

# Multiple Sclerosis & Telehealth New Models of Care

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[www.va.gov/ms](http://www.va.gov/ms)



# Faculty Affiliation and Disclosure

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# MS & Telehealth

## Topical Outline

- Telehealth Overview
- Neurology and Telehealth
- MS Telehealth Studies
  - MS Home Automated Telemanagement (MS HAT)
  - Remote neurological exam in MS
  - Physical telerehabilitation in MS

# We've Come a Long Way



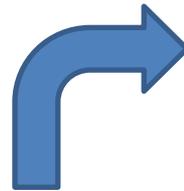
# Taking Charge of Your Health Care

## When and Where you Need it

- Telehealth: a means of utilizing technology so that patients and providers can communicate remotely, enabling patients to receive health care through telecommunications
  - Clinical Video Telehealth
  - Home Telehealth
  - Store & Forward



4





# Health Care Reform

## The Affordable Care Act



- **Patient-Centered Medical Home**
  - Health homes would be composed of a team of health professionals and would provide a comprehensive set of medical services, including care coordination.
- **Honoring America's Veterans Act of 2011**
  - Optimization of health IT capabilities to improve the healthcare delivery system for Veterans.

# Patient-Centered Medical Home

## Joint Principles (Kirschner, 2010)

- Personal physician
- Whole-person orientation
- Integrated care
- Quality and Safety
- Enhanced Access



# Patient-Centered Medical Home

## Joint Principles

- An approach to primary care that ensures care is integrated:
  - Comprehensive care
  - Patient-centered care
  - Coordinated care
  - Accessible services
  - Committed to quality and safety



# Patient-Centered Medical Home Joint Principle Endorsement

- **18 Specialty Medical Societies:** including Am Acad Neurology, Am College Cardiology, Am College Chest Physicians, Am Soc Clin Oncology, Infec Dis Soc America, Soc of Critical Care Medicine
- **Promise of improved coordination, quality & efficiency**
- **Concerns:**
  - Unrealistic expectations
  - How will new services be reimbursed
  - Implementation challenges for small practices

# Telehealth Implementation Challenges

- Variability and unpredictability of symptoms
- Patient confidentiality & data security
- Limited computer skills
- Reimbursement of telehealth care
- Standards for telemedicine equipment and competencies of health care professionals using telehealth

# Telehealth & Neurology

(Agarwal S. *J Neurol* 2011)

Telestroke: initiated in 1990s for acute stroke thrombolysis consultation, AHA Class I evidence for reliability of remote NIH Stroke Scale exam

## Teleneurology Pilots:

- Parkinson's Disease
- Epilepsy
- Neurorehabilitation
- Multiple Sclerosis

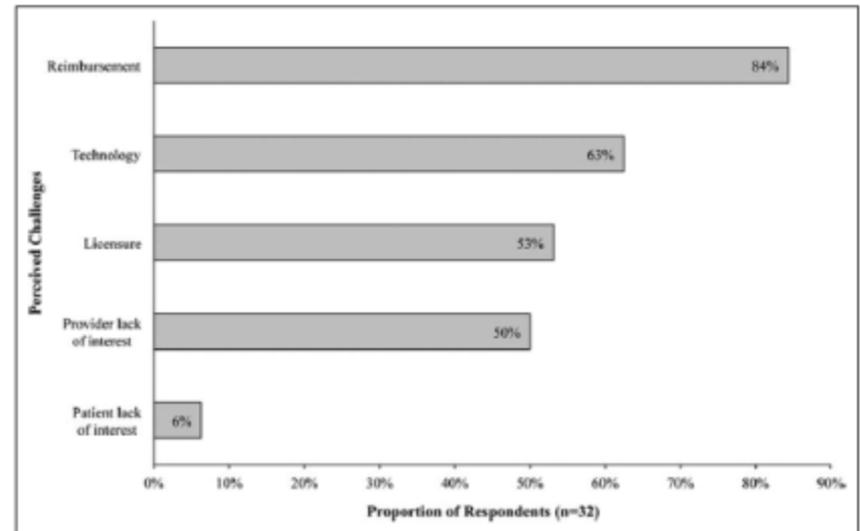
# Teleneurology & Cost Effectiveness

- Epilepsy : savings of ~10% based on travel & related expenses (Ahmed S. *Epilepsia* 2008)
- Neurocritical Care: robotic monitoring of ICU patients produced an annual cost savings of \$1.1 million (Vespa P. *Surg Neurol* 2007)
- Parkinson's Disease: outpatient follow-up costs reduced in a community cohort of patients (Samii A. *J Telemed Telecare* 2006)

# Telemedicine in Leading US Neurology Departments

(George B. *Neurohospitalist* 2012)

- 60% of respondents provide limited telemedicine services
  - Stroke
  - Movement disorders
  - Neurology critical care
- Most programs started 2008-2010
- External funding sources



# Integrated MS Care

- Comprehensive & coordinated care between health and social sectors
  - Many unmet needs found in review of MS care delivery in part due to fragmentation and discontinuity of the health care system
  - Multidisciplinary community team worked with MS specialists
  - Home-based care interdisciplinary team intervention

# Existing approaches of care using telehealth

- do not utilize constructs from evidence-based models for chronic care which were shown to successfully improve quality of care;
- current technology is not cost-effective;
- existing IT tools are not fully integrated into the health information systems



# Community



## Primary Care Team



# Family

# Telehealth Projects at MSCoE

([www.va.gov/ms](http://www.va.gov/ms))

## –Home Telehealth:

- MS Viterion® Symptom Survey (Turner A. et al *IJM* in press)
- Telehealth Pilot 2: USB Cameras-Clinic to Home EDSS
- VA Central Office IT Project: MS HAT Demo Project
- MS Physical Telerehabilitation Randomized Trial
- MS Adherence Pilot (INF beta and Vitamin D)
- MS Cognitive Rehabilitation Pilot Project

## –Clinical Video Telehealth:

- Telehealth Pilot 1: Polycom ® VAMC-DC to VAMC- Baltimore
- Telehealth consultation between MS Regional Centers & other specialty centers

