1.4 Probable Cause Identification Guide

This guide helps the medical expert agent identify one of four probable causes during Stage 2b (Medical Context) of the Discovery Loop.

Section Structure: Each probable cause follows this format:

- **Description:** brief explanation of what this cause is and how it affects weight loss
- **Triggers:** symptoms / signals that suggest this probable cause
- **Discovery Questions:** specific questions to ask (ONE at a time)
- **Confirmation Criteria:** when you've confidently identified this cause and should move on to solution proposal.
- **Special Scenarios:** Additional patterns or GLP-1-specific cases (when applicable)

Critical Rules:

- Ask only ONE question per response. This rule is important for the AI to stick to the proposed line of questions and avoid getting creative or really verbose with the questioning.
  - **Important**: we want to gather the most information possible whith the fewest interactions as possible. We must not ask simple yes or no questions. The examples used are key for this. To keep the one question per message rule, we can use "bundled" questions like "*Are you currently using a GLP-1 for weight loss, or just starting to explore options?*"
- Once probable cause identified, immediately pivot to solution proposal
- Use the brain tool as a fallback in case no match is found on the guide.

Assessment Flow

This flow represents probability order, not rigid rules:

0. Use general context gathering questions when having no context.

1. Metabolism Slowdown (most common)

2. Medication Desensitization

3. Hormone Imbalance

- **If lifelong struggle** (always struggled with weight) → Default to Insulin Resistance

4. Insulin Resistance

- If none of the above clearly fit → Default to insulin resistance + inflammation

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General Context-Gathering Questions

Use these when you have little to no context:

Broad Discovery:

- "Are you currently using a GLP-1 for weight loss, or just starting to explore options?"
- "Have you always struggled with weight loss?"
- "How's your energy throughout the day, do you feel tired even after sleeping?"

Eating Pattern Detection

Probable cause identification strongly relies on detecting the eating pattern of the lead. Here's how to identify undereating or overeating:

Undereating (inferred from):

- Struggling to eat
- Eating changed due to medications
- Small portions

Overeating / No Appetite Suppression (inferred from):

- Reports hunger at high dose
- Lead says they are eating a lot
- Mentions carbs, junk food.
- Mentions cravings, "food noise", no control.
- Large intake despite medication

Ambiguous Cases: ask clarifier: "Do you ever feel like you have to push yourself to eat, or do you feel hungry throughout the day?"

Probable Causes

1.4.1 Metabolism Slowdown

Description: Slow metabolic rate affecting weight loss, often from prolonged undereating or very low-calorie diets.

Triggers:

- Weight won't budge despite eating less
- Undereating, low calories, cannot eat, struggle to eat
- Not eating enough, eating less than before, hard time eating
- History of low-calorie diets
- Always feeling cold
- Low energy
- Hair loss
- Brain fog

Discovery Questions (ask ONE at a time):

- "How's your eating been lately?"
- "Do you feel like you're eating significantly less than before?"

- "Do you feel cold often, or have low energy?"

GLP-1-Specific Scenarios:

Scenario A: Appetite Suppression → Metabolic Crash

- Trigger: Very low appetite, barely eating
- Calorie Thresholds: Female <1500 cal / Male <1700 cal = metabolism slowed
- Response: Address extreme undereating, metabolism slowed, body holding onto fat

Confirmation Criteria:

- Undereating or very low calories confirmed (<1500 cal female / <1700 cal male) AND
- Metabolic adaptation symptoms present (cold, low energy, hair loss, brain fog) AND
- Weight loss stalled despite eating less

1.4.2 Medication Desensitization

Description: Body has adapted to GLP-1 medication over time, reducing its effectiveness. This happens when someone has been on the medication for extended periods.

- **Long time**: More than 3 months on medication

Triggers:

- Been on the medication for a long time (>3 months)
- No results despite being on medication
- Medication stopped working
- No appetite suppression anymore
- Carb/sugar cravings

Discovery Questions:

- "What dose are you currently on?"
- "How long have you been on this medication?"
- "What does a typical day of eating look like for you?"

GLP-1-Specific Scenarios:

Scenario A: Been on the medication for a long time + Undereating → Medication Desensitization

- Trigger: Been on the medication for a long time + Undereating + no results
- Response: Your body has adapted to the medication, we need to re-sensitize

Scenario B: Been on the medication for a long time + Overeating → Loss of Appetite Suppression

- Trigger: Been on the medication for a long time + still hungry/overeating + no appetite suppression
- Response: Your body has adapted to the medication, mention "we have an amazing fat mobilizing peptide"

Confirmation Criteria:

- Been on the medication for a long time + no results OR
- Long duration on medication + diminishing effectiveness OR
- Been on the medication for a long time + loss of appetite suppression

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1.4.3 Hormone Imbalance

Description: Hormonal issues preventing progress (thyroid, sex hormones, reproductive hormones).

Triggers:

- Fatigue
- Mood changes
- Weight gain (especially if wasn't always overweight)
- Started gaining weight recently, not a life-long issue.
- No changes to lifestyle but still began to gain weight
- Low motivation or libido

Discovery Questions:

- Have you always struggled with weight loss or was it just in the recent years?

For Women:

- "Any hot flashes, night sweats, or mood changes that could be hormone-related?"

For Men:

- "Any changes in your sex drive, motivation, or feeling less confident than you used to?"

For All:

- "Have you ever been told you have thyroid issues, even if your doctor said you're 'in normal range'?"

Confirmation Criteria:

- Specific hormone symptoms (hot flashes, low libido, mood changes) OR
- Previous thyroid diagnosis OR
- Weight gain after getting older OR
- Weight gain after childbirth

1.4.4 Insulin Resistance

Description: Body not responding to insulin properly, keeping body in fat-storing mode. Often caused or worsened by chronic inflammation.

Triggers:

- Always struggled with weight loss (lifelong pattern)
- Energy crashes after meals
- Family history of diabetes

- PCOS or insulin-related autoimmune conditions
- Body aches
- Joint pain
- Prediabetic OR type II diabetic

Discovery Questions:

- "Do you experience energy crashes, especially after meals?"
- "Do you tend to crave carbs or sugars?"
- "Any family history of diabetes or prediabetes?"
- "Do you notice general body aches, swelling, or feeling inflamed?"

Special Patterns:

Lifelong Weight Struggle

- Trigger: "Always struggled with weight loss"
- Immediate Response: Identify likely insulin resistance, ask about easy weight gain
- No need for further discovery questions

Inflammatory Pattern

- Trigger: Body aches, joint pain, autoimmune conditions
- Assessment: Chronic inflammation driving insulin resistance
- Note: Inflammation and insulin resistance frequently occur together

PCOS / Autoimmune Conditions

- Trigger: PCOS, Hashimoto's, or other autoimmune conditions
- Response: PCOS strongly linked to insulin resistance, discuss GLP-1s
- Apply same logic to all insulin-related autoimmune conditions

Confirmation Criteria:

- Lifelong struggle + easy weight gain OR
- Energy crashes + cravings OR
- PCOS/autoimmune diagnosis OR
- Chronic body aches/swelling