

Waggoner

Computerized Color Vision Test (CCVT)



Download your free 30-day trial
www.WaggonerDiagnostics.com

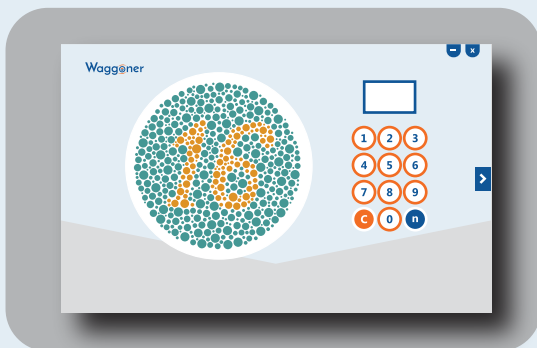
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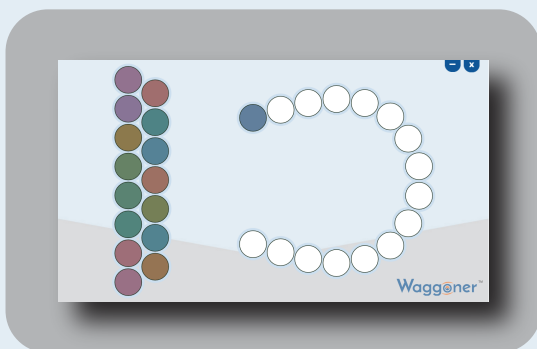
Waggoner Computerized Color Vision Test



The Waggoner Computerized Color Vision Test (WCCVT) was created as an all-in-one color vision testing suite to satisfy anyone interested in testing for color vision deficiencies ranging from school nurses to the U.S. Military. Within the WCCVT, an individual can choose several different testing methods that includes screening, diagnostic, pediatric, and adult testing. The Adult Diagnostic test provided in the WCCVT software is the cutting edge in color vision testing.

Benefits of the Waggoner CCVT

- The computer screen for the WCCVT does not need to be calibrated on select tablets.
- The WCCVT is a color vision suite and includes screening, diagnostic, pediatric, and adult tests.
- The WCCVT is the most competitively priced diagnostic color vision test on the market.
- The WCCVT was validated by a third party, the U.S. Navy (Comparable to the anomaloscope).



Why use Waggoner CCVT in your organization?

- Detect diseases (Ex. glaucoma, MS, diabetes) and toxic levels of substances with the Tritan (acquired) color vision test
- Provide patient care that is leaps ahead of traditional color vision testing.
- Standardize the color vision testing process and remove administrator biases.
- Get reimbursed for specific cases using CPT 92283

Waggoner

Waggoner Computerized Color Vision Test (CCVT)

The Waggoner CCVT is the military-grade, color vision diagnostic application designed by Dr. Terrace Waggoner and validated by the Naval Aerospace Medical Institute (NAMI). Additionally, it is accepted by the U.S. Navy, Army, Coast Guard, and Marines for testing their pilots. It includes the pediatric Color Vision Testing Made Easy and D-15. The Waggoner CCVT is an all-in-one color vision testing suite to satisfy anyone interested in testing for color vision deficiencies ranging from school nurses to the U.S. Military.

Features

- Extended Color Vision Test: Diagnostic
- Self-administered and self-scoring
- Adult and pediatric tests
- CPT 92283
- Approved codes: glaucoma, ARMD, cataracts, lupus, optic nerve neuropathies, diabetes, hypertension
- Cross platform versions: Windows, Android, and iOS,



	genetic deficiencies	acquired deficiencies	screening test	diagnostic	pediatric test included	CPT 92283	cross platform	accepted by militaries	test time (min)	
Waggoner CCVT Computerized Color Vision Test	✓	✓	✓	✓	✓	✓	✓	✓	3-6	\$795 to \$2,195
CCT¹ Cone Contrast Test	✓	✓	✓	✓	✗	✓	✗	✓	5-6	\$5,500
CAD¹ Colour Assessment	✓	✓	✓	✓	✗	✓	✗	✓	10-12	>\$8,000
ColorDx CCT-HD¹ Cone Contrast Test HD	✓	✓	✓	✓	✗	✓	✗	✗	10	\$7,000

Clinical Evidence

Gao, H., Reddix, M., Williams, H., & Kirkendall, C. (2013, May). Can computer-based color vision test results predict performance in operational environments? Aerospace Medical Association Conference. Presentation conducted from Sheraton, Chicago, IL.

Rings, M. & Picken, D. (2014, May). Validation of a Computerized Color Vision Test. Aerospace Medical Association Conference. Presentation conducted from Hilton, San Diego, CA.

