

CMU 2010 FY09 Annual Report

Project Title: CMU Center for Driving Evaluation, Education, & Research

Project Leader: Richard W. Backs

Project Number: _____ Date of Report: 30 June 2009

Refer to your *Outcome Evaluation Worksheet* to complete the information below. Insert additional rows if needed. Rows will automatically expand as you type. You are welcome to attach additional documents to supplement – but **not** substitute for - the information provided below.

Note: Detailed Annual Report is attached. Only sample major milestones are summarized here, details are given in Table 1 on page 4 and in the progress report in Section 3 of the report. Revised budget and justification are on pages 5-6 of the annual report.

	Outcome/Milestone	Status (Complete, in Progress, or Not started)	Date Measured	What are the next steps to achieving this outcome?
1	Goal 1: The DEER Center will be a state-of-the-art facility that will provide clinical assessment and education for older drivers in Central and Northern Michigan to improve driving safety in the State of Michigan.	In progress	30 Jun 09	Progress on Goal 1 has been behind schedule, but is on track to be completed in FY 2010. Major accomplishments were the acquisition of the last piece of capital equipment needed to complete the AAA Michigan Driving Simulator and the completion on the evaluation protocol and approval of a needs-based cost structure for evaluations.
2	Goal 2: The DEER Center will become a nationally recognized facility for driving research on aging and attention disorders.	In progress	30 Jun 09	We are ahead of schedule for milestones on Goal 2. We received \$215,000 in external funding and \$30,000 in internal funding. We published 2 refereed journal articles and 2 book chapters and made 13 presentations in FY 09.
3	Goal 3: The DEER Center will provide clinical and research opportunities for CMU students and faculty.	In progress	30 Jun 09	We made substantial progress on Goal 3. There were 4 student projects (undergraduate, master's, and doctoral comps project) completed and 1 dissertation started in FY09.
4	Goal 4: The DEER Center will establish community/university collaborations and partnerships to improve driving safety in the State of Michigan.	In progress	30 Jun 09	We are making steady progress on Goal4. The DEER Center Director is a member of a State of Michigan workgroup on Senior Mobility. The DEER Center Advisory Board is made up of professionals for the Central Michigan region and representatives from the MI Secretary of State, Department of Transportation, and Office of Highway Safety Planning.

What are your plans for sustaining support for your project beyond the CMU 2010 funding period?

We will start taking paying clients on 7 Jul 2009. The cost for evaluations will \$400. We will continue to apply for external grants and contracts and will again try for bridge funding from a REF center award. The deans of CHSBS and CHP have provided bridge funding for 50% of Dr Cassavaugh's salary through FY 2010. The DEER Center will provide the other 50% from external funding sources.

How can the ISPC assist you with those plans?

Approve attached budget request to spend carry-forward in FY 2010.



FY 2009 Annual Report for the Central Michigan University Center for Driving Evaluation, Education, and Research

1 July 2009

Richard W. Backs, Ph.D., Director

Contact Information:
CMU Center for Driving Evaluation, Education & Research
and
Department of Psychology
Mount Pleasant, MI 48859
989-774-6497
backs1rw@cmich.edu



FY 2009 Annual Report for the Central Michigan University Center for Driving Evaluation, Education, and Research

1.0 Overview

This annual report was prepared for the deans of the College of Humanities, Social, and Behavioral Sciences (CHSBS) and the Herbert H. and Grace A Dow College of Health Professions (CHP). This report summarizes the activities and accomplishments of the CMU Center for Driving Evaluation, Education & Research (DEER Center) during the 2009 fiscal year from 1 July 2008 to 30 June 2009.

The DEER Center was established in FY 2007 with a CMU Vision 2010 grant of \$214,163 for start-up operating expenses as a component of the CHP Bridges Center for Healthy Life Transitions in the Carls Center for Clinical Care and Education. The DEER Center's AAA Michigan Driving Simulator (acquired with \$44,000 donation from AAA Michigan) is located in the Dell Virtual Reality Room (HP 1260), and computer-based and vision testing facilities are located within the Engineering Psychophysiology laboratory (HP 2334).

1.1 DEER Center Mission Statement

The DEER Center has a clinical, public service, and research mission that was developed in response the strategic goals outlined in the CMU 2010 Institutional Priorities and Strategies.

The mission of the CMU Center for Driving Evaluation, Education & Research is to provide clinical services to evaluate cognitive fitness to drive, to provide education to improve older driver safety, and to conduct research on older drivers and drivers with attention disorders.

1.2 Timeline and Milestones

The original timeline and milestones from the Vision 2010 proposal are given in column 2 of Table 1. I have provided a revised date for when the milestone was achieved (**in bold**) or when it is expected to be achieved in column 4 of Table 1.

The original timeline was predicated upon purchase and delivery of the driving simulator in Spring, 2007. However, the simulator purchase was delayed because it was dependent upon receiving a gift from AAA Michigan, the first installment of which did not arrive until after 1 July 2007. Therefore, the simulator was not installed until October, 2008, and the schedule slipped by about 6-8 months. The schedule has slipped further because additional donations to acquire the remaining equipment did not materialize. However, we were able to complete the equipment acquisition this fiscal year as a result of budgetary changes approved for the Vision 2010 award in FY 08 and a generous equipment award from the president, provost, and deans of both colleges. We have protocols in place for evaluation, and have temporary data storage, retention, and analysis procedures that are HIPPA.

We will open the DEER Center for clinical evaluations beginning 7 July 2009. We received the final clearance of our cost structure and sliding fee scale from Finance and Budgeting on 10 June 2009. The cost of a complete evaluation will be \$400, with a cost of \$200 for subsequent assessments. Special thanks are due to Jessica Gardon Rose, the Carls Center Director, who

developed the sliding fee scale based upon family size and income relative to U.S. poverty level standards. The sliding fee schedule is needed because driving evaluations are not covered under Medicare, Medicaid, or most private insurance.

1.3 Personnel and Affiliated CMU Faculty

We were exceedingly fortunate to be able convert Dr. Nick Cassavaugh's position as a Research Scientist (which was funded by the provost) to his new position as the Assistant Director of the DEER Center and AAA Michigan Simulator Manager with a promotion to Research Assistant Professor of Psychology. The long-term goal for Dr Cassavaugh is that 50% of the funding for his position be as a staff member assigned to the DEER Center for his Asst. Director and Manager duties, and that the other 50% of the funding for his position will come from external research grants and contracts. The DEER Center Advisory Board strongly endorsed this move at the 17 October 2008 meeting. The deans from the two colleges generously contributed start-up funding of 50% of salary and benefits (for his staff duties in the DEER Center) through FY 2010. The DEER Center Vision 2010 and external research funding is providing the other 50% of salary and benefits for his position. Retaining Dr. Cassavaugh is critical to the overall success of the DEER Center, and it is vital that we find a way to solidify his funding over the longer term.

