

# **Assessing and improving HIV medication Readiness, Depression, HIV Treatment knowledge, and HIV treatment adherence**

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# NEW HIV medications (HAART) –new reality

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- 40 million people in world living with HIV
- HIV = Chronic illness with lifelong drugs

# HIV meds: Before and After

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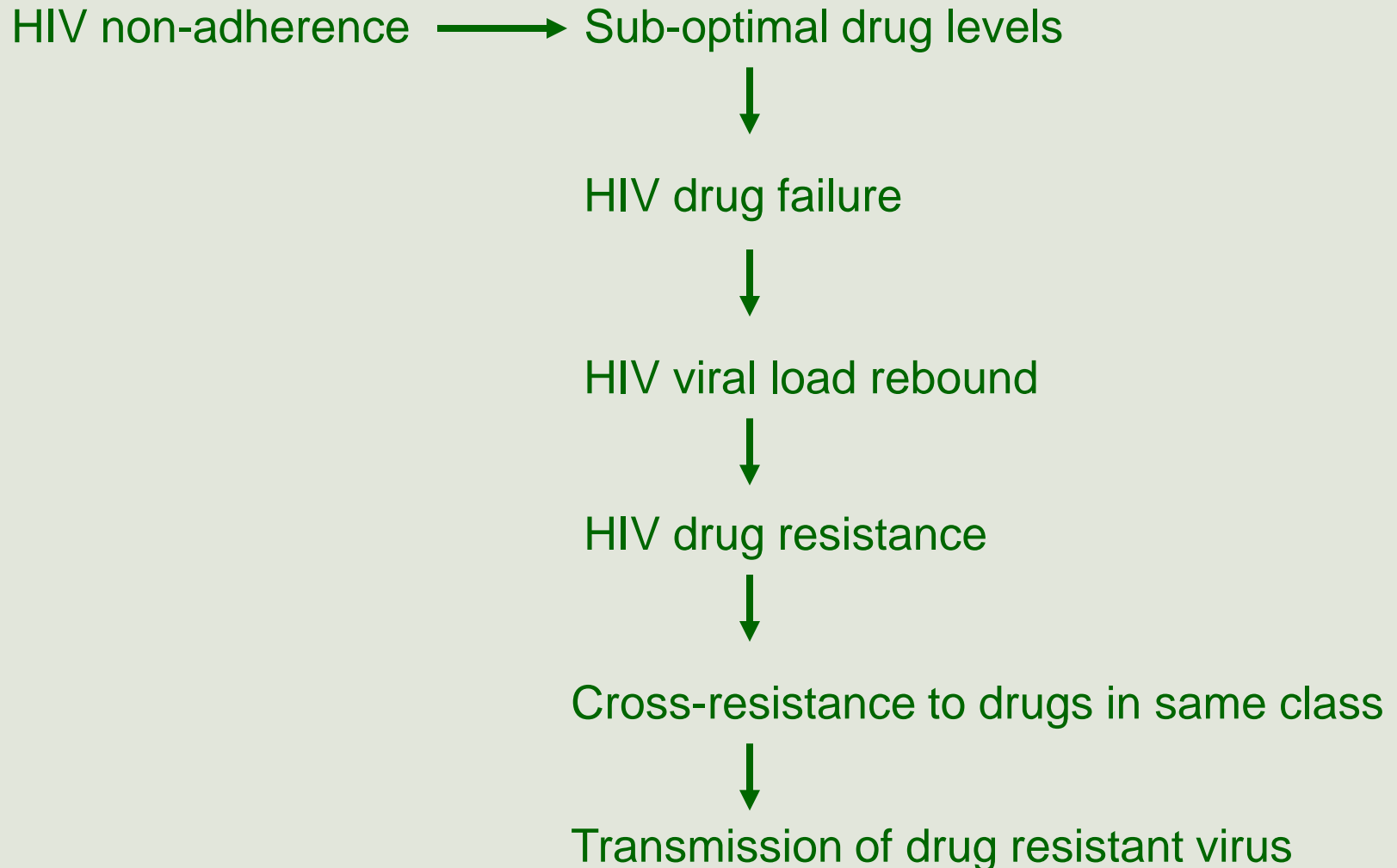


# Importance of Adherence to HAART

- Expected levels of adherence for most chronic illnesses (e.g., hypertension, diabetes) is 50-80%
- For HIV medications, the goal of adherence is **90-95 %**
- **There is also a potential “high cost” to sub-optimal adherence to HIV medications**

# Importance of HIV Adherence

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# When to Start HIV Medications ?

- HIV treatment guidelines suggest starting HIV medications based on *medical markers*:
  - CD4 count (e.g. < than 350)
  - High HIV viral load
  - Opportunistic infections (e.g. PCP)

# Ready to Start HIV Medications ? A Good to HAART **STAART**

- HIV treatment guidelines also state we need to carefully assess HIV patients' medication readiness *prior* to initiating HAART  
([www.hivguidelines.org](http://www.hivguidelines.org))
- However, HIV Treatment Guidelines **do not indicate *how*** to assess HIV medication readiness
- We developed and **validated a brief HIV Medication Readiness scale** (Balfour et al 2007)
  - HIV Readiness Scale predicts HIV VL being undetectable vs detectable at 6 months follow-up starting HAART

# Readiness for starting HIV meds

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*It is better to be  
prepared ...*

*Coping with the  
challenges of  
starting HIV  
treatments*



# Assessing HIV Patients' Readiness?

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## QUESTIONS to consider

How do you currently assess your HIV patients' medical and psychological readiness for starting HIV therapy?

What information do you feel is important to discuss with your HIV patients prior to starting HIV medications ?

