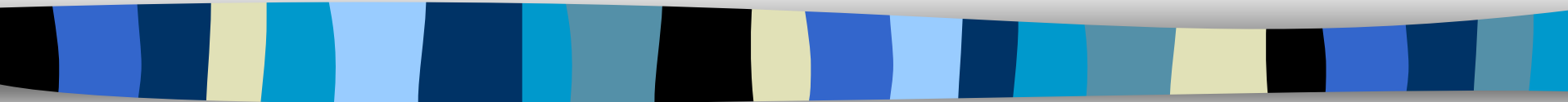


Staying Power and Adherence: everyone's work



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Outline

- Review of Adherence in HIV
- Adherence in Jamaica and other expanding national programs
- What's new in
 - Measuring
 - Identifying people at risk
 - Support and help
- Preparing for success: Assessing Readiness, education and Adherence



HIV Treatment in 2007

- Many regimens are active in people with no drug resistance
- But treatment after resistance develops is still a challenge and usually requires more complicated and/or more expensive regimens
- In addition resistant virus can be transmitted
- Failure carries a high price on an individual, financial and public health
- Finding the reasons and preventing failure is therefore critical



Why does antiretroviral therapy fail?

- Not a cure
- Efficacy
- Drug toxicity
- Drug interactions
- Drug resistance
- Adherence issues – lifelong therapy



