Table C-27. Ongoing clinical trials of Argus II device (6 studies)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
Argus II Retinal Prosthesis System Dry AMD Feasibility Study Protocol NCT02227498 Second Sight Medical Products	Prospective, Phase I, nonrandomized single-group assignment study	In this study, 5 subjects with advanced dry AMD who are legally blind will be implanted with the Argus II System. The study will evaluate the safety of the device and surgery, as well as functioning of the system and the extent of any restored vision. Each subject will be monitored for 3 years, with their eye health and visual function tested at multiple time points.	June 2015 June 2019 Recruiting patients n=5	The number of adverse events in implanted subjects through 1 year. The effect of the Argus II System on monocular (implanted eye) and binocular visual function, as measured by a suite of visual function tests through 1 year of followup.	NR	Subject must have diagnosed dry AMD; severely sight impaired and meets the following additional criteria: Visual acuity of logMAR 1.0 (6/60) or worse in both eyes, Hand motion or worse central vision in the eye to be implanted, geographic atrophy, and central scotoma in the central 20 degrees or more, pseudophakic with an intraocular lens successfully implanted in the study eye at least 2 weeks before baseline testing, or aphakic with a clear capsule. If applicable, posterior laser capsulotomy may be performed 2 weeks before baseline testing is performed.	Ocular diseases or conditions that could prevent the Argus II implant from working (e.g., optic nerve disease, central retinal artery or vein occlusion, history of retinal detachment, trauma) Evidence of active sub-macular CNV in implanted eye Ocular structures or conditions that could prevent the successful implantation of the Argus II Implant or adequate healing from surgery (e.g., extremely thin conjunctiva; axial length <20.5 mm or >26 mm; corneal ulcers; abnormalities in the typical curvature of the retina like staphyloma, and all causes of significant protrusions or depressions in the area centralis that could compromise the optimal position of the electrode array, active or severe blepharitis) Ocular diseases or conditions (other than cataracts) that prevent adequate visualization of the inner structures of the

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
							eye (e.g., corneal opacity) An Implantable Miniature Telescope in either eye Predisposition to eye rubbing
Post-Market Study of the Argus® II Retinal Prosthesis System – France NCT02303288 Second Sight Medical Products	Multicenter, prospective observational cohort study	This is a post-market study of the Argus II Retinal Prosthesis System. The study is being conducted in France. The objective of the study is to obtain data to further demonstrate the effectiveness and evaluate the safety of Argus II System in patients with RP who have a bare light perception or worse in both eyes.	November 2014 November 2018 Recruiting patients n=18	The impact of the Argus II on subjects' lives (in terms of functional vision and quality of life) as measured by the Functional Low-vision Observer Rated Assessment (FLORA) at 2 years; incidence of procedure- and device-related adverse events through 2 years	Patient satisfaction and ease of use of the system through 2 years Visual function through 2 years will be assessed using the following tests: square localization, direction of motion, and grating visual acuity. Subjects' performance on the 3 tests above will be compared: Pre-vs. post-implant and. With the Argus II System ON vs. OFF Functional Vision through 2 years measured with NEI-VFQ-25. Incidence of all procedure- and	Patients with RP who have bare light perception or worse in both eyes, previous history of useful form vision. If the subject has no residual light perception, the retina must be able to respond to electrical stimulation.	Ocular diseases or conditions that could prevent Argus II from working (e.g., optic nerve disease, central retinal artery or vein occlusion, history of retinal detachment, trauma, severe strabismus) Ocular structures or conditions that could prevent the successful implantation of the Argus II Implant or adequate healing from surgery (e.g., extremely thin conjunctiva; axial length <20.5 mm or >26 mm; corneal ulcers; CNV in the area of the intended tack location) Ocular diseases or conditions (other than cataracts) that prevent adequate visualization of the inner structures of the eye (e.g., corneal opacity); predisposition to eye rubbing

