

PREDOCS IMPLEMENTATION ANALYSIS - DEFINITIVE PROMPT v5.0

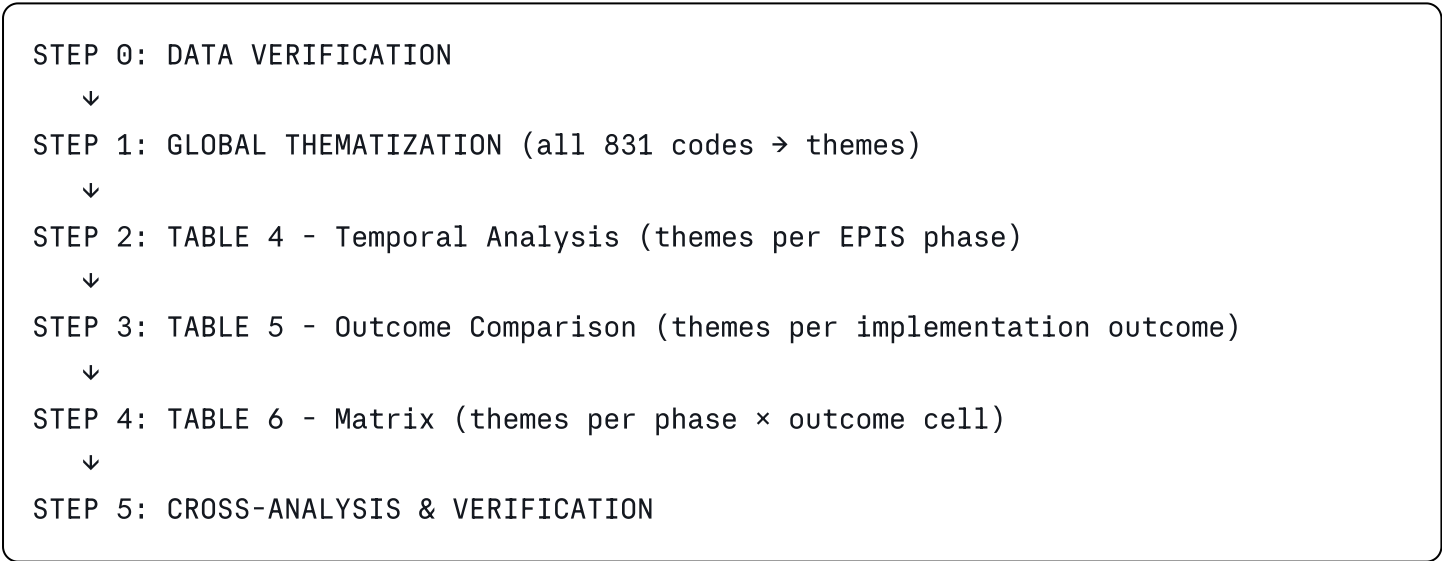
Date: December 5, 2024 **Purpose:** Complete thematic analysis of PREDOCS implementation across 12 Dutch cardiothoracic centers (2016-2019) **Data:** 831 codes from FINAL_COMPLETE_EXTRACTION.json **Output:** Three perspectives - Temporal (Table 4), Outcome (Table 5), Matrix (Table 6)

CORE PRINCIPLE

FROM CODES TO THEMES

The analysis is NOT about individual codes, but about **meaningful themes** that represent patterns in implementation experience. Codes are building blocks; themes are the constructions we build with them.

WORKFLOW OVERVIEW



STEP 0: MANDATORY DATA VERIFICATION

0.1 Data Completeness Check

Verify before starting:

- ✓ All 831 codes from FINAL_COMPLETE_EXTRACTION.json loaded
- ✓ All 12 hospitals (Z01-Z12) present
- ✓ All 5 EPIS phases present (EXPLORATION, PREPARATION, IMPLEMENTATION, SUSTAINMENT, DISCONTINUED)
- ✓ Both types (barriers AND facilitators) present per hospital
- ✓ All 3 COM-B domains (CAPABILITY, OPPORTUNITY, MOTIVATION) represented

Create table:

Hospital	Total Codes	Barriers	Facilitators	Ratio	Outcome Group
Z01	X	X (%)	X (%)	Status	Delayed
...	...	...	...	...	...
TOTAL	831	X (%)	X (%)	Status	-

Expected patterns:

- Total codes: 831
- Barrier ratio: ~50-70%
- All hospitals have barriers AND facilitators
- No extreme ratios (0% or 100%)

