protrudes from the wound is commonly known as hyper- or over-granulation tissue (also termed ‘proud flesh’). In many cases the presence of this tissue is not detrimental to wound healing and can be left untreated. Problems arise when the hypergranulation tissue delays healing by preventing re-epithelialisation. Sometimes the presence of such tissue can increase exudate levels and cause wound discomfort. In addition, hypergranulation tissue bleeds easily.

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| **SCOPE**District Nursing Services, Palliative Care Services and Public Residential Aged Care Services Registered nurses whom has had appropriate the education and training |
| **CLINICAL ALERT*** Assess patient allergy to silver
* Note that any tissue that comes in contact with silver nitrate will turn grey in color
* Do not use if infection present
* Exclude malignancy

**PRECAUTIONS*** Silver nitrate directly reduces fibroblast proliferation and therefore is not recommended for prolonged or excessive use.
* Requires consultation with a Clinical Nurse Consultant (CNC) prior to application
* Not to be used on infected sites
* Not to come in contact with healthy tissue or catheter
* If you accidently touch or it drips onto healthy tissue flush the area well with Normal Saline to cease the caustic action
* Expertise is required to ensure the area is not suspected to be malignant tissue. If any suspicion then a biopsy should be attended first
* As a general rule silver nitrate should only be used to treat areas less than the size of a thumb nail
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| **POLICY**Hypergranulation tissue in wounds prevents epithelialisation and arrests the healing process. Prevention of hypergranulation by early recognition of risk factors and early treatment is the goal of wound management. Factors that signal the start of hypergranulation tissue need to monitored and recorded. The following should be assessed;* Any increase in exudate volume
* Symptoms of local or spreading infection especially in chronic wounds with suspected biofilm
* Location of the wound (granuloma occur commonly at umbilicus, stoma edges)
* Concomitant treatments such as negative pressure; use of totally occlusive dressings, or ill-fitting dressings or garments.

Main factors associated with hypergranulation tissue are;* Excess moisture
* Local infection or spreading infection
* Friction/movement at wound interface
* Foreign material
* Occlusive dressings
* Malignancy

Wound management must addresses the factors contributing to hypergranular tissue development to prevent recurrence.**TREATMENT OPTIONS**Management of hypergranulation tissue should commence with the most conservative treatment options**.** Conventional regimes ranging from conservative to complex include the use of;1. Non-occlusive dressings – changing to a dressing that has a high water vapour transmission rate.
2. Hypertonic saline dressings – (mesalt®/cursalt®) – use oncotic pressure to dry out cells in effect having a mild anti-microbial affect.
3. Low dose cortisone cream – promotes collagen breakdown and can decrease inflammation. Requires a medical order to apply and not indicated for open wounds.
4. Surgical or conservative sharp wound debridement – removes hypergranulation tissue but requires the clinician to have skill and competence in debridement
5. Silver nitrate – oxidises organic matter, and destroys bacteria but can increase inflammation and exudate. Used for treatment of small areas of hypergranulation tissue. Generally used for short term only.

All these measures must also include the management of the factors associated with hypergranulation. In isolation none are effective against recurrence**.** |
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| **PROCEDURE****Ensure consultation with a Clinical Nurse Consultant prior to application of silver nitrate.**PREPARATIONPrior to any wound procedure ;* Explain the treatment to the client/resident
* Ensure the client/resident is in a comfortable position and is able to maintain the same position throughout the procedure.
* Ensure the client/resident has taken any pain relief medications (if required)
* Ensure privacy can be maintained for the duration of the wound procedure.

