

# A Portrait of a long-haul truck driver...

Descriptive data analysis of a large population of the U.S. truck drivers

# Impact of the health issues in truck drivers on the society

- Nearly 15 million truck drivers  
(Saltzman & Belzer, 2007)
- Truckers remain both a highly vulnerable and a seriously underserved working population with the high prevalence of chronic health problems
- Low health care access and use  
(Layne, Rogers, & Randolph, 2009; Reed & Skeeters Cronin, 2003; Solomon, Doucette, Garland, & McGinn, 2004)

# Commercial Driver Medical Qualification

- The Motor Carrier Safety Act of 1935 granted the Interstate Commerce Commission (ICC) the authority to require medical certifications for CMV operators but not physical examinations
- A physical examination and Certificate of Physical Evaluation were not required until January 1, 1954
- The U.S. Department of Transportation (DOT) was created by an act of Congress in 1970
  - Since October 1999, motor carrier safety was transferred to the FMCSA which reports directly to the secretary of the DOT

# Commercial Driver Medical Qualification

- Initial criteria from June 7, 1939:
  - Good physical and mental health
  - Good eyesight
  - Adequate hearing
  - No addiction to narcotic drugs
  - No excessive use of alcoholic beverages or liquors
- Tighter medical qualification standards were announced 30 years later, on June 7, 1969
- New form was proposed in 1998 and the Final Rule was published on October 5, 2000

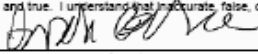
# Medical Examination Report form

- The form includes one page each for:
  - Medical history
  - Testing
  - Recording of the physical examination
- Instructions to examiners, the role of the commercial driver, and inclusion of the advisory criteria bring the entire document to eight pages

# Problems with the form

- Over 15 % were incomplete
- Over 40% had entries that were not legible
- Data storage
- Drivers, who did not meet the regulations and medical guidelines, were given DOT certificates
- Previous DOT exam information not available for review
- Drivers did not always give consistent information from one exam to the next

