



HIV, Adherence and Children/Adolescents – Lessons Learned, Challenges Ahead

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No conflicts of interest to declare

This slide set has been peer-reviewed to ensure that there are no conflicts of interest represented in the presentation.



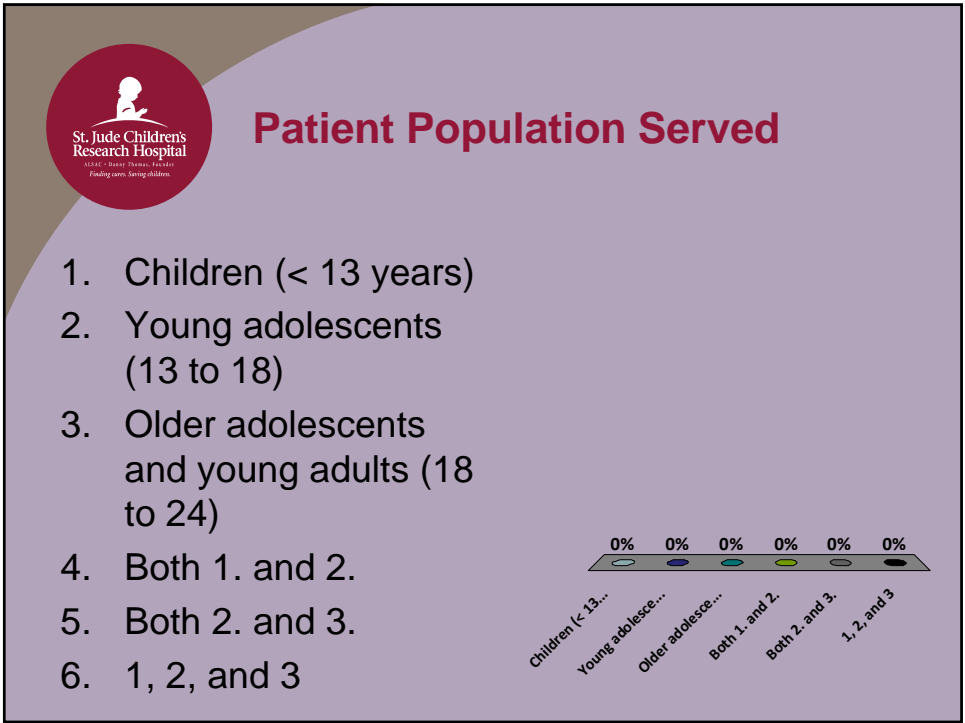
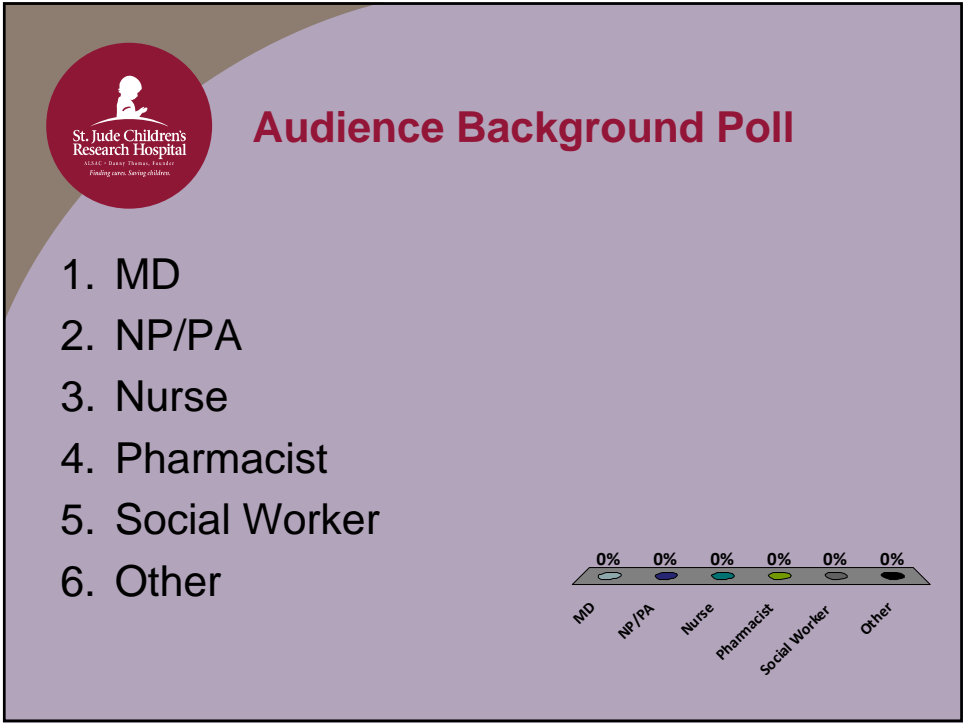
Objectives

