



# The IDEALL Project: Improving Diabetes Efforts Across Language & Literacy

## **Group Visit Facilitators Training Manual and Protocol**



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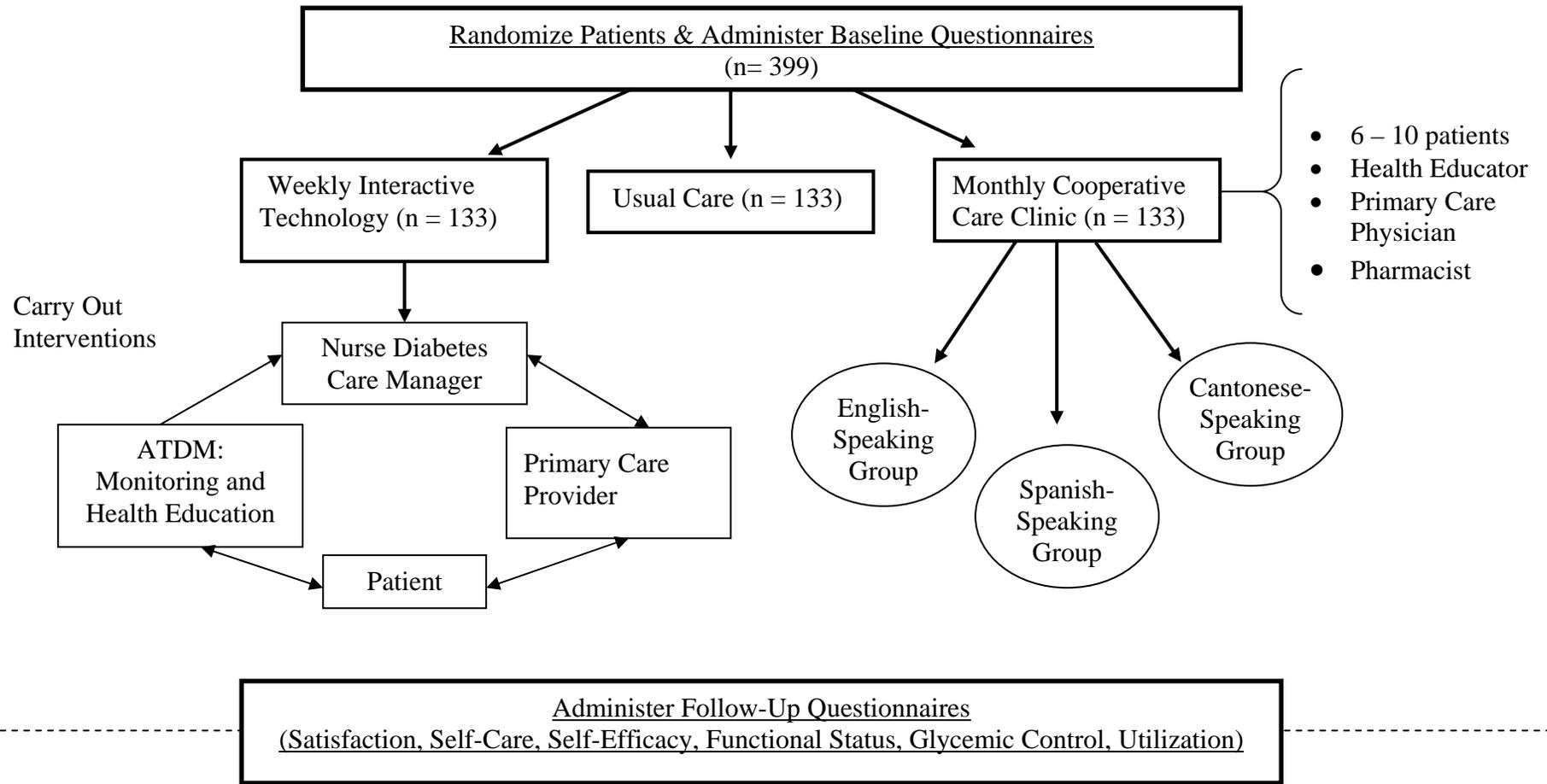
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**TIMELINE AND PROJECT OVERVIEW FOR THE DIABETES DISEASE MANAGEMENT INITIATIVE AT  
SAN FRANCISCO GENERAL HOSPITAL (11/01-10/04)  
Improving Diabetes Efforts Across Language and Literacy (IDEALL)**



# INTRODUCTION

Diabetes care should include opportunities for people to address the emotional, social, behavioral, and psychological, as well as physical challenges of living with their disease. Remember that the primary component of the success of your Group Visits is that you **MUST**, as the course facilitator(s) share the empowerment philosophy. Conviction that patients have the ability to solve their own problems, a willingness to listen rather than advise, a deep respect for each person, and a commitment to personal empowerment are essential traits. People can learn from talking about their own experiences and from listening to the experiences of others. People usually will express themselves honestly to the extent they believe that they are accepted and respected.

Accept your role as a physician, educator or facilitator, not group therapist. You are there to guide the groups and encourage participants, not to solve everyone's problems. Although each facilitator brings different life experiences and professional skills that enhance the project, keep in mind interpersonal communication skills, sensitivity, patience, warmth, openness, and respect while conducting this program.

# GROUP VISIT THEORY AND DESIGN

Patients who attend group visits will receive diabetes care and engage in diabetes-related learning as an adjunct to their usual primary care. The group visits will last approximately two hours and will depart from traditional didactic diabetes education. They will evolve from patient experiences, guided discussions, and patient-identified goals, with the ultimate goal of improving self-management skills. By using participatory/adult learning theory we anticipate that group visits will be a collaborative process in which patients will engage in problem-solving activities and gain decision-making as well as information-seeking skills. While the curriculum includes topics and objectives that will likely be addressed in each session, patients will set or alter the suggested agenda.

The goals are the following: improve communication, enable patients to take control of their health, allow patients to teach each other, and improve quality of life.

Each group visit will involve 2 core health providers (a bilingual physician or nurse practitioner and bilingual health educator), 15 patients, and occasional guest facilitators if patients request their presence (e.g. a nutritionist, or physical therapist). A bilingual pharmacist will be available at the close of each session to review medication adherence and any changes in regimen. The structure of the groups will be as follows:

**Check-in:** 30 minutes. Patients describe any symptoms, needs, and their progress/obstacles in reaching goals. This is the time when action plans are discussed.

**Empowerment-based Adult Learning:** 45 minutes. The Group reflects on a topic selected the previous month or during check-in. Facilitators guide a group learning session that includes relating and reflecting on experience; exploring and problem-solving; and taking thoughtful action. Patients help and teach each other.

**Break-out with individual providers:** 30 minutes. Patients who request or have been identified (during check-in or break) as needing more care will receive individual time for exams and tests (physician or NP), medication counseling and prescriptions (pharmacist), or health education (health educator). Each patient for whom a billing sheet is submitted by the physician or nurse practitioner must have a one-on-one encounter with that provider. That will usually occur during this part of the group visit. Patients who aren't meeting with the facilitators will use this time for a break, healthy snack, and socializing.

**Wrap-up:** (15 minutes) A final reconvening. Prescription printouts will be distributed and topics or "homework" for the next session will be discussed. This will also be the time to readdress the action plans and ask if anyone wants to change their action plan based on the topic discussed during that session.

# GUIDELINES FOR EMPOWERMENT-BASED FACILITATION



When you facilitate, you are balancing the ideas and opinions of the various members so the conversation will flow and the discussion will be productive. Awareness of the following issues and how you address them during your groups will lead to greater patient empowerment.

## **1) Create a psychologically safe (accepting, uncritical) environment for personal reflection and sharing:**

Avoid giving advice

Accept, acknowledge and avoid attempts to change participant's feelings about or perceptions of their experience

Listen actively: use body language, acknowledge, and affirm during the discussion

Emphasize confidentiality of group discussions

Model storytelling- share personal stories to illustrate points

Provide positive feedback when possible

## **2) Communicate effectively:** Clarify ideas within the group to foster dialogue, learning and decision-making.

- Repeat remarks made by various speakers.
- Define ambiguous words or ask the group to define them.
- When it is not necessary for you to answer a question asked, throw it back at the group.
- Ask participants for suggestions on how the discussion should continue, and present a few ideas based on observations of how the dialogue is progressing.
- Keep the conversation on track by asking "why" and "how" questions.
- Summarize the ideas mentioned and the sequence in which they were made. Announce observations you made about the group dynamic. Keep these comments short and constructive without focusing only on the negative.

**3) Accept your role as a provider, educator or facilitator, not group therapist:** You are there to guide the groups and encourage participants, not to solve every participant's problems. Although each facilitator brings different life experiences and professional skills that enhance the project, keep in mind interpersonal communication skills, sensitivity, patience, warmth, openness, and respect while conducting this program. Also, use neutral verbal and body language- your comments should not influence a group's decision-making process.

**4) Balance the needs of verbal and reticent group members:** Ensure that every participant has an opportunity to speak. Balance the needs of verbal and non-verbal group members by asking open-ended questions. Depending on the group you facilitate, a few rules on speaking order might be helpful. For example, every participant must make a comment about the topic discussed, how they feel, or any challenges they have encountered, before any participant can make a second comment.

**5) Foster understanding:** In spite of disagreements within the group, you must encourage participants to understand (not necessarily agree with) differing points of view; highlight agreements made and point out differences. This is the only way a productive discussion can take place.

**6) Provide significant others or family members with an opportunity to express opinions or concerns:** Occasionally family or friends will accompany a patient- Comments made by such family members or friends can be helpful to the discussion and can bring up issues that can help a patient better manage his/her diabetes. However, at times tensions rise between participants and their partners due to such comments.

**7) Guide discussions to stay focused on course objective:** To increase the exchange of ideas and communication within the group, in addition to personal experiences, suggest other methods of discussion: brainstorming, small group/large group discussions, writing, performing, flip chart, or silent reflection. The goal is to increase participants' self-awareness, foster skills such as goal setting, and to enable them to plan and carry out self-directed behavior changes.

*\*Adapted from Arnold MS, Butler P, Anderson RM, et al. Guidelines for Facilitating an Empowerment Program. The Diabetes Educator 1995; 21(4): 308-12*



## ROLES / PROCEDURES

### **Facilitators:**

#### **Before Each Group Visit**

##### **1-2 days before the visit:**

##### **The IDEALL clinician should:**

- **Talk to your co-facilitator (and pharmacist).** Discuss how new material will be presented and discuss other plans for the upcoming session. This is a crucial point since the two facilitators should be on the same page going into each session.
- **Look into the topic you will cover.** You might already be very familiar with the specific topic you will discuss in the next session, but it never hurts to refresh your knowledge or to share that knowledge with your co-facilitator.

##### **The Health Educator should:**

- **Call Patients.** Call patients a day or two before each session to remind them of the group visit. If the group is on a Monday, call patients the Friday before the session. This will also be the time to remind them to bring anything specific for the upcoming discussion, i.e. bringing their medication to every session. For the FIRST SESSION ONLY, also remind patients to bring their appointment slip and their hospital card, even if it is an old one, for registration.
- **Talk to your co-facilitator (and pharmacist).** Discuss how you will present new material and get a sense of how you will guide the group discussion. This is a crucial point since the two facilitators should be on the same page going into each session.
- **Look into the topic you will cover.** You might already be very familiar with the specific topic you will discuss in the next session, but it never hurts to refresh your knowledge or to share that knowledge with your co-facilitator.
- **List any materials you might need.** If you need supplies, copies, or additional materials for your session let the rest of the staff know.
- **Purchase snacks and drinks.** Purchase sufficient drinks and snacks for patients. If patients have special needs, i.e. they are lactose intolerant, please make note of it so their needs can be accommodated in the subsequent group visits.
- **Obtain tokens/ vouchers.** Find transportation tokens and vouchers and distribute to patients as required.

## **1-2 hours before a visit:**

### **The IDEALL clinician should:**

- **Look over notes from previous sessions.**
- **Examine patient charts and print out additional patient information from the hospital electronic patient records.**
- **Collect patient information.** Pick up the stack of cards, encounter forms, and progress notes immediately before the visit.

### **The Health Educator should:**

- **Look over notes from previous sessions.**
- **Examine patient charts and print out relevant patient information from the IDEALL database.**
- **Obtain forms box and cart.**
- **Ensure proper room arrangement.** The chairs or tables in a room should always be arranged in circle or circular style- this will allow patients to see or hear each other and are more likely to participate.
- **Ensure materials are available.** Before the group starts, double check that you have all the supplies and materials you need for that day's session.
- **Set up snacks and drinks.** Make sure that there are sufficient drinks and snacks for patients.

## **During Each Group Visit**

### **The IDEALL clinician should:**

- **Write down comments during check-in.** As patients check-in initially, one of the facilitators should write down any comments that require a follow-up during or after the session. The IDEALL clinician will most likely be making these as well as writing notes for each visit.
- **Make referrals and order diagnostic studies as indicated.** Some patients might need further care or simply want more information about a specific topic. If the referrals are non-clinical, please see the IDEALL Resource Manual for possibilities. The Manual can be found in the supply cart available at each visit.
- **If writing new or refill prescriptions, these should all be done in the Lifetime Clinical Record (LCR).**

### **The Health Educator should:**

- **Facilitate group discussion.** Although the group facilitation will be a joint effort, during certain segments, i.e. the check-in at the beginning of the session, the health educator will guide most of the conversation, as the IDEALL clinician writes down important patient information.
- **Maintain general patient satisfaction.** In addition to facilitating the group, keep in mind aspects such as lighting, room temperature, and special patient needs, i.e. a patient who needs to walk around the room a little because s/he has a back problem.

## After Each Group Visit

### The IDEALL clinician should:

- **Stay behind to talk to participants.** In most sessions there will be at least one participant who will want to ask additional questions, need additional clinical care, or who just wants to talk. Make yourself available to such patients.
- **Check-in with your co-facilitator and other health team members.** Discuss how the group visit progressed and any concerns you might have.
- **Write a progress note for each patient.** The notes should be written by the IDEALL clinician, with input from the Health Educator. If the pharmacist completes an individual consultation with a patient, s/he should write a separate note, on the pharmacy progress note.
- **Complete an encounter form for each patient.** Providers can bill for their encounters as long as the have a one-on-one encounter with the patient.
- **Complete a quality of interaction questionnaire.** This should be a joint effort between both facilitators. The forms will include a section on facilitator self-assessment, as well as a joint assessment of the group visit as a whole.
- **If a regular exam room is needed for private visits with patients after the group visit, look for an available one outside of the conference room.**
- **Make patient follow-up calls as needed.**

### The Health Educator should:

- **Stay behind to talk to participants.** In most sessions there will be at least one participant who will want to ask additional questions or who just wants to talk. Make yourself available to such patients.
- **Check-in with your co-facilitator and other health team members.** Discuss how the group visit progressed and any concerns you might have.
- **Complete a quality of interaction questionnaire.** This should be a joint effort between both facilitators. The forms will include a section on facilitator self-assessment, as well as a joint assessment of the group visit as a whole.