We were also fortunate to have hired John Lenneman, Ph.D. as a half-time Research Scientist in the DEER Center. Dr. Lenneman is funded entirely by external research contracts. Dr. Lenneman is a recent graduate of CMU's Applied Experimental Psychology doctoral program and has almost 10 years of experience as research scientist at General Motors Corp. R&D and Planning – Vehicle Development Research Lab.

We also have Stephanie Tuttle, a doctoral student in Applied Experimental Psychology, as a full-time graduate assistant, and Davis Conley, Jr., a master's student in Experimental Psychology, as a half-time graduate assistant. Both students are doing research and have been trained to run clients.

In addition, Eileen MaloneBeach, Ph.D., Professor of Human Environmental Studies and Director of the Gerontology Program at CMU, is an affiliated faculty member of the DEER Center and helps with proposal writing and contract research.

Table 1. DEER Center Timeline and Milestones

Year	Original Target Date	Milestone	Revised Date (Bold= completed)
1	Spring, 07	1. Purchase and integrate hardware and software.	¹ Summer, 09
		2. Work on attention evaluation protocols and driving assessments for patient evaluation and client education.	Spring, 09
		3. Submit external research proposal for DEER Center.	Summer, 07
		4. Recruit faculty for DEER Center collaborations, establish at least one new collaborative relationship.	Spring, 08
	Summer, 07	1. Complete hardware and software integration, test data collection in the driving simulator.	² Spring, 08
		2. Complete AARP DSP education training.	Spring, 08
		3. Recruit and train Graduate Assistants.	Fall, 07
		4. Begin offering driving education.	Summer, 09
		5. Pilot attention evaluation protocols and driving assessments for patient evaluation.	Spring, 09
	Fall, 07	1. Complete and test attention protocols and driving assessments for patient evaluation.	Summer, 09
		2. Begin marketing DEER Center to physicians, regional Commissions on Aging.	Summer, 09
		3. Submit external research proposal for DEER Center.	Summer, 07
		4. Recruit faculty for DEER Center collaborations, establish at least one additional collaborative relationship.	Fall, 08
		5. Begin community outreach, establish at least formal relationship to provide services.	Ongoing & with Hope Network
	2	Spring, 08	1. Begin offering patient evaluations.
2. Begin faculty and graduate student research in DEER Center.			Summer, 08
3. Submit external research proposal for DEER Center.			Fall, 08
4. Continue community outreach, establish at least one additional formal relationship to provide services.			Ongoing
5. Begin outreach to faculty at other Michigan research universities.			Spring, 08
Summer, 08		1. Recruit and train new Graduate Assistants.	Fall, 09
Fall, 2008		2. Continue community outreach and research proposal writing.	Spring, 10
		3. Recruit faculty for DEER Center collaborations, establish at least one new collaborative relationship, have at least three faculty members who are conducting research in the DEER Center along with their students.	Fall, 10
		4. Have at least two different multi-year federal grant proposals submitted by different faculty PIs.	Summer, 10
		5. Have acquired external support for DEER Center research activities.	Summer, 08

¹All hardware and software has been acquired. Integration is ongoing, but should be complete before Fall, 2009.

²Data collection is ongoing for various projects, however equipment acquisition is behind schedule (see note 1 above)

2.0 Budget Revisions for Carry-Forward in FY 2010

Table 2 presents the expenditures in FY 2008 and 2009 for the DEER Center Vision 2010 award, the budget for FY 09, and a plan to carry-forward the unspent FY 09 budget into FY 2010.

There are three major revisions to the budget proposed for FY 2009. First, we under-spent for personnel in FY 09 for three reasons: 1) Dean Shapiro of CHSBS continued to provide support for the DEER Center Director, 2) we were more successful than expected in obtaining external research funds so we did not need to use as much budget for the Assistant Director and AAA Michigan Simulator Manager, and 3) we only hired one graduate assistant.

Second we over-spent in Publications/Promotion/Education/Web. These expenses were needed for the DEER Center Open House and to establish a formal relationship with the University of Michigan Center for Advancing Safe Transportation throughout the Lifespan (M-CASTL). The DEER Center is a Bronze member of the *Strategic Partnerships for Innovative Research and Education in Transportation (SPIRET)* team. The DEER Center was featured prominently at the M-CASTL 2009 Transportation Research and Education Conference, Ann Arbor, MI.

Third, we overspent in Office/Phone/Supplies and Hardware & Software. These two items are related in that we made major investments in capital equipment for a vision tester and to add audio-visual recording hardware to the AAA Michigan Driving Simulator. We also purchased software to integrate and analyze the various data streams in the simulator. The original plan was to fund capital equipment using donations, but because of the state of the Michigan economy and other factors we have not been successful in our development efforts. Fortunately, we received

The DEER Center will need to be self-supporting by FY 2011 unless we are successful in obtaining some bridge support from the Research Excellence Fund for centers. As detailed below under *Grant and Contract Activity*, these funds were denied for FY 2010, apparently because the committee did not understand the proposed funding model.

Therefore, our FY 2010 budget for the FY 2009 carryover will be critical for a successful transition to self-sufficiency. As can be seen in Table 2, most of the carryover will be used to support personnel, including the Asst. Director and AAA Michigan Simulator Manager, a half-time graduate assistant, a staff programmer, and clerical support. Publications will still need a substantial budget to do another wave of publicity to regional health care professionals now that the Center is open for clients.

Table 2
Revised Budget for FY 2010

CMU Center for Driving Evaluation, Education, and Research
A Joint project between CHSBS (Psychology) and CHP (Carl's Center and Bridges)

Funds Allocated in Vision 2010 Award & Expenditures		FY08	FY09	FY09	FY09	FY10	TOTAL
		Actual	Budget	Actual	Carry forward	Budget	Revised
Faculty Salary ¹		\$10,992	\$27,832	\$9,048	\$18,784	\$6,000	\$26,040
Staff Salaries							
	Bridges Director ²	\$0	\$0	\$0	\$0	\$0	\$0
	Clerical (OP) ³	\$3,440	\$3,560	\$3,560	\$0	\$3,684	\$10,684
Other Compensation							
	Asst Dir & AAA MI Sim Manager ¹²	\$0	\$40,000	\$4,900	\$35,100	\$20,000	\$24,900
	Programmer ⁴	\$0	\$10,000	\$3,600	\$6,400	\$3,600	\$7,200
	Student compensation ⁵	\$3,323	\$8,157	\$2,000	\$6,157	\$0	\$5,323
	Graduate Assistants ⁶	\$28,853	\$32,920	\$26,170	\$6,750	\$11,489	\$66,512
	Consultant ⁷	\$0	\$2,000	\$0	\$2,000	\$0	\$0
Benefits (<i>will automatically calculate</i>)		\$2,512	\$19,517	\$4,115	\$15,402	\$11,088	\$17,715
Supplies and Equipment							
	Publications/Promotion/Education/Web ⁸	\$645	\$2,735	\$4,396	-\$1,661	\$2,266	\$7,307
	Office/Phone/Supplies ⁹	\$317	\$2,000	\$4,158	-\$2,158	\$1,500	\$5,975
	Hardware & Software ¹⁰	\$2,673	\$13,000	\$34,084	-\$21,084	\$2,000	\$38,757
	Maintenance ¹¹	\$0	\$6,000	\$750	\$5,250	\$3,000	\$3,750
Overhead and Returns							
	Budget or Carry-forward		\$167,721		\$70,940		
TOTAL PROJECT COST		\$52,755		\$96,781		\$64,627	\$214,163