AREAS to assess/discuss with HIV patient:

Medical factors including:

- (1) CD4 count, HIV viral load
- (2) Cardiovascular risk, smoking, lipid profile, family medical history
- (3) Experience with previous HIV treatments
  - previous adherence
  - HIV drug resistance profiles

# Patient Assessment Process

## HIV treatment factors:

Availability of different treatment options

- Effectiveness of HIV medications
- Dosing intervals (e.g once/day; twice/day)
- Side-effects of different HIV medications (e.g. depression, lipodystrophy, diarrhea)

## Psychological factors:

- Patients' perceptions/expectations/beliefs about medications (e.g. belief God cures HIV)
- Patient's' current lifestyle and life priorities (e.g. party)
- Patients' mood/stability (e.g. depression)
- Patients' HIV treatment knowledge (e.g. adherence)
- Patients' psychological readiness to take medication

## Patient Related Questions

### Assess “Psychological Readiness” to Begin New Treatment or Change Treatment: QUESTIONS

- “Is the HIV treatment regimen clear to you ?”
- “How might the treatment affect your lifestyle?”
- “Why are you planning on starting HIV Meds? (For whom? Pros/cons?)”
- “How confident are you that you can do this?”
  - Previous Ability to adhere and personal priority
- “HIV Readiness” Measure developed in Ottawa

# Development and Validation of the HIV Medication Readiness Scale

L. BALFOUR<sup>1,2,3</sup>, G. A. TASCA<sup>1,2,3,4</sup>, J. KOWAL<sup>1</sup>, K. CORACE<sup>1,3</sup>, C. L. COOPER<sup>2,3</sup>, J. ANGEL<sup>2,3</sup>, P. A. MACPHERSON<sup>2,3</sup>, & D. W. CAMERON<sup>2,3</sup>

<sup>1</sup>Ottawa Hospital – General Campus, <sup>2</sup>University of Ottawa, <sup>3</sup>Ottawa Health Research Institute, <sup>4</sup>Carleton University

*Excellent medication adherence (>95%) is required for optimal HIV treatment success. This study aimed to develop and validate a brief scale to assess psychological readiness for successfully starting and adhering to HIV medications. HIV-positive men and women (N = 142) from an HIV outpatient clinic completed the proposed HIV Medication Readiness Scale (HMRS) prior to starting HIV medications. The 10-item HMRS demonstrated high internal consistency (alpha = .90), test-retest reliability (r = .83), and sensitivity to change following a standardized 4-session psychoeducational intervention designed to increase readiness for successful adherence. Predictive validity was supported by higher readiness scores on the day starting HIV medications, predicting higher treatment adherence at 1-month follow-up. The HMRS is a brief, easy-to-use, clinically relevant tool that can assist in identifying people living with HIV at high risk of nonadherence, who might benefit from tailored readiness counseling prior to initiating HIV medications.*

# HIV Medication Readiness Scale A Good to HAART **STAART**

- Brief, 10-item self report scale
- Higher scores = higher levels of readiness
- Higher Readiness score → 6 month VL undetectable

## *How ready are you to:*

1. Deal with bringing your HIV pills to social activities (e.g., restaurant, friend's house).

(not at all ready) 0...1 ...2...3...4 (extremely ready)

2. Accept the idea of taking these HIV pills for a very long time (e.g. years).

(not at all ready) 0...1 ...2....3...4 (extremely ready)

3. Continue taking your HIV pills even if you experience unpleasant side-effects (e.g. diarrhea, body fat changes)

(not at all ready) 0...1 ...2...3...4 (extremely ready)

# HIV MEDICATION READINESS QUESTIONNAIRE

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**If you were to start taking HIV pills today,  
how ready would you be to:**

	Not at all Ready	Mildly Ready	Moderately Ready	Quite Ready	Extremely Ready
1. Make the necessary changes in your diet (i.e. eat at regular times, take pills with certain foods)	0	1	2	3	4
.....					
2. Accept the idea of taking these HIV pills for a long time (e.g., years)	0	1	2	3	4
.....					
3. Change your work, school or home schedule to help you take your HIV pills (e.g., take a lunch break)	0	1	2	3	4

