Motivational Interviewing for Helping Patients Decide to Change

Jan Kavookjian, MBA, PhD
Associate Professor of Health Outcomes Research and Policy
Auburn University

CPE Information and Disclosures

Jan Kavookjian declares no conflicts of interest, real or apparent, and no financial interests in any company, product, or service mentioned in this program, including grants, employment, gifts, stock holdings, and honoraria.

CPE Information

• Target Audience: Pharmacists & Technicians
• ACPE: 0202-0000-15-200-L04-P/T
• Activity Type: Knowledge-based

Learning Objectives

1. Describe some of the reasons patients are challenged with medication adherence.
2. Define and contrast the “Spirit of Motivational Interviewing” and the “Righting Reflex.”
3. Name the primary motivational interviewing (MI) communication principles.
4. Name the primary MI micro skills.
5. Recognize change talk, the importance of it, and types of change talk.

Self-Assessment Question 1

A pharmacist is talking to a patient and realizes from the patient’s statements that she doesn’t fully understand her medication and its effects on her health. The pharmacist feels an immediate desire to start giving information (the righting reflex). Which of the following is an MI-consistent response that helps overcome the righting reflex and supports patient autonomy (the Spirit of MI)?

A. This medication is an important part of getting well and staying well.
B. May I share some information with you about how this medication affects your condition?
C. Have you taken it as prescribed?
D. Don’t you realize that this is one of the best strategies you can use to keep your condition under control?

Self-Assessment Question 2

A patient says, “I’m sick of taking so much medicine. First my arthritis, then high blood pressure... then what? Which of the following responses is NOT empathic?

A. Mrs. Jones, it’s going to be all right.
B. I sense you feel overwhelmed.
C. You feel like you have had a lot happen at one time.
D. It seems it’s been one thing after another for you.
Self-Assessment Question 3

A patient says, “It’s been hard to fit this into my routine with the changes in my duty schedule, but I know I need to start taking my medication regularly.” This is an example of which of the following?

A. Supporting self-efficacy  
B. “Reason” change talk  
C. Supporting autonomy  
D. Decisional balance

“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.”

– Charles Darwin

Adherence Defined

“Drugs don’t work in patients who don’t take them.”

- C. Everett Koop, M.D.

Adherence Defined continued

• 100% adherence target is not always realistic  
• 80% is considered ‘adherence’ in many research studies; 95% critical for HIV  
• Primary Non-adherence = not filling at all, not picking up  
• Medication possession ratio (MPR), proportion of days covered (PDC)  
  – Calculated through pharmacy claims/refill records

The Problem of Non-Adherence

• Causes nearly 125,000 deaths each year  
• Linked to 10% of hospital admissions  
• Linked to 23% of nursing home admissions  
• Average non-adherence rates range up to 80%  
• For chronic conditions, drops to 50% in second year, on average

Drugs don’t work in patients who don’t take them.”

- C. Everett Koop, M.D.

Adherence Defined

• Adherence vs Compliance  
  – Collaborative and nonjudgmental  
• Taking medications most of the time  
  – Prescribed number of pills  
  – Prescribed time intervals/times per day  
  – Avoidance of interactive drugs, OTC, foods  
  – Missed dose make-up

Adherence Defined continued

• 100% adherence target is not always realistic  
• 80% is considered ‘adherence’ in many research studies; 95% critical for HIV  
• Primary Non-adherence = not filling at all, not picking up  
• Medication possession ratio (MPR), proportion of days covered (PDC)  
  – Calculated through pharmacy claims/refill records

The Problem of Non-Adherence

• Causes nearly 125,000 deaths each year  
• Linked to 10% of hospital admissions  
• Linked to 23% of nursing home admissions  
• Average non-adherence rates range up to 80%  
• For chronic conditions, drops to 50% in second year, on average
Cost of Medication Nonadherence

$290 BILLION PER YEAR IN US
$465 BILLION GLOBALLY

(New England Health Institute, 2009; International Diabetes Federation, 2012)

Adherence-Challenging Therapies

- Lipid/cholesterol lowering medications
- Hypertension medications
- Oral diabetes medications
- Others (e.g., HIV, psychiatric illness, pediatric and geriatric patients)


Additional Challenges

- Measurement: adherence is often overestimated when self-reported (by as much as 200%)
  - Social desirability or forgetfulness?
- Undetected non-adherence: leads to limited response to medications; providers often prescribe higher doses or other medications

A Half Century of Research Challenges

- Patients opting into adherence studies are already adherent
- RCTs in ‘research/laboratory’ context vs real-world practice setting workflow
  - Interventions are not disseminating
- Means of measuring adherence varies
- Heterogeneity in study designs and language

Other Target Health Behaviors

- Physical activity
- Eating changes
- Self-monitoring
- Smoking cessation
- Caffeine or alcohol consumption
- Increasing water intake
- Increasing sleep
- Others

Why is Adherence Hard?