Reddix, M., Kirkendall, C., Gao, H., O'Donnell, K., Williams, H., Eggen, S., & Wells, W. (2014, March). Assessment of Color Vision Screening Tests for U.S. Navy Special Duty Occupations. Presented at the 85th Aerospace Medical Association, San Diego, CA

Ng, J. S., Self, E., Vanston, J. E., Nguyen, A. L., & Crognale, M. A. (2015). Evaluation of the Waggoner Computerized Color Vision Test. Optometry and Vision Science, 92(4), 480-486.

REIMBURSEMENT FOR COLOR VISION TESTING

1

QUESTION: What are Waggoner Diagnostics' products?

ANSWER: Waggoner Diagnostics provides a family of color vision diagnostic tests based on the Waggoner Confusion Colors strategies available in multiple medias: print, computer applications,¹ and on the web as a browser-based service. The Waggoner Computerized Color Vision Test (CCVT) uses patient responses to decide the next presentation. There are adult and pediatric versions. The Waggoner CCVT Extended Level assesses Deutan, Protan, and Tritan defects; defects are graded mild, moderate or severe. After all Extended tests, a popup appears asking if the user should take a Farnsworth D-15. All tests are self-guided and auto-scored and may be printed or stored electronically for the medical record.

2

QUESTION: What are the indications for color vision testing?

ANSWER: Color vision testing is done for a variety of reasons including suspicion of congenital or acquired color vision defects, vision-related optic nerve problems, monitoring high-risk medications.² Additionally, performance and safety vocational assessment for color vision can be important in some occupations.³

3

QUESTION: Is color vision testing covered by Medicare and other payers?

ANSWER: Basic color vision testing using pseudoisochromatic plates is covered as part of the eye exam. More extensive color vision testing may be ordered when a patient fails the basic color vision test or has a sign, symptom or family history that warrants further assessment. Coverage depends on the indications as well as the results of the extended testing and the doctor's interpretation.

4

QUESTION: What CPT code describes color vision testing?

ANSWER: CPT 92283 (*Color vision examination, extended, e.g., anomaloscope or equivalent*) describes extended color vision testing. CPT directs, "*Color vision testing with pseudoisochromatic plates (such as HRR or Ishihara) is not reported separately. It is included in the appropriate general or ophthalmological service.*" The common testing methods that support 92283 are the Farnsworth D-15, Farnsworth-Munsell 100-Hue, and the Nagel Anomaloscope. The Waggoner CCVT is comparable to the Nagel Anomaloscope according to research completed by the U.S. Navy.⁴

5

QUESTION: Please provide an example of good documentation that supports this test.

ANSWER: A physician's order is necessary; an interpretation should discuss the results of the test and treatment (if any). A brief notation such as "abnormal" does not suffice. In addition to the patient's name and the date of the test, good documentation includes the following.

Physician's order – *Extended color vision testing to rule out Plaquenil macula toxicity - patient unable to complete 10-2 HVF*

Reliability of the test – *Prompt responses*

Findings – *Some red-green defects noted OU*

Assessment, diagnosis – *Plaquenil macula toxicity OU; no prior hx of color vision defects*

Impact on treatment, prognosis – *Recommend discontinuing Plaquenil, letter to Rheumatology*

Physician's signature – *I.C. Better, OD*

- 1 Supported computer applications: Windows, Android and iOS.
- 2 Fraunfelder et.al. *Clinical Ocular Toxicology*. 2008;10:320-321
- 3 Raymond RB, Ivan DJ. *Raymond's Clinical Aviation Medicine*. 5th Ed. Castle Connelly Graduate Medical Publishing. 2006;9:251-253.
- 4 Picken, D., Mann, W., Rings, M. 2013 May, *Preliminary validation of a computerized color vision test*. [Link here](#).

November 19, 2018

The reimbursement information is provided by Corcoran Consulting Group based on publicly available information from CMS, the AMA, and other sources. The reader is strongly encouraged to review federal and state laws, regulations, code sets, and official instructions promulgated by Medicare and other payers. This document is *not an official source* nor is it a complete guide on reimbursement. Although we believe this information is accurate at the time of publication, the reader is reminded that this information, including references and hyperlinks, changes over time, and may be incorrect at any time following publication.

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REIMBURSEMENT FOR COLOR VISION TESTING

6

QUESTION: Must the physician be present while this test is performed?

ANSWER: Under Medicare program standards, this test needs only *general supervision*. General supervision means the procedure is furnished under the physician's overall direction and control, but the physician's presence is not required. State laws may have different requirements.

7

QUESTION: What does Medicare allow for extended color vision testing?

