ACADEMIC PUBLICATION SET

VIEN GUT MODEL

Integrated Outpatient Care for Complex Chronic Multimorbidity

Part B — Operational Model

Academic Publication Set of the Vien Gut Model

DOCUMENT B.2
OUTPATIENT TREATMENT PLAN

WHAT – HOW – DATA-to-operate Architecture per the Vien Gut Model — From Complex-Phase Control to Sustainable Maintenance — Four Treatment Phases

Vien Gut Model — Academic Publication Set
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1. Problem Statement

The major treatment targets of the Vien Gut Model — crystal-free status in complicated to severely complicated gout (Target 1); dialysis deferral for many patients with end-stage chronic kidney disease when a window of opportunity remains (Target 2); reduction of cardiovascular decompensation (Target 3); re-compensation of liver cirrhosis (Target 4) — together with the ability to control the severe phase of multiple other chronic diseases, can only be meaningfully pursued when the patient is approached through the WHAT – HOW – DATA-to-operate treatment model. In this model, WHAT comprises the treatment objectives and principles benchmarked against guidelines; HOW is the clinical operating layer that organises examination, diagnosis, risk stratification, multidisciplinary coordination, polypharmacy governance and longitudinal follow-up; and DATA-to-operate is the dataset sufficient to identify target-organ damage, pathological spirals, the degree of clinical decline and the therapeutic window of opportunity. This approach is consistent with the NICE philosophy on multimorbidity: rather than mechanically stacking single-disease guidelines, care must be optimised, treatment burden reduced, and a clearly designated coordinator assigned for each patient [1].

These treatment targets are therefore not set after several fragmented consultations but must be initiated at the very first encounter. The first encounter is not merely for recording symptoms or ordering a few baseline tests; it must serve as the activation point for the entire integrated operating system.

2. Definition of the Outpatient Treatment Plan per WHAT – HOW – DATA-to-operate

In the Vien Gut Model, the outpatient treatment plan is a three-layer structure. Each layer has a distinct role and cannot substitute for the others.

WHAT	Treatment targets and principles benchmarked against current guidelines for each disease axis. On the gout axis, ACR 2020 emphasises a treat-to-target strategy with a serum urate target below threshold [3]; on the renal axis, KDIGO 2024 requires CKD assessment using both GFR and urinary albumin [2]; on the cardiac axis, the 2022 heart-failure guideline considers ECG, chest X-ray and echocardiography essential components of initial assessment [4]; on the hepatic axis, EASL identifies ascites, gastrointestinal haemorrhage, hepatic encephalopathy and jaundice as decompensation milestones requiring early identification [5].
HOW	The clinical operating layer that transforms WHAT into real-world treatment. HOW includes the Clinical Conductor, T1–T4 risk stratification, polypharmacy governance, phase-based treatment scenarios, follow-up rhythm, MDT roles, patient-education branch and the safety referral valve. This layer was designed and developed by Vien Gut from 18 years of integrated clinical practice.
DATA-to-operate	The dataset sufficient for action. Data here is not for accumulating records but for answering decisive questions: which target organ is deteriorating, which spiral is active, whether the patient still has or has lost the window of opportunity, which treatment phase the patient is in, and whether it is time to change phase or refer.

3. Overall Objectives of the Outpatient Treatment Plan

The complex chronic multimorbidity outpatient treatment plan of the Vien Gut Model has five overall objectives:

1. Control immediate risk and keep the patient within the outpatient safety margin when still possible.
2. Disentangle the pathological spirals that are driving continued clinical decline.
3. Initiate and maintain guideline-based background treatment on the appropriate disease axis, in a rational order and at an appropriate pace.
4. Conduct longitudinal follow-up to detect early windows of opportunity for recovery or signs of decompensation.
5. Guide the patient progressively towards the model's verification targets on one or more axes: crystal-free, dialysis deferral, cardiovascular decompensation reduction, cirrhosis re-compensation, or other structural–functional targets depending on the patient's profile.

4. Principles for Building the Outpatient Treatment Plan

Principle 1	**One patient – one integrated reference frame** The patient may have multiple diseases, but the treatment plan must have only one Clinical Conductor and one unified priority order.
Principle 2	**Do not apply single-disease guidelines mechanically** The plan must determine whether the patient is within guideline coverage, in the borderline zone, or beyond coverage but still meeting outpatient criteria. In the covered zone, WHAT is deployed closer to standard; in the borderline and beyond-coverage zones, HOW must be stronger to reduce target conflicts and protect the safety margin. This is consistent with NICE guidance on optimising care for multimorbid patients [1].
Principle 3	**Protect vital organs first, optimise long-term targets second** In every phase, preventing vital-organ decompensation (heart, kidney, liver) always takes priority over optimising long-term verification targets.
Principle 4	**Polypharmacy governance is mandatory** No treatment plan is considered complete without active assessment and management of polypharmacy, drug interactions and treatment burden.
Principle 5	**Decide on trends, not on isolated cross-sections** All decisions on phase transitions, referrals or treatment-plan adjustments must be based on time-series trends, not on a single visit's results.

