

***HIV ASSOCIATED NEUROCOGNITIVE DISORDERS  
HAND***

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# THE PRESENTATION:

- What is HAND
- How it affects people
- The Past
- The Present
- What we can do about it
- An Interesting Paper

# TERMINOLOGY

**Table 1. Terminology.**

HAND	HIV-associated neurocognitive disorders	Umbrella definition comprising ANI, MND and HAD.
ANI	Asymptomatic neurocognitive impairment	Cognitive impairment (at least 1 standard deviation below the mean), involving at least two cognitive domains. The cognitive impairment does not interfere with everyday functioning.
MND	Mild neurocognitive disorder	Cognitive impairment (at least 1 standard deviation below the mean), involving at least two cognitive domains. The cognitive impairment produces at least mild interference in daily functioning.
HAD	HIV-associated dementia	Marked cognitive impairment (at least 2 standard deviation below the mean), involving at least two cognitive domains. The cognitive impairment produces marked interference with day-to-day functioning.
ADC	AIDS dementia complex	Former term of HAD.
MCMD	Minor cognitive motor disorder	Former term of ANI and MND combined.

# TERMINOLOGY

- **Cognitive:**

**“The set of all mental abilities and processes related to knowledge, attention, memory and working memory, judgment and evaluation, reasoning and attention”**

**Very important for most of what we do**

# HIV & COGNITIVE IMPAIRMENT

## **Cognitive complaints are common in HIV**

- Acute delirium secondary to a legion of metabolic and infectious complications
- HIV-associated neurocognitive disorders – directly related to the presence of the virus in the CNS (HAND)
- Other chronic cognitive impairments not directly related to HIV (alcohol &/or other drugs, Hep C, vascular)
- Cognitive symptoms associated psychiatric illness

# HIV RELATED RISK FACTORS FOR NEUROCOGNITIVE DISORDERS

- Before HAART
- Cognitive impairment associated with HIV recognised from early in epidemic
  - Usually with advanced disease
  - Often a prelude to death
  - Both “AIDS Dementia Complex” and milder forms of cognitive impairment were described

# IMAGES AND MEMORIES OF LATE 80S

- Designated HIV wards - Full
- Beds frequently blocked – nowhere to go
- Many lonely and isolated people
- Emaciated young people with blank empty staring faces
- Sitting in geriatric chairs staring at food not knowing how to get food from the plate to their mouths

# MAIN FEARS REGARDING HIV- 1992

- **Living with uncertainty**
- **Disfigurement & pain in the course of illness**
- **The loss of friends, lovers & family**
- **Social stigma from disclosure of relationships, sexual orientation or HIV risk associated behaviour**
- **Neurological Impairment & the loss of the ability to make decisions for oneself**



# MAIN FEARS REGARDING HIV - 1992

- Life sustaining measures, such as mechanical ventilation & resuscitation
- Death & dying
- Making decisions about having children
- Unemployment & financial loss
- Loss of a sense of future
- **Lack of control & increasing dependence on others**