## **Pharmacist:**

- **Session 1.** The pharmacist will be present during the entire session to meet the group and introduce the concept that a pharmacist will be available at the end of subsequent sessions to answer questions and discuss concerns.
- **Sessions 2 – 9.** Pharmacist should be available the last 30 minutes (during the break/wrap-up portion of the session) to consult with individual patients.
- **Conduct a one on one medication history interview with every patient at least once during the 9-month program.**
- **Assist in the generation of new prescriptions.** All written prescriptions will have to be cosigned by a CHN provider.
- **Provide counseling and education for ANY medication changes made during the group visit.**
- **Update the LCR with all medication changes/additions-** a computer will be available outside the room where the visits will be held.
- **Document all patient encounters on the IDEALL Pharmacist documentation form.**
- **Review and clarify prescription medication schedules** (using charts, calendars, other visuals).
- **Make OTC recommendations as needed.**
- **Provide counseling/education for alternative medications.**

- **Provide counseling on prescription insurance issues.**
- **Provide education on how to manage medication refills.**
- **Provide education on recognizing medications** i.e. “what med do you need to take?... the white pill, that is Metformin.”
- **Provide instruction for drawing up insulin injections and administering insulin injections.**
- **Provide education of the use of Mediset boxes.**
- **Facilitate medication session.** If there is a medication-specific session, the pharmacist will be part of the facilitating team and help guide the discussion and/or make a presentation.
- **Other activities as needed**
- **No pain meds should be given and/or changed!** Call the patient’s PCP if patient requests them and advise patient to do the same. We are only addressing diabetes meds and other medications associated with diabetes risk factors.

### **Nurse Practitioner/Medical Exam Assistant:**

- **Measure and document patients’ blood pressure, blood sugar (if indicated), and weight.** Also perform and document pain assessment.
- **Perform medical examinations.** Perform medical examinations for individual patients when needed. (NP only)
- **Give vaccines as needed.** (MEA).
- **Perform post-visit examinations.** Perform post-visit examination duties (NP only).
- **Explain medical examination procedures to patients.**
- **Perform medical data entry/retrieval duties.**
- **Prepare for and instruct patients about specific diagnostic and therapeutic procedures.**

# FACILITATOR CHECKLIST

At every group medical visit, facilitators should:

- Rearrange the room to ensure a comfortable atmosphere.
- Ensure that every participant says something and prevent monopoly by one individual.
- Encourage question-asking. Most questions should first be redirected towards the group and problem-solving should be encouraged, before the facilitators provide their input. If you do not know the answers, research it at a later date and report back at the next group visit.
- Redirect discussions toward the subject when participants deviate from the main goals of the session.
- Encourage participants share their own experiences with the group. However, avoid attempting to change a participant's feelings about the experience or how they perceive it in general. Accept each patient's comments.
- Reinforce the general conversation as well as each participant's individual comments with verbal or nonverbal cues, i.e. with nods of head. Encourage them to express a variety of experiences and thoughts.
- Engage participants in conversations before and/or after class.
- If the group is large, divide into smaller groups for discussion. Many people find smaller groups less intimidating and they have a greater chance of speaking.
- Maintain a SENSE OF HUMOR. If you are too stern, you might lose the attention of the group.
- Emphasize that all conversations and information discussed in the group are confidential.
- Be mindful of time; follow the time limits for each segment of the session as closely as you can.
- If someone misses a group, call them to determine the cause, without pressure or guilt.
- Avoid using adjectives such as unfortunate, pitiful, etc., to describe participants.
- Avoid the term "quackery" and instead, use words such as "unproven", "untested", or "non-traditional".
- Be aware of participants' backgrounds, regarding gender, ethnicity, etc, and use appropriate terms or examples during the groups.
- Ask participants to let you know when you are using a term they do not understand, or when a term is offensive to them to prevent misunderstandings.
- Ideal class size is 6-12. Groups should be no larger than 15.
- Informal and or formal action plans or goal setting should be done at every session.

# Brainstorming with Group Members

The purpose of a brainstorm is to collectively and creatively generate as many ideas on a topic as possible, **WITHOUT** any self-editing. The editing and use of the ideas generated in a brainstorm come **AFTER** the brainstorm is over. Quantity of ideas during a brainstorm is more important than quality. However, think about your purpose for the brainstorm – do you just want people to begin thinking about a particular theme? In that case, writing up all the ideas may not be necessary. Do you want people to generate ideas that may be used for problem-solving later? In that case, a written record of what they said may be very necessary.

## **Procedure:**

- One leader writes topic/question on flip chart or board.
- Other leader invites participants to brainstorm (read topic/question from chart/board).
- One leader writes ideas as they are called out while the other leader looks at class and encourages flow of ideas. This is done by body language, (looking at participants, nodding, opening eyes wide, etc.) not verbally.
- If an idea is long or unclear the leader who is soliciting responses should ask participant who offered the idea to paraphrase it. If participant is unable to do so, leader should paraphrase it and ask participant if it is acceptable phrased that way. If so, write it on the chart/board.
- Leaders should make no comment when ideas are flowing. However, sometimes at the beginning of a brainstorm participants are often shy to voice ideas so a few words of encouragement (such as, “yes, now you’ve got the idea, etc.”) will encourage participation.
- Once you have made your list of possible solutions or recommendations through brainstorming discuss the importance and possibility of each suggestion and **PRIORITIZE** them.

## CARDINAL RULES FOR THE SCRIBE

**DO** write down **EXACTLY** what people say. **VERBATIM.**

**DON’T** paraphrase or rephrase what people say.

**DO** acknowledge every idea.

**DON’T** ignore or discount any ideas.

# IDEALL GROUP VISITS- SAMPLE CURRICULUM OUTLINE

**This outline was developed as a way to standardize the health education provided during the intervention and as a guide for facilitators during the 9 group visit sessions. However, it is meant to be flexible as to incorporate patient input, or other unforeseen events. The subtopics are mainly objectives or goals that should be addressed at some point during the visits, but the specific structure or placement of these goals can be subject to change.**

## In Each Session

- Check-in/ Goal-setting
- Glucose monitoring
- Diet
- Exercise
- Problem-solving

## Session 1-Introduction

- Introduction to IDEALL and staff introductions
- How long have you had diabetes?/How has Diabetes affected your life?
- Patient introduction
- Allow patients to share common experiences
- Assess what kind of experiences patients bring to the groups
- Demonstrate diabetes affects everyone in the family
- Group guidelines
- Discuss basic guidelines
- Initiate ongoing process for guidelines reevaluation
- Ensure patients feel comfortable sharing personal information/stories
- Elicit patient input for curriculum topics\*
- Motivate patients to participate in subsequent group visits
- Highlight (something new/good) from the session

## Session 2 – Glucose Monitoring and Initiating Exercise

- Self-blood glucose monitoring
- Review proper self-blood glucose testing (including tools used) – ask patients to demonstrate
- Convey importance of glucose monitoring
- Review when and how often glucose monitoring should be done
- Exercise
- Assess- what are patients doing already?
- Discuss successful exercise habits and possible barriers to exercising
- Address- Why is exercise important for patients with diabetes?
- Elicit patient participation via facilitating questions
- Include a short demonstration on 2-3 exercise options
- Discuss individual goal-setting for daily/weekly exercise goals
- Recommend exercise options
- Highlight (something new/good) from the session

### Session 3- Exercise & Relaxation

- Introduce- “keeping track of your own progress” and family involvement as well
- Review exercise goals from previous month
- Address continuing challenges with exercise and how to overcome them
- Where to exercise in your neighborhood?
- Offer possible safe options- form Parks and Receptions list
- Highlight (something new/good) from the session
- Relaxation
- Lead a group relaxation exercise
- Elicit alternate exercise/ relaxation techniques from individual patients

### Session 4- Nutrition/Diet Basics

- Recommendations for a general healthy diet
- Food groups/Food pyramid
- Introduce the various food groups
- Initiate discussion on healthy eating
- Assess diet trends among group
- Aid patients in becoming aware of their own eating habits
- Demonstration of portion sizes
- Utilize food models and/or hands
- Ensure patients understand appropriate food portions
- How to plan meals
- Use Plate (or Bowl) Model
- Discuss how patients will implement changes to their diets on a daily basis
- Convey importance of changing little by little and not all at once
- Highlight (something new/good) from the session

### Session 5- Nutrition/Demonstration

[FAMILY members included]

- Clarification of what starches are
- Recommended total intake
- Reading food labels
- Ensure that patients and/or family members know the basics of reading food labels
- Encourage patients to demonstrate/explain to others
- Cooking demonstration or mock supermarket trip
- Where to shop in your neighborhood to get fresh/healthy food
- “Diabetes affects the entire family”
- Encourage family members to support patients
- Facilitate communication among family members to work on healthy meals
- Highlight (something new/good) from the session

### Session 6 - Monitoring medications

- Reasons for missing/skipping medications
- Techniques on how to remember or how to make pill taking easier
- Address/discuss barriers to adherence
- Allow patients to share how they feel about medications and to suggest ways in which other patients can be more adherent

- What to do if you missed a dose?
- Convey that group visits are not meant to be accusatory
- Ensure patients understand importance of not skipping medication doses
- Ensure patients know the appropriate people/places to call if they have questions and/or have problems with their medication or refills
- Scheduling- what works for you?
- Facilitate small brainstorming sessions among patients to generate some ideas
- Highlight (something new/good) from the session

#### Session 7- Foot care

- Ensure patients know that foot problems are associated with diabetes
- Convey importance of checking one's feet daily
- What to look for
- Ensure patients know about nail/skin care
- Recommendations on products and where to get them
- What to avoid i.e. walking barefoot, tight shoes
- What to do if patients has a problems
- Highlight (something new/good) from the session

#### Session 8- Risk reduction/Access to care

- Controlling your Blood Pressure
- Ensure patients know what high/low blood pressure symptoms feel like
- Discuss complications of blood pressure
- What can be done to lower blood pressure if high
- Convey the relation between blood pressure and Diabetes
- Smoking
- Reiterate knowledge on harmful effects of smoking
- Discuss complication related to Diabetes
- Provide information and support for those who are interested in quitting
- Appointments
- Reminder of upcoming appointments
- If applicable, where they should go for their appointments and/or how to get there
- Discuss recommended visits to a primary care provider, ophthalmologist, nutritionist, etc.
- Highlight (something new/good) from the session
- Sick care: when to call your clinic, when to call 911, when to limit activity

#### Session 9 - Graduation and Certificate

##### Allow patients to discuss additional topics

- Encourage additional questions
- Where do we go from here?
- Encourage patient communication after groups
- Remind patients they can talk to members of their healthcare team
- Highlight (something new/good) from the session

#### **Sexual Function**

- Sexual Function- although not in a specific session, may come up eventually
- Talk about connection between diabetes and diminished sexual function
- Answer questions, elicit concerns from group

# SAMPLE SESSIONS

## Session #1

- **Focus: 1<sup>st</sup> GV session is to set the tone**

Check pt. charts



Registration



Check blood pressure, blood sugar (if indicated), and weight – outside the meeting room



General introductions



10 min on GV program

Minimum ground rules (ON THE BOARD)

1. Come to sessions on time
2. Do not interrupt others
3. No side conversations: please let other patients share their experiences completely
4. Confidentiality – i.e. “You are free to talk to others about what you learned in the groups, but do not mention the names of the people who are in the group.”
5. Call your facilitators throughout the month if you have any questions before your next group visit.
6. Don’t tell others “you should...”
7. Instead of saying “I will TRY to do something” think about saying “I WILL do something.”



Question: **How has Diabetes affected your life?** (What does it mean to you?)

Go around the room & jot down a few things each patient mentions- should be an average of 2-3 min per person.



Facilitators model activity



“Now we want to hear about what you want from your visits & topics you want to discuss. What would make you feel good and want to come back? Expectations? (More Ground rules may emerge)



BREAK - snacks and socializing



Clinical part- Checking in with individual patients



Wrap-up: Sum up points; answer questions; reminders; next time...

## Session #2-8

Pre- registration



Check pt. charts



Check blood pressure, blood sugar (if indicated), and weight – outside the meeting room



Review ground rules (ON THE BOARD) & add any as desired by patients

1. Come to sessions on time
2. Do not interrupt others
3. No side conversations: please let other patients share their experiences completely
4. Confidentiality – i.e. “You are free to talk to others about what you learned in the groups, but do not mention the names of the people who are in the group.”
5. Call your facilitators throughout the month if you have any questions before your next group visit.
6. Don’t tell others “you should...”
7. Instead of saying “I will TRY to do something” think about saying “I WILL do something.”



Begin patient check in. Go around the room & jot down a few things each patient mentions- especially if there is a need for follow-up at the end of the session. This should be an average of 2-3 min per person.



Facilitators model activity



Guide the check-in towards the health education segment. If materials are needed, distribute them as you give a brief explanation about what the day’s topic will be.



Discuss agenda for the session



Start with a few questions regarding the topic to initiate discussion and engage participants. Be mindful of time. If patients have questions, let them know you will address them during the break or individually after the session.



BREAK - snacks and socializing



Clinical checking in with individual patients

- Med changes
- Action plans



Wrap-up: Sum up points; answer questions; reminders; next time...



Phone tree- should come about organically instead of an enforced buddy system- unless brought up by patients. However, provide a phone # patients can call if they have questions or comments.

## ACTION PLANS

Although it may not be explicitly mentioned in each individual protocol, one of our primary objectives is to encourage patients to generate their own goals. Some patients will be more motivated and confident about their ability to carry out their goal, while others will need additional support. The definition of a “goal” should be flexible. Anything from eating 3 tortillas less a week, to checking their blood sugar 2 times per week, to walking everyday for 30 minutes, should be encouraged. Patients should not be coerced into making a goal that the provider or health educator thinks is important or necessary. Although the provider or health educator may advise a patient as to what could be prioritized, the final goal should be set **BY THE PATIENT**, and should be something that he/she is interested in doing and thinks he/she can achieve.

