

THE EAR DVD Workbook

2nd edition June 2011

**Improving the Diagnosis and
Treatment of Otitis Media in Young
Aboriginal Children**

**Designed by the Child Health Division
Menzies School of Health Research**

discovery for a healthy tomorrow



Title: The Ear DVD Workbook:

Improving the diagnosis and treatment of otitis media in young Aboriginal children.

Authors:

Gabrielle McCallum, Cate Wilson, Peter Thomsen, Geoffrey Angeles, Amanda Leach, Peter Morris.

Video Production:

Peter Thomsen of the Multimedia Unit, Menzies School of Health Research and the Cooperative Research Centre for Aboriginal and Tropical Health. 2nd edition DVD editing done by Sprout Darwin.

Acknowledgments:

This DVD and training manual are dedicated to all the Tiwi families who have participated in otitis media studies over the past 25 years. These studies would not have been possible without the support of the Tiwi Health Board, the Xavier Community Education Centre, Murrupurttuyanuwu Catholic School, Jirnani Child Care Centre, Julanimawu Health Clinic, Tiwi Island Local Government and their Community Member Board, Milikapiti Health Clinic and Pirlangimpi Health Clinic. The video-otoscopy images were recorded by the staff of the Child Health Division of the Menzies School of Health Research. The initial editing of these images was done by Patrick Scott and Aaron Leach. The original artwork and formatting of the workbook was completed by Sarah Walton. The video script was edited by Michael Duffy. Artwork by Norma Bengler was included in the 2nd Edition and additional formatting was done Yvonne Coleman and Kobi Schutz.

Funding for these studies has been provided by the National Health and Research Council of Australia (NHMRC) and Wyeth Australia Pty Limited. Funding for the video production was provided by the Cooperative Research Centre for Aboriginal and Tropical Health (CRCATH).

2nd edition June 2011.

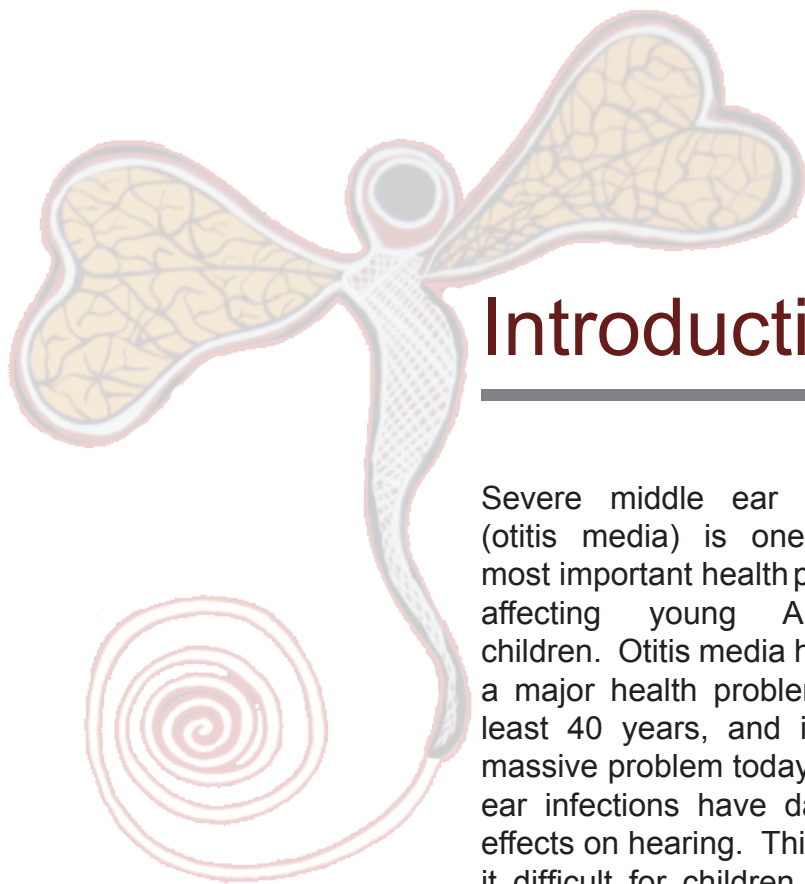
Contact Details

Menzies School of Health Research
PO Box 41096
CASUARINA, NT 0811
Phone: 08 8922 8196
Fax: 08 8927 5187
Website: www.menzies.edu.au
Email: earinfont@menzies.edu.au



