8th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

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Pharmacist Support For Antiretroviral Adherence

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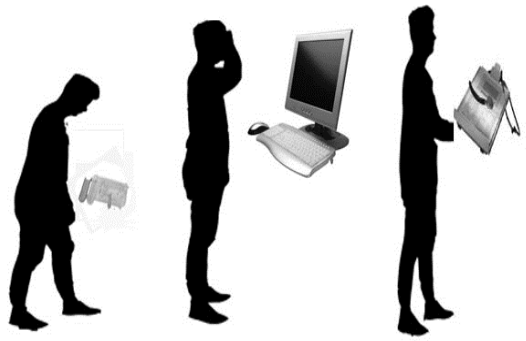
Disclosures

- Jennifer Cocohoba, Pharm.D. declares that she has no potential conflicts to disclose with regards to this presentation.

Evolution of the HIV Pharmacist



- Development of HIV pharmacist specialists
  - HIV specialty residency programs
  - U of Buffalo training program
  - American Academy of HIV Pharmacists
- From the pill counting ñbenchò to the HIV+ patientôs bedside
  - Drug-drug interactions
  - Monitoring efficacy & toxicity
  - Pharmacist-run ART adherence programs

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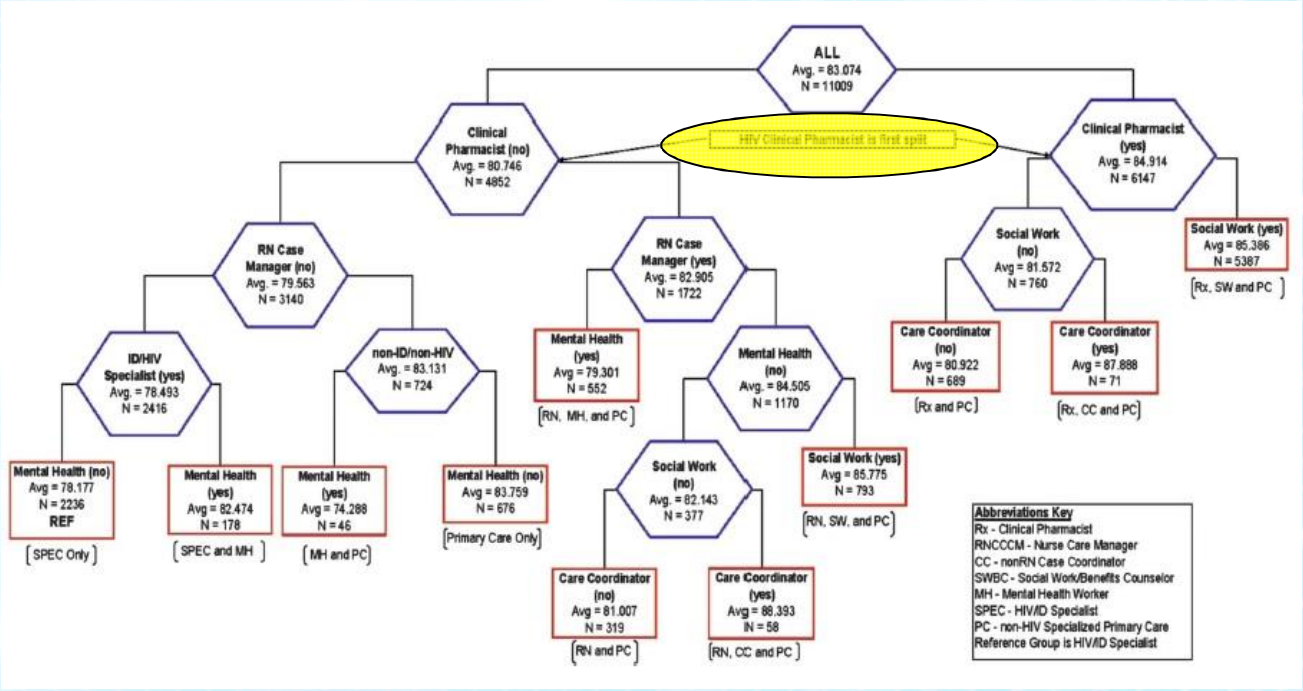
Pharmacists: key member of the multidisciplinary adherence team

- Multi-disciplinary care teams vs. HIV specialist alone
  - Pharmacist only allied health care professional when added to MD that ↑ adherence!
  - Highest improvement = pharmacist + care coordinator + primary care MD