- Understand impact of adherence from an individual and public health standpoint
- Understand barriers to adherence
- Review adherence assessment tools and their applicability to clinical practice
- Review interventions to improve adherence including
 - Use of different technologies to improve adherence (text messaging, drug packaging, electronic monitoring, software, web)
 - Benefits of a multidisciplinary team (physicians, pharmacists, nurses, mental health professionals, adherence specialists)
 - Evaluation of treatment readiness prior to the initiation of antiretroviral therapy
 - Strategies to maintain adherence in treatment-experienced patients



Topics we will not be able to cover in detail

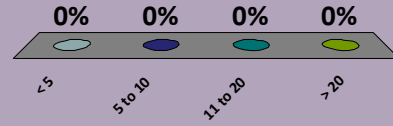
- Adherence in children
- Caregiver factors that influence adherence in pediatric patients
- Adherence to appointments





Number of years of experience taking care of HIV infected patients

1. < 5
2. 5 to 10
3. 11 to 20
4. > 20



Adherence – an introduction



Defining Adherence

- “Adherence” includes multiple behaviors:
 - Dose Timing
 - Dietary Restrictions
 - Medication Refills
 - Appointment Attendance

Kerr T et al. Current HIV/AIDS Report 2005 Nov;2(4):200-5. Review.



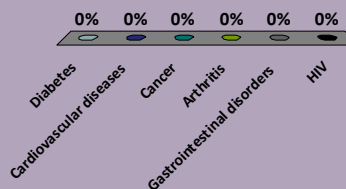
Adherence versus Compliance

- Wasted time on words or does it really exemplify differences in a provider's approach with adherence being a more collaborative approach.



Patients (adults and children) with which of the following chronic diseases have the best adherence to medications

1. Diabetes
2. Cardiovascular diseases
3. Cancer
4. Arthritis
5. Gastrointestinal disorders
6. HIV



HIV versus other chronic diseases Meta-analysis 1948 to 1998 (adult and peds studies)

Disease	Studies	% Adherence (mean)
Diabetes	23	67.5
CVD	129	76.6
Cancer	65	79.1
Arthritis	22	81.2
GI disorders	42	80.4
HIV	8	88.3

M. Robin DiMatteo, PhD (Med Care 2004;42: 200-209)



Medication Adherence in HIV Infected Youth

- In a review of published studies in the US on HIV infected youth (13 – 24 yrs) overall rates of adherence in the 30 days before study enrollment ranged from 28.3 to 69.8%

Reisner SL, et al *Topics in HIV Medicine* 17; 14 – 25, 2009



Theoretical Basis for Adherence

- Theories Applied in Literature
 - Health Belief Model
 - Information-Motivation-Behavioral Skills
 - Transtheoretical Model
 - Social-Ecological Model
 - Behavioral Theory



Adherence – Implications to Self and Others



Maintaining Adherence

- From a patient standpoint:
 - To prevent development of viral resistance
 - To avoid HIV related morbidity and mortality
 - Maintain vigilance with regards to side effects of medications
- From a public health standpoint
 - To reduce transmission of HIV
 - To reduce transmission of resistant virus

