CMU 2010
FY08 Annual Report

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

Project Leader: Richard W. Backs

Project Number: _____ Date of Report: 30 June 2008

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 major milestones are summarized here, details are given in the report. Revised budget is attached to annual report.

	Outcome/Milestone	Status (Complete, in Progress, or Not started)	Date Measured	What are the next steps to achieving this outcome?
1	Purchase simulator and have installed by 30 Sept 2007	Complete	30 Oct 07	
2	Form a DEER Center Advisory Board	Complete	30 Nov 07 27 Jun 08	Board will meet twice a year
3	Create web site for the DEER Center http://www.deercenter.org	In progress	30 Jun 08	Web site development is ongoing, need to finish populating site with content
4	Obtained two contracts from GM totaling $133,467	In progress	30 Jun 08	Complete work
5	We submitted 6 proposals that were not funded	Complete	30 Jun 08	Continue to submit proposals as opportunities arise
6	We had an information booth for the DEER Center at the MI Traffic Safety Summit	Complete	15 Mar 08	We will do this annually

7	We had 4 presentations and publications in FY 08	In progress	30 Jun 08	Ongoing activity
8	We formed 3 research partnerships with outside institutions	In progress	30 Jun 08	Ongoing activity

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

We will continue to apply for grants and contracts. We are scheduled to begin taking paying clients 1 Oct 2008

How can the ISPC assist you with those plans?
Approve revised budget that is attached and was presented to Carol Richardson and Kara Beery on 3 Jul 2008

FY 2008 ANNUAL REPORT FOR THE CENTRAL MICHIGAN UNIVERSITY CENTER FOR DRIVING EVALUATION, EDUCATION, AND RESEARCH

Richard W. Backs, Ph.D.
Department of Psychology
Director, CMU DEER Center

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, and Research (DEER Center) during the 2008 fiscal year from 1July 2007 to 30 June 2008.

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 AAA Michigan Driving Simulator is located in the Dell Virtual Reality Room (HP 1260), and computer-based and vision testing facilities are located in 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, and 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. The timeline in the proposal 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 of $44,000 that 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 current plan is to open the DEER Center for clinical evaluations on 1 October 2008. We will hold an open house event in the Health Professions building for the regional legislators, health and mental health care professionals, and the public on Friday, 17 October 2008.

In column 4 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.

Table 1. DEER Center Timeline and Milestones

Year	Original Target Date		Milestone	Revised Date
1	Spring, 07	1.	Purchase and integrate hardware and software.	[1] **Fall, 07**
		2.	Work on attention evaluation protocols and driving assessments for patient evaluation and client education.	Ongoing
		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, 08
		5.	Pilot attention evaluation protocols and driving assessments for patient evaluation.	Summer,08
	Fall, 07	1.	Complete and test attention protocols and driving assessments for patient evaluation.	Fall, 08
		2.	Begin marketing DEER Center to physicians, regional Commissions on Aging.	Summer, 08
		3.	Submit external research proposal for DEER Center.	**Summer, 07**
		4.	Recruit faculty for DEER Center collaborations, establish at least one additional collaborative relationship.	Ongoing
		5.	Begin community outreach, establish at least formal relationship to provide services.	Fall, 08
2	Spring, 08	1.	Begin offering patient evaluations.	Fall, 08
		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.	Spring, 09
		5.	Begin outreach to faculty at other Michigan research universities.	Spring, 08
	Summer, 08	1.	Recruit and train Graduate Assistants.	Fall, 09
		2.	Continue community outreach and research proposal writing.	Spring, 10
	Fall, 2008	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.	Fall, 10

[1]Only the simulator has been purchased so far, we still need to find donors for about $60,000 in eye tracking and audio/visual recording equipment and data integration and analysis software to be fully functional.
[2]Data collection is ongoing for various projects, however equipment acquisition is behind schedule (see note 1 above)

1.3 Budget Revisions

Appendix A presents the original budget for the DEER Center Vision 2010 award, the actual expenditures for FY 08 and a plan to carry-forward the unspent FY 08 budget into FY 09. There are three major revisions to the original budget proposed for FY 09. The first is to provide 50% of the salary and benefits for Dr Nicholas Cassavaugh. Dr Cassavaugh is a Research Scientist assigned to the DEER Center who was hired for an initial two-year appointment with support from the Provost and the Dean of CHSBS. Dr Cassavaugh's initial appointment ends on 31 December 2008. I am requesting the reallocation of funds for one graduate assistantship in FY 09 and carry-forward funds from FY 08 to support Dr Cassavaugh until the end of FY 09.

