

# Guideline and Procedure



## Bronchial Challenge Test Using Aridol® (Mannitol) for paediatric patients at John Hunter Children's Hospital

<b>Sites where Guideline and Procedure applies</b>	Paediatric Respiratory Laboratory
<b>Target audience:</b>	Clinical Respiratory Laboratory Staff
<b>Description</b>	Procedure and Guideline for Bronchial Challenge testing using <b>Aridol®</b> (Mannitol)
<b>This Guideline and Procedure applies to:</b>	
1. Adults	No
2. Children up to 16 years	Yes
3. Neonates – less than 29 days	No
<b>Keywords</b>	Aridol, Mannitol, children, bronchial challenge
<b>Replaces Existing Guideline and Procedure</b>	No
<b>Related Legislation, Australian Standards, NSW Ministry of Health Policy or Guideline, NSQHS Standard/EQuIP Criterion and/or other, HNE Health Documents, Professional Guidelines, Codes of Practice or Ethics:</b>	
	<ul style="list-style-type: none"> <li>• <a href="#">NSW Health Policy Directive 2014_036 Clinical Procedure Safety</a></li> <li>• <a href="#">NSW Ministry of Health Policy PD 2005_406 Consent to Medical Treatment</a></li> <li>• <a href="#">NSW Ministry of Health Policy PD 2013_043 Medication Handling in SW Public Health Facilities</a></li> <li>• <a href="#">NSW Ministry of Health Policy Directive PD 2007_036 Infection Control Policy</a></li> </ul>
<b>Prerequisites (if required)</b>	Respiratory Scientist/Hospital Scientist with Respiratory Lab experience, RN with respiratory Lab training
<b>Guideline and Procedure Note</b>	<p>The guideline section does not replace the need for the application of clinical judgment in respect to each individual patient but the procedure/s <b>require mandatory compliance</b>. If staff believe that the procedure/s should not apply in a particular clinical situation they must seek advice from their unit manager/delegate and document the variance in the patients' health record.</p> <p>This procedure and guideline sets out the criteria for use of <b>Aridol®</b> (Mannitol) and the safe administration of this drug for the purpose of provocational testing. The procedural components are considered mandatory.</p>
<b>Position responsible for the Guideline and Procedure and authorised by</b>	Pat Marks, General Manager/ Director of Nursing CYPFS
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<b>Date authorised</b>	February 2016
<b>This Guideline and Procedure contains advice on therapeutics</b>	Yes, JHH QUM 17 <sup>th</sup> July 2014
<b>Date of Issue</b>	February 2016
<b>Review due date</b>	<b>February 2019</b>

## RISK STATEMENT

This local clinical guideline and procedure has been developed to provide instruction to the healthcare worker and to ensure that the risks of harm to the patient associated with the use of Aridol® (Mannitol) are identified and managed.

Any unplanned event resulting in, or with the potential for, injury, damage or other loss to the patient as a result of this clinical procedure must be reported through the Incident Information Management System and managed in accordance with the Ministry of Health Policy Directive: Incident management PD2007\_061. This would include unintended patient injury or complication from treatment that results in disability, death or prolonged hospital stay and is caused by health care management.

Open Disclosure procedures must be commenced to ensure the concerns of the patient are identified and managed in accordance with Ministry of Health Policy Directives. The Policy Directives and Guidelines for managing complaints and concerns about clinicians should be used in conjunction with other relevant NSW Health Policy Directives that govern the behaviour and actions of all staff.