## –Store & Forward Telehealth:

- Remote cognitive assessment project



# Home Telehealth

## Beyond the Basics: Your MS Care

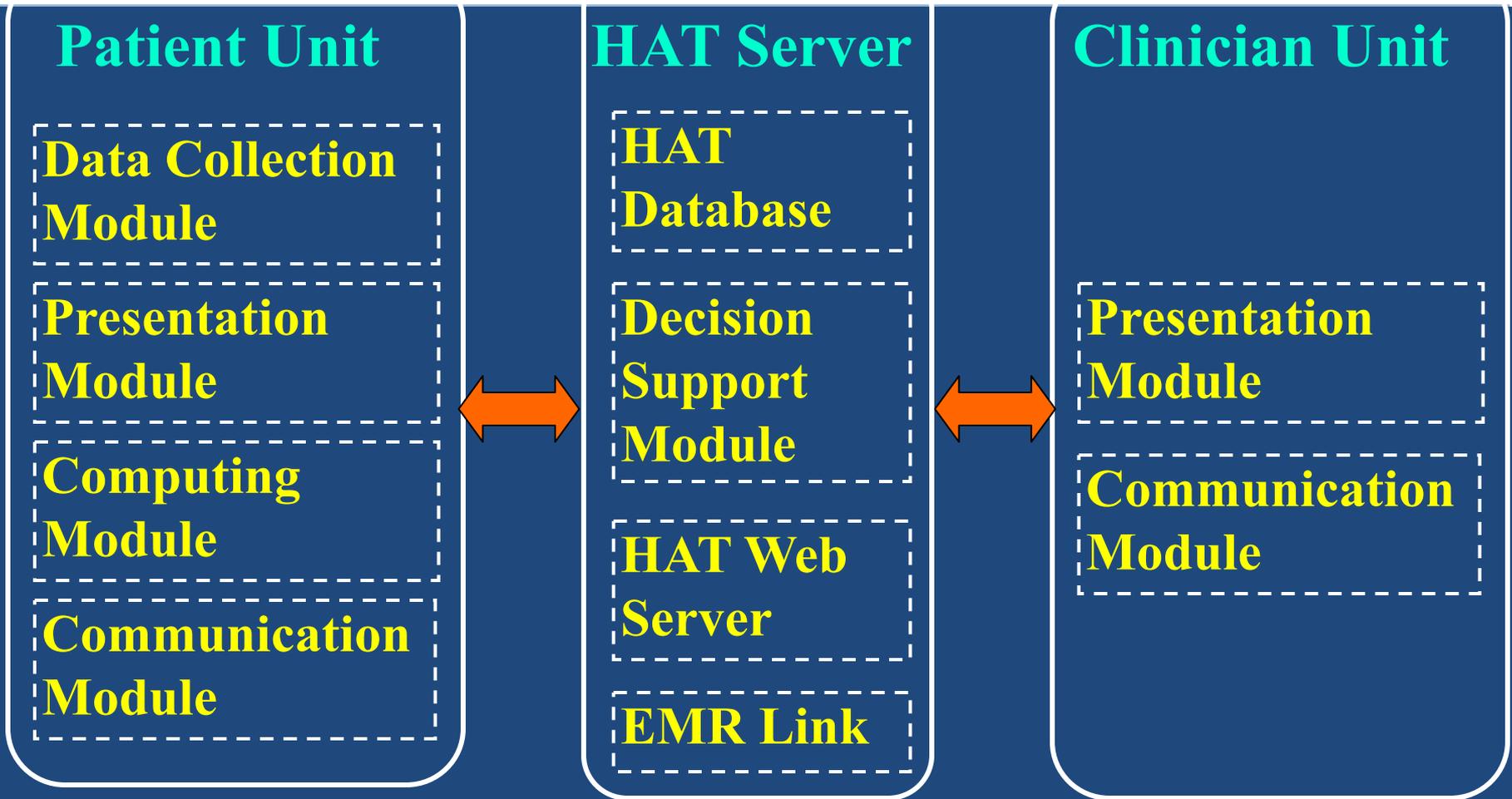
- Home-based teleneurology is just-in-time care
- When transportation is a challenge
- What our research has shown:
  - The remote neurological exam is similar to the live exam
  - Patient satisfaction is high
  - Cost of care is less
  - Multidisciplinary care is enhanced

# Home Automated Telemanagement (HAT) System



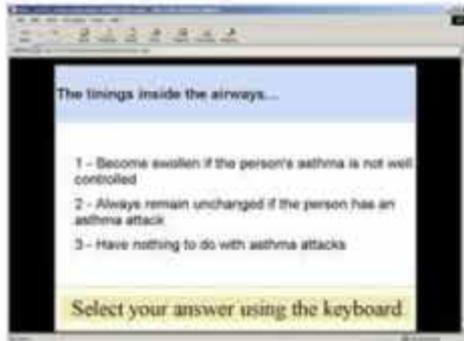
- HAT was developed by J. Finkelstein/JHU Chronic Disease Informatics Dept and has been designed to:
  - Help patients in following their self-care plans
  - Help health care practitioners to follow their patients' self-management process
  - Facilitate multi-component chronic disease management according to the current clinical guidelines

# Technical Design of HAT



# MS HAT: Information Infrastructure

Web browser  
(IE +.NET)



Smart Phone  
(WML +.NET)

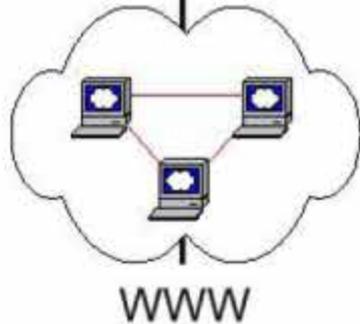


Desktop  
/Laptop  
(VB + Win 9x/2k)



Dial-up

PDA  
(eVB + WinCE)