Contents

Introduction	4 - 6
Definitions	7 -8
Otitis Media (OM)	
Otitis Media with Effusion (OME)	
Chronic Otitis Media with Effusion	
Acute Otitis Media (AOM)	
Acute Otitis Media without Perforation (AOMwoP)	
Acute Otitis Media with Perforation (AOMwiP)	
Recurrent Acute Otitis Media (rAOM)	
Chronic Suppurative Otitis Media (CSOM)	
Dry Perforation	
Examples One to Example Four	9 - 12
Test 1 to Test 30	13-42



Introduction

Severe middle ear infection (otitis media) is one of the most important health problems affecting young Aboriginal children. Otitis media has been a major health problem for at least 40 years, and is still a massive problem today. These ear infections have damaging effects on hearing. This makes it difficult for children to learn at school. We are trying to find out the best way to stop these ear infections in Aboriginal children.

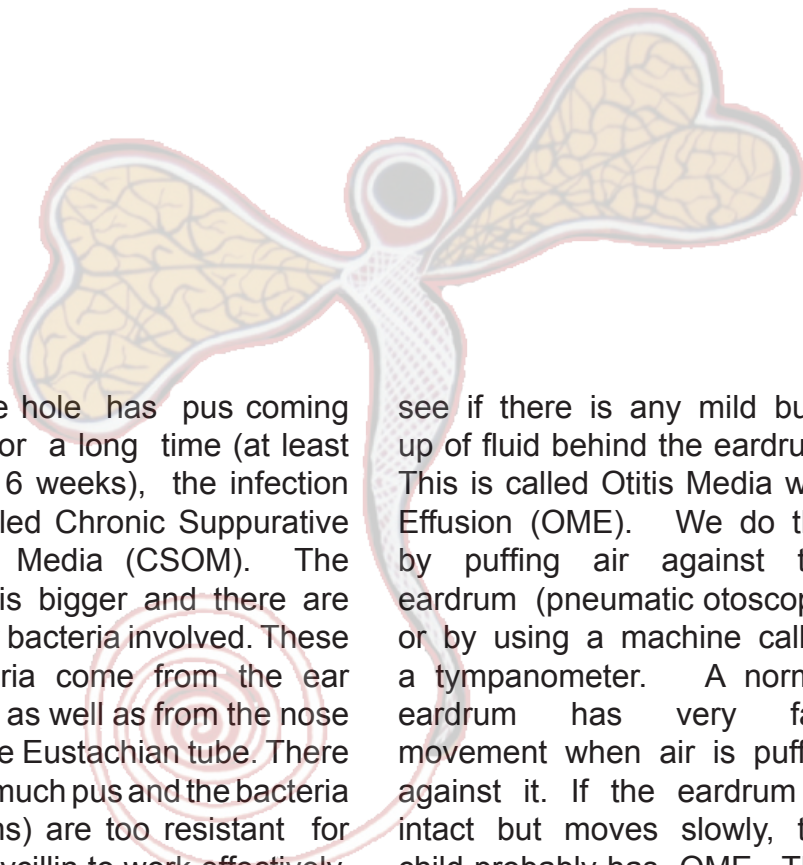
The medical name, 'otitis media', means 'ear infection' (otitis) and 'middle' (media). Otitis media is a general term for all types of inflammation behind the eardrum. The inflammation is usually caused by an infection. The infection starts when bacteria (germs) that are in the nose move along the Eustachian tube into the middle ear. This leads to a build up of fluid behind the eardrum.