**RISK CATEGORY:** *Clinical Care & Patient Safety*

## OUTCOMES

1	Right medication, Right dose, Right time, Right Route & Right Patient
2	Correct and standardised procedure for bronchial challenge test is observed.
3	Reproducible spirometry results are achieved to provide an accurate measure of a possible decrease in ventilator ability of the lungs
4	The risk of patient injury or illness is minimised

## ABBREVIATIONS & GLOSSARY

Abbreviation/Word	Definition
FEV1	Forced Expiratory Volume in 1 Second (the volume of air expired in the first second of a maximally forced exhalation)
FVC	Forced Vital Capacity (the maximum volume of air expired during a maximally forced exhalation)
mg	milligram
mcg	microgram
bpm	Beats per minute
BHR	Bronchial Hyper reponsiveness

## PREAMBLE

Bronchial provocation tests are used to elicit any hyper-responsiveness in the airway to a range of agents both specific and non-specific at varying strengths or quantities. Therefore, a dose response curve can be constructed.

If an airway shows hyper-responsiveness (a *significant* bronchospasm, defined as a significant fall in FEV<sub>1</sub>) to the challenge agent at a level of exposure deemed less than normal, then the clinician may use this information together with clinical information to determine whether this exaggerated broncho-constrictive response is asthma or not.

Since the end result and indeed the aim of the tests are to induce broncho-constriction, it implies inherent and mandatory safety precautions together with stringent exclusion criteria.

Airway hyper-responsiveness seems to be a composite physiological disorder of initial inflammation followed by constriction of the bronchi by the surrounding smooth muscle, the mechanisms of which have not clearly and fully been identified as yet but both genetic and environmental factors could be involved in its pathogenesis (Anderson S.D., 1993)

Inhalation challenge procedures also aim to try and measure the severity of any positive response, thus the methodology must be adhered to strictly, in order to achieve a reproducible uniform delivery of challenge substance from test to test and patient to patient.

## GUIDELINE

This Guideline does not replace the need for the application of clinical judgment in respect to each individual patient.

The primary indication is to exclude (rule out) a diagnosis of asthma in those individuals with symptoms that suggest asthma (e.g. cough, wheezing or chest tightness following exposure to cold air, just after exercise, or during respiratory infections)

Other potential indications include: establishing a diagnosis of asthma, determining the relative risk of a healthy individual developing asthma, assessing the severity of asthma, assessing the response to therapeutic interventions and assessing occupational asthma.

## PROCEDURE

**This procedure requires mandatory compliance.**

### Patient Preparation

#### Medications

Patients should be instructed not to take any drugs that affect airway calibre and/or are considered antagonists to the challenge agent for an interval that exceeds their duration of action. These medications and the time period for withholding them prior to the test are:

Inhaled Bronchodilators:

Short acting (e.g. salbutamol)	8 hours
Long acting (e.g. salmeterol)	24 hours
Anticholinergic (e.g. Ipratropium bromide)	12 hours
Cromolyn Sodium (e.g. Intal)	8 hours
Nedocromil (e.g. Tilde)	8 hours
Theophylline (e.g. Elixophyllin)	24 hours
Long acting theophylline (e.g. Theo-24)	24 hours
Leukotriene modifiers (e.g. Singulair)	4 days

Antihistamines (e.g. Claratyne, Telfast, Phenergan) 72 hours

Food: Ingestion of caffeine containing foods such as coffee, tea, cola and chocolate may decrease bronchial hyper responsiveness. These substances should be withheld on the day of the test.

**Other factors that may confound results: Smoking and vigorous exercise should not be undertaken on the day of the test.**

Before the challenge, the scientist will explain and demonstrate the test requirements to the patient including inhalation of the test solutions and performance of the pulmonary function assessment required.

#### Staff Preparation

It is mandatory for staff to follow relevant: "Five moments of hand hygiene", infection control, moving safely/safe manual handling, and documentation practices.

Assess each patient for physical and developmental status to determine ability to perform the test and if special arrangements are required. If there is a language barrier, an interpreter may need to be used.

Ask each patient if he/she has complied with the patient preparation criteria including:

- withholding the medications that may affect the outcome of the test,
- any recent serious illnesses (e.g., myocardial infarction)

Postponement may be necessary if the patient has not met the preparation criteria. Scientist should consult with senior scientist or ordering physician to determine if testing should proceed.