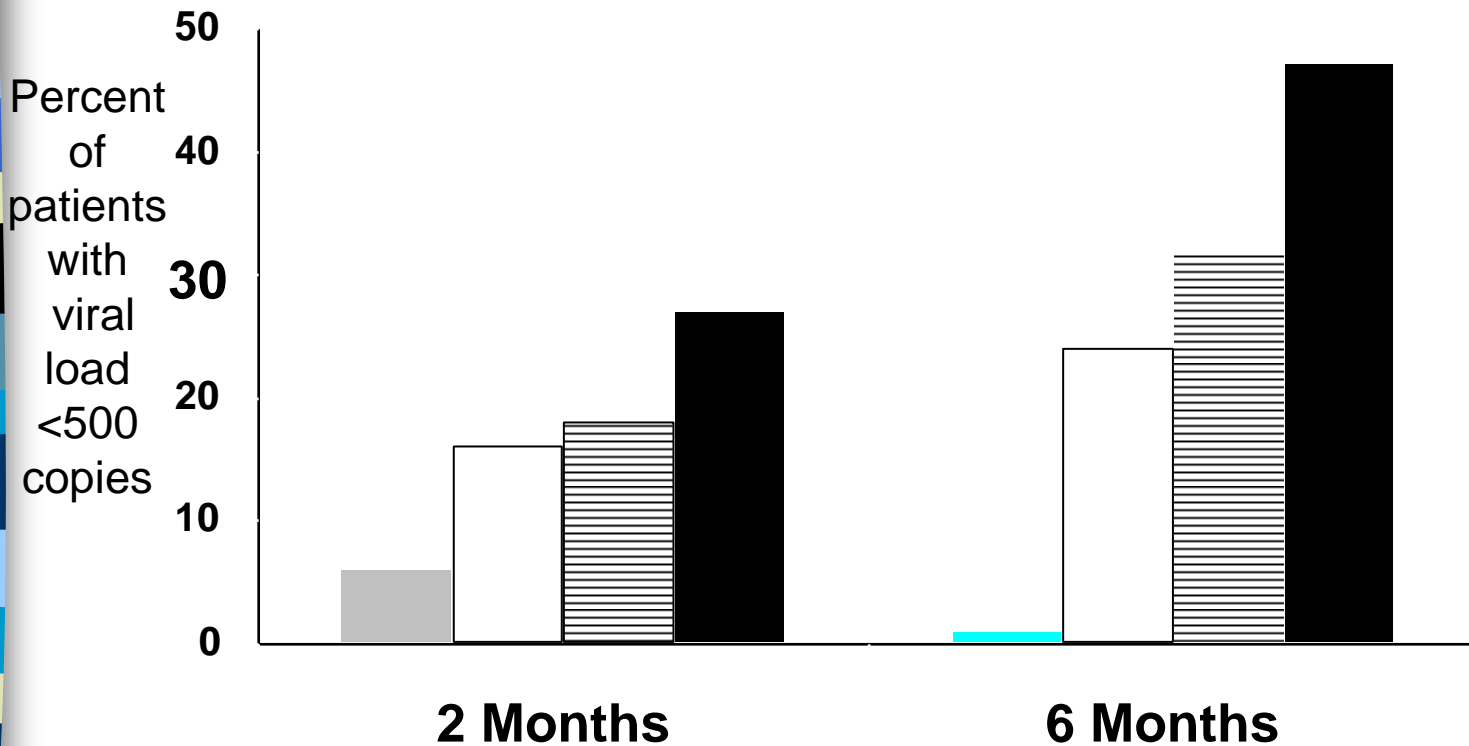
Why is HIV different

- Excellent adherence in other diseases is considered >60-70%
- Adherence rates for HIV need to be higher
 - >95%
- Non adherence with HIV carries very high risk of virus developing drug resistance
- Once resistance develops, that drug (and possibly others) will never work as well or may not work at all
- Communicable disease

Adherence and viral suppression

Percentage of Medication Taken

■ <80% □ 80% to 95% ▨ 95% to 99% ■ 100%





HIV, adherence and clinical significance

- Better adherence is also linked with decreased risk of getting sicker and dying from HIV infection



Adherence in Jamaica

- **A convenience sample of HIV/AIDS infected individuals at 1 major HIV treatment sites were interviewed in 2005 using a standard tool**
- **Rates of >95% adherence by self report**
 - Last day: 68%
 - Last week: 60%
 - Last month: 70%



Adherence in Jamaica

- **Factors NOT associated Adherence**

- gender, education, age, having children, alcohol or marijuana use, feeling victimized because of their HIV

- **Factors associated with Adherence**

- Dose frequency (67% vs 44% for bid vs tid, $p=.06$),
- Sure that they can take as directed (67% versus 22% for sure versus not sure, $p=.01$)

Adherence in Jamaica

Common Reasons for missing Medications	
Reasons	sometimes/often (%)
Away from home	43%
Busy with other things	27%
Forgot	27%
Slept through dose	23%
Felt depressed/overwhelmed	23%
Felt too ill	20%
Availability of food	20%
Felt Well	22%
Having side effects	15%

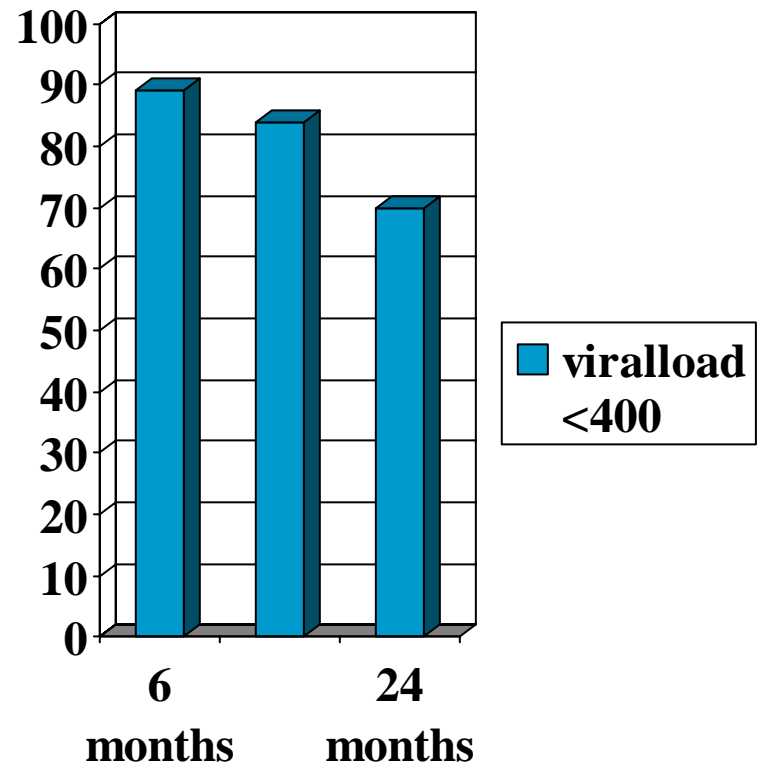


More on Adherence in Scale-up Programs

- In programs without charge, excellent rates of adherence reported to date, although some declines as expansion occurs and treatment in longer term
- Innovative approaches to support adherence before and during treatment are being used