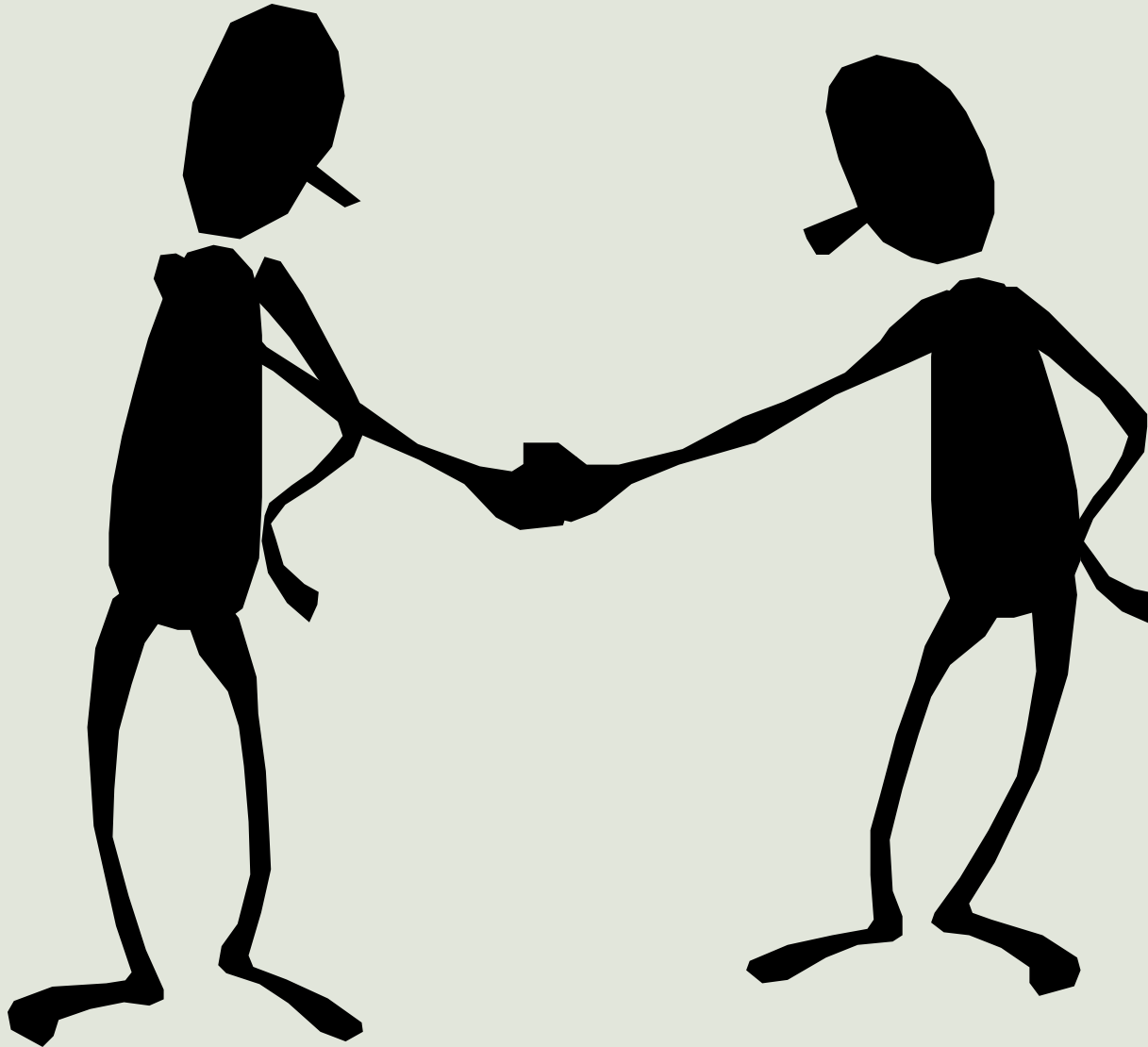


# CUESTIONARIO DE LA DISPOSICION A TOMAR MEDICAMENTOS PARA EL VIH

**Si usted tuviera que comenzar a tomar medicamentos para el VIH hoy mismo, ¿qué tan listo o dispuesto estaría usted a lo siguiente?**

	No estoy listo	Un poco listo	Moderadamente listo	Muy listo	Extremadamente listo
<b>1. Hacer los cambios necesarios en su dieta (Por ejemplo: comer en un horario regular o tomar pastillas con ciertos alimentos).</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
.....					
<b>2. Aceptar la idea de tener que tomar los medicamentos para el VIH por un largo período de tiempo (Por ejemplo por varios años).</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
.....					
<b>3. Cambiar el horario de trabajo, de la escuela o de la casa para poder cumplir con el horario del tratamiento del VIH (Por ejemplo, tomar las pastillas a una hora exacta y con alimentos) .</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>

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# Assessing level of HIV Patients' preparation for starting HIV Treatment

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Research studies indicate that knowledge is important for adherence

Poor HIV treatment Knowledge → poor HIV medication adherence

How do we assess HIV patients' HIV treatment knowledge ??

We did a literature review, and although there existed validated HIV general knowledge scale (i.e. assessing safe sex) there did not exist any validated HIV treatment knowledge scale (i.e. assessing factors such knowledge about HIV medications, adherence, drug resistance)

So, we developed and validated an HIV treatment knowledge scale and published this scale

## Development and psychometric validation of the HIV Treatment Knowledge Scale

L. BALFOUR<sup>1,2,3</sup>, J. KOWAL<sup>1</sup>, G. A. TASCA<sup>2,3,4</sup>, C. L. COOPER<sup>1,2,3</sup>, J. B. ANGEL<sup>1,2,3</sup>,  
P. A. MACPHERSON<sup>1,2,3</sup>, G. GARBER<sup>1,2,3</sup>, L. BÉÏQUE<sup>1,2,3</sup>, & D. W. CAMERON<sup>1,2,3</sup>

<sup>1</sup>*Division of Infectious Diseases, Ottawa Hospital-General Campus,* <sup>2</sup>*University of Ottawa,* <sup>3</sup>*Ottawa Health Research Institute,* and <sup>4</sup>*Carleton University, Ottawa, Ontario, Canada*

### Abstract

Accurate treatment knowledge is required for patients to successfully manage complex medical conditions. Existing HIV knowledge scales focus on disease transmission and risk factors. This is the first study to develop and validate a scale to measure HIV treatment knowledge about complex treatment issues such as adherence, side-effects and drug resistance. A total of 346 participants were recruited into this cross-sectional study. Participants included HIV-positive patients ( $n = 130$ ), HIV-hepatitis C co-infected patients ( $n = 22$ ), hepatitis C patients, ( $n = 78$ ), community healthcare providers ( $n = 35$ ) and college students ( $n = 81$ ). Participants completed the proposed HIV Treatment Knowledge Scale and a validated measure of general knowledge about HIV transmission and risk factors. Two-week test-retest data were collected. Results demonstrated that the HIV Treatment Knowledge Scale was significantly correlated with general HIV knowledge across all samples. Among HIV-positive patients, the HIV Treatment Knowledge Scale was positively associated with time since HIV diagnosis. HAART-experienced patients had significantly higher treatment knowledge than HAART-naïve patients. HIV-positive patients scored significantly higher than hepatitis C patients and college students on HIV treatment knowledge. Test-retest reliability ( $r = 0.83$ ) and internal consistency (reliability coefficient = 0.90) were both satisfactory. The HIV Treatment Knowledge Scale is a novel, easy-to-administer measure demonstrating high levels of validity and reliability. It has important applications as a clinical teaching tool with patients and healthcare workers and it could be used as an outcome indicator in HIV educational intervention studies.

# 2007 HIV TREATMENT KNOWLEDGE SCALE

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	<b>True</b>	<b>False</b>	<b>Don't Know</b>
1. Once the HIV viral load results are “undetectable”, HIV medications should be stopped.	X		
2. If HIV medications are not taken at the right time of day, HIV drug resistance can occur.	X		
3. HIV is cured when the HIV viral load blood test result is “undetectable.”		X	

# ESCALA DE CONOCIMIENTO SOBRE EL TRATAMIENTO DEL VIH 2007

	<b>Verdadero</b>	<b>Falso</b>	<b>No sé</b>
1. Tan pronto como los resultados de carga viral se vuelvan “indetectables”, uno debe parar de tomar los medicamentos para el VIH.			
2. Si los medicamentos para el VIH no se toman a la hora debida, esto puede resultar en la aparición de resistencia del VIH a los medicamentos.			
3. El VIH está curado cuando los resultados de carga viral del VIH son “indetectables.”			

