



RESUS4KIDS

Paediatric Tracheostomy  
Emergency Management

Instructors Manual

2018



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# Requirements for running the Paediatric Tracheostomy Emergency Management Practical Course

## Prerequisites

The prerequisite for this module is the Paediatric Tracheostomy Emergency Management e-Learning module available on the RESUS4KIDS e-Learning portals in My Health Learning (HETI for NSW Health Employees) or [www.resus4kids.com.au](http://www.resus4kids.com.au) (non NSW Health Employees). Participants must successfully complete the e-Learning post-test prior to attending the face to face session.

## Other requirements

- Instructors are responsible for ensuring that all participants meet the course participant prerequisites
- Instructors must follow the course format, unless prior approval has been obtained from the RESUS4KIDS executive.
- The instructor to student ratio must not exceed 1:6, unless prior approval has been obtained from the RESUS4KIDS executive. Participant numbers may be less than 6 at the instructor's discretion.
- Instructors who wish to teach the RESUS4KIDS Paediatric Tracheostomy Emergency Management Practical Course must be RESUS4KIDS instructors..
- Resources for setting up, running, evaluating and reporting courses are available at [www.resus4kids.com.au](http://www.resus4kids.com.au) under 'instructor resources'.
- Registered instructors will be emailed the password to access the secure page when they complete the RESUS4KIDS train the trainer course. Please note that the password will change periodically and the instructors will be notified of this change by email.
- Instructors may use a monitor simulator in place of the laminated cards. Instructors should be familiar with the safe use of the monitor simulator.

## Pre requisites for becoming a RESUS4KIDS instructor

Please refer to the current program document available online at: [www.resus4kids.com.au](http://www.resus4kids.com.au)

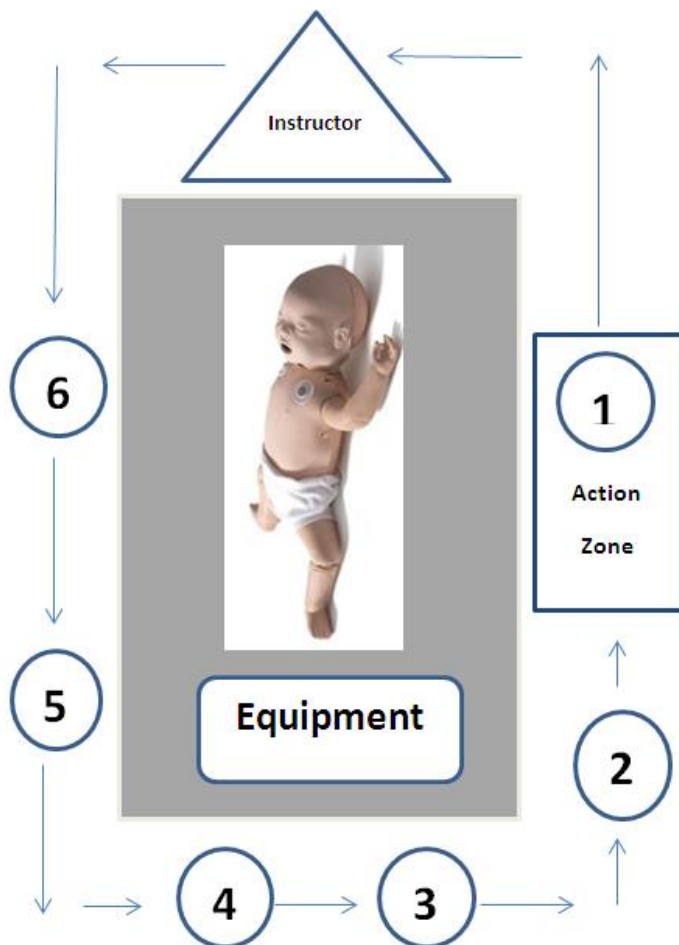
## Equipment required

- Manikin that when bag and masked oxygen is applied the chest will rise and fall
- Either a manikin or part task trainer that is purposefully made to have a tracheostomy or you can create your own part task trainer by drilling a hole into a plastic cylinder so that a tracheostomy tube can be inserted into it.
- Appropriate size tracheostomy tube for your manikin or part task trainer
- 12F catheter or smaller sized tracheostomy
- Syringe (flush)
- Suction catheter
- Oxygen tubing
- Self-inflating Bag and Mask
- Stethoscope
- Personal protective equipment
- Monitor cards that show the patients observations (Available off the RESUS4KIDS website)
- Flowchart – Paediatric Tracheostomy Emergency Management (located on the last page of this booklet)

