

# DIABETIC RETINOPATHY (DR) IS A COMPLICATION OF DIABETES MELLITUS AFFECTING RETINAL BLOOD VESSELS.<sup>1</sup>

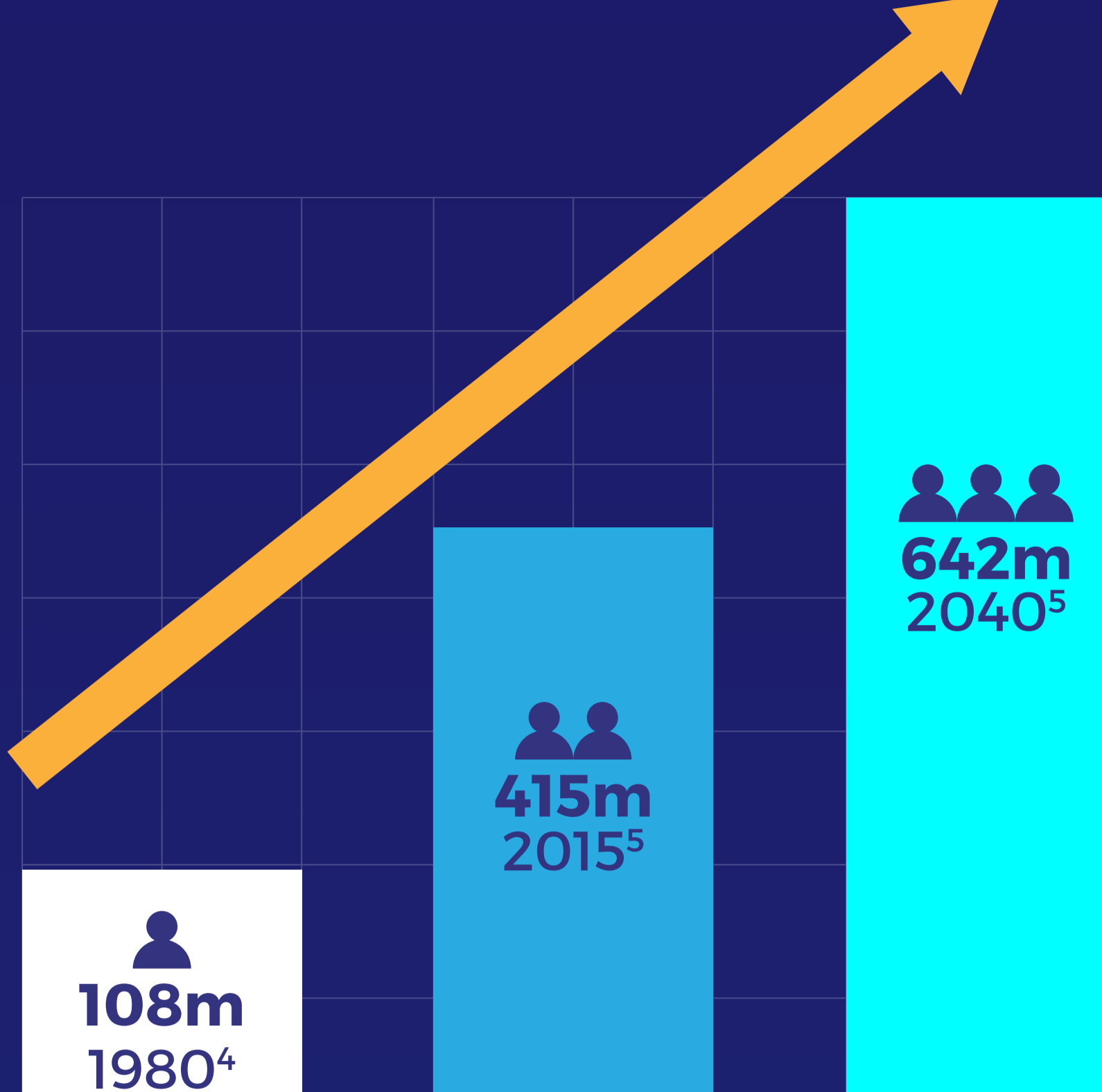
**1 IN 3** PEOPLE WITH DIABETES HAVE SOME FORM OF DR.<sup>2</sup>