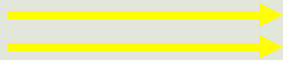
# HIV Treatment Knowledge Scale

Balfour et al. (2007)

Sample HIV treatment knowledge scale items	Guyana (HIV) % correct		Ottawa (HIV) % correct	
	Men (N=56)	Women (N=100)	Men (N=154)	Women (N=29)
1. If HIV medications are not taken at the right time of day, HIV drug resistance can occur. (T)	72%	64%	65%	65%
2. Treatments are available to reduce HIV medication side effects. (T)	55%	76%	53%	48%
3. If sexual partners are both HIV+, condoms are no longer needed. (F)	83%	77%	90%	79%

# Assessing Readiness for Starting HIV medications - Depression

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Depressed Mood  Non-Adherence

- Symptoms of depression include ...

(Sadness and Hopelessness, poor concentration and poor memory, low energy/motivation, sleep problems)

Depression is the most consistent predictor of poor adherence across medical conditions

Depression worsens HAART adherence and treating depression improves adherence

Horberg et al 2008, JAIDS, 47(3), 384-390



# HIV and Depression



- 40%-60% of people living with HIV experience periods of depression

# HIV and Depression ?

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- HIV Stigma, double stigma
- Assess HIV stigma with stigma scale
- Disclosure, rejection, isolation
- Identity, shame, future?, work?

# Assessing Depression

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It is also important to assess for depression

# CES-D Depression Scale (Radloff, 1977)

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## CES-D Mood Scale

(Center for Epidemiologic Studies Depression Scale)

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

Below is a list of some of the ways you may have felt or behaved.  
Please indicate how often you have felt this way during the past week:  
(circle one number on each line)

During the past week...	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not "get going"	0	1	2	3

Thank you for completing this questionnaire.

# MOOD SCALE (CES-D)

	<b>Rarely or none of the time (&lt;1 day)</b>	<b>Some or a little of the time (1-2 days)</b>	<b>Occasionally or a moderate amount of time (3-4 days)</b>	<b>Most or all of the time (5-7 days)</b>
<b>1. I was bothered by things that usually don't bother me.</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
.....				
<b>2. I did not feel like eating: My appetite was poor.</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
.....				
<b>3. I felt that I could not shake off the blues even with help from my family or friends.</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>

# ESCALA DEL ESTADO DE ÁNIMO (CES-D)

	Núnca o casi nunca	A veces	Con Frecuencia	Siempre o casi siempre
1. Me molestan cosas que normalmente no me molestan.	0	1	2	3
.....				
2. No tenía ganas de comer, casi no tenía hambre.	0	1	2	3
.....				
3. Ni siquiera la ayuda de mis amigos y de mi familia han conseguido que no estuviera triste.	0	1	2	3

# Assessing Depression



Clinical cut-off score of  $>16$  on the CES-D scale indicates a screening for moderate levels of depression

# Pre HIV Treatment Questionnaires

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1. HIV Medication Readiness Scale (Balfour et al 2007)
2. HIV Treatment Knowledge Scale  
(*Balfour et al., 2007*)
3. CES-D Depressed Mood Scale  
(*Radloff et al., 1977*)



# Pre-Treatment Questionnaires

1

## HIV Treatment Knowledge Scale

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

Please check True, False or Don't know for each item.	True	False	Don't know
1. Once the HIV viral load results are 'undetectable', HIV medications should be stopped.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If HIV medications are not taken at the right time of day, HIV drug resistance can occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. HIV is cured when the HIV viral load blood test result is 'undetectable'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Condoms during sex are not needed when the HIV viral load blood test results are at 'undetectable' levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. It is better to take a half dose of HIV medications than to stop the HIV combination medications completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. One can get infected with a drug-resistant type of HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. HIV medications can cause unpleasant side effects (e.g., nausea, diarrhea, vomiting).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If sexual partners are both HIV-positive, condoms are no longer needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Treatments are available to reduce HIV medication side effects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Recreational drugs (e.g., ecstasy) can affect the effectiveness of HIV medications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Providing HIV medications to a pregnant woman reduces the baby's risk of being infected with HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. There currently exists an HIV vaccine that prevents HIV infection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. HIV medications can be taken at a different time of day on weekends or holidays.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Over-the-counter herbal pills (e.g., St. John's Wort) could make HIV medications less effective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. It is best to stop HIV medications as soon as you feel better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Missing a few doses of HIV pills can increase the amount of HIV virus in the body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. After a few months, it becomes less important to take HIV medications at the right time of day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. HIV medications help the body's immune system get stronger (CD4 increase).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. When HIV medications work well, the HIV viral load increases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Taking antibiotic medication protects a person from getting infected with HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Physical exercise (e.g., yoga, tai chi) can help reduce stress levels in HIV patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing this knowledge scale.

2

## CES-D Mood Scale

(Center for Epidemiologic Studies Depression Scale)

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week: (circle one number on each line)

During the past week...	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not "get going"	0	1	2	3

Thank you for completing this questionnaire.

3

## HIV Medication Readiness Questionnaire

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

As you probably know, taking HIV medications asks people to make changes to their daily routine and behaviours. For this reason, it is not uncommon for people to have mixed feelings about HIV medications. The following set of questions asks how ready you feel you would be IF you were to start taking HIV medications TODAY! Please read each of the following statements, and then, on a scale of 0 to 4, rate how ready you feel you are today to make the following changes (circle a number from 0 to 4 for each item). Please tell us how you are feeling (not what you think we want to hear).