ANSWER: CPT 92283 is per patient, not per eye. The 2018 national Medicare Physician Fee Schedule allowable is \$56.16. Of this amount, \$46.80 is assigned to the technical component and \$9.36 is for the professional component. Medicare allowable amounts are adjusted in each area by local indices; other payers set their own rates.

This test is subject to Medicare's Multiple Procedure Payment Reduction (MPPR). This reduces the allowable for the technical component of the lesser-valued test when two or more tests are performed on the same day.

8

QUESTION: What is the frequency of extended color vision testing in the Medicare program?

ANSWER: Extended color vision testing is rare within the Medicare program. For ophthalmology and optometry combined, it was reported 3 times per 10,000 eye exams. Since most color vision testing is performed as an incidental part of an eye exam, the utilization of 92283 is significantly less than the prevalence of color vision deficit in the population.

9

QUESTION: How often may this test be repeated?

ANSWER: In general, this and all diagnostic tests are reimbursed when medically indicated. Clear documentation of the reason for testing is always required. Too-frequent testing can garner unwanted attention from Medicare and other payers.

10

QUESTION: Is this test bundled with other services?

ANSWER: According to Medicare's National Correct Coding Initiative (NCCI), a level 1 established patient E/M code, CPT 99211, is bundled with 92283, although other exam codes are not.

11

QUESTION: May we ever bill the patient for color vision testing?

ANSWER: Yes; explain the necessity, and that Medicare or other third party payer will likely deny the claim. Ask the patient to assume financial responsibility for the charge. A financial waiver can take several forms, depending on insurance.

An [Advance Beneficiary Notice of Noncoverage \(ABN\)](#) is required for services where Part B Medicare coverage is ambiguous or doubtful, and may be useful where a service is never covered. You may collect your fee from the patient at the time of service or wait for a Medicare denial. If both pay, promptly refund the patient or show why Medicare paid in error.

For Part C Medicare (Medicare Advantage), determination of benefits is required to identify beneficiary financial responsibility prior to performing noncovered services. MA Plans have their own waiver processes and are not permitted to use the Medicare ABN form.

For commercial insurance beneficiaries, a [Notice of Exclusion from Health Plan Benefits \(NEHB\)](#) is an alternative to an ABN.

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2018 Medicare Reimbursement Summary ¹

Code	Description		Participating Allowable	Non-Participating ² Allowable	Non-Participating Limiting Charge
92283	Color vision examination, extended, eg anomaloscope or equivalent	Global	\$56.16	\$53.35	\$61.35
		Technical	\$46.80	\$44.46	\$51.13
		Professional	\$9.36	\$8.89	\$10.23
<i>(Color vision testing with pseudoisochromatic plates [such as HRR or Ishihara] is not reported separately. It is included in the appropriate general or ophthalmological service, or 99172)</i>					

Examples of Pertinent Diagnosis Codes ³

ICD-10	Description
E10.31- to E10.35-, E11.31- to E11.35-	Diabetic retinopathy and macular edema
H20.9	Unspecified iridocyclitis
H30.2-	Pars planitis
H30.81-	Harada's disease
H30.9-	Chorioretinitis, unspecified
H31.21	Choroideremia
H35.54	Dystrophies of retinal pigment epithelium
H44.11-	Panuveitis
H44.13-	Sympathetic uveitis
H46.0-	Optic papillitis
H46.1-	Retrobulbar neuritis (acute)
H46.2	Nutritional optic neuropathy
H46.3	Toxic optic neuropathy
H46.8	Other optic neuritis
H46.9	Optic neuritis, unspecified
H47.01-	Ischemic optic neuropathy
H53.00-	Unspecified amblyopia

November 20, 2018

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Examples of Pertinent Diagnosis Codes (continued)

ICD-10	Description
H53.01-	Deprivation amblyopia
H53.02-	Refractive amblyopia
H53.03-	Strabismic amblyopia
H53.16	Psychophysical visual disturbances
H53.51	Achromatopsia
H53.52	Acquired color vision deficiencies
H53.53	Deutan defect
H53.54	Protan defect
H53.55	Tritan defect
H53.59	Other color vision deficiencies
L93.-	Lupus erythematosus
M05.- to M06.-	Rheumatoid arthritis
M32.-	Systemic lupus erythematosus
Z79.891	Long-term (current use) high-risk medications

National Correct Coding (NCCI) Edits ^{4,5}

Primary Code	Do Not Bill These Codes With Primary Code	Do Not Bill Primary Code With These Codes
92283	99211	none

November 20, 2018

¹ Rates shown are Medicare's national fee schedule amounts. Local reimbursement varies. Medicare's multiple procedure payment reduction (MPPR) applies; when more than one test is performed at a session, the technical component of the second eye or lesser-value test is reduced by 20%.