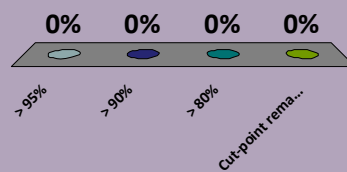


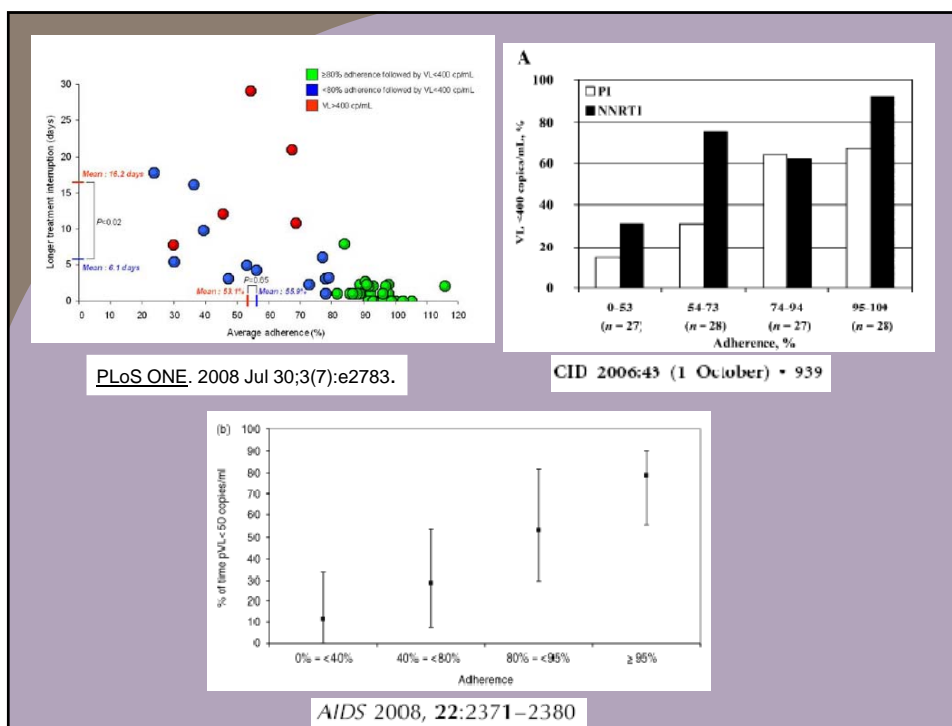
Adherence – what is the goal post?



How much adherence correlates with treatment efficacy?

1. > 95%
2. > 90%
3. > 80%
4. Cut-point remains to be established





Take Home Points

- With potent antiretrovirals, virologic control is achievable with < 95% adherence but...
 - Precise cut points have not been established
 - Durability of response remains to be seen
 - Working towards perfect adherence still the way to go in clinical practice



Barriers to Adherence



Individual Related Barriers

- Denial of diagnosis and inadequate coping
- Beliefs about medications
- Unstructured life style
- Mental Health problems (especially depression)
- Substance abuse



Medication Related Barriers

- Pill size
- Pill count
- Taste
- Side effects



Environmental Barriers

- Lack of disclosure
- Transportation
- Access to medications, insurance
- Competing priorities




Circumstantial Barriers

- Side effects of medications
- Incarceration
- Moving
- Illness or death of the guardian



Take Home Points

- While “I forgot” is a common explanation provided to explain non-adherence, there may be multiple underlying barriers to adherence
- Assessment of patient specific barriers critical to developing individualized interventions.

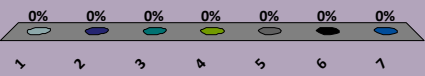


Assessing Adherence – the Elusive Gold Standard



Which adherence tool is commonly used in your clinic?

1. Patient self report
2. Pill count
3. Pharmacy refill data
4. Viral load and CD4 counts – surrogate measures of adherence
5. Many of the above
6. None of the above; we use something else
7. We do not regularly assess adherence in our patients



0% 0% 0% 0% 0% 0% 0%

1 2 3 4 5 6 7



Adherence Assessment Tools

- Patient self report
 - 3 day recall, 7 day recall
 - Visual analog scale
 - CASE questionnaire, Swiss cohort study
- Pill count: Announced vs. unannounced
- Medication refill
- Viral load and CD4 counts – surrogate measures of adherence



Adherence Assessment Tools (continued)

- Motivational interviewing
 - “A directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence” Rollnick, S. & Miller, W.R. (1995)
 - A tool for both assessment and intervention of non-adherence
 - Basic elements: express empathy, avoid arguments, roll with resistance, develop discrepancy and support self efficacy
 - Discipline self to speak less and listen more