## Table set up for 'Round the Table' Teaching

This course is taught using the 'Round the Table' teaching methodology that is used in scenario one of the RESUS4KIDS Short Practical Course. It is an effective way to teach the scenario as every member of the group has an opportunity to demonstrate different skills associated with the management of a paediatric tracheostomy emergency algorithm. This ensures the process is less threatening and allows every member of the group to participate.

Set the table or bed up as shown below. The numbered circles represent where the 6 participants stand.



### Skills that participants demonstrate

Participant 1: Patient assessment to identify a partially obstructed tracheostomy.

Participant 2: Suction a tracheostomy.

Participant 3: Gather the appropriate equipment required for a tracheostomy change.

Participant 4: With the assistance of participant 3 perform a tracheostomy tube change.

Participant 5: Insert a 12F catheter into the stoma and attach oxygen.

Participant 6: Bag mask ventilation with the stoma covered.

All participants have the opportunity to insert a tracheostomy tube.

1. Participant 1 is to perform a patient assessment and identify that the patient has a partially obstructed tracheostomy. Once they have done this and the instructor is happy with their response participant 1 moves around the table to where participant 6 was standing and all group members move up a place. This now places participant 2 in the 'action zone' to demonstrate how to suction a tracheostomy.
2. Once participant 2 has demonstrated how to suction a tracheostomy they move around the table and participant 3 is now in the 'action zone'.

3. Participant 3 is to gather all of the equipment required to perform a tracheostomy change.
4. Participant 4 is to join participant 3 in the action zone and together perform a tracheostomy tube change. Once they have both demonstrated this skill the rest of the group is to work in pairs to each perform a tracheostomy tube change.
5. Once each participant has had the opportunity to perform a tracheostomy tube change participant 5 is placed in the action zone to demonstrate how to insert a 12F catheter into the stoma and attach oxygen.
6. Participant 6 with an assistant is to demonstrate how to perform bag mask ventilation to a patient with a tracheostomy stoma.

## Paediatric Tracheostomy Emergency Management - Lesson plan

<b>Topic</b>	<b>RESUS4KIDS</b> <b>Paediatric Tracheostomy Emergency Management</b>	
<b>Trainers</b>	Trainers who have undertaken the RESUS4KIDS Train the Trainer course	
<b>Participants</b>	Healthcare workers caring for acutely unwell children <b>Maximum 6 participants per trainer</b>	
<b>Timeframe</b>	30 minutes	
<b>Training objectives</b>	By the end of the 30 minute practical course participants will be able to: <ul style="list-style-type: none"> <li>• Set up and demonstrate safe suctioning of a tracheostomy including the discuss indications for installation of 0.9% sodium chloride for suctioning a tracheostomy.</li> <li>• Use the correct procedure for a controlled tracheostomy change.</li> <li>• Insert a 12F catheter if unable to insert a tracheostomy tube</li> <li>• Bag and mask a tracheostomy patient in need of oxygen.</li> </ul>	
<b>Prerequisites</b>	<b>All participants at the Paediatric Tracheostomy Emergency Management practical course will be expected to have undertaken the Paediatric Tracheostomy Emergency Management E-learning modules prior to attending the session. This requires that they have completed the post course test with a pass mark. When this is achieved the participant will be able to print a certificate. Instructors must site this certificate.</b>	
<b>Preparation</b>	1. Assemble all equipment and ensure that it is in working order. 2. Arrange equipment and manikins on the tables.	
<b>Welcome &amp; introduction</b>	Brief overview of the practical session State the learning objectives Toilets and fire exits	<b>2 minutes</b>
<b>Scenario based teaching</b>	Pause and discuss format, scenario based teaching	<b>30 minutes</b>