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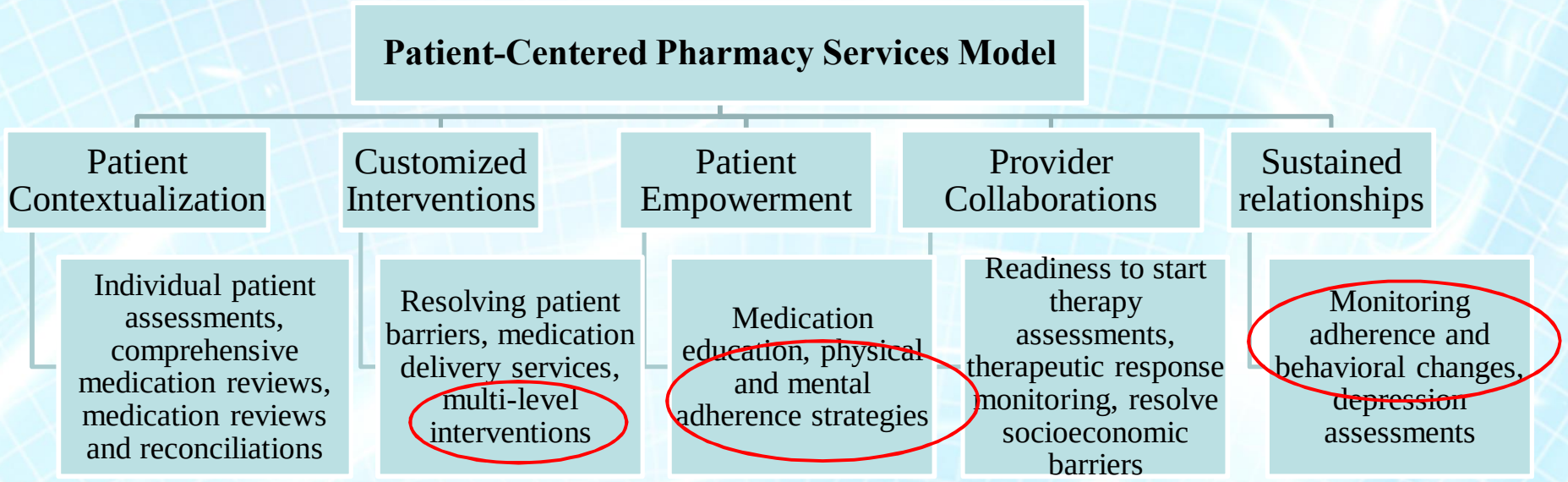
Horberg, et. al. Determination of Optimized Multidisciplinary Care Team for Maximal Antiretroviral Therapy Adherence. *JAIDS* 2012;60:183ï 190

Selected studies: HIV Pharmacist Impact on ART Adherence

McPherson-Baker (2000)	**Before-after study** testing efficacy of **program of 5 monthly pharmacist visits** including brief medication counseling, pill box instruction, and adherence counseling to improve ART adherence.	Significant increase in adherence at 5 months postintervention (t =4.21, P , 0.01)
Castillo (2004)	**Cohort study** comparing impact of **3 different types of pharmacy care settings** on ART adherence and time to VL suppression. At AIDS-tertiary care hospital outpatient pharmacies pharmacists provided medication counseling, individualized regimens, monitored for AEs every 2 months. At off-site pharmacies there were mixed amounts of HIV pharmacy care provided. At family physiciansô offices there was no pharmacist contact at ARV dispensing	90% ART adherence AIDS pharmacies = 70.4% Other pharmacies= 59.2% No pharmacist = 55.7% (P =0.0001)
Levy (2004)	**Stepped wedge RCT** to determine impact of a **pharmacist run program** including education on HIV and adherence, integration of medications into patient lifestyle, medication planners, adherence devices and pagers on ART adherence.	Self-reported missed doses in 28 days Pre =7.4; Post =4.2 (P , 0.001)
Rathbun (2006)	**RCT** to examine the impact of **a pharmacist operated adherence clinic** (1-1.5 hour visit at ART start, f/u phone call in 1 week, 30 minute follow up in 2 weeks and PRN follow up through 12 weeks) on adherence to HAART and viral suppression as compared to standard of care (education during PCP office visits).	EDM at week 28: Intervention=74%; Control=51% , (P =0.08).
Horberg (2007)	**Ecological study** to assess **association of presence of HIV clinical pharmacists** (who provided consult visits at ART initiation and at regimen changes assessing adverse effects) with health outcomes (CD4□, VL, adherence) and health utilization measures.	Refill adherence 24 months HIV pharmacist =76.7% No HIV pharm= 68.9% (P =0.02)
Hirsch (2011)	**Cohort study** to examine **HIV pharmacy MTM program** where pharmacists counseled on adherence, consulted with other providers, managed ADR, tailored regimen to fit patientôs lifestyle or needs, offered adherence packaging, refill reminders, weekly phone calls, or home visits after ARV initiation, identified peer advocates, counseled when ARV under-or over-use detected as compared to control pharmacies.	Refill adherence at 3 years HIV pharmacies=69.4% Non-specialized pharm=47.3% (P=0.001)

HIV MTM theoretical framework



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From: Kibicho, et. al. A Patient-Centered Pharmacy Services Model of HIV Patient Care in Community Pharmacy Settings: A Theoretical and Empirical Framework. AIDS Pt Care STDs; 2012(26:1):23

HIV MTM in practice

- Addressing adherence is core component of MTM
  - ñé a combination of individually tailored, patient-specific interventions that identified and resolved adherence barriers and actively anticipated and addressed potential adherence barriers.ò
  - Interventions: medication-specific education to enhance patient self-efficacy, follow-up calls to monitor adherence, practical and social support to motivate adherence, and patient referrals to other health care providers.
  - Barriers: lack of time or trained personnel, insurance policies prohibiting patient enrollment in automatic refill programs

be helpful. Pharmacists should ask patients open-ended nonjudgmental questions (i.e., those that cannot be answered with "yes" or "no"). Such questions should be asked for each individual medication and may include:

- How do you use this medication?
- How often do you miss a dose of this medication?
- How many doses of this medication have you missed in the past week?
- What have you experienced after taking this medication?

Addressing Adherence During MTM Sessions

There are many barriers to adherence that may be present to various degrees, and may exist independently or in combination. Once an adherence problem is identified during the medication therapy review, it is important to work with the patient to determine the underlying cause(s) of the problem and develop appropriate interventions. For example, if a patient misses a large percentage of doses because he or she struggles to afford the medication, then providing the patient with a pillbox to organize the medication is unlikely to resolve the issue.

Interventions with action steps that are within the pharmacist's scope of practice can be offered directly to the patient and incorporated in the MAP. If the recommended intervention requires physician approval prior to initiating the change, the pharmacist may obtain the information necessary from the patient to develop a recommendation that will be communicated to the patient's physician.

