



STARS Education and Research Alliance

CREATING KNOWLEDGE | TRANSFORMING CARE



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Metro North
Health



Queensland
Government

STARS Critically Appraised Topic (CAT) Group: Timely treatment of cataract related visual impairment

Specific Question:

What are the quality-of-life impacts of performing cataract surgery at a lower threshold of visual impairment and are there health economic benefits?

Clinical bottom line

There is evidence that performing cataract surgery at a visual acuity threshold of 6/9 or poorer before vision deteriorates beyond 6/12 acuity can confer benefits both visual function and patient-reported quality of life outcomes. Patients should therefore be able access treatment at an earlier stage to avoid sequelae of deterioration in visual function.

Why is this important?

The available evidence supports the new service being piloted at STARS to lower the referral threshold for treating cataracts, however there are gaps in the existing research. There is a need for local studies in the Australian population to quantify the benefits of timely cataract surgery with respect to patient-related impacts as well as potential health economic benefits. This CAT will inform future research in this direction at STARS.

Inclusion Criteria

Patients >18 years of age undergoing cataract surgery via phacoemulsification

Search dates

1967-2025

Type of Study

Studies evaluating the impact of cataract surgery on visual function, quality of life and/or health economics

PICOT

	Description	Search terms
Population and Setting	Public Hospitals Population adult patients with cataracts without other vision limiting comorbidities	Cataract surgery One eye Bilateral
Intervention or Exposure (ie what is being tested)	Early cataract surgery before advanced visual impairment	Phacoemulsification and insertion of intraocular lens
Comparison, if any	Cataract surgery performed at visual acuity of 6/9 or worse vs cataract surgery performed at visual acuity of 6/12 or worse	Early cataract surgery

Outcomes of interest	Cost efficacy – e.g. use of community services, cost of admissions to hospital related to falling related to cataracts, cost of post-operative care related to comorbidities. Quality of Life Immediate and long-term (3 months) benefits of early cataract surgery Fall prevention Driving Mental Health Carer's time	Vision related quality of life Visual disability Visual function
Types of studies	Pre-Post RCT Systematic reviews Meta analysis	

Databases Searched

PubMed, Embase.com, CINAHL via EBSCOhost, & Cochrane Library

Date of search

04/09/2025

Search Strategies (including subject headings)

PubMed 880 results

(cataract[mh] OR "Cataract Extraction"[Mesh] OR cataract*[ti] OR "Capsulorhexis"[MAJR] OR "phacoemulsification"[MAJR] OR "Capsulorhexis"[Title] OR "capsulorrhexis"[Title]) AND ("Quality of Life"[Majr] OR "quality-adjusted life years"[MAJR] OR "disability adjusted life"[Title] OR "quality adjusted life years"[Title] OR "quality of life"[Title] OR "value of life"[Title] OR (living[tiab] AND "Visual Acuity"[Mesh]) OR "QALY"[Title] OR DALY[tiab] OR "Accidents"[MAJR] OR falls[ti] OR driving[tiab] OR exercise[tiab] OR activit*[ti] OR Threshold[ti] OR "timing surgery"[tiab:~2] OR "budgets"[MAJR] OR "costs and cost analysis"[MAJR] OR "economics, hospital"[MAJR] OR "value of life"[MAJR] OR "Economics"[MAJR] OR economic*[ti] OR "health budgets"[Title] OR "health economics"[Title] OR "healthcare budgets"[Title] OR "models economic"[Title] OR "cost effectiveness"[tiab] OR "cost utility"[Title] OR "effectiveness analysis"[Title] OR "cost effectiveness"[Title] OR "Cost benefit"[tiab]) AND ("Systematic Reviews as Topic"[Mesh] OR "Meta-Analysis as Topic"[Mesh] OR "systematic"[ti] OR "Cochrane review"[ti] OR "Cochrane reviews"[ti] OR "meta analysis"[ti] OR "meta analyses"[ti] OR "meta-analysis"[ti] OR "meta-analyses"[ti] OR "metanalysis"[ti] OR "meta review"[ti] OR "meta reviews"[ti] OR "meta-review"[ti] OR "meta-reviews"[ti] OR "metareview"[ti] OR "metareviews"[ti] OR "umbrella review"[ti] OR "umbrella reviews"[ti] OR "overview"[ti] OR "overview"[ti] OR "review of reviews"[ti] OR cohort studies[mesh:noexp] OR longitudinal studies[mesh:noexp] OR follow-up studies[mesh:noexp] OR prospective studies[mesh:noexp] OR retrospective studies[mesh:noexp] OR cohort[TIAB] OR longitudinal[TIAB] OR prospective[TIAB] OR retrospective[TIAB] OR "interviews as topic"[Mesh:noexp] OR "focus groups"[Mesh:noexp] OR narration[Mesh:noexp] OR qualitative research[Mesh:noexp] OR interview*[TIAB] OR discussion*[TIAB] OR questionnaire*[TIAB] OR "focus group*" [TIAB] OR qualitative[TIAB] OR ethnograph*[TIAB] OR fieldwork[TIAB])