¹ 0.25 FTE release for RW Backs DEER Center Director (Spring, 2010).

² Bridges Director (.125 fte for 12 mon) was supported by CHP, but the position is vacant.

³ Office professional in Carls Center (0.125 fte 12 mon) will handle clinic scheduling, record management, billing, correspondence and general office management.

⁴ Programmer to integrate software across simulator, eye/head tracking, audio/video data to produce patient record

⁵ Undergraduate assistant to help with programming, data collection, reduction, analysis, patient evaluation, etc

⁶ Graduate assistants (stipend plus benefits and tuition for 12 mon) to coordinate undergraduate, conduct evaluation, education, and, research data mine and other scholarly activities.

⁷ This budget line was originally inserted to hire a occupational therapist specialized in driving assessments for consultation and coordination with faculty and staff. However, we have an OT from SVSU on the Advisory Board and do not need to hire someone.

⁸ Develop marketing, web presence, education materials and resources for patients and providers. FY 09 costs include publicity and expenses for Open House on 17 Oct 09.

⁹ Office expenses, telephone, supplies

¹⁰ FY 09 costs included purchase of hardware and software for vision testing, audio-visual data capture and simulator performance data. analysis FY 10 includes budget to complete integrate of eye movement monitor.

¹¹ Maintenance on-site visits for maintenance of DEER Center driving simulator, eye/head tracker/ and other hardware.

¹² Salary and benefits for Dr Nick Cassavaugh, Assistant Director & AAA MI Simulator Manager assigned to the DEER Center. The deans of CHSBS & CHP will provide half of his support for FY 10 & the DEER Center & research contracts the other half.

3.0 Progress Report on the DEER Center Goals to the CMU Vision 2010 Institutional Priorities, Strategies, and Key Performance Indicators

This section will restate the four goals of the DEER Center, the specific aims for each goal, and progress toward meeting each goal as measured by the key performance indicators (KPIs) established in the Vision 2010 proposal.

3.1 Goal 1: The DEER Center will be a state-of-the-art facility that will provide clinical assessment and education for older drivers in Central and Northern Michigan to improve driving safety in the State of Michigan.

Specific Aim 1: Establish a comprehensive research-based evaluation protocol to assess a patient's cognitive fitness to drive that includes a computer-based visual attention test battery, neuropsychological attention and executive function tests, and simulated driving.

Specific Aim 2: Provide older driver education to the community by offering AARP, and AAA driver training programs with the option of a short evaluation in the driving simulator.

Goal 1 activities and outcomes are related to *Priority IV-Strategy 1: Sustain the quality and scope of those public outreach and service efforts that are of high quality and visibility* and will be evaluated using the KPIs of: 1) number of patients and 2) revenue generated by driving evaluation; 3) number of clients receiving and 4) revenue generated by driving education.

3.1.1 Progress on Goal 1

Progress on Goal 1 has been behind schedule, but is on track to be completed in FY 2010. Detailed below is the current status towards meeting our goal for evaluation and education, and our plans to meet the goal.

3.1.1.1 Evaluation

We received final approval from Finance and Budgeting to begin clinical evaluations on 10 June 2009 and will begin performing client evaluations on 7 July 2009. We have established a four-phase protocol that requires two approximately two-hour sessions to complete: Session 1 contains Phase 1, Carls Center intake and practice simulated driving, and Phase 2, completion of the computerized cognitive test battery; Session 2 contains Phase 3, simulated driving practice and visual and physical evaluation, and Phase 4, simulated driving evaluation.

We have completed the second revision of the computerized attention task battery and data collection and reduction for the third revision is in progress. We will use the second revision for evaluations until the third revision is ready to implement. We have developed and tested the protocols for driving simulation, and are at the final stage of defining scoring criteria.

We have put in place temporary data storage, retention, and analysis procedures that are HIPPA compliant and can be used with any electronic medical record system that the Carls Center ultimately settles upon. We do not yet have the data analysis automated to the extent that we would like and believe is possible, but we can produce client reports in a reasonable amount of

time with manual intervention. We have hired a programmer to automate the data reduction process and to program the user interface to SQL data base holding client data. The data base should be completed by Fall, 2009.

3.1.1.2 Education

Dr. Cassavaugh and I have been trained as Instructors in the AARP Driver Safety Program. We offered two courses in FY 08, one at CMU (4 clients) and the other at the Isabella County Commission on Aging (9 clients). We plan to offer two more courses at the Isabella County Commission on Aging in FY 09 because attendance seems to be higher there than at classes offered at CMU. We need to find additional instructors to affiliate with the DEER Center so that we can offer four classes per year at regular times that the community can plan in advance.

3.2 Goal 2: The DEER Center will become a nationally recognized facility for driving research on aging and attention disorders.

Specific Aim 1: The DEER Center will provide a state-of-the-art facility to conduct federal, state, and industry sponsored research on the driving of older adults and adults with attention disorders.

Specific Aim 2: Faculty affiliated with the DEER Center will submit proposals to federal and state agencies and to industry to conduct research on the driving of older adults and adults with attention disorders.

Specific Aim 3: Faculty and students affiliated with the DEER Center will publish research in peer-reviewed journals and make presentations at state, regional, national and international conferences.

Goal 2 activities and outcomes are clearly to *Priority III – Strategy 1: Identify for targeted investment programs of research and creative activity with greatest potential to achieve national prominence* by providing the infrastructure to compete nationally for external funding in driving research, and the purchase of the driving simulator can be used as CMU cost sharing on external grants. *Priority I – Strategy 2: Provide students’ opportunities to synthesize, integrate and apply their knowledge* will also be supported through student participation in research conducted in the DEER Center.

KPIs to evaluate Goal 2 will be: 1) the number and 2) dollar amount of grants and contracts received for research conducted in the DEER Center, and 3) the number and 4) quality of publications and presentations from faculty and student researchers.