In MTM sessions, the pharmacist should ask caring, open-ended questions to determine the factors that impede each patient's adherence, and to keep in mind that different factors may be present within the same patient. (For example, the patient may skip one medication because of cost, but not take another because of an adverse event.) In addition, it is best to work with patients to individually tailor solutions: patients are more likely to embrace a new plan of action if they are involved, to the best of their cognitive ability, in developing it.

Keep in mind the possibility that multiple medication-related problems may be identified during a medication therapy review. It may be confusing or overwhelming for the patient to attempt to completely resolve all problems within the context of a single MTM visit. Pharmacists should aim to prioritize the importance of each medication-related problem to the patient's health and outcomes, including consideration of the patient's perception of importance. Pharmacists can then work to address the most critical issues first, while postponing less critical issues for follow-up MTM visits. Ongoing monitoring and fine tuning of the treatment plan at follow-up visits is also important because adherence support will be an ongoing coaching activity.

Improving medication adherence often requires the pharmacist to encourage the patient to change his or her behavior. The transtheoretical model of behavior change may be applied to medication-taking behavior, possibly in conjunction with motivational interviewing. In the transtheoretical model, the patient's readiness to begin medication-taking behavior is categorized by stages of readiness: precontemplation, contemplation, preparation, action, or maintenance. Motivational interviewing involves the use of specific techniques designed to support the patient's intrinsic motivation to make healthful changes, thus empowering the patient.

In motivational interviewing, patients are encouraged to develop the motivation to make the change themselves, rather than being told what they must do by an authoritarian figure (i.e., the health care provider). Motivational interviewing may be an effective technique, but requires a substantial amount of training to perform correctly.[9] However, with appropriate training, pharmacists can use motivational interviewing techniques to support medication adherence and promote the adoption of other healthful behaviors (e.g., tobacco cessation, exercise, healthful diet). Motivational interviewing is congruent with the goals of MTM—to make patients empowered consumers of health care.

Regardless of the causes of nonadherence and strategies initiated by the pharmacist during the MTM visit (either directly with the patient or in collaboration with other health care providers), pharmacists should inform prescribers when poor adherence is identified and work to support a team approach to address the patient's health care needs. If the patient has multiple prescribers, the pharmacist can help coordinate all of their prescribed regimens. In addition, patients should be encouraged to share their PMR with all of their health care providers.

Strategies to Address Specific Adherence Barriers

A review of common underlying causes of poor adherence and some suggested interventions are presented here. Table 2 summarizes a number of common barriers to adherence and potential strategies to address them.[10,11]

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Kibicho, et. al. Pharmacistsô strategies for promoting medication adherence among patients with HIV. *J Am Pharm Assoc*. 2011;51:746ï 755

McDonough, R, et. al. eds. Medication Therapy Management Services: Identifying and Addressing Medication Adherence Issues. American Pharmacist Association. http://www.pharmacist.com

Real world successes & challenges

" … a big part of my job is if I'm noticing it's [refilled] late and sitting on my shelf, we're calling them constantly … Say, if you notice a patient's not being adherent. Keeping in touch with the doctor and letting the doctor know what's going on, too, so that way you can have that 3-way relationship between pharmacy, physician, and patient." (pharmacist, white male)

"So, I'll go and talk to patients if I've noticed that they haven't been picking up regularly, and I'll just go and ask them if they've been getting it elsewhere or if they had an extra supply … Generally, the response is yes, I've had something somewhere. They don't tend to admit that they haven't been taking the medications, to me, at least … I don't know if there's a better way to approach someone to have them admit that they're not taking them every day or they're having trouble remembering taking them every day or they—yeah, if they are having adverse effects, they're not saying that's the problem." (pharmacist, white female)

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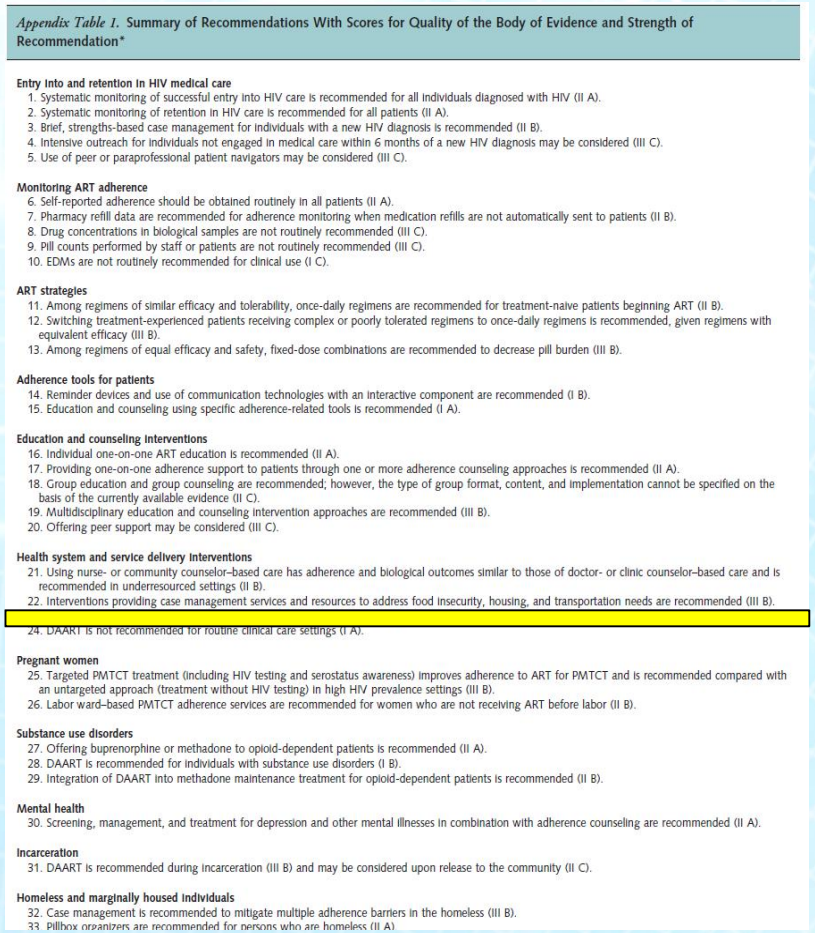
Cocohoba, et. al. A Qualitative Study Examining HIV Antiretroviral Adherence Counseling and Support in Community Pharmacies. In press (2013).

