Medication Adherence Objectives

On completion of this program, you will be able to:

• Define and differentiate between terms of medication adherence, compliance, and persistence
• Describe the prevalence of medication non-adherence and its influence on patient health
• Discuss the complexity of issues/factors related to medication adherence/non-adherence, with emphasis on chronic disease orientation
• Identify strategies related to each category of factors associated with non-adherence
• Plan to implement patient- and practice-tailored strategies to optimize adherence for chronically ill patients

Warning

• Basic content
• BUT a universal problem
• Fundamental to any discussion of pharmacological treatment
Medication Adherence

- Major healthcare problem globally
- In U.S.:
  - 43-78% adherence with chronic medications
  - 33-69% of all medication-related U.S. hospitalizations
  - $900 billion annually in U.S.
    (Osterberg & Blaschke, 2005)

Hypertension Adherence

- U.S. 51%
- China 43%
- The Gambia 27%
- The Seychelles 26%
- Control: UK (7%), US (30%), Venezuela (4.5%)

Diabetes

- U.S. <2% perform all ADA recommended care
  - US 75-80% adherence to oral therapy
Asthma

- Adherence 30-70%
- Asthma example of costly treatment
  - 5.5-14.5% of family income in U.S.

Adherence and Related Definitions

Adherence Defined

Compliance is the extent to which a person takes medications as prescribed by HCP. There is no concept of patient's role beyond following the regimen.

Adherence relates to the extent to which a person's medication-taking corresponds with agreed-upon recommendations from a healthcare provider. It is based on percentage of prescribed doses taken in a period of time. (WHO, 2003)

Persistence relates to the period of time for which a person takes medications as prescribed from beginning to completion of therapy (Cramer et al, 2007)

Adherence Can Be...

- Intentional
  - e.g. choosing to not fill prescription
- Unintentional
  - e.g. passive forgetfulness or carelessness
Adherence Has

- Preventable causes
  - Forgetfulness
  - Misunderstanding
  - Financial barriers
  - Transportation limitations
- Non-preventable cause
  - Mental illness
  - Intolerable side effects
  - Adverse events

Numerous Studies on Adherence/Non-Adherence

- Vary in definitions of concept
  - Unclear degree of agreement by patient
- Examples include the following

Rates of Prescription Fills/Refills
Primary Adherence

- Primary Non-Adherence 24% overall
  - Reviewed prescriptions and filled claims; over 1 million prescriptions
- Non-adherence more likely if
  - Prescription handed to patient, not transmitted
  - Residence lower SEC zip code
  - Non-formulary agent
- Chronic Rx (anti-diabetic=42%, anti-anxiety=38%)
  - Acute (macrolide=9%, cephalosporin = 10%)
  - Fischer et al, 2011

Refill History

- 3-month study patients on statins/ACE/ARBs
  - On average filled 6.3 different medications, two prescribers
- Refill history affected by number of
  - Medications
  - Prescribers
  - Pharmacies
  - Visits
  - Doses
- Refill consolidation
  - More pharmacy trips associated with decrease in adherence
  - 10% refilled 23 or more prescriptions
  - Choudhry et al, 2011

Rule of 6’s: Patient on Chronic Meds

- One-sixth take all doses, on time
- One-sixth “take virtually all” with some variable timing
- One-sixth occasionally skip a day have some variable dose-timing
- One-sixth take drug holiday (3+ days without) up to 3-4 times per year, as well as occasionally skip 1-2 days’ doses.
- One-sixth have drug holiday at least monthly and frequently skip 1-2 day’s doses.
- One-sixth take few or no doses, maintaining the appearance of satisfactory compliance
  - Urquhart, 2002
Unintentional Non-Adherence??

- Survey >24,000 on chronic meds for asthma, HTN, DM, hyperlipidemia, COP and/or depression
- 62% forgot
- 37% ran out
- 23% careless
- BUT unintentionality associated with beliefs:
  - Lower perceived need for medication
  - Problems with medication cost
  - Worse self-rated health
  - Having DM or OP (vs HTN)
  - Age (younger)
  (Gadkari & McHorney, 2012)

Non-Adherence Cascade?