Dr Cassavaugh is critical to the success of the DEER Center. We were exceedingly fortunate to be able to hire someone with the combination of technical skills, research experience, writing competence, and personal and professional demeanor in the position of research scientist. I believe that Dr Cassavaugh has demonstrated that he will eventually be successful in obtaining external funding to support his position and the research mission of the DEER Center. However, I believe that he is also functioning to support the DEER Center on another level, as the Assistant Director and AAA Michigan Simulator Manager. Therefore, he is also integral to the success of the DEER Center's evaluation and education missions as well.

At the time of Dr Cassavaugh's initial appointment it was expected that his position would eventually become self-supporting. In the progress report below I will briefly describe our efforts in FY 08 to obtain funding that would provide salary support for Dr Cassavaugh and support the DEER Center research mission of understanding driving by older adults and adults with attention disorders. I will then lay out our plans for obtaining funding this year. So much of the success of the DEER Center will depend upon Dr Cassavaugh that a plan should be developed to formalize his roles as the Assistant Director and AAA Michigan Simulator Manager. I propose that the long-term goal for Dr Cassavaugh's position be that the DEER Center will be responsible for 50% of his position and that the other 50% of his position will be funded from external funding for research. The revised budget reflects this strategy.

The other significant revisions to the original budget reflect the equipment, software and programming needs that have still not been met and are critical to meeting the 1 October 2008 schedule for clinical evaluations. These budget changes will add the audio/visual recording and data integration and analysis software to the simulator and upgrade the vision testing equipment (I purchased the vision tester that we are currently using off of E-bay. We need a clinical-quality instrument prior to opening the DEER Center).

2.0 PROGRESS REPORT FOR THE DEER CENTER GOALS TO CMU VISION 2010 INSTITUTIONAL PRIORITIES, STRATEGIES, AND KEY PERFORMANCE INDICATORS

2.1 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.

2.1.1 Progress on Goal 1

2.1.1.1 Evaluation

A target date of 1 October 2008 has been set to begin clinical evaluations. We have completed the second revision of the computerized attention task battery and will begin the third revision this summer. We are currently reviewing the results for the second revision of the driving simulation protocol and will begin the third revision this summer.

2.1.1.2 Education

Dr Cassavaugh and I have been trained to off the AARP Driver Safety Program. We will begin offering courses this summer.

2.2 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.

2.2.1 Progress on Goal 2

2.2.1.1 Facility Development

1. The DriveSafety DS-600 driving simulator has been acquired with the help of a major gift from AAA Michigan. When the simulator facility is complete, with the addition of eye tracking, audio/visual and performance data integration and analysis, it will be among the most advanced in the U.S.

2. We have developed a web site for the DEER Center: http://www.deercenter.org

2.2.1.2 Grant and Contract Activity

External Proposals

Funded

1. General Motors Corp

   a. Support for Empirical Evaluation of Thumbwheel Multi-Function Controller. Award amount: $47,620. Status: Completed.

   b. Development of Methodological Guidelines for Use of Ambulatory Impedance Cardiograph. Award amount: $85,847 ($32,193 pending, may not be available until Jan, 2009). Status: ongoing.

Unfunded

2. NineSigma

c. Observational Ethnographic Research on Older Drivers. This is a joint project with Applied Research Associates/ Klein Associates Division. NineSigma is a research contractor serving as an intermediary for a major automobile manufacturer. Status: We were not selected for the second round of submissions.

3. National Institutes of Health

d. Compliance with CPAP Therapy and Remediation of Cognitive Dysfunction in OSA. Requested amount: $275,000. Status: Rejected without being scored. This proposal to the National Heart, Lung and Blood Institute was prepared in collaboration with Dr. Sergio da Silva at Calvin College and St Mary's Sleep Laboratory. We are currently looking for an additional partner and will re-evaluate how to respond over the summer of 2008. We originally submitted as an R-21, which is limited to two years and $275,000. We will probably resubmit as a new R-01 proposal. The fact that the proposal was not scored indicates that it was ranked below the 50th percentile indicates that we need to thoroughly re-evaluate our approach.

e. Cognitive/physiological testing and training for older adults' fitness to drive. Requested amount: $640,649 over 5 years. Status: reviewed and scored. Grant proposal submitted to the National Institute on Aging via the K-99/R-01 career development award mechanism that would continue the work Dr. Cassavaugh started with his dissertation research. Under the proposed 5-year plan, cognitive and physiological test batteries for assessing fitness to drive would be developed and validated. In addition, a training protocol to remediate cognitive deficits would be similarly developed and validated. This proposal is directly related to the DEER Center's mission to provide clinical evaluations of fitness to drive to older adults. This proposal has been reviewed and scored, although not funded. The fact that the proposal was scored indicates that it was above the 50th percentile. Reviews have not been received yet, but once they are this proposal will be the highest priority for resubmission.