² Participating physicians (PAR) agree to accept Medicare allowed amounts on all covered services as their maximum payment from all sources. This is known as "accepting assignment". Non-participating physicians (Non-PAR) may accept assignment on a case-by-case basis, but are also limited in the amount they may charge the patient if they do not accept assignment. For additional discussion, see information published by CMS for patients [here](#).

³ Listed codes are a representative of covered diagnoses but differences in payment policies exist for many payers. This list is neither exhaustive nor universally accepted. See your payer bulletins.

⁴ Bundles shown are common ophthalmic edits. Check the complete NCCI edits for all bundles.

⁵ NCCI edits effective October 1, 2018. Edits may change quarterly.

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Drugs that can cause color vision deficiencies

acetoexamide | adrenal cortex injection | alcohol | amobarbital | aspirin | atropine

beclomethasone | betamethasonebroxyquinolone | butalbital

carbamazepine | carbon dioxide | chloramphenicol | chloroquine | chlorpromazine

chlorpropamide | cimetidine | cisplatin | cortisone

deferoxamine | denileukindiftitox | dexamethasone | dicyclomine | diiodohydroxyquinoline

dimethyl sulfoxide | disulfiram | dronabinol

epinephrine | ergometrine | ergotamine tartrate | erythromycin | estradiol

estrogen and progestogen | ethambutol

famotidine | fludrocortisone | fluorometholone | fluphenazine

glibenclamide | glimepiride | glipizide | glycopyrrolate | griseofulvin

hashisll | herbal medicines | homatropine | hydrocortisone | hydroxychloroquine

ibuprofen | indometacin | influenza virus vaccine | iodide and iodine solutions and compounds

isocarboxazid | isoniazid | isotretinoin

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Drugs that can cause color vision deficiencies

lidocaine | linezolid | lorazepam | LSD

marijuana | medrysone | mepacrine | mepenzolate | mercaptopurine | mescaline | methazolamide
methohexital | methylethergometrine maleate | mepacrine | methylphenobarbital | methylprednisolone
metoclopramide | metronidazole

nalidixic acid | naproxen | nitrofurantoin | nizatidine | norepinephrine

organophosphates | oxazepam

pamidronate | penicillamine | pentobarbital | perphenazine | phenelzine | phenobarbital | phenytoin
physostigmine | pilocarpine | pioglitazone | piperazine | prednisolone | prednisone | primidone
prochlorperazine | promethazine | propantheline | psilocybin | pyridostigmine

quinidine | quinine

radioactive iodides | rantidine | rescinnamine | reserpine | rifampicin
rimexolone | rosiglitazone

secbutalbarbital | secobarbital | sildenafil



Acquired Deficiency Identified: What's Next?

Glaucoma

Tonometry | Optical Coherence Tomography | Visual Field
Pachymetry | Fundus Photos monitor optic nerve

Macular Degeneration

Optical Coherence Tomography | Central Visual Field Testing
Fluorescein Angiography | Blind Spot Amsler Grid

Cataracts

Eye Chart Test | Glare Test

Diabetic Retinopathy

Optical Coherence Tomography | Fluorescein Angiography | Fundus Photos

Multiple Sclerosis

Visually Evoked Potential | MRI of the Brain

Alzheimer's Disease

Brain Electrophysiology | Magnetic Resonance Imaging | Computed Tomography

Optic Neuritis

Visually Evoked Potential | Optical Coherence Tomography | Magnetic Resonance Imaging

Make sure to continue using the Waggoner CCVT to continue measuring progression of the acquired deficiency

Waggoner

Order Form

Name:

Date:

Seen Where:

Phone Office:

Cell:

Email:

Shipping Address

Address:

Address 2:

City:

State:

ZIP:

Billing Address (Please check box if same as shipping)

Address:

Address 2:

City:

State:

ZIP:

Quantity	Product Description	Price each	Price ext.
	Waggoner Computerized Color Vision Test (App Only)	\$795	
	Waggoner CCVT Preinstalled on Microsoft Tablet	\$2,195	
	Color Vision Testing Made Easy	\$110	
	Waggoner PIP24	\$195	
	Waggoner Quick Six	\$80	
	TestingColorVision.com (Online Testing)	Depends	

Subtotal

Tax (AR, CA, FL only)

Shipping
(to be determined)

Total

Method of Payment: Am Exp Visa M/C Cash Check # _____

Card # _____ CCV code # _____ Exp. Date _____

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