<p><b>Introduction to the scenario</b></p>	<p>Instructor will:</p> <ul style="list-style-type: none"> <li>• Discuss that this is a pause-and-discuss course so it will not necessarily go in real time as we will stop at appropriate intervals to discuss things.</li> <li>• GREY SHADED AREAS IN THE LESSON PLAN ARE TO BE PAUSED AND A DISCUSSED WITH THE GROUP THE WHITE AREAS CONTAIN AN ACTION STEP FOR EITHER ONE OR ALL PARTICIPANTS TO COMPLETE.</li> <li>• Remind participants that this is a chance to consolidate what they have learnt in their e-learning, it is not new information.</li> <li>• Provide responses to the learner’s questions about the case scenario.</li> <li>• Provide specific information about the case as it progresses.</li> <li>• Ask participants to suspend disbelief and to treat the manikin as a real child.</li> </ul>	
<p><b>Suggested technique for small group skill practice</b></p>	<p>Round the table teaching method which is described in detail above in this manual.</p>	
<p><b>Note for instructors</b></p>	<p>It is important that, by the end of the session, every participant has met the learning objectives and demonstrated:</p> <ul style="list-style-type: none"> <li>• Set up and demonstrate safe suctioning of a tracheostomy including the discuss indications for installation of 0.9% sodium chloride for suctioning a tracheostomy.</li> <li>• Use the correct procedure for a controlled tracheostomy change.</li> <li>• Insert a 12F catheter if unable to insert a tracheostomy tube</li> <li>• Bag and mask a tracheostomy patient in need of oxygen.</li> </ul> <p><b>None of the ‘children’ in the RESUS4KIDS practical courses die, they all recover after receiving treatment</b></p>	

## Scenario

### Emergency department

Tom is a five year child who has had a tracheostomy since he was a baby for bilateral vocal cord palsy. He arrives in the emergency department via an ambulance with his Aunt .Tom has been unwell for a few days and his work of breathing is worse than normal. His Aunt has tried suctioning him however was only able to withdraw minimal secretions.

Or

### Paediatric Ward

Tom is a five year child who has had a tracheostomy since he was a baby for bilateral vocal cord palsy. He has been admitted to the ward with increased work of breathing. His Aunt is staying with him. Today Tom has been unwell and his work of breathing is worse than normal. His Aunt has tried suctioning him however was only able to withdraw minimal secretions.

Or

### Pre Hospital

Tom is a five year child who has had a tracheostomy since he was a baby for bilateral vocal cord palsy. He is staying with his Aunt who noted that his work of breathing is worse than normal. Tom has been unwell for 3 days. His Aunt has tried suctioning him however was only able to withdraw minimal secretions so she decided to call an ambulance.

Step	Expected steps by participants	Instructor Prompt	Time
<p><b>Participant 1</b></p> <p><b>Action step</b></p> <p>Patient assessment</p>	<p>Participant to assess Tom's:</p> <ul style="list-style-type: none"> <li>• Airway</li> <li>• Breathing</li> <li>• Circulation</li> <li>• Disability</li> </ul> <p><b>Identify that Tom has a partially blocked tracheostomy tube and call for assistance</b></p>	<p><u>Airway:</u> Whistling sound (stridor) with no obvious secretions.</p> <p><u>Breathing:</u> Increased work of breathing, moderate respiratory distress. Reduced air entry bilaterally RR 40, Spo2 98%</p> <p><u>Circulation:</u> HR 120 Capillary refill 2 seconds</p> <p><u>Disability:</u> Restless sitting up in bed.</p> <p><u>Temperature:</u> 37.3</p> <p>NSW criteria for 'Clinical Review'</p>	1 min

