

# Development of an Online Self-directed Diabetic Retinopathy Grading Course

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## Purpose

Blindness from diabetic retinopathy (DR) is almost entirely preventable with regular eye examinations and timely laser surgery. The aim of this study is to develop an online self-directed DR grading course, for use by general practitioners and other health professionals, using retinal photography.

## Method

The course provides a general overview of the stages of DR and diabetic macular oedema and an outline of the referral plan for each stage. Diabetic retinopathy is divided into stages, normal or minimal non-proliferative DR (NPDR), mild/moderate NPDR, severe NPDR and proliferative DR. It also includes assessment of diabetic macular oedema (present/absent). Patients with any level of diabetic macular oedema, severe NPDR, proliferative DR or vitreous haemorrhage require referral to an ophthalmologist. Referral is also needed for any unexplained loss of vision, or if a screening examination cannot be performed. All patients with diabetes require regular review.

## Results

The outcome of this training will be evaluated through a competency-based assessment to determine the ability to:

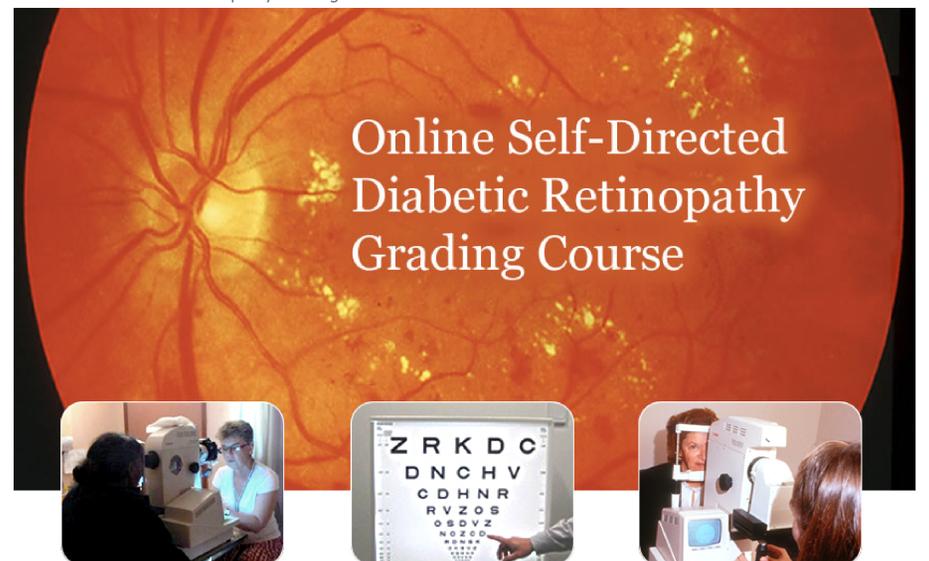
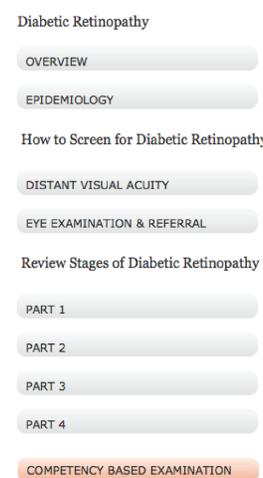
Accurately detect and grade DR and macular oedema, according to the National Health and Medical Research Council (NHMRC) guidelines for the management of DR

Provide appropriate referral plans, according to the NHMRC guidelines

## Conclusion

The provision of an online self-directed DR grading course for general practitioners and other health professionals, will increase primary care screening for DR and facilitate the appropriate identification of cases for urgent referral. The key to the prevention of blindness from Diabetic Retinopathy is early detection.

Figure 1: Snapshots from the Online Self-Directed Diabetic Retinopathy Grading Course



### Overview

This self-directed course is designed to provide training in grading diabetic retinopathy. We will go through each step in this process and provide quiz sessions for you to become competent at grading diabetic retinopathy and providing appropriate referrals. The outcome of this training will be evaluated through a competency-based assessment to determine your ability to:

1. Accurately detect and grade retinopathy and macular oedema, according to the Australian National Health and Medical Research Council (NHMRC) guidelines for the management of diabetic retinopathy
2. Provide appropriate referral plans, according to the NHMRC guidelines.