Backwards translation: getting practice into evidence

- Minor and major adherence interventions conducted by HIV pharmacists worldwide
- Some studies published, but most interventions likely to go undocumented
  - Unstudied = Undocumented = not noticed?
  - Inclusion of MTM into pharmacy can be ñconsideredò (IIIC)
- Including this wider scope of pharmacistsô daily adherence interventions é are we effective?



Appendix Table 1. Summary of Recommendations With Scores for Quality of the Body of Evidence and Strength of Recommendation*

Entry into and retention in HIV medical care
1. Systematic monitoring of successful entry into HIV care is recommended for all individuals diagnosed with HIV (II A).
2. Systematic monitoring of retention in HIV care is recommended for all patients (II A).
3. Brief, strengths-based case management for individuals with a new HIV diagnosis is recommended (II B).
4. Intensive outreach for individuals not engaged in medical care within 6 months of a new HIV diagnosis may be considered (III C).
5. Use of peer or paraprofessional patient navigators may be considered (III C).

Monitoring ART adherence
6. Self-reported adherence should be obtained routinely in all patients (II A).
7. Pharmacy refill data are recommended for adherence monitoring when medication refills are not automatically sent to patients (II B).
8. Drug concentrations in biological samples are not routinely recommended (III C).
9. Pill counts performed by staff or patients are not routinely recommended (III C).
10. EDMs are not routinely recommended for clinical use (I C).

ART strategies
11. Among regimens of similar efficacy and tolerability, once-daily regimens are recommended for treatment-naive patients beginning ART (II B).
12. Switching treatment-experienced patients receiving complex or poorly tolerated regimens to once-daily regimens is recommended, given regimens with equivalent efficacy (III B).
13. Among regimens of equal efficacy and safety, fixed-dose combinations are recommended to decrease pill burden (III B).

Adherence tools for patients
14. Reminder devices and use of communication technologies with an interactive component are recommended (I B).
15. Education and counseling using specific adherence-related tools is recommended (I A).

Education and counseling interventions
16. Individual one-on-one ART education is recommended (II A).
17. Providing one-on-one adherence support to patients through one or more adherence counseling approaches is recommended (II A).
18. Group education and group counseling are recommended; however, the type of group format, content, and implementation cannot be specified on the basis of the currently available evidence (II C).
19. Multidisciplinary education and counseling intervention approaches are recommended (III B).
20. Offering peer support may be considered (III C).

Health system and service delivery interventions
21. Using nurse- or community counselor–based care has adherence and biological outcomes similar to those of doctor- or clinic counselor–based care and is recommended in underresourced settings (II B).
22. Interventions providing case management services and resources to address food insecurity, housing, and transportation needs are recommended (III B).
24. DAART is not recommended for routine clinical care settings (I A).

Pregnant women
25. Targeted PMTCT treatment (including HIV testing and serostatus awareness) improves adherence to ART for PMTCT and is recommended compared with an untargeted approach (treatment without HIV testing) in high HIV prevalence settings (III B).
26. Labor ward–based PMTCT adherence services are recommended for women who are not receiving ART before labor (II B).

Substance use disorders
27. Offering buprenorphine or methadone to opioid-dependent patients is recommended (II A).
28. DAART is recommended for individuals with substance use disorders (I B).
29. Integration of DAART into methadone maintenance treatment for opioid-dependent patients is recommended (II B).

Mental health
30. Screening, management, and treatment for depression and other mental illnesses in combination with adherence counseling are recommended (II A).

Incarceration
31. DAART is recommended during incarceration (III B) and may be considered upon release to the community (II C).

Homeless and marginally housed individuals
32. Case management is recommended to mitigate multiple adherence barriers in the homeless (III B).
33. Pillbox organizers are recommended for persons who are homeless (II A).

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Thompson A, et. al. Guidelines for Improving Entry Into and Retention in Care and Antiretroviral Adherence for Persons With HIV: Evidence-Based Recommendations From an International Association of Physicians in AIDS Care Panel. *Ann Intern Med.* 2012;156:817-833.

Breaking down the “pharmacist ART adherence intervention”

- Facilitating medication access
  - Medication supplies
  - Synchronization of refills
  - Facilitation of automatic refills
  - Prior authorization services
  - Waiving co-pays
- Provision of reminder devices
  - Reminder packaging
  - Refill reminder messages
  - Text messaging
- Counseling
  - Disease and medication education
  - Motivational interviewing
- Clinical interventions to identify and ameliorate drug-related problems affecting adherence
  - Collaborative prescribing
  - Regimen simplification or therapeutic interchange
  - Symptom and adverse effect management
- Other
  - Facilitating adherence discussion between physicians and patients
  - Drug information for multidisciplinary team and patients

é and MORE!