*Bor. R., Miller. R & Goldman. E. (1992)*

# HIV RELATED RISK FACTORS FOR NEUROCOGNITIVE DISORDERS

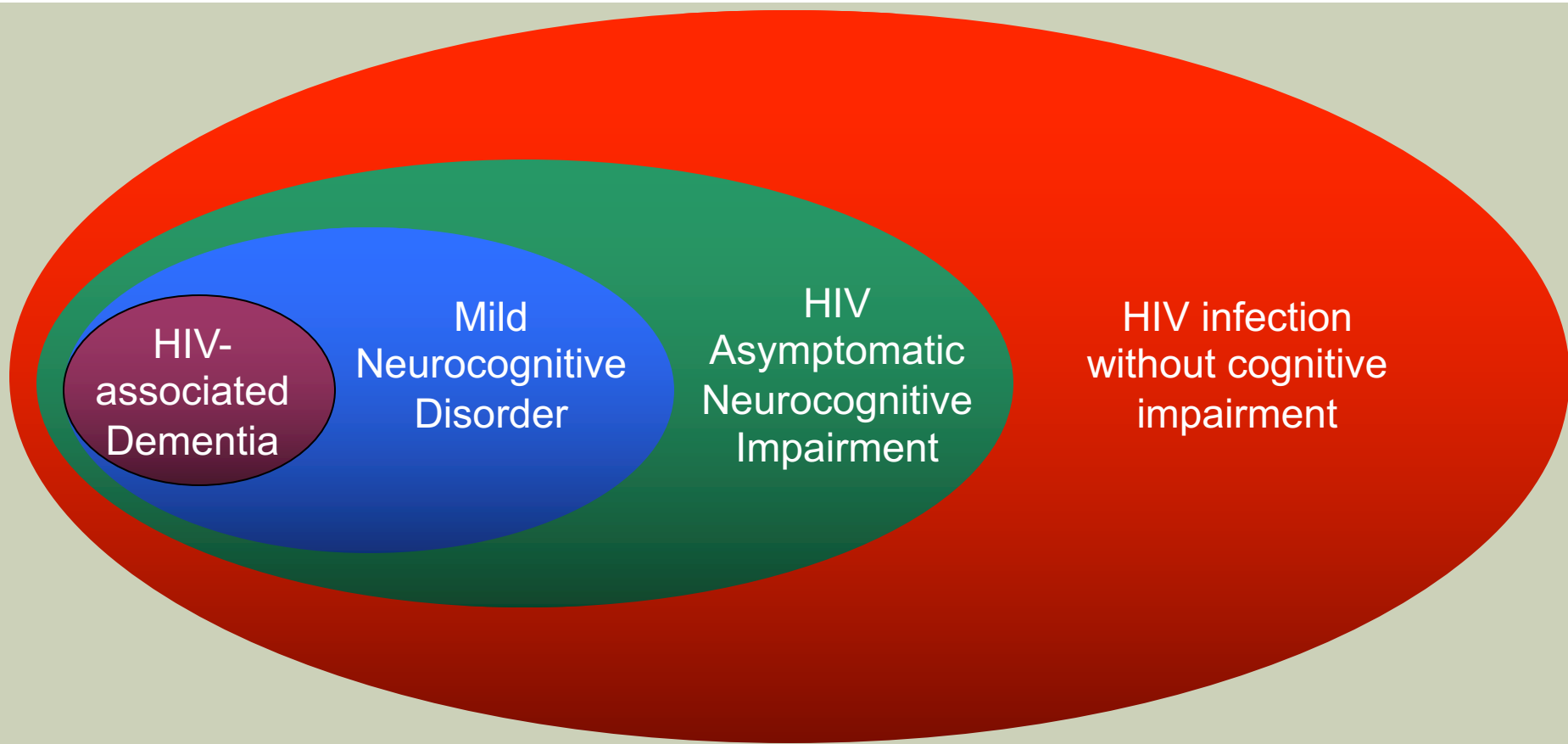
- **After HAART – people living longer**
  - Cognitive symptoms are seen but often milder
  - Factors - Length of HIV infection, older age at time of seroconversion, degree of immunodeficiency, lowest CD4 count
  - Need to optimise antiretroviral treatment, address & treat co-morbidities particularly substance use & depression
  - Ageing people with co-morbidities

# THE MEDS

Agent type	CNS penetration–effectiveness score			
	4 (very good)	3 (good)	2 (fair)	1 (poor)
NRTI	Zidovudine	Abacavir Emtricitabine	Didanosine Lamivudine Stavudine	Tenofovir Zalcitabine
NNRTI	Nevirapine	Delavirdine Efavirenz	Etravirine	
PI	Indinavir/r	Darunavir/r Fosamprenavir/r Indinavir Lopinavir/r	Atazanavir Atazanavir/r Fosamprenavir	Nelfinavir Ritonavir Saquinavir Saquinavir/r Tipranavir/r
Entry inhibitors		Maraviroc		Enfuvirtide
Integrase inhibitors		Raltegravir		

*NNRTI: Non-nucleoside reverse transcriptase inhibitor; NRTI: Nucleoside reverse transcriptase inhibitor; PI: Protease inhibitor.  
Data taken from [91].*

# NEUROPSYCHOLOGICAL IMPAIRMENT IN THE ERA OF HAART (2007)



# HAND: SYNOPSIS

- **Clinical Cognitive impairment**

Forgetfulness, loss of concentration, confusion and slowing of thought

- **Motor symptoms**

Loss of balance, clumsiness, change in handwriting, tremor, unsteady gait

- **Behavioural changes**

Apathy, social withdrawal, loss of interest in hobbies, world events and their own well-being