Adherence in resource limited settings

- Khayelitsha
- Strong pre treatment education and screening, counselors and treatment buddy
- High rates of adherence, viral suppression
- Some decline over time





How to measure

- Patient self report
 - Questionnaire, diary
- Treatment supporter/care giver
- Provider estimate
- pharmacy records
- Pill counts
- Electronic monitoring (MEMs)
- Directly observed therapy (DOT)
- blood levels
- Biological markers (viral load, CD4 count)



Some new about measuring adherence

1. Single or few questions to patients has been validated
 - Miss in last week
 - Last dose missed
 - Still will over-estimate adherence
 - Need to ask WHY they are having trouble
 - Side effects, weekend versus week-day, disclosure, forgetting
2. Visual analogue scale
3. Pharmacy pick-up also validated as measure of adherence
 - Predicts viral suppression
 - Correlated with self-report and other approaches

Visual analogue scale

- Ask patient to place a mark along a line (0 to 100) which is their “best guess” at how much of their medication they have taken in last month

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



- Validated in London, San Francisco and in Uganda



Pharmacy records

- Review of pharmacy records is valid method
 - (Pills dispensed/pills prescribed)/days between refills x 100%
- Associated with better treatment outcomes*
 - Ranged 25%-129%
 - 41% of patients who reported 100% adherence, were detected as nonadherent by pharmacy records
- Need good pharmacy system in place
- Ideal is to know before clinical visit
 - Allows team to address problems
 - Role for pharmacy staff for education

*Grossberg R, J Clin Epi 57 (2004) 1107-1110



What about viral load?

- Non-adherence is the most common reason for non-suppression in ART-naïve patients
 - In the past or currently
- Other reasons can cause loss of suppression
 - Prior resistance, drug interactions
- May represent past non-adherence
- Once resistance occurs, 100% adherence will not result in suppression



How to ask?

- Choose a method (brief), provide training and ask regularly
- Provide tools to address problems as they are identified, help problem solve
- Asking patient
 - Project concern and respect, non-judgemental
 - Acknowledge that medication-taking is difficult
 - Explain the importance of knowing exactly how patients are taking medicines
 - ☞ “You took all of your medicines, right?”
 - ☞ “You haven’t missed any doses, have you?”
 - ↑ “Many patients taking these medications find it difficult from time to time. Do you ever have trouble?”
 - ↑ “How many doses have you missed in the past week?”
 - ↑ “In an average week, how many doses do you miss?”
- ↑ Always ask WHY



Common reasons people do not take their ART as directed

- Pill fatigue
- Forgot
- Pills not with them
- Transportation
- Fear of disclosure
- Concern with drug interactions (prescribed or other)
- Confused about directions
- Ran-out
- And others



What's new about predicating who
will have problems?

Predictors of nonadherence: Medication related

	Interventions to date
dosing frequency	Twice daily-potential for once daily
side effects	Using less toxic meds as nuke backbone (AZT or TDF versus D4T)
Number of pills	Regimens with smaller # pills Fixed-dose combinations
type of medication	Choose better tolerated ARVs
complexity of regimen	Fixed dose combinations, NNRTI-based regimens No food requirements



Patient-related

- Active ETOH/substance abuse
- Depression
- HIV knowledge
- Knowledge on how to take medications
- Belief in medications
- Literacy (?more of a system problem)
- Non-adherence to care
 - No-show for appointments



More Patient factors

- Stage of readiness
- Distance from site
- Not keeping medical care appointments
- ?Stigma
- Age
- Disclosure
- Mental Illness
- Decreased cognitive function
 - Ex. HIV dementia



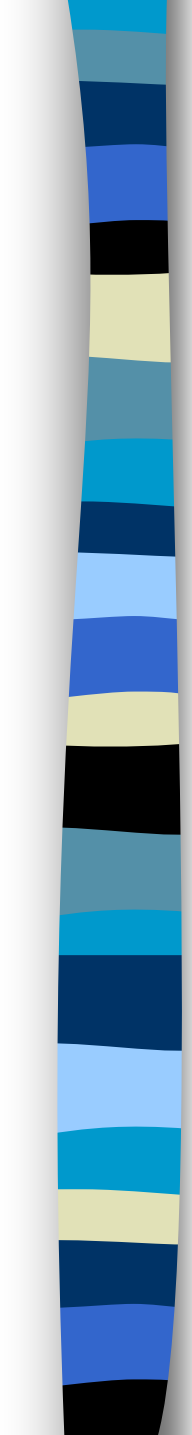
System-related

- Cost of care/treatment
- Access to care and medications
- provider/patient relationship
- Stock-outs
- Changing Shift-jobs
- transportation
- Stigma (society and health care)