3.2.1 Progress on Goal 2

We made progress on all of the specific aims for Goal 2. For Specific Aim 1 we have continued the development of the AAA Michigan Driving Simulator into a state-of-the-art research and evaluation tool that has few rivals in the U.S. For Specific Aim 2 and 3 we were more successful than last year in contract dollars generated and in publications and presentations. The DEER Center is gradually being recognized in Michigan and throughout the U.S. more broadly for research on attention and driving.

3.2.1.1 Facility Development

1. We were able to complete the equipment acquisition this fiscal year as a result of budgetary changes approved for the Vision 2010 award in FY 08 and a generous equipment award from the president, provost, and deans of both colleges. The final piece of equipment, the eye movement monitor, will not arrive and be integrated with the AAA Michigan Driving Simulator until later this summer, but we have the audio/visual equipment already in use in research and ready for evaluation. We still have some timing issues to work out to keep all of the equipment synchronized in real-time, but these will be worked out when the eye movement monitor arrives.
2. The DEER Center web site (<http://www.deercenter.org>) has been upgraded and linked with the Carls Center web site in preparation for scheduling clients.

3.2.1.2 Grant and Contract Activity

External Proposals

Funded

1. Michigan Department of Transportation
 - a. Senior Transportation: Education and Awareness Toolkit. Budget: \$215,000 over two years. The DEER Center teamed with partners within CMU (CHSBS Center for Applied Research and Rural Studies [CARRS] and CHP Technology Department staff members) to provide the Michigan Department of Transportation (MDOT) with comprehensive services for research, development, design, evaluation, and production of a multi-media toolkit to promote education and awareness of safe transportation strategies and behaviors for adults over 65 years-of-age and their family members, friends, and care-givers.

Pending

2. Michigan Department of Transportation
 - a. Low-Cost, High-Impact Measures to Meet the Transportation Needs of Michigan's Aging Population. Budget: \$200,000 over one year. The DEER Center teamed with partners within CMU (CHSBS CARRS and CST Center for Geographic Information Sciences) with external consultants (Southeast Michigan Council of Governments and Area Agency on Aging 1-B) to provide MDOT with the comprehensive research and engineering expertise needed to prepare a project report that will help guide future investments of limited state resources to low-cost, high-impact transportation options for older citizens.

- b. Improving Driver Safety with Behavioral Countermeasures. Budget: \$150,000 over two years. The DEER Center teamed with external consultants (American Consulting Professionals, PLLC) to provide MDOT with the comprehensive research and engineering expertise needed to provide recommendations to MDOT regarding the implementation of behavioral countermeasures for increasing driver safety in Michigan.

Unfunded

3. National Institute of Aging

- a. Training Intervention for Older Drivers. Budget: \$525,000 over three years. The project aimed to develop a training intervention to improve driving performance for older adults who may be experiencing cognitive declines associated with aging. Over the course of three studies, the specific aims of the project are to: 1) develop a driving-related task battery, 2) validate the battery against established cognitive performance measures, and 3) investigate whether training on the task battery transfers to driving performance and whether the battery compares favorably to commercially-available products developed for similar purposes.

4. AAA Foundation

- a. Gender Differences Among Older Drivers. This was a whitepaper written for the American Automobile Association's Foundation for Traffic Safety. Historically, more men than women have held driving licenses and men have driven more miles and taken more daily trips than women. At the same time, women are involved in fewer collisions and suffer fewer fatalities and injuries than men. A survey of drivers aged 40 and up was proposed to examine sex differences in demographics as well as driving experience, attitudes, knowledge and behaviors. Data would be examined to identify differences between adult men and women with an eye toward applying what is learned from women to making older men safer drivers. The proposed research could serve as pilot data for a national survey.

Internal Proposals

Funded

1. Research Excellence Fund - Research Award

- a. Driving Task Battery Development. Budget: \$30,000 over one year. This proposal constitutes a new research project intended to develop software similar in scope and utility to the NASA Multi-Attribute Task Battery. The MATB is a complex multiple-task environment developed at NASA to be a highly-configurable means to assess individuals on several abilities and skills important to piloting aircraft. The software proposed herein is designed to fill a similar role in the driving domain. Such software will serve the needs of the driving assessment and rehabilitation community and the CMU DEER Center in

particular. This project will provide the pilot data needed to resubmit the *Training Intervention for Older Drivers* proposal to NIA.

Unfunded

2. Research Excellence Fund - Center Award

- a. DEER Center Bridge Funding. Budget: \$119,074 over two years. This proposal requested REF funding to provide a bridge between the seed money provided by Vision 2010 Initiative for the DEER Center and full self-sufficiency. Feedback from the REF evaluation committee clearly indicated that they did not understand the funding model for the center. We will reapply for the next round of funding and will attempt to address the misconceptions that the viability of the DEER Center somehow depends upon the viability of General Motors Corp. Further, by the next deadline we will have a better idea of the income stream from client clinical evaluations that will permit us to request a smaller budget that may be more competitive.

3.2.1.3 Publication and Presentation Activity

1. DEER Center affiliated faculty and graduate students (**in bold**) published the following papers to peer-reviewed journals of good quality:
 - a. **Lenneman, J. K., & Backs, R. W.** (in press). Cardiac Autonomic Control during Simulated Driving and a Concurrent Verbal Working Memory Task. *Human Factors*.
 - b. Cassavaugh, N. D., & Kramer, A. F. (in press). Transfer of computer-based training to simulated driving in older adults. *Applied Ergonomics*.
2. DEER Center affiliated faculty published the following book chapters:
 - a. Boucsein, W., & Backs, R. W. (2009). The psychophysiology of emotion, arousal, and personality: Methods and models (pp. 35-1-35-18). In V. G. Duffy (Ed.), *Handbook of Digital Human Modeling for Applied Ergonomics and Human Factors Engineering*. London: Taylor & Francis.
 - b. Backs, R. W., & Boucsein, W. (2009). Psychophysiology in digital human modeling (pp. 16-1-16-14). In V. G. Duffy (Ed.), *Handbook of Digital Human Modeling for Applied Ergonomics and Human Factors Engineering*. London: Taylor & Francis.
3. DEER Center affiliated faculty and graduate students (**in bold, undergraduates in bold underline**) presented papers at *The Fifth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design* and at the 48th Annual Meeting of the Society for Psychophysiological Research. These presentations resulted in following publications:

- a. Cassavaugh, N. D., **Domeyer, J.E.**, & Backs, R.W. (2009). The effect of age on decision making during unprotected turns across oncoming traffic. *Proceedings of the Fifth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*. Iowa City, IA: University of Iowa.
 - b. **Lenneman, J. K., Lenneman, J. V.**, Cassavaugh N. D., & Backs, R. W. (2009). Differential effects of focal and ambient visual processing demands on driving performance. *Proceedings of the Fifth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*. Iowa City, IA: University of Iowa.
 - c. **Tuttle, S.**, Cassavaugh, N. D., & Backs, R. W. (2009). Attention function structure of older and younger drivers. *Proceedings of the Fifth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*. Iowa City, IA: University of Iowa.
 - d. Cecen, A. A., Ugar, A, **Raidoias, V., Shelley, J. R.**, Cassavaugh, N. D., & Backs, R. W. (2008). A comparison of nonlinear dynamics and heart period variability analysis methods during a simulated driving and verbal working memory dual-task with auditory and visual stimuli. *Psychophysiology*, 45, S117.
4. In addition, DEER Center affiliated faculty and graduate students (**in bold**) presented two papers at *The 7th International Conference on Psychophysiology in Ergonomics*:
- a. **Lenneman, J. K., Lenneman, J. V.**, Cassavaugh N. D., & Backs, R. W. (2008, September). *A psychophysiological and driving performance evaluation of focal and ambient visual processing demands in a driving simulation task*. Paper presented at the 7th International Conference on Psychophysiology in Ergonomics, New York, NY.
 - b. Backs, R. W. (2008, September). *Cardiovascular autonomic space and driving research*. Paper presented at the 7th International Conference on Psychophysiology in Ergonomics, New York, NY.
5. Finally, the DEER Center director gave the following invited talks at professional meetings:
- a. Backs, R. W. (2009, April). *Psychophysiological Assessment of Workload*. Invited talk to the International Stress Management Association presented at the 40th Annual Meeting of the Association for Applied Psychophysiology and Biofeedback, Albuquerque, NM.
 - b. Backs, R. W. (2009, April). *CMU DEER Center: Attention Research Implications for Education and Training*. Invited talk presented at the M-CASTL 2009 Transportation Research and Education Conference, Ann Arbor, MI.
 - c. Backs, R. W. (2009, March). *CMU DEER Center*. Invited talk presented at the 14th Annual Michigan Traffic Safety Summit, East Lansing, MI.

3.3. Goal 3: The DEER Center will provide clinical and research opportunities for CMU students and faculty.

Specific Aim 1: CMU undergraduate students in psychology and other disciplines will interact with patients and clients and conduct research in the DEER Center.

Specific Aim 2: CMU graduate students in psychology, physical therapy, and other disciplines will interact with patients and clients and conduct research in the DEER Center.

Specific Aim 3: CMU faculty in psychology and other disciplines will interact with patients and clients and conduct research in the DEER Center.

Specific Aim 4: The DEER Center will facilitate interaction and collaboration with faculty at other institutions within Michigan and nationally and internationally.

Goal 3 outcomes clearly relate to *Priority IV – Strategy 3: Recognize and promote students’ public service efforts* and *Strategy 4: Recognize and promote faculty staff service in their areas of professional expertise*. *Priority I – Strategy 2: Provide students’ opportunities to synthesize, integrate and apply their knowledge* will also be supported through student participation in clinical services conducted in the DEER Center. *Priority II – Strategy 3: Enhance programs and activities for students, faculty, and staff that foster better understanding across diverse groups* will be supported by giving faculty and students the opportunity to interact with the elderly and clinical populations that they may otherwise not be exposed to at CMU. Finally, the center director position will be filled by a faculty member, supporting *Priority III – Strategy 3: Support greater flexibility with respect to faculty responsibilities*, and the participation of undergraduate students in faculty and graduate student research projects will support *Strategy 4: Increase engagement of students in research in creative activity at the undergraduate level*.

KPIs for this goal will be the number of: 1) undergraduate students, 2) graduate students, and 3) faculty providing clinical service and education or 4) conducting research in the DEER Center, 5) the number of different departments and universities participating in the DEER Center, and 6) the number of collaborations with faculty at other institutions.

3.3.1 Progress on Goal 3

3.3.1.1 Undergraduate Student Involvement

Joshua Domeyer completed his capstone project for his major in psychology in the DEER Center. The title of his project was *The Effect of Cognitive Priming on Simulator Discomfort*, which he presented at the Student Research and Creative Endeavors Exhibition in April, 2009. This project looked at how instructions regarding the potential for simulator discomfort can bias a person toward experiencing discomfort symptoms. Joshua has been accepted into the Experimental Psychology M.S. program in the fall, where he will continue working on instructional ways to inoculate subjects against simulator discomfort.

3.3.1.2 Graduate Student Involvement

Meghann Aremia, M.S., a student in the Applied Experimental doctoral program, is conducting her dissertation project titled *An Examination of the Effects of Cataract Surgery on the Cognitive Performance of Older Adults* in the DEER Center. This project is a collaboration with Dr. Thomas Claringbold, II, an ophthalmologist from Mid-Michigan Medical Center and a DEER Center Advisory Board member.

Michele Oliver, M.S., recently completed her comprehensive project titled *Behavioral and Cardiovascular Responses to Frustration during Block Design and Simulated Driving Tasks in Young Adults with and without Attention Disorder Symptoms* in the DEER Center. Michele is currently conducting a follow-on study to her thesis project in collaboration with Dr. Joel Nigg, Professor of Psychiatry, Pediatrics, and Behavioral Neuroscience at Oregon Health and Science University. Dr Nigg has a data base of subjects from a previous project of his at Michigan State University who are at or approaching driving age. Dr Nigg has agreed to let us use his data base as part of Michele's study.

Stephanie Tuttle completed her M.S. in Experimental Psychology in the DEER Center. Her project titled *Attention Function Structure of Younger and Older Adults: Creating a Comprehensive Driving Assessment Based on Attention* formed the basis for the computerized attention task battery currently in use in the DEER Center. Her thesis provided the normative data that we are currently using in our cognitive evaluation. She is currently a doctoral student in the Applied Experimental Ph.D. program and is at work on the third revision of the computerized attention task battery.

3.3.1.3 Research Partnerships

We have been aggressively marketing the capabilities of the DEER Center and the Engineering Psychophysiology Laboratory within Michigan and nationally. We have been actively seeking research partners for collaboration and potential joint external proposals.

1. We are conducting research in collaboration with Joel Nigg, Ph.D, formerly Professor of Psychology at Michigan State University and now Director, Division of Psychology and Professor of Psychiatry, Pediatrics, and Behavioral Neuroscience at Oregon Health and Science University. Dr Nigg is an internationally-known expert on Attention Deficit-Hyperactivity Disorder (ADHD). We are consulting with Dr Nigg on his latest NIH-funded grant examining cardiovascular psychophysiology in children with ADHD. In return, Dr Nigg has agreed to serve as a consultant on our planned proposal to NIH examining ADHD in young adult drivers.
2. UM/Ann Arbor VA-We have formed a relationship with Dr Linas Bieliauskas in the Departments of Psychology and Psychiatry and Staff Psychologist at the Ann Arbor VA Medical Center. Dr Bieliauskas is a widely known expert on cognitive aging and older adult drivers. Dr Bieliauskas has agreed to refer his VA patients who need cognitive assessment for driving to the DEER Center for testing. We will also be pursuing Department of Veterans Affairs funding and other funding for joint research projects in the future.