- **Some patients present with mania**

Tross et al, AIDS.1988. Mijch et al. J Neuropsychiatry Clin Neurosci. 1999

# COGNITIVE IMPAIRMENT THE ISSUES

- Still one of the most feared complications of HIV infection
- People may not volunteer symptoms due to denial, lack of awareness or insight
- Symptoms may go unreported as people and family attribute changes to stress, normal ageing, depression
- May affect adherence to treatment and result in increased morbidity for systemic disease

# MONTREAL COGNITIVE ASSESSMENT (MOCA)

**“The MoCA is a quick and quantitative tool that can be used to screen for neurocognitive impairment in HIV-positive patients with high sensitivity. Patients with HIV and a MoCA score <26 should undergo further neuropsychological testing to assess cognitive impairment”**

**Screening for Neurocognitive Impairment in HIV Individuals: The Utility of the Montreal Cognitive Assessment Test**

**Hasbun et al**

**J AIDS Clin Res 2102 Dec; 3(10):186**

# MONTREAL COGNITIVE ASSESSMENT (MOCA)

Rapid screening instrument to detect mild cognitive impairment

Assesses:

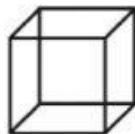
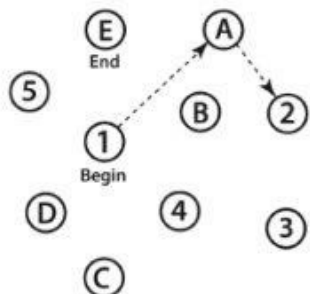
1. Executive function
2. Immediate recall
3. Fluency
4. Orientation
5. Calculation
6. Abstraction
7. Delayed recall
8. Visuoperception
9. Naming
10. Attention



**MONTREAL COGNITIVE ASSESSMENT (MOCA)**  
Version 7.1 Original Version

NAME: \_\_\_\_\_  
Education: \_\_\_\_\_ Date of birth: \_\_\_\_\_  
Sex: \_\_\_\_\_ DATE: \_\_\_\_\_

**VISUOSPATIAL / EXECUTIVE**



Copy  
cube

Draw CLOCK (Ten past eleven)  
(3 points)

POINTS

[ ]

[ ]

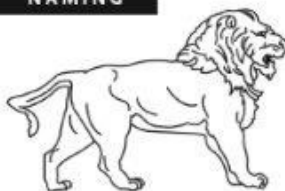
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Contour

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Numbers

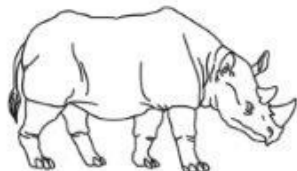
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Hands

\_\_\_/5

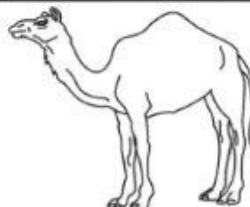
**NAMING**



[ ]



[ ]



[ ]

\_\_\_/3

**MEMORY**

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No  
points

**ATTENTION**

Read list of digits (1 digit/ sec.).

Subject has to repeat them in the forward order

[ ] 2 1 8 5 4

Subject has to repeat them in the backward order

[ ] 7 4 2

\_\_\_/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

\_\_\_/1

Serial 7 subtraction starting at 100

[ ] 93

[ ] 86

[ ] 79

[ ] 72

[ ] 65

4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

\_\_\_/3

**LANGUAGE**

Repeat : I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ]

\_\_\_/2

Fluency / Name maximum number of words in one minute that begin with the letter F

[ ] \_\_\_\_\_ (N ≥ 11 words)

\_\_\_/1

**ABSTRACTION**

Similarity between e.g. banana - orange = fruit

[ ] train - bicycle

[ ] watch - ruler

\_\_\_/2

**DELAYED RECALL**

Has to recall words  
WITH NO CUE

FACE  
[ ]

VELVET  
[ ]

CHURCH  
[ ]

DAISY  
[ ]

RED  
[ ]

Points for  
UNCUED  
recall only

\_\_\_/5

**Optional**

Category cue

Multiple choice cue

**ORIENTATION**

[ ] Date

[ ] Month

[ ] Year

[ ] Day

[ ] Place

[ ] City

\_\_\_/6

# MONTREAL COGNITIVE ASSESSMENT (MOCA-B)

## BASIC

Name \_\_\_\_\_  
 Sex \_\_\_\_\_ Age \_\_\_\_\_  
 Education \_\_\_\_\_ Date of exam \_\_\_\_\_  
 Administered by \_\_\_\_\_