4. Toyota Motor Engineering and Manufacturing North America, Inc.

f. Haptic vs. auditory alerts in younger and older drivers. Requested amount: $59,400.

g. Aging and the development of trust in automated in-vehicle technology. Requested amount: $99,300.

h. Neither of these proposals was funded because of a communication failure between Toyota Motor Engineering and Manufacturing North America and corporate headquarters in Japan. The submission process had been revised and the North American operation was not aware and did not conform to the new procedure. We will be informed of the new process when the 2008 call for proposals goes out and we will resubmit at that time.

5. AAA Foundation

    i. Do we need standards for assessing cognitive fitness to drive? This was a whitepaper written for the American Automobile Association's Foundation for Traffic Safety. We had originally intended to submit a research proposal to the Foundation as part of their annual request for research proposals. However, the Foundation departed from its normal request for proposals in 2007 and instead requested white papers proposing study sessions for a planned conference. We submitted a proposal to address the lack of national standards in assessing fitness to drive in older adults. While our paper was not selected, the issue remains an important one which we at the DEER center are trying to address. Indeed, the 2008 annual meeting of the Transportation Research Board included the first meeting of a committee to address this issue.

Internal Proposals

Funded

1. FRCE

    a. Aging and collision detection in driving: using left-turn judgments to develop a driving safety assessment tool in a driving simulator. (Cassavaugh PI) Award Amount: $7,384. Status: In progress. Data will be used to supplement Cassavaugh K-99/R-01 Young Investigator resubmission.

    b. Cardiovascular Response During Simulated Driving in Young Adults With and Without Attention Deficit-Hyperactivity Disorder Symptoms. (Backs PI) Award Amount: $4,300 (another $3,200 is pending). In progress. Data will be used to support a new NIH proposal examining driving in young adults with Attention Deficit-Hyperactivity Disorder.

Unfunded

2. FIT

    a. Nonlinear dynamics and chaos in physiological measures of human decision making. Amount Requested: $15,000. Status: rejected for 2007-08. Proposal submitted with Aydin Cecen (Economics) and Ahmet Ugur (Computer Science) to use nonlinear analysis methods to investigate the role of emotion in decision making. We proposed using psychophysiological methods to assess emotional states during decision making. The application of nonlinear dynamics (chaos theory) in this manner is a new idea in the meeting of Economics and Psychology. We will revise and resubmit for 2008-09.

2.2.1.3 Presentation and Publication Activity

DEER Center-affiliated faculty and students (**in bold**) presented papers at *The Fourth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*, at *The 7th International Conference on Engineering Psychology and*

Cognitive Ergonomics, and at the *Association for Psychological Science* (two presentations). These presentations resulted in following publications:

Nelson, M., Tuttle, S., & Backs, R. W. (2007). An examination of the relationship between attention profiles and simulated driving performance. *Proceedings of the Fourth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design* (pp. 423-430). Iowa City, IA: University of Iowa.

Lenneman, J. K., & Backs, R. W. (2007). Diagnosticity of cardiac modes of autonomic control elicited by simulated driving and verbal working memory dual-tasks. In D. Harris (Ed.), *Engineering Psychology and Cognitive Ergonomics, LNAI 4563,* (pp. 541-550). Berlin: Springer-Verlag.

In addition, DEER Center-affiliated faculty and students (**in bold**) submitted the following papers to peer-reviewed journals of good quality:

Lenneman, J. K., & Backs, R. W. Cardiac Autonomic Control during Simulated Driving and a Concurrent Verbal Working Memory Task. Submitted to *Human Factors*.

Cassavaugh, N.D., & Kramer, AF. Transfer of computer-based training to simulated driving in older adults. Submitted to *Applied Ergonomics*.

2.3 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.

2.3.1 Progress on Goal 3

2.3.1.1 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. ARA/KAD – We have formed a relationship with the Klein Associates Division of Applied Research Associates. KAD specializes in the study of decision making in naturalistic settings and is interested in extended their expertise into the driving domain. They hope to find research opportunities that can capitalize on their expertise and the expertise and facilities of the DEER Center (like the NineSigma proposal described above).