- Feelings
- Thoughts
- Barriers
### Action is Difficult: Feelings
- Fear, anxiety
- Anger
- Going numb (avoidance coping style)
- Frustration
- Depression
- Loss of control
- Shame/guilt
- Being alone in the challenge of self-care

### Action is Difficult: Cognitions
- Lack of understanding
- Lack of confidence
- Lack of involvement in self-care (learned helplessness)
- Cannot see personal benefits of action
- Ambivalence: what's wrong with the way things are?
- Have I done something wrong?
- I'm too old and set in my ways for this

### Action is Difficult: Barriers
- Knowledge (technical, literacy)
- Economic
- Complexity
- Culture

### Barriers: Economic
- Can't afford medication
- Spending money on other priorities
- Lack of transportation to receive care/pick up medications
- Others

### Two General Patient Demeanors
- For patients who are not changing:
  - Ambivalence
  - Resistance

### Ambivalence
- May not know what to do
- May not know how to do it
- May not believe it needs to be done (cost-benefit analysis)
- May doubt their abilities to do it
Ambivalence Behaviors

• Stuck
• Procrastination
• Unmotivated, uninterested
• Inconsistency between attitudes and behaviors

Ambivalent: Jane Smith T2D, Overweight

• “Yeah, I know I need to lose weight and I know it will help my numbers. I don’t feel like I can do it. I AM worried that my A1C is 10%; I should start an exercise routine because I feel better when I do, and my doctor will quit bugging me about it if I lose some weight, and I like my smaller size clothes, but it’s hard to fit exercise into my day and it hurts… and I don’t like people to see me exercising – it’s embarrassing. And, I just really feel comfort in the foods I eat- they’re what I have always eaten. Besides, it seems like every time I try to do anything, it’s not enough to make a real difference; I don’t know what I could do that would change things.”

Resistance Behaviors

• Blaming
• Disagreeing, Arguing
• Excusing
• Minimizing, Discounting
• Becoming hostile
• Interrupting
• Ignoring what the provider says

Resistant: John Jones T2D, HTN

• “I know you’re going to try to make me feel bad about myself like the others did, so you may as well quit now. I just don’t see why it’s a big deal – my numbers aren’t that far out of range and I feel fine. I work hard and I am not giving up my after-work drinks and cigarettes, nor am I giving up my all-you-can eat buffet dinners with my buddies. And, I take my medicine most of the time anyway so I should be able to eat what I want – okay, so I miss it a few days a week, but don’t make a big deal out of it – I feel fine.”

YES BUT, and PERSUASIVE COMMUNICATION are not the solution to resistance

Persuasion Creates or Reinforces Resistance

• If you push a patient to engage a target behavior before he/she is ready to, you force the patient to defend why he/she can’t/won’t do it

• Tends to bring the opposite outcome
Resistance and Face

- Persuasive tactics violate face for the patient
  - Loss of competence face
    - “Don’t you know that you need to take your medication every day?”
  - Loss of autonomy face
    - “Just do what I tell you to do……”

Patients must have their own internal motivation for sustained self-care

Most interventions try to push or pull patients to temporary change when they are not ready (external motivation)

People in the Helping Professions have a Natural Tendency to want to FIX what’s ‘wrong’ with patients

The Righting Reflex

Individual patients cope with these challenges in different ways

How do I know if my patient is nonadherent?
Major Predictors of Poor Adherence to Medication in Studies of Predictors

- Depression, psychological problems
- Cognitive impairment
- Treatment of asymptomatic illness
- Inadequate follow-up or discharge planning
- Side effects of medication
- Lack of belief in benefits of treatment
- Lack of insight into the illness
- Poor provider-patient relationship
- Presence of barriers to care or medications
- Missed appointments, lack of care continuity
- Complexity of treatment
- Cost of medication, copayment or both
- Greater number of co-morbid conditions