- Prescribing cascade—term referring to common practice of adding pharmacologic treatment for new onset of symptoms, not recognized as adverse effects to current therapy
- “Non-adherence cascade”—risk for escalating dosages and adding treatments for inadequate response, not recognized as sign of non-adherence to currently prescribed therapy

Measuring Medication-Taking?

- Accurate but expensive
  - Direct Observation
  - Levels measured-plasma or urine levels
  - Electronic monitors
- Affordable but inaccurate
  - Self-report
  - Pill counts
  - Refill rates
  - Diaries
  - Clinical response
Adherence Predictors

- Generally increases with age until 7th decade
- Increase in risk factors:
  - Therapeutic complexity
  - Polypharmacy
  - Declining social support
  - Cognitive deficits
  - Physical deficits

Adherence Predictors

- Gender: Inconsistent
- Race/ethnicity: Inconsistent
- Low health literacy or educational level

Other Factors

- Beliefs:
  - Religious beliefs
  - Mistrust of medications
  - Ineffectiveness of medication
  - Need resolves as symptoms resolve
  - Mental health disorders
  - Decreased self-efficacy
Social & Financial Factors

- Lower social support system
- Unstable living situation
- Cost of medications
- Insurance coverage
- Access/transportation
- Education/health literacy

Treatment Related

- Polypharmacy
- Dosing frequency
- Duration
- Side effects
- Frequency of changes

Healthcare System

- Reimbursement policies
- Formulary options
- Distribution locations/systems
- Appointment availability
- Fragmented care
- Multiple providers/prescribers
- Resources to educate and monitor
Adherence Defined

The extent to which a person's behavior -- taking medications, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider.

Chronic diseases: Diseases which have one or more of the following characteristics: they are permanent, leave residual disability, are caused by nonreversible pathological alteration, require special training of the patient for rehabilitation, or may be expected to require a long period of supervision, observation, or care.

WHO, 2003

Take-Away Points

- Poor adherence with chronic diseases is a worldwide problem
- The impact of poor adherence grows as the burden of chronic disease grows
- Poor adherence to long-term therapies leads to poor outcomes/inc. costs
- Improving adherence also enhances patients’ safety
- Adherence is an important modifier of health system effectiveness
- Increasing the effectiveness of adherence interventions may have greater impact on health than any improvement in treatments
- Often cited by Koop—medications only work in patients who take them
- Healthcare systems must evolve to meet new challenges
Take Away, cont’d

• Patients need to be supported, not blamed
• Adherence is simultaneously influenced by several factors
• Patient-tailored interventions are required
• Adherence is a dynamic process that needs to be followed-up
• Clinicians need to be trained in adherence
• Family, community and patients’ organizations are key factors
• A multidisciplinary approach towards adherence is needed

Promoting Adherence

• Trustful patient-provider relationship
• Shared goals and decision-making
• Good communication

Monitor/Discuss at Each Visit

• Involve patient in decision-making
• Convey that medication adherence is common
• Education, education, education
Medication Adherence Questionnaires

- B-SMART: Barriers, Solutions, Motivation, Adherence Tools, Relationship, Triage
- 3-Item Estimator: Asks about perceived importance, worry regarding harming good, financial concerns
- 4-Item Estimator: Asks about whether problems with feeling sick, remembering, number of meds, cost
- Morisky Scale: 4-item includes Y/N questions regarding whether ever forgets meds, is careless with meds, stops if feeling better, stops if feeling worse

Most Important Question

- One that will work with your patients
  - Open-ended to start conversation
  - Non-accusing to allay concerns
- It can be difficult to take medications regularly over a long period of time. How often do you miss taking your medications?
  - Response then opens opportunity to explore the issues SPECIFIC TO PATIENT