CINAHL Complete (EBSCOhost) 365 results

S#: S5 Query (user-entered): S3 NOT S4 Results (count): 365

S#: S4 Query (user-entered): (child* OR teen* OR adolescent* OR infant*) OR (MH "Child" OR MH "Child, Preschool") OR (MH "Infant" OR MH "Infant, Newborn") OR MH "Adolescence" Results (count): 1493544

S#: S3 Query (user-entered): S2 AND S1 Results (count): 385

S#: S2 Query (user-entered): ((MM "Quality of Life") OR (MM "quality-adjusted life years") OR (TI "disability adjusted life") OR (TI "quality adjusted life years") OR (TI "quality of life") OR (TI "value of life") OR ((TI living OR AB living) AND (MH "Visual Acuity"))) OR (TI QALY) OR (TI DALY OR AB DALY) OR (MM Accidents+) OR (TI falls) OR (TI driving OR AB driving) OR (TI exercise OR AB exercise) OR (TI activit*) OR (TI Threshold) OR timing N2 surgery OR (MM "budgets") OR (MM "costs and cost analysis+") OR (MH "Economic Value of Life") OR (MM "Economics") OR (TI

economic*) OR (TI "health budgets") OR (TI "health economics") OR (TI "healthcare budgets") OR (TI "models economic") OR (TI "cost effectiveness" OR AB "cost effectiveness") OR (TI "cost utility") OR (TI "effectiveness analysis") OR (TI "cost effectiveness") OR (TI "Cost benefit" OR AB "Cost benefit")) Results (count): 496498
 S#: S1 Query (user-entered): (MH "Cataract" OR MH "Cataract Extraction" OR (TI cataract*) OR (MH "Phacoemulsification") OR (TI Capsulorhexis) OR (TI capsulorrhesis)) Results (count): 9273