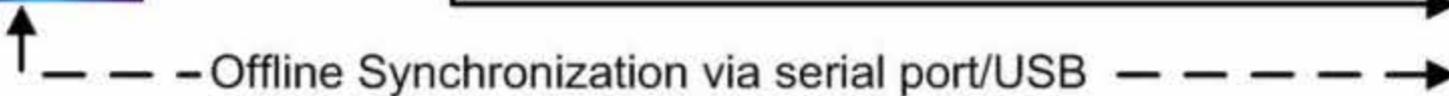


WAP  
Proxy

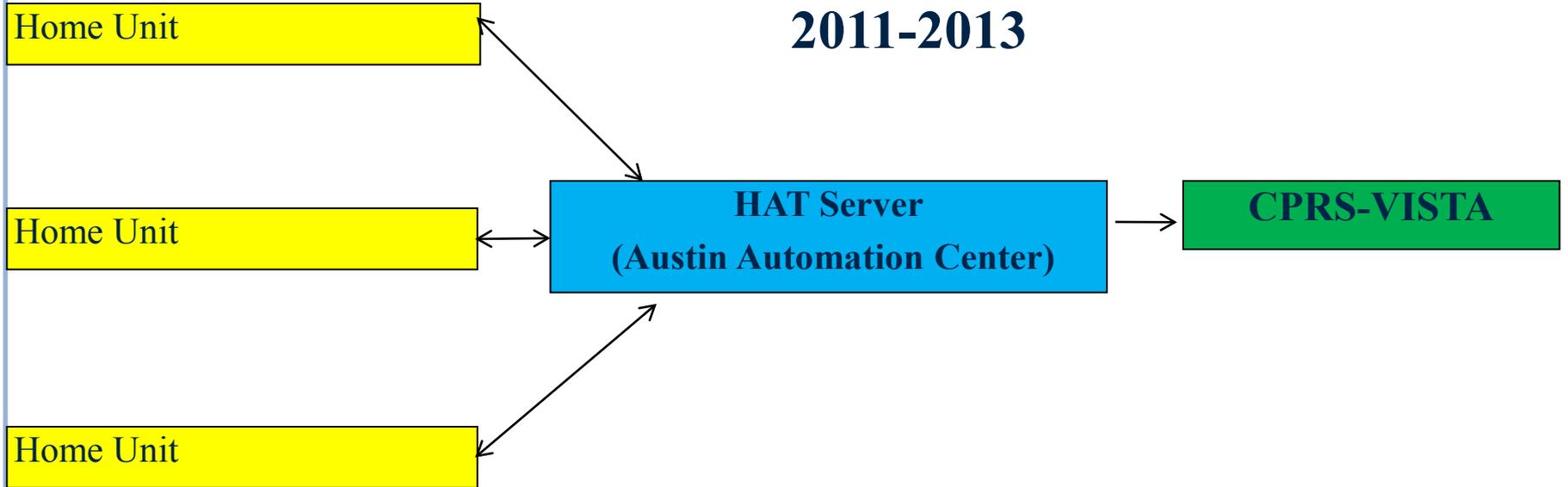


Central Database

Offline Synchronization via serial port/USB



**MS HAT  
VA Demonstration Project  
MSCoE and Johns Hopkins U  
2011-2013**



# MS Telemanagement Evaluation

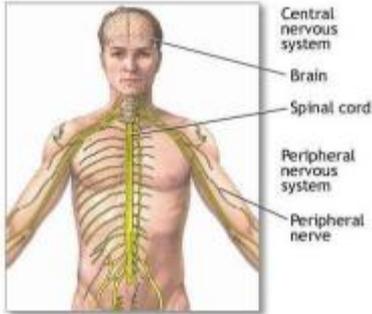
- Interactive patient education and counseling
- Telerehabilitation
- Remote Neurological Examination
- Telemanagement

*Finkelstein J, Wood J. Design and implementation of Home Automated Telemanagement system for patients with multiple sclerosis. Conf Proc IEEE Eng Med Biol Soc. 2009;2009:6091-4.*

*Cha E, Castro HK, Provance P, Finkelstein J. Acceptance of home telemanagement is high in patients with multiple sclerosis. AMIA Annu Symp Proc. 2007 Oct 11:893.*

# Computer-Assisted Education in MS Patients

Multiple Sclerosis is a disease that affects the Central Nervous System.



Press <Enter> to Continue

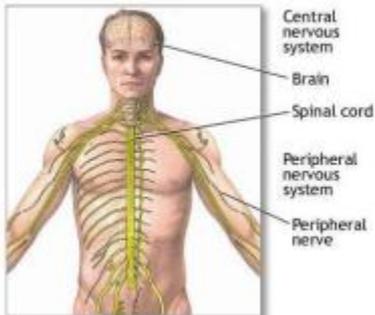
What is Multiple Sclerosis?

- 1 - A disease that affects the Central Nervous System
- 2 - A disease that affects the eyes
- 3 - A disease that affects the muscles

Select your answer using the keyboard

**Sorry, the correct answer is:**

Multiple Sclerosis is a disease that affects the Central Nervous System.



Press <Enter> to Continue

Press '0' to Return to Main Menu

**Congratulations! Your answer is correct.**

Press <Enter> to Continue

Press '0' to Return to Main Menu

## Feasibility of Computer-Assisted Education (CO-ED) in MS Patients

- Convenience sample of 23 consecutive patients was enrolled into the study
- Patient age was in the range of 31 to 59 years
- 40% did not have any computer experience
- **91%** stated that they prefer using CO-ED as an education tool rather than a brochure
- **100%** claimed that they would advise other patients to use CO-ED for disease-specific education
- **92%** felt that using CO-ED was not complicated at all
- More than 50% stated that they learned new information about their disease using CO-ED
- **98%** felt that immediate feedback was very helpful
- **22.5%** improvement in knowledge score

*Finkelstein J, Martin C, Bhushan A, et al. Feasibility of computer-assisted education in patients with multiple sclerosis. Proc. of the 17<sup>th</sup> IEEE Symposium on Computer-Based Medical Systems. CBMS-2004;2004:254-261.*

# Home Physical Telerehabilitation in MS

- Life-long rehabilitation measures, together with medication treatment, are the major components of MS patient management.
- Physical exercise has a positive impact on patients' quality of life and their functional capacities.
- Interactive, web-based telemanagement systems may facilitate patient adherence to rehabilitation plans.



# Primary Objective



- To assess the feasibility and acceptance of the Home Automated Telemanagement (HAT) system for MS patients participating in a structured exercise program.

Mary  
 HAT ID: 49

- [Current Alerts](#)
- [List of Patients](#)
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  - [Current Exercises](#)
  - [Dosage Calendar](#)
  - [Self-testing Calendar](#)
- Treatment goals
- [Alert history](#)
- [Monthly reports](#)
- [Home monitoring](#)
- [Message for the patient](#)
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  - [Self-testing Calendar](#)
- Treatment goals
- [Clinician data](#)

Use the table below to create a new exercise plan:

Exercise	Sequence Num	Seconds	Times	Sets	Sessions	Weights	Add new
<b>LOW BACK STRETCHING</b>							
<a href="#">Knee to Chest</a>	<input type="checkbox"/>						
<a href="#">Trunk Rotation</a>	<input type="checkbox"/>						
<a href="#">Face-Lying over Pillow</a>	<input type="checkbox"/>						
<a href="#">Seated</a>	<input type="checkbox"/>						
<b>MID BACK STRETCHING</b>							
<a href="#">Hands and Knees</a>	<input type="checkbox"/>						
<b>HIP FLEXOR STRETCHING</b>							
<a href="#">One Joint (Iliopsoas)</a>	<input type="checkbox"/>						
<a href="#">Two Joint (Rectus Femoris)</a>	<input type="checkbox"/>						
<b>HAMSTRING STRETCHING</b>							
<a href="#">Active - Seated</a>	<input type="checkbox"/>						
<a href="#">Active - Lying down with Towel Assist</a>	<input type="checkbox"/>						
<b>HAMSTRING &amp; CALF STRETCHING</b>							
<a href="#">Passive - Seated with Towel Assist</a>	<input type="checkbox"/>						
<b>CALF MUSCLE STRETCHING</b>							
<a href="#">Calf Muscles: Gastroc Stretching-Standing</a>	<input type="checkbox"/>						
<a href="#">Calf Muscle: Soleus Stretch-</a>	<input type="checkbox"/>						