If you were to start taking HIV pills today, how ready would you be to:	Not at all ready	Mildly ready	Moderately ready	Quite ready	Extremely ready
1. Make the necessary changes in your diet (i.e., eat at regular times, take pills with certain foods)	0	1	2	3	4
2. Accept the idea of taking these HIV pills for a long time (e.g., years)	0	1	2	3	4
3. Change your work, school, or home schedule to help you take your HIV pills (e.g., take a lunch break)	0	1	2	3	4
4. Deal with bringing your HIV pills to social activities (e.g., restaurants, a friend's house)	0	1	2	3	4
5. Take many pills several times a day, at specific times	0	1	2	3	4
6. Ask for support from friends or family to help you remember to take your HIV pills	0	1	2	3	4
7. Live less spontaneously because you have to take your HIV pills at specific times (e.g., having to go home first to take your HIV pills before going out)	0	1	2	3	4
8. Wear a watch or carry a beeper to remind you to take your HIV pills	0	1	2	3	4
9. Have a regular bedtime and morning wake-up time so as not to forget to take your HIV pills	0	1	2	3	4
10. Continue taking your HIV pills even if you experience unpleasant side effects (e.g., vomiting, diarrhea, change in body shape)	0	1	2	3	4

Thank you for completing this questionnaire.

- 3 brief, easy-to-use questionnaires
- Validated, evidenced-based tools
- Self-report measures (i.e. patient fills them out in the waiting room in 5-10 minutes)
- Easy Scoring sheet used for health care providers to score in 5 minutes (scoring is on the back of the each questionnaire sheet)
- So the Health Care Provider can provide real time feedback to patients
- Spanish Translations of 3 scales available

# What do we do with research knowledge ?

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# Patient 1 (Mary)

- 28 year old woman from Rwanda
- Diagnosed HIV+ on immigration to Canada in 2004
- CD4 count: 350
- Viral load: 10,842 copies/ml
- 2 young children (both are HIV negative)
- Mary previously took HIV medications during pregnancy but then was non-adherent after her children were born

# Pre-Treatment Questionnaires

1

## HIV Treatment Knowledge Scale

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

Please check True, False or Don't know for each item.	True	False	Don't know
1. Once the HIV viral load results are 'undetectable', HIV medications should be stopped.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If HIV medications are not taken at the right time of day, HIV drug resistance can occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. HIV is cured when the HIV viral load blood test result is 'undetectable'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Condoms during sex are not needed when the HIV viral load blood test results are at 'undetectable' levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. It is better to take a half dose of HIV medications than to stop the HIV combination medications completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. One can get infected with a drug-resistant type of HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. HIV medications can cause unpleasant side effects (e.g., nausea, diarrhea, vomiting).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If sexual partners are both HIV-positive, condoms are no longer needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Treatments are available to reduce HIV medication side effects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Recreational drugs (e.g., ecstasy) can affect the effectiveness of HIV medications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Providing HIV medications to a pregnant woman reduces the baby's risk of being infected with HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. There currently exists an HIV vaccine that prevents HIV infection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. HIV medications can be taken at a different time of day on weekends or holidays.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Over-the-counter herbal pills (e.g., St. John's Wort) could make HIV medications less effective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. It is best to stop HIV medications as soon as you feel better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Missing a few doses of HIV pills can increase the amount of HIV virus in the body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. After a few months, it becomes less important to take HIV medications at the right time of day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. HIV medications help the body's immune system get stronger (CD4 increase).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. When HIV medications work well, the HIV viral load increases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Taking antibiotic medication protects a person from getting infected with HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Physical exercise (e.g., yoga, tai chi) can help reduce stress levels in HIV patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing this knowledge scale.

2

## CES-D Mood Scale

(Center for Epidemiologic Studies Depression Scale)

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week: (circle one number on each line)

During the past week...	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not "get going"	0	1	2	3

Thank you for completing this questionnaire.

3

## HIV Medication Readiness Questionnaire

Patient name: \_\_\_\_\_

Date: \_\_\_\_\_

As you probably know, taking HIV medications asks people to make changes to their daily routine and behaviours. For this reason, it is not uncommon for people to have mixed feelings about HIV medications. The following set of questions asks how ready you feel you would be IF you were to start taking HIV medications TODAY! Please read each of the following statements, and then, on a scale of 0 to 4, rate how ready you feel you are today to make the following changes (circle a number from 0 to 4 for each item). Please tell us how you are feeling (not what you think we want to hear).

If you were to start taking HIV pills today, how ready would you be to:	Not at all ready	Mildly ready	Moderately ready	Quite ready	Extremely ready
1. Make the necessary changes in your diet (i.e., eat at regular times, take pills with certain foods)	0	1	2	3	4
2. Accept the idea of taking these HIV pills for a long time (e.g., years)	0	1	2	3	4
3. Change your work, school, or home schedule to help you take your HIV pills (e.g., take a lunch break)	0	1	2	3	4
4. Deal with bringing your HIV pills to social activities (e.g., restaurants, a friend's house)	0	1	2	3	4
5. Take many pills several times a day, at specific times	0	1	2	3	4
6. Ask for support from friends or family to help you remember to take your HIV pills	0	1	2	3	4
7. Live less spontaneously because you have to take your HIV pills at specific times (e.g., having to go home first to take your HIV pills before going out)	0	1	2	3	4
8. Wear a watch or carry a beeper to remind you to take your HIV pills	0	1	2	3	4
9. Have a regular bedtime and morning wake-up time so as not to forget to take your HIV pills	0	1	2	3	4
10. Continue taking your HIV pills even if you experience unpleasant side effects (e.g., vomiting, diarrhea, change in body shape)	0	1	2	3	4

Thank you for completing this questionnaire.

# Case 1 – Mary’s Psychological Questionnaire Scores

- **HIV treatment Knowledge Scale - 85% correct**
  - *Address gaps in HIV treatment knowledge regarding items which were answered incorrectly (e.g., lack of information about adherence and drug resistance) – provide this education ASAP*
- **HIV Medication Readiness Score - Scored 14 out of 40**
  - *This patient is not psychologically ready for starting HAART*
  - *Need score of 31 as cut-off score for readiness*
  - *Provide counselling to increase HIV treatment readiness and address potential barriers to adherence (e.g. HIV pills and stigma)*
- **CES-D Depression Scale - Scored 7 in the non-depressed range**
  - *This patient is not depressed and from a depression perspective could start HAART*

## **Recommendation:**

**Provide STAART 4 session readiness/adherence counselling to increase HIV treatment readiness**

**Psychological measures should be completed again in 4 weeks and then she would hopefully be ready to start her HIV medications**

# Mary – Psychological Measures

4 weeks later....