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Fitting to existing adherence intervention taxonomies

Å Pharmacist actions

- ï Facilitating med access
- ï Reminder devices
- ï Counseling
- ï Clinical interventions for drug-related problems
- ï Other

Å De Bruin intervention taxonomy

- ï Knowledge-based
- ï Awareness-based
- ï Facilitation
- ï Self-efficacy
- ï Intention formation
- ï Action control
- ï Maintenance
- ï Attitudes
- ï Social influence
- ï Motivational interviewing

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De Bruin M, Viechtbauer W, Hospers HJ, et. al. Standard Care Quality Determines Treatment Outcomes in Control Groups of HAART-Adherence Intervention Studies: Implications for the Interpretation and Comparison of Intervention Effects. Health Psychology, 2009:28(6);668-674).

Bringing practice into evidence: adherence assessment

- Pharmacy refill tool
- Refill schizophrenia
  - Multiple calculations
  - Multiple cutoffs
  - Adherence, persistence, dos timing
  - PQA says use PDC
- Self-reports
  - Multiple day recall
  - Visual adherence scales
- Places to keep records?

Table 2. Reported Associations with Pharmacy-Based Adherence Measures (PAMs) in Low- and Middle-Income Countries

Study (year)	Design	Type of care	Region	ART naive	ART regimen (%)[a]	PAM category	PAM definition in study	PAM months[b]	Sample size, no. of persons	Key findings[c]
Nachega et al [13] (2006)	Retrospective cohort	Private	Sub-Saharan Africa (multiple countries)	Yes	NNRTI (82), PI	MPR	Months ART claims submitted (entire regimen)/ months from start to death, withdrawal or censor	Variable; median, 22	6288	1. PAM <80% predicted death and death + LTFU ($P < .01$) 2. compared with PAM adherence of 100%, decreasing PAM strata increasingly predicted death ($P < .01$), except for PAM adherence of 80%–99%
						MPR	Months ART claims submitted (entire regimen)/ Months in the interval	12 (0–12)	3267	PAM <80% in first 12 months predicted death ($P < .01$)
Weidle et al [26] (2006)	Clinical trial	Home based	Uganda	Yes	NNRTI (100)	PC[f]	(Days 3TC delivered - days 3TC returned) /days in the interval	3 (3–6) 3 (9–12)	913 894	1. PAM <95% predicted VF[d] at 6 or 12 months ($P < .01$) 2. self-report predicted VF at 12 ($P < .05$) but not 6 months
						PC	(3TC Pills delivered – 3TC pills returned)/3TC pills delivered	3 (3–6) 3 (9–12)	913 894	PAM <95% predicted VF[d] at 6 or 12 months ($P < .05$)
Nachega et al [4] (2007)	Retrospective cohort	Private	Sub-Saharan Africa (multiple countries)	Yes	NNRTI (100)	MPR	Months ART claims submitted (all ARVs)/months from start to death/leaving/ censor	Variable median, 26	2821	PAM strata >50% increasingly predicted sustained VL suppression ($P < .01$), shorter time to VL suppression ($P < .05$), and increased time to viral rebound[e] ($P < .05$)

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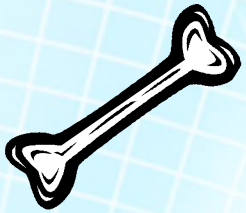
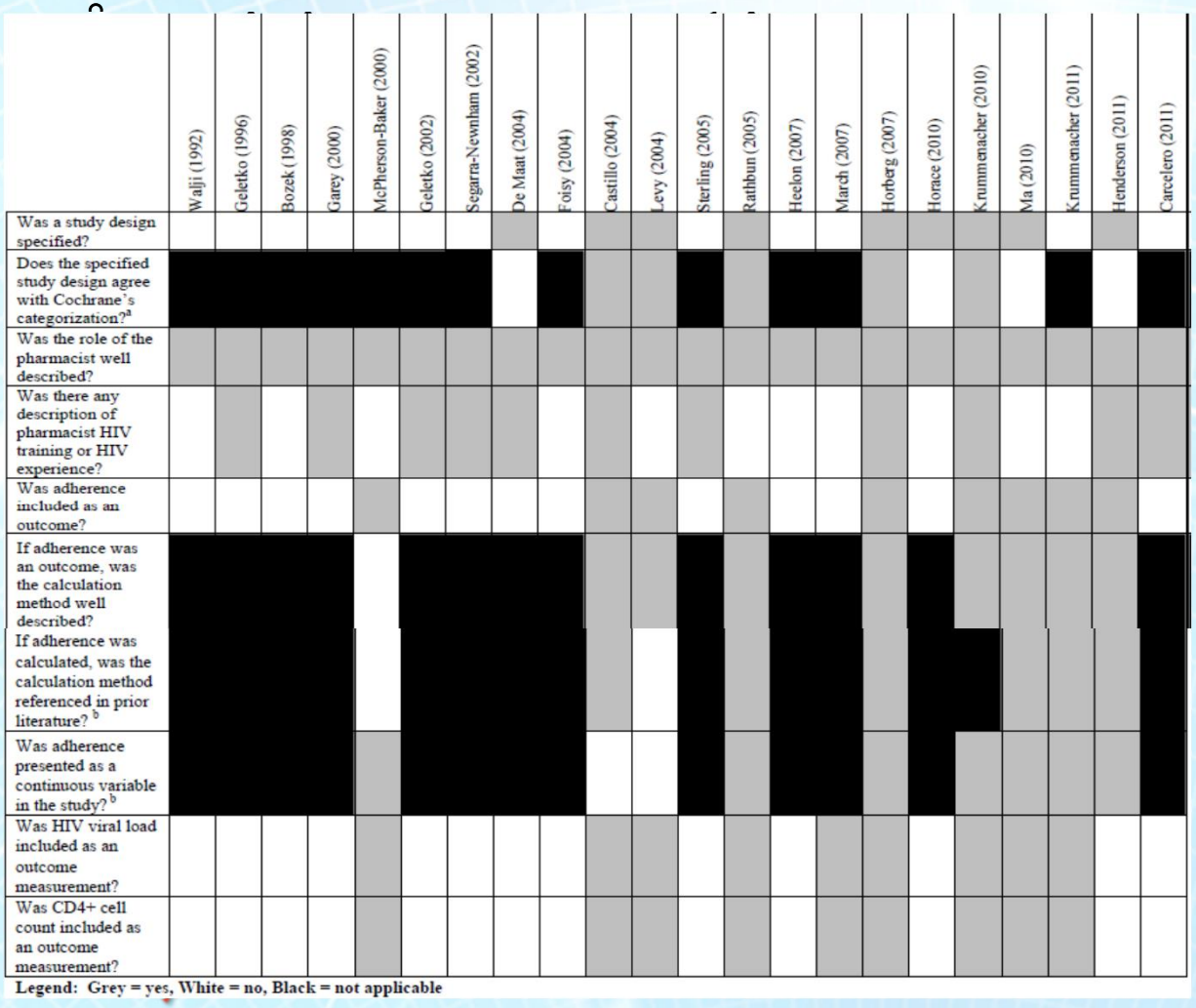
Nau, et. al. Proportion of Days Covered (PDC) as a Preferred Method of Measuring Medication Adherence. Available at http://pqaalliance.org/resources/adherence.asp

