

INFORMATION PAPER

DASG-HSZ
12 Oct 2011

SUBJECT: Considerations for Clinical Driving Simulator Selection

1. Purpose: To provide information on selection for the purchase of commercial driving simulators for clinical use in Military Treatment Facilities (MTF)

2. Facts:

a. Driving simulators offer a potent tool for screening, assessment, and training of Service Members recovering from a wide variety of injuries.

b. Therapist-facilitated driving simulation may offer appropriate treatment for a wide range of clients. For example, persons with traumatic brain injury (TBI) may practice scanning, reducing hypervigilance, safe risk taking, and compensations for prospective memory deficit. Responses to driving challenges can be used to improve accurate self-awareness. There is evidence that driving-related anxieties, e.g., Post Traumatic Stress Disorder (PTSD), may also respond to treatment using driving simulation.

c. An increasing number of military occupational therapy programs are considering purchase of driving simulators for clinical use. Many of these purchasing decisions are made without experience in driving simulation.

d. The Rehabilitation and Reintegration Division (R2D) hosted a conference, "Driving Simulation 101: Driving Simulation as a Clinical Tool" on March 2–4, 2011, in Minneapolis, Minnesota. Two subject matter experts (SMEs), Dr. Erica Stern, OTR/L, FAOTA, and Joette Zola, OTR/L presented on the clinical use of driving simulation in occupational therapy. Further, they discussed how to make an informed choice for driving simulator purchase, as recommended by the University of Minnesota (UM) Driving Simulation User Group (2007).

3. Recommendation highlights include the following:

a. Involve the stakeholders and personnel who are likely to have an investment in the driving simulator. The stakeholders/personnel may include administrators, clinic chiefs, information management, engineers, researchers, clinical occupational therapists and others as appropriate.

b. Consider the simulator company's financial stability and service history. Sites should contact other users to hear benefits and drawbacks of the likely simulator choice.

c. Consider the original costs of a simulator, the training time (see 3i.), and the cost of upgrades and repairs. Support contracts should describe the response timeline, how troubleshooting or repairs will be performed, and the replacement policy.

d. Consider the clinical populations likely to use the simulator and both the performance component deficits and driving challenges faced by those populations.

e. Know the research evidence regarding the use of driving simulation with the intended clinical populations. Review research on driving simulation's use as a functional screen for driving, an assessment for driving or performance component deficits, and an intervention with the MTF's clinical populations.

f. Judge each simulator's features and characteristics by driving the simulator and by interviewing other therapists who have clinical experience with that type of simulator. Important things to weigh include how closely the simulated vehicle reflects real vehicle dynamics, how many and what types of routes/drives are available, and how many types of complex events are available that challenge the processes and skills of the target client population. The person investigating should find out whether the simulator has special features that maximize its variety such as events, roadway items, or sounds that can be added while a drive is taking place. Find out whether new routes and new driving events can be programmed, the cost and time associated with such work, whether a therapist can do this work or whether it requires a contract from the simulator company, and the cost for authoring software if such software is required. If the simulator has one, examine the simulator printed report of a drive (i.e., print out).

g. Understand the space, electrical system capacity and simulator technology compatibility requirements. Contact engineering and information management for input. When assessing space, include all materials used in simulation, e.g., simulator, screens, computers, tables, chairs. Anti-simulation sickness protocols require room temperatures less than 65°F and space for airflow. Therapists in MTFs must coordinate efforts with their local MTF Logistics Department and Facilities Management to ensure accommodation of the proposed equipment purchase at the existing site.

h. Find out whether the geographical area has a large number of one type of simulator. If so, all other aspects being equal, there may be advantages to selecting that simulator.

i. Designate a driving simulator point of contact (POC) therapist prior to simulator delivery, who will be the first trained, and who will thereafter train and mentor all others using the simulator. The 1–2 day orientation from a simulator manufacturer does not adequately prepare occupational therapists for the therapeutic use of simulators. In addition to training, the University of Minnesota's Driving Simulation User Group recommends that in the first month after simulator delivery, the POC should have 10 hours per week scheduled to label all elements, analyze and write descriptions of the available routes and events, develop protocols and forms, learn to operate and trouble shoot the simulator, and instruct other therapists. During months 2-4 post-delivery, 20 hours of flexible time per month allows the POC to consult with other therapist users and create a referral-advertising plan.