In order to properly interpret the test results, relevant clinical information (e.g., diagnosis, type of treatment) and clinical indication for ordering the test is to be provided in writing by the ordering physician.

Remove the 'Aridol®' components from the box and place in the container provided. This enables ease of use and continuous flow of the testing procedures.

Calibrate the pulmonary function testing system each day of use as per this manual.

### **Prerequisites**

- The subject must be alert and responsive to commands and must be able to sit upright in a chair.
- Bronchial provocation will be carried out only by those qualified to do so i.e. qualified scientific staff
- Prior to each days testing the spirometer will be calibrated using the 3.0 L syringe as per the appropriate section of this manual
- Each patient requires a new kit and fresh filter
- The tubing will be kept clean
- The pre-test FEV<sub>1</sub> must be greater than 1.2 L and 55% of the predicted value
- No bronchodilators should have been used in the previous 8 hours
- No long acting bronchodilator therapy for 24 hours or antihistamines for 4 days

A bronchodilator must be easily available

### **Equipment Requirements**

- Alcohol based hand rub
- Personal Protective Equipment
- Aridol® (mannitol) kit (contains 1x inhalation device, capsule sachets)
- Volumatic Spacer
- Ventolin canister (or equivalent)
- Kidney dish
- Tissues
- Digital timer

### **Consent form**

A consent form describing the procedure should be carefully read and signed by patient or parent/legal guardian of the patient and by the scientist administering the test prior to the challenge.

A consent form should not provide information that will suggest a specific outcome. See attached for sample consent form for provocation agent.

### Procedure Steps

1. Perform 5 moments of Hand Hygiene with each step as required..
2. Measure the patients' height and weight.
3. Council the patient as to the reasons for the test and what is expected during the test. Confirm a completed consent form is on file and check the time of the last of any bronchodilator usage.
4. Perform baseline spirometry as per laboratory manual.
5. Check FEV<sub>1</sub> and FVC for reproducibility and minimum values as above
6. **0 mg capsule (Control)**
  - a) Remove the **0mg 'Aridol'** capsule from the blister, twist open the osmohaler (as per the arrow on the device) place the capsule inside and close the device.
  - b) Pierce the capsule once only by depressing the coloured buttons on either side of the inhaler.
  - c) Ask the subject to put on the nose clip, and breathe through their mouth
  - d) Tilt the osmohaler at a 45° angle (mouthpiece down). Check the capsule has moved from the piercing chamber into the spinning chamber closest to the mouthpiece. You can often hear the capsule fall forward or see the capsule through the vents on each side of the device. Give the osmohaler to the patient ensuring they keep the osmohaler at the same angle.
  - e) Ensure the patient is sitting up straight. Ask the subject to exhale (away from the osmohaler) seal their lips around the osmohaler mouthpiece and take a controlled rapid and deep inspiration. During successful inhalation you should hear a rattling sound as the capsule spins within the device.
  - f) At the end of the patients' inhalation, start a 60 second timer, and ask the subject to hold their breath for 5 seconds. When 5 seconds has passed, instruct the patient to exhale through their mouth (away from the osmohaler) remove the nose clip and breathe normally
  - g) When the timer reaches 60 seconds, immediately instruct the patient to perform two acceptable FEV<sub>1</sub> measurements. **Record the highest FEV<sub>1</sub> reading as the baseline FEV<sub>1</sub>.** *If the highest FEV<sub>1</sub> is ≥10% drop from the pre-challenge FEV<sub>1</sub> do not continue with the test.*
  - h) **Calculate the target FEV<sub>1</sub>**  
A positive 'Aridol' challenge result is achieved when the subjects FEV<sub>1</sub> falls ≥ 15% from their baseline FEV<sub>1</sub>. To calculate the target FEV<sub>1</sub> multiply the highest baseline (control) FEV<sub>1</sub> obtained by 0.85. Record this value.