McMahon et. al. Pharmacy Adherence Measures to Assess Adherence to Antiretroviral Therapy: Review of the Literature and Implications for Treatment Monitoring. CID 2011:52: 493

Writing down the bones





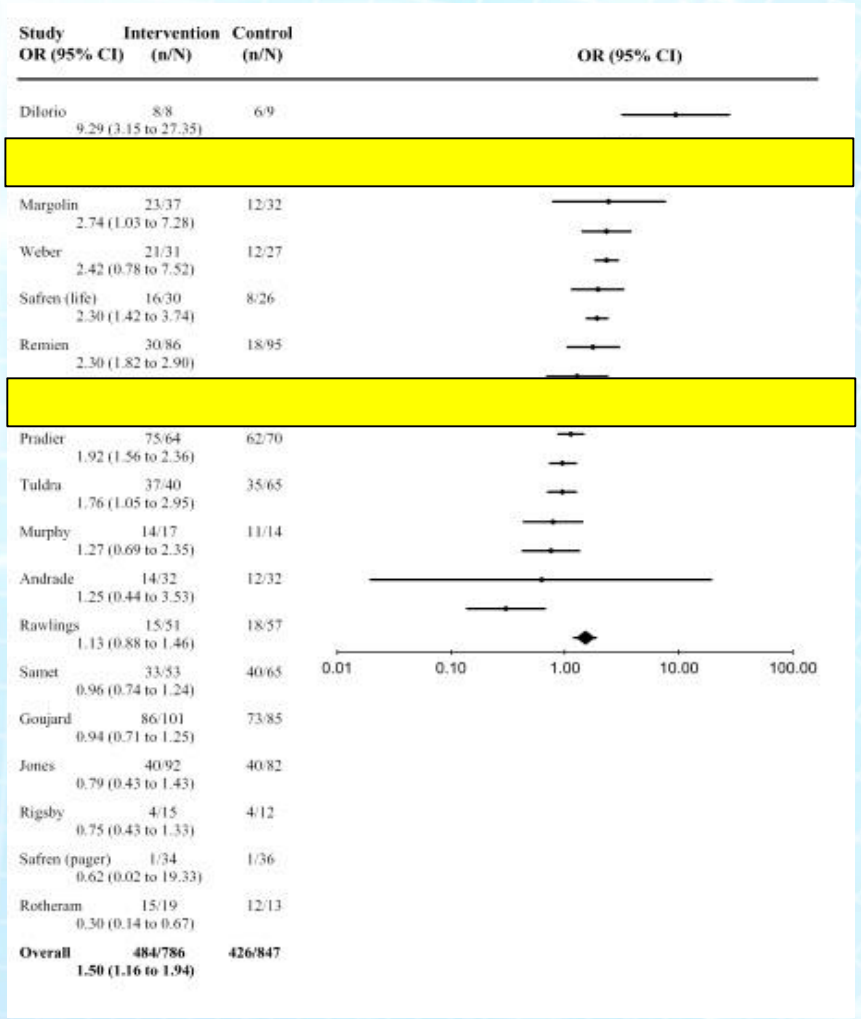
- Survey of manuscripts evaluating HIV pharmacist services
  - Training in clinical research
  - Partnerships with clinical researchers

Cocohoba, et. al. Unpublished data.