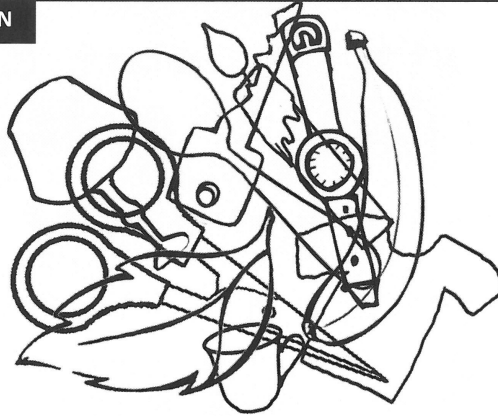
EXECUTIVE FUNCTION						SCORE	
						START TIME	
						( /1)	
IMMEDIATE RECALL						No point	
Perform 2 trials even if 1 <sup>st</sup> trial is successful		ROSE	CHAIR	HAND	BLUE		SPOON
1 <sup>st</sup> trial							
2 <sup>nd</sup> trial							
FLUENCY	Name maximum numbers of FRUITS in 1 minute					( /2)	
1.....		2.....	3.....	4.....	5.....	6.....	N items 2 points if N=13 or more 1 point if N=8-12 0 point if N=7 or less
7.....		8.....	9.....	10.....	11.....	12.....	
13.....		14.....	15.....	16.....	17.....	18.....	
ORIENTATION	[ ] time (± 2 hr) [ ] day [ ] month [ ] year [ ] place [ ] city					( /6)	
CALCULATION	Provide 3 ways to pay using 1 dollar coins, 5 dollar and 10 dollar bills for an object that costs exactly "13 Dollars" (3 points if 3 ways, 2 points if 2 ways, 1 point if 1 way, 0 point if no correct way)					( /3)	
[ ] 1..... [ ] 2..... [ ] 3.....							
ABSTRACTION	To what category these objects belong to? (e.g. orange - banana = fruit)					( /3)	
[ ] train - boat [ ] north - south [ ] drum - flute							
DELAYED RECALL						( /5)	
Points are awarded for recall with No cue (1 point for each item)	Recall with No cue	ROSE	CHAIR	HAND	BLUE		SPOON
		[ ]	[ ]	[ ]	[ ]		[ ]
	Recall with category cue	[ ]	[ ]	[ ]	[ ]		[ ]
	Recall with multiple choice cue	[ ]	[ ]	[ ]	[ ]	[ ]	
VISUOPERCEPTION	Identify drawings. No more than 60 seconds. See complementary sheet.					( /3)	
		scissors	T-shirt	banana	lamp	candle	3 points if N=9-10 2 points if N=6-8 1 point if N=4-5 0 point if N=0-3 N —
		watch	cup	leaf	key	spoon	
NAMING	Identify animals. See complementary sheet. [ ] zebra [ ] peacock [ ] tiger [ ] butterfly					( /4)	
ATTENTION	Name the numbers in circles. See complementary sheet. 1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5					( /1)	
ERROR ___ N No point if 2 errors or more							
ATTENTION	Name the numbers in circles & squares. See complementary sheet. 3 8 5 1 3 0 2 9 2 0 4 9 7 8 6 1 5 7 6 4					( /2)	
ERROR ___ N 2 points if 2 errors or less 1 point if 3 errors 0 point if 4 errors or more							
1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5							
<b>TOTAL SCORE ( /30)</b> Add 1 point if education < 4 year AND add 1 point if illiterate TOTAL TIME min sec							

MONTREAL COGNITIVE ASSESSMENT (MOCA-B)

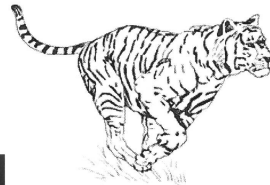
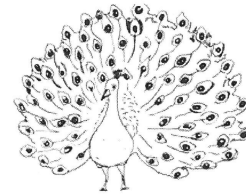
BASIC

COMPLEMENTARY WORKSHEET

VISUOPERCEPTION



NAMING



ATTENTION

① 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5

3 8 5 1 3 0 2 9 2 0 4 9 7 8 6 1 5 7 6 4

1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5

**The AD8: The Washington University Dementia Screening Test**  
*("Eight-item Interview to Differentiate Aging and Dementia")*

**Administration**

The questions are given to the respondent on a clipboard for self-administration or can be read aloud to the respondent either in person or over the phone. It is preferable to administer the AD8 to an informant, if available. If an informant is not available, the AD8 may be administered to the patient.