You did your **STAART readiness adherence intervention** with Mary and it showed good results

- In counselling you discovered that Mary was non-adherent in the past due to fears of stigma associated with taking HIV medications.
- Addressing the feelings about HIV stigma and offering Mary the possibility of a once/day HIV pill to be taken at home at night, increased Mary's confidence in being able to be adherent to HAART this time.
- As well, you did a one week pre-HIV treatment pill taking practice exercise in which the patient "swallowed one jelly bean" at 9 PM every night and she was able to be completely adherent to this pill taking schedule
- Also, Mary now realizes she needs to take her HIV pills so that she can be healthy and live a long life to take care of her children
- The patient re-completes the readiness scale again at 4 weeks and now scores 31 on the readiness scale.
- This patient is now more ready to start her HIV therapy and she will have a better chance at succeeding



## A randomized controlled psycho-education intervention trial: Improving psychological readiness for successful HIV medication adherence and reducing depression before initiating HAART

L. BALFOUR<sup>1,2,3</sup>, J. KOWAL<sup>1</sup>, A. SILVERMAN<sup>1</sup>, G. A. TASCA<sup>2,3,4</sup>, J. B. ANGEL<sup>1,2,3</sup>,  
P. A. MACPHERSON<sup>1,2,3</sup>, G. GARBER<sup>1,2,3</sup>, C. L. COOPER<sup>1,2,3</sup>, & D. W. CAMERON<sup>1,2,3</sup>

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### Abstract

The purpose of this study was to evaluate a novel psycho-educational intervention intended to increase patients' medication preparedness and treatment adherence skills *before* initiating highly active antiretroviral therapy (HAART). Sixty-three HIV-positive patients not currently on antiretroviral therapy participated in a randomized controlled trial of a standardized, four-session psycho-educational intervention (Supportive Therapy for Adherence to Antiretroviral Treatment; STAART). Session topics included learning techniques to increase medication adherence and learning effective strategies to cope with stress and depression. Patients completed psychological questionnaires assessing psychological readiness to initiate HAART and depressed mood. They completed both measures at study baseline and at four-weeks post-baseline. After controlling for baseline medication readiness scores, intervention patients ( $n = 30$ ) reported significantly higher mean medication readiness following the STAART intervention (four-weeks post-baseline) ( $27.3 \pm 6.9$ ) compared to controls ( $n = 33$ ;  $24.6 \pm 9.9$ ;  $p < 0.05$ ). Among depressed patients ( $n = 27$ ), those receiving the intervention ( $n = 15$ ) reported significantly lower mean depression scores at four-weeks post-baseline ( $22.5 \pm 12.9$ ) compared to controls ( $n = 12$ ;  $27 \pm 9.9$ ;  $p < 0.05$ ). The STAART intervention enhanced HIV treatment readiness by better preparing patients prior to initiating HAART. It was also beneficial for reducing depressive symptoms in depressed, HIV-positive patients.



# STAART Adherence Study

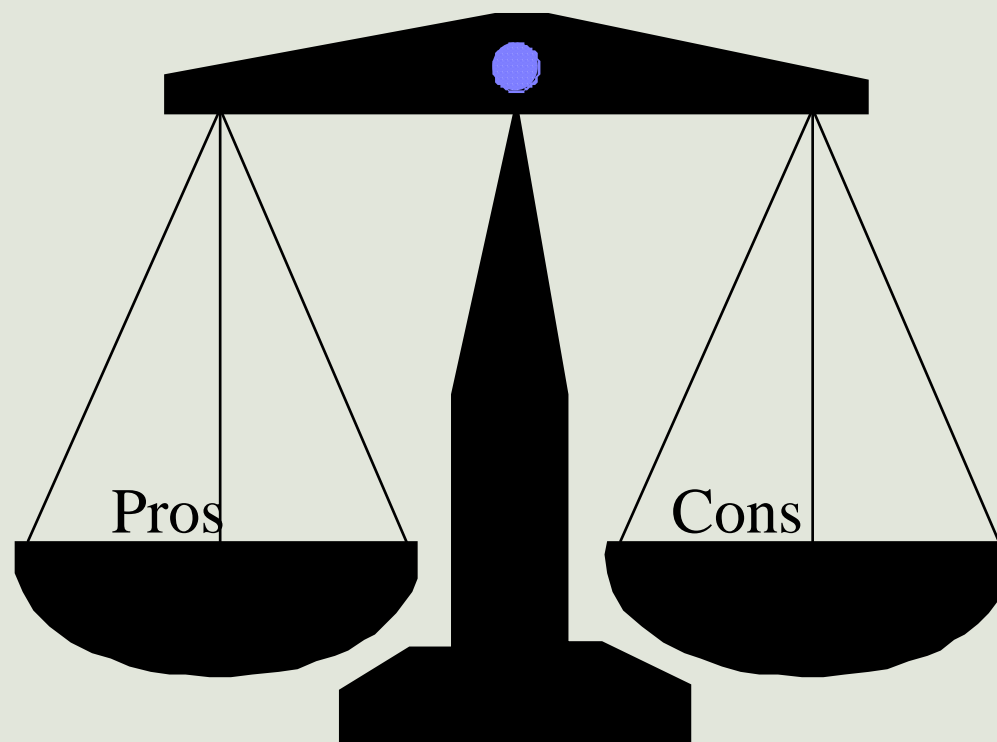
A Good  
to HAART  
**STAART**

- **Supportive Therapy for Adherence to Anti Retroviral Treatment (STAART) Balfour et al 2006**
- Randomized controlled adherence intervention study
- Goal is to help better prepare patients *before* starting treatment by:
  - Building adherence skills
  - Increasing health belief self-efficacy
  - Increasing psychological readiness to start treatment
  - Empowering HIV patients to feel more engaged and in control of their treatment