Children with a persistent runny nose have a lot of bacteria and are more likely to have otitis media. Children with a runny nose can spread these bacteria to other children by sneezing, coughing and kissing. The germs can also spread on

hands. This happens if a child touches the germs on their own face or nose and then touches other children. Always encourage children to wash their hands and their faces if they have a runny nose.

We have found that a lot of Aboriginal babies have otitis media by 3 months of age. The baby may not show any obvious signs of an infection. This means you have to examine the eardrum with an otoscope if you want to find out if a child has an ear infection.

Ear infections may cause so much pus that the eardrum bulges like a boil. This is called Acute Otitis Media without Perforation (AOMwoP). If it is a severe infection, the eardrum will burst and pus will come out of the ear. This is called Acute Otitis Media with Perforation (AOMwiP). Giving the children antibiotic medicine (usually amoxicillin) can reduce the bulging and stop pus from perforating the eardrum. Therefore, it is important to know when the eardrum is normal, when it is bulging like a boil (AOMwoP), and when there is a new hole with pus coming out (AOMwiP).



If the hole has pus coming out for a long time (at least 2 to 6 weeks), the infection is called Chronic Suppurative Otitis Media (CSOM). The hole is bigger and there are many bacteria involved. These bacteria come from the ear canal as well as from the nose via the Eustachian tube. There is so much pus and the bacteria (germs) are too resistant for amoxicillin to work effectively. The child will need cleaning of the pus with tissue “spears” or syringing. Once the ear canal is clean, antibiotic ear drops (usually ciprofloxacin) should be inserted at least twice a day until the ear has been dry for 3 days. This may take up to 16 weeks. This is really difficult for families. Therefore it is important to cure the bulging eardrum before the eardrum bursts.

At the Menzies School of Health Research, we check the ears using a hand-held otoscope or a special head lamp called a ‘Lumiview’ every time we see a child. We use the ‘Lumiview’ so that we have both hands free to clean the ears if wax or pus are blocking the view. If there are no signs of bulging eardrum (AOMwoP), we also check to

see if there is any mild build up of fluid behind the eardrum. This is called Otitis Media with Effusion (OME). We do this by puffing air against the eardrum (pneumatic otoscopy) or by using a machine called a tympanometer. A normal eardrum has very fast movement when air is puffed against it. If the eardrum is intact but moves slowly, the child probably has OME. This may cause the child to have a hearing problem. Referral for a hearing test, ENT review for possible grommet insertion and follow-up are recommended when OME has been present in both ears for more than 3 months.

If we see a bulging eardrum, or new pus, we try to explain clearly to the parents what is happening. We encourage them to give the antibiotic medicine to the child to stop any more pus building up. If we see a bulging eardrum, or new pus, we try to explain clearly to the parents what is happening. We encourage them to give the antibiotic medicine to the child to stop any more pus building up. Sometimes the medicine has to be given for many weeks before the ear infection gets better. Regular ear checks are

very important.

Children are often very small when they first get otitis media. This means that examining the ears can be difficult. In ‘The Ear DVD’, we will show you how to recognise different types of ear infections in children less than 2 years old. Some of the images are hard to see clearly, so please ask questions if you are not sure what you are looking at.

When you are examining ears yourself, make sure you always have someone who can hold a child very still. It is a good idea to ask someone else to check the ears if you are not sure what sort of ear infection the child has. We hope ‘The Ear DVD’ (taken from a study of over 100 Tiwi babies) will make it easier for you to recognise new ear infections in the children living in your own community.