# DOT form

<b>Medical Examination Report</b>							555-22-1133	
<b>FOR COMMERCIAL DRIVER FITNESS DETERMINATION</b>								
<b>1 DRIVER'S INFORMATION</b> Driver completes this section.								
Driver's Name (Last, First, Middle) ...Wayne, John		Social Security No. 655-22-1133	Birthdate 10/04/1964 <small>MM/DD/YYYY</small>	Age 43	Sex <input checked="" type="checkbox"/> M <input type="checkbox"/> F	<input checked="" type="checkbox"/> New <input type="checkbox"/> Recertification <input type="checkbox"/> Follow-up	Date of Exam 10/05/07	
Address 123 1st St		City, State, Zip Code Springdale, AR 72782	Work Tel:  Home Tel: (479) 655-1111	Driver License No. 1254854321		License Class <input checked="" type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> D <input type="checkbox"/> Other	State of Issue AR	
<b>2 HEALTH HISTORY</b> Driver completes this section, but medical examiner is encouraged to discuss with								
Yes No <input checked="" type="checkbox"/> <input type="checkbox"/> Any illness or injury in the last 5 years? <input checked="" type="checkbox"/> <input type="checkbox"/> Head/Brain injuries, disorders or illnesses <input checked="" type="checkbox"/> <input type="checkbox"/> Seizures, epilepsy <input type="checkbox"/> medication <input checked="" type="checkbox"/> <input type="checkbox"/> Eye disorders or impaired vision (except corrective lenses) <input checked="" type="checkbox"/> <input type="checkbox"/> Ear disorders, loss of hearing or balance <input checked="" type="checkbox"/> <input type="checkbox"/> Heart disease or heart attack; other cardiovascular condition <input type="checkbox"/> medication <input checked="" type="checkbox"/> <input type="checkbox"/> Heart Surgery (Valve replacement/bypass, angioplasty, pacemaker) <input checked="" type="checkbox"/> <input type="checkbox"/> High blood pressure <input type="checkbox"/> medication _____ <input checked="" type="checkbox"/> <input type="checkbox"/> Muscular disease <input checked="" type="checkbox"/> <input type="checkbox"/> Shortness of breath			Yes No <input type="checkbox"/> <input checked="" type="checkbox"/> Lung disease, emphysema, asthma, chronic bronchitis <input type="checkbox"/> <input checked="" type="checkbox"/> Kidney disease, dialysis <input type="checkbox"/> <input checked="" type="checkbox"/> Liver disease <input type="checkbox"/> <input checked="" type="checkbox"/> Digestive problems <input checked="" type="checkbox"/> <input type="checkbox"/> Diabetes or elevated blood sugar controlled by: <input type="checkbox"/> diet <input type="checkbox"/> pills <input type="checkbox"/> insulin <input checked="" type="checkbox"/> <input type="checkbox"/> Nervous or psychiatric disorder, e.g., severe <input type="checkbox"/> medication _____ <input checked="" type="checkbox"/> <input type="checkbox"/> Loss of, or altered consciousness			Yes No <input type="checkbox"/> <input checked="" type="checkbox"/> Fainting, dizziness <input type="checkbox"/> <input checked="" type="checkbox"/> Sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring <input type="checkbox"/> <input checked="" type="checkbox"/> Stroke or paralysis <input type="checkbox"/> <input checked="" type="checkbox"/> Missing or impaired hand, arm, foot, leg, finger, toe <input type="checkbox"/> <input checked="" type="checkbox"/> Spinal injury or disease <input type="checkbox"/> <input checked="" type="checkbox"/> Chronic low back pain <input type="checkbox"/> <input checked="" type="checkbox"/> Regular, frequent alcohol use <input type="checkbox"/> <input checked="" type="checkbox"/> Narcotic or habit-forming drug use		
For any YES answer, indicate onset date, diagnosis, treating physician's name and address, and any current limitation. List all medications (including over-the-counter medications) used regularly or recently. Comments: Test Comments ok/hasadurhasuit								
I certify that the above information is complete and true. I understand that inaccurate, false, or missing information may invalidate the examination and my Medical Examiner's Certificate.								
 Driver's Signature						10/05/07 Date		
<b>Medical Examiner's Comments on Health History</b> (The medical examiner must review and discuss with the driver any "yes" answers and potential hazards of medications, including over-the-counter medications, while driving.) Comments: Test Comments								
0 <span style="float: right;">Copyright, 2004 Road Ready Inc.</span>								

# DOT form page 2

## TESTING (Medical Examiner completes Section 3 through 7)

### 3. VISION

Standard: At least 20/40 acuity (Snellen) in each eye with or without correction. At least 70° peripheral in horizontal meridian measured in each eye. The use of corrective lenses should be noted on the Medical Examiner's Certificate.

INSTRUCTIONS: When other than the Snellen chart is used, give test results in Snellen-comparable values. In recording distance vision, use 20 feet as normal. Report visual acuity as a ratio with 20 as numerator and the smallest type read at 20 feet as denominator. If the applicant wears corrective lenses, these should be worn while visual acuity is being tested. If the driver habitually wears contact lenses, or intends to do so while driving, sufficient evidence of good tolerance and adaptation to their use must be obvious. Monocular drivers are not qualified.

Numerical readings must be provided.

ACUITY	UNCORRECTED	CORRECTED	HORIZONTAL FIELD OF VISION
Right Eye	20/	20/	Right Eye -
Left Eye	20/	20/	Left Eye -
Both Eyes	20/	20/	-

Applicant can recognize and distinguish among traffic control signals and devices showing standard red, green, and amber colors?  Yes  No

Applicant meets visual acuity requirement only when wearing:  
 Corrective Lenses

Monocular Vision:  Yes  No

Complete next line only if vision testing is done by an ophthalmologist or optometrist

Date of Examination \_\_\_\_\_ Name of Ophthalmologist or Optometrist (print) \_\_\_\_\_ Tel No. \_\_\_\_\_ License No./State of Issue \_\_\_\_\_ Signature \_\_\_\_\_

### 4. HEARING

Standard: a) Must first perceive forced whispered voice > 5 ft., with or without hearing aid, or b) average hearing loss in better ear ≤ 40 dB

Check if hearing aid used for tests.  Check if hearing aid required to meet standard.