Embase (Elsevier) 674 results

('cataract'/mj OR 'cataract extraction'/de OR cataract*:ti OR capsulorhexis:ti OR capsulorrhesis:ti) AND ('quality of life'/exp/mj OR 'quality-adjusted life year'/mj OR 'disability adjusted life':ti OR 'quality adjusted life years':ti OR 'quality of life':ti OR 'value of life':ti OR (living:ti,ab AND 'visual acuity'/exp) OR qaly:ti OR daly:ti,ab OR 'accident'/exp/mj OR falls:ti OR driving:ti,ab OR exercise:ti,ab OR activit*:ti OR threshold:ti OR (timing NEAR/2 surgery) OR 'budget'/exp/mj OR 'cost'/exp/mj OR 'health economics'/exp/mj OR 'economics'/exp/mj OR economic*:ti OR 'health budgets':ti OR 'health economics':ti OR 'healthcare budgets':ti OR 'models economic':ti OR 'cost effectiveness':ti,ab OR 'cost utility':ti OR 'effectiveness analysis':ti OR 'cost effectiveness':ti OR 'cost benefit':ti,ab) AND ('systematic review (topic)'/exp OR 'meta analysis'/exp OR systematic:ti OR 'cochrane review':ti OR 'cochrane reviews':ti OR 'meta analysis':ti OR 'meta analyses':ti OR metanalysis:ti OR 'meta review':ti OR 'meta reviews':ti OR metareview:ti OR metareviews:ti OR 'umbrella review':ti OR 'umbrella reviews':ti OR overview:ti OR 'review of reviews':ti OR 'cohort analysis'/exp OR 'longitudinal study'/exp OR 'follow up'/mj OR 'prospective study'/mj OR 'retrospective study'/de OR cohort:ti,ab OR longitudinal:ti,ab OR prospective:ti,ab OR retrospective:ti,ab OR 'interview'/mj OR 'focus groups' OR 'qualitative research'/exp OR interview*:ti,ab OR discussion*:ti,ab OR questionnaire*:ti,ab OR 'focus group*':ti,ab OR qualitative:ti,ab OR ethnograph*:ti,ab OR fieldwork:ti,ab) AND [embase]/lim AND ('article'/it OR 'article in press'/it OR 'review'/it)

Cochrane Library (Wiley) 325 results

ID Search Hits

#1 ([mh cataract] OR [mh "Cataract Extraction"] OR cataract*:ti OR [mh Capsulorhexis] OR [mh phacoemulsification] OR Capsulorhexis:ti OR capsulorrhesis:ti) 6967

#2 ([mh "Quality of Life"] OR [mh "quality-adjusted life years"] OR "disability adjusted life":ti OR "quality adjusted life years":ti OR "quality of life":ti OR "value of life":ti OR (living:ti,ab AND [mh "Visual Acuity"]) OR QALY:ti OR DALY:ti,ab OR [mh Accidents] OR falls:ti OR driving:ti,ab OR exercise:ti,ab OR activit*:ti OR Threshold:ti OR "timing surgery[tiab:~2]" OR [mh budgets] OR [mh "costs and cost analysis"] OR [mh "economics, hospital"] OR [mh "value of life"] OR [mh Economics] OR economic*:ti OR "health budgets":ti OR "health economics":ti OR "healthcare budgets":ti OR "models economic":ti OR "cost effectiveness":ti,ab OR "cost utility":ti OR "effectiveness analysis":ti OR "cost effectiveness":ti OR "Cost benefit":ti,ab) 250855

#3 #1 AND #2 332

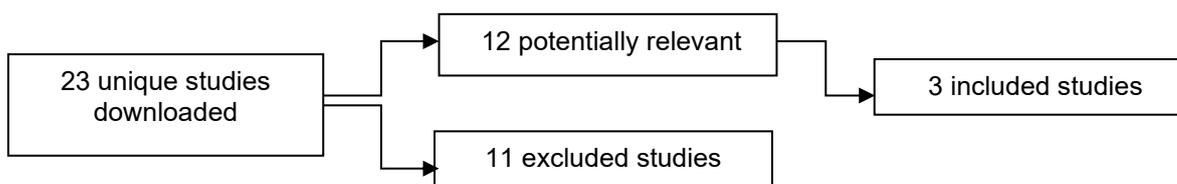
#4 [mh Infant] OR [mh Child] OR [mh Adolescent] OR [mh "Child, Preschool"] OR [mh "Infant, Newborn"] OR Infan*:ti,ab OR newborn*:ti,ab OR new-born*:ti,ab OR perinat*:ti,ab OR neonat*:ti,ab OR baby:ti,ab OR baby*:ti,ab OR babies:ti,ab OR toddler*:ti,ab OR child:ti,ab OR child*:ti,ab OR children*:ti,ab OR adolescen*:ti,ab OR juvenil*:ti,ab OR youth*:ti,ab OR teen*:ti,ab OR pubescen*:ti,ab OR [mh pediatrics] OR pediatric*:ti,ab OR paediatric*:ti,ab OR prematur*:ti,ab OR preterm*:ti,ab 395035

#5 #3 NOT #4 325

Search process

Databases were searched, and additional unstructured searches and Google Scholar searches were included as well.