## STAART Sessions (91 page Adherence Manual)

- **Session 1**
  - Living with HIV and the meaning of HIV medications
- **Session 2**
  - HIV medications and adherence practice exercise
- **Session 3**
  - Identifying Barriers to HIV medication adherence and strategies to improve adherence
- **Session 4**
  - Coping with stress and depression

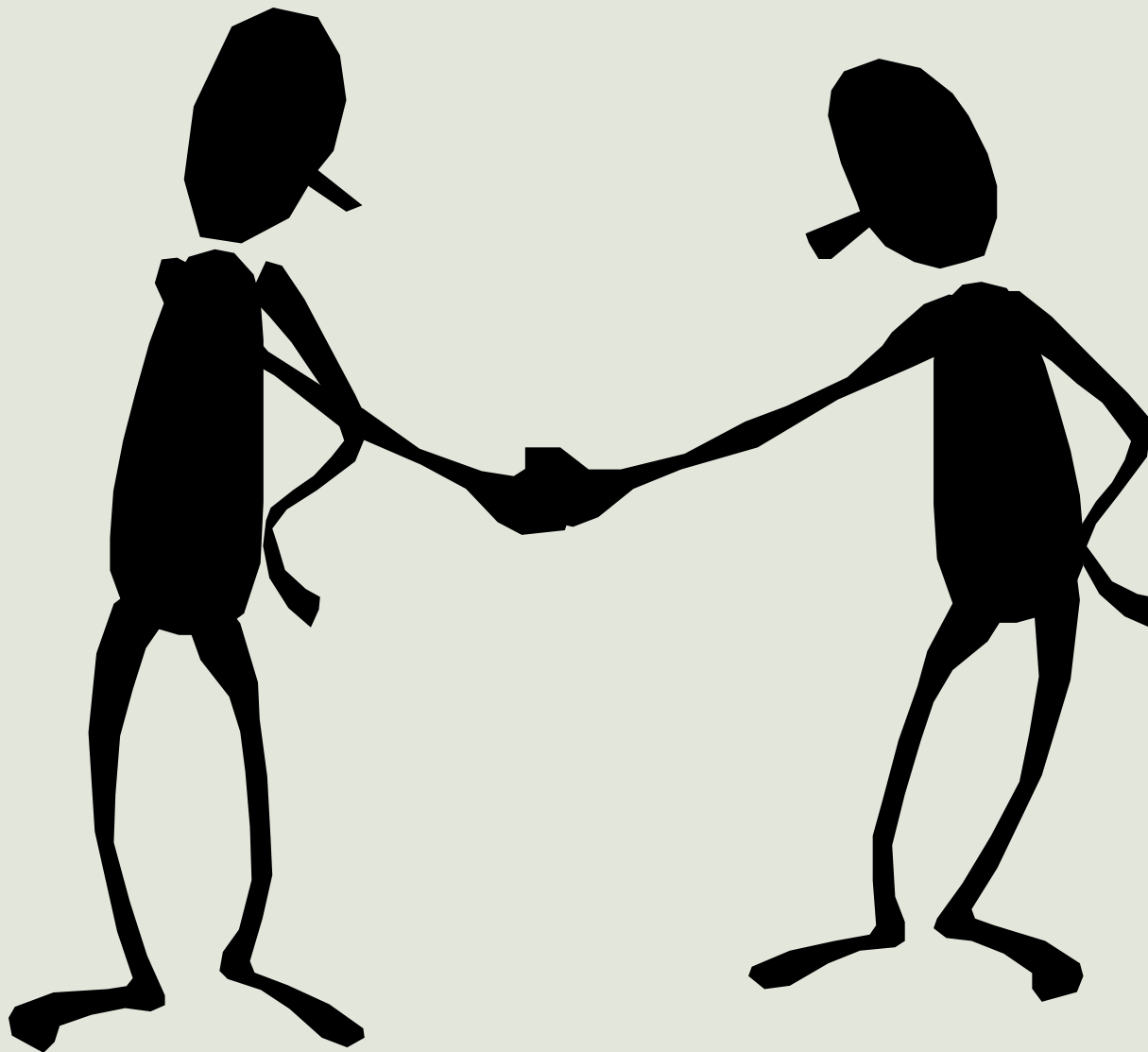
# Decisional Balance (informed choice)



Decisions  
about Starting  
HIV Meds

# Collaboration

A Good **STAART**  
to **HAART**



# Web based adherence education toolkit A Good **STAART** to **HAART**

[www.staarttohaart.com](http://www.staarttohaart.com)

A Good **STAART** to **HAART** ■ An HIV treatment readiness toolkit



# How about interventions to increase adherence after starting HIV medication ?

## Literature Review on recent HIV adherence Interventions studies: (Dr O'Cleirigh, 2011)

### (1) Recent meta analyses reviewing HIV adherence interventions

- Simoni et al., *JAIDS* 2006
- De Bruin et al *Arch Intern Med* 2010
- Hart et al., *JAIDS*, 2010

Conclusions: Adherence interventions can be effective in improving adherence and improving medical outcomes ( < viral load)

# Intervening to Improve HIV medication Adherence – What do we Know?



- Recently Reported RCTs on Interventions to Increase HIV medication adherence

## List of RCT Adherence Studies

- Ingersoll, et al., *Drug Alcohol Dep*, 2011
- Johnson et al., *Ann Behav Med*, 2011
- Fisher et al., *AIDS Behav*, 2011
- Kalichman et al., *Am J Public Health*, 2011
- Safren et al., *Health Psychology*, 2010
- De Bruin et al., *Health Psychology*, 2010
- Webel et al., *AIDS Care*, 2010
- Simoni et al., *JAIDS*, 2009

**Safren et al 2009, Health Psychology, Vol 28, 1, 1-10**

**Title: A Randomized Controlled trial of Cognitive Behavioral Therapy (CBT) for adherence and depression in HIV infected Individuals**

**Subjects: 45 HIV+ men and women with depression**

**Design: Randomized to Group 1 or Group 2**

- (1) Adherence “life steps” and CBT (12 sessions) for depression vs**
- (2) Usual HIV care**

**Overall Results:**

**Those receiving the adherence and CBT depression intervention had**  
**- Lower depression scores, Increased adherence, reduced VL**



- New Technology Based HIV Adherence Interventions

Studies using Text Messages on cell phones

**Lester et al., 2010 published in *Lancet***

Cell phone adherence intervention associated with significantly more reports of >95% adherence and higher proportion of HIV patients achieving an undetectable viral load at 6 months follow up.