‘The Ear DVD’ includes 34 video images of different eardrums. Pneumatic otoscopy (puffing air onto the eardrum) is used in all examinations. If the eardrum is intact this will cause the eardrum to move. The first 4 examples are guided images. For these images, a

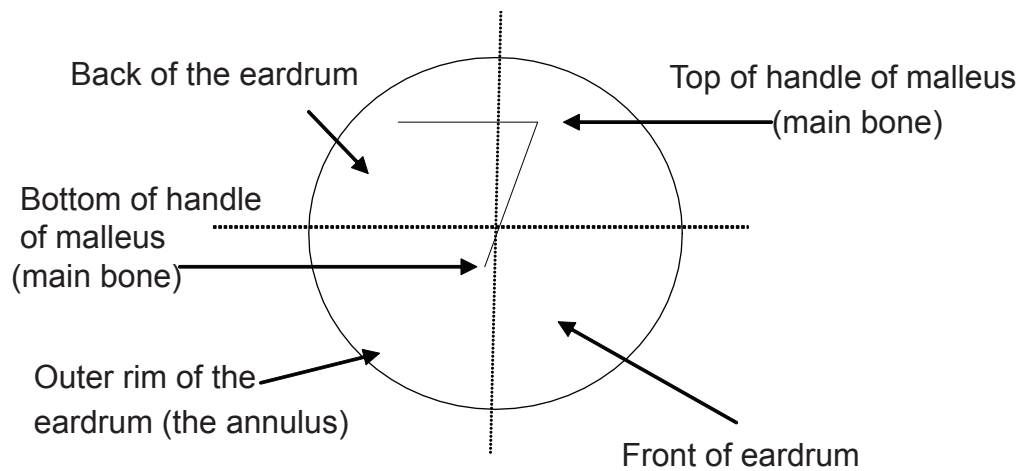


description of what you are seeing, the diagnosis, and the recommended clinical management are given on 'The Ear DVD'.

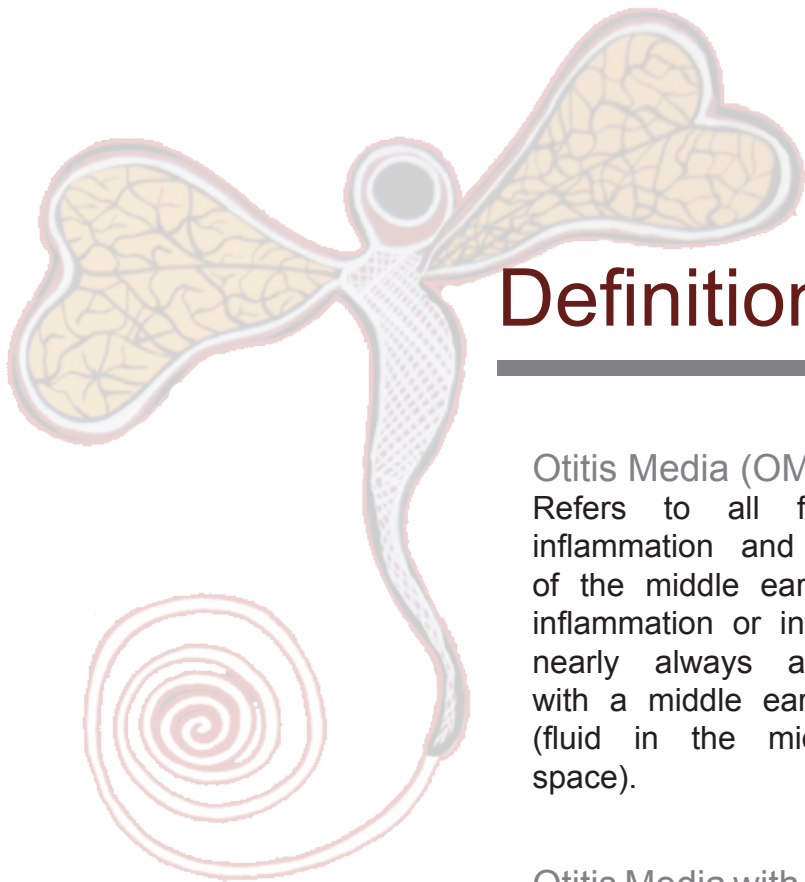
Ear DVD Workbook' provided. Once they've all decided, you can check the answers with your trainer or in 'The Ear DVD - Trainer Version' Good luck !

