



ESTABLISHING A REFRACTION CLINIC

THINK

A person comes to see you at your clinic. To examine the person's eyes you need to have the correct equipment and your clinic needs to be designed so that you can give the person the best service possible.

AIM

This unit explains how to set up a well organised and efficient refraction clinic to ensure that people can receive the best refraction services possible.

LEARNING OUTCOMES

When you have completed this unit you should be able to:

- describe the various areas needed in a refraction clinic and state their ideal sizes
- list all the furniture and equipment needed in a refraction clinic
- describe the proper places for various pieces of equipment and the necessary lighting of the various areas
- describe the standard operating procedures for a refraction clinic
- identify a proper and efficient layout for your refraction clinic.

THE REFRACTION CLINIC

A refraction clinic has several purposes including:

- to provide professional eye examinations
- to provide quality spectacles to people who need them
- to refer people who have eye diseases.

SETTING UP A REFRACTION CLINIC

ROOMS	<p>A refraction clinic is usually made up of three areas including:</p> <ul style="list-style-type: none"> • a Waiting room or space for people to sit comfortably while waiting for their eye examination • an Eye examination room where the eye care practitioner performs an eye examination • a Dispensing area where spectacles are dispensed and adjusted. <p>Ideally, the average size of the whole refraction clinic, including both the waiting room and eye examination room is 7.5 metres (m) x 4 m. However this can vary depending on the shape of the building where the refraction clinic is located.</p> <p>The dispensing area can be located in the eye examination area or the waiting room area.</p>
WAITING ROOM	<p>The size of this space will depend on the expected capacity or in-flow of patients waiting for an examination. If the refraction clinic is part of a larger clinic that already has a waiting room, the refraction clinic may not need to have its own waiting room or space. If there is no room available for waiting patients, a space should be made for them. The waiting room should be approximately 3.75 m x 4 m in size.</p> <p>The waiting room needs to be clean, tidy and comfortable. Waiting patients need to be able to sit down and wait comfortably. Information about eye examinations and general eye health should be visible for people to look at while they are waiting. People waiting should also be able to look at a display of spectacle frames that they may order from.</p> <p>Waiting Room Furniture</p> <p>Suggested furniture includes:</p> <ul style="list-style-type: none"> • Chairs for waiting patients. • Reception desk – 1.5 m x 0.8 m. On top of the reception desk will be: <ul style="list-style-type: none"> - A welcome sign to patients asking them to kindly wait - General information for patients to read about refractive error and other eye health promotion materials - Eye examination record cards. • Two frame display units attached to a wall. • Promotional and educational eye health posters on the walls. • Filing cupboard for eye examination record cards. • Computer.

SETTING UP A REFRACTION CLINIC (cont.)

EYE EXAMINATION ROOM

This room should be approximately 3.75 m x 6.5 m. This size will allow you to arrange equipment and furniture so that you are able to work comfortably. The examination chair should be either in front of or next to your chair, so that you are facing the person being examined. There should be enough room to move around the person without difficulty. See Figure 29.4 for a suggested layout.

Eye Examination Room Equipment

The eye examination room must be clean, tidy and ideally contain this equipment:

- Distance Visual Acuity (VA) Chart (6 m direct or 3 m indirect with mirror)
- Trial lens set
- Trial frame – for children and adults
- Jackson Cross Cylinder
- Retinoscope and Ophthalmoscope (with spare globes)
- PD ruler
- Slit-lamp with a table
- Tonometer
- Near Vision Chart
- Focimeter (also called a lensmeter or vertometer)
- Mirror
- Posters - two posters of basic eye anatomy and eye health
- Pen torch
- Occluder and Pinhole
- Spare batteries
- Eye examination record cards
- Prescription forms
- Referral forms
- Desk lamp
- A sink with hot and cold running water (for hygiene).

