

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

- I Evidence obtained from a systematic review of all relevant randomised control trials.
- II Evidence obtained from at least one well designed randomised control trial.
- III Evidence obtained from well-designed controlled trials without randomisation.
- IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series
- V Evidence obtained from systematic reviews of descriptive and qualitative studies
- VI Evidence obtained from single descriptive and qualitative studies
- VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed.)*. Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines* (2009). Australian Government: NHMRC.
http://www.nhmrc.gov.au/files_nhmrc/file/guidelines/evidence_statement_form.pdf

OCEBM Levels of Evidence Working Group Oxford (2011). *The Oxford 2011 Levels of Evidence*. Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=1025>

Replogle Tube Management

Please note: minimal literature & evidence available on Replogle tube management.

All evidence level VII.

Further research required into this area.

Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
<p>Wallis, M. 2009. 'Clinical Guideline Replogle Tube, Care of'. Great Ormond Street Hospital, London, accessed, November 8, 2010, http://www.gosh.nhs.uk/clinical_information/clinical_guidelines/cpg_guideline_00088' accessed 6/9/12</p>	VII	<p>Recommendations:</p> <ul style="list-style-type: none">• The Replogle tube should then be gently passed until resistance is felt with the blind ending (atretic) upper oesophagus.• Pull the Replogle tube back very slightly• The tube is then connected to the low flow suction unit using the suction tubing• Set the suction on the pump between 3.5-4 Kpa, (25-30 mmHg 35-42cms water)• 0.5 mls of 0.9 per cent sodium chloride for injection should be instilled into the tube every 15 minutes

Children's Hospital Boston. 2013. The patient care manual - 'Insertion and Management of Replogle Suction Catheters.'

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Recommendations:

'Insertion Precautions:

Some medical and surgical conditions warrant special consideration before Replogle® suction catheter placement. The physician weighs the risks and benefits of Replogle® suction catheter placement for patients with these conditions. In these instances placement of Replogle® suction catheters may be restricted to physician or advanced practice nurse.

- Esophageal atresia with fistula between upper esophageal pouch and trachea.
- Growth induction sutures on proximal pouch.
- Esophageal leak.'

'...Maintain low continuous wall suction of Replogle® suction catheters at 20-40mmHg. Assess Replogle® suction catheter a minimum of hourly for correct insertion depth and patency.

Gently irrigate the blue "vent" port of the Replogle® suction catheter with 1-2 ml air of normal saline every 2-4 hours as indicated..... Patients with an unrepaired fistula between the upper oesophageal pouch and trachea have Replogle® suction catheter flushed with air only.

If the catheter not patent attempt the following:

- a. Gently flush blue "vent" port with 1-2 ml air.
- b. If not patent, gently flush blue "vent" port with 1-2ml normal saline. Saline is preferred over water in case of inadvertent tracheal aspiration.
- c. If still not patent, replace Replogle® suction catheter.'

Hawley, A. 2001. Long-gap Oesophageal Atresia – A Nursing Perspective. Journal of Child Health Care. 5 (1). Pp.19-25.

VII

Discussion included:

'Problems identified with Replogle tubes:

- Difficulty with correct placement
- Tubes moving out of the correct position
- Trauma to the oesophageal pouch from continuous suction or misplaced tube.
- Blockage with possible aspiration
- Difficulty with size 10fg Replogle tubes in premature infants (due to the large diameter of the tube).'

<p>Hawley, AD & Harrison D. 'Suctioning Practices for the upper oesophageal pouch in infants with unrepaired oesophageal atresia in Australia and New Zealand.' P105. <i>Perinatal Society of Australia and New Zealand Annual Congress</i> March 2003, Hobart, Australia.</p>	<p>VI</p>	<p>Findings:</p> <p>'A Replogle tube was used in 61% of the NICUs surveyed. A Replogle tube is double lumen tube; one lumen is for drainage of saliva and the other functions as an air vent. The Replogle tube is connected to continuous low pressure suction to aspirate saliva from the upper oesophageal pouch.'</p> <p>'Intermittent suctioning of the upper oesophageal pouch was used in 15% of NICUs. 23% of NICUs used a combination of intermittent and Replogle suction.'</p> <p>'There are varied practices throughout Australian and New Zealand NICUs with regards to suctioning of the upper oesophageal pouch in infants with unrepaired oesophageal atresia.'</p> <p>'There is no evidence available in the literature outlining which method results in the best outcomes (short and long term) to infants and children with this condition.'</p> <p>'Further research needs to be undertaken to establish the most appropriate method for providing suction of the proximal oesophageal pouch.'</p>
<p>Replogle RE. 1963. 'Esophageal atresia. Plastic sump catheter for drainage of the proximal pouch.' <i>Surgery</i>. 54: 296-297.</p>	<p>VII</p>	<p>Recommends the use of a Replogle tube, a double lumen tube to provide continuous drainage of the upper oesophageal pouch.</p>