Revisiting the literature: bringing evidence into practice

- Trends
  - + Didactic info on ART
  - + Interactive discussion of motivations, adherence expectations
  - + Single session w/pharmacist
  - +/- External rewards
  - +/- Cue dosing
  - +/- External reminders (e.g. pagers)

- Guidelines for assessing self-reported ART adherence
  - IAPAC ñGRIP guideò



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Simoni, et. al. Efficacy of Interventions in Improving Highly Active Antiretroviral Therapy Adherence and HIV-1 RNA Viral Load A Meta-Analytic Review of Randomized Controlled Trials. *JAIDS*; 2006(43:S1)

Thinking outside the HIV adherence toolbox

Appendix Table 3. **Summary of Strength of Evidence, by Intervention Type**

Intervention Type	Diabetes	Hyperlipidemia	Hypertension	Heart Failure	Myocardial Infarction	Asthma	Depression	Glaucoma	Multiple Sclerosis	Musculoskeletal Diseases	Multiple or Unspecified Conditions
Blister packaging	–	–	MA, persistence*: L (+)	–	–	–	–	–	–	–	–
Case management	MA: L (+)	–	MA: L (+)	MA: L (+)	–	–	MA: M (+)	–	–	MA: I	Persistence*: L (–)
Case management preceded by intensive interdisciplinary assessment	–	–	–	–	–	–	–	–	–	–	MA: I
Collaborative care (telephone and in person)	MA: L (+)	MA: I	MA: L (–)	–	–	–	MA: M (+)	–	–	–	–
Collaborative care (telephone only)	–	–	–	–	–	–	MA: I	–	–	–	–
Decision aids	–	MA: I	–	–	–	–	–	–	–	MA, persistence*, initiation of therapy: I	–
Education (face-to-face with pharmacist)	–	–	MA: L (+) Persistence*: I	–	–	–	–	–	–	–	–
Education and behavioral support (telephone, mail, and/or video)	–	MA: L (+)	MA: L (+)	MA: L (+)	MA: L (+) Persistence*: I	–	–	–	–	–	–
Education and social support	MA: I	–	MA: I	–	–	–	–	–	–	–	–
Health coaching	MA: I	–	–	–	–	–	–	–	–	–	–
Multicomponent interventions	–	MA: I	–	MA: L (+)	–	–	–	MA: L (+)	–	–	–
Pharmacist or physician access to patient adherence data	–	–	–	–	–	MA: L (–)	–	–	–	–	–
Patient access to medical records	–	–	–	MA: I	–	–	–	–	–	–	–
Reminders	–	–	–	MA: L (+)	–	–	MA: L (+)	–	–	–	–
Risk communication	–	–	MA: I	–	–	–	–	–	–	–	–
Self-management	–	–	–	–	–	MA: M (+)	–	–	–	–	–
Shared or clinical decision making	–	–	–	–	–	MA: L (+)	–	–	–	–	–
Telephone counseling, care management, and monitoring	MA: I	–	–	–	–	–	MA: I	–	MA: L (+)	MA: I	–
Virtual clinic	–	–	–	–	–	–	–	–	–	MA: L (+)	–

I = insufficient; L (–) = low strength of evidence of no benefit; L (+) = low strength of evidence of benefit; M (+) = moderate strength of evidence of benefit; MA = medication adherence (with respect to timing, dosage, or frequency as prescribed).
* In continuing treatment for the prescribed duration.

Viswanathan, et. al. Interventions to Improve Adherence to Self-administered Medications for Chronic Diseases in the United States: A Systematic Review. *Ann Int Med*; 2012

Evidence into practice

- No gold standard
  - Have we incorporated adherence interventions with stronger evidence into pharmacist adherence support practices?
  - Are there missing items we should try to include in pharmacist ART adherence programs?
    - Case management
    - Self-management
    - Collaborative care models

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Bringing evidence into pharmacy adherence interventions…practically

- Respecting the (work)flow
  - Adapt promising interventions for use in pharmacy/by pharmacists
    - Re-envisioning pharmacy or clinic workspaces,
    - Re-imagining electronic HIT systems & pharmacy systems
    - Utilizing ancillary staff to deliver interventions(technicians, interns, etc.)
  - Consider novel interventions which fit with pharmacist workflow
    - Brief motivational interviewing in counseling
    - Two-way text messaging
    - Telehealth for pharmacist counseling and/or targeting special populations*

- Short and long-term planning
  - Intervention intensity, duration, sustainability for longitudinal f/u

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Saberi, et. al. A Pilot Study to Engage HIV-Positive African American Youth via Telehealth Technology. Unpublished data.

Moving into the future

- Era of decreasing ..or increasingé patient contact?
  - Mail order specialty HIV pharmacies
    - Pressure to employ more cost effective dispensing services
    - Cost of losing face-to-face patient contact
  - Pharmacistôs role in accountable care organizations
    - Emphasis: transitions of care, MTM services
    - Pay-for-performance reimbursement shifts quantity of care for quality care
    - Optimization of therapy includes maintaining high adherence

Other considerations for the future

- Pharmacist daily adherence interventions
  - HIV ART é and meds for <u>all</u> chronic diseases
  - HIV PreP: new adherence approaches needed?

- Pharmacy models of care
  - Detailed, complicated models → concise models for adoption in resource-limited settings

Presenting the continuum of pharmacist ART adherence support

- Coordination of pharmacy (adherence) services
  - Roles, specialized skills at different levels
  - Reorganizing when links in the chain are not present
  - Goal: support link of patients to care, promote adherence

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Needs, directions

Promoting & Harnessing

- Demanding adequate time to conduct ART adherence interventions
- Examining financial models to support and sustain adherence activities
- Demonstrating value of HIV pharmacists in improving ART adherence & HIV outcomes via rigorous studies
- Facilitating training to enhance pharmacist adherence assessment & intervention skills
  - Student pharmacist level
  - Continuing education to enhance skills

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Training pharmacists to recognize & intervene on poor adherence

Table 1. Pharmacy Students' Perspectives on Medication Adherence Topics Taught in the Doctor of Pharmacy Curriculum (N = 52)