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
					device-related adverse events throughout 2 year follow-up		
Argus® II Retinal Prosthesis System Post-Market Surveillance Study NCT01490827 Second Sight Medical Products	Prospective observational cohort study.	This post-market surveillance study is conducted in the European Economic Area where Argus II has been CE certified for use in patients with outer retinal degeneration. This study is being conducted to monitor the use of Argus II in a larger population than available within premarket approval studies. Safety data will be monitored to ensure continued acceptability of risks to study participants, and an attempt will be made to include all	November 2011 May 2016 Recruiting patients Record last updated March 2015 n=45	Adverse events up to 3 years from time of implantation	Visual function up to 3 years from time of implantation	Subjects will be selected from eligible patients in whom the Argus II retinal prosthesis has been implanted at the enrolling center with severe to profound outer retinal degeneration (not including AMD) Have some residual light perception. If no residual light perception remains, the retina must be able to respond to electrical stimulation; have previous history of useful form vision Had an Argus II Retinal Prosthesis surgically implanted 14 days (±7 days) before enrollment (at baseline visit) in the study	Ocular diseases or conditions that could prevent Argus II from working (e.g., optic nerve disease, central retinal artery or vein occlusion, history of retinal detachment, trauma, severe strabismus) Ocular structures or conditions that could prevent the successful implantation of the Argus II Implant or adequate healing from surgery (e.g., extremely thin conjunctiva; axial length <20.5 mm or >26 mm; corneal ulcers; CNV in the area of the intended tack location) Ocular diseases or conditions (other than cataracts) that prevent adequate visualization of the inner structures of the eye (e.g., corneal opacity) Predisposition to eye rubbing

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
		eligible and willing participants implanted with Argus II. Measures of visual function that may contribute to device improvements will also be gathered and evaluated.					
New Enrollment Post-Approval Study of the Argus® II Retinal Prosthesis System NCT01860092 Second Sight Medical Products	Prospective observational cohort study.	This post-approval study is being implemented to monitor the use of Argus II System in a larger U.S. population than available within pre-approval studies. An attempt will be made to include all eligible and willing subjects implanted with Argus II System in the United States. Safety data will be monitored to ensure	January 2014 August 2018 Recruiting patients n=53	Safety (i.e., adverse event rates), with the main safety analysis performed when all subjects have reached 2 years post-implant.	Visual function will be measured using the following tests: Square localization, direction of motion and grating visual acuity (GVA). In addition to these tests, a photographic flash test will be performed with the system OFF only to determine whether subjects' native residual vision is bare light perception or no light perception. Functional vision	Have severe to profound RP Bare light or no light perception in both eyes; if the patient has no residual light perception, then evidence of intact inner layer retina function must be confirmed Have previous history of useful form vision Aphakic or pseudophakic. (if the patient is phakic prior to implant, the natural lens will be removed during the implant procedure)	Ocular diseases or conditions that could prevent Argus II System from working (e.g., optic nerve disease, central retinal artery or vein occlusion, history of retinal detachment, trauma, severe strabismus) Ocular structures or conditions that could prevent the successful implantation of the Argus II Implant or adequate healing from surgery (e.g., extremely thin conjunctiva, axial length <20.5 mm or >26 mm, corneal ulcers) Ocular diseases or conditions (other than cataracts) that prevent adequate visualization of the inner structures of the