**7. 5 mg capsule**

- a) Insert 5 mg capsule into the osmohaler and pierce as in step 5
- b) Repeat steps c-f as above
- c) Following inhalation remove the capsule from the osmohaler and check to ensure it has been emptied completely, if not a 2<sup>nd</sup> inhalation will be required immediately
- d) At 60 seconds following inhalation, immediately measure the patients FEV<sub>1</sub> twice (acceptability criteria must be met). Use the highest of these two values to calculate the change in FEV<sub>1</sub>
- e) Compare the FEV<sub>1</sub> value at this dose to the target FEV<sub>1</sub>. If the FEV<sub>1</sub> value is equal to or below the target value, or there has been an incremental fall of ≥ 10% from the previous dose, the challenge is positive and complete. If not, immediately proceed to the next dose step.

**8. 10mg, 20mg, 40mg capsules**

Administer the 10mg, 20mg and 40mg doses following the directions given above for the 5mg dose

**9. 80mg dose (2 x 40mg capsules)**

- a) Insert and pierce the first of the 40mg capsules that comprise the 80mg dose.
- b) The patient should inhale the dose in the same manner as previous doses, hold their breath for 5 seconds and exhale.
- c) Remove the first 40mg capsule from the device and check to ensure it has been emptied completely, if not, a 2<sup>nd</sup> inhalation will be required immediately. Do this following the administration of every capsule.
- d) Following inhalation, load the second 40mg capsule and offer to the subject immediately following exhalation.
- e) Instruct the patient to inhale the 2<sup>nd</sup> capsule immediately to ensure that the osmotic effect of 'Aridol' is cumulative.
- f) Activate timer at the end of the 2<sup>nd</sup> capsule inhalation.
- g) Instruct the patient to hold their breath for 5 seconds before exhaling.
- h) At 60 seconds following the inhalation of the second capsule, immediately measure the patients FEV<sub>1</sub> twice (acceptability criteria must be met). Use the higher of these two values to calculate the change in FEV<sub>1</sub>.
- i) Compare the FEV<sub>1</sub> value at this dose to the target FEV<sub>1</sub>. If the FEV<sub>1</sub> value is equal to or below the target value, or there has been an incremental fall of ≥10% from the previous dose, the challenge is positive and complete. If not, immediately proceed to the next dose step.

10. **1<sup>st</sup> x 160mg dose (4 x 40mg capsules)**

Administer the 1<sup>st</sup> 160mg dose following the directions given above in step 8, using 4 x 40mg capsules

11. **2<sup>nd</sup> x 160mg dose (4 x 40mg capsules)**

Administer the 2<sup>nd</sup> 160mg dose following the directions given above in step 8, using 4 x 40mg capsules

12. **3<sup>rd</sup> x 160mg dose (4 x 40mg capsules)**

Administer the 3<sup>rd</sup> 160mg dose following the directions given above in step 8, using 4 x 40mg capsules

***At the completion of this dose, 635mg has been administered. Providing a positive response has not been met, the challenge should be considered negative and complete.***

13. On completion of the protocol the patient is given a 400 mcg dose of ventolin (via volumatic spacer or equivalent), administered by scientific officer.

14. Wait 10 minutes and repeat FEV<sub>1</sub> measurement. Ensure patient has returned to within 5% of pre challenge level.

15. Record PD<sub>15</sub> in scientist post-test comments.

## **MANAGEMENT**

Asthma is a condition of the airways. People with asthma have sensitive airways which react to triggers that set off their asthma. Their airways swell and get thick with mucus and the muscles around the airway squeeze tight. This makes it hard to breathe.

People with asthma can have a range of symptoms:

- Breathlessness
- Wheezing
- Tight chest
- Persistent cough – often at night, early in the morning or during/after activity

Improvement in airflow following inhalation of a bronchodilator is generally accepted as indicative of reversible airway obstruction. However, the evaluation of airway hyper-responsiveness is often indicated, especially in patients with unclear or non-specific symptoms (e.g. symptoms of asthma with normal spirometry and no bronchodilator response). Bronchial provocation (challenge) testing may be performed with a variety of agents and methods including aerosolised pharmacological agents such as methacholine and histamine which acts directly on airway smooth muscle, and others such as mannitol, exercise, hypertonic saline, isocapnic hyperventilation with cold air and specific agents such as antigens, and occupational agents which acts indirectly by triggering an inflammatory response in the airway.