0.2 Outcome Group Definitions

Implementation (successful implementation):

- Z04, Z05, Z06

Delayed (delayed implementation):

- Z01, Z02, Z03, Z09, Z10, Z11

No_Implementation (failed implementation):

- Z07, Z08, Z12

0.3 Red Flag Checks

STOP analysis if:

- ✗ No_Implementation group has 0 facilitators → Data incomplete
- ✗ Implementation group has 0 barriers → Data incomplete
- ✗ A hospital missing an entire phase → Data extraction problem
- ✗ A COM-B domain has <5% of codes → Classification problem

These checks prevent false conclusions due to data problems.

STEP 1: GLOBAL THEMATIZATION

1.1 Thematization Principles (Prompt v4.1)

GOAL: From 831 individual codes to ~20-40 meaningful themes per COM-B domain.

Principle 1: SPECIFICITY OVER GENERALITY

✗ WRONG:

- Theme: "Knowledge and training"
- Theme: "Personnel and resources"
- Theme: "Organizational factors"

✓ CORRECT:

- Theme: "Knowledge and clarity about the intervention"
- Theme: "Communication skills for intervention delivery"
- Theme: "Need for training and continuous guidance"
- Theme: "Staffing shortages and turnover"
- Theme: "Time pressure and workload"

Rule: A theme must **speak for itself** - the name directly communicates what the problem/success was.

Principle 2: NAME MECHANISMS AND ACTORS

Themes should identify **WHO** (actors) and **WHAT** (mechanisms) where relevant:

✓ Examples:

- "Lack of project leader oversight and visibility" → Actor: project leader, Mechanism: lack of oversight
- "Management support and active involvement" → Actor: management, Mechanism: support + involvement
- "Patient not capable for intervention" → Actor: patient, Mechanism: capability problem

Principle 3: HIERARCHY WHERE LOGICAL

Use **MAIN THEME** + **SUB-THEME** structure when:

- Multiple codes clearly belong together but nuance is important
- There's an overarching concept with different manifestations

✓ Example:

```
MAIN THEME: Training and development
├─ SUB-THEME: Need for training and guidance (barrier)
│   └─ Codes: b_Need for more training, b_Lack of training
└─ SUB-THEME: Training and information availability (facilitator)
    └─ Codes: f_Sufficient training available, f_Stakeholders informed
```

Use SINGLE THEME for:

- Unique codes that don't fit elsewhere
- Concepts that don't need further subdivision

Principle 4: UNIQUE CODES = OWN THEME

Codes appearing only 1× and conceptually unique get their own theme:

✓ Examples:

- "Patient not capable (low literacy)" → Own theme: "Patient not capable for intervention"
- "Technical support available" → Own theme: "Technical infrastructure and support"

Rationale: Even rare factors are important for complete understanding of implementation landscape.

Principle 5: WHEN IN DOUBT → SPLIT

If codes are conceptually different, create separate themes:

✓ Example - SPLIT:

- "Knowledge and clarity about intervention" (conceptual knowledge: WHAT is PREDOCS?)
- "Communication skills for intervention delivery" (practical skills: HOW do I deliver?)
- "Need for training and guidance" (training need: I DON'T KNOW how)

✗ WRONG - MERGED:

- "Knowledge, skills and training" → Too broad, mechanisms unclear

Principle 6: STRICT COM-B SEPARATION

NEVER themes spanning multiple COM-B domains:

✗ WRONG:

- "Patient-related factors" (mixes capability AND opportunity)

✓ CORRECT:

- CAPABILITY: "Patient not capable for intervention" (patient cannot do it)
- OPPORTUNITY: "Patient not reachable for intervention" (structural access problems)

1.2 Thematization Process

For EACH COM-B domain separately:

STEP 1.2.1: Cluster Codes

Group codes that:

- Describe the same phenomenon
- Concern the same actors
- Have similar mechanisms

STEP 1.2.2: Theme Naming

Create theme name that:

- Is specific (no vague terms)
- Communicates mechanism
- Names actors where relevant
- Is 3-8 words long

STEP 1.2.3: Type Determination

Per theme:

- **Barrier:** All codes are barriers
- **Facilitator:** All codes are facilitators
- **Both:** Mix of barriers AND facilitators (use main theme/sub-theme structure)

STEP 1.2.4: Frequency Calculation

Count **number of unique hospitals** where theme occurs:

- Format: "X/12 hospitals"
- Do NOT double count if hospital has multiple codes in theme

STEP 1.2.5: Example Selection

Per theme select 3-5 representative quotes:

- Format: "[Description]" [Hospital-ID, Phase]
- Choose quotes that best illustrate theme

- Spread across hospitals where possible

1.3 Output Format Step 1

Create three documents:

```
CAPABILITY_THEMES.md
OPPORTUNITY_THEMES.md
MOTIVATION_THEMES.md
```

Per theme in each document:

markdown

THEME: [Theme Name]

Level: SINGLE THEME / MAIN THEME / SUB-THEME

Type: Barrier / Facilitator / Both

Frequency: X/12 hospitals

Codes:

- [code_id]: [code description] (frequency: Y)
- [code_id]: [code description] (frequency: Y)

Examples:

1. "[Quote description]" [Z##, PHASE]
2. "[Quote description]" [Z##, PHASE]
3. "[Quote description]" [Z##, PHASE]

Mechanism/Rationale:

[1-2 sentences: why is this a separate theme? What is the core mechanism?]

STEP 2: TABLE 4 - TEMPORAL ANALYSIS (Themes per EPIS Phase)

2.1 Purpose

Visualize how themes manifest **over time** during implementation trajectory.

2.2 Structure

For EACH phase (5 total):

EXPLORATION
PREPARATION
IMPLEMENTATION
SUSTAINMENT
DISCONTINUED

Per phase, for EACH COM-B domain (3 total):

2.2.1 Phase-Domain Summary

```
markdown

## PHASE: [PHASE NAME]

### 🟡 CAPABILITY DOMAIN - [Phase] Phase

**Data overview:**
- Total codes in this domain/phase: X
- Number of unique themes: Y
- Number of hospitals with codes: Z/12
- Barrier:Facilitator ratio: X:Y

**Phase-specific context:**
[1-2 sentences: what is relevant for this domain in this phase?]
```

2.2.2 Complete Overview - All Themes

```
markdown

#### Complete Theme Overview - CAPABILITY/[Phase]

| # | Theme | Type | Frequency | Codes |
|---|-----|-----|-----|-----|
| 1 | [Theme name] | B/F | X/12 | Y codes |
| 2 | [Theme name] | B/F | X/12 | Y codes |
| ... | ... | ... | ... | ... |

**Total themes in this domain/phase: X**
```

Sort by:

- 1. Frequency (highest first)
- 2. For equal frequency: number of codes

2.2.3 TOP Themes Elaborated

Select **TOP 3-5 themes** (highest frequency) for elaboration:

```
markdown

#### TOP THEMES ELABORATED - CAPABILITY/[Phase]

##### THEME 1: [Theme Name] (X/12 hospitals)

**Overview:**

| Aspect | Details |
|-----|-----|
| Type | Barrier/Facilitator |
| Frequency | X of 12 hospitals |
| Hospitals | Z##, Z##, Z## |
| Phases | [If theme spans phases] |
| Codes (Y) | • [Short description]<br>• [Short description]<br>• [...] |

**Examples:**

1. "[Quote]" [Z##, PHASE]
2. "[Quote]" [Z##, PHASE]
3. "[Quote]" [Z##, PHASE]

**Narrative Summary:**

[2-4 paragraphs: What does this theme tell us? What mechanisms? Patterns across hosp
```

2.3 Output Table 4

One document: TABLE_4_TEMPORAL_ANALYSIS.md

Structure:

```
EXPLORATION Phase
├─ CAPABILITY (summary → complete overview → TOP 3-5 elaborated)
├─ OPPORTUNITY (same)
└─ MOTIVATION (same)

PREPARATION Phase
├─ CAPABILITY
├─ OPPORTUNITY
└─ MOTIVATION

[...etc for all 5 phases]
```


STEP 3: TABLE 5 - OUTCOME COMPARISON (Themes per Implementation Outcome)

3.1 Purpose

Compare themes between **implementation outcome groups** to identify what distinguished success from delay or failure.

3.2 Structure

For EACH outcome group (3 total):

Implementation (Z04, Z05, Z06)
Delayed (Z01, Z02, Z03, Z09, Z10, Z11)
No_Implementation (Z07, Z08, Z12)

Per group, for EACH COM-B domain (3 total):

3.2.1 Group-Domain Summary

markdown

OUTCOME: [GROUP NAME]

 CAPABILITY DOMAIN - [Group] Group

Data overview:

- Total codes: X
- Barriers: Y codes (Z%)
- Facilitators: W codes (V%)
- Number of unique themes: N
- Hospitals: [Z##, Z##, ...]