   Our partnership with KAD has long-term potential. In addition to the Ninesigma proposal, we have partnered on a response to a Request for Information for Providers of Human Factors Research Support issued by the Department of Transportation. We have recently been informed that our KAD/CMU team has been invited to attend the Human Factors Coordinating Committee's DOT Human Factors Symposium at DOT headquarters in Washington, D.C. At that event, the KAD/CMU team will be able to present information about our human factors research experience to representatives from all DOT agencies that contract for human factors research.

2. MSU – We have formed a relationship with Dr Joel Nigg in the Department of Psychology. Dr Nigg is an internationally-known expert on Attention Deficit-Hyperactivity Disorder. We are consulting with Dr Nigg on his latest NIH-funded 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. Dr Nigg has a data base of subjects from a previous project of his who are at or approaching driving age. Dr Nigg has agreed to let us use his data base as part of our project.

3. 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.

2.4 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.

2.4.1 Progress on Goal 4

2.4.1.1 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 we have discussed research options for joint projects

2.4.1.2 DEER Center Advisory Board

I have formed an Advisory Board for the DEER Center as a subcommittee of the Bridges Center Advisory Board. The members of the DEER Center board come from relevant constituencies within CMU, from regional and state agencies. The list of board members and the organization that they represent are given in Table 2. The board meets twice a year. We held two meetings in FY 08, and we will hold our next meeting on 17 October 2008 immediately before the DEER Center Open House.

Table 2. DEER CENTER ADVISORY BOARD MEMBERS AND ORGANIZATIONS

Liana Bachand	CMU, Bridges Center
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
Barbara Jackson	CMU, Communication Disorders
Roger Kerr	Central Michigan Community Hospital
Kimberly Lariviere	Michigan Department of Transportation
Bud Lawry	AARP MI, Driver Safety Program
John Lenneman	General Motors Corp.
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
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

CMU Center for Driving Evaluation, Education, and Research
Adjusted Budget

		FY08	FY08	FY08	FY09	FY09	TOTAL	TOTAL
Funds Allocated in Vision 2010 Award		Budget	Actual	Carry	Budget	Adjusted	**Budget**	**Revised**
Expenditures				forward				
Faculty Salary[1]		$27,062	$10,992	$16,070	$27,832	$27,832	**$54,894**	**$38,824**
Staff Salaries								
	Bridges Director[2]						**$0**	**$0**
	Clerical (OP)[3]	$3,440	$3,440	$0	$3,560	$3,560	**$7,000**	**$7,000**
Other Compensation								
	Research Scientist[12]					$40,000	**$0**	**$40,000**
	Programmer[4]					$10,000	**$0**	**$10,000**
	Student compensation[5]	$7,920	$2,000	$5,920	$8,157	$8,157	**$16,077**	**$10,157**
	Graduate Assistants[6]	$31,597	$23,883	$7,714	$65,840	$32,920	**$97,437**	**$56,803**
	Consultant[7]	$2,000		$2,000	$2,000	$2,000	**$4,000**	**$2,000**
Benefits *(will automatically calculate)*		$7,988	$2,689	$5,299	$8,267	$19,517	**$16,255**	**$22,206**
Supplies and Equipment								
	Publications/Education/Web[8]	$3,500	$519	$2,981	$2,500	$2,735	**$6,000**	**$3,254**
	Office/Phone/Supplies[9]	$2,000	$246	$1,754	$2,000	$2,000	**$4,000**	**$2,246**
	Hardware & Software[10]	$2,500	$2,673	-$173		$13,000	**$2,500**	**$15,673**
	Maintenance[11]	$2,000		$2,000	$4,000	$6,000	**$6,000**	**$6,000**
Overhead and Returns								
	Indirect Costs							
	TOTAL PROJECT COST	$90,007	$46,442	$43,565	$124,156	$167,721	**$214,163**	**$214,163**

[1] 0.25 FTE release for RW Backs DEER Center Director (12 mon) develop evaluation protocols, conduct education and community outreach, write proposals, supervise center personnel.

[2] Bridges Director (.125 fte for 12 mon) will develop marketing materials, make community presentations, meet with local providers, develop web site, build partnerships and seek additional funds for sustainability.

[3] Office professional (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 (full time stipend plus tuition for 12 mon) to coordinate undergraduate, conduct evaluation, education, and research, data mine and other scholarly activities.

[7] Hire a occupational therapist specialized in driving assessments for consultation and coordination with faculty and staff.

[8] Develop marketing, web presence, education materials and resources for patients and providers.							
[9]Office expenses, telephone, supplies							
[10] Purchase a computer and programming necessary for clinic activities							
[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, Research Scientist assigned to the DEER Center. The Provost and Dean of CHSBS will provide half of his support for FY 09 and the DEER Center will pick up the other half.							