The focus is also to engage patients and work in a stepwise manner towards long-term changes to their health. Hence, short-term and long-term goals should be set. Patients should be engaged in problem-solving and decision-making throughout the intervention. As mentioned before, the goal should be focused on the ongoing process rather than the immediate “quick fixes.”

While working with patients to set goals, providers and health educators should use positive feedback wherever possible. Even if a patient does not achieve his/her desired goal for the week/month, he/she is **NOT** a failure. If a patient cannot carry out his/her goals, this is the time to reassess the goals made, find out what barriers prevented the patient from completing his/her goal, and reframe the goal or task at hand. Help patient either work on a new goal, or change the past goal into something more attainable.

## ACTION PLANS– SAMPLE SESSION

One of the things we will focus on in these groups is setting goals. . A goal is something we would like to do in the next month to six months, such as walking, visiting family, doing things with friends, or controlling your diabetes.

Goals are generally too big to work on all at once. Therefore, we need to start one step at a time and with smaller goals. For example, if my goal is to loose weight, I might start with deciding what type of exercise to do, then where I can go to exercise, how much time I will spend exercising when first starting, and maybe asking a friend or family member to exercise with me.

Next facilitators would lead participants into the next activity – deciding what goal or action plan to make **this month** and how we are going to do it. (You can either write these down on the board, or simply remember to ask these in series when helping patients formulate their action plans.)

### **Parts of an action plan**

1. Something YOU want to do – not what your doctor, nurse, family, or anyone else thinks you should do
2. Realistic- something you think you can REALLY do this month
3. A specific action – for example, losing weight is not specific, but not eating chips or other snacks between meals IS
4. Answer the questions:
  - What? – For example, eating more vegetables
  - How much? –For example, 1 extra cup a day
  - When? – For example, with dinner
  - How often? – For example, 4 times a week
5. Confidence level of 7 or more- In other words, HOW SURE ARE YOU THAT YOU WILL BE ABLE TO DO THIS ACTION PLAN/GOAL  
0= don't think you can do it to 10= you definitely think you will complete the action plan.

Facilitators should prepare actions plans as well, remembering that their actions plans will serve as MODELS to the group participants. You can use a ladder as a visual image of the 0 to 10 scale. An example of the “Action Plan” tool is available at The Commonwealth Fund website.

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## Avoid Jargon

Effective clinician-patient communication has been linked with improved patient comprehension, recall, satisfaction, and health outcomes. Successful communication, in part, requires that participants draw from a more or less common vocabulary and experience. This may be especially important for patients with barriers to communication, such as those with limited health literacy (HL), and with chronic medical conditions like Type 2 Diabetes, which place great self-management demands on patients. In a recent study conducted at San Francisco General Hospital, physicians caring for patients with limited HL and Type 2 Diabetes used at least one unclarified jargon term in the overwhelming majority of visits, often in the context of carrying out important functions of the medical encounter, such as providing recommendations and/or health education.

Findings regarding the prevalence and function of unclarified jargon use by physicians caring for patients with Type 2 diabetes and limited health literacy suggest that clinicians may unwittingly be contributing to the difficulties experienced by patients with limited HL [Schillinger Pt Ed 2004; Baker 1996]. Patients understood the jargon terms less than 40% of the time. As such, reducing HL-related disparities, in part, may require significant behavior change on the part of clinicians. There may be several reasons why physicians employ jargon in their interactions with patients: 1) physicians are trained and function in a context, often referred to as the “culture of medicine”, that values the efficient transmission of highly technical information; 2) physicians may be unaware of the degree to which the language they use in the professional/collegial context permeates their discourse with patients, or they may over-estimate the degree to which their patients understand such terminology; 3) physicians may be employing unclarified jargon to assert their professionalism or, in contrast, to “empower” patients by exposing them to concepts and terms critical to patients’ self-management. Whatever the reasons for the use of jargon, our study suggests that increasing clinician self-awareness and reducing use of jargon, particularly during the health education and recommendations components of a visit, could improve the effectiveness of primary care delivery for patients with chronic conditions such as Type 2 Diabetes.

It has been estimated that 1 in 3 individuals with Type 2 diabetes has limited health literacy. Given the low comprehension rates for diabetes-related jargon that we demonstrated among patients with limited health literacy, public health practitioners and clinicians must partner with individuals who have limited health literacy to develop more effective ways to communicate concepts critical to chronic disease prevention and management.

Reference:

Castro C, Wilson C, Schillinger D. “Babel Babble: Physician’s Use of Unclarified Jargon With Diabetes Patients.” Journal of General Internal Medicine 2004.

# Words from Jargon Study

(Decrease) inflammation/inflammatory cells	EKG stickers	Neuroma	Stool cards
(test) strips	Elevated	Not significant	Stool specimen
Abdominal discomfort	Endocrine	Ophthalmology	Stool was negative
Abnormality	Epigastric pain	Orthopedic	Stress/rest study
Ace inhibitor	Evidence/(of blood)	Palpitation	Supplements
Active abscess	Fasting sample	Patient-dependent	Suppositories
Affixes	Fractures	Pattern of blood sugar	Susceptible
All negative	Frequency of urination	Per se	Symptoms
Analgesic balm	Functional study	Peripheral vascular disease	Symptoms go away
Anemia	Gait training	Pharmacist	System of nerves
Angina	Genes	Pneumovax	Test that question
Aortic stenosis	Genetic	Podiatry	Tetanus
Arterial	Get this drawn	Polyp	Therapy
Arteries	GI clinic	Potassium	Thyroid
At risk	GI discomfort/clinic	Preceptor	Tight blockages
Atrial fibrillation	Gland	Pre-op note	Tremors
Baseline	Glucometer	Prescription	Trichomonas
Benign	Gout	Prostate	Ulcers
Beta-blocker	Hba1c	Protective system	Ultrasound
Biopsy	Heart failure	Pulmonary function test	Units of 70/30
Blood cells	Hemoglobin	Reaction	Urethra
Blood count	Hereditary	Receptors	Urine for protein
Blood drawn	Hormone	Red blood cells	Urine sample
Blood labs	Immune systems down	Referral form	Vaccine
Blood slip	Immunizations	Refills	Vaginal discharge
Blood work	Increase dosage	Reinforces	Vessels
Bowels	Increase your "R"	Renal clinic	Washed out of your system
Bypass	Indicated	Resensitize your pancreas	Weight is stable
Cardiologist	Inflammation	Respiratory tract	Well controlled
CAT scan	Insulin receptors	Retina	Wide range
Cath films	Interact	Right coronary artery	
Cervix	Iron deficiency	Risk factors/at risk	
Check labs	Kidney function	Screening	
Cholesterol panel	Lab work	Screening process	
Colonoscopy	Labs	Second hand smoke	
Constipation	Labs drawn	Secretions	
Consult	Lancet	Shadow file	
Correlate	Lesions	Short course	
Cuts down	Levels checked	Shortness of breath	
Cystoscopy	Low blood flow	Side effects	
Decrease the inflammation	Mammogram	Small bowel obstruction	
Diagnose	Metabolism	Soft tissues	
Dialysis	Microalbuminuria	Specialist	
Diaphoretic	Microfilament	Specialize	
Distributing it	Micro-vascular complications	Specific for [gout]	
Draw blood	Myocardial infarction	Speculum	
Echocardiogram	Negative PAP smear	Sputum	
EKG abnormalities	Nerve is swollen	Stool	

## Appendix B

# Multiple Intelligence Theory

Howard Gardner, Professor of Education at Harvard University, is the father of Multiple Intelligence (MI) theory. It is important to point out that although you may have never heard of Howard Gardner, you do know how you like to learn. Anybody can reflect on whom their favorite teachers were to see that there are lots of ways to learn. Gardner's framework is easy to understand and really helps simplify the concept.

Gardner argues that we all have the ability to learn with all the intelligences but that we excel more in some than in others. We may have a preferred mode of learning, but we can certainly learn using the other modes as well. The job of the trainer is to implement activities that engage a variety of the intelligences over the course of time. This ensures that a maximum number of people are learning and that a maximum number of people are being challenged to learn in new ways.

Few activities engage only one intelligence; almost everything we do engages several intelligences. Being a logical learner doesn't just mean you're good at math. Being a musical/rhythmic learner doesn't just mean you're a musician.

## The Multiple Intelligences



### **Verbal/Linguistic**

To think in words and to use language to express and understand complex meanings. Sensitivity to the meaning of words as well as the order among words, their sounds, rhythms, inflections. To reflect on the use of language in everyday life.

*Activities: writing, reciting, listing, telling, retelling, listening, reading, talking out ideas, storytelling, brainstorming*

### **Musical/Rhythmic**

To think in sounds, rhythms, melodies and rhymes. To be sensitive to pitch, rhythm, timbre and tone. To be able to recognize, create and reproduce music by using an instrument or the voice. It involves active listening and there is a strong connection between music and emotions.

*Activities: singing, listening, playing, composing, rhythmic repeating, tapping a beat, rapping, chanting, listening to music to create a mood*

### **Visual/Spatial**

To think in pictures and to perceive the visual world accurately. To be able to think in three-dimensions and to transform one's perceptions and re-create aspects of one's visual experience via imagination. To work with objects.

*Activities: painting, drawing, observing, illustrating, diagramming, depicting, showing, mapping, visualizing, idea sketching, picture metaphors, graphing*

### **Logical-Mathematical**

To think of cause and effect connections and to understand relationships among actions, objects or ideas. To be able to calculate, quantify, consider propositions and perform complex mathematical or logical operations. It involves inductive and deductive reasoning skills as critical and creative problem-solving.

*Activities: reasoning, calculating, analyzing, comparing, contrasting, classifying, ranking*

**Bodily-Kinesthetic**

To think in movements and to use the body in skilled and complicated ways for expressive as well as goal-directed activities. It involves a sense of timing and coordination for whole body movement and the use of hands for manipulating objects.

*Activities: "hands-on" activities, "experiential" activities, dancing, performing, role-playing, dramatizing, any activity where the body is engaged*

**Interpersonal/Social**

To think about and understand another person. To have empathy and recognize distinctions among people and to appreciate their perspectives with a sensitivity to their motives, moods and intentions. It involves interacting effectively with one or more people among family, friends or working relationships.

*Activities: discussing, debating, dialoguing, questioning, putting yourself in someone else's shoes, learning from other people's perspectives, cooperative learning, sharing with peers*

**Intrapersonal/Introspective**

To think about and understand one's self. To be aware of one's strengths and weaknesses and to plan effectively to achieve personal goals. It involves reflecting on and monitoring one's thoughts and feelings and regulating them effectively. The ability to monitor one's self in interpersonal relationships and to act with personal efficacy.

*Activities: journaling, reflecting, meditating, studying, expressing, self-assessing, using yourself as an example, reflecting on your own life experience to see patterns and lessons learned, setting goals*

**Naturalist**

To think about and understand nature, the environment. To be aware of natural patterns, flora, fauna, ecosystems. It involves observation of the natural world.

*Activities: observing nature, comparing things in the natural world, looking at behavior of animals, making analogies to nature, noticing patterns in nature*

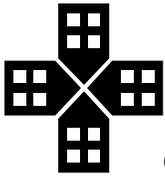
**Spiritualist** *(not endorsed by Howard Gardner)*

To think about one's spiritual or religious life. To draw on one's spiritual values. To explore the meaning and source of spirituality.

*Activities: praying, reading religious texts, listening to inspirational speakers*

Appendix C. Group Visit Progress Note





COMMUNITY HEALTH NETWORK  
 SAN FRANCISCO GENERAL HOSPITAL  
 MEDICAL CENTER  
 OUTPATIENT PROGRESS NOTE

NAME \_\_\_\_\_  
 DOB \_\_\_\_\_  
 MRN \_\_\_\_\_  
 PCP \_\_\_\_\_



Patient ID / Addressograph \_\_\_\_\_

**DIABETES GROUP MEDICAL VISIT**  
**IDEALL Health Project** **Page 1 of 2**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Site:  FHC  GMC Session # \_\_\_\_\_ Group # \_\_\_\_\_

Primary Provider: \_\_\_\_\_ Health Educator: \_\_\_\_\_

Last Action Plan: Achieved goal?  Yes  Partially  No Comment: \_\_\_\_\_

Action Report: \_\_\_\_\_

New Action Plan: \_\_\_\_\_ Confidence Score (1-10): \_\_\_\_\_

New Problems: \_\_\_\_\_

Current Psychological Stressors: \_\_\_\_\_

PAIN: NO _____ YES _____ (if yes, continue)		
Location	Scale (1-10)	Pattern (I/C)

I=intermittent C= constant

Exam: Wt. \_\_\_\_\_ Ht. \_\_\_\_\_ BMI \_\_\_\_\_ BP \_\_\_\_\_ P \_\_\_\_\_ T \_\_\_\_\_ RBS\* \_\_\_\_\_



Foot Exam: \_\_\_\_\_ Date (if foot exam completed elsewhere): \_\_\_\_\_

Last Retinal Exam: \_\_\_\_\_ Date: \_\_\_\_\_

Recent Labs:

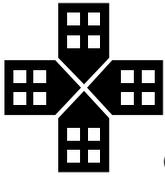
	Value	Date
HGB A <sub>1C</sub>	_____	_____
HCT	_____	_____
Urine microalb	_____	_____
Creatinine	_____	_____

	Value	Date
Total chol.	_____	_____
LDL	_____	_____
HDL	_____	_____
Trig.	_____	_____
LFTs	<del>_____</del>	_____

Pneumovax UTD:  Yes  No

**Continue on next page.**

\*RBS = random blood sugar



NAME

DOB

MRN

PCP



DIABETES GROUP MEDICAL VISIT  
 IDEALL Health Project

Patient ID / Addressograph

Continued from previous page.