Detecting/Measuring Adherence

- Direct and indirect measures
- Non-response to medications
- Multiple Rx changes for higher doses
- Direct observation
- Late, sporadic refills
- Pill counts
- Electronic devices (MEMS cap, e-cap)
- Biochemical measures (blood, urine, etc.)
- Patient diaries
- Patient self-report (expect an overestimation)

Facilitators to Health-Related Decision-Making

- Relationship with practitioner is single most important influence on patient behavior (e.g., adherence)
- Practitioner recommendation results in higher likelihood of participation/adherence
- Continuity of provider predicts adherence
- Being patient-centered

Ask: Direct and Nonjudgmental

- Sgt. Jones, about how many pills do you think were missed in the past week?
- Col. Sellers, several patients have talked about the difficulty of taking this medication as directed since the regimen is complicated. Tell me about any problems you’ve had taking the required number of pills at the scheduled times?

Questionnaires

- Many measures are available, mixed validity results
- Ask about specific medication adherence behaviors (right number of pills, right time of day, right number of times per day, missed dose directions, etc.)
- Avoid yes/no questions to assess adherence

Motivational Interviewing

“We tend to believe what we hear ourselves say.”
- Rollnick, Miller & Butler, Motivational Interviewing in Health Care, page 8
Motivational Interviewing (MI)

• Foundational Assumptions:
  – Building ongoing relationship/trust
  – Not motivating the patient; helping patient get to his/her existing internal motivation
  – Patient should be doing most of talking
  – Tool box with communication strategy choices
  – Addresses ambivalence and resistance
  – Patient-centered way of being
  – *SPIRIT of MI*

Motivational Interviewing (MI)

• “SPIRIT of MI” is critical
  – Collaboration
  – Evocation
  – Patient autonomy
  – Caring, non-judgmental
  – Patient-centered
  – Active listening and empathic responding
  – Preserves patient ‘face’, or self-esteem
  – Requires an ‘act of will’ for most

Motivational Interviewing (MI)

• Honesty & assertiveness = trustworthiness
  – ‘Your 10.0% A1C is a little high’
  Vs.
  – ‘Your A1C is 10.0% – this is high. The guidelines say it should be below 7.0% to reduce risk of complications. What are your thoughts about that?’

MI Communication Skills

• Expressing early empathy
• Developing discrepancy
• Rolling with resistance/Avoiding argumentation
• Supporting self-efficacy

Expressing Empathy

Feeling or identifying affectively with another

1. Careful listening
2. Reflecting understanding
3. Patient feels understood
4. Reduces anxiety
5. Improves adherence & patient outcomes

Example

• Patient: “I just don’t know if I can follow this medication regimen.”
• Provider: “Cpl. Smith, you sound worried about taking the medication. What concerns you most?”
Example

• Patient: “I just cannot endure this diabetes diet! I’ve had to give up too many of the things I like and the small portion sizes leave me hungry!”

• Provider: “Maj. Johnson, you sound angry. The idea of having to limit yourself with a diet you didn’t get to choose is frustrating.”

Example

• Patient: “I am just so tired of having to endure the side effects of this medication only to find that nothing I’m doing seems to make any improvement.”

• Provider: “You seem really discouraged, Mrs. Hale.”

Empathic Responses

• “You seem_____.”
• “In other words…”
• “You feel ___ because ___”
• “It seems to you…”
• “As I understand it, you seem to be saying…”
• “I sense that…”
• “You sound…..”

• AVOID: “I understand how you feel.”

Develop Discrepancy

• Addresses ambivalence or resistance to change
• Motivation for change increases when patients become aware of discrepancies between current situation and goals/hopes for the future
• Creates dissonance
• Don’t argue the patient’s Cons; forces patient to defend the Cons, reinforcing them for him/her

Develop Discrepancy

• Strategy 1. Repeat back Pros and Cons stated by patient

Strategy 1 Example

“So, on the one hand, you want to reduce your risk of heart attack or stroke by lowering your blood pressure, but on the other hand you don’t like to take medication and you feel fine.”