3.4 Goal 4: The DEER Center will establish community/university collaborations and partnerships to improve driving safety in the State of Michigan.

Specific Aim 1: The DEER Center will work with state agencies such as the Michigan Secretary of State to provide expertise to policy makers as they consider rules, regulations, and legislation about the cognitive factors (e.g., attention and distraction) affecting driving safety, especially with regard to older adults.

Specific Aim 2: The DEER Center will work with regional Commissions on Aging and other social service agencies to provide educational programs and serve as a referral for older adults concerned about their driving.

Goal 4 activities are related to *Priority IV-Strategy 1: Sustain the quality and scope of those public outreach and service efforts that are of high quality and visibility* and will be evaluated using the KPIs of: the number of agencies establishing 1) formal and 2) informal partnerships with the DEER Center.

3.4.1 Progress on Goal 4

3.4.1.1 State Agencies

Michigan Department of Transportation - I have joined the Michigan Senior Mobility Workgroup, a subcommittee of the Governor's Traffic Safety Advisory Council. The workgroup is chaired by a MDOT employee and the DEER Center has collaborated on research proposals with several of the agencies represented on the Workgroup.

3.4.1.2 DEER Center Advisory Board

The list of board members and the organization that they represent are given in Table 3. The members of the DEER Center board come from relevant constituencies within CMU, local health care providers, and from regional and state agencies representing senior mobility. The board meets twice a year. We held two meetings in FY 09, and we will hold two meetings in FY 10 (in October, 2009 and in June, 2010).

Following the 17 October 2008 meeting, we held the DEER Center Open House. This was a very successful event that was well attended by CMU, local, and state officials. The Keynote speaker was Anne Corgan, Director of Legal and Administrative Services, Michigan Secretary of State's Office. Other speakers were:

- Jack Peet, Manager ACG Traffic Safety, AAA Michigan
- Bill Caul, Michigan Representative for District 099
- Alan Cropsey, Michigan Senator for District 33
- Karen Kafantaris, Associate State Director for Community Service for AARP MI

We received coverage of the event from the *Morning Sun* and WEYI NBC 25 television. In addition, the day before the event Channel 9 & 10 News broadcast live from the DEER Center as part of their Michigan this Morning show. The Inside CMU article on the Open House is available at <http://www.cmich.edu/insidecmu/article.asp?dbflag=A&id=3890>

Current Advisory Board members and their affiliations are given in Table 2. The next Advisory Board meeting is scheduled for 19 June 2009. Minutes of both meetings are in Appendix A.

Table 3. Deer Center Advisory Board Members and Affiliations

Greg Brunette , CDRS	Mary Free Bed Rehabilitation Hospital
Nicholas Cassavaugh , Ph.D.	CMU, DEER Center
Thomas Claringbold II , D.O.	Mid Michigan Physician's Group
Patricia Carrow	Michigan State Police-Office of Highway Safety Planning
Anne Corgan	Michigan Department of State
Jessica Gardon Rose , PA, M.Ed., CGSP	CMU, Carls Center for Clinical Care and Education
Susan Grettenberger , Ph.D.	CMU, Sociology, Anthropology and Social Work
Pamela Hall	Michigan Office of Services to the Aging
Ellen Herlache , M.A., OTR	SVSU. Occupational Therapy
Roschelle Heuberger , Ph.D.	CMU, Human Environmental Studies
Barbara Jackson	CMU, Communication Disorders
Roger Kerr	Central Michigan Community Hospital
Kimberly Lariviere	Michigan Department of Transportation
Bud Lawry	AARP MI, Driver Safety Program
Eileen MaloneBeach , Ph.D.	CMU, Gerontology, Human Environmental Studies
Jack Peet	AAA MI, Auto Club Group
Donna Ronan , Ph.D.	CMU, Psychological training & Consulting Center
Gayle Ruhl , MSW, CAC-R	Saginaw-Chippewa Indian Tribe, Andahwod Center
Darryl Sczepanski	CMU, Herbert H. & Grace A. Dow College of Health Professions
Heather Smith	CMU, Public Relations and Marketing
Lesa Smith	CMU, College of Humanities, Social and Behavioral Sciences
Herman Triezenberg , PT, Ph.D.	CMU, Physical Therapy Program
Brenda Upton	Isabella County Commission on Aging

APPENDIX A DEER Center Advisory Board Minutes



Driving Evaluation, Education and Research Center
Advisory Board
October 17, 2008

Present: L. Bachand, R. Backs, N. Cassavaugh, T. Claringbold, P. Carrow, A. Corgan, J. Gardon Rose, S. Grettenberger, E. Herlache, B. Jackson, K. Lariviere, B. Lawry, J. Lenneman, E. MaloneBeach, J. Peet, C. Reagan, G. Ruhl, D. Sczepanski, H. Smith, L. Smith, M. Wood

DEER Center Advisory Board was held in Community Seminar Room (HP 2150).

The DEER Center Advisory Board meeting was called to order by Richard Backs at 10:30 a.m. with a welcome and introduction.

The annual progress report will be sent out to all members when completed, Carol Reagan will add additional information.

Richard Backs Ph.D., DEER Center Director, gave an update on the DEER Center. They have been really busy since the last meeting. Personnel are working with the Deans from the College of Social, Behavioral and Human Sciences and the College of Health Professions to get Nick Cassavaugh Ph.D., DEER Center Research, for a longer term. His 2 years is up and the DEER Center would like to get him on staff. Dr. Claringbold opened the floor with a motion to recommend Dr. Cassavaugh to be hired, Bud Lawry second the motion, motion was passed. The DEER Center is also looking for a part time programmer for integration into the electronic medical record (EMR). The EMR has been previously funded through the CMU 2010 grant for the past 2 years. The evaluation and research would need to generate 50 % of the income for the Center to sustain the EMR. The DEER Center is affiliated with the Bridges Center and the Carls Center.

Jessica Gardon Rose, Carls Center Director, is working on integrating the clinic with the EMR, patient throughput for scheduling and outreach materials to clients, billing, referrals and developing the website for the DEER Center. Beginning with the EMR, hard copy files may need to be used until all of the bugs are worked out. Formatting the EMR in order for data to be self-generated into it through other clinical tools used is a key component being worked toward. Usage of the EMR will provide easier usage of data for research purposes.