INSTRUCTIONS: To convert audiometric test results from ISO to ANSI, -1.4 dB from ISO for 500 Hz, -1.0 dB for 1,000 Hz, -8.5 dB for 2,000 Hz. To average, add the readings for 3 frequencies tested and divide by 3.

Numerical readings must be recorded.

a) Record distance from individual at which forced whispered voice can first be heard.	Right Ear	Left Ear	b) If audiometer is used, record hearing loss in decibels. (acc. to ANSI Z24.5-1951)	Right Ear			Left Ear		
	Feet	Feet		500 Hz	1 000 Hz	2000 Hz	500 Hz	1 000 Hz	2000 Hz
				Average:			Average:		

### 5. BLOOD PRESSURE / PULSE RATE

Numerical readings must be recorded.

Blood Pressure	Systolic	Diastolic

Driver qualified if ≤ 140/90 on initial exam.

Pulse Rate	<input type="checkbox"/> Regular
	<input type="checkbox"/> Irregular

READING	CATEGORY	EXPIRATION DATE	RECERTIFICATION
140-159/90-99	Stage 1	1 year	1 year if <140/90. One-time certificate for 3 months if 141-159/91-99.
160-179/100-109	Stage 2	One-time certificate for 3 months.	1 year from date of exam if <140/90 -
>180/110 -	Stage 3	6 months from date of exam if <140/90	6 months if < 140/90 -

Medical examiner should take at least 2 readings to confirm blood pressure.

### 6. LABORATORY AND OTHER TEST FINDINGS

Numerical readings must be recorded.

Urinalysis is required. Protein, blood or sugar in the urine may be an indication for further testing to rule out any underlying medical problem.

Other Testing (Describe and record)

URINE SPECIMEN	SP. GR.	PROTEIN	BLOOD	SUGAR

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# DOT form page 3

**7. PHYSICAL EXAMINATION**

Height: \_\_\_\_\_ (inches)      Weight: \_\_\_\_\_ (pounds)

The presence of a certain condition may not necessarily disqualify a driver, particularly if the condition is controlled adequately, is not likely to worsen or is readily amenable to treatment. Even if a condition does not disqualify a driver, the medical examiner may consider deferring the driver temporarily. Also, the driver should be advised to take the necessary steps to correct the condition as soon as possible particularly if the condition, if neglected, could result in more serious illness that might affect driving.

Check YES if there are any abnormalities. Check NO if the body system is normal. Discuss any YES answers in detail in the space below, and indicate, whether it would affect the driver's ability to operate a commercial motor vehicle safely. Enter applicable item number before each comment. If organic disease is present, note that it has been compensated for.

See *Instructions to the Medical Examiner for guidance.*

BODY SYSTEM	CHECK FOR:	YES	NO	BODY SYSTEM	CHECK FOR :	YES	NO
1. General Appearance	Marked overweight, tremor, signs of alcoholism, problem drinking, or drug abuse.			7. Abdomen and Viscera	Enlarged liver, enlarged spleen, masses, bruits, hernia, significant abdominal wall muscle weakness.		
2. Eyes	Pupillary equality, reaction to light, accommodation, ocular motility, ocular muscle imbalance, extra ocular movement, nystagmus, exophthalmos, strabismus uncorrected by corrective lenses, retinopathy, cataracts, aphakia, glaucoma, macular degeneration.			8. Vascular System	Abnormal pulse and amplitude, carotid or arterial bruits, varicose veins.		
3. Ears	Middle ear disease, occlusion of external canal, perforated eardrum.			9. Genito-urinary System	Hernias.		
4. Mouth and Throat	Irremediable deformities likely to interfere with breathing or swallowing.			10. Extremities-Limb impaired driver may be subject to SPE certificate if otherwise qualified.	Loss or impairment of leg, foot, toe, arm, hand, finger. Perceptible limp, deformities, atrophy, weakness, paralysis, clubbing, edema, hypotonia. Insufficient grasp and prehension in upper limb to maintain steering wheel grip. Insufficient mobility and strength in lower limb to operate pedals properly.		
5. Heart	Murmurs, extra sounds, enlarged heart, pacemaker.			11. Spine, other musculoskeletal	Previous surgery, deformities, limitation of motion, tenderness.		
6. Lungs and chest, not including breast examination	Abnormal chest wall expansion, abnormal respiratory rate, abnormal breath sounds including wheezes or alveolar rales, impaired respiratory function, dyspnea, and cyanosis. Abnormal findings on physical exam may require further testing such as pulmonary test and/or x-ray of chest.			12. Neurological	Impaired equilibrium, coordination or speech pattern; paresthesia, asymmetric deep tendon reflexes, sensory or positional abnormalities, abnormal patellar and Babinski's reflexes, ataxia.		