<p><b>Participant 1</b></p> <p><b>Discussion step</b></p> <p><b>Patient assessment</b></p>	<p><b>Questions to ask the participants</b></p> <p>What are the key indicators in this assessment that identify that Tom has a partially obstructed tracheostomy tube?</p>	<p>Whistling sound with no obvious secretions, increased work of breathing, reduced air entry and his being restless</p>	<p>1 min</p>
<p><b>Participant 2</b></p> <p><b>Action step</b></p> <p><b>Suction</b></p>	<p>Participant to attempt to suction tracheostomy tube.</p> <p>Participant to identify that they would be using universal precautions.</p> <p>Participant to instil sodium chloride and reattempt suction</p>	<p>You are unable to pass the suction catheter.</p> <p>Gloves, mask, goggles</p> <p>0.2-0.5mLs of 0.9% sodium chloride</p>	<p>1 min</p>
<p><b>Participant 2</b></p> <p><b>Discussion step</b></p> <p><b>Suction</b></p>	<p><b>Questions to ask the participants</b></p> <p>How far down to you place the suction catheter?</p> <p>How much sodium chloride do you instil to try and assist with suctioning?</p>	<p>Each sized tracheostomy is a different length. If possible check the length of the tube on the tracheostomy box or ask the parent/carer if present. The aim is to insert the suction catheter a further 1-2mm beyond the end of the catheter. If you are unable to obtain this information make an educated guess as to the length of the catheter.</p> <p>Instil 0.2-0.5mLs of 0.9% Sodium Chloride</p>	<p>1 min</p>
<p><b>Participant 3</b></p> <p><b>Action step</b></p>	<p>Change in patients condition</p>	<p>You are still unable to suction the catheter despite instilling 0.2-0.5mls of 0.9% sodium chloride.</p>	<p>2 min</p>

<p><b>Equipment set up</b></p>	<p>Participant to gather and prepare the equipment that they will require to perform an emergency tracheostomy change.</p>	<p>You reassess Tom and note a change in his condition.</p> <p><u>Airway:</u> Minimal sounds can be heard</p> <p><u>Breathing:</u> Severe respiratory distress, poor air entry RR: 55</p> <p><u>Circulation:</u> HR:180 Colour: Grey</p> <p><u>Disability</u> Frightened and agitated</p> <p>NSW criteria for 'Rapid response'</p> <ul style="list-style-type: none"> <li>- New tracheostomy tube: correct size</li> <li>- 12F catheter or size small tracheostomy tube</li> <li>- Tracheostomy tapes</li> <li>- An assistant</li> </ul> <p><i>Note: Participant is to identify that they would also need lubricant however lubricant should not be used on the manikin so the participant is to pretend.</i></p>	
<p><b>Participant 3</b></p> <p><b>Discussion step</b></p> <p><b>Equipment set up</b></p>	<p><b>Questions to ask the participants</b></p> <p>What are the three things you should now consider doing?</p> <p>Where should you find the equipment needed to perform a tracheostomy change?</p>	<ol style="list-style-type: none"> <li>1. Rapid response</li> <li>2. Calling for ENT review</li> <li>3. Consider replacing tracheostomy</li> </ol> <p>All of the equipment required to perform a tracheostomy change should be kept at the patient's bedside in the hospital or in their tracheostomy backpack which their parent/carer should carry at all times in case of an emergency.</p>	<p>1 min</p>
<p><b>Participant 3 and 4</b></p> <p><b>Action step</b></p> <p><b>Tracheostomy tube</b></p>	<p>Participants 3 and 4 now work as a pair each having a turn at performing a tracheostomy tube change.</p>	<ol style="list-style-type: none"> <li>1. Flatten bed</li> <li>2. Hyper extend the neck using a roll</li> <li>3. Un fasten tapes and remove the Swedish nose</li> <li>4. Tell assistant that on the count of 1,2,3 to remove catheter</li> </ol>	<p>4 mins</p>