Problems, with assessment and plans:

1. Diabetes \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ On aspirin?  Yes  No
2. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
4. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Health education this visit (check all that apply):

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> diabetes basics    | <input type="checkbox"/> exercise                        | <input type="checkbox"/> medications              |
| <input type="checkbox"/> glucose monitoring | <input type="checkbox"/> smoking                         | <input type="checkbox"/> pain control             |
| <input type="checkbox"/> nutrition          | <input type="checkbox"/> foot care                       | <input type="checkbox"/> coping/ stress reduction |
| <input type="checkbox"/> sexual function    | <input type="checkbox"/> symptoms of hypo/ hyperglycemia | <input type="checkbox"/> sick care                |

Referrals this visit (check all that apply):

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Ophthalmology     | <input type="checkbox"/> *Mental Health | <input type="checkbox"/> Primary Care Provider |
| <input type="checkbox"/> Podiatry          | <input type="checkbox"/> Nutritionist   | <input type="checkbox"/> Diabetes Educator     |
| <input type="checkbox"/> IDEALL Pharmacist | <input type="checkbox"/> Exercise Group | <input type="checkbox"/> Smoking Cessation     |
| <input type="checkbox"/> Stress Reduction  | <input type="checkbox"/> Social Worker  | <input type="checkbox"/> *Other _____          |
- \* With PCP approval ONLY

Medications changed this visit (check all that apply and describe in above plan):

- Diabetes     Blood Pressure     Lipids     Aspirin     Other

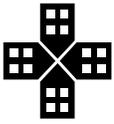
Level of participation in today's session:  None  Minimal  Moderate  Full    Next visit date: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Provider: \_\_\_\_\_ CHN ID #: \_\_\_\_\_

Print name                      Signature                      Title

**Appendix D. Pharmacy Progress Note**





**Community Health Network  
San Francisco General Hospital  
Medical Center**

**DIABETES GROUP  
PHARMACIST PROGRESS NOTE  
IDEALL Health Project**

NAME \_\_\_\_\_

DOB \_\_\_\_\_

MRN \_\_\_\_\_

PCP \_\_\_\_\_

Client ID / Addressograph or label \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Site:  FHC  GMC Session # \_\_\_\_\_ Group # \_\_\_\_\_

Pharmacist: \_\_\_\_\_



INTERVENTION/ISSUE (check all that apply) :

<input type="checkbox"/> Medication Instructions/ Review	Refill Issues
<input type="checkbox"/> Insurance Issues	<input type="checkbox"/> OTC Medications
<input type="checkbox"/> Herbals/Dietary Supplements	<input type="checkbox"/> Cost Issues
<input type="checkbox"/> Medication Side Effects	<input type="checkbox"/> Drug-Drug Interactions
<input type="checkbox"/> Drug-Food Interactions	<input type="checkbox"/> Drug-Disease Interactions
<input type="checkbox"/> Other: _____	

**Problems, with assessment and plans:**

S/O (Evidence - Subjective/Objective) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ On aspirin?  Yes  No

A (Assessment) \_\_\_\_\_

\_\_\_\_\_

3. P (Plan) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Medications changed this visit (check all that apply and describe in above plan):

Diabetes  Blood Pressure  Lipids  Aspirin  Other

Performed "Teach-Back" Method?  Yes  No

Client and provider agree on plan?  Yes  No

\_\_\_\_\_  
Pharmacist Signature CHN ID# Follow-up: \_\_\_\_\_

## Appendix E: Facilitator Self-Evaluation Form

Number of participants in group: \_\_\_\_\_

1. How well did you think this group session went today?

\_\_\_\_\_

1	2	3	4	5	6	7
Not at all		Some		Mostly		Completely

2. Do you think the co-facilitators worked well together as a team?

\_\_\_\_\_

1	2	3	4	5	6	7
Not at all		Some		Mostly		Completely

3. Did you meet your goals and objectives for this group visit?

\_\_\_\_\_

1	2	3	4	5	6	7
Not at all		Some		Mostly		Completely

4. Were the co-facilitators able to engage group members to participate?

\_\_\_\_\_

1	2	3	4	5	6	7
Not at all		Some		Mostly		Completely

5. Did patients seem to engage in the group visit (i.e. asked questions, stayed till the end, learned from each other)?

\_\_\_\_\_

1	2	3	4	5	6	7
Not at all		Some		Mostly		Completely

6. General impressions (i.e. notable events/ elements).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. What problems can you identify that are preventing the group from functioning optimally?

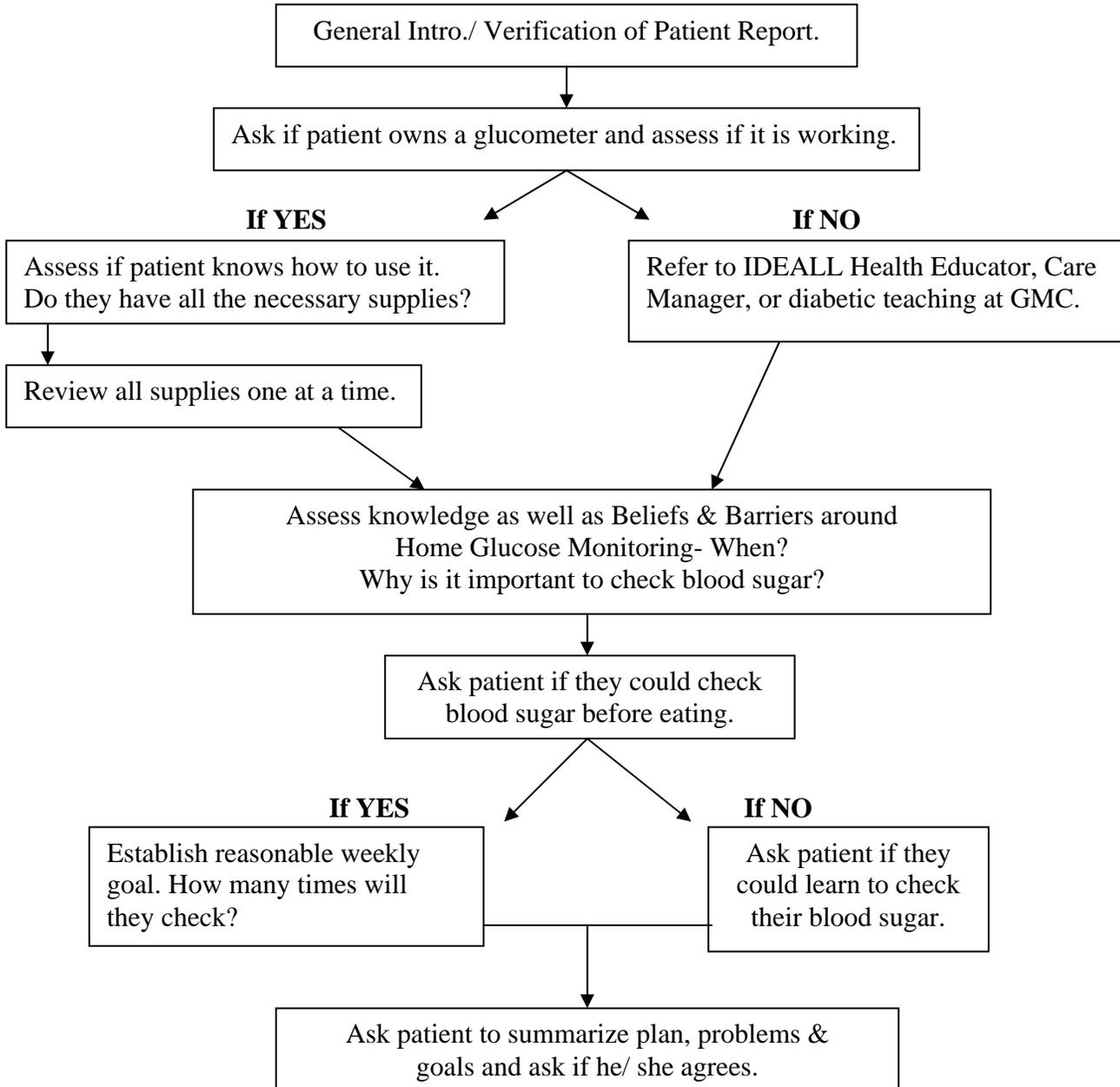
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. What do you need to do before the next session to improve the next group visit?

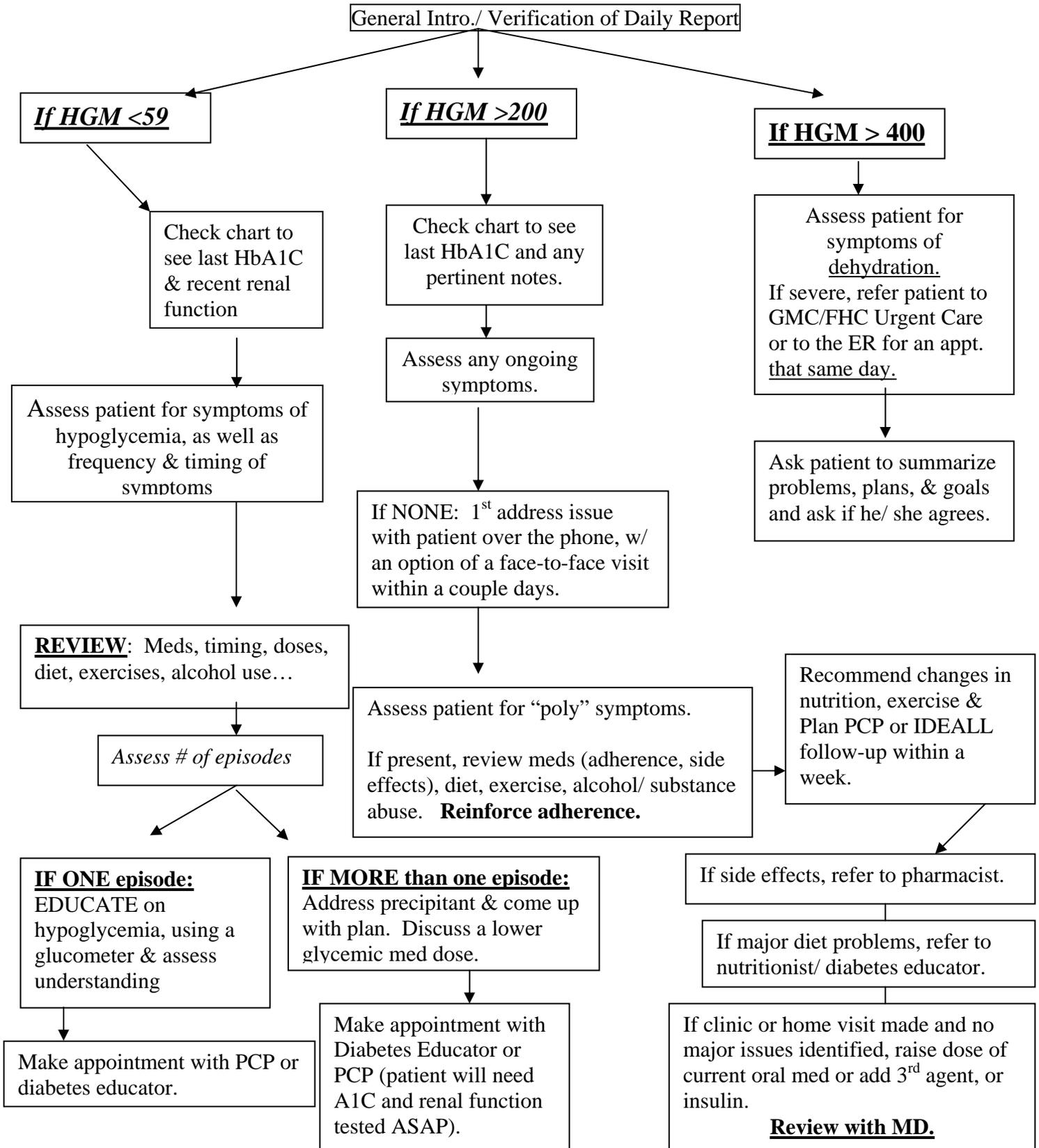
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Appendix F: Clinical Guidelines**