November 2008 will begin pilot patient trials and the Center is hoping to see patients in winter 2009. Referrals will hopefully be used across the board throughout the disciplines to grow and fully utilize the various services offered. A marketing plan will be put together to clients, physicians and education centers.

Simulator upgrades and protocols are being put together and components were added for audio, video and data streaming. In September, the DEER Center received hardware and software for some of the components for the simulator but they are still looking for an eye movement monitor to complete the knowledge of situational awareness. The eye movement equipment is expensive to purchase. A proposal has been made to the Provost to explore options to complete the missing eye movement piece. A vision tester was purchased from EBay which can be integrated into the software currently used. Dr. Claringbold was thanked for helping in choosing the eye instruments. It is something that will be able to be used clinically for many years to come.

Dr. Backs and Dr. Cassavaugh were trained as instructors for the AARP Driver's Safety courses. Two classes were offered, one at the Isabella County Commission on Aging and one in the Health Professions Building on campus. The one offered at the Commission on Aging, was better attended. They are hoping to offer the classes at scheduled dates 4 times per year so that people can anticipate the classes. Most of the people in attendance came for the insurance discount but some were concerned for their own driving. Although the classes are time consuming they provide specific recommendations to the attendants are a very good way to educate the public.

The DEER Center has submitted for a 2 year grant through the Department of Transportation. It will include the transportation tool-kit, which includes something for seniors, family and the media at large. This leads to what is out there, a program, what agencies are doing for the roads, resources, trainings, testing's and education. It helps with PSAs, DVDs etc. The DEER Center is also working with the senior mobility work group. They are currently interviewing over 100 older adult drivers about driving and where they like to get information. Dr. Eileen MaloneBeach and Dr. Mary Senter from the CARRS Center are assisting with this survey.

Other ongoing research and projects of the DEER Center include: Stephanie Tuttle, Graduate Student research on development and pilot testing the simulator/driving assessment and Joe Lenneman, Graduate Student, research on audio spatial warning systems. A white paper will be out addressing gender differences in older drivers. What women do that's different that could lead to their better driving statistics (results). Jack Peet helped with this proposal from the AAA foundation for Public Safety.

Dr. Cassavaugh is preparing an application to NIA (National Institute on Aging) for a grant to look at older driving and rehabilitation. It will include assessing cognitive abilities and training specific to rehabilitation.

Negative emotions carry over to driving. The DEER Center is looking into assessing emotion control options that may lead to increases in funding at the national level. They are working with GM and looking to other funding sources in the industry.

Dr. Cassavaugh discussed the Left Turn Study that he is currently working on with a power-point presentation: "Using a VR Collision Detection task to Predict Driver Left-Turn Decisions."

- Left turns are common; there are lots of left turns in a day.
- Left turns are hard: Cognitive workload increases during left-turns compared with straight driving (Hancock et al, 1990). A lot of factors are at work in making a decision to turn left across

a gap in traffic: Driver sex, age, presence of passengers, size, speed and density of traffic and presence of appropriate gap.

- Left turns are dangerous: The most common driving maneuver prior to a crash is driving straight (~50%), BUT, for non-fatal injury crashes, the number two maneuver is turning left. 2,848 fatal (5.8%). 330,000 injuries (12.8%). 665,000 property-damages only (9.9%). (2006 Traffic Safety Facts report).
- Question: Could performance on a virtual collision detection task predict left-turn performance? Would it make a useful addition to a laboratory task battery for screening fitness to drive?
- Data Analysis: Gap Size, Decision Time, Turn Time, “Cushion”: Gap Size – turn time, Steering Angle < -45°, Heading < 250°
- Conclusion: A significant result was obtained whereby the TTC task criterion level predicted left-turn decision time for older adults. Nothing else is predicted at this time.

The DEER Center Open House is today from 1-4 p.m. with a demonstration of the simulator and of vision and cognitive testing in the psych-driving lab. Dr. Backs welcomed all to the Open House and reviewed the program and guests. The DEER Center is looking to help older adults on a limited income. 9 & 10 News Morning Program was live from the DEER Center Simulator yesterday, October 16th. The reporter actually drove the simulator. Lisa Smith indicated that additional grant proposals have been sent and individual donors are more difficult to find. All were encouraged to take cards if they know of individuals who should be contacted. They are always searching for ideas and suggestions. The DEER Center home page on the web was demonstrated.

Dates for 2009 meetings are: Friday, June 19th and Friday, October 16th.

Specific topics for future meetings included:

1. CME for physicians. There is a wide range of offerings that could be included in a one day workshop for physicians. Dr. Tom Claringbold offered to moderate and to assist with planning such an event. Other disciplines could also include: Physician Assistants, Occupational Therapy, Physical Therapy, Social Work and Nursing.
2. Michigan Department of State is working to establish an advisory board which will help to establish rules (i.e., more up to date screening of vision, underlying medical condition, medications, etc. forms which physicians are asked to complete.) The board will be of great assistance and specialty physicians will be able to assist with recommendations for such conditions as epilepsy, etc. A bill is in the senate that protects doctors if they do/or don't refer a patient to the state.

Meeting adjourned at 12:00 p.m.

The next Advisory Board meeting will be held on Friday, June 19, 2009 at 10:30 a.m. with lunch provided.

D.E.E.R. Center
Driving Evaluation, Education and Research Center
Advisory Board
June 19, 2009

Present: R. Backs, T. Claringbold, J. Fockler, E. Herlache, B. Lawry, E. MaloneBeach, M. Oliver, L. Smith.

DEER Center Advisory Board was held in Community Seminar Room (HP 2150).

The DEER Center Advisory Board meeting was called to order by Richard Backs at 10:40 a.m. with a welcome and introduction.

Richard Backs Ph.D., DEER Center Director, gave an update on the DEER Center. We have been busy since the last meeting. Regarding our goals, we are on track with the exception of Goal #1: The DEER Center will be a state-of-the-art facility that will provide clinical assessment and education for older drivers in Central and Northern Michigan to improve driving safety in the State of Michigan. We have the fee schedule approved and will start accepting patients July 7, 2009. Also, we are hoping to fund the DEER Center with 50% of funding from clinical operations and 50% from research. Dr. Nicholas Cassavaugh's new title is Assistant Director & AAA Michigan Simulator Manager effective January 8, 2009 through July 1, 2010. The student programmer position was not funded by the CHSBS Dean. Also, Dr. John Lenneman has joined the center as research scientist and consultant.

The Carls Center is going to Electronic Medical Records (EMR) system and currently they are evaluating new systems. We are looking at ways of managing our data from the DEER Center and are creating our own database that will interface with the EMR system. Currently, the information is being manually entered into the system. Also, there is a delay in our creating our database because we could not find a qualified programmer.