<http://www.aardexgroup.com/>

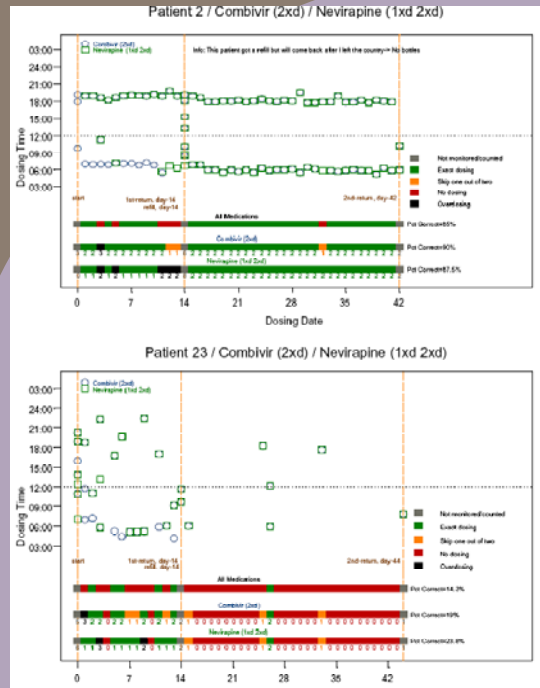


Adherence Tracking Tools



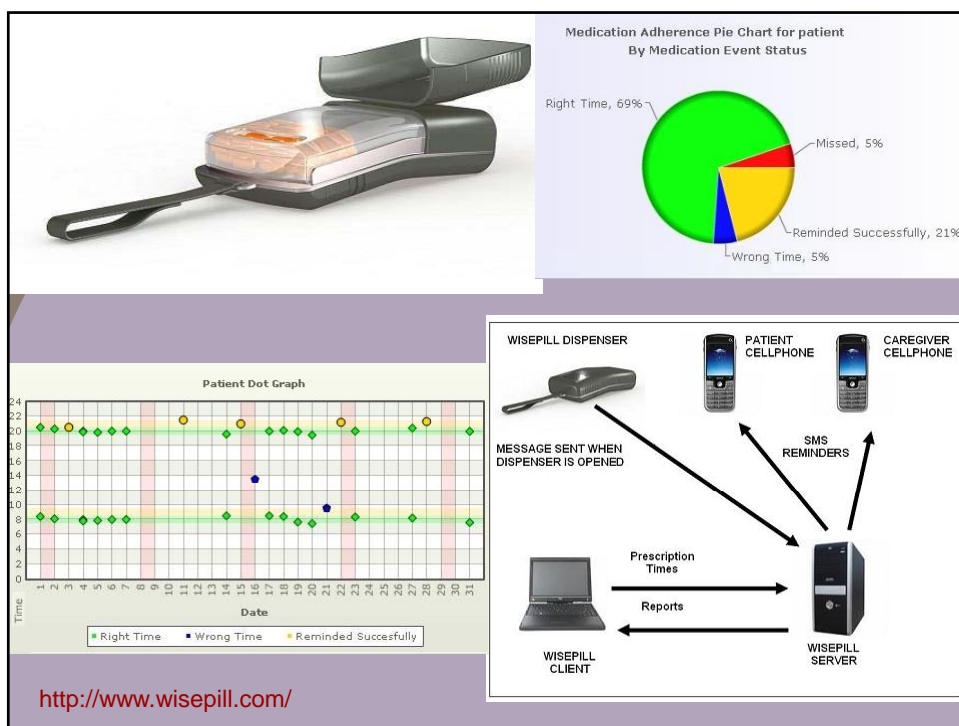
The SIMpill® SMART

MedSignals' MedMinder <https://www.medsignals.com/pilltaking.aspx> SimPill <http://www.simpill.com/thesimplesolution.html>



Tracking Medication Adherence

[Eur J Clin Pharmacol \(2007\) 63:1115–1121](#)



Patterns of Non-Adherence

- 80% adherence but different patterns of non-adherence such as
 - Weekends missed
 - PM doses missed
 - Random missed doses
 - Treatment interruption



Choosing an Adherence Assessment Tool - Points to Consider

- What is the context
 - Research versus clinical practice
- What are the available resources
 - Resource rich versus poor setting
- No one standard is perfect
- Global assessment of adherence includes a combination of more than one measure
 - Tools to quantify non-adherence
 - Tools to assess patterns of non-adherence
 - Tools to assess specific barriers to adherence



Interventions to Improve Adherence – Preventive, Preemptive and Therapeutic



Teaching and Counseling

- Individualizing HIV related patient education
 - Pace the process to the patient
 - Multidisciplinary teams approach patient education in multiple ways
- Using available educational material: videos, books, handouts, internet
- When possible educate the people the patient relies on for support

Rogers et al 2001 (TREAT program); Lyon et al 2003 (family based approach)



Treatment Readiness

- Clinician impression not the most accurate
- Ask patient about his/her readiness to start on medications
- Systematically assess potential barriers to adherence and address them accordingly
- A test run with placebos should be considered
- Periodically re-visit treatment readiness



Choosing a Regimen

- Once a day
- Individualizing regimen based on potential side effects, pill size, pill count
- Review drug interactions



Teaching How to Give or Take the Medicines

- Medication related education: side effects, when to repeat a dose
- Pill swallowing
 - Gummy worms, mini M & Ms, or lactose filled placebo caps to mimic pill size
 - Encourage using bottle of water to take meds for proper head positioning and swallowing
- For children dependent on the parent/guardian for drug dispensing train the backup person as well