Group-specific observation:

[1-2 sentences: What is characteristic for this domain in this outcome group?]

3.2.2 Complete Theme Overview

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Complete Theme Overview - CAPABILITY/[Group]

BARRIERS:

#	Theme	Frequency	Codes	Hospitals
1	[Theme name]	X/Y	Z codes	Z##, Z##, ...
2	[Theme name]	X/Y	Z codes	Z##, Z##, ...
...	...	...	...	...

Total barrier themes: X

FACILITATORS:

#	Theme	Frequency	Codes	Hospitals
1	[Theme name]	X/Y	Z codes	Z##, Z##, ...
2	[Theme name]	X/Y	Z codes	Z##, Z##, ...
...	...	...	...	...

Total facilitator themes: Y

3.2.3 TOP Themes Elaborated

Select TOP 5-7 barriers and TOP 5-7 facilitators for elaboration (same format as Table 4).

3.3 Cross-Group Comparison

AT THE END OF TABLE 5:

markdown

CROSS-GROUP SYNTHESIS - SUBSTANTIVE DIFFERENCES

Per COM-B Domain

🟡 CAPABILITY - What Distinguished the Groups?

****Implementation group (Z04, Z05, Z06):****

- Characteristic facilitators: [...]
- Characteristic barriers: [...]

****Delayed group (Z01-Z03, Z09-Z11):****

- Characteristic facilitators: [...]
- Characteristic barriers: [...]

****No_Implementation group (Z07, Z08, Z12):****

- Characteristic facilitators: [...]
- Characteristic barriers: [...]

****CRITICAL DIFFERENCES:****

[2-3 paragraphs describing essence of differences]

[REPEAT for OPPORTUNITY and MOTIVATION]

3.4 Output Table 5

One document: TABLE_5_OUTCOME_COMPARISON.md

Structure:

Implementation Group

- └ CAPABILITY (summary → complete overview → TOP barriers elaborated → TOP facilitators elaborated)
- └ OPPORTUNITY (same)
- └ MOTIVATION (same)

Delayed Group

- └ CAPABILITY
- └ OPPORTUNITY
- └ MOTIVATION

No_Implementation Group

- └ CAPABILITY
- └ OPPORTUNITY
- └ MOTIVATION

CROSS-GROUP SYNTHESIS

- └ CAPABILITY differences
- └ OPPORTUNITY differences
- └ MOTIVATION differences

STEP 4: TABLE 6 - MATRIX (Themes per Phase × Outcome Cell)

4.1 Purpose

Visualize themes at **most granular level**: specific combination of phase AND outcome.

Example cell: PREPARATION phase + No_Implementation group

4.2 Structure

15 Cells total:

5 Phases × 3 Outcomes = 15 cells

EXPLORATION × Implementation
EXPLORATION × Delayed
EXPLORATION × No_Implementation
PREPARATION × Implementation
PREPARATION × Delayed
[...etc]

Per cell:

markdown

CELL: [PHASE] × [OUTCOME]

Cell metadata:

- Phase: [PHASE NAME]
- Outcome: [GROUP NAME]
- Hospitals: [Z##, Z##, ...]
- Total codes: X
- Barriers: Y (Z%)
- Facilitators: W (V%)

Themes in this cell

CAPABILITY Themes:

#	Theme	Type	Frequency	Codes
1	[Theme name]	B/F	X hospitals	Y codes
2	[Theme name]	B/F	...	...

OPPORTUNITY Themes:

#	Theme	Type	Frequency	Codes
1	[Theme name]	B/F	X hospitals	Y codes
2	[Theme name]	B/F	...	...

MOTIVATION Themes:

#	Theme	Type	Frequency	Codes
1	[Theme name]	B/F	X hospitals	Y codes
2	[Theme name]	B/F	...	...

Total unique themes in this cell: X

4.3 Matrix Visualization

AT THE BEGINNING OF TABLE 6:

markdown

MATRIX OVERVIEW - All 15 Cells

Phase	Implementation	Delayed	No_Implementation
EXPLORATION	X themes Y codes Z:W ratio	...	...
PREPARATION	...	...	...
IMPLEMENTATION	...	...	...
SUSTAINMENT	...	...	...
DISCONTINUED	...	...	...