Knowledge, Concern, Attitude

- Information provided consistent with patient’s level of health literacy
- Teach-back
- Use multiple formats
- Limited new information each visit
- Assessment of barriers
- Review and follow-up
Encourage Patient Dialogue

- Display and encourage material reminding patient to ask about:
  - Purpose of medication
  - Dosing and timing
  - Special requirements
  - Alternatives for cost, dosing
  - Potential side-effects and symptoms
  - How to proceed if dose missed
  - What else should be avoided or discontinued

Behavioral Strategies

- Modified dosing
- Simplified dosing
- Consolidated refills
- Medication organizers
- Reminders
- Diaries
- Self-monitoring, goal-setting

Involve Patient in Expanded Reconciliation

- Opportunity for discussion
- Agreement in timing, adherence
- Brown bag
- Example: Adult Medication Toolkit: Medication NonAdherence Risk Assessment
  - List each medication, dose, timing, duration
  - For each drug, question/document patient re:drug's perceived efficacy, any related problems, necessity
Financial

- Regular visits
- Generics
- Discount programs
- Medical assistance programs
- Pharmaceutical assistance

Condition

- Assess for and treat mental health
- Consider impact of overall health on
  - Cognition
  - Ability to open/use medications
  - Ability to obtain prescriptions

Excellent Resources

- WHO Report
- Improving Outcomes for Patients with Chronic Disease: Medication Adherence Project (MAP) (NYC Health, 2010)
- Adult Medication (American Society on Aging & American Society of Consultant Pharmacists Foundation)
WHO

- Describes approach to adherence from multiple models and strategies
- Reviews extensive literature specific to general adherence and adherence by specific chronic conditions
- One approach: IMB Model—Information, Motivation, Behavioral Skills as necessary to enhancing adherence

IMB

- Information: Knowledge, importance of education
- Motivation: Attitudes and perceptions
- Behavioral Skills: Ability to perform strategies necessary to adhere

- IMB is as relevant to HCPs as to patients in addressing Adherence

NYC MAP

- Resources to prompt patient questions
  - tear-pads for prominent placement in setting
  - poster for visibility
  - Forms to assess non-adherence risk
  - makes me feel sick, can’t remember
- Med lists
- Pocket Guide
- Tips for engaging practice team
Adult Medication

- Content on medication non-adherence
- Approach from multiple dimensions
  - Social & Economic
  - HC System
  - Condition-Related
  - Therapy-Related
  - Patient-Related

Call to Action - Return to the WHO Take-Aways

- Recognize non-adherence as a systemic problem
- Not individual patient responsibility
- Identify degree of adherence in individual patients, patient populations
- Consider medication non-adherence as potential contributing factor in all patients
- Ensure you have agreement with patients regarding plan-of-care
- Incorporate learnings in overall chronic disease model
- Identify relevant resources within community and healthcare system
- Train staff and colleagues to participate in efforts related to promoting adherence
- Identify and implement relevant tools—incorporate through-out practice
- Remember one strategy alone insufficient

References

- Urquhart, J. (2002). The odds of the three non when aptly prescribed medicine isn't working: Non-compliance, non-absorption, non-response. Journal of Clinical Pharmacology, 42(1), 210-222.
Pharmaceutical Sampling Objectives:

- Discuss the evidence regarding use of pharmaceutical samples as related to clinical decision making.
- Describe opportunities to enhance safety related to dispensing from “sample closets”.
- Formulate alternate solutions to barriers patients experience related to access to prescription drugs.

Mrs. K is 54 y/o established patient with history of HTN. Seen yesterday with elevated BP in office and home measures. During previous visit, discussed adding a third drug to her regimen, if needed. This visit, prescribed Drug L, providing one-week of samples to take prior to having prescription filled. During this week, she will monitor her BP and report response. Today, she calls the office to verify that she should take the samples although they expired two months ago.