“I am concerned that if …. This worries me…. What are your thoughts?”
Develop Discrepancy

• Strategy 2. Ask questions about behaviors that don't support goals set by the patient

Strategy 2 Example

“Mr. Jones, you haven’t taken your blood pressure medicine in several weeks. What are your thoughts about how this might affect the goal you told me last time about reducing your risk of stroke or heart attack?”

Develop Discrepancy

• Strategy 3. Thought-provoking questions
  – “If I were to give you an envelope, what would the message inside have to say for you to think about quitting smoking?” OR
  – “What would have to happen for you to think about taking your diabetes medication?” OR
  – “What will your life be like when you lose the 30 pounds you have set as your goal?”

Roll with Resistance/ Avoid Argumentation

• Don't add to patient's resistance by forcing mutual defensiveness
• Don't argue the patient's Cons; forces patient to defend the Cons, reinforcing them for him/her
• Shift focus away from resistance; stay focused on the purpose and relevant issues
  1. Express empathy, explore
  2. Ask permission to express concern
  3. Emphasize personal choice

Example: Empathy and Explore

• “Look, you people need to quit badgering me about quitting smoking!”

• “It sounds like you’re irritated about being asked to quit when you’re not ready to quit. Tell me more about that.”

Example: Ask Permission to Express Concerns

• Patient: “I don’t like the idea of blood pressure medicine. I hear it can have bad side effects?”

• Provider: “May I tell you what concerns me?”
Example: Emphasize Personal Choice

- Patient: “I just don’t think I can handle side effects like those so I don’t think I’m going to take this medication.”
- Provider: “And it really is your decision. All I can do is tell you the advantages and disadvantages and give you my opinion. It really is up to you.”

Support Self-Efficacy

- Notice, support, encourage patient attempts or even thoughts about change
- Praise the behavior, not the person
- Look for opportunities to support the change efforts of your patients
- Caution: over-praising sounds insincere

Support Self-Efficacy

- “Mr. Richards, it’s great that you take your diabetes medicine every day the way you planned. Keep it up!”
- “You were able to lose weight before, I am confident that you can do it again. What worked for you last time?”

Support Self-Efficacy

- “I really believe you’re on your way to better health since you are thinking about taking your cholesterol medicine.”
- “That’s great that your total cholesterol has come down since last time! Tell me about the things you’re doing that are helping you succeed!”

Motivational Interviewing Micro-Skills

- Establishing patient understanding of disease & risk susceptibility
- Maintaining patient autonomy
  - Agenda-setting
  - Open-ended questions
  - Asking permission to give information/advice
- Engaging change talk
- Incremental goals and language

Establishing Risk / Susceptibility

- Patient has to understand WHY change is needed and how health behavior goals relate to this/these reasons
- Early in the conversation, ask
- Gets them telling it rather than you…and, “we tend to believe what we hear ourselves say”
Establishing Risk / Susceptibility Dialog

- Mrs. Smith, tell me what you know about what this blood sugar number (A1C) puts you at risk for? [I don’t know]
- May I share with you some information about that? [yes] [provider gives information]
- What do you think about that?
- I don’t want those things to happen to me.
- I don’t want those to happen to you either.
- If it’s okay with you, I’d like to share some things you can do to help prevent those things.

Patient Autonomy: Agenda-Setting

- Supports autonomy/choice
- Organizes the conversation structure
  - To help bring down your blood sugar, we can talk about small changes you can make in the foods you eat, getting more activity into your daily routine, and taking medication. Which of these would you like to talk about first? [medication taking]
  - 'Now that we’ve talked about the medicine, which of the other two topics would you like to talk about next?'

Patient Autonomy: Agenda-Setting Examples

- Since we only have five minutes to talk this time, we can probably cover one or two major topics like medication taking and eating choices while out at a restaurant; which would you like to talk about first?
- I have been asked by your doctor to talk with you today about your medication taking, but I want to be sure to address your concerns first. So, which topic would you like to talk about first?

Patient Autonomy: Open-ended Questions

- To get patient input ('What are some things you can think of to remind yourself to take this medication?')
- To explore ('Tell me what you know…' vs Do you know?) (What are your thoughts about walking to get activity in your routine?)
- Prevents patient feeling judged or interrogated (vs. 'Did you try this?' 'Have you thought about trying walking?' 'Do you know?')

