Table 36: Effect of MIGS Versus Comparators on Visual Acuity in Adults With Glaucoma

Quality Assessment							Summary of Findings				Importance
							No. of Eyes		Effect	Quality	
No. of Studies	Study Design	Risk of Bias	Inconsistency	Indirectness	Imprecision	Other Considerations	MIGS	Comparator			
MIGS Vs. Pharmacotherapy: 2x iStent Vs. Travoprost, or 2x iStent Inject Vs. Latanoprost + Timolol											
2	RCT[a]	Very serious risk of bias[b]	No serious inconsistency	Serious indirectness[c]	Serious imprecision[d]	None	2x iStent, 54 2x iStent Inject, 94	Travoprost, 47 Latanoprost + Timolol, 98	**MIGS [?] Pharmacotherapy:** **BCVA:** 2x iStent [?] Travoprost[58] **BCVA:** 2x iStent Inject [?] Latanoprost + Timolol[36]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Laser Therapy: Hydrus Microstent Vs. SLT											
1	Prospective cohort[e]	Serious risk of bias[f]	No serious inconsistency	Serious indirectness[g]	Serious imprecision[h]	None	56	31	**MIGS [=] Laser Therapy:** **Visual acuity** was not significantly different between groups at baseline and was not significantly different from baseline at 12 mo following Hydrus MicroStent or SLT (no between-group statistical comparison).[62]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Another MIGS: 1x Vs. 2x Vs. 3x iStent											
1	RCT[i]	Serious risk of bias[j]	No serious inconsistency	Serious indirectness[k]	Serious imprecision[l]	None	iStent, 38 2x iStent, 41 3x iStent, 40	NA[m]	**1 iStent [=] 2 iStents [=] 3 iStents:** **BCVA** was similar between groups at baseline up to 42 mo follow-up, but this was not tested statistically.[59,60]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Filtration Surgery: ECP Vs. Glaucoma Drainage Device											
1	Non-randomized controlled clinical trial[n]	Serious risk of bias[o]	No serious inconsistency	Serious indirectness[p]	Serious imprecision[q]	None	34	34	**MIGS = Glaucoma Drainage Device:** **Visual acuity** was not significantly different between ECP and AGI groups at baseline or 12 mo follow-up.[61]	⊕OOO VERY LOW	CRITICAL

Quality Assessment							Summary of Findings				Importance
							No. of Eyes		Effect	Quality	
No. of Studies	Study Design	Risk of Bias	Inconsistency	Indirectness	Imprecision	Other Considerations	MIGS	Comparator			
MIGS Vs. Filtration Surgery: Trabectome Vs. Trabeculectomy With MMC											
2	Prospective cohort and retrospective cohort[r]	Serious risk of bias[s]	No serious inconsistency	Serious indirectness[t]	Serious imprecision[u]	None	158	127	**Mixed Findings; Trabectome [=]/[?] Trabeculectomy with MMC:** Prospective cohort study: **Visual acuity** was numerically similar between groups at baseline or up to 6 mo follow-up, but this was not tested statistically.[25] Retrospective cohort study: **Visual acuity** was not different from baseline at 12 or 24 mo in either group, but was significantly better in the Trabectome vs. Trabeculectomy group at all time points.[64]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Filtration Surgery: 2x iStent Inject Vs. Trabeculectomy With MMC											
1	Prospective cohort[v]	Serious risk of bias[w]	No serious inconsistency	Serious indirectness[x]	Serious imprecision[y]	None	20	25	**2x iStent Inject [=] Trabeculectomy with MMC:** **Visual acuity** was numerically similar between groups at baseline or up to 6 mo follow-up, but this was not tested statistically.[25]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Filtration Surgery: Trabectome or 2x iStent Inject Vs. Trabeculectomy With MMC											
1	Prospective cohort[v]	Serious risk of bias[w]	No serious inconsistency	Serious indirectness[x]	Serious imprecision[y]	None	63	25	**MIGS = Trabeculectomy with MMC:** **Visual acuity** was significantly better in MIGS vs. Trabeculectomy at 1 d post-operative, but was not significantly different between groups at any other time point.[25]	⊕OOO VERY LOW	CRITICAL
MIGS Vs. Filtration Surgery: Xen45 With MMC Vs. Trabeculectomy With MMC											
1	Retrospective cohort[z]	Serious risk of bias[aa]	No serious inconsistency	Serious indirectness[bb]	Serious imprecision[cc]	None	185	169	**Xen45 with MMC = Trabeculectomy with MMC:** **Median BCVA** was not significantly different between Xen45 and Trabeculectomy groups at follow-up (median follow-up duration of 15.0 and 17.8 mo respectively).[65]	⊕OOO VERY LOW	CRITICAL

= = not significantly different between groups; [=] = not compared statistically but tendency for no difference between groups; [?] = not compared statistically or non-interpretable; 1x = one device; 2x = two devices; 3x = three devices; AGI = Ahmed glaucoma implant; BCVA = best-corrected visual acuity; d = days; ECP = endoscopic cyclophotocoagulation; IOP = intraocular pressure; MIGS = minimally invasive glaucoma surgery; MMC = mitomycin C; mo = months; no. = number; RCT = randomized controlled trial; SLT = selective laser trabeculoplasty; vs. = versus.

Note: Data were collected by RCT, non-randomized controlled clinical trial, retrospective or prospective cohort, with up to 42 months of follow-up. Visual acuity (or best-corrected visual acuity) was measured by decimal chart,[58] or Snellen visual acuities converted to log of the Minimum Angle of Resolution (logMAR);[65] in all other cases the method of measurement was not reported.