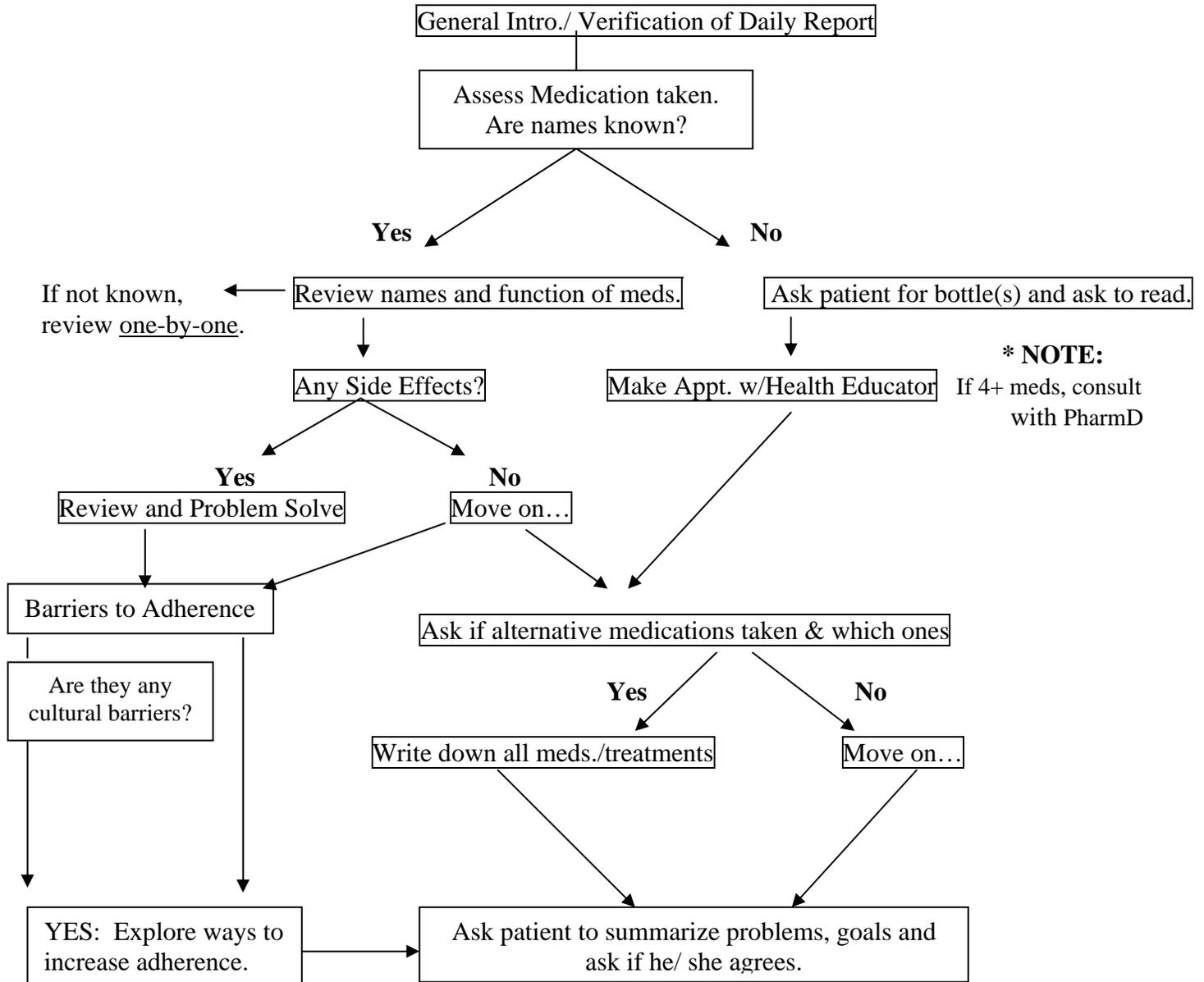
**Home Glucose Monitoring Protocol**



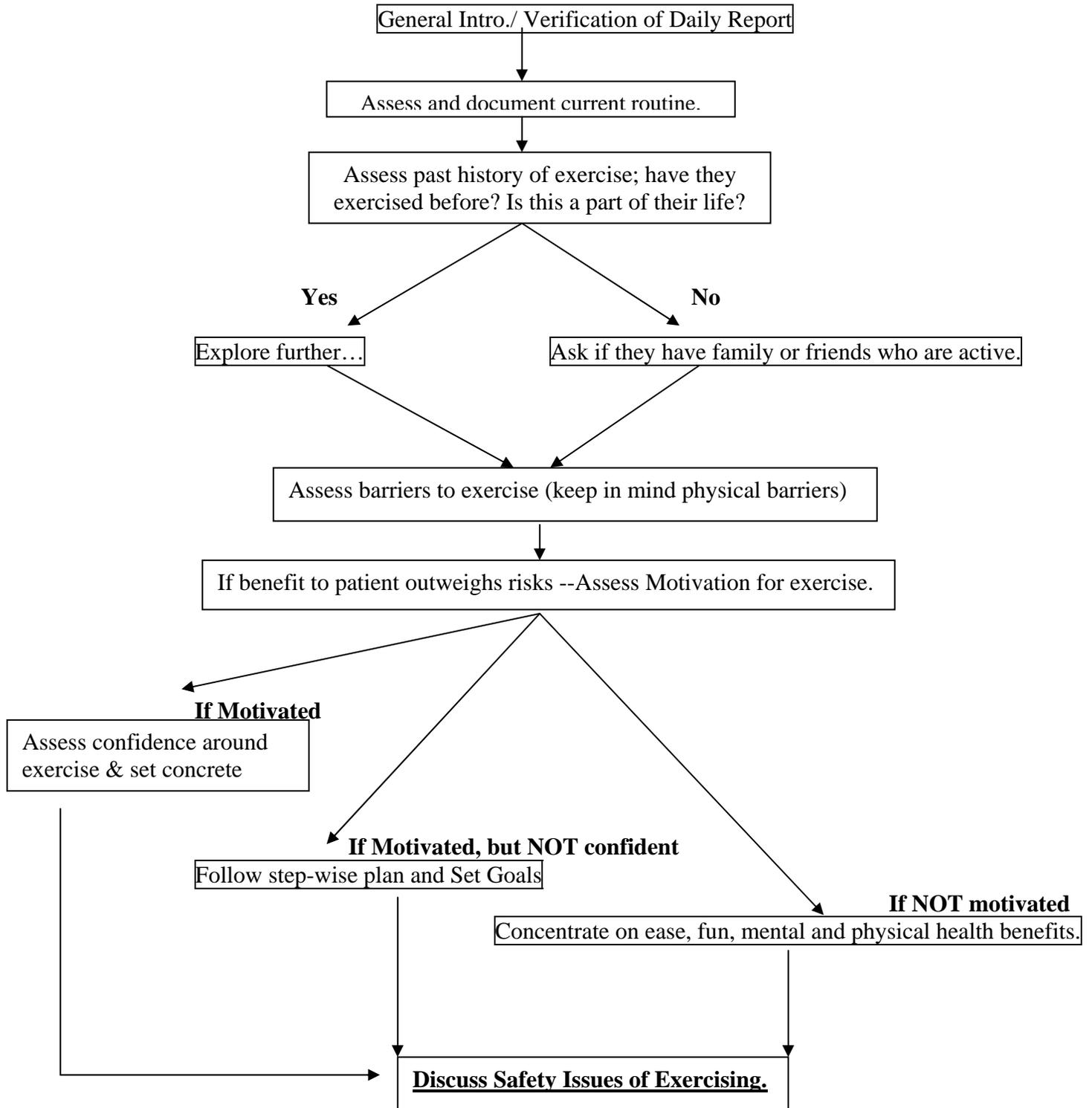
## Glycemic Control Protocol



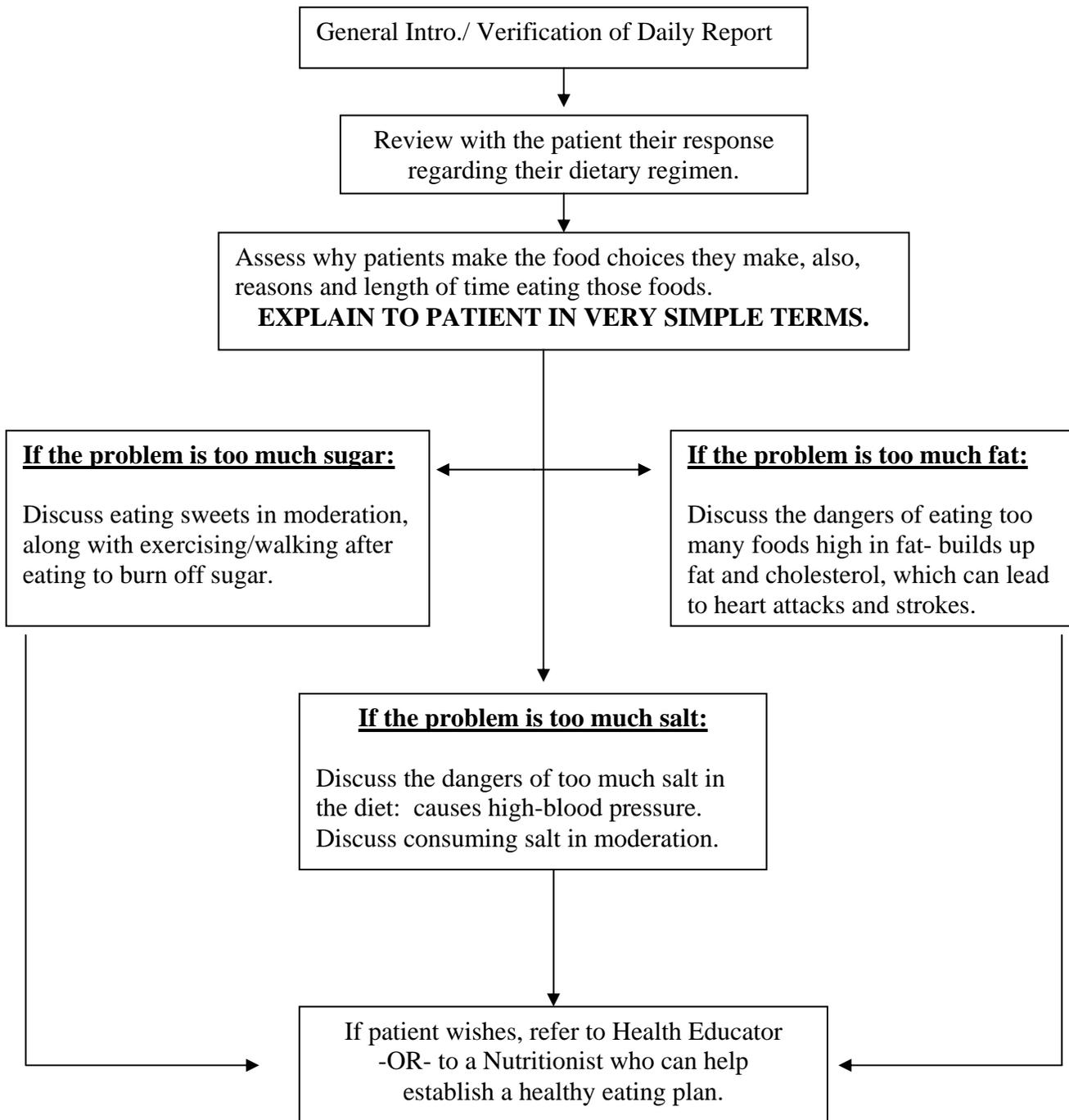
## Medication Adherence Protocol



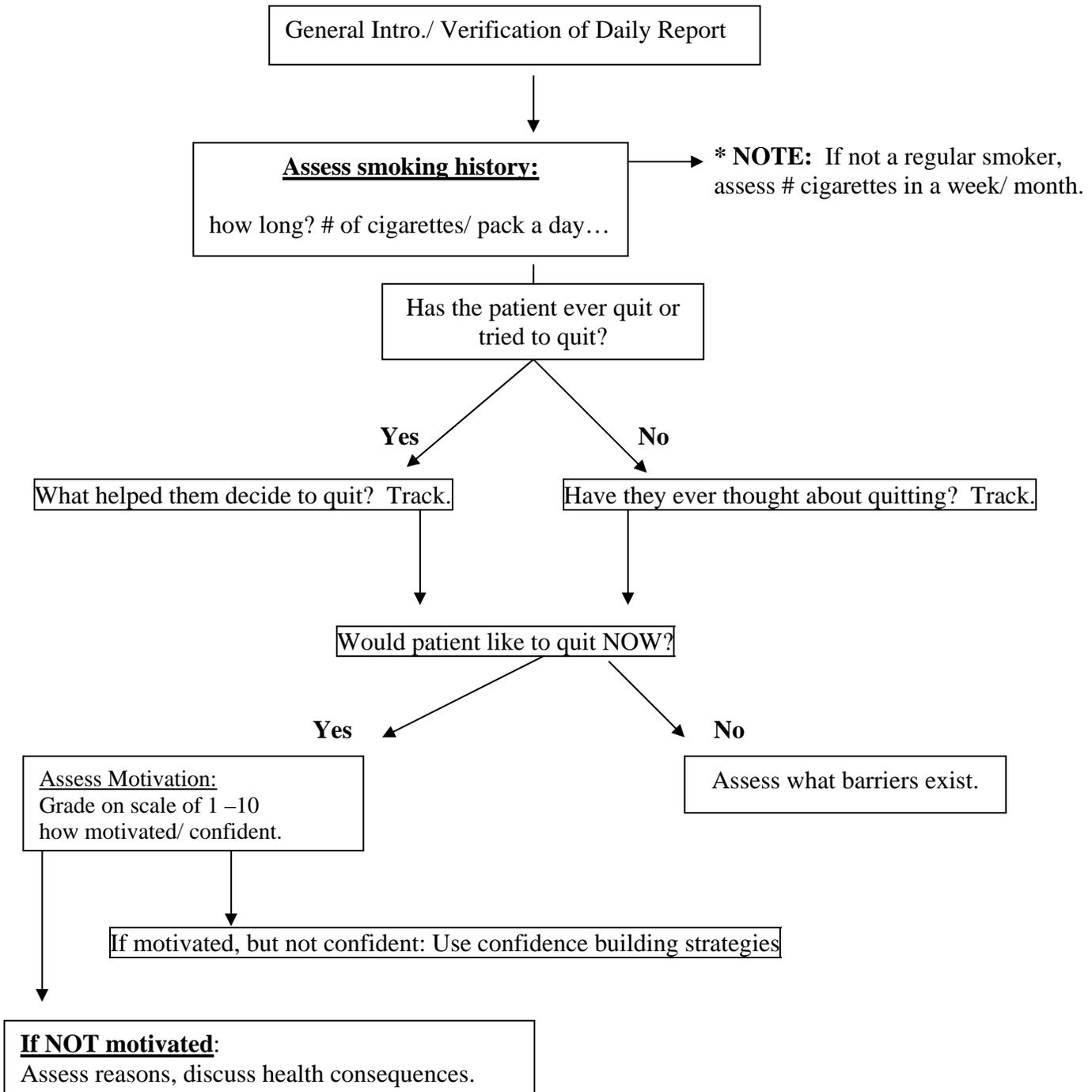
## Exercise Protocol



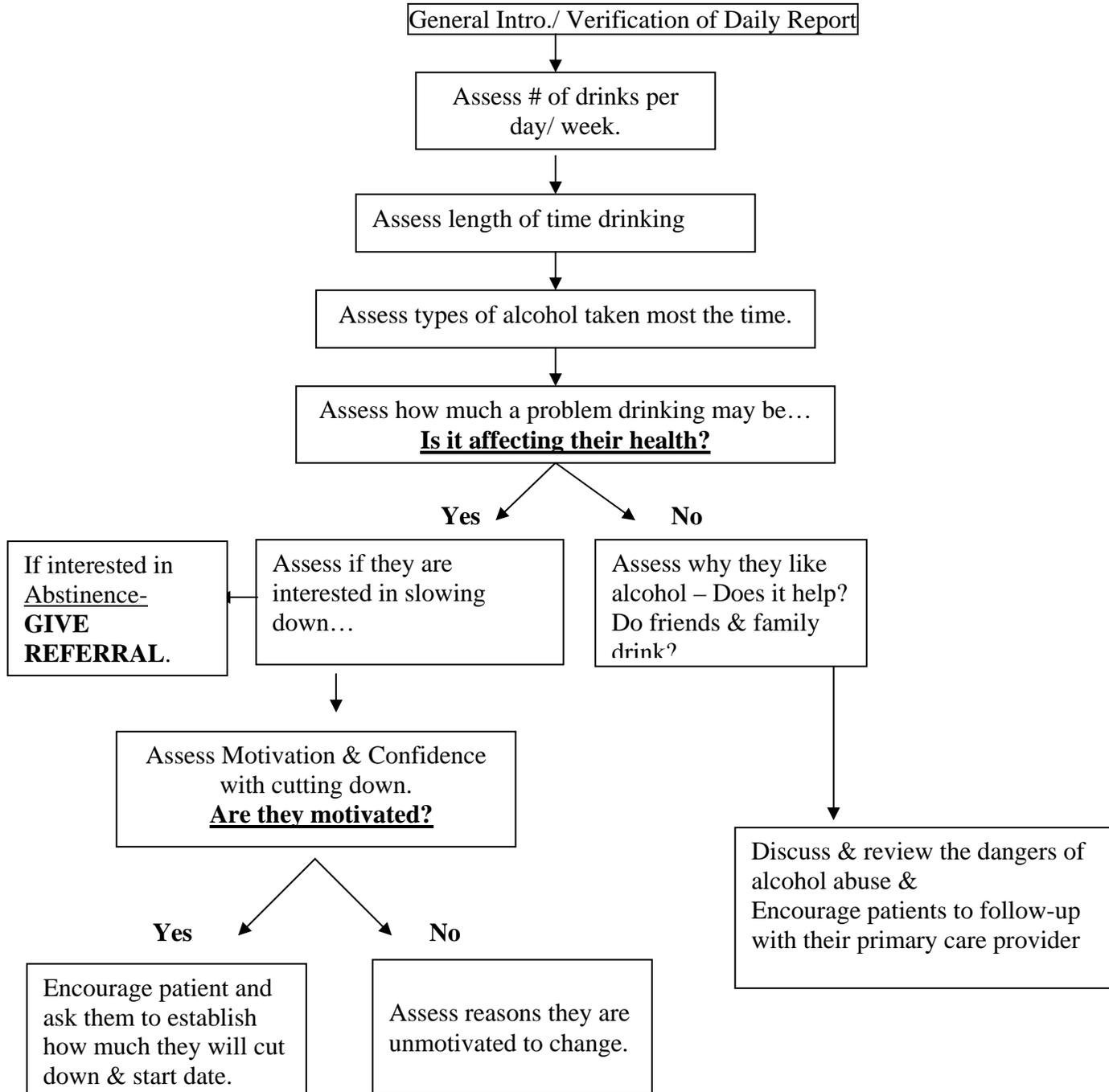
## Nutrition Protocol



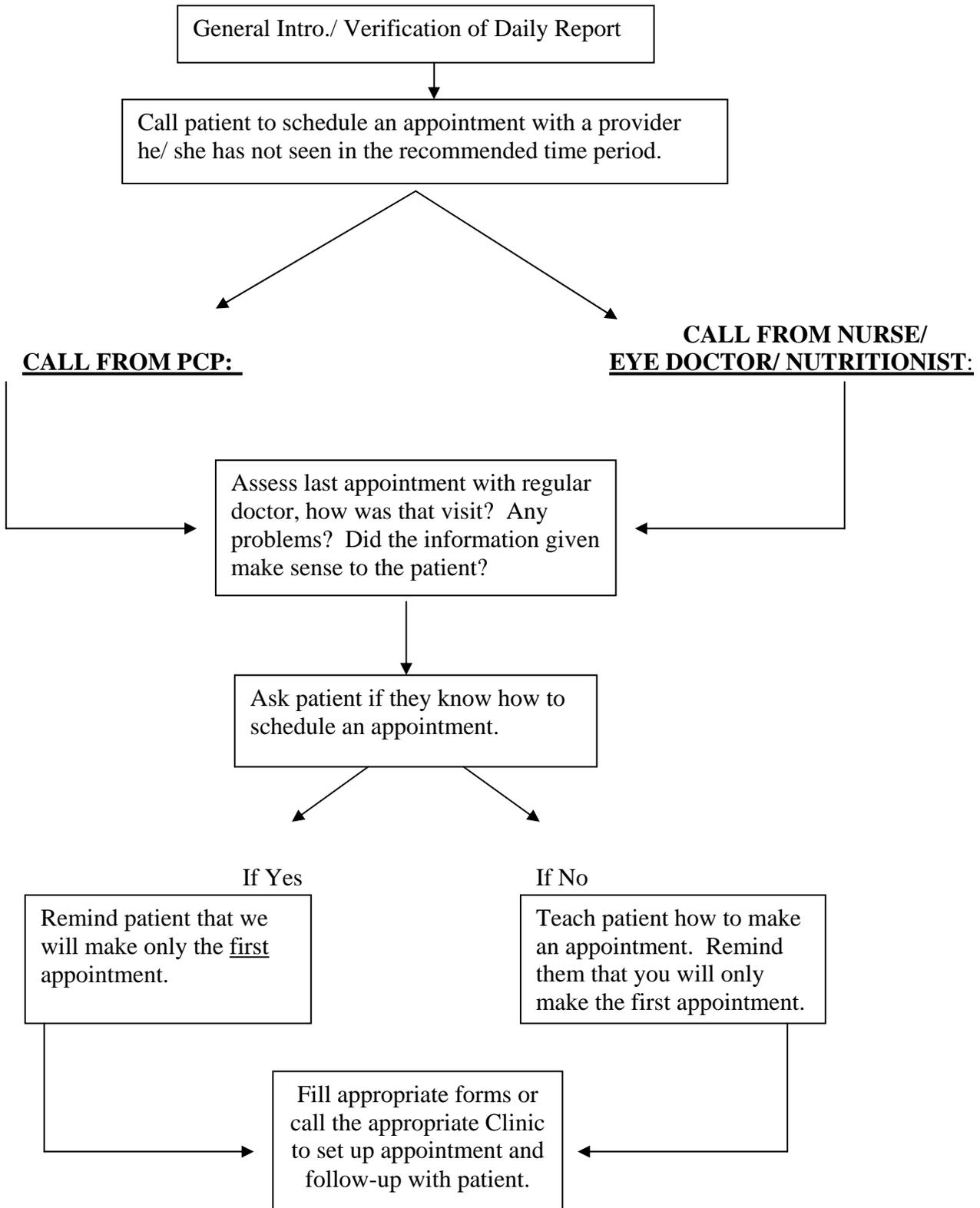
## Smoking Cessation Protocol



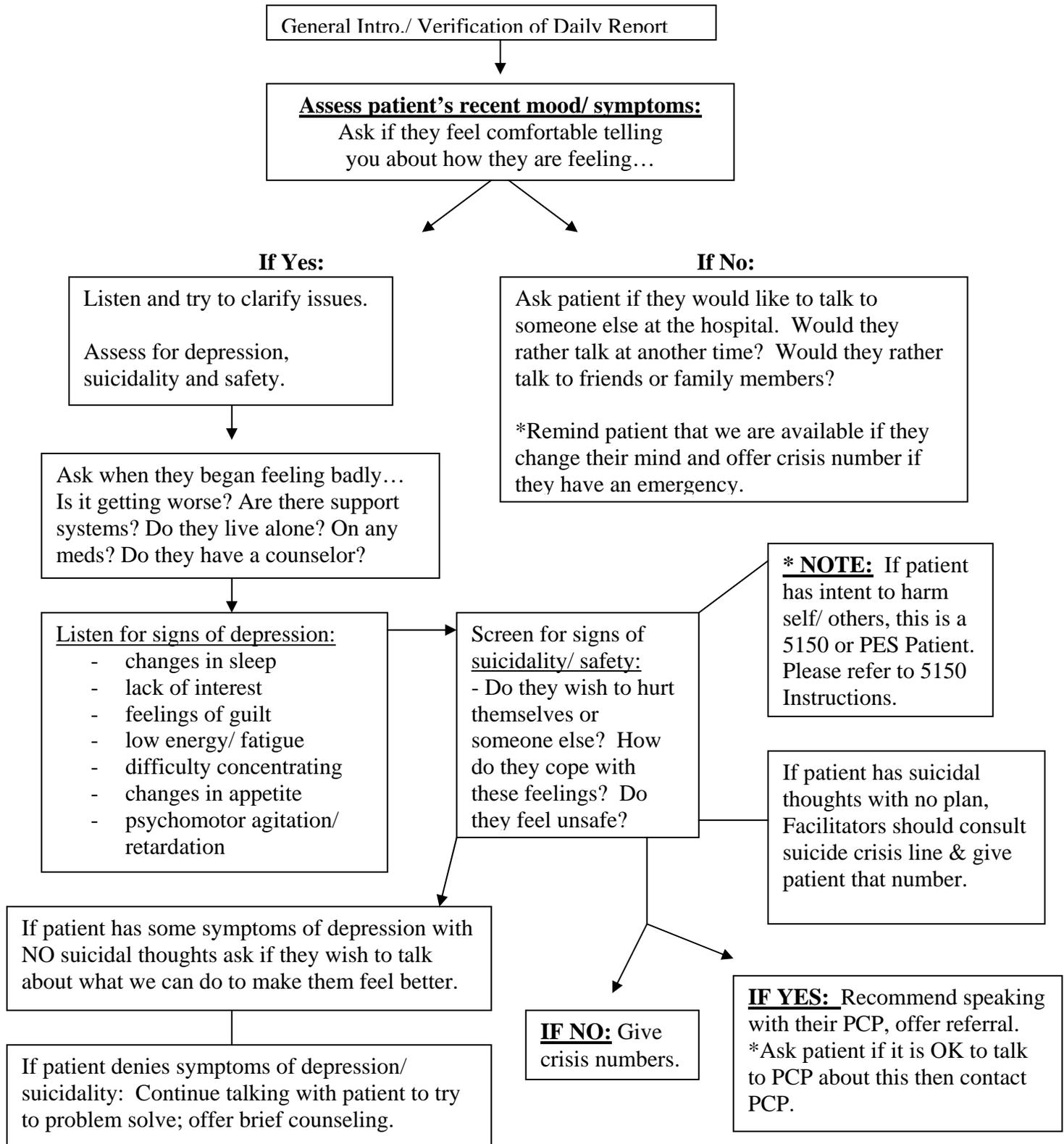
## Alcohol Use Protocol



## Appointment Protocol



## Mood Status Protocol



## **Crisis Lines and Information Lines**

### **Crisis Intervention and Suicide Prevention**

- San Francisco