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
		continued acceptability of risks to study subjects. The utility (i.e., visual function and functional vision) and reliability of Argus II System will also be evaluated.			will be assessed using the Functional Low-Vision Observer Rated Assessment (FLORA). A utilization questionnaire will also be administered to track how subjects are using the Argus II system Device reliability time frame for secondary outcomes 5 years		eye (e.g., corneal opacity) Predisposition to eye rubbing
Argus® II Retinal Stimulation System Feasibility Protocol NCT00407602 Second Sight Medical Products Collaborator NEI	Interventional, open label, single group assignment study with pre-implantation serving as comparator.	The objective of this feasibility study is to evaluate the safety and utility of the Argus II Retinal Stimulation System in providing visual function to blind subjects with severe to profound RP.	September 2006 August 2019 Ongoing but not recruiting patients n=30	Visual acuity and safety through 5 years	Activities of daily living, quality of life, orientation and mobility, spatial vision, stability of implant, system functionality, all through 5 years	A confirmed history of RP (all centers) or outer retinal degeneration (France, U.K., Switzerland, Mexico only) with remaining visual acuity of bare light perception (all centers) or 2.3 logMAR (France, U.K., Switzerland, Mexico only) or worse in both eyes. Functional ganglion cells and optic nerve as determined by a measurable electrically evoked response or documented light perception A history of former useful form vision in the worse-seeing eye	Optic nerve disease History of glaucoma Optic neuropathy or other confirmed damage to optic nerve or visual cortex damage Diseases or conditions that affect retinal function, including central retinal artery/vein occlusion (CRAO or CRVO) End-stage diabetic retinopathy Retinal detachment or history of retinal detachment Trauma

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
							Infectious or inflammatory retinal diseases Diseases or conditions that prevent adequate visualization of the retina, including corneal degeneration that cannot be resolved before implant Diseases or conditions of the anterior segment that prevent the ability to adequately perform the physical examination, including trauma or lid malpositions Diseases of the ocular surface including keratitis sicca An ocular condition that predisposes the subject to eye rubbing Conjunctival thinning which may predispose the subject to conjunctival erosion in the area where the implant will be installed extra-ocularly Axial eye length <21.5 mm or >26.0 mm in the implanted eye as measured by ultrasound (U.S. only)

Table C-27. Ongoing clinical trials of Argus II device (6 studies) (continued)

Clinicaltrials.gov Title Clinicaltrials.gov Identifier Sponsor	Study Design	Purpose	Start Date Expected Completion Date Estimated Enrollment	Primary Outcomes	Secondary Outcomes	Eye-specific Inclusion Criteria	Eye-specific Exclusion Criteria
Observational Study of the Argus® II Retinal Prosthesis System NCT01999049 University Health Network, Toronto: Collaborator Foundation Fighting Blindness	Prospective Observational single group assignment study	The Argus II Retinal Implant is a revolutionary new device, which offers vision to patients who are blind from retinal degeneration – RP. These patients have no alternatives. Patients typically can achieve ambulatory vision.	April 2014 January 2017 Recruiting patients n=10	Safety through 1 year after implantation. Safety will be assessed by calculating the proportion of subjects who experience individual procedure- and device-related adverse events. The proportion of subjects who experience a significant ocular event will also be reported.	Visual function at 1 year. Visual function will be measured using the following tests: square localization; direction of motion; grating visual acuity (GVA). Functional vision will be assessed using the Functional Low-Vision Observer Rated Assessment (FLORA). A utilization questionnaire will also be administered to track how subjects are using the Argus II System.	Patients with severe to profound outer retinal degeneration but some residual light perception. If no residual light perception remains, the retina must be able to respond to electrical stimulation and have history of useful form vision.	Ocular diseases or conditions that could prevent the Argus II System from working (e.g., optic nerve disease, central retinal artery or vein occlusion, history of retinal detachment, trauma, severe strabismus). Ocular structures or conditions that could prevent the successful implantation of the Argus II Implant or adequate healing from surgery (e.g., extremely thin conjunctiva, axial length <20.5 mm or >26 mm, corneal ulcers, choroidal neovascularization in the area of the intended tack location) Ocular diseases or conditions (other than cataracts) that prevent adequate visualization of the inner structures of the eye (e.g., corneal opacity) Predisposition to eye rubbing

AMD=age-related macular degeneration; CE=Conformité Européenne; CNV=choroidal neovascularization; logMAR=logarithm of the minimum angle of resolution; NR=not reported; RP=retinitis pigmentosa