After this, you need to work through the 30 test images on your own. After each image, pause the DVD and discuss the answers with the group. Write your answers in 'The

Figure 1. Diagram of the right eardrum showing the position of the 4 quadrants of the tympanic membrane in relation to the handle of the malleus



- Top front (anterior superior quadrant)
- Bottom front (anterior inferior quadrant)
- Bottom back (posterior inferior quadrant)
- Top back (posterior superior quadrant)



Definitions

Otitis Media (OM):
Refers to all forms of inflammation and infection of the middle ear. Active inflammation or infection is nearly always associated with a middle ear effusion (fluid in the middle ear space).

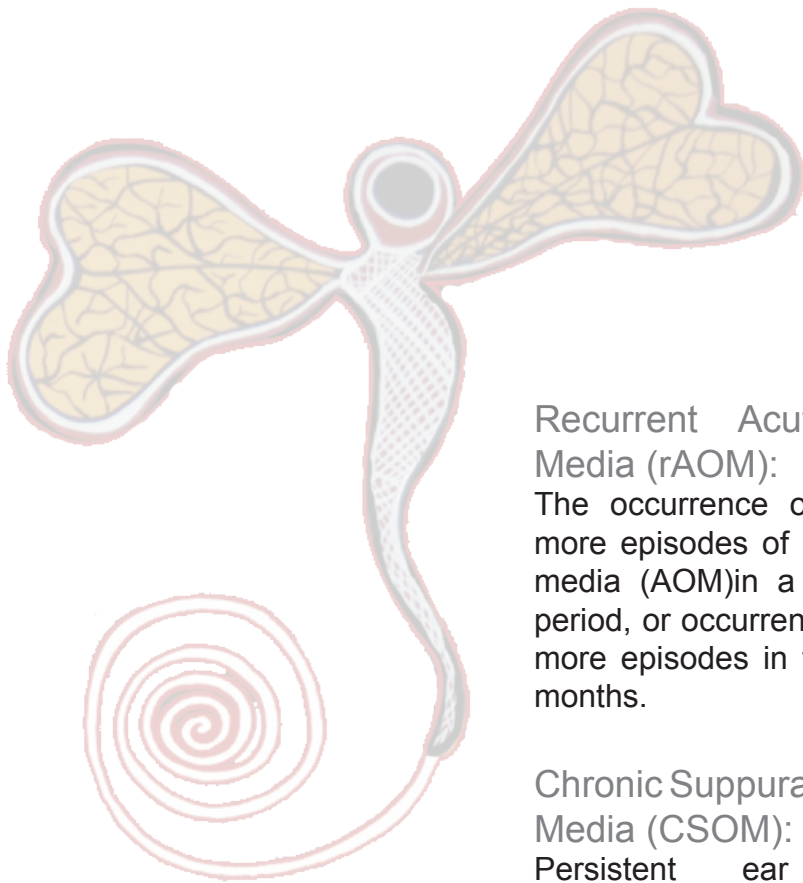
Otitis Media with Effusion (OME):
Presence of fluid behind the eardrum without any symptoms or signs of acute otitis media. Other terms have also been used to describe OME (including 'glue ear', 'serous otitis media' and 'secretory otitis media'). OME may be episodic or persistent. A type B tympanogram or reduced mobility of the eardrum on pneumatic otoscopy are the most reliable indicators of OME.

Persistent (Chronic) Otitis Media with Effusion:
Presence of fluid in the middle ear for more than 3 months without any symptoms or signs of inflammation.

Acute Otitis Media (AOM):
General term for both acute otitis media without perforation and acute otitis media with perforation. It is defined as the presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, recent discharge of pus, fever, ear pain or irritability. A bulging eardrum, recent discharge of pus, and ear pain are the most reliable indicators of AOM.

Acute Otitis Media without Perforation (AOMwoP):
Presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, fever, ear pain or irritability. Bulging eardrum and/or ear pain are the most reliable indicators of AOMwoP.