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4. Conclusion: Purchase of a driving simulator deserves due diligence. This paper guides interested parties through the types of information needed to make an informed selection of a driving simulator for clinical use.

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Driving Simulator Selection Checklist, October 2011

Driving Simulator Selection Checklist

	Company Name:	Simulator:		
Done				
	Stakeholder Input	Name	Date	Comments
	a. Administrators			
	b. Clinic Chief			
	c. Information Management			
	d. Engineer			
	e. Researchers			
	f. Occupational Therapists			
	g. Logistics Department			
	h. Facilities Management			
	i. Others			
	Simulator Company	Comments		
	a. Financial Stability			
	b. Service History			
	c. Benefits			
	d. Drawbacks			
	Cost			
	a. 3 Screen Simulator (or similar view) cost			
	b. Software costs			
	c. Delivery cost			
	d. Set-up cost			
	e. Training cost			
	i. How much training included?			
	ii. What content covered in training?			
	iii. Instruction manuals included in training?			
	f. System Upgrades cost			
	g. Future Expanded Drives cost			
	h. Repair costs			
	i. Contract Support cost			
	i. Response timeline			
	ii. How will trouble shooting or repairs occur?			
	iii. Replacement Policy			
	Clinical Populations			
	<i>Driving</i>			
	a. Who are major users of simulator for screen, assessment or intervention for return to driving?			
	b. What challenges need to be part of routes and scenarios used?			
	c. Does the simulator have multiple routes and scenarios that meet this populations' <i>driving</i> needs?			
	<i>Performance Components</i>			
	a. Who are major users of simulator for screen, assessment or intervention for <i>performance components</i> (e.g., endurance, vision, self awareness)?			
	b. What challenges need to be part of the routes and scenarios used?			
	c. Does the simulator have multiple routes and scenarios that meet this populations' <i>component</i> needs?			
	Research	Comments		

Driving Simulator Selection Checklist (continued)

a. Is there research evidence to support driving simulation with the intended clinical populations?	
b. Was research done using this driving simulator or similar driving simulator?	
Simulator Features	
<i>NOTE: Assess by driving the simulator and by interviewing other therapists who have clinical experience with that type of</i>	
a. How well does simulated vehicle reflect real vehicle dynamics?	
b. How many and what types of routes/drives are available?	
c. How many and what types of complex events are available that challenge the processes and skills of the target client population? <i>*NOTE: Routes get boring without a variety events to challenge persons.</i>	
d. How can new routes and new driving events be created?	
i. At what cost if done by company?	
ii. How much time and with what training if done by therapist?	
iii. Is there a cost for the authoring software, if such software is required.	
e. Is there a printout report of drives? What does it contain and look like? <i>Note: Ask to create a copy from one of your drives.</i>	
Space Requirements	
a. Simulator	
b. Screens	
c. Computers	
d. Tables	
e. Chairs	
Facility Space	
a. Does space allow equipment and meet anti-simulation sickness protocols (e.g., room temperatures less than 65°F and space for airflow). <i>NOTE: MTF Therapists - coordinate with local MTF Logistics Department and Facilities Management to ensure that simulator can be accommodated at existing site.</i>	
b. Is this simulator in use at other sites within easy reach? <i>NOTE: If so, all other aspects being equal, there may be advantages to selecting that simulator.</i>	
Point of Contact (POC)	
a. Designate a driving simulator point of contact (POC) therapist prior to simulator delivery.	
POC Time Requirements	
a. Month 1-Post Delivery = 10 hours regularly scheduled time per week	
b. Months 2-4 post delivery = 2- hours flexible time per month	
Note: Refer to Information Paper for specific responsibilities	