Eye Examination Room Furniture

The furniture you should include in the eye examination room includes:

- Large bench space
 - Used to hold your trial lens set, retinoscope, focimeter and near VA chart
 - 0.5 m x 2 m and L-shaped (following the wall around a corner of the room)
 - Metal / stainless steel – easy to keep clean and tidy
 - Storage shelves underneath the bench top.
- One examination chair.
- Two stools on wheels – important for the examiner so they can easily move around to examine the patient.
- Small cupboard (for soap, detergent, fresh hand towels, toilet paper, paper roll) underneath the sink.
- Enclosed storage / bookshelf 1.8 m x 1 m. This will store patient files, reference books, stationery (see list below), cash (in a safe box) and stock of spectacle frames, lenses and readymade spectacles.
- Hygiene cupboard 0.75 m x 0.5 m x 10 cm - Attached to the wall and containing:
 - gloves
 - cotton wool / cotton tips
 - sterile pads
 - saline
 - alcohol swabs
 - tissues
 - fluorescein Strips and other drugs (for appropriately trained eye care workers)
 - first-aid kit.

Equipment and furniture should be looked after and serviced regularly.
Supplies in the refraction area should be checked monthly and re-ordered if necessary.

SETTING UP A REFRACTION CLINIC (cont.)

EYE EXAMINATION ROOM (cont.)

Lighting

The lighting in the examination room should be adjustable in order to suit the needs for different tests.

For example: To measure VA, the VA chart must be well lit. To do retinoscopy, the room must be dim but the person still needs to be able to see the visual acuity chart.

A small desk lamp that you can easily switch on or off is useful.

If there is a window, you will need curtains to block the sunlight.

The room should also be set-up to avoid glare and reflections from lights or windows which may result in less reliable examination results.

Vision Chart – Indirect

Although refraction is usually performed at a distance of 6 m, a room that is a minimum of 3.5 m in length can be used for refractions with the use of a mirror (Figure 29.1).

This is called an “indirect” refraction room. The light from the chart travels 3 m to the mirror and then another 3 m to the person’s eyes through the reflection. The light has travelled a total of 6 m from the chart to the person’s eyes just as if the room were 6 m long. (The extra 0.5 m is needed to account for the distance between the chair where the patient sits and the wall behind them).

When an indirect refraction room is used, a “Tumbling E chart” (Figure 29.1) or a special “Reverse Snellen chart” (Figure 29.2) must be used.

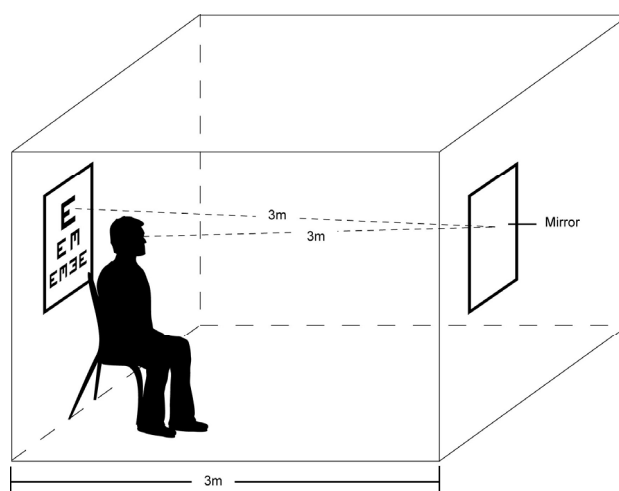


Figure 29.1: A mirror lets you use a 6 m VA chart in a room that is only 3 m long. The person looking in the mirror will see the chart as if it is 6 m away ($3\text{ m} + 3\text{ m} = 6$).

SETTING UP A REFRACTION CLINIC (cont.)