The exam has a time limit of 1.5 hours to complete. 75% or greater concordance over 50 images will be needed to achieve accreditation.

### Epidemiology

#### What is diabetic retinopathy?

Diabetic retinopathy is a leading cause of vision loss and is an increasing problem throughout the world. It is caused by changes in the blood vessels of the retina (back of the eye). Even when no symptoms are present to alert the individual to the presence of diabetes, the long-term elevation of blood glucose will eventually lead to tissue damage. Whilst evidence of tissue damage can be found in many organ systems, diabetic retinopathy is a highly treatable complication of diabetes and a preventable cause of blindness.

#### Who is at risk of developing diabetic retinopathy?

All people with diabetes are at risk of developing retinopathy. The longer someone has diabetes, the more likely they will develop retinopathy. Good control of blood glucose, blood pressure and lipids, delays the development of retinopathy and prolongs life. The proportion of people with newly diagnosed type 2 diabetes who have retinal changes varies depending on how long they had undetected diabetes. This also varies depending on the level of health care they access. In poorly served areas up to 15% of those with newly diagnosed diabetes will already have some evidence of retinopathy at diagnosis, because type 2 diabetes has gone undiagnosed for many years. After 20 years it is estimated that approximately 80% of the diabetic population have retinopathy.

### Competency - Based Examination

The competency-based examination will determine your ability to:

- » Accurately detect and grade retinopathy and macular oedema, according to the Australian National Health and Medical Research Council (NHMRC) guidelines for the management of diabetic retinopathy
- » Provide appropriate referral plans, according to the NHMRC guidelines.

Visual acuity will be recorded: normal retina and low visual acuity and others with normal visual acuity and signs of diabetic retinopathy, you will need to decide on the referral required.

The competency based examination has a time limit of 1.5 hours to complete and can only be undertaken in one sitting. However, the exam can be taken again, to achieve the required pass level of 75% or greater concordance over 50 images.

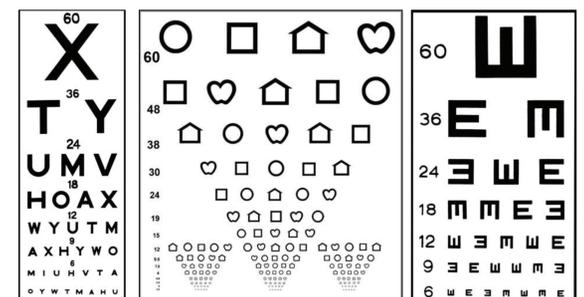
## Online Self-Directed Diabetic Retinopathy Grading Course

### Distant Visual Acuity

Screening for diabetic retinopathy involves testing visual acuity, to identify early vision loss, and examination of the retina for signs of retinopathy. We will go through each step in this process and provide practice sessions for you to become competent at screening for diabetic retinopathy and diabetic macular oedema and providing appropriate referrals.

#### Equipment

Distant Visual Acuity chart: Snellen chart (letters) or an Illiterate E or Lea Chart (6 meter or 3 meter).



### Eye Examination & Referral

In this step we will provide a general overview of the stages of diabetic retinopathy and diabetic macular oedema and outline the referral plan for each stage. We will review the pathology of diabetic retinopathy and diabetic macular oedema, and provide practice sessions for you to become competent at screening and providing appropriate referrals.

### Review the Stages of Diabetic Retinopathy

#### Signs of Diabetic Retinopathy

- Normal
- Microaneurysms
- Haemorrhages
- Soft exudate
- Hard exudates
- Intraretinal microvascular abnormalities
- New vessels on disc/ elsewhere
- Venous beading
- Vitreal/ Preretinal haemorrhage
- Venous loops
- Laser
- Other pathology



CERTIFICATE OF COMPETENCY PROVIDED AFTER SUCCESSFUL COMPLETION

AVAILABLE ONLINE AT NO COST

[IEHU.UNIMELB.EDU.AU/HOME/DIABETIC\\_RETINOPATHY\\_GRADING](http://IEHU.UNIMELB.EDU.AU/HOME/DIABETIC_RETINOPATHY_GRADING)