**EQUIPMENT*** Basic dressing pack
* Sterile/Distilled water
* Clean gloves
* Silver Nitrate stick
* Gauze
* Normal Saline to deactivate the action of silver nitrate on healthy skin
* Secondary Dressing
* Emollient cream eg.zinc cream

**PROCEDURE*** Remove dressing and assess site for suitability
* Clean site thoroughly with sterile/distilled water
* Apply emollient cream or ointment to surrounding skin to protect
* Moisten tip of silver nitrate with minimal amount of sterile water,
* A moist or bleeding wound will be wet enough to activate the stick
* Ensure the tip is not dripping
* Carefully apply to hypergranulation tissue using a gentle rolling action,
* Ensure not to make contact with healthy surrounding skin (Patient may complain of slight burning sensation.)
* Redress with patient's usual dressing product
* Each application must be documented in the clients notes

*Note that hypergranulation tissue will turn grey in color once treated.*ONGOING CARE* The procedure may need to be repeated daily for up to 3 consecutive days maximum, then review
* Assess site regularly and document in nursing file.
* Over a few days the hypergranulation tissue should darken in color, form a scab and eventually fall off (five to ten days)
* Manage contributing factors (Excess moisture; local infection or spreading infection; Friction/movement at wound interface; Foreign material)
* If the hypergranulation tissue remains after the scab falls off, a further course of treatment with silver nitrate may be indicated
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| **PATIENT INFORMATION*** Careful explanation of this procedure needs to be given to the patient to ensure that they know what to expect in the coming days following treatments.
* Inform the patient that there may be some pain at the site during and after the procedure and that the tissue will turn grey in colour.
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| **EXPECTED OUTCOME** Use of silver nitrate will rapidly decrease hypergranular tissue and promote epithelialisation**A wound assessment chart will be completed;*** At the time of the initial assessment and following all silver nitrate application
* At any dressing change
* Following any change in treatments with rationale for such change recorded. (Eg. Change in dressing products)
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| **REFERENCES** European Wound Management Association (EWMA) (2005) Position Document: *Identifying criteria for wound infection*. London: MEP LtdMcGrath. A. Overcoming the challenge of overgranulation. Accessed on <http://www.wounds-uk.com/pdf/content_9839.pdf> on 3/2/2012Hampton S (2007) Understanding overgranulation in tissue viability practice *Wound care September S24-S30* Harker J (n.d.) Problem Solving. Accessed June 2014<http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=13&ved=0CC4QFjACOAo&url=http%3A%2F%2Fcms2.selesti.com%2Fmedia%2FProblem_Solving.pdf&ei=IAiQU9DaM5GckgWz34Ao&usg=AFQjCNGIjPO6yNiG-vFY_PixmnJBtc6CFw>Johnson S (2009) Overcoming the problem of overgranulation in wound care. *Wound Care.* June S6 –S12Northern Sydney Central Coast (2008) *Wound Debridement Policy and Procedure*. NSW Health. 5 June 2008Royal Children’s Hospital Melbourne. 3.10 *Application of Silver Nitrate to Tenkchoff Catheter Exit Site*. As accessed via <http://www.rch.org.au/nephrology/protocols/index.cfm?doc_id=9993> on 1/11/2011.Stephen-Haynes. J. and Hampton.S. (nd) *Achieving effective outcomes in patients with overgranulation*. Wound Care Alliance UK Education. Accessed via [http://www.wcauk.org/downloads/booklet\_overgranulation.pdf on 3/2](http://www.wcauk.org/downloads/booklet_overgranulation.pdf%20on%203/2) 2012*Stephen-Haynes,   (2013),* Managing overgranulation. Wound Care Today September 2013. Accessed via<http://wtc.24sq.com/news/special-report/wound-care-today-special-report-overgranulation> June 2014The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2009. Published by [Houghton Mifflin Company](http://www.eref-trade.hmco.com/%22%20%5Ct%20%22_blank). All rights *reserved. As accessed via [http://www.thefreedictionary.com/silver+nitrate](http://www.thefreedictionary.com/silver%2Bnitrate) on the 22/09/10.*Vuolo. J (2010) Hypergranulation: exploring possible management options *British Journal of Nursing.* Vol(6) pS4-S8 9Widgerow, A.D; Leak, K. (2010) Hypergranulation tissue: evolution, control and potential elimination. *Wound healing Southern Africa.* Vol3 (2) p1-3. |
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