Teaching How to Give or Take the Medicines (continued)



- Issues specific to young children
 - Syringe extenders for children
 - Masking the taste
 - Mixing with chocolate milk, pudding or ice-cream
 - Numbing taste receptors with popsicles
 - Refrigerate liquids
 - Coat mouth with peanut butter, if age appropriate, prior to medication administration
 - Use strong flavored foods such as maple syrup or gum immediately after administration



The Placebo Trial

- Placebos for adolescents
 - Helps give an idea of how pill taking fits into their life routine
- A placebo trial for infants
 - May help guardians plan the logistics of delivering medications to the very young



Drug Dispensing

- Pill box
- Blister pack
- Pre-filled syringes



Reminders

- Integrating medication taking into the routine schedule
- Watches, cell phones, text messages
- Calendars
- Buddy

Puccio JA et al, 2006 (Cell phone reminder calls)



Identifying Specific Barriers and Addressing Them

- Role of multidisciplinary rounds
- Ongoing evaluation – barriers change and so should the interventions
- Motivational Interviewing (MI):
 - The art of facilitating patient self-efficacy
 - Basic MI skills can and should be utilized by all clinicians



Directly Observed Therapy

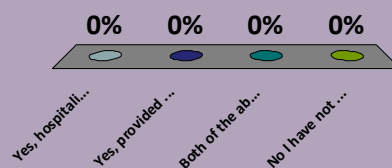
- Well established for tuberculosis therapy
- Results thus far indicate role of DOT in improving adherence to HIV medications
- Published DOT studies in adolescents involved hospital based DOT*

*Gilkman et al 2001, Parson et al 2006, Purdy et al 2008



Have you used DOT for any of your non-adherent HIV infected patients

1. Yes, hospitalized patients for DOT
2. Yes, provided DOT in the community
3. Both of the above
4. No I have not used DOT





PACTG 1036B – Directly Observed Therapy in HIV infected adolescents

- DOT pilot study at 4 PACTG sites based on youth feedback about DOT obtained through focus groups (1036A¹)
- HIV infected youth with poor adherence to medications received once a day DOT at a site in the community of their choice.
- Frequency of DOT was gradually weaned
- VL, CD4 count, adherence, mental health measures were followed on study

¹Garvie PA, Lawford J, Flynn PM, Gaur AH, Belzer M, McSherry GD, Hu C. J Adolesc Health. 2009 Feb;44(2):124-32. Epub 2008 Oct 18



PACTG 1036B Results¹

- Overall 6 of 20 patients (30%; 95% CI 11.9–54.3) were considered a “DOT success” i.e. completed > 90% of their study specified frequency of DOT and successfully weaned to self-administered therapy.
- Three of the above patients were able to maintain a >93% adherence to medications at week 24 (end of study).
- Overall feedback from participants was very positive.

¹Gaur AH, Belzer M, Britto P, et al. DOT for non-adherent adolescents – lessons learned, challenges ahead. CROI 2008



PACTG 1036B Results¹ (continued)

- Majority of the respondents found choosing a place to receive DOT, remembering to be there, and taking medications in the presence of the DOT facilitator easy.
- Most felt more motivated to take medications after receiving DOT and reported increased regularity of taking them.
- 100% reported they would recommend DOT to a friend
- Majority felt DOT helped them in ways more than just taking medications. Support and encouragement were some of the sentiments reported in this regards.
- 50% of respondents reported feeling sad when DOT ended and >90% reported missing meeting the DOT facilitator.

¹Gaur AH, Belzer M, Britto P, et al. DOT for non-adherent adolescents – lessons learned, challenges ahead. CROI 2008



DOT – Take Home Points

- DOT is more than just observing someone take medications
- Identifying the right candidate for DOT is critical
- Home/community based assessments/interventions address some of the limitations of our current focus on clinic based measures



Summary



- Maintaining adherence to HIV treatment one of the biggest challenges for those with access to treatment
- How much adherence is enough remains to be defined
- There is no gold standard for assessing adherence that applies to all – the context determines the tool and more than one tool is generally required
- Recognize patterns of non-adherence and re-evaluate periodically
- Barriers to adherence can be multifactorial and so should the interventions. Individualizing interventions to address non adherence is critical



Maintaining Adherence is Not Easy

- We are asking a lot of our adolescents
- Think about the last time you had to take medications.....
- Empathy, understanding, being firm, non-judgmental – the clinician needs to use all of these attributes
- Never give up – people change