Acute Otitis Media with Perforation (AOMwiP):
Discharge of pus through a perforation (hole) in the eardrum within the last 6 weeks. The perforation is usually very small (a pinhole) when the eardrum first ruptures. The perforation can heal and re-perforate after the initial onset of AOMwiP.



Recurrent Acute Otitis Media (rAOM):

The occurrence of three or more episodes of acute otitis media (AOM) in a six month period, or occurrences of 4 or more episodes in the last 12 months.

Chronic Suppurative Otitis Media (CSOM):

Persistent ear discharge through a persistent perforation (hole) in the eardrum. Definitions of CSOM vary according to the duration of persistent ear discharge required (from 2 weeks to 12 weeks). Importantly, the diagnosis of CSOM is only appropriate if the tympanic membrane perforation is seen. The perforation should be large enough to allow the discharge to flow out of the middle ear space and for ear drops to be pumped into the middle ear space. Practically, this means the perforation should cover more than 2% of the eardrum.

Dry Perforation:

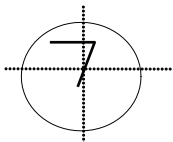
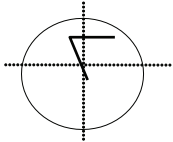
Presence of a perforation (hole) in the eardrum without any signs of discharge or fluid behind the eardrum. Some people also refer to this as inactive CSOM.

Definitions are adapted from the Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations (Office for Aboriginal and Torres Strait Islander Health - OATSIH 2010). This document can be accessed through the OATSIH website www.health.gov.au/oatsih, the EarInfoNet website www.earinonet.org.au or by contacting Menzies School of Health Research.

Example One

Which ear is it?

Description of ear image (what are you seeing?)

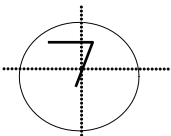
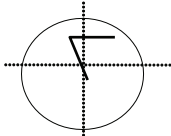
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Example Two

Which ear is it?

Description of ear image (what are you seeing?)

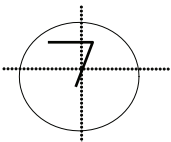
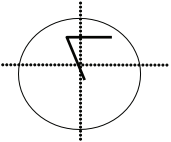
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Example Three

Which ear is it?

Description of ear image (what are you seeing?)

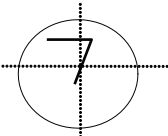
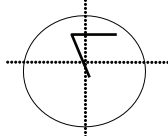
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Example Four

Which ear is it?

Description of ear image (what are you seeing?)

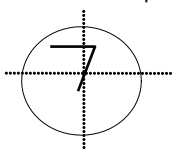
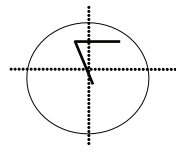
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 1

Which ear is it?

Description of ear image (what are you seeing?)

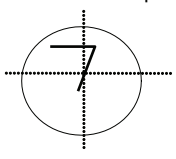
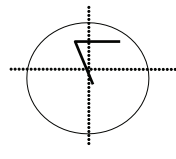
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 2

Which ear is it?

Description of ear image (what are you seeing?)

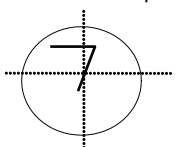
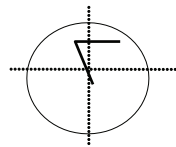
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis			Diagnosis		

Treatment given to child

Test 3

Which ear is it?

Description of ear image (what are you seeing?)

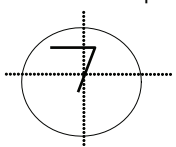
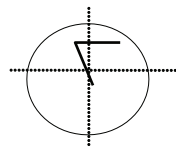
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 4

Which ear is it?

Description of ear image (what are you seeing?)

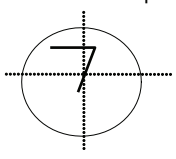
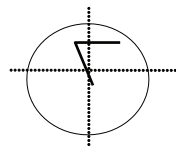
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 5

Which ear is it?

Description of ear image (what are you seeing?)