Non-predictors

- **Non-predictors include**
 - Race
 - gender
 - prior substance abuse
 - social status or income
 - In absence of need for payment
 - education



So what do we know about improving adherence

- Reasons for missing doses changes over time and often adherence challenges are greatest at the start and then over the longer term
 - Adherence promotion need repetition
- Adherence support can focus on one aspect or (better) address multiple barriers in a multidisciplinary holistic approach
- Goals should be to identify and address known barriers or risks
- Many approaches have been/are being tried



Where to start

- Identify factors which can be changed
- Knowledge
- Transportation
- Forgetting
- Cost
- Readiness
- Regimen
- others



Scope of Services to support adherence

- Successful use of ART requires a comprehensive scope of care and support services
- These must be coordinated and either provided on-site or through close linkages
 - Multidisciplinary team
- A break in this continuum can lead to break in adherence to ART and so failure
- Services must be reflective of the needs of the population being served



Patient-focused Approaches

- Education (pre and during treatment)
- Counseling to increase readiness
- Reminders and other aids
 - DOT or modified DOT
 - Traditional aids (pill boxes), electronic
- Peer support
- Transportation support
- Nutritional support
- Other psychosocial support/counseling
 - Housing, user fees etc.



Patient-focused

- Monitoring adherence/feedback
- Screen and treat substance use, mental illness
- Appropriate materials to address myths and beliefs
- Additional reminder support (pill box, buddy, text messages)
 - Cognitive dysfunction
- Additional support during high-risk times
 - Post-partum, substance use relapse, job change



Regimen-focused

- Simplification of regimen
 - Fewer doses
 - Fewer pills
- Fewer dietary and storage requirements
- Fewer side effects
- fewer drug interactions
- Lower/no costs
- higher potency



System-focused

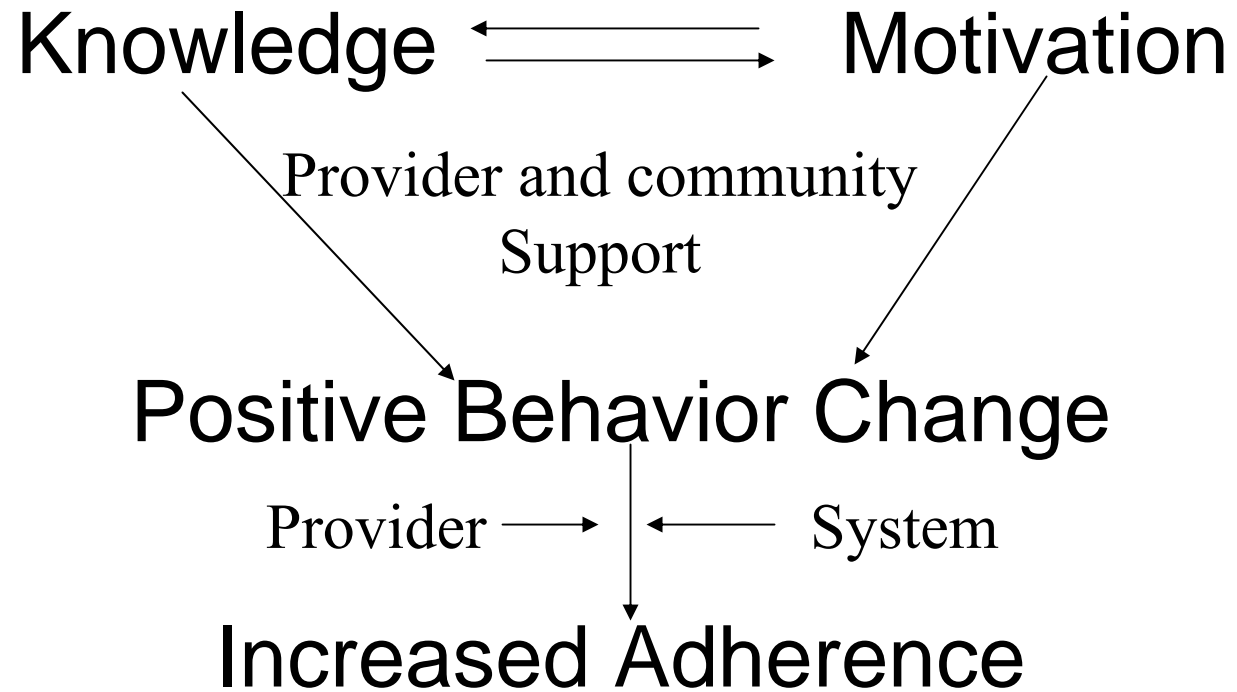
- Pharmacy
- Readiness assessment
- Education for providers
- Mandatory pre-treatment education
- Improve patient-provider relationship
- Routine adherence assessment
- Clinic responsive to patients needs and ability to address detected non-adherence
- Team-based approach to adherence
 - Everyone's business



