Vision and Commercial Motor Vehicle Driver Safety

Recommendations from Vision Medical Expert Panel

Presented by
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The Medical Expert Panel

- Vision Medical Expert Panelists were:
  - Frank G. Berson, MD
  - Cynthia Owsley, MSPH, PhD
  - Eli Peli, MSc, OD

Current Vision Standard (391.41)

- Distance visual acuity of at least 20/40 (Snellen) in each eye, with or without corrective lenses
- Distant binocular visual acuity of at least 20/40 (Snellen) in both eyes, with or without corrective lenses
- Field of vision of at least 70 degrees in horizontal meridian in each eye
- Ability to recognize the colors of traffic signals and devices showing the standard red, green and amber

Evolution of the Vision Standard

1937	“Good eyesight” Red and green
1939	20/40, 20/100 45 degrees in all meridians from fixation Red, green, and yellow
1952	20/40, 20/40
1964	140 degrees horizontal field
1971	70 degrees horizontal field each eye

Visual Disorders and Commercial Drivers (Decina et al, 1991 – "Ketron Study")

- Restate the field requirement as follows:

  "A field of vision of at least 120 degrees in each eye measured separately in the horizontal meridian"

Visual Disorders and Commercial Drivers (Berson et al, 1998)

- Restate the field requirement and include a vertical component
- Consider protocols for testing confrontation fields and color vision

Recommendations of Vision MEP to the FMCSA

- Some individuals with visual disorders do constitute an additional risk to road safety
- Regulations pertaining to minimal standards of vision are needed
- Having considered the available evidence, the MEP has made several recommendations

Recommendation 1: Monocular Vision

- The current standard, which precludes individuals with monocular vision from driving a CMV for the purposes of interstate commerce, should not be changed at this time

Recommendation 1: Justification

- MEP agreed that the current evidence is not sufficient to justify a change
- Although data from the Vision Exemption Program (VEP) shows fewer reported crashes after acceptance into the program than control drivers, panelists were concerned about validity of interpretation of findings

Recommendation 1: Justification

- MEP members thought that the VEP should be continued and a protocol established to obtain the data necessary for a future recommendation
- The estimate for the minimum time required for additional data is two years

Recommendation 2: Red-Green Color Deficiencies

- Current standard should not be changed at this time
- Revisions in testing guidelines should be considered with regard to specific tests

Recommendation 2: Justification

- Available evidence is insufficient to determine whether red-green color deficiencies increase crash risk
- Consequently, the MEP did not deem it appropriate to either eliminate or modify the relevant part of the current physical qualifications standard

Recommendation 3: Visual Field Loss

- The MEP opined that the standard should be restated and the minimal field possibly modified.
  - The current standard of 70 degrees may be adequate
    - Whether this needs a modification, and what that modification should be has yet to be determined
  - The method(s) of visual field testing should be clarified

Recommendation 3: Visual Field Loss

- The confrontational test may be considered acceptable except in situations where the examinee has a history of visual disorders
- If the examinee has a history of visual disorders such as glaucoma, another test must be used to determine visual field loss

Recommendation 3: Visual Field Loss

- If the examinee fails the confrontational test, another test must be used to determine visual field loss
- Which test to determine visual field loss for individuals who fail the confrontational test or have a history of visual disorders has not been determined by the MEP

Recommendation 3: Justification

- MEP agreed that the current evidence is not sufficient and more information is needed to guide a recommendation for this standard
- It is clear from the Evidence Report that visual field loss is associated with an increased risk of crash

Recommendation 3: Justification

- The current field standard of 70 degrees horizontal for each eye, established in 1971, appeared to be an incorrect restatement of the previous 140 degree binocular requirement expressed in monocular terms
- Two previous panels have recommended restatement of the standard as 120 degrees but this should be considered arbitrary without sufficient evidence

Recommendation 4: Cataracts

- The MEP agreed that there is insufficient evidence to modify the current standard to include the possible impact of cataract on CMV driving eligibility

Recommendation 4: Justification

- The evidence is insufficient to determine whether cataract increases crash risk, although the possibility cannot be ruled out
  - Especially true for cataracts that affect visual acuity (VA) less than the limit required by the current VA standard of 20/40
- There was agreement that disabling glare and loss of contrast sensitivity were important factors to be considered in any evidence base

Recommendation 5: Diplopia

- The MEP did not recommend any change in the standard for diplopia

Recommendation 5: Justification

- Since there was insufficient evidence to determine whether diplopia increases the crash risk, the MEP believed a change in the current standard is not justified at this time