Paediatric Respiratory Laboratory uses the indirect method of Mannitol Challenge Test as a means to establish diagnosis in our patients.

### Reasons for termination of test

- Any undue discomfort to the patient
- A fall of 15% or more in FEV<sub>1</sub>
- Severe coughing making spirometry unreliable
- Laryngeal spasm
- Palpitations i.e. heart rate > 150bpm

### SPECIAL CONSIDERATIONS

The following conditions may pose a relative danger to the patient or affect the validity of performance of challenge testing: If in doubt, check with at least one of the following: Lauren Platt (Senior Respiratory Scientist), Prof Joerg Mattes (Respiratory Physician) or contact referring doctor for clearance.

#### **ABSOLUTE CONTRAINDICATIONS**

- FEV<sub>1</sub> <55% predicted normal value or FEV<sub>1</sub> <1.2L
- Recent myocardial infarction or cerebral vascular incident (within 3 months)
- Known arterial aneurism
- Uncontrolled hypertension (systolic BP >200 or diastolic BP >100mmHg)
- Recent Pneumothorax (until fully resolved and cleared by doctor)
- An inability to understand the procedures and the implications of the challenge test.

#### **RELATIVE CONTRAINDICATIONS** (Suboptimal results likely)

- Inability to perform pulmonary function tests or poor reproducibility on PF test (e.g. FEV<sub>1</sub>) at baseline
- Pregnancy or breast feeding
- Spirometry induced airway obstruction
- Angina, or pulmonary embolism; FVC may worsen angina and/or cause blood pressure changes
- Acute thoracic, abdominal, or cerebral aneurysmata in combination with severe COPD; danger of rupture due to raised intra thoracic pressure
- Recent upper respiratory tract infection (<2 weeks)
- Epilepsy requiring medication
- Exacerbation of asthma
- Recent eye surgery; raised intra ocular pressure during FVC
- Acute disorders affecting testing performance such as vomiting, diarrhoea or syncope
- Recent thoracic or abdominal surgical procedures
- Unable to sit upright for test

### **Infection Control**

The osmohaler (inhaler device) is designed as SINGLE USE ONLY (one device per challenge) and should not be cleaned during the challenge. Discard the osmohaler following each 'Aridol' challenge. Do not sterilise and re-use as this may compromise the integrity of subsequent test results.

Any remaining capsules should also be disposed of; these cannot be re-used for any further testing

Dispose of filter mouthpiece and nose clip after each patient.

Alcohol wipe the containers used, and return to store cupboard to air dry.

### Challenge Test Safety Precautions

- There must be a bronchodilator on standby at all times
- All staff must be currently certified for Basic Life Support and the signs of acute asthma and how to treat it.
- An oxygen supply must be available in the laboratory area
- In the event of an acute asthma attack the test should be stopped immediately and bronchodilator administered
- Attach oximeter finger probe and monitor SpO<sub>2</sub>. Clinical review is required if SpO<sub>2</sub> falls below 95%. If O<sub>2</sub> rapidly falls below 90%, place patient on 5-6L oxygen.
- Should the patient not respond rapidly (< 2 mins) call for help and advise that assistance is required
- Phone '7700' and advise the operator of the problem and location

If assistance is not called for, because the asthma attack responds to treatment, the referring doctor and respiratory physician must be notified before the patient is allowed to leave.

### Test Interpretation

#### Bronchial Hyper responsiveness (BHR)

Severe BHR:	Positive Aridol challenge (PD <sub>15</sub> ) with ≤ 35mg mannitol
Moderate BHR:	Positive Aridol challenge (PD <sub>15</sub> ) with >36mg and ≤155 mg mannitol
Mild BHR:	Positive Aridol challenge (PD <sub>15</sub> ) with >156mg mannitol

### COMPLIANCE, IMPLEMENTATION AND MONITORING

Compliance with this the procedural part of this document is mandatory.