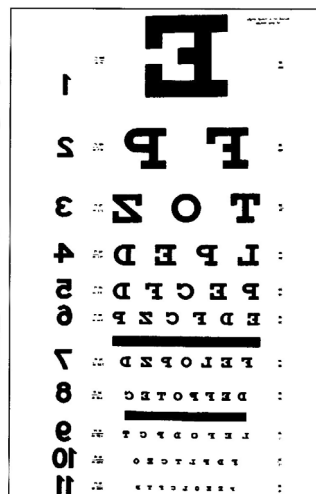


Figure 29.2: Reverse Snellen chart

EYE EXAMINATION ROOM (cont.)

The height and size of the mirror will depend on the position of the person's eyes when they sit in the examination chair. The mirror should be set at a height so that the whole chart is visible when the patient is sitting in the examination chair. The mirror should be large enough to account for the height of both adults and children. If the mirror is small it will need to be on a hinged joint so that the angle of the mirror can be changed to allow people of different heights to see the whole chart.

Vision Chart – Direct

A direct refraction room can be 6.5 m or 3.5 m in length.

- **6.5 m room:**

In this situation the examination chair is placed at one end of the room and the VA chart is placed on the wall 6 m away at the other end of the room. The examination chair is 0.5 m away from the wall behind it.

- **3.5 m room:**

If you only have a 3.5 m room and you do not have a mirror or a reverse VA chart, you can use a VA chart that has been especially designed for use at 3 m. The examination chair will be at one end of the room (0.5 m away from the wall behind it) and the VA chart will be on the other wall 3 m away.

Not all VA charts can be used at 3 m. You must make sure that you have the correct VA chart for your needs.

Most 3 m VA charts require that you add -0.25 D to the sphere of the final distance refraction result, to compensate for the shorter refraction distance.

EYE EXAMINATION ROOM (cont.)

1. You use a 3 m chart and do a refraction for a person at a distance of 3 m. Your refraction findings are:
R +1.25 D L +1.50 / -0.50 x 90.

The true refraction for this person is: R +1.00 D
L +1.25 / -0.50 x 90.

- To compensate for the shorter refracting distance you add -0.25 D to the sphere power of each eye.

The true refraction for this person is: R -2.50 / -1.00 x 180
L -3.25 / -0.75 x 20.

- the 6/60 letter would become 6/120
- the 6/6 line would become 6/12
- the 6/5 line would become 6/10.

SETTING UP A REFRACTION CLINIC (cont.)

DISPENSING AREA

All refraction clinics must have an area for dispensing spectacles. Ideally, this space will be in a separate area of its own, but if space is limited it may be combined with the waiting room or eye examination room.

Lighting should be good so that the dispenser can fit and adjust spectacles comfortably.

Dispensing Area Equipment

Equipment and tools include:

- Focimeter (also called a lensmeter or vertometer)
- Screwdrivers and wrench kit
- Pliers set
- Rulers
- Frame heater
- Ditest Parallel Rule
- Tool rack mounted on the wall
- Marking pens (permanent and water-based)
- Pupillometer
- Progressive lens layout chart (optional)
- Geneva Lens Measure
- Frame displays (minimum of two) mounted on the wall
- Seed stock of frames and readymade spectacles
- Spare batteries
- Spare parts: screws, nose pads, frame arms and fine wire
- Computer

Dispensing Area Furniture

The furniture that you should include is:

- a table (100 cm x 75 cm), where all equipment should be kept
- two chairs, one for the patient and a height adjustable chair for the eye examiner or the spectacle dispenser
- spectacle display units - they should display a range of frames and readymade spectacles.

Dispensing Area Stock

A refraction clinic should stock, and have on display, a range of spectacle frames of different styles, sizes and colours. Also available should be a variety of readymade spectacles of different powers, styles and sizes.

Seed stock refers to the initial stock of frames and readymade spectacles and care must be taken to ensure that this seed stock is of an adequate amount.

As the seed stock reduces each month (through the sale of spectacles) new spectacle frames and readymades should be re-ordered to maintain the size and variation of the seed stock. You will begin to notice a pattern of locally preferred styles of frames and/or readymade spectacles in each area. Once you know which frames and lens powers are the most popular, you should order more of them and less of the others. Different clinics have different needs depending on location and community needs.