Community-focused

- Education of the community
- Stigma reduction
- Community-based support and education
- Linkage into services to address barriers

Supportive Environment





Some examples



Peer Supporters/advocates

- Associated with high rates of adherence in multiple programs
- Critical to educate peers and integrate into team-based approach in health systems
 - Peer backed-up by rest of health care team
- Role to educate, provide support, encourage patient getting access to needed services for adherence such as:
 - Side effect management



Pharmacy-centered

- Access to uninterrupted medication supply
 - Ensure that patients understand where, when, and how to obtain medications
 - Logistics system to avoid “stock outs”
 - Provide access to care to patient’s household, limiting pressures to share medicines
 - SOP’s to determine how often ART is dispensed and emergency procedures
 - Anticipate when access to clinic may be difficult
 - Weather, holidays
- Interventions using pharmacists to educate, and monitor and promote adherence proven to improve adherence
- Powerful tool to detect nonadherence and start intervention early



Provider/System

- Training for all providers and health care workers
 - Everybody's business
- Screening to detect potential challenges and strength
- Development of standardized assessment and basic approaches to addressing identified problems
- System to monitor at the patient and program level
 - Identify what is working, new barriers etc



What about Directly Observed Therapy

- Successful in most studies at improving outcomes with TB treatment
- Selected program reports of acceptance and high adherence rates in resource limited and resource risk settings
- Definition varies
 - who, how often, where, for how long
- Cost, acceptability and efficacy in many settings needs to be defined and studies underway
- Not the right approach for everyone, but may be critical for some



Models of DOT and modified DOT

- Peer-based
 - Accompanateurs (Haiti)
 - Activistas (Mozambique)
 - Other treatment supporter (family, friend)
- Clinic based
 - TB-model
- Modified DOT also under study
 - Shorter term
 - Pill boxes
 - Nurse visits
- May be useful for certain high risk patients (ex. after first-line failure) or at start of treatment



Education: pretreatment

- Adapt for target population
- Ensure culturally and literacy appropriate
- Covers key areas and messages around HIV and treatment
- Educational interventions (one-on-one) can improve short-term adherence
 - May need repetition
- Group education and standardized series increasing in use
 - Impact and minimum required needs to be evaluated but anecdotal evidence very strong
 - IThemba



Pre-treatment Education

- Utilized in multiple programs
- Generally 2-3 sessions
 - Individual or group
- Scope of information needs to include
 - HIV knowledge
 - Adherence needs
 - Regimen
 - Problem solving (taking meds, in light of side effects)
 - side effects management
 - Identifying potential challenges



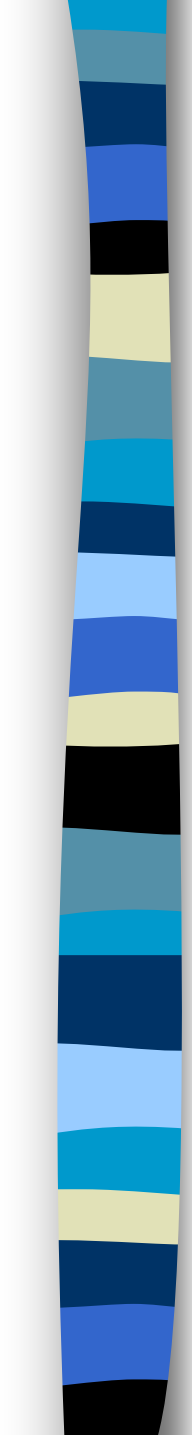
Pre-treatment Education

- Some approaches include determining readiness to start
 - How to do this
 - Modify approach based on readiness
- Need to balance educational needs (and readiness) with clinical urgency
 - Fast track advanced disease, pregnant women
- Ensure that messages are appropriate and that patients learn critical areas



What about readiness?