Adherence Topic	Not Taught, No. (%)[a]	Somewhat Taught, No. (%)[a]	Moderately Taught, No. (%)	Extensively Taught, No. (%)[a]	Median Score[b]
Medication adherence education in general	0	10 (19.2)	16 (30.8)	24 (46.2)	3.0
Models for understanding medication adherence	1 (1.9)	12 (23.1)	18 (34.6)	19 (36.5)	3.0
Predictors of medication non-adherence	3 (5.8)	9 (17.3)	18 (34.6)	18 (34.6)	3.0
Causes of medication non-adherence	1 (1.9)	7 (13.5)	15 (28.8)	24 (36.2)	3.5
Consequences of medication non-adherence	0	8 (15.4)	10 (19.2)	28 (53.8)	4.
Impact of medication adherence on clinical outcomes	1 (1.9)	6 (11.5)	13 (25.0)	27 (51.9)	4.0
Motivational interviewing	4 (7.7)	9 (17.3)	16 (30.8)	17 (32.7)	3.0
Educational interventions	1 (1.9)	8 (15.4)	18 (34.6)	19 (36.5)	3.0

[a] Percentages may not add up to 100% because there were a few cases where multiple responses from a college or school were received; these multiple responses were averaged to provide one response.

[b] Based on the following scale: 1 = not taught, 2 = somewhat taught, 3 = moderately taught, 4 = extensively taught. These medians represent all responses, including those averaged over multiple responses from a pharmacy college or school.

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Rickles, et. al. Teaching Medication Adherence in US Colleges and Schools of Pharmacy *American Journal of Pharmaceutical Education* 2012;76(5):1-9

Needs, directions

Enhancing Opportunities

- Efficient utilization of pharmacy records to identify poorly adherent patients
  - Individual automatic MPR/PDC calculations (easily accessible as part of record) for point of care interventions
  - Reporting functions for groups of patients trending in poor adherence for proactive pharmacist contact
  - Secure systems to ñtaskò pharmacists to intervene on adherence as part of workflow.
  - Mapping adherence data to identify regions to divert resources to improve adherence

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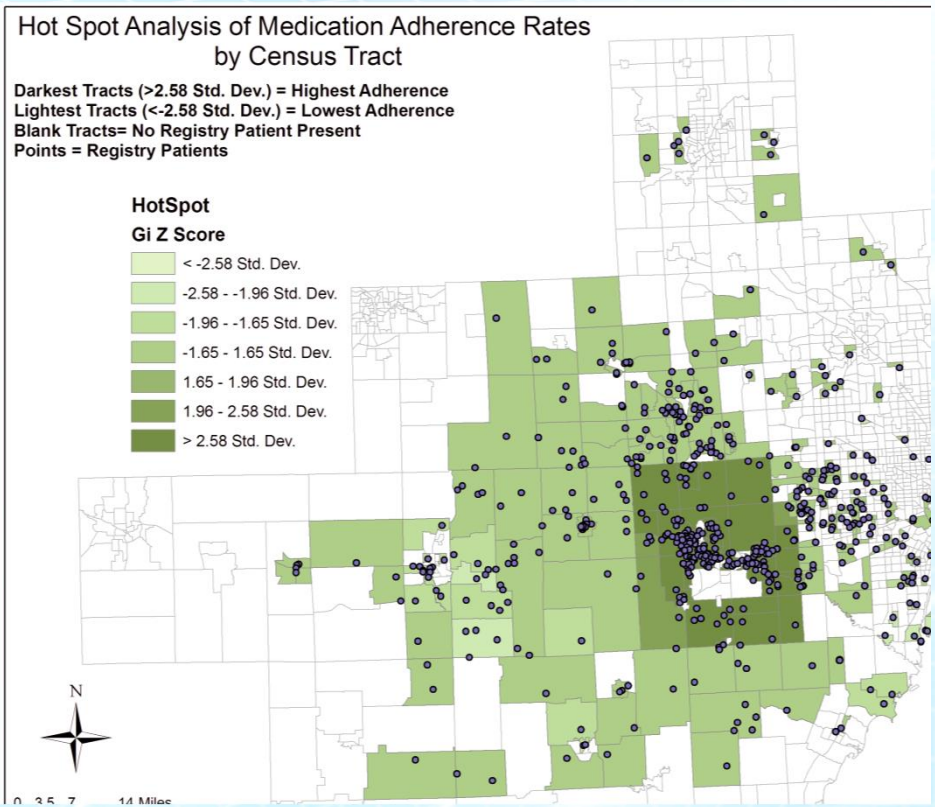
Needs, directions



Cuong, et. al. Mapping Geographic Areas of High and Low Drug Adherence in Patients Prescribed Continuing Treatment for Acute Coronary Syndrome After Discharge. Pharmacotherapy 2011;31(10):927ï 933

Enhancing Opportunities

- Efficient utilization of pharmacy records to identify poorly adherent patients
  - Individual automatic MPR/PDC calculations (easily accessible as part of record) for point of care interventions
  - Reporting functions for groups of patients trending in poor adherence for proactive pharmacist contact
  - Secure systems to ñtaskò pharmacists to intervene on adherence as part of workflow.
  - Mapping adherence data to identify regions to divert resources to improve adherence

Pharmacist ART adherence support

- Research → practice → research
  - Explore and promote pharmacist adherence services
  - Clearly characterize multicomponent pharmacist adherence interventions to improve understanding in research community
  - Take advantage of the chain of pharmacy care to reinforce (or divide and enhance) adherence work with patients
  - Mobilize pharmacists across this spectrum to improve medication adherence for ART and other chronic disease therapies

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