When administered to an informant, specifically ask the respondent to rate change in the patient.

When administered to the patient, specifically ask the patient to rate changes in his/her ability for each of the items, *without* attributing causality.

If read aloud to the respondent, it is important for the clinician to carefully read the phrase as worded and give emphasis to note changes due to cognitive problems (not physical problems).

There should be a one second delay between individual items.

No timeframe for change is required.

**Scoring**

The final score is a sum of the number items marked "Yes, A change".

**Interpretation of Results**

0-1: Normal cognition:

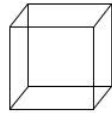
2 or greater: Impairment in cognition

Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	<b>YES, A change</b>	<b>NO, No change</b>	<b>N/A, Don't know</b>
<b>1.</b> Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)			
<b>2.</b> Less interest in hobbies/activities			
<b>3.</b> Repeats the same things over and over (questions, stories, or statements)			
<b>4.</b> Trouble learning how to use a tool, appliance, or gadget (e.g., computer, microwave, remote control)			
<b>5.</b> Forgets correct month or year			
<b>6.</b> Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)			
<b>7.</b> Trouble remembering appointments			
<b>8.</b> Daily problems with thinking and/or memory			
<b>TOTAL AD8 SCORE</b>			

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### HIV Dementia Scale

Max Score	Score	Memory-Registration
4	( )	Give four words to recall (dog, hat, green, peach) - 1 second to say each. Then ask the patient all 4 after you have said them.)
6	( )	<b>Attention</b> <sup>1</sup> Anti-saccadic eye movements: 20 (twenty) commands. ____ errors of 20 trials. less than or equal to 3 errors = 4; 4 errors = 3; 5 errors = 2; 6 errors = 1; > 6 errors = 0)
4	( )	<b>Psychomotor Speed</b> Ask patient to write the alphabet in upper case letters horizontally across the page (use back of this form) and record time: ____ seconds. less than or equal to 21 sec = 6; 21.1 - 24 sec = 5; 24.1 - 27 sec = 4; 27.1 - 30 sec = 3; 30.1 - 33 sec = 2; 33.1 - 36 sec = 1; > 36 sec = 0)
2	( )	<b>Memory - Recall</b> Ask for 4 words from Registration above. Give 1 point for each correct. For words not recalled, prompt with a "semantic" clue, as follows: animal (dog); piece of clothing (hat), color (green), fruit (peach). Give 1/2 point for each correct after prompting.
2	( )	<b>Construction</b> Copy the cube below, record time: ____ seconds. (< 25 sec = 2; 25 - 35 sec = 1; > 35 sec = 0)



Total Score: \_\_\_\_/16

<sup>1</sup>**Attention:** Hold both hands up at patient's shoulder width and eye height, and ask patient to look at your nose. Move the index finger of one hand, and instruct patient to look at the finger that moves, then look back to your nose. Practice until patient is familiar with task. Then, instruct patient to look at the finger which is NOT moving. Practice until patient understands task. Perform 20 trials. An error is recorded when the patient looks towards the finger that is moving.

Department of Neurology  
Johns Hopkins University

# INTERESTING RESEARCH ARTICLE

**“My body’s a 50 year-old but my brain is definitely an 85 year-old”: exploring the experiences of men ageing with HIV-associated neurocognitive challenges**

Hopcroft L et al. Journal of the International AIDS Society  
2013,16:18506

# PURPOSE

To explore the experiences of men aged 50 & older who self identify as having HIV-associated neurocognitive challenges.