415-781-0500 Span./Eng.  
415-989-5212 nightline 7wk.  
650-692-6655

- San Mateo County

### **Psychiatric Emergency Services – San Francisco**

- Child Crisis Service
- San Francisco General Hospital, Psychiatric ER
- Westside Crisis Services M-S 9-6p.m.

(415) 970-3800  
415-206-8125 Interpreters  
available.  
415-353-5055 (Span./Can.)  
If available

### **Psychiatric Emergency Services – San Mateo County**

- San Mateo General Hospital, Psychiatric ER

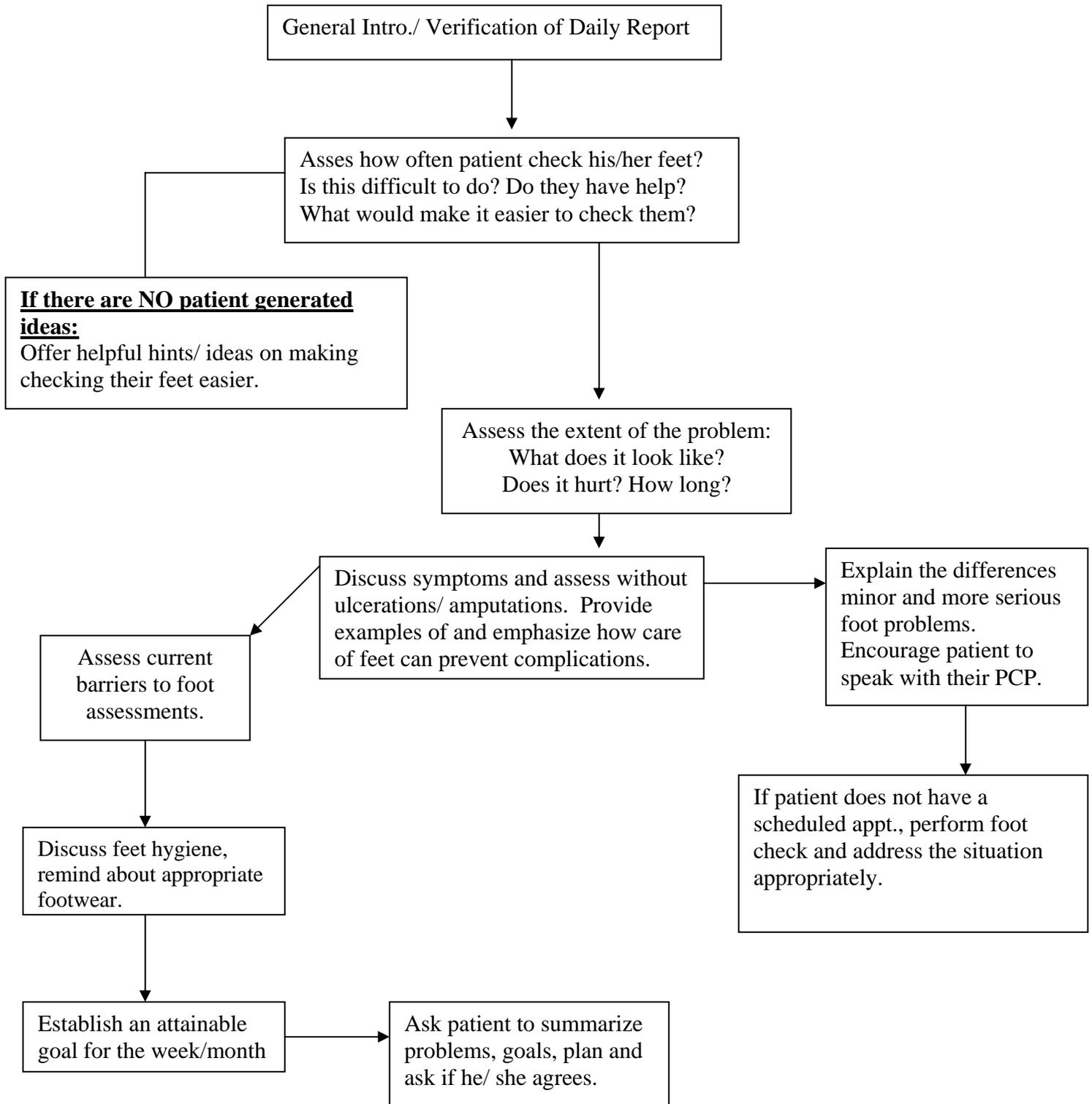
650-573-2662 (Span./Can.)  
24hrs.