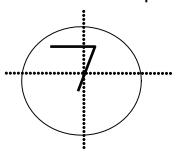
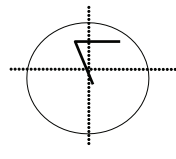
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 6

Which ear is it?

Description of ear image (what are you seeing?)

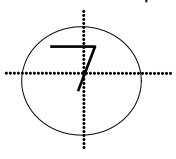
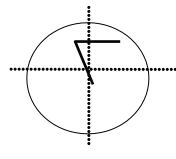
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 7

Which ear is it?

Description of ear image (what are you seeing?)

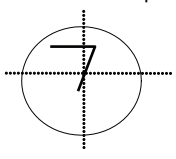
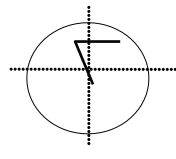
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 8

Which ear is it?

Description of ear image (what are you seeing?)

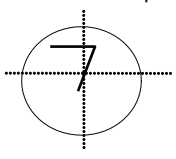
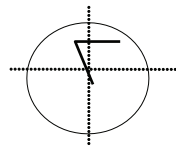
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 9

Which ear is it?

Description of ear image (what are you seeing?)

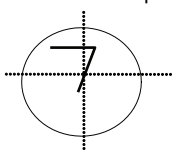
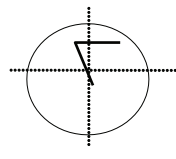
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 10

Which ear is it?

Description of ear image (what are you seeing?)

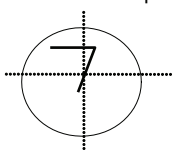
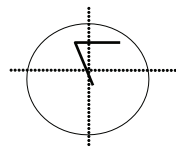
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 11

Which ear is it?

Description of ear image (what are you seeing?)

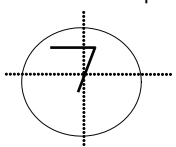
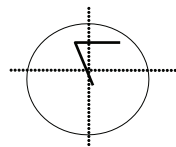
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 12

Which ear is it?

Description of ear image (what are you seeing?)

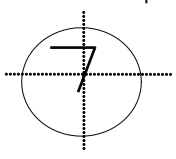
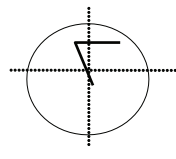
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 13

Which ear is it?

Description of ear image (what are you seeing?)

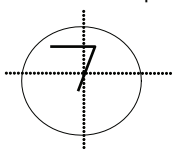
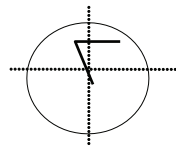
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 14

Which ear is it?

Description of ear image (what are you seeing?)

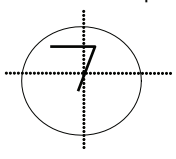
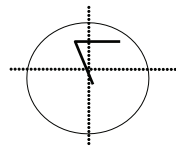
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 15

Which ear is it?

Description of ear image (what are you seeing?)

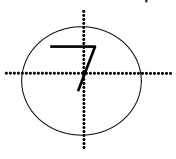
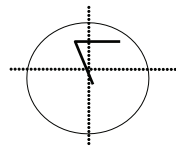
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 16

Which ear is it?

Description of ear image (what are you seeing?)

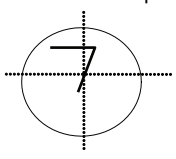
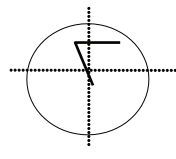
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 17

Which ear is it?

Description of ear image (what are you seeing?)

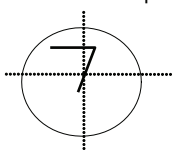
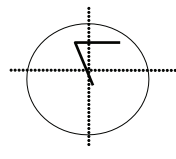
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 18

Which ear is it?

Description of ear image (what are you seeing?)

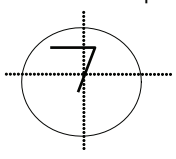
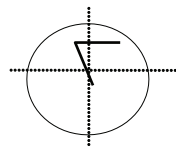
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 19

Which ear is it?

