



# A DRIVING ASSESSMENT CLINIC: STRUCTURE AND STATISTICS\*



S. Shah MD\*\*, G. Madero MD\*\*, S. Maynard MD\*\*, S. Neitch MD\*\*  
Joan C. Edwards School of Medicine, Marshall University; Huntington, WV

## INTRODUCTION

- ❖ Objective assessment of driving skills can provide a strong platform for physicians to counsel elderly drivers and provide appropriate recommendations.
- ❖ However, formal driving programs are not widely available, and primary care offices are not often using available screening tools.
- ❖ A Driving Assessment Clinic has been in place at the Hanshaw Geriatric Center for several years. We reviewed records from our clinic to study usage patterns and patient results to determine if any general recommendations can be made for other practitioners who might consider offering this service.

## CLINIC STRUCTURE

- THE EVALUATION:**
- ❖ Requirement: Person previously licensed to drive. The clinic accepts self and physician referrals.
  - ❖ Evaluation Team: Geriatrician, Physician Assistant, LPN with geriatric expertise and Occupational Therapist.
  - ❖ Assessment Time: 90 Minutes.
  - ❖ Testing Protocol includes: driving relevant history and review of systems, basic medical examination and detailed musculoskeletal exam, tests for cognitive functions, and Useful Field of View® computer program.
  - ❖ Two clinics are offered monthly, and two patients are evaluated per clinic session.
- THE PATIENTS:**
- ❖ We reviewed driving assessments since the inception of our electronic health record in late 2007, through mid 2010.
  - ❖ Total of 49 patients have been tested, three of whom have been tested twice, making for overall 52 evaluations.
  - ❖ A number of younger patients who sustained head injury or stroke were referred but majority have been older patients with diagnosis of Dementia.
  - ❖ Mean Age is 75.4 (Range 41-90).
  - ❖ Male – N=29(one tested twice) . Female – N=19 ( two tested twice).
  - ❖ Referral source: Physician – 39, Family – 11, Self – 2.
- METHODS:**
- ❖ The Electronic Health Record scheduling module was reviewed for numbers of patients who arrived for appointments, no-showed appointments, or cancelled appointments.
  - ❖ Patient records were reviewed for evaluation results and recommendations given. [Study approved by Marshall University IRB.]

## FINDINGS

- ❖ 72 clinic sessions were offered during the study time frame, comprising 144 available appointments.
  - ❖ 109 appointment slots were filled - 75.7% of available.
    - 26 appointments were cancelled – 23.8%
    - 16 rescheduled and were ultimately evaluated – 61.5% of cancellations
    - 14 appointments were “no shows” – 12.8%
    - 1 rescheduled and was ultimately evaluated – 7% of no shows
- 
- ❖ 27 out of 52 evaluations had diagnosis of Dementia - 52%
  - ❖ 11 had suffered head trauma, including 4 who also had Dementia diagnosis.
  - ❖ 9 had strokes, including 5 who also had Dementia.
  - ❖ 2 cases had all three ( Dementia, Stroke, Head Trauma), and yet were still driving

## SELECTED CLINIC EVALUATION RESULTS

| Component            | Test result                      | WITH Dementia<br>N=27 | WITHOUT Dementia<br>N=25 |
|----------------------|----------------------------------|-----------------------|--------------------------|
| MMSE©                | "Normal"<br>28-30                | 3 (11%)               | 14 (56%)                 |
|                      | "Equivocal"<br>22-27             | 11 (40%)              | 10 (40%)                 |
|                      | "Significantly impaired"<br>9-21 | 13 (48%)              | 1 (4%)                   |
| UFOV©                | 1=Low Risk of Crash              | 1 (4%)                | 3 (12%)                  |
|                      | 2                                | 1 (4%)                | 6 (24%)                  |
|                      | 3                                | 4 (14%)               | 2 (8%)                   |
|                      | 4                                | 2 (7%)                | 1 (4%)                   |
|                      | 5=Very High Crash Risk           | 19 (70%)              | 13 (52%)                 |
| Sign Recognition     | Pass                             | 9 (33%)               | 12 (48%)                 |
|                      | Fail                             | 18 (67%)              | 13 (52%)                 |
| Driver's Knowledge   | Pass                             | 12 (44%)              | 21 (84%)                 |
|                      | Fail                             | 15 (56%)              | 4 (16%)                  |
| Final Recommendation | Continue to drive                | 1 (4%)                | 9 (36%)                  |
|                      | Drive with modification          | 0 (0%)                | 5 (20%)                  |
|                      | Stop driving                     | 26 (96%)              | 11 (44%)                 |

## DISCUSSION

- ❖ 2007 Statistics from National Safety Council show that drivers over age of 65 represent total of 15% ( 30 million) of licensed drivers in U.S. and this is expected to increase to 25% by 2030.
- ❖ This age group experiences the second highest death rate in motor vehicle accidents second only to ages 15 -24 years.
- ❖ The Insurance Institute of Highway Safety (IIHS) confirms that starting at age 75 and more notably after 80 the rate of fatal crashes per mile driven increases.
- ❖ Many patients never arrive for their evaluations, probably indicative of their wish to continue driving, though we did not specifically study this question.
- ❖ Our small sample precludes statistically significant conclusions and no single test in our protocol predicted a test result or final recommendation.
- ❖ The MMSE Score did not correlate with the presence or absence of diagnosis of dementia and did not correlate with our final recommendations. In our sample though, a 11 with MMSE score less equal to or less than 24 were recommended to stop driving but a bigger study can yield different conclusion.
- ❖ UFOV testing alone cannot make final determination.
- ❖ However having the diagnosis of Dementia at the time of testing was strongly correlated with the final recommendation to cease driving.

### RECOMMENDATIONS TO PRIMARY CARE PHYSICIANS:

- Patients referred for driving evaluations usually have very serious diagnoses, and yet have not ceased driving on their own. A driving assessment program can provide excellent information to patients and families regarding maintenance vs. loss of driving skills, and thus has great personal and societal value.
- However:
  - A driving assessment program is labor intensive, and requires skilled evaluator
  - Rate of use of appointment slots is relatively low.
  - Cancellation and No-Show rates are quite high.
- A medical evaluation can only yield recommendations; only the DMV can withdraw a license. It may be that medical practitioners and the DMV should consider collaborative assessment clinics, perhaps regionally placed throughout the state.

## REFERENCES

1. Assessment of Driving-Related Skills (ADReS) is a battery of tests of driving skills that can be easily done in a regular medical office. Described in: Physician's Guide to Assessing and Counseling Older Drivers Book.
2. Owsley, C., et al. Visual processing impairment and risk of motor vehicle crash among older adults. JAMA. 1998 Apr 8; 279(14):1083-1088 .
3. Wan He, et al. "65+ in the United states:2005" Current population report, Us Department of Commerce 2006.
4. National Highway Traffic Safety Administration. Department of Transportation. Traffic Safety Facts 2008: Older Population. Washington: NHTSA; 2009.
5. Insurance Institute for Highway Safety (IIHS). Fatality facts. Older people. Arlington (VA): IIHS; 2008.
6. Carr, David, and Brian Ott. The Older Driver with Cognitive Impairment. JAMA. 2010 Apr 28; 303(16):1632-1641.
7. Hunt, Linda, et al. Drivers with Dementia and Outcomes of Becoming Lost While Driving. American Journal of Occupational Therapy. 2010 March/April; 64:225-232.

\* Portions of the data from this analysis previously published in: West Virginia Medical Journal; May/June 2011, Vol. 107, No. 3; page 54-58.  
 \*\* The authors have no disclosures to report.