Today, the news indicates that three lots of a new diabetes drug have been recalled. You stock samples of the drug and have dispensed to a few patients over the past couple of months. You are unsure how to determine which patients received specific lots of a given drug.
You are precepting an NP student who is conducting a project related to hypertension management. When she asks what percentage of your COPD patients have received a first-line agent relative to national recommendations in the past 12 months, you were surprised when a query of your EHR suggested lower rate than you anticipated.

Dispensing Drug Samples Commonplace

- Receipt of drug samples by physician practices common:
  - 80% of cardiologists, 70% of family physicians, and 67% of internists
  - Samples dispensed in 20% of office encounters
  - 12% of the US population receives drug samples annually

What are the reasons healthcare providers give for providing samples? Which are familiar in your practice?

- Assist those most vulnerable to medication costs
- Indigent/uninsured patients
- Medicare “donut hole” patients
- Patients with chronic diseases requiring multiple medications
- Minimize trial cost in diagnostic uncertainty
- Decrease expense for patient
- Minimize medication non-adherence
Indigent/uninsured patients

- Over 18% of Americans who received one prescription received at least one sample between 1999 – 2005 (cross-sectional; MEPS)
- 18-30 years old, non-hispanic, white
- Sample use not associated with income
- Less frequently provided to racial/ethnic minorities or the elderly

McDougal, et. al, 2010

Pediatrics

- Approximately 5% of ALL children (age<18) received a free sample in 2004 (14,995; MEPS)
- Poor children (<200% of FPL) were no more likely to receive than those > or = 400% of FPL
- Uninsured part year vs. all year, no more likely to receive
- Routine access to health care was associated with free sample receipt

Tija, et. al, 2008

Medicare patients

- Over 48% of Medicare beneficiaries reported receiving free samples (33,846; Medicare Current Beneficiary Survey, 2004)
- Access was higher among those:
  - who reported cost-related non-adherence
  - who lacked drug coverage benefits with Medicare
  - who paid more for drug benefits (private plan, etc.)
  - With 2 or more co-morbidities

Tija, et. al, 2008
Medication non-adherence

- Reasons for medication non-fulfillment and non-persistence (19,830 from national internet based panel of adults with chronic disease, 2008)
  - Financial hardship
  - Fear of side effects
  - General concerns about medicine
  - Lack of perceived need

McKernen & Spain, 2008

Effects on Evidence-Based Prescribing

- Prescriptions for first line drugs for HTN (JNC VII) increased after samples were restricted
  - Chart review of faculty and residents when samples were in the clinic
    - 43% of faculty; 57% of residents
  - Chart review a year later after sample removal from clinic
    - Increase from 38% to 63% overall

Boltri, et. al., 2002

Effect on evidence-based prescribing

- HCPs with samples in the clinic less likely to prescribe preferred meds for HTN/depression (631 PCPs; Vermont; 2007)
  - HTN: Less likely to prescribe thiazide diuretics (70% with samples; 93% without)
  - Depression: Less likely to prescribe generic antidepressant (91% with samples; 100% of those without samples)

Pinckney, et. al., 2010
Effect on trial cost

- Sample availability associated with increased cost in trial cost when diagnosis uncertain
- Those who receive samples have higher overall prescription expenditures (5,709; MEPS 2003-2003).
  - 14% received at least 1 sample
  - OOP $178 no sample vs $244 with sample

Alexander, et. al., 2008

Drug samples in the clinic prescribing decisions of internal medicine residents (29 residents over 6 months, inner city clinic)

- 65% (152/232 decisions) unadvertised drugs vs 73% (138/188 decisions) with no access to samples

Adair & Holmgren, 2005

Restriction of samples from a rural family practice clinic reduced branded drug use (Pharmacy Medicaid drug claims in Oregon over 18 months)

- Average drug costs increased by $5.18 immediately after implementation

Hartung, et. al., 2010
Sample Closet

- Survey of 10 internal medicine and family practice sample closets
- 12,581 individual sample packets/boxes of medication
  - Mean=1258 packages per closet; mean 123 different meds
  - 27 individual medications common to at least 70% of closets
- 97% of samples had a generic medication for the same indication
- 74% had a generic with the same mechanism on the market