Each clinic will develop a unique relationship with their spectacle suppliers. A good relationship should be developed so that ordering and payment negotiations can be made to suit the needs of both the clinic and the supplier.

All clinics must make sure their frame and readymade spectacle supply is well stocked to serve their patient's needs. Stock should be re-ordered regularly to make sure that the clinic never runs out of necessary frames or readymade spectacles. The most efficient way of keeping track of stock is through an inventory system in a computer.

SETTING UP A REFRACTION CLINIC (cont.)

COMPUTER	<p>A computer allows you to record information including: stock details, finances, sales, and patients. By entering in stock details it will be easy to know how much stock is available and when you need to order more.</p> <p>A monitoring and evaluation system set up on a computer allows data from the clinic to be quickly recorded and assessed. This data will show information relating to the progress of clinic, number and types of people using the refraction clinic, and number of prescriptions written and spectacles dispensed. The information that is collected by a monitoring and evaluation system will allow changes and improvements to be made as needed.</p> <p>Information should be entered into the computer at the end of every working day. This will keep the clinic system running efficiently.</p> <p>Data that is saved in the computer should be backed-up weekly, to make sure no data is accidentally lost. The back-up should be on a separate device (like a CD ROM, memory stick or pen drive, or an external hard drive). Back-ups should be kept in a safe place separate from the computer.</p> <p>Even when the information has been entered into the computer, paper documents and records should never be thrown away. The paper documents can be very important if computer data is lost or destroyed.</p>
STATIONERY	<p>Enough stationery must be kept in the clinic to make sure that it maintains a high standard of service. As the stationery stock decreases each month, orders should be made to refill the stock. Stationery supplies in the eye examination room should also be checked monthly and re-ordered if needed.</p> <p>Stationery includes: Blank pads of paper, spare examination record cards, spare referral forms, spare prescription forms, business cards, envelopes, rulers, paperclips, stapler and staples, post-it notes, sticky tape ("Scotch" tape), scissors, spare light bulbs for ceiling lights.</p>

Date	Name DOB M/F	Chief Compliant	Case history General health Family history Occupation /Tasks	Presenting Distance and Near VA aided/unaided		Distance and Near VA aided/unaided		PH VA		Eye health	PD	Refraction and VA		Diagnosis Treatment Spectacles	Advice	Referral
				R	L	R	L	R	L			R	L			

Figure 29.3: Example of a patient record card

SETTING UP A REFRACTION CLINIC (cont.)

The size and layout of a refraction clinic will depend on the amount of space available. If a pre-existing building is being used for the refraction clinic, the layout will need to be adapted.

Below (Figure 29.4) is an example of an ideal layout for a refraction clinic.

