NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline scope

Cataracts: diagnosis and management

Short title

Cataracts

Topic

The Department of Health in England has asked NICE 'to develop a clinical guideline on Cataracts: diagnosis and management of cataracts' and to consider issues surrounding 'indications for cataract extraction' and 'wrong lens implant errors'.

Who the guideline is for

- people using services, families and carers and the public
- healthcare professionals in primary care
- healthcare professionals in secondary care
- social care professionals
- local authorities
- commissioners of ophthalmic and optometric services
- providers of ophthalmic and optometric services
- practitioners in ophthalmic and optometric services.

It may also be relevant for:

- private sector and voluntary organisations
- people working in related services.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive.

27 ### *Equality considerations*

28 NICE has carried out an equality impact assessment [link in final version]
29 during scoping. The assessment:

30 - lists equality issues identified, and how they have been addressed
31 - explains why any groups are excluded from the scope, if this was done.

32 # 1 What the guideline is about

33 ## *1.1 Who is the focus?*

34 **Groups that will be covered**

35 - Adults (18 years and older) suspected of having cataracts or diagnosed
36 with cataracts.

37 The following subgroups have been identified as needing specific
38 consideration:

39 - people of Asian, African or African–Caribbean family origin
40 - people from low socioeconomic status groups
41 - people with other comorbidities that may affect management, including
42 people who are frail, older people, people with impaired cognitive function,
43 people with impaired mobility and people in residential care
44 - people with an ocular or systemic condition, or who are on medication that
45 affects management pre- peri- or post-operatively, including people with
46 diabetes, uveitis, glaucoma, retinal disease, macular degeneration, Fuch's
47 corneal endothelial dystrophy and high myopia, and people taking
48 medicines including aspirin, warfarin, tamsulosin and other alpha
49 antagonists.

50 **Groups that will not be covered**

51 - People with trauma-related cataracts.

1.2 Settings

Settings that will be covered

- All settings in which NHS-funded care is received.

Settings that will not be covered

- Elective privately funded surgery.

1.3 Activities, services or aspects of care

Key areas that will be covered

1. Information and support for people with cataracts and their carers.
2. Diagnosis of cataracts.
3. Management
   - Indications and clinical thresholds for referral for surgical treatment.
   - Optimal preoperative assessment strategies in cataract extraction. Specific aspects that will be considered are routine preoperative assessment, biometry and risk stratification techniques.
   - Optimal treatment strategies in cataract surgery. Specific aspects that will be considered are: surgical procedures; type and administration of anaesthesia; selection and types of intraocular lens. Note that guideline recommendations will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a medicine’s summary of product characteristics to inform decisions made with individual patients.
   - Cataract surgery for people with astigmatism, specifically the use of toric intraocular lenses.
   - Second eye surgery. Specific aspects that will be considered are timing.
   - Optimal treatment strategies to prevent complications and errors in cataract surgery. Specific aspects that will be considered are: interventions to prevent intraoperative complications; use of

postoperative eye shields; use, administration and timing of antibiotics to minimise the risk of infection; use, administration and timing of topical corticosteroids and/or NSAIDs (non-steroidal anti-inflammatory drugs) to control postoperative inflammation; strategies to reduce the risk of wrong lens implant errors. Note that guideline recommendations will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

4 Ongoing care

- Optimal outpatient postoperative follow-up strategies, including: timing and setting of postoperative assessment; healthcare professionals undertaking postoperative assessment; strategies to effectively communicate outcomes to surgical units after the postoperative assessment undertaken outside the hospital setting.

Areas that will not be covered

1. Training and competency in specialist cataract surgery.
2. Access to general optometry care.
3. Processes for assessing and implementing new technology.
4. Interventions to prevent the development and progression of cataracts, including supplements such as vitamins, omega fatty acids, lutein and zeaxanthin, and lifestyle changes such as advice to stop smoking and minimise sun exposure.
5. Surgical interventions that are not used in England and Wales, including small incision extracapsular cataract extraction.
6. Additional surgical interventions for conditions other than cataracts, including concurrent procedures such as vitreoretinal surgery and glaucoma surgery.