- Readiness is a conscious awareness that a particular behavior is desired and beneficial
- An individual reaches a state of readiness of his own free will
- Higher level of readiness associated with adherence in a number of studies
- Theory
 1. Attain adequate level of readiness
 2. Begins to change behavior
 3. Integrate the new behavior into daily living.
- How to measure quickly still a challenge
 - 30 item scale
 - 2 questions (Willey et al) while on meds
 - 2 questions (Mannheimer) pre meds



People sometimes find it difficult to take their medication as directed by their physician. As directed means consistently taking the amount of medication prescribed by your physician at the time(s) prescribed by your physician. Please find the statement that best describes the way you feel right now about taking your medication as directed.

- A. No, I do not take and right now am not considering taking my) medication as directed. (Precontemplation)
- B. No, I do not take but right now am considering taking my medication as directed. (Contemplation)
- C. No, I do not take but am planning to start taking my medication as directed. (Preparation)
- D. Yes, right now I consistently take my medication as directed. (Action or maintenance)



2 questions

- Do you think that you are going to start taking medications against the HIV/AIDS virus regularly in the next 6 months?
 - 1 Yes
 - 0 No – **END QUESTIONNAIRE (I)**
- Do you intend to start taking medications against the HIV/AIDS virus regularly in the next month?
 - 1 Yes – **END QUESTIONNAIRE (III)**
 - 0 No – **END QUESTIONNAIRE (II)**



Adherence education: key areas

- What does s/he know about medications? What are his/her expectations?
- What are his/her potential adherence supports?
- What are his/her potential adherence barriers? How will they be addressed
- Detailed and repeated instructions on how to take medications (including timing, dosing, food restrictions, drug interactions)
- Written or visual reminders
- Tips on how to remember medications, including daily cues, reminders, partners
- Information about how to recognize and manage adverse effects
- Teaching problem solving