- **Legend:**
- X themes = total unique themes in cell
 - Y codes = total codes in cell
 - Z:W ratio = barriers:facilitators ratio

4.4 Output Table 6

One document: TABLE_6_MATRIX.md

Structure:

MATRIX OVERVIEW (summary table)

EXPLORATION × Implementation
EXPLORATION × Delayed
EXPLORATION × No_Implementation

PREPARATION × Implementation
PREPARATION × Delayed
PREPARATION × No_Implementation

[...all 15 cells]

MATRIX PATTERNS

└ Patterns across cells

STEP 5: CROSS-ANALYSIS & VERIFICATION

5.1 Verification Checklist

For each table - verify:

- ✓ All data used (831 codes)
- ✓ All hospitals processed (12)
- ✓ All phases present (5)
- ✓ All domains processed (3)
- ✓ Themes are specific (no vague terms)
- ✓ Frequencies correct (countable via codes)
- ✓ Examples have [Z##, PHASE] tags
- ✓ Red flag checks passed:
 - No_Implementation has facilitators
 - Implementation has barriers
 - Patterns are nuanced (not black-white)

5.2 Temporal Nuance Verification

Specifically for PREDOCS - verify:

- ✓ No_Implementation group had motivation in early phases?
- ✓ Implementation group had barriers along the way?
- ✓ Opportunity barriers dominant in No_Implementation?
- ✓ Explanation for motivation-outcome mismatch present?

5.3 Thematization Quality Check

Per theme in output - verify:

- ✓ Theme name is specific (not generic)?
- ✓ Mechanisms named where relevant?
- ✓ Actors identified where relevant?
- ✓ Hierarchy (main/sub) only where logical?
- ✓ Unique codes have own theme?
- ✓ When in doubt, split (not merged)?
- ✓ Strict COM-B separation maintained?

OUTPUT FILES - COMPLETE OVERVIEW

Step 1 Output:

CAPABILITY_THEMES.md (global thematization)
OPPORTUNITY_THEMES.md (global thematization)
MOTIVATION_THEMES.md (global thematization)

Step 2 Output:

TABLE_4_TEMPORAL_ANALYSIS.md

- └ 5 phases × 3 domains = 15 sections
 - └ Each: summary + complete overview + TOP 3-5 elaborated

Step 3 Output:

TABLE_5_OUTCOME_COMPARISON.md

- └ 3 outcomes × 3 domains = 9 sections
 - └ Each: summary + complete overview + TOP 5-7 barriers + TOP 5-7 facilitators
 - └ Cross-group synthesis

Step 4 Output:

TABLE_6_MATRIX.md

- └ 15 cells (5 phases × 3 outcomes)
 - └ Each: metadata + theme lists per domain
 - └ Matrix overview table

Verification Output:

VERIFICATION_REPORT.md

- └ Data completeness
- └ Red flag checks
- └ Temporal nuance
- └ Thematization quality

REFERENCE EXAMPLE

See file for perfect execution:

- `/mnt/user-data/outputs/TEST_PREPARATION_Thematization_v4_1.md`

What works in this example:

-  Specific theme names
-  Clear hierarchy (main/sub-themes)
-  Narrative summaries with mechanisms
-  Concrete examples with [Z##, PHASE] tags
-  Frequencies correctly calculated

-  Verification steps executed
-  Temporal nuance preserved

Use this as quality template.

CRITICAL REMINDERS

! Data Integrity is FIRST PRIORITY

- Without correct data extraction all themes are worthless
- ALWAYS verify completeness before thematizing

! Themes ≠ Codes

- Output must be about THEMES, not individual codes
- Codes are evidence/support, themes are the stories

! Specificity is King

- "Knowledge and training" is too vague
- "Knowledge and clarity about intervention" is specific

! Preserve Temporal Nuance

- What happened early in trajectory can differ from later phases
- No_Implementation ≠ no motivation (often motivation present, but no opportunity)

! Verification is Not Optional

- Red flag checks prevent false conclusions
 - When in doubt: stop and verify data first
-

VERSION HISTORY

- **v1.0:** Initial thematization
- **v2.0:** Integration with COM-B
- **v3.0:** Depth and specificity focus
- **v4.0:** Refinement of hierarchy and temporal nuance
- **v4.1:** Verification steps and red flag checks
- **v5.0:** DEFINITIVE - Complete workflow for 3 tables with theme focus

END OF PROMPT v5.0