1.4 Economic aspects

We will take economic aspects into account when making recommendations. We will develop an economic plan that states for each review question (or key

area in the scope) whether economic considerations are relevant, and if so whether this is an area that should be prioritised for economic modelling and analysis. We will review the economic evidence and carry out economic analyses. The reference case used will be that for interventions with health outcomes in NHS settings; therefore the preferred unit of effectiveness will be the quality-adjusted life year (QALY), and costs will be considered from an NHS and personal social services (PSS) perspective.

1.5 Key issues and questions

While writing this scope, we have identified the following key issues, and review questions related to them:

1. Information and support for people with cataracts and their carers
   - What information do patients with cataracts and their carers find useful?
   - What information on cataract surgery do people and their carers find useful?
2. Indications and clinical thresholds for referral for surgical treatment after initial presentation to the optometrist or GP
   - What are the indicators for referral for cataract surgery?
   - What are the optimal clinical thresholds in terms of severity and impairment for referral for cataract surgery?
3. Optimal preoperative assessment strategies in cataract extraction
   - What should be included in the routine preoperative examination?
   - What is the effectiveness of different techniques for undertaking biometry?
   - What are the most appropriate formulae to optimise intraocular lens biometry calculation?
   - What is the effectiveness of strategies (for example, training and/or supervision) to reduce errors in biometry?
   - What is the effectiveness of risk stratification techniques to reduce surgical complications and errors?
4. Optimal treatment strategies in cataract surgery

- What is the effectiveness of laser phacoemulsification compared with ultrasound phacoemulsification?
- What is the optimal type and administration of anaesthesia for cataract surgery?
- What is the optimal strategy when selecting intraocular lenses (for example, different vision in both eyes or same vision in both eyes)?
- What is the effectiveness of aspheric monofocal lenses compared with spheric monofocal lenses in cataract surgery?
- What is the effectiveness of square-edged monofocal lenses compared with standard monofocal lenses in cataract surgery?
- What is the effectiveness of foldable monofocal lenses compared with rigid monofocal lenses in cataract surgery?
- If foldable monofocal lenses are more effective than rigid monofocal lenses, what is the comparable effectiveness of foldable monofocal lenses that are hydrophilic acrylic, hydrophobic acrylic, collagen or hydroxyethyl methacrylate-based compared with silicone-based foldable monofocal lens?

5 Cataract surgery for people with astigmatism

- What is the effectiveness of toric intraocular lenses compared with standard monofocal lenses for people with cataracts and astigmatism?

6 Second eye surgery

- What is the effectiveness of bilateral simultaneous (rapid sequential) cataract surgery compared with unilateral eye surgery?
- What is the optimal timing of second eye surgery, taking into account issues of refractive power after first eye surgery?

7 Optimal treatment strategies to prevent complications and errors in cataract surgery

- What is the effectiveness of tension rings to prevent intraoperative complications?
- What is the effectiveness of iris hooks to prevent intraoperative complications?

177 – What is the effectiveness of aniridia implants to prevent intraoperative
178 complications?
179 – What is the effectiveness of postoperative eye shields to prevent
180 surgical complications after cataract extraction?
181 – What is the effectiveness of different prophylactic antibiotics to
182 prevent infection after cataract surgery?
183 – What is the optimal timing to administer prophylactic antibiotics to
184 prevent infection after cataract surgery?
185 – What is the effectiveness of antibiotics combined with topical
186 corticosteroids and/or NSAIDs compared with antibiotics alone to
187 prevent infection after cataract surgery?
188 – What is the effectiveness of prophylactic topical corticosteroids and/or
189 NSAIDs to prevent inflammation after cataract surgery?
190 – What are the procedural causes of wrong lens implant errors?
191 – What strategies should be adopted to reduce the risk of wrong lens
192 implant errors?
193 8 Optimal outpatient postoperative follow-up strategies
194 – What is the optimal time to assess surgical outcomes in the
195 postoperative period?
196 – Who and in what setting should carry out the postoperative
197 assessment?
198 – If the postoperative assessment is undertaken outside of the hospital,
199 how should outcomes of cataract surgery be communicated to
200 surgical units in the postoperative period?