Active Patient: Mary  
HAT ID: 49

- Current Alerts
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  - Current Exercises
  - Dosage Calendar
  - Self-testing Calendar
  - Treatment goals
  - Alert history
  - Monthly reports
  - Home monitoring
  - Message for the patient
  - Clinical notes
- Add New Patient
- Edit Patient Profile
  - Patient summary
  - Disease profile

Alert History Patient Name: [Redacted]  
Phone: [Redacted]

### Home Monitoring(Details)

Exercise Date: 8/25/2006

Exercise Name: Trunk Rotation

StartTime	EndTime	Question_Num	Diary_Question	Patient_Answer
8/25/2006 10:22:07 AM	8/25/2006 10:22:54 AM	1	How many times did you do exercise?	4

# MS HAT Home Station: Menu

Main Menu

## Home Automated Telemangement

- 1 - Start Exercises 
- 2 - View Exercise Safety Tips
- 3 - Update My Current Exercises
- 4 - Review My Exercise Program
- 5 - Shut Down My Computer

Main Menu

## Your Exercises for this Session. . .

		1. <i>Knee to Chest</i>	Sets Completed <b>1</b>
		2. <i>Trunk Rotation</i>	Sets Completed <b>0</b>
		3. <i>Face-Lying over Pillow</i>	Sets Completed <b>0</b>
		4. <i>Seated</i>	Sets Completed <b>0</b>

Press **ENTER** to start an exercise | Press **EXIT** to end this session

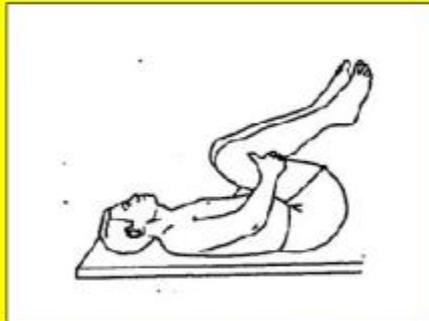
# Home Station: Exercise Directions

Exercise

## Stretching Exercises

### Knee to Chest

1. Lie on back with knees bent
2. Slowly pull both knees toward the chest, gently stretching the low back muscles just enough to flatten the low back on floor.
3. Hold for three breaths.
4. Return to starting position.



Press <Replay> to Start/Stop Video

Do **4** times

Press Enter to continue

Exercise

## Stretching Exercises

### Knee to Chest

1. Lie on back with knees bent
2. Slowly pull both knees toward the chest, gently stretching the low back muscles just enough to flatten the low back on floor.
3. Hold for three breaths.
4. Return to starting position.



Press <Replay> to Start/Stop Video

Do **4** times

Press Enter to continue

How many seated stretching sessions did you do?

5

Use arrow keys and then press ENTER

## The side effects of interferons include

- Injection-site reactions
- Possible depression
- Flu-like symptoms
- All answers are correct

Press <Enter> After Corre

Wrong

**Sorry, the correct answer is:**

**All interferons have side effects. The main side effects are flu-like symptoms and possible depression. There may also be a skin reaction where the medicine is injected.**

Press ENTER to continue

**Congratulations!  
Your answer is  
correct.**

Press ENTER to Continue

Here is your next tip:

**Blood tests must be done every 6 months when you take interferons. They should not be taken during pregnancy.**

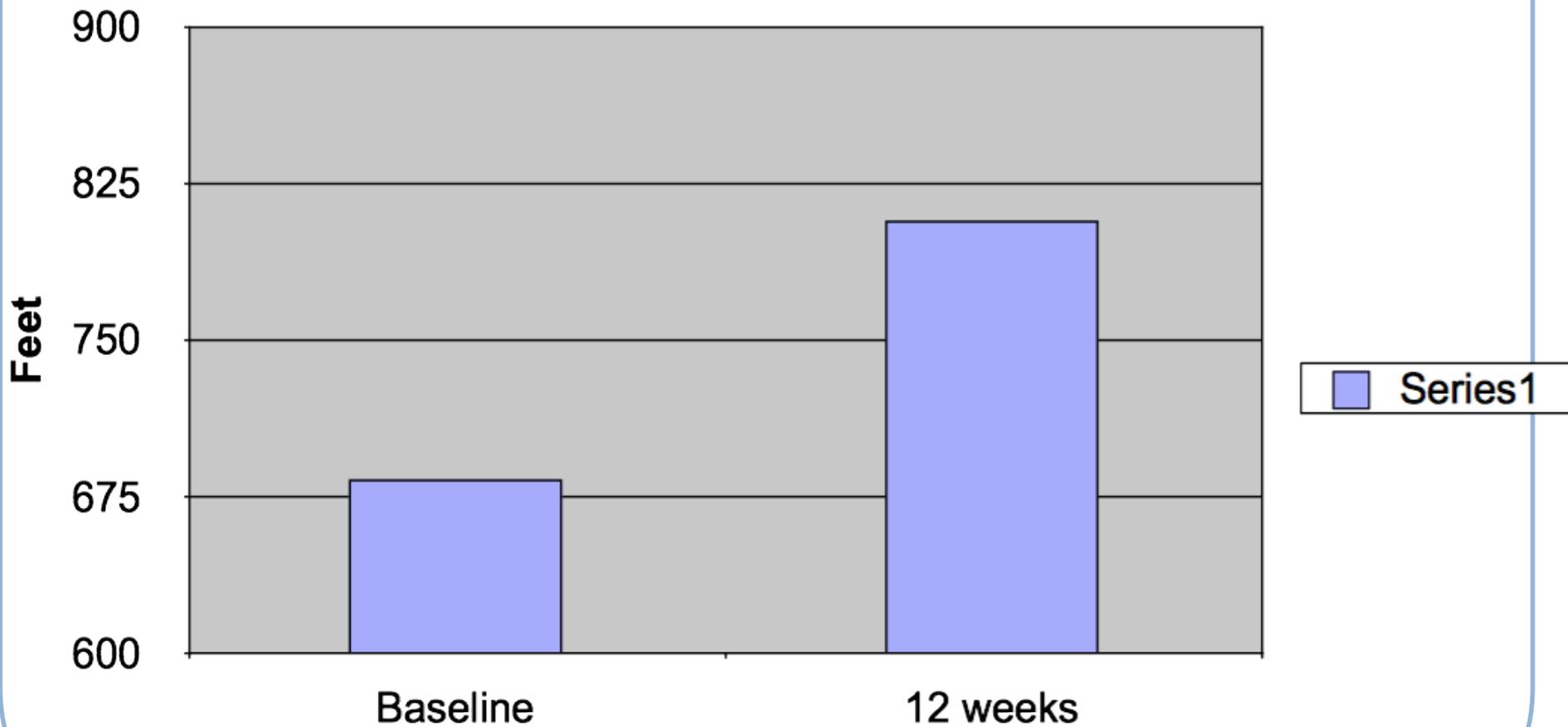
Next

# Home Physical Telerehabilitation in MS Pilot Study

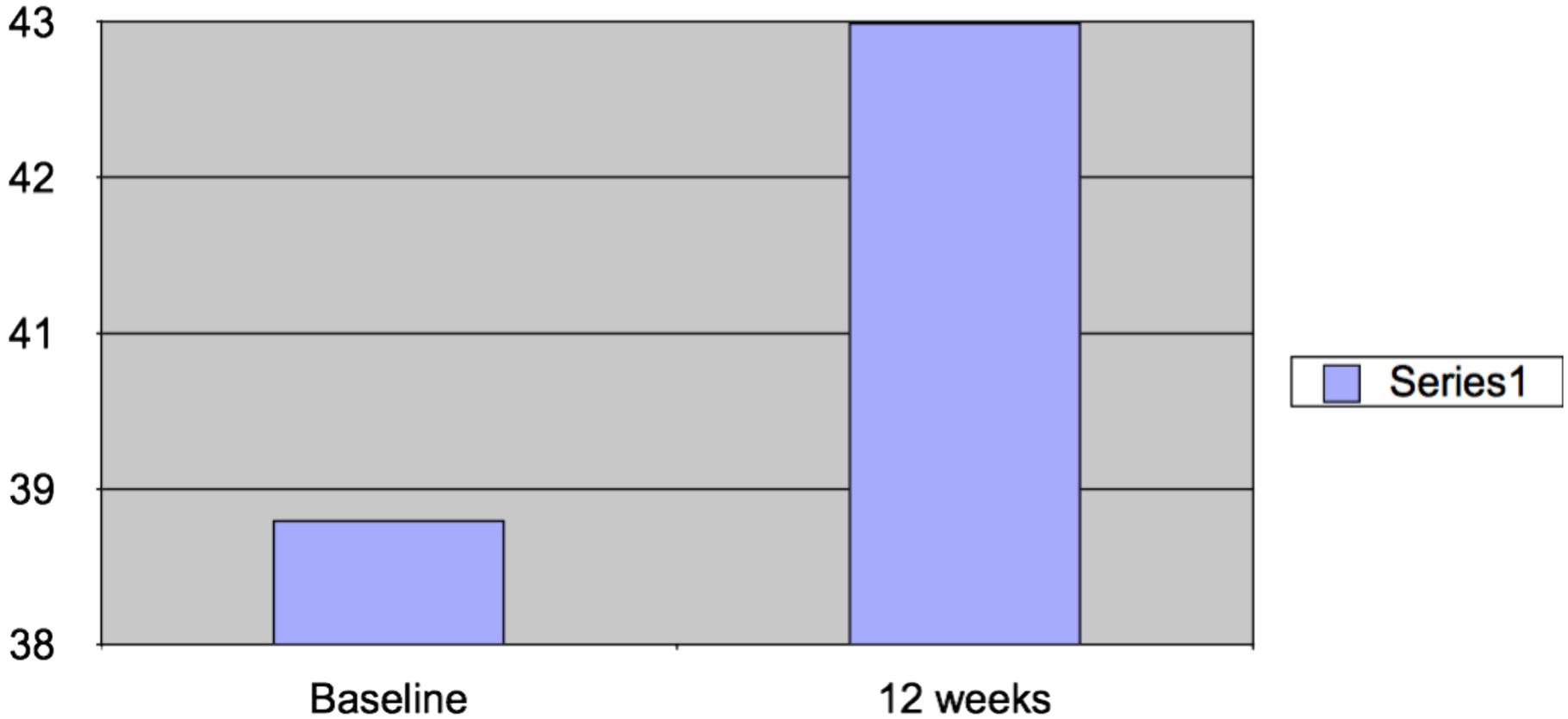
- N=12 patients with MS
- Mean Age: 52 years
- Mean number of years with MS: 13
- 83% females
- Mean Education: 15 years

*Finkelstein J, Lapshin O, Castro H, Cha E, Provance PG. Home-Based Physical Telerehabilitation in Patients with Multiple Sclerosis: A Pilot Study. Journal of Rehabilitation Research and Development 2008;45(9):1361-1374.*

## Six-Minute Walk



## Berg Balance Scale



# MS HAT: Remote Neuro Exam Background

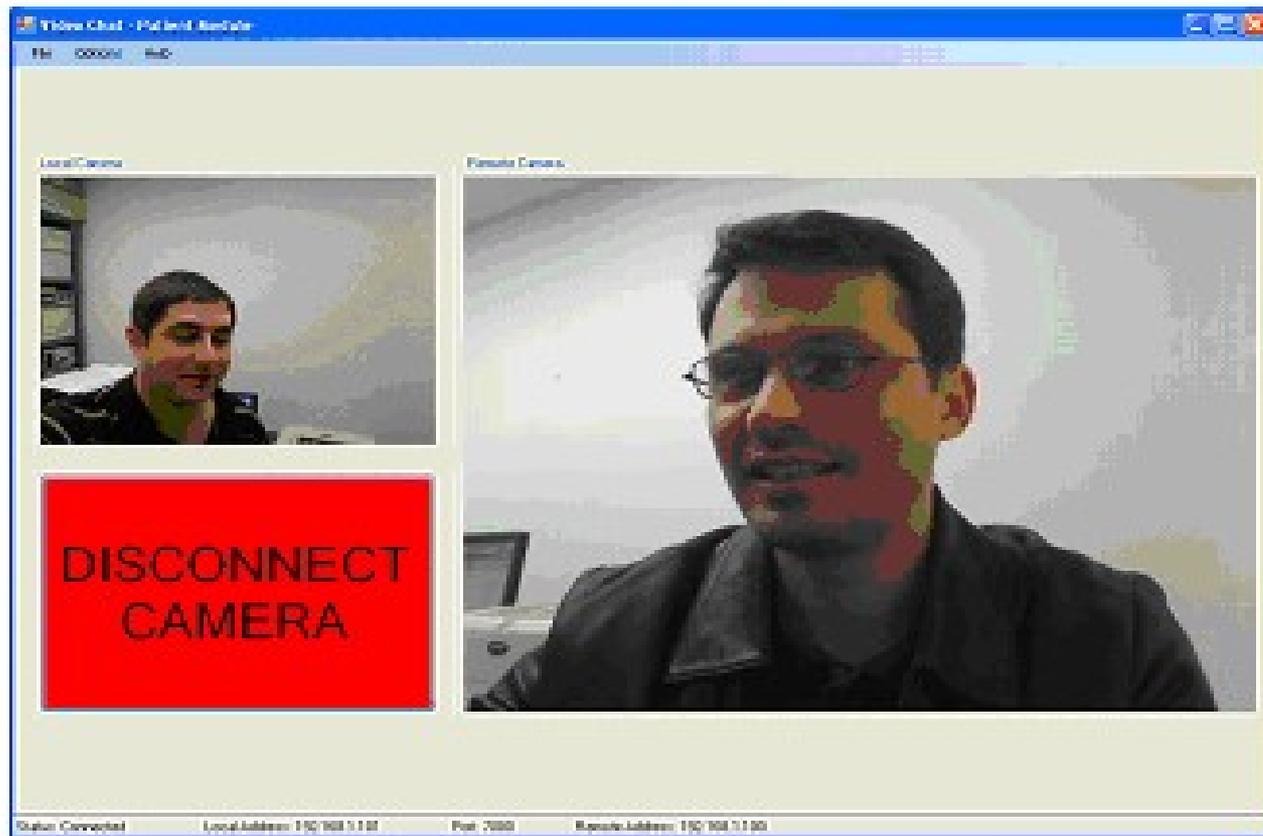
- Physician care is routinely carried out in doctor's offices and hospitals.
- Patients with MS are often separated from specialty care due to disability or distance.
- The value of low-cost webcams as a tool for remote neurological exam has not been systematically evaluated.