COMMENTS:

Note certification status here. See *Instructions to the Medical Examiner for guidance.*

- Meets standards in 49 CFR 391.41; qualifies for 2 year certificate
- Does not meet standards
- Meets standards, but periodic evaluation required

Due to \_\_\_\_\_ driver qualified only for:

- 3 months       1 year
- 6 months       Other

- Wearing corrective lenses
- Wearing hearing aid
- Accompanied by a limb waiver or eye exemption
- Skill Performance Evaluation (SPE) Certificate
- Driving within an exempt intracity zone
- Qualified by operation of 49 CFR 391.64

Medical Examiner's Signature \_\_\_\_\_

Medical Examiner's Name (print) KONSTANTIN V. BERESTNEV, M.D.

Address: 4001 WAGON WHEEL RD, SPRINGDALE AR 72762

Temporarily disqualified due to (condition or medication): \_\_\_\_\_

Telephone Number (479) 725-3000


Return to medical examiner's office for follow up on \_\_\_\_\_

If meets standards, complete a Medical Examiner's Certificate according to 49 CFR 391.43(h). (Driver must carry certificate when operating a commercial vehicle.)

# Methods

- Web-based network of provider clinics was established
- DOT physicals done electronically
- 100% completion rate ( DOT certificate can't be issued if the form is incomplete)
- The data is entered into, stored, and analyzed using web-based Road Ready applications

# Electronic version of the form



MAIN MENU

**....Wayne, John (555-22-1133)**

Date of Exam: 11/06/2007 [Logoff ADMIN](#)

DOT Regulations: 49 CFR 391.41

**Driver Exam**

Exam Information

- Vision
- Hearing
- Blood Pressure
- Lab Test
- Physical
- Signature Pages
  - Driver - Complete
  - Examiner - Incomplete
- Supplemental
  - Musculoskeletal
  - Dynamic/Cardio
  - Job Specific
- PREVIOUS EXAMS
  - 10/5/2007
  - 10/17/2007
  - 10/18/2007

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Exam Search

Record Correction

Reporting

Administration

**Physical Examination**    **Instructions and Standard**

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**7. PHYSICAL EXAMINATION**    **Instructions to the Medical Examiner**

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**Body System**    BMI:     Height:     Weight:

The presence of a certain condition may not necessarily disqualify a driver, particularly if the condition is controlled adequately, is not likely to worsen or is readily amenable to treatment. Even if a condition does not disqualify a driver, the medical examiner may consider deferring the driver temporarily. Also, the driver should be advised to take the necessary steps to correct the condition as soon as possible particularly if the condition, if neglected, could result in more serious illness that might affect driving.

Check **YES** if there are any abnormalities. Check **NO** if the body system is normal. Discuss any YES answers in detail in the space below, and indicate, whether it would affect the driver's ability to operate a commercial motor vehicle safely. Enter applicable item number before each comment. If organic disease is present, note that it has been compensated for. See Instructions to the Medical Examiner for guidance.