### **Mental Health Information and Referral**

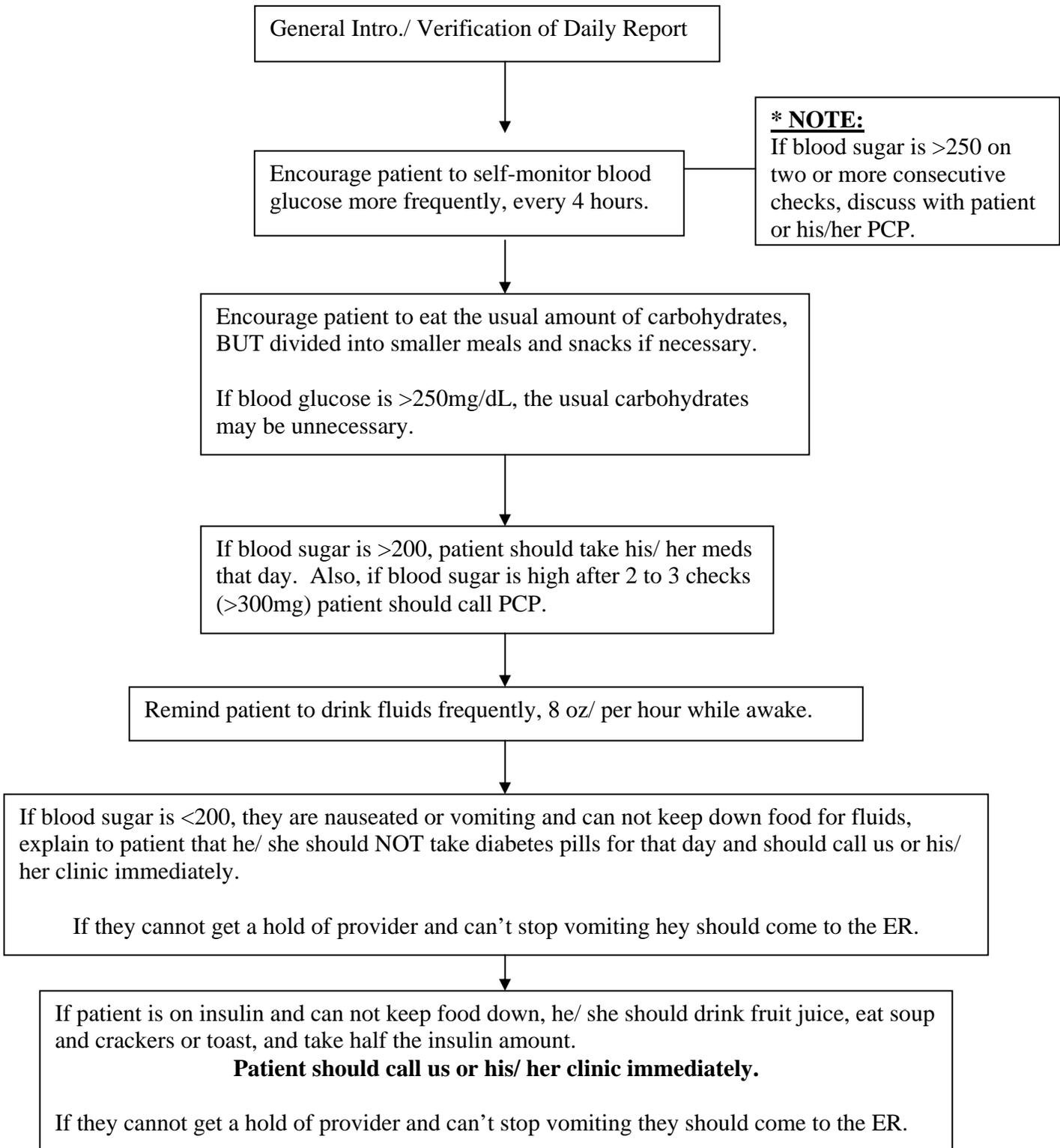
- San Francisco Mental Health Information and Referral
- San Mateo County Mental Health Access Team *M-F 8-5pm*
- San Francisco Help Link (referral for mental health and all other social and human services) *(8 am - 5 pm)*

415-981-4700  
1-800-686-0101 (Spanish)  
415-772-HELP (4357)

## Podiatry Protocol



## Sick-day Management Protocol



Additional questions regarding topics such as sexual dysfunction and pain management can be generally addressed, but should be referred to patient's PCP

## Appendix G: Medications for Diabetes

*\* Some of the information and tables in this section were obtained or adapted from the Management of Diabetes Mellitus. Washington, DC: VA/DoD Clinical Practice Guideline Working Group, Veterans Health Administration, Department of Veterans Affairs and Health Affairs, Department of Defense, December 1999. Office of Quality and Performance publication 10Q-CPG/DM-01.*

- For most Type 2 Diabetics, treatment consists of a step-wise approach, which begins with lifestyle modification. Most of our patients take at least oral agents.
- The first step in the medication ladder is monotherapy – either with a sulfonylurea or biguanide, eg. Metformin (in addition to lifestyle modifications). For patients with significant obesity, initial monotherapy with Metformin may be preferable. Before adding a second agent, doses should be maximized, paying close attention to tolerability/side effects.
- The second step is an addition of a second agent – again, usually either a sulfonylurea or Metformin. Doses again, should be maximized. If no contraindications present, a third oral agent can sometimes be added.
- If a patient fails three agents, the next step is usually the addition of insulin. If a type 2 patient demonstrates ketosis, it usually means they have exhausted their pancreatic reserve and can no longer produce insulin (i.e. should be on insulin alone or insulin + an oral agent, i.e. thiazolidenedione or biguanide)

### Recommended Option for Type 2 DM

Therapy	Drugs	Expected reduction in HbA1c
Lifestyle modification, diet and exercise	None	
Lifestyle modification, diet and exercise & <b>Monotherapy</b> with oral agent	Sulfonylurea or biguanide	1-2 percent
Lifestyle modification, diet and exercise & <b>Combination Therapy</b> (add a second oral agent)	*Sulfonylurea + biguanide *Sulfonylurea or biguanide + alpha-glucosidase inhibitor *Sulfonylurea or biguanide + thiazolidenedione	1-2 percent 0.5 to 1 percent 0.7 to 1.75 percent
Lifestyle modification, diet, and exercise & Insulin with oral agent	*Biguanide + insulin *thiazolidenedione + insulin *Sulfonylurea + insulin	
Insulin	Insulin alone	

### Individual Medications:

#### A. Sulfonylureas

- Sulfonylureas lower blood glucose by stimulating insulin release from beta cells in the pancreas.
- A second-generation sulfonylurea is often the first-line agent, based on safety. HbA<sub>1c</sub> should be measured 3 months after initiation and changes in therapy.

- c. If the response to a single daily dose does not achieve treatment goals, dividing the dose may be effective.
- d. If the patient does not have an initial response to therapeutic doses of a sulfonylurea (primary failure), evaluate patient for possibility of type 1 DM. Make sure patient has no intercurrent illnesses or drugs that can interfere with glucose control and assess adherence to diet and drug therapy. If they are now of these complication factors, combination therapy is warranted.
- e. **SIDE EFFECTS:** hypoglycemia

### Oral Sulfonylureas

Sulfonylurea	Potency	Dosing Interval	Daily Dose (b) (mg/day)	Plasma half-life (hrs)	Duration of action (hrs)	Active metabolites
First Generation						
Chlorpropamide	Low	qd.	100 to 500	36	up to 60	yes
Tolazamide	Low	qd.-b.i.d.	100 to 1000	7	12 to 24	yes
Tolbutamide	Low	b.i.d.-t.i.d.	250 to 2000	4.5-6.5	6 to 12	no
Second Generation						
Glimepiride	High	qd.	1 to 4	9	≥ 24	yes
<b>Glipizide (c)</b>	High	qd.-b.i.d.	2.5 to 20	2 to 4	10 to 16	no
Glipizide XL	High	qd.	5 to 10	2 to 5	≥ 24	no
<b>Glyburide</b>	High	qd.-b.i.d.	1.25 to 10	10	≥ 24	weak

Hebel 1996:130e-130m

Reflects commonly used doses (maximum dose not shown). The maximum daily dose may be necessary for some patients  
Absorption is delayed by food, take 30 minutes before a meal.

**Bold type indicates most commonly prescribed at SFGH**

### **B. Metformin**

Metformin is a biguanide oral antihyperglycemic agent. The major blood glucose lowering effect is through decreasing hepatic glucose production with some decrease in peripheral insulin resistance.

Metformin may be considered for use as monotherapy in lieu of sulfonylurea in selected patients. It may be used in combination with an oral sulfonylurea, acarbose, thiazolidinedione, or insulin in the event that monotherapy fails to achieve HbA<sub>1c</sub> goal. The effect of Metformin on glycemic control is additive, due to its different mechanism of action.

Use of metformin results in less weight gain, and a reduction in plasma triglycerides may also occur.

**SIDE EFFECTS:** The patient should be advised of the transient, dose-related gastrointestinal side effects (e.g., diarrhea, nausea, vomiting, bloating, flatulence, and anorexia).

**CONTRAINDICATIONS:** Patients at risk for lactic acidosis should not receive metformin. Specific contraindications include acute or chronic metabolic acidosis, renal dysfunction (SCr >1.5mg/dL [males] and SCr >1.4 mg/dL [females]), and patients with congestive heart failure requiring pharmacological management. Metformin use should be avoided in patients with hepatic disease or excessive ethanol intake or in any patient with a condition associated with hypoxemia, dehydration, or sepsis. Metformin use should be temporarily discontinued at the time of or prior to intravascular radiocontrast studies or surgical procedures. Monitoring renal function to prevent lactic acidosis, especially in the elderly, is important.

## Metformin Drug Therapy

Dose	Cautions/Monitor
Check SCr and LFTs prior to starting therapy Start 500-850 mg qam with meals ↑ dosage as needed by 500-850 mg every 2 weeks (split dose b.i.d.) The usual maintenance dose is 850 mg b.i.d. with meals Maximum dose: 2550 mg/day (850mg t.i.d.)	Inform patient to take with food to avoid possible GI symptoms (diarrhea, nausea, vomiting, bloating, flatulence, anorexia) Counsel patient to be aware of possible metallic taste in the mouth <b>Monitor BUN, creatinine, and electrolytes within 2 weeks of initiation or dosage change</b> Caution patients against use with alcohol as alcohol potentiates the effects of metformin on lactate metabolism.

### C. Alpha-glucosidase inhibitors e.g. Acarbose

Acarbose is an alpha-glucosidase inhibitor that delays the digestion of carbohydrates thereby decreasing postprandial hyperglycemia.

Should not be used as monotherapy. The effect of acarbose on glycemic control is additive, due to its different mechanism of action.

Acarbose should be considered for patients with elevated postprandial plasma glucose or impaired glucose tolerance.

**SIDE EFFECTS:** The patient should be advised of the transient, dose-related GI side effects (diarrhea, abdominal pain, and flatulence). Initiating therapy at a reduced dosage may reduce these side effects.

If a patient becomes hypoglycemic from a combination of acarbose and a hypoglycemic agent, oral glucose (dextrose) should be given to treat the reaction, since sucrose (table sugar) or a complex carbohydrate (starches) will not be readily effective.

Discontinue acarbose if glycemic control fails to improve over 3 to 6 months.

## Acarbose Drug Therapy

Dose	Cautions/monitor	Contraindications
<p><b>Initial starting dose:</b> 25 mg t.i.d.</p> <p><b>Alternate starting dose:</b> 25 mg qd. x 1-2 weeks followed by 25 mg b.i.d. for 1-2 weeks with subsequent increase to 25 mg t.i.d. Once a 25mg t.i.d. dosing regimen is reached, further increases may be made at a 4-8 week interval.</p> <p><b>Maintenance dosage:</b> 50 mg t.i.d.</p> <p><b>Maximum dosage:</b> 100 mg t.i.d. ( &lt; 60 kg 50 mg t.i.d.)</p>	<p>Inform patient to take dose with the first bite of each main meal</p> <p>Patients should maintain a diet high in complex carbohydrates and low in simple sugars to achieve maximum benefit and minimize adverse effects</p> <p>Inform patient of possible GI symptoms (diarrhea, abdominal pain, flatulence) that may occur during the first few weeks of therapy</p> <p>Acarbose, especially at doses greater than 50 mg t.i.d., may cause serum AST/ALT elevation; monitor serum levels every 3 months during the first year of treatment</p> <p>Renal impairment has been shown to increase plasma concentrations of acarbose; its use is not recommended in these patients.</p>	<p>Hypersensitivity to the drug</p> <p>Presence of diabetic ketoacidosis or cirrhosis</p> <p>Presence of intestinal complications (ulcers, obstructions, digestion or absorption disorders).</p>

Adapted from Hebel 1998:129a-129e  
Martin & Montgomery 1996

### D. Thiazolidinediones (“glitazones”)

Rosiglitazone and pioglitazone are in the drug class known as thiazolidinediones. They work by enhancing insulin sensitivity in skeletal muscle, hepatic, and adipose tissue without directly stimulating insulin secretion from the pancreas. They also have a small effect on inhibiting hepatic glucose output.

Rosiglitazone and pioglitazone should be reserved for selected patients due to their modest effect on reducing HbA<sub>1c</sub> compared to sulfonylureas or metformin, unknown long-term safety profile, and high cost.

Rosiglitazone and pioglitazone should not be used as monotherapy since there is no advantage over sulfonylureas or metformin in efficacy, as measured by change in HbA<sub>1c</sub>.

Rosiglitazone and pioglitazone should not be used if the patient has evidence of liver disease or an ALT > 2.5x the upper limit of normal.

#### **SIDE EFFECTS:**

*False anemia:* Plasma volume has been shown to increase with these agents, causing reduction in hematologic parameters such as hemoglobin and hematocrit.

*CHF Exacerbation:* Due to plasma volume expansion (as above)

*Ovulation Inducer:* May induce ovulation in premenopausal anovulatory patients. Need for contraception should be discussed with the patient as appropriate.