Sample Closets, Cont’d

- 3 medications (13%) associated with superior outcomes vs alternatives
- 6 medications (26%) demonstrated superior safety or tolerability
- 1 (4%) was recommended first-line therapy in an evidence-based guideline.
- Mean cost for a 1-month supply of a typical starting dose was $178.
- 10% samples expired
- Closets ranged from meticulously organized to disorganized mess


Institute for Safe Medication Practices (ISMP)

- Supports elimination of barriers to medications, but stresses risk associated with provider dispensing in practice
- Bypass 2nd check provided by pharmacist
- Potential compromise of:
  - drug storage conditions
  - checking for expired drugs
  - safe handling of toxic medications (e.g., chemotherapy)
  - security of drug storage
- Concern regarding potential COI by prescribers and influence of sampling program on cost and quality
ISMP: Labeling Basics

- patient's name
- medication name
- Strength
- dose that should be taken
- route of administration
- frequency of taking the medication
- reason for taking the medication
- special precautions (e.g., may cause drowsiness; take with food or, as with a number of oral targeted therapies, after fasting for a specified period of time)
- expiration date (if not on the package)
- Prescriber's name
- telephone number for questions.

Safety Measures

- Store samples in pharmacy, providing internal vouchers to receive if possible
- Store samples that must remain in patient care areas in locked cabinets away from traffic
- As samples are received, have staff enter each into a logbook, listing the drug name and expiration date
- Log in the patient's name and medical record number when samples are dispensed
- Have prescriber write an order in the medical record when samples are administered or sent home with the patient
- Send a copy of the order to the pharmacy for order screening if possible
- Document all sample drugs administered in the patient's medical record
- For those with office practices, consult with a local pharmacist to establish safety measures such as a logbook, monitoring drug storage and expiration dates, and providing staff with pertinent drug information
- Educate patients when samples are dispensed.

TJC on Samples

- Patient-specific medication information must be available in some fashion
- Medication must be safely stored
- Medication orders or prescriptions are clear and accurate
- The patient record reflects the patients care, treatment or services
- Medications are labeled
- The organization follows a process to retrieve recalled or discontinued medications
- The organization monitors patients to determine the effects of their medications
- The organization responds to actual or potential adverse drug events, significant adverse drug reactions, and medication errors
- The organization provides patient education and training based on each patient's needs and abilities
SAFETY

- Primary care practices in a practice-based research network did not follow the Institute for Safe Medication Practices (17 urban and practices; 585 office visits; 2004).
- 12 had dispensing policies
- 7 had labeling policies
- Verbal communication only

Hansen, et al., 2006

Evolving Resources: Logs, Dispensers . . .

Only the United States and New Zealand allow DTC marketing

- Drug companies spent $42 billion in 2005 on DTCA
- Drug companies spent $72 billion in 2005 promoting drugs to physicians
- Drug companies spent $314 billion on research and development

Drug Samples are provided with marketing funds
• The intent is to market and sell drugs
• Drug samples account for 62% of marketing expenditures

Donohue, et al., 2007

Physician Attitudes & Behaviors Influenced by Marketing Strategies
• MEDLINE search 1994-2000
• 29 studies included in analysis
  • Interactions with pharmaceutical industry generally endorsed
  • Requests for adding drugs to formularies
  • Sponsored CME resulted in increased prescriptions rates of those meds
    • Attending such events resulted in non-rational prescribing of those meds

Watson, 2000

Study of NP Practice
• 96% report regular contact with sales reps
• 71% receive info on new drugs directly
• 66% dispense samples
• 48% said they are more likely to prescribe a drug that was highlighted during a meal program
  • Randomized, national sample of NP prescribers 2007-2008 AANP, 163 respondents

Ladd, et al., 2010
Based on clinical experience AND the data just reviewed, is it possible for:

**Pharmaceutical Samples to be thoughtfully considered and selectively used?**

### REFERENCES

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