Example: education and multidisciplinary approach: side effects

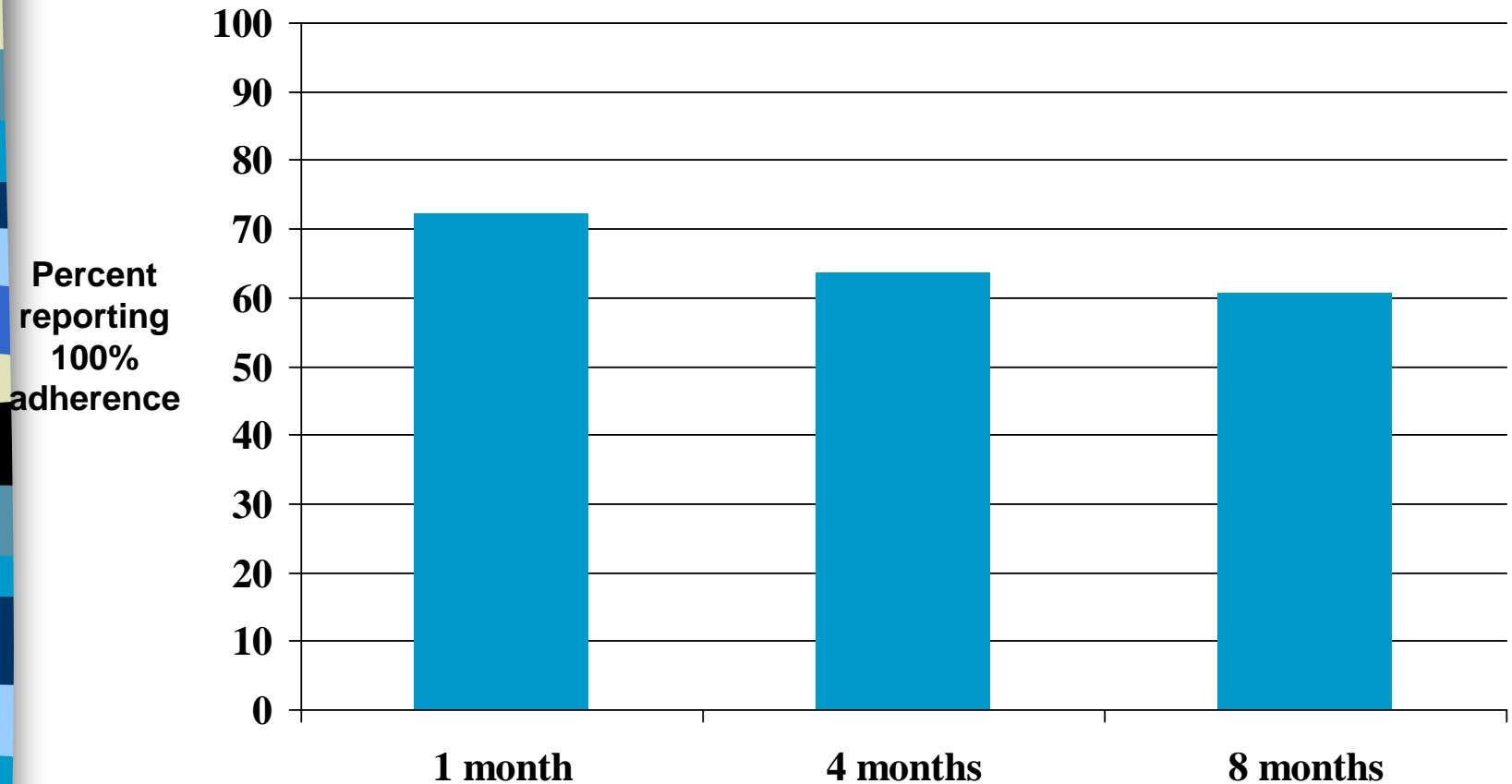
- Education before side effects occur
 - Prevention/management
 - When to call/come in
- Identify with patient tools and medications to prevent or manage side effects
- Teach how to access to care for more serious side effects
- Train all providers,
- Establish system for access to support for questions and ensure 24 hour access to care for side effects management



When to do Adherence Assessment

- Antiretroviral initiation: The first weeks and months of antiretroviral therapy are a “danger point” for patients
 - Learning how to take medications
 - Managing side effects
 - May not have disclosed or recently diagnosed
 - Higher risk of developing resistance if gap in adherence

Adherence to ARVs treatment over time



*** $p < 0.01$ for difference between months 1 & 4 and months 1 & 8
Mannheimer et al, CPCRA, 2000.**



Adherence assessment during “maintenance”

- Integrate into care
- Pharmacy records will be a great advantage
- Still should be asked: may also detect problems and why
- In current models, task assigned to various members of care team
 - Time, training, “value” by patient
- Capture in record if possible to assist in team-based care



Special Populations include:

- Children
- Pregnant women (and post-partum)
- TB/HIV
- Liver disease
- Active substance use
- Migrant populations
- Cognitive impaired
- Mental illness



General lessons we have learned

- Adherence is hard for everyone and long term treatment present the most difficult challenges
- Adherence is critical to the successful care of patients with HIV/AIDS
 - On an individual level, adherence to care and treatment can mean the difference between life and death
 - On a population level, adherence to treatment can minimize the emergence of viral resistance and prevent therapeutic failure
- Adherence needs to be to medications and care.



More lessons

- Every HIV/AIDS treatment program should include processes to assess and support adherence
- Adherence promotion must be multifaceted and multidisciplinary and adapt to changing needs and realities
 - Many models/approaches in use
 - Many also need to be evaluated and adapted for local needs
- Simpler and more tolerable regimens which preserve efficacy are still needed



Next steps

- To determine what will work, need to know
 - Barriers to adherence
 - What is possible in clinic setting and through partnering
 - What is acceptable to patients
 - What is needed during initiation vs longer term
 - What will be standard vs only for problems
- Need to see if it system works
 - Overall, individual patient
- Be creative and learn from experience and patients
 - role of mobile phones, linkages, messages and tools etc