# MS HAT: Remote Neuro Exam

## Objective

- A videoconferencing application utilizing low-cost webcam was developed to assist patients in remote neurological evaluation.
- This study evaluated the feasibility of using regular webcam and microphone as a tool to aid in the management of multiple sclerosis (MS).

# MS HAT Webcam System Design



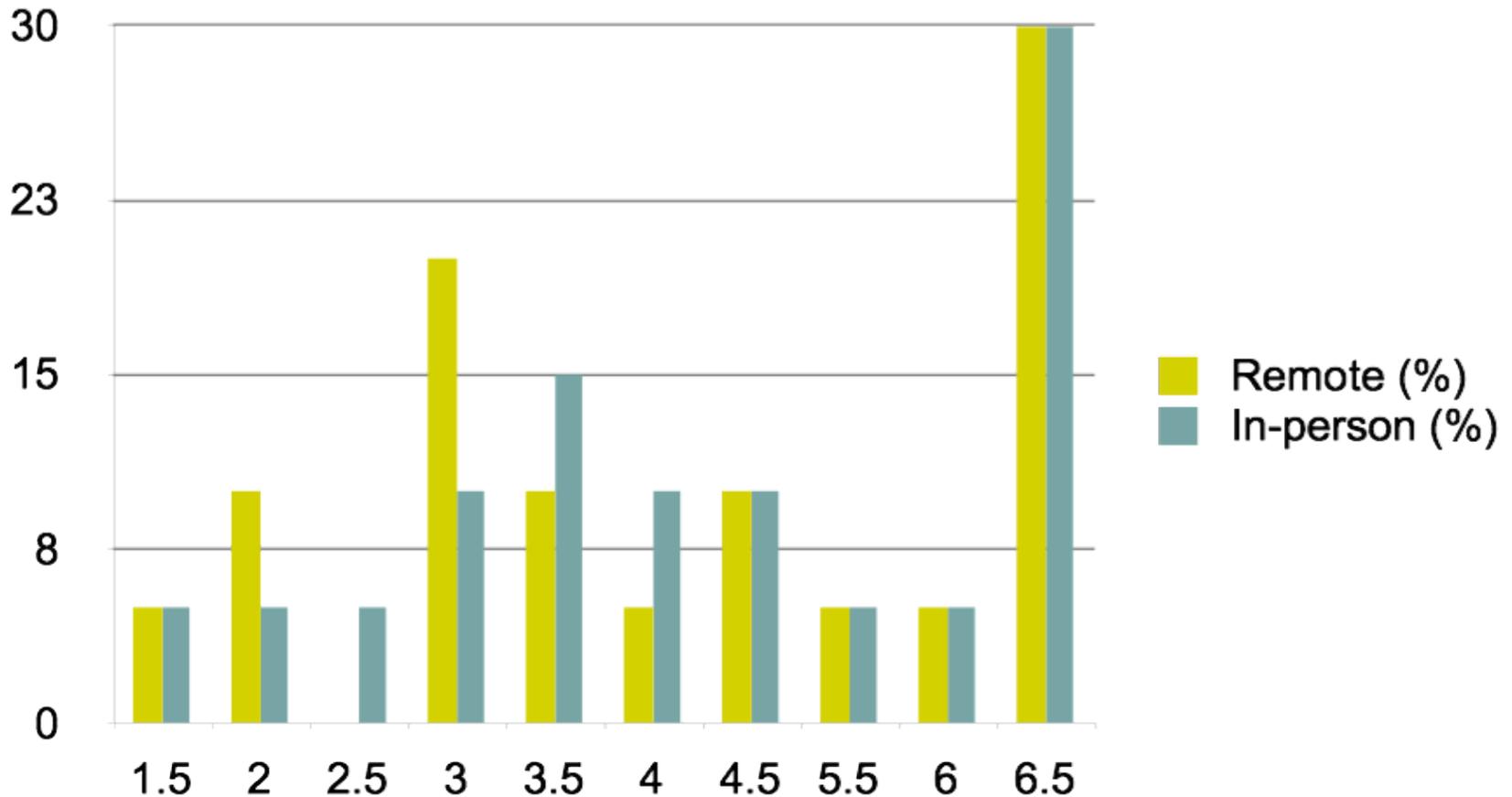
# MS HAT: Remote Neuro Exam

## Study Design

- A total of 20 patients with MS were recruited
- Trained study asst. played role of patient's caregiver
- Two MS clinicians examined each patient at the clinic using the Kurtzke Expanded Disability Scale (EDSS).
- On a single visit, each patient underwent two identical sets of neurological assessment:
  - Traditional in-person evaluation
  - Remote assessment using portable webcams

# MS HAT: Remote Neuro Exam

Kurtzke Expanded Disability Scale Scores (EDSS)



# MS HAT: Remote Neuro Exam

## Telemedicine Satisfaction Survey

- Overall, the remote assessment system received positive ratings from both patients and providers.
  - 100% - Patients felt comfortable with the equipment used.
  - 85% - Patients were satisfied with the telemedicine parts of this examination.
  - 90% - Providers were able to obtain adequate information interviewing the patients via video chat.
  - 95% - Providers felt confident in the final assessment.