CLINIC LAYOUT

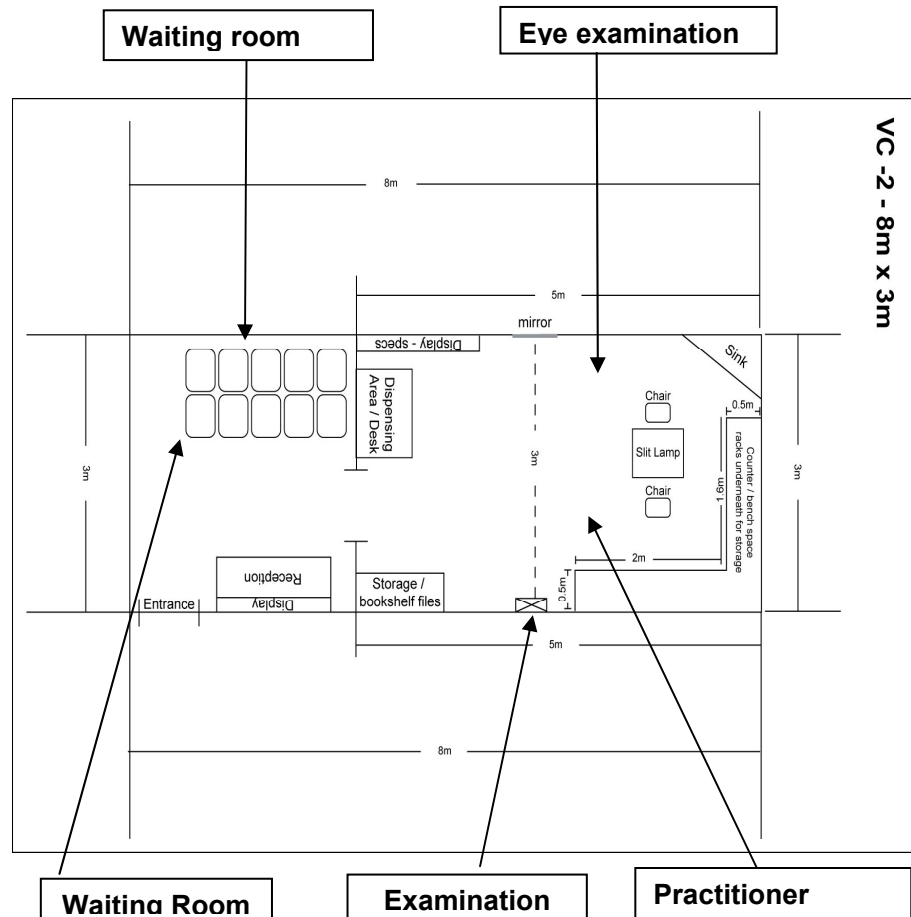


Figure 29.4: An ideal layout for a refraction clinic

STANDARD OPERATING PROCEDURES

CLINIC OPERATIONS	<p>To make sure the refraction clinic functions well and provides a good service to people who have eye problems, some standard rules include:</p> <ul style="list-style-type: none"> • Opening and closing times of the clinic must be displayed on a sign on the front door of the clinic. • The eye care practitioner must be at the clinic 15 minutes before the opening time to make sure they are ready to see patients as soon as the clinic opens. • The clinic must open and close at the stated times. • The clinic must be clean and tidy. All areas of the clinic, including the waiting room, eye examination room and toilet area (if applicable) must be thoroughly cleaned every day with disinfectant. There must be soap at the sink and it must be used routinely for washing hands. • All equipment must be returned to its correct place at the end of each day. • All equipment must be turned off, wiped down, and covered with dust-protectors at the end of each day. • All patient record cards must be filed alphabetically in the storage cupboard at the end of each day. • All stationery must be stored in the storage cupboard at the end of each day. • At the end of each week, all clinic rooms must have their stock checked and re-ordered when necessary. • When you sell spectacles, you must give a receipt to the person. You must also keep a copy of the receipt in the receipt book. • A set amount of cash money (a "float") will be left in the safe box; this amount must always be kept in the safe. When a sale is made, the money must be put into the safe box immediately. • At all times, all cash must be locked in the safe box and locked in the storage cupboard.
HYGIENE	<p>Good hygiene must be maintained throughout the clinic to have a safe working environment. A refraction clinic is a health clinic so it is very important to prevent the spread of diseases to people who are having their eyes examined and staff who work there.</p> <p>Standard rules include:</p> <ul style="list-style-type: none"> • All eye care practitioners must dress neatly in clean clothes and must be well groomed. Finger nails must be kept short, hair must be clean (and tied up if it is long) and shoes must be worn at all times. • Eye care practitioners must wash their hands with antiseptic soap before and after examining every person. Hands must be rinsed well and dried completely with a clean towel or paper towel. • Equipment must be wiped down with alcohol swabs between each eye examination. • All waste from the clinic must be put into the allocated rubbish bins – all internal rubbish bins must be lined with plastic rubbish bags. At the end of each day all internal rubbish must be emptied into the allocated rubbish bin outside.