Patient Autonomy: Asking Permission to Give Information

- Avoid advising and ‘fixing’
- Ask permission if you perceive a “knowledge deficit”:
  - “May I share with you some things you can do to help prevent being readmitted to the hospital?”
  - “I’d like to share some things with you about what these numbers put you at risk for, if that’s okay with you.”

Patient Autonomy: Asking Permission to Give Information*

1. Ask what they know
2. Affirm that
3. Ask permission to fill in the blanks
4. Give the information/advice about disease and/or treatment and/or changes needed
   - ‘Mrs. Smith, what are some things you can think of to do to remember to take your medicine?’ [don’t know]
   - ‘May I share with you some things other patients have said help them to remember?’
   - [customizing a plan that fits patient’s routine]

*Treatment for the Righting Reflex
CHANGE TALK
(“We tend to believe what we hear ourselves say.”)

• IMPORTANT strategy: intention predicts action, is at the core of deciding to change (Miller, 2013)
  – “What do you see as the benefits (Pros) of changing?”
  – “What would you like about your life if this changed?”
  – “What would you like to change in order to reach your long-term vision for getting your diabetes under control?”
  – “When you were successful at this target behavior before, what were the things you were doing that got you there?”
  – “How ready are you to change?”
  – “How important is the change to you?”
  – “How confident are you that you can change?”
• IMPORTANT: support self-efficacy of change talk when you hear it
  – “That's great that you know you need to quit smoking.”

LISTENING FOR TYPES OF CHANGE TALK (DARN-CAT)

• Desire: “I wish I could…”
• Ability: “I could/might be able to…”
• Reasons: “This would be good for me…”
• Need: “I really need more exercise…”
• Commitment: “I will/intend to…”
• Activation: “… a small step right now…”
• Taking Steps: “I've been doing….”

ELICITING DARN CHANGE TALK

• Desire: “What do you wish to achieve by taking your medication as prescribed?”
• Ability: “What is possible? What can or could you do? What are you able to do?”
• Reason: “Why would you make this change? What could be some specific benefits? What risks would you like to decrease?”
• Need: “How important is this change? How much do you need to do it?”

READINESS RULER (OR, Importance, Confidence)

• “On a scale of 1 to 10, with 1 being not at all and 10 being completely, how ready are you to start taking the number of pills that were prescribed?” [ 7 ]
  1. “Okay, a 7, that’s great! Why a 7 and not a 1?” (Identify motivators and support SE that it's a 7 and not a 1)
  2. “What would have to happen for it to be a 8 or 9?”
     – Change Talk, motivators, incremental expectations

ELABORATING CHANGE TALK

• “In what ways?”
• “Give me an example.”
• “What else have you noticed or wondered about?”
• “What are some other reasons why you might want to get your blood sugar down?”
• “What other things have people told you?”
• “Why else do you think you could succeed?”
• “How else could you do it?”

(INCREMENTAL GOALS

• Self-efficacy building via small successes
  – Success in small things can progressively build confidence towards bigger change
• Avoiding use of BIG words like ‘diet’ and ‘exercise’ and ‘quitting’ (smoking)
• Instead: ‘small changes in some of the foods you eat,’ ‘getting more activity into your routine,’ ‘cutting back on the number of cigarettes per day’, ‘cutting one soda out of your daily routine for the next week and see how that goes’
Those Most Resistant Patients

- Maintain Spirit of MI & relationship
- Early and frequent Empathy
  - ‘It sounds like you’re not ready to quit.’
- Roll with it – stick to topic at hand
- EXPLORE the resistance
- Develop discrepancy
- Use the ‘insurance card’ (“May I tell you what concerns me?”)
- Emphasize personal choice-unexpected

Non-MI Dialog: Resistant Patient

- Provider: Are you aware that there are some changes you can make that can help your high cholesterol?
- Patient: I know what you’re going to say – the same thing my doctor said – that I have to start taking that nightly dose of my medication. I am just not interested in changing my night time routine to fit that in at the end of my hard day. I enjoy falling asleep in front of the television at night and I don’t want to disrupt that.

Non-MI Dialog continued

- Patient: Forget it; I won’t remember any of those and it’s too much trouble. Besides, I have already cut back on my night time snacking, so that should be enough change… and I feel fine.
- Provider: But, I’m sure the people at your house care about your health. Don’t they want to see you live a long and healthy life? What are your barriers for making it a priority to take your nightly dose of the medication?