*Finkelstein J, Wood J, Shan Y. Implementing physical telerehabilitation system for patients with multiple sclerosis. Proc. of the 4th International Conference on Biomedical Engineering and Informatics, BMEI-2011;2011:1883-1886.*

# Successful User Interface

- Large font
- Color markers
- One task per screen
- Prompts in each screen
- Adaptation to various disabilities
- Persistence and respect in training
- Clear statement of individual advantages
- Tailored content and functionality
- Multiple health communication channels
- Ability to increase user self-efficacy

my Diary

my Exercise

my Education

my Messages

# MS HAT: Home Unit

MULTIPLE SCLEROSIS HAT

UNITED STATES DEPARTMENT OF VETERANS AFFAIRS

MULTIPLE SCLEROSIS CENTER OF EXCELLENCE

Home

Logout

## 1. Loss of co-ordination or dexterity (37 questions left)

Yes

No

Back

Next



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- ⊞ Patient Management**
  - [Patient Summary](#)
  - [Alert History](#)
  - [Disease Profile](#)
  - [Current Exercises](#)
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  - [Patient Summary](#)
  - [Disease Profile](#)
  - [Edit Current Exercises](#)
  - [Survey Setup](#)
  - [Side Effect Settings](#)
  - [Alert Parameters](#)

Survey	Period	Interval	Days	Start Date	Due Date	Remove
Modified Fatigue Impact Scale	Day		Tue,Thu	11/29/2012	12/04/2012	<input type="checkbox"/>
Modified Fatigue Impact Scale - 5 Item Version	Week	1	Tue,Thu	11/29/2012	12/06/2012	<input type="checkbox"/>
MOS Modified Social Support Survey	Day		Mon,Tue,Wed,Thu,Fri	09/11/2012	12/03/2012	<input type="checkbox"/>
MOS Modified Social Support Survey - 5 Item Version	Week	1	Wed,Sat	08/29/2012	12/08/2012	<input type="checkbox"/>

HAT Clin

Survey	Period	Interval	Days	Add
Alternative Therapies	Year		<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	<input type="checkbox"/>
Bladder Control Scale	Day		<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	<input type="checkbox"/>
Bowel Control Scale	Day		<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	<input type="checkbox"/>
Clinical Data Surveillance Tool	Day		<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	<input type="checkbox"/>
Demographics	Day		<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	<input type="checkbox"/>

# MS HAT: Clinician Unit

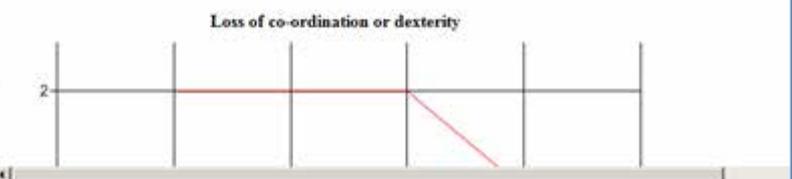


- [Current Alerts](#)
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  - [Side Effect Settings](#)
  - [Alert Parameters](#)

35. On the basis of how your MS has been, how would you describe today?	An okay day
36. How would you describe your health today?	Very poor
37. Compared to yesterday, how would you describe your health today?	Same
38. Anything else that happened today that you want to tell us about?	

Diary  
Question **1. Loss of co-ordination or dexterity**  
List:  
Start Date: 11/01/2012 End Date: 01/08/2013

Selection	Score
Yes	1
No	2



Type in your message to your care team

(250 characters remaining)

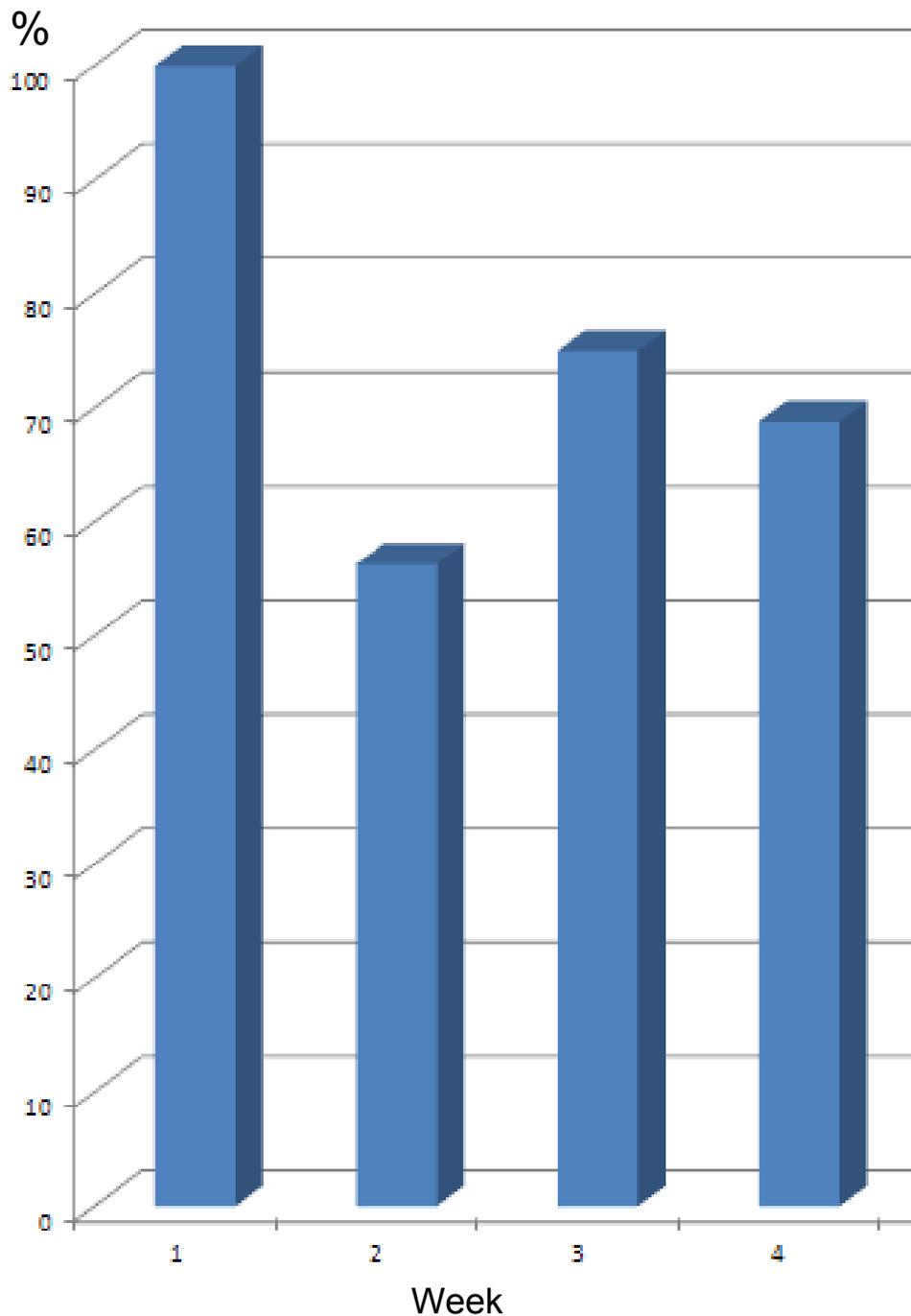
Messages Sent to Provider		Messages Rcv'd from Provider	
Sent Dt	Message	Rcv'd Dt	Message
01/08/2013	test message with symbols ()*&\$\$%^	01/08/2013	test message with symbols */-*/#^\$(
01/08/2013	test message	01/08/2013	test message