201 ### *1.6 Main outcomes*

202 The main outcomes that will be considered when searching for and assessing
203 the evidence are:

204 1 Visual acuity.
205 2 Contrast sensitivity.
206 3 Postoperative refractive outcomes.
207 4 Patient global improvement.

5. Patient independence (for example, activities of daily living, ability to drive).
6. Patient satisfaction.
7. Adverse effects of treatment, including complications of surgical interventions.
8. Accidents, including falls and traffic accidents.
9. Requirement for further treatment such as laser capsulotomy.
10. Health-related quality of life, including that of carers.
11. Resource use and costs.

2 Links with other NICE guidance and NICE Pathways

2.1 NICE guidance

NICE guidance about the experience of people using NHS services

NICE has produced the following guidance on the experience of people using the NHS. This guideline will not include additional recommendations on these topics unless there are specific issues related to cataracts:

- Patient experience in adult NHS services (2012) NICE guideline CG138
- Service user experience in adult mental health (2011) NICE guideline CG136
- Medicines adherence (2009) NICE guideline CG76

2.2 NICE Pathways

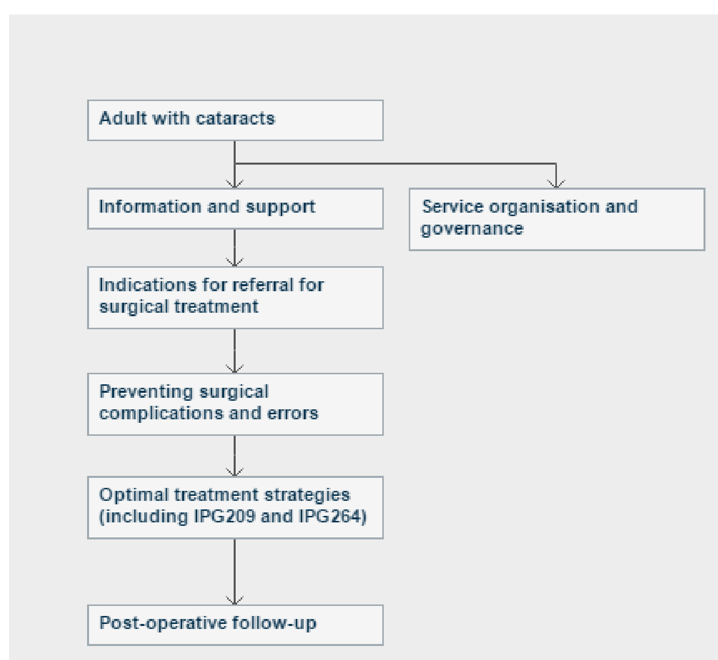
When this guideline is published, the recommendations will be added to NICE Pathways. NICE Pathways bring together all related NICE guidance and associated products on a topic in an interactive topic-based flow chart.

A draft pathway outline on cataracts, based on the draft scope, is included below. It will be adapted and more detail added as the recommendations are written during guideline development. The cataracts pathway will be accessible from the eye conditions pathway.

Other relevant NICE guidance will also be added to the NICE Pathway, including:

- Implantation of multifocal (non-accommodative) intraocular lenses during cataract surgery (2008) NICE interventional procedure guidance 264
- Implantation of accommodating intraocular lenses for cataract (2007) NICE interventional procedure guidance 209

Cataracts overview



3 Context

3.1 Key facts and figures

3.1.1 A cataract is defined as any opacity in the crystalline lens of the eye that can affect one or both eyes. The changes to the transparency and refractive index of the lens result in various levels of visual impairment. This impairment is associated with decreased quality of life, because it may restrict the person's ability to carry out daily activities and function independently, while increasing the risk of accidents and falls.

260 3.1.2 Cataracts most commonly affect adults as a result of biological
261 ageing (age-related cataracts) and may be classified according to
262 the area of the lens that is affected (nuclear sclerotic, cortical or
263 posterior subcapsular cataracts). Cataracts can also occur in
264 children, and may be classified according to the age of onset
265 (congenital or infantile/juvenile cataracts). Cataracts may occur
266 secondary to hereditary factors, trauma, inflammation, metabolic or
267 nutritional disorders and radiation. In addition, in adults, lifestyle
268 factors such as tobacco smoking and high alcohol intake are
269 associated with an increased risk of developing age-related
270 cataracts.