DR IS **THE LEADING CAUSE OF BLINDNESS** IN WORKING-AGE ADULTS (20-65 YEARS).<sup>2</sup>

**1 IN 10** PEOPLE WITH DIABETES DEVELOP A **VISION-THREATENING** FORM OF DR.<sup>3</sup>



## DR IS A GROWING EPIDEMIC AS THE PREVALENCE OF DIABETES ESCALATES GLOBALLY

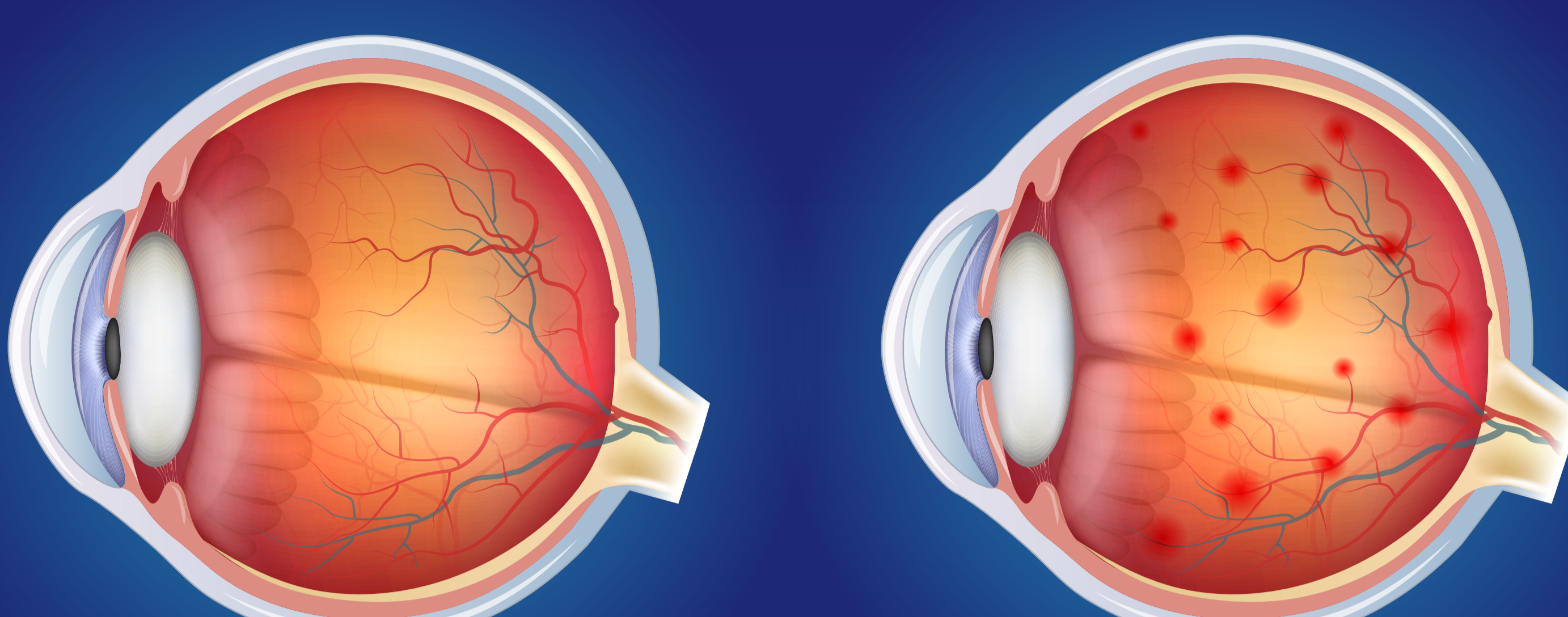


GLOBAL PREVALENCE OF DIABETES

## HOW DIABETIC RETINOPATHY AFFECTS THE EYE

HEALTHY EYE

DR EYE



DR occurs when high blood sugar levels cause changes in retinal blood vessels. Damage occurs in three main stages:

1

### MILD TO MODERATE NON-PROLIFERATIVE DIABETIC RETINOPATHY (NPDR)<sup>6</sup>

MICROANEURYSMS (SMALL DILATIONS) AND HEMORRHAGES DEVELOP IN THE RETINAL BLOOD VESSELS.

SLIGHT BLEEDING MAY OCCUR, BUT IT TYPICALLY DOES NOT AFFECT VISION.

2

### PRE-PROLIFERATIVE RETINOPATHY<sup>6,7</sup>

BLOOD VESSEL BLOCKAGE AND LEAKAGE LEADS TO A REDUCED BLOOD SUPPLY TO THE RETINA. BLOOD VESSELS MAY BECOME IRREGULAR IN CALIBRE AND BLEEDING INCREASES.

VISION IS STILL NOT TYPICALLY AFFECTED AT THIS STAGE.

3

### PROLIFERATIVE RETINOPATHY<sup>7</sup>

FURTHER BLOOD VESSEL BLOCKAGE LEADS TO THE GROWTH OF NEW, LEAKY BLOOD VESSELS THAT BLEED AND LEAD TO THE FORMATION OF SCAR TISSUE TO GROW.

SCAR TISSUE CAN PULL AT THE RETINA RESULTING IN RETINAL TEARS OR DETACHMENT.