Description of ear image (what are you seeing?)

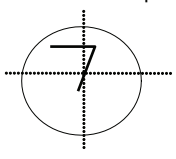
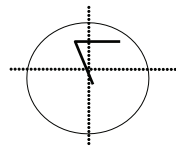
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 20

Which ear is it?

Description of ear image (what are you seeing?)

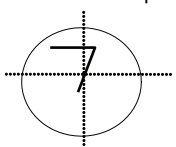
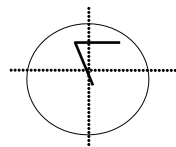
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 21

Which ear is it?

Description of ear image (what are you seeing?)

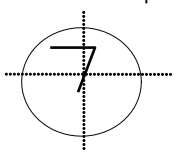
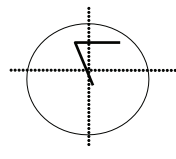
EAR EXAMINATION				Date: _____			
(R) Ear				(L) Ear			
	Yes	No	Not sure		Yes	No	Not sure
Bulge				Bulge			
Pus				Pus			
Hole				Hole			
If hole present please draw position and size							
(R)				(L)			
Diagnosis				Diagnosis			

Treatment given to child

Test 22

Which ear is it?

Description of ear image (what are you seeing?)

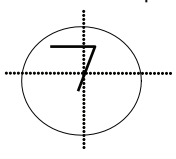
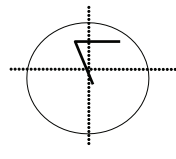
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 23

Which ear is it?

Description of ear image (what are you seeing?)

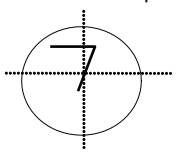
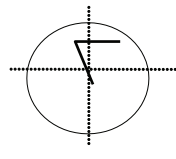
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 24

Which ear is it?

Description of ear image (what are you seeing?)

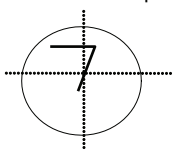
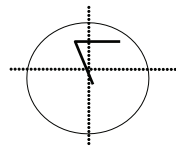
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis			Diagnosis		

Treatment given to child

Test 25

Which ear is it?

Description of ear image (what are you seeing?)

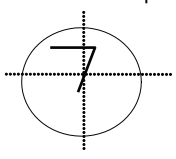
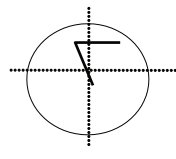
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 26

Which ear is it?

Description of ear image (what are you seeing?)

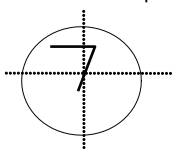
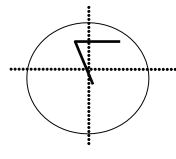
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 27

Which ear is it?

Description of ear image (what are you seeing?)

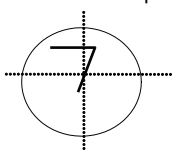
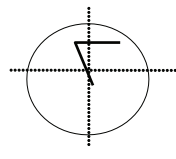
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 28

Which ear is it?

Description of ear image (what are you seeing?)

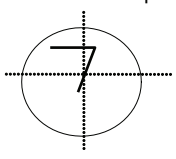
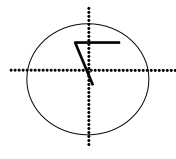
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 29

Which ear is it?

Description of ear image (what are you seeing?)

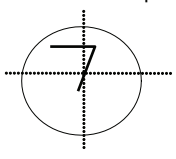
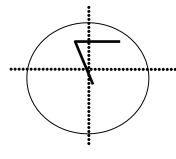
EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child

Test 30

Which ear is it?

Description of ear image (what are you seeing?)

EAR EXAMINATION				Date: _____	
(R) Ear		(L) Ear			
	Yes	No	Not sure		
Bulge					
Pus					
Hole					
If hole present please draw position and size					
(R)			(L)		
Diagnosis		Diagnosis			

Treatment given to child