Body System	Yes	No	Body System	Yes	No
1. General Appearance	<input type="radio"/>	<input checked="" type="radio"/>	7. Abdomen and Viscera	<input type="radio"/>	<input checked="" type="radio"/>
2. Eyes	<input type="radio"/>	<input checked="" type="radio"/>	8. Vascular system	<input type="radio"/>	<input checked="" type="radio"/>
3. Ears	<input type="radio"/>	<input checked="" type="radio"/>	9. Genito-urinary system	<input type="radio"/>	<input checked="" type="radio"/>
4. Mouth and Throat	<input type="radio"/>	<input checked="" type="radio"/>	10. Extremities - Limb impaired. Driver may be subject to SPE certificate if otherwise qualified.	<input type="radio"/>	<input checked="" type="radio"/>
5. Heart	<input type="radio"/>	<input checked="" type="radio"/>	11. Spine, other musculoskeletal	<input type="radio"/>	<input checked="" type="radio"/>
6. Lung and chest, not including breast examination	<input type="radio"/>	<input checked="" type="radio"/>	12. Neurological	<input type="radio"/>	<input checked="" type="radio"/>

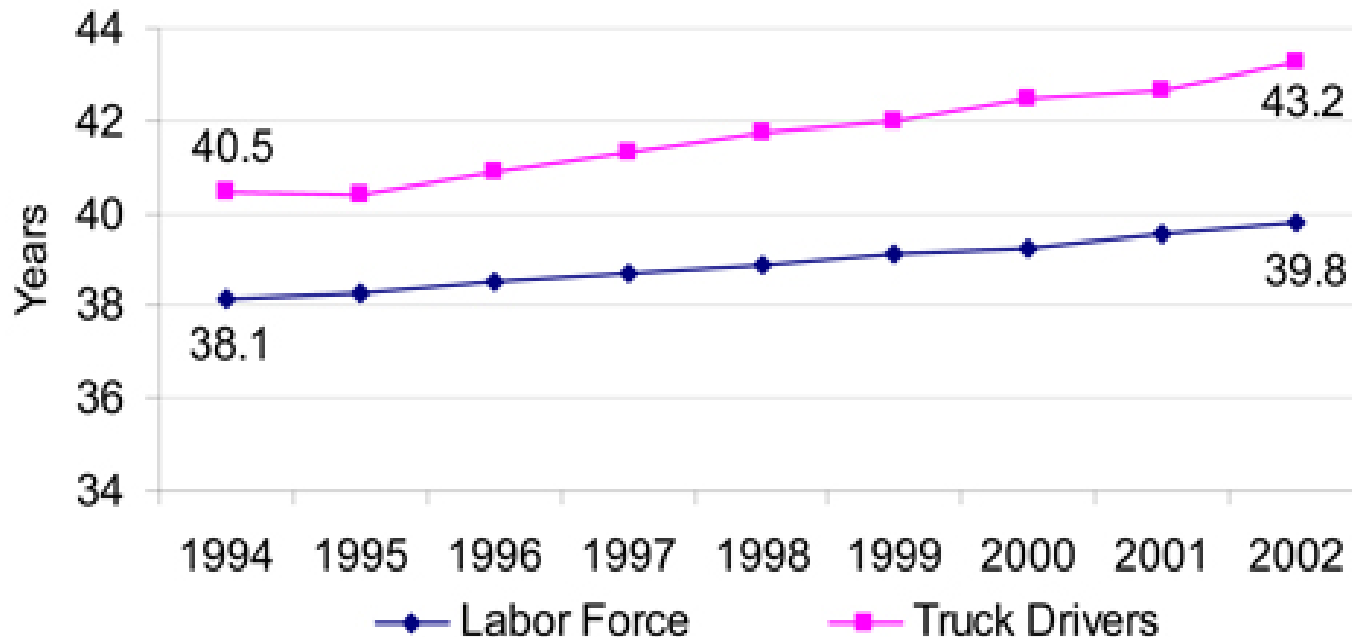
**Check for:**

Marked overweight, tremor, signs of alcoholism, problem drinking, or drug abuse.