**Pop-Eleches., et al., 2011 published in *AIDS***

Significant treatment effect on HIV medication adherence (MEMS caps) for those receiving weekly cell phone reminder messages across 48 weeks of follow up.

# Conclusions: HIV Adherence Interventions

Several different methodologies are associated with the acquisition of significantly improved adherence including

- (1) Educational interventions that deal with increasing understanding and motivation for adhering to HIV medications
- (2) Life Steps (Adherence Problem Solving) and CBT for depression
- (3) Cell Phone Based Interventions – text message reminders increase adherence levels (in low resources countries)

# Summary of HIV medication Adherence

1. It is important to first assess and address HIV patients' levels of  
(1) HIV medication readiness (2) HIV treatment knowledge  
(3) Depression (with easy to use tools)
2. Provide adherence interventions to increase adherence skills before starting HIV medications
3. When starting HIV medications, providing adherence support with low cost innovative technology (cell phone text reminders) can assist with adherence and treatment outcomes (< viral load)

# Gracias ! Thank you ! Team Effort !

A Good  
to **STAART**  
**HAART**



The Ottawa Hospital  
L'Hôpital d'Ottawa

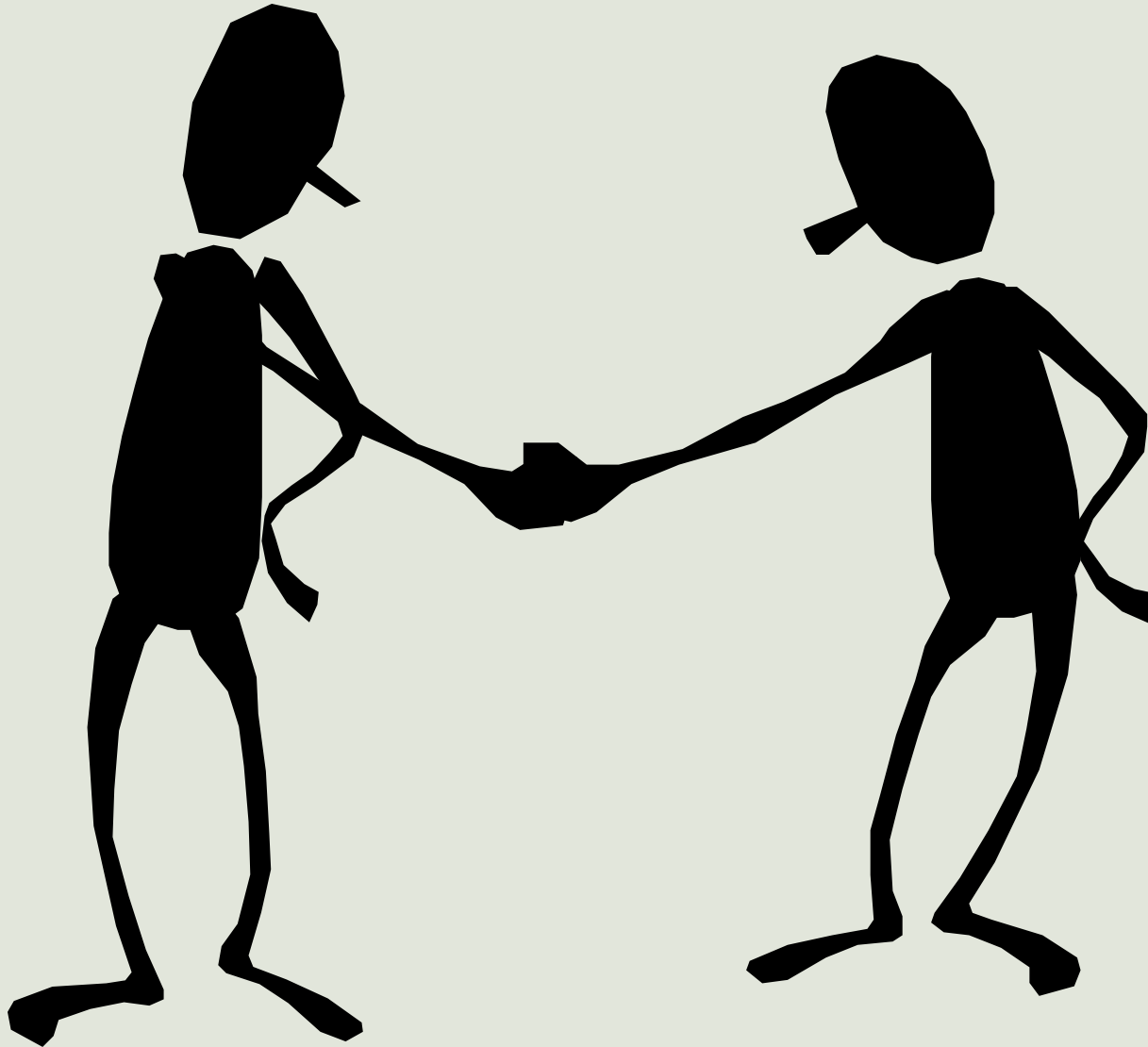


uOttawa

L'Université canadienne  
Canada's university

- Gracias “CORPORACION DE LUCHA CONTRA EL SIDA”
- Thank CIHR who supported this research & collaborators
- Thank our HIV study participants

A Good **STAART**  
to **HAART**





*An HIV Treatment Readiness Toolkit*