# Attitudinal Survey (N=40)

Attitudinal Survey	%
How complicated was it to use the self-testing procedures Not Complicated at all/ Slightly Complicated	92.5
Did you have any difficulty in moving from one screen to another Not at all/ Very Rarely	87.5
How difficult was it to use the keypad Not difficult at all/ Slightly difficult	75.0
Did you have any difficulties in reading text from the <u>telecare</u> device Not at all/ Very Rarely	92.5
Was the size of the text presented on the screen sufficient Fully sufficient/ Sufficient most of the time	75.0
Did you like the colors used on the screen Certainly yes/ To a large extent	67.5
Did you like the audiovisual content provided by the <u>telecare</u> device Certainly yes/ To a large extent	70.0
Did you come across any unknown words which were not explained by the <u>telecare</u> device None/ A few	97.5
How difficult was working with the computer Not difficult at all/ Slightly difficult	100
How difficult was answering the symptom diary and medication side effect questions Not difficult at all/ Slightly difficult	92.5
Did you get all the necessary information about self-testing during the first introductory meeting All information/ Almost all information	92.5
How much of your time did the self-testing take Very little/ little	90.0

# Attitudinal Survey (N=40)

Attitudinal Survey	%
Would the self-testing interfere with your usual activities No/ Very Little	82.5
What is the maximum frequency of self-testing you think you can tolerate Four times a week/ Three times a week	57.5
Would you feel safer while monitored by the system Significantly safer/ Moderately safer	50.0
How important for you is it to know that the results of your self-testing can be reviewed in the medical center immediately after the test Extremely important/ Very important	87.5
How often will you review the test results Once a week. Once a month	85.0
Would you like to use this self-testing program in the future Certainly yes/ Maybe	95.0
Would you like to receive personalized education via this device Certainly yes/ Maybe	92.5
Would you like to communicate with your doctor via this device Certainly yes/ Maybe	97.5
Would you like to use this <u>telecare</u> device in the future Certainly yes/ Maybe	97.5
Would you advise other patients to use this <u>telecare</u> device Certainly yes/ Maybe	97.5
Overall how would you grade this <u>telecare</u> device Excellent/ Good	80.0



# Adherence to Self-Testing Regimen (N=20)

*Finkelstein J, Cha E, Wood J, Wallin MT. Predictors of Successful Acceptance of Home Telemanagement in Veterans with Multiple Sclerosis, 2013, in press*

# Predictors of Successful Acceptance

Attitudinal survey score	Parameter estimates	T value	P value
<b>How long have you had MS?</b> <i>(years)</i>	-0.9	-2.9	0.02*
<b>Age</b>	0.2	0.5	0.6
<b>Computer use at home</b> <i>Never/Once a month or less/Once a week (0)</i> <i>Once a day (1)</i>	-20.1	-3.5	0.007*
<b>English proficiency</b> <i>Excellent (1)</i> <i>Good/Poor/None (0)</i>	16.3	4.0	0.003*
<b>Education (years)</b>	-0.7	-0.9	0.4
<b>Race</b> <i>White (0)</i> <i>African American (1)</i>	-5.1	-0.9	0.4

# Patient Feedback about MS HAT

- “Using the computer was easier than using the remote control.”
- “I liked the whole concept of self-testing.”
- “My symptom may disappear by the time I meet my doctor. MS patients have memory problem, too. If I don’t record it, I will forget to tell my doctor. It keeps you mindful and aware of your condition.”
- “I thought it would give a better sense how patients are feeling on daily basis.”
- “It is very important to me that my doctors can review my results from the diary. I would only review them occasionally.”

# Patient Feedback about MS HAT

- “I could go through the diary as many times as needed, but I would prefer to go through it three times a week at the most.”
- “I also want to document side effects from medication. I may get flu-like symptoms from medication.”
- “Education was good. It’s a good part of the program. It helps to reinforce the knowledge.”
- “I like how there was a question after each message and the quiz is a good way to help with memory, and get you to remember the information that you read.”

# Patient Feedback about MS HAT

- “The webcam would be good for me to talk with my doctor if I have any problems. The doctor would be able to see what is wrong and I would not have to try to remember any problems that I had in between doctor visits.”
- “I can access it anytime according to my schedule and it makes me more confident to report how I feel.”
- “I think computer is the best way to digitize the symptoms and see the trend. It has a positive impact on the ability to manage the disease.”
- “I feel more confident with managing MS while being monitored via computer. It was very convenient that I can do it at home, no driving involved.”

# Home Automated Telemedicine (HAT): Comprehensive Support for MS Care MSCoE & JHU Collaboration

- Evaluation & tracking of individualized treatment plans
- Secure messaging services to exchange information with health care provider
- Medication monitoring & adherence enhancement
- Physical and Occupational Therapy with evaluation of efficacy and safety
- Neurologic symptom monitoring
- MS Disease modifying therapy (initiation, monitoring & support)
- Integration & data transfers with national CPRS
- Social support (virtual patient groups, message boards)
- Home televisits
- Telecognitive assessments and cognitive rehabilitation

# MS Therapy Adherence Trial Utilizing HAT

- Randomized study to improve adherence to MS therapy for up to 1 year
- Quarterly follow-up visits in the home
- Sponsors: Biogen-Idec, Inc & MSCoE
- Study candidates:
  - Diagnosis of MS
  - Taking interferon-beta 1a weekly & Vitamin D supplement
  - 18-65 years

# MS Physical Telerehabilitation Trial

- Randomized study of MS HAT vs. optimal with a primary aim to improve walking speed and balance in patients with MS
- 6 month trial with follow-up visits at 3 and 6 months (DC/Baltimore region)
- Sponsors: VA Merit Review & MSCoE
- Study candidates:
  - Diagnosis of MS
  - Able to walk with or without gait aids
  - 18-65 years

# Conclusions:

## Telehealth & MS Care

- Telehealth can improve access and integration of care for patients with MS
- MS HAT can be an efficient platform for the management of MS patients when and where they need it:
  - Telerehabilitation and MS RCT (VA Merit Review)
  - MS Therapy Adherence Study (Biogen-Idec)
  - Home telecognitive assessment Pilot (Vista Partners)
- Telehealth tools must be tested in the clinical setting to evaluate their value for patients & providers

# MS HAT Collaborative Team

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