SWELLING AND BLOCKAGE OF BLOOD VESSELS MAY RESULT IN THE SWELLING OF THE MACULAR AND CHANGES IN VISION. THIS IS A TREATABLE CONDITION CALLED **DIABETIC MACULAR EDEMA**.<sup>7,8</sup>

## DISEASE BURDEN

### PATIENT IMPACT

THE BACKGROUND RETINOPATHY STAGE OF DIABETIC RETINOPATHY IS GENERALLY ASYMPTOMATIC. HOWEVER, DURING THE MORE ADVANCED STAGES OF THE DISEASE, PATIENTS MAY EXPERIENCE:<sup>9</sup>

- BLURRED OR PATCHY VISION**
- DISTORTED VISION**
- PROGRESSIVE LOSS OF VISUAL CLARITY**



NORMAL VISION



VISION WITH ADVANCED DR

VISUAL IMPAIRMENT CAUSED BY DR HAS A SIGNIFICANT IMPACT ON QUALITY OF LIFE.<sup>10</sup>

**79%** OF PEOPLE WITH DR VISION LOSS STRUGGLE WITH EVERY DAY ACTIVITIES SUCH AS:<sup>10</sup>



WORKING



DRIVING



BASIC HOUSEHOLD TASKS

DR IS ALSO ASSOCIATED WITH AN **INCREASED RISK OF DEPRESSION**, WITH 33.0% OF PATIENTS WITH DR HAVING A DIAGNOSIS OF DEPRESSION COMPARED TO 20.4% OF PATIENTS WITHOUT DR.<sup>11</sup>

## ECONOMIC BURDEN



DR COSTS BILLIONS OF \$ PER YER GLOBALLY<sup>12-17</sup> HOWEVER, THE ECONOMIC BURDEN OF DR CAN BE REDUCED BY:<sup>10</sup>



**SCREENING FOR THE DISEASE**



**PREVENTION PROGRAMS FOR PEOPLE WITH DIABETES**



**INTERVENTIONAL TREATMENT TO DELAY DISEASE PROGRESSION**

## RISK FACTORS, DIAGNOSIS AND TREATMENT

### RISK FACTORS

ANYONE WHO HAS DIABETES CAN DEVELOP DR. HOWEVER, THERE ARE SEVERAL FACTORS THAT INCREASE THE RISK OF DEVELOPING THIS EYE CONDITION.<sup>1,17,8</sup>



DURATION OF DIABETES



POOR BLOOD SUGAR CONTROL



SMOKING



HIGH BLOOD PRESSURE



HIGH CHOLESTEROL



PREGNANCY



ASIAN OR AFRICAN-CARIBBEAN HERITAGE

### DIAGNOSIS AND TREATMENT

EARLY DETECTION AND TREATMENT OF DR CAN PREVENT BLINDNESS IN 50% TO 70% OF CASES.<sup>18</sup> UNFORTUNATELY, 73% OF PATIENTS WITH DR ARE UNAWARE OF THEIR CONDITION.<sup>19</sup>

IN ADDITION TO A DILATED RETINAL EXAMINATION<sup>1</sup>, THE MOST COMMON DIAGNOSTIC TESTS FOR DR INCLUDE:

**FLUORESCEIN ANGIOGRAPHY (FA)<sup>20</sup>**  
2D IMAGING OF THE RETINA IN THE PRESENCE OF A DYE THAT HIGHLIGHTS BLOOD VESSELS

**OPTICAL COHERENCE TOMOGRAPHY (OCT)<sup>21</sup>**  
3D IMAGING OF THE RETINA, USED TO VISUALISE MACULAR EDEMA

**COLOR FUNDUS ANGIOGRAPHY<sup>22</sup>**  
TO TAKE A PICTURE OF THE RETINA



COMPARED TO CONVENTIONAL BLOOD SUGAR CONTROL, INTENSIVE BLOOD SUGAR CONTROL REDUCES THE RISK OF:<sup>23,24</sup>

DEVELOPING DR

**↓76%**

PROGRESSION BY

**↓54%**

LASER TREATMENT BY

**↓56%**

DIABETIC MACULAR EDEMA (DME) BY

**↓23%**

FOR DR THAT IS AFFECTING OR THREATENING SIGHT, TREATMENTS INCLUDE:<sup>9,25-27</sup>

- PANRETINAL PHOTOCOAGULATION:** LASER TREATMENT TO SHRINK ABNORMAL BLOOD VESSELS
- ANTI-VEGF INTRAVITREAL TREATMENT:** INJECTIONS INTO THE EYE TO REDUCE SWELLING OF THE MACULA.
- LASER TREATMENT FOR DIABETIC MACULAR EDEMA:** TO REDUCE SWELLING OF THE MACULA
- VITREORETINAL SURGERY:** AN OPERATION TO REMOVE BLOOD OR SCAR TISSUE FROM THE EYE IF LASER TREATMENT IS NOT POSSIBLE DUE TO THE ADVANCED STAGE OF DR

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