[a] Two RCTs.[36,58]

[b] Very serious risk of bias. Selection bias: no indication of allocation concealment.[36,58] Detection bias: method of measurement of BCVA not reported.[36] Attrition bias: low-risk at 12- and 24-month follow-up; large amount of missing data at 36-month follow-up and reasons not reported.[58] Reporting bias: no statistical comparisons conducted[36,58] and values reported for only one of the follow-up time points.[58]

[c] Serious indirectness.[36,58] BCVA only reported as the proportion of eyes with a given BCVA or better; details of BCVA measurement not reported and therefore whether reliable, valid and discriminative (vs. surrogate) measures were used is uncertain.

[d] Serious imprecision.[36,58] No measures of variability.

[e] One prospective cohort study.[62]

[f] Serious risk of bias.[62] Bias due to confounding: significant differences between groups at baseline were not controlled, and treatment arm was assigned by geographical location. Bias in measurement of outcome: method of measurement of visual acuity not reported. Bias in selection of the reported result: relevant statistical comparisons reported at baseline and not reported at follow-up.

[g] Serious indirectness.[62] Method of measuring visual acuity not reported; whether reliable, valid and discriminative (versus surrogate) measures were used is uncertain.

[h] Serious imprecision.[62] Only a single study.

[i] One RCT in two publications.[59,60]

[j] Serious risk of bias.[59,60] Selection bias: no indication of allocation concealment. Detection bias: method of measurement of BCVA not reported. Reporting bias: no statistical comparisons conducted.

[k] Serious indirectness.[59,60] BCVA only reported as the proportion of eyes with a given BCVA or better; details of BCVA measurement not reported and therefore whether reliable, valid, and discriminative (vs. surrogate) measures were used is uncertain.

[l] Serious imprecision.[59,60] Only a single study and no measures of variability.

[m] In this study, different numbers of iStents (all MIGS) were compared.[59,60]

[n] One non-randomized controlled clinical trial.[61]

[o] Serious risk of bias.[61] Bias due to confounding: pseudorandomization (first patient randomized, followed by counterbalanced enrolment); potential confounding variables not controlled for in analyses. Bias due to missing data: large loss to follow-up, amount of missing data not balanced across groups, and reasons for missing data not reported. Bias in measurement of outcomes: sufficient detail regarding method of measuring visual acuity not reported. Bias in selection of the reported result: visual acuity only reported at a subset of measured time points.

[p] Serious indirectness.[61] Sufficient detail of visual acuity measurement not reported and therefore whether reliable, valid, and discriminative (vs. surrogate) measures were used is uncertain.

[q] Serious imprecision.[61] Only a single study.

[r] One prospective cohort[25] and one retrospective cohort study.[64]

[s] Serious risk of bias.[25,64] Bias due to confounding: decision for MIGS versus Trabeculectomy was made by treating surgeon based on patient characteristics, and choice of MIGS was made by individual patients;[25] retrospective study and rationale for assigning treatments likely to be different between groups;[64] significant differences between groups at baseline (including significant difference in visual acuity);[64] potential confounding variables not controlled for in analyses.[25,64] Bias due to deviations from intended interventions: important co-intervention not balanced between groups (number of medications significantly different between groups).[25,64] Bias due to missing data: large loss to follow-up and reasons for missing data not reported.[64] Bias in measurement of outcomes: method of measuring visual acuity not reported.[25,64] Bias in selection of the reported result: visual acuity only reported at a subset of measured time points.[64]

[t] Serious indirectness.[25,64] Sufficient detail of visual acuity measurement not reported and therefore whether reliable, valid, and discriminative (versus surrogate) measures were used is uncertain.

[u] Serious imprecision. No measures of variability in one study,[25] and the variability in the estimate (standard deviation) was similar in magnitude to the parameter (mean) in the other study.[64]

[v] One prospective cohort study.[25]

[w] Serious risk of bias.[25] Bias due to confounding: decision for MIGS versus Trabeculectomy was made by treating surgeon based on patient characteristics, and choice of MIGS was made by individual patients; potential confounding variables not controlled for in analyses. Bias due to deviations from intended interventions: important co-intervention not balanced between groups (number of medications significantly different between groups). Bias in measurement of outcomes: method of measuring visual acuity not reported.

[x] Serious indirectness.[25] Sufficient detail of visual acuity measurement not reported and therefore whether reliable, valid, and discriminative (versus surrogate) measures were used is uncertain.

[y] Serious imprecision.[25] Only a single study, and no measures of variability.

[z] One retrospective cohort study.[65]

[aa] Serious risk of bias.[65] Bias due to confounding: significant differences between groups at baseline (including significant difference in visual acuity and BCVA); potential confounding variables not controlled for in analyses. Bias in selection of participants: patients with < 1 month follow-up were excluded and it is possible that those with < 1 month follow-up were systematically different from those with ≥ 1 month follow-up (i.e., different from those in routine clinical practice). Bias due to missing data: no information on amount or nature of missing data was reported. Bias in measurement of outcomes: BCVA measured by Snellen visual acuity and converted to logMAR for analysis, which is not considered reliable, valid or discriminative.[96] Bias in selection of the reported result: no rationale for reporting findings as medians instead of means, and absolute values reported only at "last follow-up."

[bb] Serious indirectness.[65] BCVA measured by Snellen visual acuity and converted to logMAR for analysis, which is not considered reliable, valid or discriminative.[96]

[cc] Serious imprecision.[65] Only a single study, and results only presented as medians and inter-quartile ranges.