<p><b>change</b></p>		<ol style="list-style-type: none"> <li>5. Say out loud 1,2,3</li> <li>6. Pull tube out in an arched manner</li> <li>7. Pretend to lube the end of the new tracheostomy tube</li> <li>8. Using a smooth motion holding the introducer insert the tracheostomy following the curve of the airway</li> <li>9. Reassess child's breathing</li> <li>10. Perform a further suction if required</li> <li>11. Reapply tapes making sure there is a finger space gap between the tapes and the child's neck</li> <li>12. Put Swedish nose back on</li> </ol>	
<p><b>Participant 3 and 4</b></p> <p><b>Discussion step</b></p> <p><b>Tracheostomy tube change</b></p>	<p><b>Questions to ask the participants</b></p> <p>Why do we hyperextend the child's neck for a tracheostomy change?</p> <p>When reapplying tapes how tight should they fasten?</p>	<p>This is the only time you will hyper extend a child's neck to obtain an airway. Hyperextending the neck opens the stoma and makes it easier to insert the new tracheostomy.</p> <p>There should be a finger space gap between the tapes and the child's neck.</p>	<p>2 min</p>
<p><b>All participants</b></p> <p><b>Action step</b></p> <p><b>Tracheostomy tube change</b></p>	<p>All participants to now work in pairs each having a turn at performing a tracheostomy tube change.</p>	<ol style="list-style-type: none"> <li>1. Flatten bed</li> <li>2. Hyper extend the neck using a roll</li> <li>3. Un fasten tapes and remove the Swedish nose</li> <li>4. Tell assistant that on the count of 1,2,3 to remove catheter</li> <li>5. Say out loud 1,2,3</li> <li>6. Pull tube out in an arched manner</li> <li>7. Pretend to lube the end of the new tracheostomy tube</li> <li>8. Using a smooth motion holding the introducer insert the tracheostomy following the curve of the airway</li> <li>9. Reassess child's breathing</li> <li>10. Perform a further suction if required</li> <li>11. Reapply tapes making sure there is a finger space gap between the tapes and the child's neck</li> </ol>	<p>10 min</p>

		12. Put Swedish nose back on	
<b>Participant 5</b> <b>Action step</b> <b>Problem Solving</b>	<p>You are unable to reinsert Tom's tracheostomy. What would you do if you were unable to reinsert the tracheostomy tube?</p> <p>Participant to identify and demonstrate the insertion of a 12F catheter and attach oxygen tubing to the end</p>	<p>Participant to pretend to lubricate the end of the 12F catheter and insert the catheter into the stoma and attach oxygen.</p> <p>Note: Some sites teach healthcare workers to insert a smaller size tracheostomy tube. This is an option if a smaller size tube is smaller.</p> <p>You have been successful in inserting a 12F catheter into Tom's stoma.</p>	2 min
<b>Participant 5</b> <b>Discussion step</b> <b>Problem Solving</b>	<p><b>Questions to ask the participants</b></p> <p>If you are unable to insert the new tracheostomy what hospital response should you activate?</p> <p>How far should you insert the 12F catheter</p>	<p>If you are unable to reinsert the tracheostomy you need to activate your hospital's emergency response system. Remember that the tracheostomy is this child's AIRWAY.</p> <p>You should insert the 12F catheter to the same length as the tracheostomy tube that has just removed.</p>	1 min
<b>Participant 6</b> <b>Action Step</b> <b>Bag and Mask ventilation</b>	<p>Further deterioration</p> <p>Participant to seek assistance from another team member to kink the 12F catheter</p> <p>Participant to perform bag mask ventilation</p>	<p>You reassess Tom and notice a further deterioration in his condition</p> <p><u>Airway:</u> Silent</p> <p><u>Breathing:</u> Apnoea no air entry</p> <p><u>Circulation:</u> cyanosed HR: 90</p> <p><u>Disability:</u> Unresponsive</p> <p>Participant to reposition the child by removing the roll that was used to</p>	2 min

		hyperextend the neck. Participant to ask another group member to kink the 12F catheter so that they can bag and mask the patient.	
<b>Participant 6</b> <b>Discussion Step</b> <b>Bag and mask ventilation</b>	<b>Questions to ask the participants</b>  How do you ensure a good seal of the mask?  How much pressure do you apply to the stoma?	The mask should cover both the child's mouth and nose with no air leaking out the sides from the mask being either too big or too small.  Gentle pressure is all that is required to cover the stoma to ensure a good seal and to prevent air leaking out through the stoma.	1 min
<b>Instructor wrap up</b>	Instructor to answer any final questions from participants and bring the session to an end		1 min

## Flowchart – Paediatric Tracheostomy Emergency Management