Results



First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Pager, C. 2004. Prospective longitudinal study.	Adult patients (n=111) undergoing cataract surgery in Sydney.	Assessment of demographics, visual disability and quality of life metrics pre- and post-cataract surgery for up to 3 months.	Visual function improved significantly however quality of life did not.	Well conducted study however vision-related sensitivity of quality-of-life tool likely to account for inconclusive results. Establishes a benchmark for Australian outcomes.
Farquhar, E. 2021. Prospective longitudinal study.	Adult patients (n=50) undergoing cataract surgery in Glasgow with a visual acuity of at least 6/9.	Assessment of visual disability and vision-related quality of life pre-operatively and at 4- and 12-months post-surgery.	Visual function improved significantly and outcomes were sustained at 12 months.	Small sample size however promising trend in outcomes and supports use of visual function metrics rather than relying on visual acuity as a treatment threshold.
Ginel, J. 2023. Systematic mapping review.	Population individuals with cataracts regardless of age, sex, race and socioeconomic status. Studies with population having diseases additional to cataracts excluded.	Assessment of published literature on economic evaluations of cataract surgery.	This review included 56 studies and found that cataract surgery is a cost-effective procedure. Surgery waiting time is an important consideration due to the individual and societal impacts of vision loss. Numerous gaps and inconsistencies were found amongst the studies.	Broad study with relevant comparison criteria. Highlights strengths and weaknesses of the collective body of literature and where future research can strengthen the evidence.

Summary

Cataract surgery performed at a lower treatment threshold of at least 6/9 visual acuity improves visual functioning and vision related patient reported outcomes are sustained at 4 months. There is limited evidence in the Australian population for the impacts of cataract surgery performed at a lower treatment threshold and any potential health economic benefits. It is broadly established in the literature that performing cataract surgery has significant quality of life and economic benefits. Future research should aim to delineate whether these benefits are sustained when providing treatment at a lower threshold including consideration of the impact of subjective visual impairment upon independent activities of daily living.

Implications for Practice/research

This critical appraisal highlights the need to better understand the health economic impacts of performing cataract surgery at an earlier stage of visual impairment before sequelae arise such as loss of fitness to drive. It has shown that there is a paucity of medical literature pertaining to the quality-of-life impacts of performing cataract surgery at a lower threshold of visual impairment as well as there being marked heterogeneity in research tools used. Research should therefore adopt existing, validated tools such as the [IND-VFQ-33](#) where possible in order to strengthen its conclusions. A contemporary quality of life tool would be beneficial to better capture the shift in patient demographic undergoing cataract surgery compared with earlier studies. The definition of 'early' cataract surgery varies across the literature and

in our context refers to performing surgery when visual acuity is 6/9 or poorer and associated with subjective impact upon activities of daily living including independently using public transport, driving and moving in unfamiliar surroundings.

What would you tweet?

The scientific literature supports the new cataract surgery service being piloted at STARS, now it's time to prove it to ourselves.

Critical Appraisal Topic Group Team Members

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Lisa Wright, Occupational Therapist, Research Support Officer for STARS Education and Research Alliance

Lars Eriksson, UQ Librarian

Michelle McGrath, Clinical Nurse, Ambulatory Services Manager at STARS

Kim Nguyen, Senior Lecturer in Health Economics at the University of Queensland

CAT group meeting dates

2/09/2025, 30/09/2025

References

Farquhar, E., et al. (2021). "**Should We Perform Early Cataract Surgery? A Patient Reported Outcome Study.**" Clin Ophthalmol **15**: 4707-4714.

Ginel, J., et al. (2023). "**Economic Evaluation of Cataract: A Systematic Mapping Review.**" Ophthalmology and Therapy **12**(2): 789-807.

Pager, C. K., P. J. McCluskey and C. Retsas (2004). "**Cataract surgery in Australia: a profile of patient-centred outcomes.**" Clin Exp Ophthalmol **32**(4): 388-392.