**Comments**

# Demographics

- Age - 20-89 in Road Ready database (avg.43.23)
- Average Age of the U.S. Labor Force and of Truck Drivers in the Transportation Industry



# Gender and habits

- Male drivers >95%
- Female drivers <5%
- Estimated prevalence of smoking in truck drivers is 50.1%
- Nutrition/ Diet: needs may be met at roadside diners
- Exercises: inadequate
- Often spend days to weeks away from home
- Poor sleep habits

# Body Mass Index Analysis

Age Group (Years)	≤25 Normal Range	26-29 Overweight	30-34 Obese	35-39 Severely Obese	≥40 Morbidly Obese	Totals
<20	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
20-29	27.72% 1953	26.84% 1891	19.32% 1361	12.84% 905	13.28% 936	10.71% 7046
30-39	18.95% 3541	29.43% 5498	24.61% 4599	13.71% 2562	13.29% 2484	28.41% 18,684
40-49	15.77% 342	31.55% 6685	26.72% 5662	14.19% 3007	11.76% 2492	32.22% 21,188
50-59	15.94% 2274	33.69% 4806	27.68% 3948	13.05% 1862	9.63% 1374	21.69% 14,264
60-69	15.65% 652	35.56% 1481	28.45% 1185	13.28% 553	7.06% 294	6.33% 4165
70-79	19.13% 75	37.76% 148	26.02% 102	12.24% 48	4.85% 19	0.60% 392
80-89	0.00% 0	50.00% 11	36.36% 8	13.64% 3	0.00% 0	0.03% 22
ALL	18.01% 1,842	31.2% 20,520	25.64% 16,865	13.59% 8,940	11.55% 7,599	100% 65,766

# Effect of BMI on Lifetime DM Risk

- Overweight and especially obesity substantially increases lifetime risk of diagnosed diabetes
- There is a 37-1/2% lifetime risk for diabetes in the obese individual, BMI 30-35 (Diabetes Care 30:1562–1566, 2007)
- There is a 50.5% lifetime risk for diabetes in the very obese individual, greater than 35 BMI (Diabetes Care 30:1562–1566, 2007)
- Estimated lifetime prevalence of DM in our research population is 26%
- Self-reported rate of diabetes is 6.9%

# DM and DOT physicals

- Screening for diabetes – urine dipstick
- Blood glucose or HbA1C – not required
- Health history – limited, esp. with paper form
- Current standards – lacking
- Drivers awareness – poor
- Motor carriers are forced to fill the gap



# Sleep apnea

- Obstructive sleep apnea (OSA) is a significant cause of motor vehicle crashes resulting in two - to - sevenfold increased risk
- It is reported that 50-60% of drivers need to be screened for sleep apnea and about 25% of the driver population have sleep apnea (MCSAC and MRB Task 11-05: Recommendations for OSA Regulatory Guidance)
- The rate of drivers who answered “**Yes**” to a sleep disorder, pauses in breathing while asleep, daytime sleepiness, or loud snoring, was 0.6% in RoadReady database

# HTN and CAD

- Self-reported rate of HTN in Road Ready database was 14.57%
- Self-reported rate of heart disease was 1.8%
- Self-reported rate of heart surgery was 1.15%
- We know that the actual burden of CVD is much higher in this population

# Conclusions

- It's been speculated that truck drivers have a 10- to 15-year lower life expectancy than the average American male who lives to age 76
- We see in our database that truck drivers are getting older
- Morbid obesity is prevalent in this population
- They underreport and we underestimate prevalence of chronic health problems in truck drivers: CAD, DM, HTN, OSA, etc.

# Conclusions

- This is a wake up call for truckers, healthcare providers, insurance industry, public health professionals
- Areas of improvement:
  - Workplace modifications (APU, climate control, etc.)
  - Administrative controls (e-logs)
  - Preventive medicine (wellness exams, dietary and lifestyle coaching, healthy incentive programs, etc.)
  - Regulatory aspects of the DOT physicals

# Discussion

- National providers database
- Better regulations
- Task Force creation
- Who is to be on a Task Force?
- Who develops regulations?
- How is it done in your country?