The DEER Center will start seeing patients on July 7, 2009. We will be holding an integration meeting in two weeks on June 29, 2009 and the sliding fee schedule was approved June 10, 2009. The sliding fee schedule is based on economic circumstances. A full driving evaluation is \$400 with a sliding fee scale based upon need and includes four assessment areas: medical and driving history, visual and physical testing, cognitive-function battery, and simulated driving evaluation (12 scenarios, each no more than 4 minutes long). The evaluation will be held in 2 hour sessions and 2 different days either (Monday & Wednesday or Tuesday & Thursday). We will collect payment at the time of service; fee not covered by MediCare or insurance. Patients must have a Physician referral and if no referral has been received, we will make arrangements to get a referral. If retesting is needed, then the fee will be \$200 with a sliding fee scale. Our policy will be to report the information to referring doctor. Dr. Claringbold shared on a monthly basis there are Med Staff meetings at hospitals that require 75% attendance from physicians and individuals can come in and talk for 5 minutes about their program. Dr. Backs shared that he is willing to travel to present information about the DEER Center at these meetings.

The audio/video recording and data analysis that we received in September 2008 has been installed and is up and running. The eye movement monitor, the last piece of capital equipment is here. It will be installed later this summer. Thanks are due to CMU President Mike Rao, Provost Julia Wallace and the deans of the colleges that oversee the DEER Center, Gary Shapiro of CHSBS and acting dean Tom

Masterson of CHP. This system does not require that patients wear any part of the device and is supposed to work with glasses, including bifocals, but there may be some issues with testing patients that have trifocals. The monitor allows us to give feedback to the patient and provide them with a CD/DVD that will hopefully help them to accept any diagnosed driving problems.

Dr. Backs is scheduling DSP Classes with AARP and the CarFit Program. Mr. Lawry from AARP, shared that CarFit program allows elderly people to bring their car in and they go through a 12-step process to make them aware of how the car can work for them; and learn about adaptive measures to fit better in the car. On October 3, 2009, there will be a CarFit Program in Mount Pleasant that is co-sponsored by AARP and AAA. Currently, we need 2,500 AARP members in this area in order to hold the event and we only have 700 members. Rick will talk with Karen Kafantaris with the CarFit program. Also, it was mentioned to expand the advertising area to include Clare, Harrison, etc., via flyers to family doctors. Dr. MaloneBeach will be willing to get gerontology students to assist. Dr. Backs shared that he will have his lab members, Psi Chi, and other student groups to participate. Mr. Lawry also shared that there is a need for additional instructors in this area and the Isabella County Undersheriff, Laude Hartrum just completed the training.

The DEER Center has received a 2 year grant through Michigan Department of Transportation to create a Senior Transportation Tool Kit that will include resources for seniors, family and the media at large. The tool kit will include but not limited to transportation options, potential to stop driving, and other resources. We will be completing a telephone survey with the selected aging regions of Michigan and not the entire state. The selected regions are the Upper Peninsula, Detroit and surrounding area, Mount Pleasant, Grand Rapids, Benton Harbor, and Saint Joseph. We have final approvals and the CATI lab will be contacting participants in the survey. We should receive funding from the state in the next fiscal year starting October 1, 2009.

Michele Oliver, Graduate Student, presented a power-point on a study she is currently working on titled "Attention and Emotion in Young Drivers With and Without ADHD Symptoms." We can provide interested Board members with the Powerpoint if they are interested. (These data were presented by Dr Backs at the M-CASTL conference this spring and the full presentation can be seen at <http://m-castl.org/node/49> and scroll down to Dr Backs's slides in the *Education and Training* symposium.)

- The study looked at Attention Disorder Symptoms, Negative Emotions, Emotional Control, and Driving Anger and had 246 participants.
- Participants with high anger and low emotion control ability account for the problems of maladaptive driving anger, NOT attention disorder systems:
 - Individuals with high symptoms of attention disorders experience and express their anger in more aggressive ways.
 - Individuals with attention disorders are unable to regulate their anger.
- Then 42 participants were contacted to come to campus and drive under the following 3 scenarios on the driving simulator. Each event was timed and to create anxiety for the participants, we stated that they would receive \$5 for each event that they completed faster than the last time.
 - Practice drive-consisted of driving in rural, urban, and residential areas.

- Baseline driving condition-consisted of driving a closed circuit with traffic, parked and moving cars, and traffic lights.
- Frustration driving condition-consisted of a car pulling out in front of the participant with very little headway (intrusion event), a signal light turning red as the participant approaches, requiring them to stop (stop light event), and a dump truck slowly pulling out in front of the participant's vehicle in a construction zone (construction event).
- In conclusion: High ADHD symptom group had more anger than low ADHD symptom group when provoked by frustrating events resulted in hostile and aggressive behaviors during simulated driving. Driving performance differed between high and low ADHD symptom groups in tactical driving skills (skills used while driving in traffic, e.g., adjusting to changing conditions); NOT in operational driving skills (fundamental skills such as vehicular control). Training for this population should focus more on the emotional state and control of negative emotions than on basic driving skills.

Dr. Backs shared that Stephanie Tuttle, John Lenneman, and Nicholas Cassavaugh will each be representing the DEER Center at the Driving Assessment Conference in Big Sky, Montana. In regards to grants and contracts, we have a grant for \$30,000 from the CMU Research Excellence Funding to construct a Driving Task Battery Development. We have two MDOT proposals submitted. The first proposal is for \$150,000 for over 2 years on "Improving Driver Safety with Behavioral Counter Measures" and the second proposal for "Low-Cost, High-Impact Measures to Meet the Transportation needs of Michigan Aging Population" for \$200,000 for over 1 year on state-wide intervention. Approval of the proposals should be received within a month and would be funded at the start of the state fiscal year in October. Bridge Funding for the DEER Center was rejected by the CMU Research Excellence Funding, the white paper to AAA foundation was not selected, NIA grant submitted by Nick was not funded and he will reply next time with data, and NIH proposal by Rick will be postponed until 10/09 or 2/10, so we can get patients and have viable data.

The Open House was a success and we received good press. It was held early for local representatives, etc. Also, we need to look at finding potential donors and if you have any ideas for donors or finding donors, please contact Lesa Smith or Rick Backs.

Next meeting will be held on Friday, October 16, 2009 at 10:30 am in HP 2150. The Board decided that it was not necessary to continue meeting on the same day as the Bridges board given the uncertainty with that group. Therefore, in order to avoid vacations the DEER Center Board decided to move the June meeting to the third Friday in May, unless that falls on Memorial Day weekend in which case the DEER Center Board will meet on the second Friday. **For 2010, the DEER Center Board meeting will be on Friday, May 21 at 10:30 am in HP 2150.**

Meeting adjourned at 12:00 p.m.