*Weight Gain*

*May elevate total cholesterol, HDL and LDL*

**Thiazolidinedione (“glitazones”) Drug Therapy**

<b>DOSE</b>	<b>CAUTIONS/MONITOR</b>	<b><u>WARNINGS</u></b>
<p>If using in combination with a sulfonylurea, metformin, or insulin, the current dose should be continued when adding a glitazone.</p> <p><u>Rosiglitazone</u> Start at 4mg/day (single dose or divided into 2 doses). May increase to 8mg/day (single dose or divided into 2 doses) after 12 weeks if glycemic control is inadequate. Maximum dose is 8mg daily (single or bid dosing) and can be given without regard to meals. Dosage adjustment is not required in patients with renal insufficiency</p> <p><u>Pioglitazone</u> Start at 15 or 30mg once daily. Maximum dose is 45mg daily and can be given without regard to meals. Insulin dosage should be decreased by 10-25% after fasting glucose levels decrease to less than 100mg/dl. Dosage adjustment is not required in patients with renal insufficiency</p>	<p>Liver function test abnormalities, jaundice, hepatitis, liver transplant and death have been reported with troglitazone.</p> <p><u>Rosiglitazone and pioglitazone</u> Do not initiate in patients with ALT &gt; 2.5x the upper limit of normal. Liver function tests and bilirubin should be tested every 2 months for 1 year, then periodically thereafter. If ALT is &gt; 3x upper limit of normal, recheck another level as soon as possible. If ALT remains &gt; 3x the upper limit, discontinue use.</p> <p>Monitor for signs and symptoms suggestive of hepatic dysfunction such as nausea, vomiting, abdominal pain, fatigue, anorexia, dark urine or jaundice. Patients should be instructed to inform their physician should they develop these symptoms.</p>	<p>Plasma volume may increase with rosiglitazone or pioglitazone thereby potentially exacerbating congestive heart failure. Patients with New York Heart Association Class III and IV were not included in clinical trials therefore use in these patients is not recommended. Patients with NYHA Class I or II should have their fluid status monitored closely.</p>

**E. Repaglinide (Prandin) – this is not currently on our formulary so ignore section for now**

Repaglinide is a newly marketed oral hypoglycemic agent indicated for treatment of type 2 diabetes either as or in combination with metformin for those who failed treatment with either agent alone. Like sulfonylureas, it works by stimulating pancreatic secretion of insulin.

Repaglinide has a faster onset and shorter duration of action than sulfonylureas, therefore postprandial glucose is affected to a greater extent than fasting blood glucose.

The effect on HbA<sub>1c</sub> is variable and seems to depend on whether the patient has been previously treated with another oral agent. Patients previously treated with an oral agent had a HbA<sub>1c</sub> reduction of approximately 0.2 to 0.3 percent. Patients not previously treated with an oral agent experienced a decrease in HbA<sub>1c</sub> of approximately 1.7 to 1.9 percent.

The dose is administered 15 minutes before each meal. Dosing may be individualized so that if a patient misses a meal, the corresponding dose would be omitted. Repaglinide may be used in patients with renal or hepatic impairment; however, dosage adjustments need to be made with caution.

**SIDE EFFECTS:** The most commonly reported adverse effect of repaglinide was hypoglycemia and was generally comparable to that seen with sulfonylureas.

## F. Insulin

- a. In close collaboration with the clinic's diabetes nurse, and after approval from patient's PCP, consider starting insulin treatment when glycemic control can no longer be maintained with a combination of oral medications. Increasing fasting glucose levels, unexplained weight loss, and traces of ketonuria are clinical indicators of disease progression. Refer to Section X on how to generate an action plan.
- b. Winning a patient's confidence at this time ensures success. The fears associated with injections need to be discussed and the benefits of insulin therapy stressed. Correct insulin injection technique, how to mix insulin types, and the relationship of the insulin being used to meals and exercise should be reviewed. Fears about weight gain, hypoglycemia, and other adverse effects should be addressed in a calm and sympathetic manner. Patients must be willing to do HGM if started on insulin. Make sure they are comfortable w/HGM before instituting injections.
- c. Initiate insulin gradually -- For a patient who takes maximal doses of oral antidiabetic medications in combination, insulin therapy can be initiated more gradually than in an acute situation. As insulin is introduced, oral therapies should be continued in their current dose. The following insulin options are available in the CHN formulary:
  1. NPH insulin, lente, or ultralente at bedtime or in the morning.
  2. Human analogue insulin 70/30 mixture before supper or before breakfast, or both
  3. Basal insulin glargine (Lantus) at bedtime, before supper, or in the morning (**this is restricted on the formulary** for patients who have had hypoglycemic episodes with other insulin types and must be prescribed by an endocrinologist or obstetrician)
- d. Patients often have high fasting glucose levels, so basal insulin or insulin at bedtime is a good choice. If intermediate insulin is chosen (NPH), the amount can be calculated by figuring the dose according to a ratio of 0.5 U/kg and using 25% to 30% of that amount as the initial dose. Average starting dose is 10U.

**Ex)** Mr. Brown is an 85 kg man.  $0.5\text{U/kg} = 42.5$  or 42U.  $25\%$  of 42 = 10.5 or 10U. So, Mr. Brown could start with 10U of NPH at bedtime or 10U of Ultralente in the morning or at bedtime.
- e. The insulin dose is increased slowly on the basis of the results of blood glucose self-monitoring before breakfast and can be increased every 2 to 4 weeks until the fasting glucose goal is reached. In general, the target for fasting plasma glucose in our patients should be between 100 and 150 mg/dL.
- f. *If glycemic control cannot be achieved with once daily injections, ask patient to check post-prandial sugars in addition to fasting sugars (pre-breakfast & post-dinner, for example). If post-prandial sugars are elevated, can consider starting a split mixed regimen with 70/30. (See below for instructions)*
- g. Insulin, along with some of the oral medications, can cause weight gain. Metformin hydrochloride (Glucophage) can attenuate some of this weight gain (i.e. instead of gaining 3-4kg, a patient may gain 1-2kg.)
- h. Combining sensitizers (Metformin or "glitazones") with insulin therapy results in improved glucose control and lower insulin doses.
- i. Don't forget to order sharps containers, alcohol prep pads, syringes, etc. when starting insulin. Either the IDEALL clinician or the Diabetes Educator can provide glucometer and insulin injection education.

### Comparison of Insulin Preparations

Insulin	Onset (hrs)	Peak (hrs)	Duration (hrs) (c)	Compatible Mixed with:	Appearance
<b>RAPID ACTING</b>					
Regular	0.5-1	1-5	6-10	all	Clear
Lispro (not widely used yet in type 2)	0.25-0.5	0.5-2.5	3-6.5	Ultralente-NPH (d)	Clear
<b>INTERMEDIATE</b>					
NPH (most common choice for Type 2 DM)	1-2	6-14	16-24+	regular	Cloudy
Lente	1-3	6-14	16-24+	regular	Cloudy
<b>LONG ACTING</b>					
Glargine (N/A on CHN formulary)	1	None	24		
Ultralente	4-6	8-20	24-28	regular	Cloudy

(a) Adapted from AHFS Drug Information, American Society of Health-System Pharmacists, Inc., 1998

(b) Onset, peak, and duration are parameters for non-human insulin preparations; in general, human preparations have shorter times of duration

Duration may depend on type of preparation and route of administration as well as patient related variables. In general, the larger the dose of insulin, the longer the duration of activity

The effects of mixing insulin Lispro with insulins of animal source or insulins produced by manufacturers other than Eli Lilly have not been studied.

## Insulin Regimen Examples

<p>Bedtime Dosing of NPH/Lente or Ultralente Insulin in Addition to an Oral Agent qhs NPH most common at SFGH!</p>	<p>Begin with around 10 units at bedtime (calculate the morning glucose/18 or 0.5U/kg divided by 4) (a) Verify that the pre-dinner glucose remains in control</p>
<p>Split Mixed Regimen with NPH/Regular (c)</p>	<p>Inject 2/3 of the total insulin requirement in the morning, with a NPH/Regular ratio of 70:30 Inject 1/3 of the total insulin requirement in the evening, with a NPH/Regular ratio of 50:50 (b)</p>
<p>Once-daily Morning NPH or Ultralente insulin (without oral meds)</p>	<p>Good for elderly or non-adherent patients Inject 30 to 60 minutes before breakfast Usual dosage (see above calculations). Can ramp up dose q week.</p>

Adapted from: Edelman SV, White D, Henry RR. Intensive insulin therapy for patients with type 2 diabetes. **Current Opinion in Endocrinology and Diabetes** 1995;2:333-340

These are a few examples, optimal regimen depends on the individual patient

Always counsel patients to mix regular insulin in syringe first, followed by NPH; mixtures of regular and lente insulins should be injected immediately. Inject regular insulin 30 to 60 minutes before a meal

## General Guidelines for Insulin Adjustment in the Type 2 DM Patient on Split Regimens

- If the morning fasting blood sugar is off target, adjust the evening NPH or switch evening NPH to bedtime
- If the evening serum glucose is off target, adjust the morning NPH
- If the evening glucose continues to be off target, have the patient check the pre-lunch glucose
- If the pre-lunch glucose is off target, adjust the morning Regular insulin
- If the bedtime glucose is off target, adjust the evening Regular insulin

## Drug-Drug Interactions

### Drugs That May Impair Glucose Tolerance

Beta-blockers, calcium antagonists, Diaz oxide, diuretics, estrogens, glucocorticoids, isoniazid, l-asparaginase, niacin, oral contraceptives, pentamidine, phenothiazines, phenytoin, rifampin, sympathomimetics, thyroid products.

## Drug Interactions with Oral Hypoglycemic Agents

<b>Sulfonylureas</b>	There is a potential for drug interactions between sulfonylureas and highly protein bound drugs (e.g., nonsteroidal anti-inflammatories, salicylates, sulfonamides, chloramphenicol, probenecid, monoamine oxidase inhibitors, tricyclic antidepressants, beta-blockers). These interactions are more likely to occur with the first generation agents. Patients need to be monitored for hypoglycemia or loss of glucose control when these agents are added or withdrawn.
<b>Biguanides</b>	Cationic drugs that are eliminated by renal tubular secretion (e.g. amiloride, digoxin, morphine, procainamide, quinidine, ranitidine, triamterene, trimethoprim, vancomycin) can potentially interact with metformin by competing for elimination by the renal tubular transport system.
<b>Repaglinide</b>	Repaglinide is metabolized by CYP 3A4, therefore drugs which induce (e.g. troglitazone, rifampin, barbiturates) or drugs which inhibit CYP 3A4 (e.g. ketoconazole, erythromycin) may result in a decreased or increased concentration of repaglinide respectively. Repaglinide is also > 98 percent protein to albumin, therefore other highly protein bound drugs may interact.

## Common Hypertension and Cholesterol Medications & Side Effects

### Antihypertensive Drugs

Class	Drug (Trade Name)	Side Effects
Thiazide diuretics	Hydrochlorothiazide chlorthiazide (Diuril) metolazone (Zaroxolyn)	hypotension, hypokalemia, orthostatic hypotension, dizziness
Loop Diuretics	bumetanide (Bumex) furosemide (Lasix)	hypotension, dizziness, blurred vision, rash, orthostatic hypotension
Potassium-sparing diuretics	amiloride (Midamor) triamterene (Dyrenium)	dizziness, fatigue, hyperkalemia, dehydration
Aldosterone receptor blockers	spironolactone (Aldactone)	hyperkalemia, dizziness, nausea, breast tenderness in females, gynecomastia in males, rash
Beta-blockers	atenolol (Tenormin) metoprolol (Lopressor) nadolol (Corgard) propranolol (Inderal) timolol (Blocadren)	bradycardia, hypotension, heart block, dizziness, confusion
Combined alpha- and beta-blockers	carvedilol (Coreg) labetalol (Normodyne)	chest pain, dizziness, fatigue, hyperglycemia, diarrhea, respiratory tract infections, bradycardia, hypotension
Ace Inhibitors	benazepril (Lotensin) captopril (Capoten) enalapril (Vasotec) fosinopril (Monopril) quinapril (Accupril) ramipril (Altace)	rash, hyperkalemia, cough, dizziness, abnormal taste, hypotension, syncope
Angiotension II antagonists	losartan (Cozaar) valsartan (Diovan)	hypotension, dizziness, fatigue, insomnia
Calcium channel blockers (non-Dihydropyridines)	diltiazem extended release (Cardizem CD) verapamil (Calan, Isoptin) verapamil extended release (Calan SR, Isoptin SR)	gingival hyperplasia, sinus bradycardia, hypotension, peripheral edema, headache, constipation
Calcium channel blockers (Dihydropyridines)	amlodipine (Norvasc) felodipine (Plendil) isradipine (Dynacirc CR) nifedipine long-acting (Adalat CC, Procardia XL)	peripheral edema, flushing, headache, tachycardia, dizziness,
Alpha 1 – blockers	doxazosin (Cardura) prazosin (Minipress) terazosin (Hytrin)	dizziness, headache, orthostatic hypotension, tachycardia, palpitations, rash, nausea, vomiting,
Central alpha 2 – agonists and other centrally acting drugs	clonidine (Catapres) clonidine patch (Catapres- TTS) methyldopa (Aldomet) reserpine guanfacine	drowsiness, dizziness, bradycardia, orthostatic hypotension, rash, peripheral edema,
Direct vasodilators	hydralazine (Apresoline) minoxidil (Loniten)	rash, tachycardia, peripheral edema, fatigue,

## Lipid-Lowering Agents

Class	Drug (Trade)	Side Effects
Fibric Acid derivatives	clofibrate (Atromid-S) gemfibrozil (Lopid)	GI upset, diarrhea, nausea
Nicotinic Acid	Niacin	flushing, nausea, flatulence, headache, bloating
Bile Acid Resins	colestipol (Colestid) colesevelam (WelChol) cholestyramine (Questran)	constipation, GI Upset, nausea, bloating
HMG-CoA RI (statins)	atorvastatin (Lipitor) fluvastatin (Lescol) lovastatin (Mevacor) pravastatin (Pravachol) simvastatin (Zocor)	GI Upset, rash, headache, chest pain, respiratory infection  <b>lovastatin &amp; simvastatin – myalgias, muscle weakness</b>

*\*Adapted from Drug Information Handbook, 11th Edition, 2003. Lexi-Comp, Inc., APhA.*

*Authors: Lacy, CF, Armstrong, LL, Goldman, MP, and Lance, LL.*