<p>Alberti D, Boroni G, Corasaniti L & Torri F. 2011. "Esophageal atresia: pre and post-operative management." <i>Journal of Maternal-Fetal and Neonatal Medicine</i>. 24 (S(1)): 4-6.</p>	<p>VII</p>	<p>'A 10F Replogle tube is placed in the upper esophagus and placed in continuous suction; the double-lumen Replogle tube allows the aspiration of secretions, but limits the suction on the mucosa preventing ulcerations. Quite frequently the suction catheter becomes blocked by thick salivary secretions with a significant risk of aspiration if not recognized. Frequent irrigations with saline or infusion of 3–5cc of air are useful to prevent blockage of the Replogle tube; sometimes the tube must be replaced.'</p>
<p>Spitz, L. 2007. 'Oesophageal atresia.' <i>Orphanet Journal of Rare Diseases</i>. 2: 24</p>	<p>VII</p>	<p>Recommends:</p> <p>'A suction catheter, preferably of the double lumen type (Replogle catheter No.10 French gauge), is placed in the upper oesophageal pouch to suction secretions and prevent aspiration occurring.'</p> <p>Minimal information given on Replogle tube management.</p>
<p>Jawaheer G & Hocking M. 2009. 'Initial management of an infant with oesophageal atresia' <i>Southern West Midlands Newborn Network</i>.</p>	<p>VII</p>	<p>'The Replogle tube should be connected to low level suction with the pressure set at 5Kpa and increased as required to ensure continuous flow of secretions from the upper oesophagus (up to a maximum of 10Kpa). Patency of the Replogle tube should be checked every 15 minutes and the tube should be flushed via the blue side arm with 0.5ml saline if there is no movement of secretions.'</p>

<p>'Argyle™ Replogle Suction Catheters – Product information.' 2013. Covidien. http://www.kendalltp.com/pageBuilder.aspx?topicID=146881&breadcrumbs=144286:0 Accessed 16/9/13.</p>	<p>VII</p>	<p>Product information: ARGYLE™ Replogle Suction Catheters were specially designed for the neonate. Our Replogle catheters are latex-free and are available in 6 Fr, 8 Fr and 10 Fr sizes. They feature a clear double-lumen tube, three smooth eyes and are highly X-Ray opaque. Venting action provides safe, effective drainage.</p>
<p>Lakkundi, A, Wake C & Ormsby J. 2010 'Management of infant with Replogle tube in NICU. ' Newcastle Children's Hospital, NSW. http://www.kaleidoscope.org.au/docs/GL/Repogle_NICU.pdf accessed 6/9/12</p>	<p>VII</p>	<p>Guidelines support our clinical practice guideline. 'The Replogle tube should then be gently passed until resistance is felt with the blind ending (atretic) upper oesophagus. Pull the Replogle tube back about 1/2cm, to prevent trauma and adherence to the oesophageal wall.' 'Set the suction on the pump between 3.5Kpa (25-30mmHg 35-42cmH2O). 0.5mls of 0.9% sodium chloride for injection should be instilled into the small lumen [Blue lumen] every 15 minutes.'</p>
<p>'NCCU Clinical Guidelines: Surgical Conditions: Oesophageal Atresia'. King Edward Memorial / Princess Margaret Hospitals Perth Western Australia. http://www.kemh.health.wa.gov.au/services/nccu/guidelines/documents/7374.pdf, accessed 6/9/12</p>	<p>VII</p>	<p>To maintain patency of the replogle tube flush with 0.5mls of normal saline every 15 minutes, or continuously infuse 2ml/hr of normal saline.'</p>

<p>Birmingham Children's Hospital, 2009. 'How to insert and manage a Replogle tube in a neonate.'</p>		<p>'Pass the Replogle, ideally nasally, into upper pouch until resistance felt, (approx. 10 -12 cms from the nostril in a Term baby), withdraw slightly and fix with Elastoplast.'</p> <p>'Attach Replogle to low pressure suction to ensure continuous flow of secretions along the tube, usually 5-10Kpa'.</p> <p>'The tube should be flushed to prevent blocking of the lumen by instilling 0.5mls N.saline into the blue sidearm and removing the syringe immediately and observing the flow of saline along the tube. There should be continuous monitoring of O2 saturation, respiratory status and heart rate'.</p>
<p>Newborn Services Clinical Guideline: Neonatal Surgery 'Oesophageal Atresia with a distal Tracheo-oesophageal Fistula' 2012. http://www.adhb.govt.nz/newborn/guidelines/Surgery/SurgeryTOF.htm</p>	<p>VII</p>	<p>'Adequate drainage of the upper pouch is essential. This can be either by intermittent suction every 15 minutes or via insertion of a Replogle tube as far as it will go and placed on continuous low pressure suction. Flush with 0.9% NaCl usually Q15-30 minutes.'</p>
<p>Johnson PRV. 2005. 'Oesophageal atresia.' Infant. 1(5): 163-167.</p>	<p>VII</p>	<p>Discussed: 'Prevention of aspiration of pharyngeal secretions ...either by regular intermittent suctioning or continuous aspiration of the upper pouch using a double-lumen lower pressure catheter, the Replogle tube'.</p>