

Appendix A1: Participant information sheet

Prognostic Prediction Factors for Diabetic Retinopathy (DR) progression

These patients are referred to the hospital eye services (HES) when they develop clinical signs of sight-threatening diabetic retinopathy. However, approximately 50% of referrals don't need intervention and are observed in the HES for a variable period of time.

- As clinicians, you may have felt the necessity for a risk stratification tool supporting your decision in; 1) which patients to prioritise for more urgent appointments 2) whether to definitely be able to see them before they reach treatment stage or vision loss and need evidence to support your decision. Such a tool will need certain candidate predictors and we have put together a set (Appendix A3) from our systematic review of published tools /models (mainly for screening patients).
- This study is a step to develop a prediction model for the progression of diabetic retinopathy with an aim to help predict the above outcomes safely and effectively.
- *Please help us select top prognostic factors which can be factors on this list or any additional factors that you can think of but is not on this list.*
- *To do that you may wish to write down without looking at the list given, ignore the order these factors are listed in or the groups they belong to and decide on the basis of your own personal knowledge and experience.*

Thanks for agreeing to take part in this study. Please mark on the list in Appendix A3. Please feel free to add at the end of the list any additional factors, name and sign the consent form and return at the end of the meeting.

Appendix A2: Participant consent form

**Please write
your initials in
the Box**

1. I confirm that I have read and understand the information sheet dated 31/08/2018 (version 1) for the above study. I have had the opportunity to consider the information ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. I understand that relevant sections of my notes and data collected during the study may be looked at by individuals above, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my input.

4. I consent to this material being used for research and publications.

5. I freely agree to take part in this study

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

Appendix A3: List of candidate predictors from the Systematic Review

PREDICTOR GROUPS (n = type of candidate predictors in each group)	
Ocular signs (10)	Retinopathy level Presence of DR Hard exudates R0 both eyes BDR (NPDR) both eyes BDR (NPDR) one eye Haemorrhages PDR Maculopathy Visual acuity score
Socio-demographics (6)	Age Gender Race Married Townsend deprivation score Occupation
Diabetes characteristics (6)	Type of DM Age at diagnosis Age at NPDR diagnosis Duration of DM Post-pubertal Duration of DM Time to next screening
Biochemical parameters (15)	HbA1c Serum Glucose HDL /cholesterol ratio Total serum cholesterol LDL cholesterol HDL cholesterol Non-HDL Cholesterol Albumin /creatinine ratio Urine Albumin Serum creatinine Total triglycerides Log ACR

	Haemoglobin eGFR WBC
Physical examination (4)	SBP DBP Heart Rate Mean arterial pressure
Co-morbidities (10)	HTN Stroke History CHF history IHD history Dyslipidaemia Atrial Fibrillation Seizures Psychiatric illness Rheumatoid Arthritis Urinary tract infection
Diabetic complications (10)	Chronic renal disease Nephropathy Non-healing foot ulcer Amputation Stroke Neuropathy Peripheral vascular disease MI Diabetic ketoacidosis Severe Hypoglycaemia
Diabetes treatment (7)	Statin Metformin

	Sulfonylurea Insulin ACE Anti-Hypertensive Rx Medications use
Lifestyle (6)	Smoking Ideal Body weight BMI Exercise/physical activity Alcohol Waist-hip ratio
Family History (4)	IDDM NIDDM MI HTN
Total candidate predictors = 78	

* Compiled from Haider S, Sadiq SN, Moore D, Price MJ, Nirantharakumar K. Prognostic prediction models for diabetic retinopathy progression: a systematic review. *Eye*. 2019;33(5):702-13

1 Appendix A4: The four-stage NGT Process (1)

1	Silent generation of ideas in writing (Brainstorming):	At the beginning of the meeting, participants were given an information sheet (Appendices A1 to A4) which includes a brief overview of the study, and the list of prognostic factors to select from and add to.	This was sent to participants before the meeting as well
2	Round-robin recording of ideas	Each participant was asked to propose one item that they believed is the most important predictor for DR progression. This happened over several rounds until there were no new predictors proposed.	Participants were asked to keep it simple and precise - One phrase only. Each prognostic factor mentioned was written on a flipchart.
3	Discussion of the list of ideas	Participants were encouraged to discuss their generated list of predictors and ask for any clarifications needed	An equal opportunity was provided for all
4	Voting	Using five stickers, each participant was asked to place stickers next to their top five predictors written on the flip chart from step 2.	Retina specialists were given a different coloured sticker, to be able to analyse two groups separately if needed

Appendix A5: Breakdown of participants

Grades	Midlands NHS Trust	North East NHS Trust	South of England NHS Trust	Midlands NHS Trust	Total
Medical Retina	2	1	4	4	11
Other Consultants	3	4	1	0	8
Associate specialists	1	3	0	1	5
Speciality Doctors	2	3	1	0	6
Registrars	7	1	3	1	12
Nurses	1	0	0	0	1
Optometrists	0	1	0	0	1
Total	16	13	9	6	44

Appendix A6: New factors introduced in the NGT meetings and saturation^a

	Midlands	North East	South England	Midlands
Only eye situation	Y	-	-	-
Early Worsening	Y	-	-	-
Frequent DNA	-	Y	-	-
Pregnancy	-	Y	Y	Y
Diet	-	Y	-	-
Pre proliferative DR	-	-	Y	Y
Chronic infection	-	-	Y	-
Co-morbidities	Y	-	-	Y

^aPlease see

Appendix A7: Primary studies Risk of Bias

STUDY	Reference Number	RISK OF BIAS (LOW, MODERATE, HIGH)
Non - Systematic Review		
Gupta et al	(1)	Moderate
UKPDS 50	(2)	Low
UKPDS 52	(3)	Low
DCCT	(4)	Low
Yau JW et al (Global)	(5)	Moderate
Lane et al	(6)	High
Denniston et al	(7)	Low
Ohkubo Y et al	(8)	Low
Grausland et al	(9)	Low
Jeng et al	(10)	Moderate
Zhou Y et al	(11)	Low
Foster et al	(12)	Low
Systematic Review		
WESDR	(13)	Low
DCCT	(4)	Low
ACCORD	(14)	Low
EURODIAB	(15)	Low
UKPDS 68	(16)	Low
Mehlson et al	(17)	Low
Lasgani et al	(18)	Low

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Appendix A8: Predictors distribution in models with low to moderate risk of bias and low concern of applicability (1)

	DR grade	Age	Gender	Age at diagnosis	Duration of diabetes	Type of diabetes	HBA1c	Total serum cholesterol	SBP
Aspelund T et al. 2011(2)	Y	-	Y	-	Y	Y	Y	-	Y
Scanlon PH 2015 (3)	Y	-	-	-	Y	-	Y	-	-
ISDR model 2017 (4)	-	-	-	Y	Y	-	Y	Y	Y
7 common ones among 14 models	Y	Y	Y	Y	Y	-	Y	-	Y

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