Episodic Disability Framework used to explore participants perceptions regarding:

- 1) Symptoms / impairments, difficulties with day to day activities, challenges with social inclusion & uncertainty
- 2) Ageing as related to their HIV-associated neurocognitive challenges
- 3) The episodic nature of the challenges

# RESULTS

- **Impairments related to body part or function**
- **Challenges with attention & /or short term memory. Problems with multi-tasking, decision making, learning new facts or tasks, problem solving & word finding**
- **Fatigue, lack of energy**
- **Feelings of irritability, apathy, indifference, depression, decreased confidence & challenges with fine motor tasks**



# RESULTS

- **Difficulties with day-to-day activities** ranging from hygiene to banking. Problems completing tasks & taking longer
- **Challenges to social inclusion:**
- **Engagement in social roles, Employment**
- **Relationships within the community – stigma related to HIV status & neurocognitive challenges**
- **Personal relationships – “pruning” their circle of friends**

# RESULTS

- **Uncertainty about the future – Same as 1992**
- **Ageing**
- **Episodic nature of impairments – triggers for fluctuation: Depression, Anxiety, feeling overwhelmed**

## WHAT WE CAN DO ABOUT HAND

**HAND - A toolkit for community care workers –  
Alzheimer's Australia - July 2014**

- **Information to increase knowledge & understanding of the cognitive issues of HIV and their impact on self-care.**
- **Helps workers to identify & address these issues to support better health outcomes for people with HIV & HAND**

# SUPPORTING SOMEONE WHO IS LIVING WITH HIV & HAND

- **Person-centred care**
- **Education – sharing information to support person to understand their condition & treatment**
- **Communication – Talking about HAND**
- **Emotional Support**
  - Stigma, prejudice & discrimination
  - Supporting the person with HAND
  - Supporting partner, family & friend carers
- **Practical Support**
  - Supporting use of medicines
  - Supporting healthy lifestyle choices

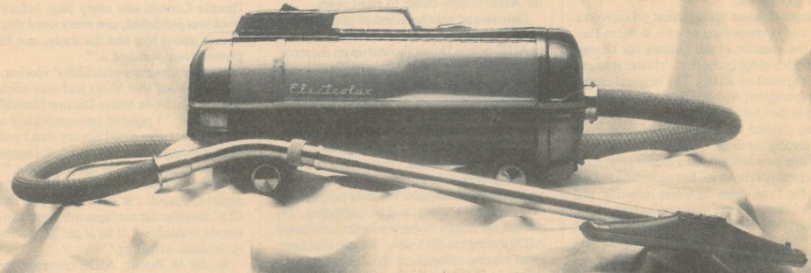
# WHAT WE CAN DO NOW- COLLABORATIVE APPROACH

Establish a Working group to trial Assessment Scales, promote the Tool Kit, Develop Care Pathway

Who to Involve:

- People living with HIV
- Accommodation and Housing – BIG ISSUE!!
- Hospital and Community HIV teams
- Mental Health Services: CMHCs, MHSOP, OTs, CSWs
- Neuropsychology – Dr Duncan Frazer
- Body Positive – (volunteers)
- Positive Women
- AIDS Foundation

In the right hands,  
this can help someone with AIDS.



Volunteer for Shanti Project 777-CARE

The next Practical Support Training begins Friday, April 8th. The next Emotional Support Training begins Friday, April 29th.



Today,  
Sydney Dygert  
did something  
about AIDS:  
she made waffles  
with apples.

She made breakfast for Miguel, who has AIDS and can't do all the things he used to. So as a Shanti Project practical support volunteer, Sydney does the simple, everyday things that help him live with dignity and choice. Simple isn't it? Like cooking waffles. Or hugging a friend. Just volunteer for Shanti Project.



SHANTI  
PROJECT

*The next Practical Support Training begins June 17th.  
The next Emotional Support Training begins July 22nd.*

**Call 777-CARE. It's so simple. And so important.**

# Wednesday, Joe Tate did something about AIDS: he bought 2 heads of broccoli.

He was grocery shopping for Lucinda, a mother with AIDS who didn't have the strength to lug home groceries that day. As a practical support volunteer for Shanti Project, Joe does simple, everyday things like errands or laundry to help people with AIDS live with dignity and choice. Find out how simple it is to do something about AIDS. Volunteer for Shanti Project.



*The next Practical Support Training begins June 17th.*

*The next Emotional Support Training begins July 22nd.*

**Call 777-CARE. It's so simple. And so important.**



# THANKS & APPRECIATION

- Carol Fernandez – Admin Support – Taylor Centre
- Denise Cummins – Clinical Nurse Consultant, Redfern, Sydney

Thank you for listening!

Please contact me if you are interested in the HAND Working Group

E-mail: [philipn@adhb.govt.nz](mailto:philipn@adhb.govt.nz)