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Fundus Photography in Eye Examinations: Guidelines

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Research Questions

1. What are the evidence-based guidelines for administration of a fundus photography exam in conjunction with a regular eye examination in individuals aged 0 to 19, 20 to 64, or ≥ 65 years?
2. What are the evidence-based guidelines for administration of a fundus photography exam in conjunction with a regular eye examination in individuals with a family history of diabetes, hypertension, ocular hypertension, cataract(s), glaucoma, and/or age-related macular degeneration?
3. What are the evidence-based guidelines for administration of a fundus photography exam in conjunction with a regular eye examination in individuals diagnosed with diabetes, hypertension, ocular hypertension, cataract(s), glaucoma, and/or age-related macular degeneration?

Key Findings

Five evidence-based guidelines were identified regarding the administration of a fundus photography exam in individuals with different indications.

Methods

A limited literature search was conducted on key resources including PubMed, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to guidelines. The search was also limited to English language documents published between January 1, 2014 and April 9, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Q1: Individuals aged 0 to 19, 20 to 64, or ≥ 65 years Q2: Individuals with a family history of diabetes, hypertension, ocular hypertension, cataract(s), glaucoma, and/or age-related macular degeneration Q3: Individuals diagnosed with diabetes, hypertension, ocular hypertension, cataract(s), glaucoma, and/or age-related macular degeneration
Intervention	Fundus photography in combination with a standard eye examination
Comparator	No comparator
Outcomes	Guidelines
Study Designs	Evidence-based guidelines

Results

Five evidence-based guidelines were identified regarding the administration of a fundus photography exam in individuals with different indications.

Additional references of potential interest are provided in the appendix.

Guidelines and Recommendations

Age-Related Macular Degeneration

1. Age-related macular degeneration. (NICE guideline NG82). London (GB): NICE. 2018. <https://www.nice.org.uk/guidance/ng82/resources/agerelated-macular-degeneration-pdf-1837691334853>
See: 1.4 Diagnosis and referral, page 10

Diabetes

2. VA/DoD clinical practice guideline for the management of type 2 diabetes mellitus in primary care. Washington (DC): U.S. Department of Veterans Affairs. 2017. <https://www.healthquality.va.gov/guidelines/CD/diabetes/VADoDDMCPGFinal508.pdf>
See: Section E: Selected Complications and Conditions #22, pages 22, 48, 100, 124
3. Diabetes Canada Clinical Practice Guidelines Committee, Altomare F, Kherani A, Lovshin J. 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada, Retinopathy. Can J Diabetes; 42:S210-216. <http://guidelines.diabetes.ca/docs/CPG-2018-full-EN.pdf>
See: Screening, page S210
4. Hooper P, et al. Excerpt from the Canadian Ophthalmological Society evidence-based clinical practice guidelines for the management of diabetic retinopathy. Can J Ophth. 2017;52(s1):S45-74. [https://www.canadianjournalofophthalmology.ca/article/S0008-4182\(17\)31047-5/fulltext](https://www.canadianjournalofophthalmology.ca/article/S0008-4182(17)31047-5/fulltext)
See: Retinal photography, page S52

Glaucoma

5. Management of glaucoma. 2nd ed. (Clinical practice guidelines). Putrajaya (MY): Malaysian Health Technology Assessment Section, Ministry of Health Malaysia. 2017. <http://www.acadmed.org.my/index.cfm?&menuid=67#Ophthalmology>
(under Ophthalmology CPG)
See: 4.2.6 Assessment of the optic disc and retinal nerve fibre layer, page 9

Appendix — Further Information

Guidelines and Recommendations

Specific Indications Not Specified

6. Ophthalmic Imaging. (Ophthalmic Services guidance). London (GB): The Royal College of Ophthalmologists. 2016:

<https://www.rcophth.ac.uk/wp-content/uploads/2014/12/Ophthalmic-Imaging-November-2016.pdf>