Implementation Plan – All current and future new staff will be provided with an in-service as to the policies and procedures stated here. Staff will be provided formal training and will be expected to demonstrate competency in the procedure prior to commencement of testing on patients. All staff will be provided a copy of this policy and will have access via the intranet page. Clinical Audit will be performed every 4 months for the first 12 months of the policy creation then annual review thereafter.

#### Consultation

Paediatric Respiratory Consultants JHCH: Dr Bruce Whitehead, Prof Joerg Mattes, Dr Jodi Hilton, Dr Brad Martin, Dr Laurence Roddick, Dr Rani Bhatia

Paediatric Outpatients NUM: Cathy Grahame

Paediatric Respiratory CNC JHCH: Linda Cheese, Bernadette Goddard

Pharmacists JHCH: Ross Mullen, Michelle Jenkins

## APPENDICES

1. Patient Information Sheet
2. Consent Form
3. Referral Form
4. "How does Aridol® work" flowchart

## LINKS

[www.pharmaxis.com.au](http://www.pharmaxis.com.au)  
[www.aridol.info](http://www.aridol.info)

## REFERENCES

[HNE Health Policy Compliance Procedure PD2007\\_036:PCP 1 \(Version Three\) Standard and Transmission-based Precautions](#)

Hand Hygiene Australia

American Association for Respiratory Care Clinical Practice Guidelines. *Bronchial Provocation*. Respir Care 1992;**37**:902-906

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Subbarao, P., J.D. Brannan, B, Ho, S.D. Anderson, H.-K. Chan, and A.L. Coates. Inhaled mannitol identifies methacholine-responsive children with active asthma. *Pediatr Pulmonol*

2000;29:291-298

## **FEEDBACK**

Any feedback on this document should be sent to the Contact Officer listed on the front page.

## **APPROVAL**

CPGAG – 1<sup>st</sup> May 2014

JHH QUM – 17<sup>th</sup> July 2014

JHCH CQ&PCC – 23<sup>rd</sup> February 2016



**Patient/Guardian Information Sheet**  
**For Lung Function test using Mannitol**



**The aim of the test**

To help in the review and management of your child's current condition, your doctor believes that an airway test is needed. For example, patients often go to the doctor with symptoms of shortness of breath, cough, tightness in the chest or wheezing, that may suggest asthma. If your child's first test does not give the doctor a definite positive or negative result, you may be required to return for a more complex breathing test.

**How is the test performed?**

Your child will breathe in different levels of a medication called Mannitol from a device similar to an asthma puffer. Each puff will last for 1 minute. At the start of the test and after each dose, you will be asked to perform a breathing test that measures how quickly and how much you can blow out after a big breath in. The breathing test will be repeated to ensure the biggest value is recorded, before moving on to the next dose of Mannitol. If there are any large change in your child's breathing, the test will stop and your child will be offered Ventolin to reverse any symptoms that may have started. The whole process is usually finished in 45 minutes. **There are no delayed or late effects.**

**What is Mannitol?**

Mannitol is a medication used for this type of breathing test. For further information visit [www.aridol.info](http://www.aridol.info)

**Are there any risks?**

Testing using Mannitol is a safe and very commonly performed test in children. There have been no reported serious side effects following the use of Mannitol. Approximately 30% of patients find that the test causes **mild symptoms** of cough, shortness of breath, chest tightness, wheeze, headache or dizziness. These symptoms rarely cause a problem. If you do develop any such symptoms that cause discomfort or concern please immediately tell the scientist doing the test. However, **if you may be pregnant, or are breast-feeding, you should inform the scientist testing you. You should also tell the scientist testing you if your child has had a recent heart attack, stroke or respiratory tract infection, are taking heart medication or has weakness in the walls of their blood vessels.**

**Do I have a choice?**

Yes – you may refuse to do the test or stop testing at any time without affecting other testing or treatment of your child's medical condition.