MI-Based Dialog: Resistant Patient

- Provider: What are your thoughts about making some small changes in your routine to help improve your cholesterol levels?
- Patient: I know what you’re going to say – the same thing my doctor said – that I have to start taking that nightly dose of my medication. I am just not interested in changing my night time routine to fit that in at the end of my hard day. I enjoy falling asleep in front of the television at night and I don’t want to disrupt that.

MI-Based Dialog continued

- Patient: I know it’s good for me, and I know it’s bad to miss the dose. I still don’t want to get up from my chair to take it at night.
- Provider: You are clear that you aren’t ready to get up from your evening routine to take the medication
- Patient: That’s right.
- Provider: What are your thoughts about small strategies that wouldn’t require you to change your nightly routine, while also helping benefit your cholesterol levels?
- Patient: I don’t have to disrupt my evening routine? What strategies?

MI-Based Dialog continued

- Provider: That’s great that you’re willing to hear options. Some patients have impacted their cholesterol levels by planning ahead to make it easier to take a medication dose without having to change their routine. Some have put their medication and a glass of water on the table next to their television chair so it will be easy to take it without having to get up and change their routine. Others have changed the timing of their medication taking to take the medication earlier in the evening before they fall asleep. What are your thoughts about trying either of these options?
- Patient: I’ve never tried any of those things; I don’t think I would like them. Besides, I’ve cut back on my night time snacking, so I shouldn’t have to worry about missing that dose… and I feel fine.

- Provider: May I tell you what concerns me? [yes]
MI-Based Dialog continued

- Provider: It's great that you're doing a lot of hard work to change other things in your routine like cutting back on your nighttime snacking; your cholesterol has continued to rise despite all that hard work. That has to be frustrating for you. Missing the dose may really be contributing significantly to the increases in your cholesterol. What are your thoughts about making one of the small changes to make it easier for you to take your night dose without changing your evening routine?
- Patient: I guess I could do something— if I brought a glass of water and the pill organizer to my chair when I finish dinner and start watching my shows, I wouldn't have to get up.
- Provider: That's great that you're thinking about planning ahead to bring your medication and water to your chair ahead of time. When would you like to start?

The Language and Acronyms of MI

- READS (communication principles)
- RULE
  - Resisting the Righting Reflex
  - Understand patient motivations
  - Listen
  - Empower the patient
- OARS
  - Open-ended questions
  - Affirming
  - Reflecting
  - Summarizing
- Chunk-check-chunk & elicit-provide-elicit

Key Point: Differences Prevail

- No two people are alike
- Unique motivations and barriers to health behavior change
- Our job is to explore so that we can understand the experience of THIS patient, and to respond accordingly
- Patient-centered care

Answer to Self-Assessment Question 1

A pharmacist is talking to a patient and realizes from the patient's statements that she doesn't fully understand her medication and its effects on her health. The pharmacist feels an immediate desire to start giving information (the righting reflex). Which of the following is an MI-consistent response that helps overcome the righting reflex and supports patient autonomy (the Spirit of MI)?

A. This medication is an important part of getting well and staying well.
B. May I share some information with you about how this medication affects your condition?
C. Have you taken it as prescribed?
D. Don’t you realize that this is one of the best strategies you can use to keep your condition under control?

Answer to Self-Assessment Question 2

A patient says, “I'm sick of taking so much medicine. First my arthritis, then high blood pressure... then what? Which of the following responses is NOT empathic?

A. Mrs. Jones, it's going to be all right.
B. I sense you feel overwhelmed.
C. You feel like you have had a lot happen at one time.
D. It seems it's been one thing after another for you.

Answer to Self-Assessment Question 3

A patient says, “It's been hard to fit this into my routine with the changes in my duty schedule, but I know I need to start taking my medication regularly.” This is an example of which of the following?

A. Supporting self-efficacy
B. “Reason” change talk
C. Supporting autonomy
D. Decisional balance
References

• Aikens JE, Piette JD. Longitudinal association between medication adherence and glycaemic control in Type 2 diabetes. Diabetic Medicine 2012; 30:338-44.

Additional References


Closing Remarks

Jan Kavookjian, MBA, PhD
Health Outcomes Research and Policy
Harrison School of Pharmacy
Auburn University
kavooja@auburn.edu