SUMMARY: ESTABLISHING A REFRACTION CLINIC

THE REFRACTION CLINIC

A refraction clinic has several purposes including provision of a: professional eye examination, quality spectacles, referral if needed for eye diseases.

SETTING UP A REFRACTION CLINIC

Rooms:

A refraction clinic has three main areas:

- Waiting room or waiting space for people to sit comfortably and wait for their eye examination.
- Eye examination room where the eye care practitioner performs an eye examination.
- Dispensing area where spectacles are dispensed and adjusted.

Lighting:

- Needs to be adjustable in the eye examination room.
- Needs to be bright in the waiting and dispensing areas.

Vision charts:

- Indirect chart used at 3 m with a 6 m reversed Snellen chart and mirror.
- Direct chart used at 6 m with a 6 m chart.
- Direct chart used at 3 m with a 3 m chart.
 - Need to add -0.25 D to the sphere power of final refraction results
 - If a 6 m chart is used at 3 m, the VA measurement needs to be adjusted.

Computer:

- Is the easiest way to keep details on stock, finances, sales and patient information.
- Data should be entered in at the end of every working day.
- Monitoring and evaluation data is important to assess and improve the clinic.

Dispensing stock:

- “Seed stock” is the initial number of spectacle frames and readymade spectacles.
- Stock should be monitored by putting stock details into a computer system and should be re-ordered as needed.

Clinic layout:

- Depends on existing infrastructure.
- Must be designed to allow efficient operation of the clinic.
- Refer to Figure 29.4.

STANDARD OPERATING PROCEDURES

Standard operating procedures are rules that must be followed for:

- Clinic operations
- Hygiene.

EQUIPMENT LIST

	Waiting Room	Eye Examination Room	Dispensing Area
Furniture	Four chairs	Large bench space	Desk
	Reception desk	One chair	Two chairs
	Frame display units	Two stools with wheels	One adjustable height chair
	Posters / brochures on eyes	Sink	Frame display units
	Cupboard for patient records	Hygiene cupboard	
		Bookshelf / storage space	
		Sink cupboard	
Equipment	Patient record cards	Distance VA Chart	Focimeter (or lensmeter)
	Computer	Trial lens set	Screwdrivers and wrench kit
		Trial frame	Pliers set
		Jackson Cross Cylinder	Rulers
		Retinoscope / Ophthalmoscope	Frame heater
		PD ruler	Ditest Parallel Rule
		Slit-lamp with table	Tool rack mounted on wall
		Tonometer	Marking pens
		Near VA Chart	Pupillometer
		Focimeter (or lensmeter)	Progressive lens chart
		Mirror	Geneva Lens Measure
		Posters	Seed stock - frames and RMS
		Pen torch	Batteries
		Occluder / Pinhole	Frame spare parts
		Batteries	Computer
		Examination record cards	
		Prescription forms	
		Referral forms	
		Desk lamp	
Stationery and Hygiene Items	Blank pads of paper	Gloves	
	Spare examination record cards	Cotton wool / cotton tips	
	Spare referral forms	Sterile pads	
	Spare prescription forms	Saline	
	Business cards	Alcohol swabs	
	Envelopes	Tissues	
	Printing paper	Fluorescein strips and other drugs	
	Pens, pencils, markers	First-aid kit	
	Highlighters and rubber		
	Rulers		
	Paperclips		
	Stapler and staples		
	Post-it notes		
	Sticky tape		
	Scissors		
	Spare light globes		

TEST YOURSELF QUESTIONS

1. What are the three main spaces needed in a refraction clinic?

2. What is the ideal size of the waiting room and the eye examination room?

3. What type of lighting is needed in the eye examination room?

4. Describe what is meant by an Indirect VA chart? What is needed in this set-up?

5. Describe the process of maintaining dispensing stock in the clinic.

6. List five different Clinic Standard Operating Procedures.

7. Why is it important to have good hygiene in a refraction clinic?



NOTES