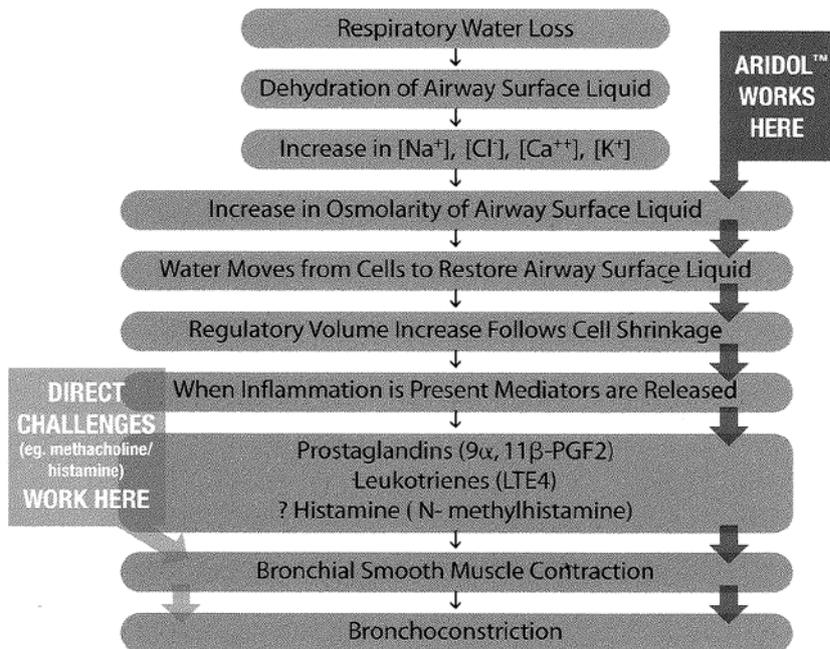
**If you have any problems following the test please contact your referring doctor, the John Hunter Hospital Emergency Department (Ph: 4921 3000) or the staff at the lab (Ph: 4921 3679)**





# How does Aridol work?

Aridol™ mimics the mechanism of Exercise Induced Asthma.<sup>1,2,3</sup>



(Adapted from reference 1)

Aridol™ identifies active airway inflammation to assist in the diagnosis of asthma<sup>3,4</sup>

## Appendix One

## Clinical Audit Tool

(National Standard 1: 1.7.2 The use of agreed clinical guidelines by the clinical workforce is monitored)

Criterion no.	Criterion	Exceptions	Definition of terms and/or general guidance	Data source	Frequency	Position Responsible
1	<i>Bronchial provocation tests are used to elicit any hyper-responsiveness in the airway to a range of agents both specific and non-specific at varying strengths or quantities. Therefore, a dose response curve can be constructed. The use of the Aridol (mannitol) testing procedure is a cost effective and convenient alternative used for bronchial provocation testing.</i>	<i>None.</i>	<i>Ensure correct technique is being performed and protocol followed to ensure consistent testing process is used for all patients  le; timing between doses, spirometry curve, bronchodilator use post test  (Standard = 100%)</i>	<i>Test record printed from audit tool in testing system</i>	<i>4 monthly for the first 12 months then annual review required</i>	<i>Lab Manager</i>
2	<i>Amount stock ordered/used</i>	<i>None</i>	<i>Record amount of stock ordered/received comparative to use to determine if feasible to keep stock on hand or create special order when required</i>	<i>Pharmacy records</i>	<i>Every 6 months for the first 12months then annually</i>	<i>Lab Manager</i>

Reference: *Electronic audit tool - National Institute for Health and Clinical Excellence (NICE):*  
[www.nice.org.uk/nicemedia/live/10996/56372/56372.xls](http://www.nice.org.uk/nicemedia/live/10996/56372/56372.xls)