See: Section 3. Retinal imaging

Regular Eye Exam Not Specified

7. Fundus photography. (Clinical Policy no 10.01.05). Palm Beach Gardens (FL): Prestige Health Choice. 2018:

<https://www.prestigehealthchoice.com/pdf/provider/resources/clinical/policies/ccp1380-1905-fundus-photography.pdf>

Diabetes

8. Diabetes Mellitus in Adults, Type 2; Diagnosis and Management of. Bloomington (MN): Institute for Clinical Systems Improvement. 2014:

<https://www.icsi.org/guideline/diabetes/9-ongoing-management/>

See: 9. Ongoing management, Specialist dilated eye exam

9. 2017 CAO Clinical Practice Guideline: Optometric care of the patient with diabetes. Can J Optometry; 79(s2):

https://opto.ca/sites/default/files/resources/documents/cjo_diabetes_lores_with_images_en.pdf

See: Retinal Imaging, page 20

10. Hanna S, Optometry Australia Diabetes Guidelines Working Group. Optometry Australia – Guidelines on the examination and management of patients with diabetes. Clin Exp Optom. 2016;99(2):120-6.

<https://onlinelibrary.wiley.com/doi/epdf/10.1111/cxo.12340>

See: Table 1, page 121;

Table 2, 122

Retinal Vein Occlusion

11. Retinal vein occlusion (RVO) guidelines. London (GB): The Royal College of Ophthalmologists. 2015:

<https://www.rcophth.ac.uk/wp-content/uploads/2015/07/Retinal-Vein-Occlusion-RVO-Guidelines-July-2015.pdf>

See: Section 11 (Treatment algorithm) and Section 12 (RVO service provision)

Clinical Practice Guidelines – Unspecified Methodology

12. Fundus photography. (Clinical UM Guideline no. CG-MED-47). Virginia Beach (VI): Amerigroup RealSolutions in healthcare. 2018:
https://medicalpolicies.amerigroup.com/medicalpolicies/guidelines/gl_pw_c160717.htm
13. Wong, Tien Y. et al. Guidelines on diabetic eye care. *Ophthalmology*. 2018;125(10):1608-22.
<https://www.ncbi.nlm.nih.gov/pubmed/?term=29776671>
14. Holz FG, Sadda SR, Staurenghi G, et al. Imaging Protocols in Clinical Studies in Advanced Age-related macular degeneration: Recommendations from Classification of Atrophy Consensus Meetings. *Ophthalmology*. 2017 Apr;124(4):464-478.
[PubMed: PM28109563](#)

Age-Related Macular Degeneration

15. Guidelines for the Collaborative Management of Persons with Age-Related Macular Degeneration by Health- and Eye-Care Professionals. *Can J Optometry*. 2015;77(1).
https://opto.ca/sites/default/files/resources/documents/cjo_journal_online_ehco_guidelines_eng_v2.pdf
See: C) *Moderate to Severe Dry AMD*, page 4;
Optometrist, page 6

Review Articles

16. Pichi F, Abboud EB, Ghazi NG, Khan AO. Fundus autofluorescence imaging in hereditary retinal diseases. *Acta Ophthalmol*. 2018 Aug;96(5):e549-e561.
[PubMed: PM29098804](#)
17. Bandello F, Sacconi R, Querques L, Corbelli E, Cicinelli MV, Querques G. Recent advances in the management of dry age-related macular degeneration: A review. *F1000Research*. 2017;6:245.
[PubMed: PM28529701](#)
18. Goh JK, Cheung CY, Sim SS, Tan PC, Tan GS, Wong TY. Retinal Imaging Techniques for Diabetic Retinopathy Screening. *J Diabetes Sci Technol*. 2016 Feb 1;10(2):282-294.
[PubMed: PM26830491](#)
19. Ilginis T, Clarke J, Patel PJ. Ophthalmic imaging. *Br Med Bull*. 2014; 111:77-88.
<https://www.ncbi.nlm.nih.gov/pubmed/25139430>