271 3.1.3 Most of the studies on the prevalence and incidence of cataracts in
272 adults and children in England and Wales were conducted more
273 than 15 years ago. Proxy data on the frequency of cataract surgery
274 indicate that, in 2012/13, a total of 340,809 operations were
275 performed in England. This figure does not differentiate between
276 first and second eye surgeries, but it is likely that most of these
277 operations were performed on adults with age-related cataracts.

278 3.1.4 In adults, a greater prevalence of age-related cataracts is
279 associated with being female, specific minority ethnic groups,
280 including people of Asian, African and African–Caribbean family
281 origin, people from low socioeconomic status groups and people
282 with comorbid conditions, including diabetes and uveitis.

283 3.1.5 Most cataracts are largely progressive, although the decline in
284 visual function may be variable and unpredictable. The natural
285 history of cataracts depends on the type and severity of cataract
286 and the presence of ocular comorbid conditions. In severe
287 untreated cases cataracts can lead to blindness, which may be
288 reversible with cataract surgery, although some level of visual
289 impairment may persist.

290 3.1.6 Cataract surgery has a high success rate in improving visual
291 function, with low morbidity and mortality. It is the commonest
292 operation performed in the NHS, with an ever-growing need as the
293 population ages. Guidance on clinical thresholds to access cataract
294 surgery is needed to address patient need and to optimise the
295 allocation of NHS resources. In addition, an understanding of the
296 most clinically and cost-effective methods for undertaking cataract
297 surgery, and to minimise complications and surgical errors such as
298 wrong intraocular lens implants, is needed to further improve
299 patient care.

300 ## *3.2 Current practice*

301 3.2.1 Cataract management usually involves a multidisciplinary team that
302 includes ophthalmologists, optometrists, nurses and technicians.

303 3.2.2 Diagnosis is usually based on self-reported symptoms and a series
304 of tests performed by an optometrist. Symptoms may include
305 blurred vision, difficulty seeing at night, sensitivity to light or glare,
306 seeing 'halos' around lights and double vision in a single eye. Tests
307 include a visual acuity test, and slit-lamp and retinal examinations.

308 3.2.3 In adults with early age-related cataracts, non-surgical
309 management may include prescription of spectacles, bifocals or
310 magnifying lenses, advice on the lighting of the reading
311 environment and monitoring the progression of the condition.
312 Alternatively, adults with age-related cataracts may be referred for
313 surgery, by an optometrist or a GP. The clinical threshold used to
314 access cataract surgery varies across NHS Trusts in England and
315 Wales. This has resulted in differences in access to cataract
316 surgery, since policies vary in scope and content and are not
317 necessarily congruent with research evidence or guidance provided
318 by the Department of Health in its document Action on cataracts
319 and the Royal College of Ophthalmologists' Cataract surgery
320 guideline .

321 3.2.4 Because age-related cataracts have a higher prevalence with
322 increasing age, consideration of people with other comorbidities
323 that may affect management is needed, including frail people, older
324 people, people with impaired cognitive function and people with
325 impaired mobility.

326 *3.3 Policy, legislation, regulation and commissioning*

327 **Policy**

328 This guideline will address areas highlighted in the UK Vision Strategy 2013-
329 2018, including improving awareness and understanding of eye health,
330 access to eye care services to detect and prevent sight loss, the coordination,
331 integration and effectiveness of eye health and care services, and
332 consideration of equality issues.

333 **Legislation, regulation and guidance**

334 The Department of Health's report Action on cataracts published in 2000, and
335 the Royal College of Ophthalmologists' Cataract surgery guidelines published
336 in 2010, provide guidance on various aspects of cataract management. This
337 guideline will consider further controversial areas, including indicators for
338 cataract surgery and second eye surgery, and examine in detail optimal
339 treatment strategies for cataract operations. The guideline will also consider
340 relevant guidance from the DVLA's At a glance guide.

341 4 Further information

This is the draft scope for consultation with registered stakeholders. The consultation dates are 25 February to 25 March 2015.

The guideline is expected to be published in June 2017.

You can follow progress of the guideline.

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