5. Treatment Plan Structure by Phase

The outpatient treatment plan in the Vien Gut Model is organised into four phases. The four-phase division is not for theoretical elegance but to reflect the reality of complex chronic multimorbidity outpatient care observed over 18 years of integrated practice at Vien Gut.

Phase 1 (Acute Stabilisation): Control complex developments of multiple diseases	
Features	Disease still evolving in complexity, symptoms fluctuating, target organs still liable to destabilise; the physician has just begun exploratory drug adjustment; the patient and family are still struggling to understand and execute the treatment plan.
Objective	Control complex acute symptoms, gradually reduce the frequency and intensity of deterioration episodes, re-establish the minimum safety margin for continued outpatient care.
WHAT	ACR 2020 [3]: initiate low-dose urate-lowering therapy, titrate per treat-to-target. KDIGO 2024 [2]: assess CKD by GFR and urinary albumin. HF guideline 2022 [4]: ECG, chest X-ray, echocardiography when HF suspected. EASL & AASLD [5,6]: early identification of decompensation signs; baseline assessment with history, liver function tests and abdominal ultrasound.
HOW	Prescribe in a manner that is simultaneously guideline-compliant and flexible, with contingency plans pre-built into DATA-to-operate. For each disease axis and common scenario, the system must have a ready script: when symptoms escalate, when side effects appear, when a lab value breaches a threshold, when adherence drops — who receives the information, who evaluates first, when to notify the Clinical Conductor, when to activate the safety valve.
Follow-up rhythm	Frequent follow-up. In very severe cases (e.g. end-stage CKD with an outpatient window of opportunity): as short as a few days. Other cases: 2–4 weeks depending on complexity. This is the model's operational choice, not a guideline-fixed interval.

Phase 2 (Titration): Disease temporarily stable, medication responding, fewer adjustments	
Features	Acute symptoms reduced, medication showing response, frequency of major adjustments no longer high; the patient and family are beginning to grasp the treatment logic. However, this is not yet an absolutely safe phase; the safety referral valve must remain on standby.
Objective	Maintain relative stability, prevent the patient from returning to a decompensation spiral; continue advancing towards verification targets on each disease axis.
Follow-up rhythm	May be extended but still capped at approximately 3 months to preserve sensitivity in trend assessment and target-progress evaluation.
Key operational point	Train the patient and family in standardised operational language: which symptoms require immediate notification to Vien Gut; which symptoms require both notification and calling emergency services. Cardiac axis — 2021 Chest

	Pain guideline [8]: standardised pathway for rapid identification of life-threatening situations. Hepatic axis — EASL [5]: ascites, haemorrhage, hepatic encephalopathy, jaundice as decompensation milestones. Renal axis — KDIGO 2024 [2]: confirm and further assess when eGFR drops steeply or albuminuria rises. These principles must be translated into operational language for patients and families. DATA-to-operate supports Phase 2 by providing milestone prompts, trend monitoring and early warnings when the patient begins drifting out of the stable zone.

Phase 3 (Maintenance): Targets showing positive change, patient aware of adherence	
Features	Patient has seen clear positive change; no more frequent dangerous symptoms; patient and family understand the value of treatment adherence, diet and lifestyle; self-management capacity improved.
Objective	Consolidate results achieved, sustain positive trends, reduce the risk of relapse into decline, continue advancing towards verification targets.
Follow-up rhythm	May be extended to a maximum of 6 months, but must remain within the system's monitoring scope. DATA-to-operate must be strong enough to prompt milestones, issue early warnings and maintain proactive contact with the patient.
WHAT — progress indicators	Gout axis: assess progress towards crystal-free via uric acid, symptoms, tophi and imaging when appropriate [3]. Renal axis: eGFR trend, albuminuria, uraemic symptoms and dialysis-deferral window [2]. Cardiac axis: degree of decompensation reduction and hospitalisation reduction [4]. Hepatic axis: ability to sustain re-compensation [5]. HOW determines monitoring rhythm and sequence.

Phase 4 (Crystal-free Assessment): Return to the life of a healthy person	
Features	Patient has exited the prolonged danger zone; treatment targets achieved at a sufficiently stable level; life rhythm approaching that of a healthy person. In the gout sub-group with previously severe complications, after achieving crystal-free, maintenance may require only lifelong urate-lowering therapy without the intensive follow-up rhythm of earlier phases.
Important note	Phase 4 does not mean complete treatment termination; it is a transition to sustainable maintenance. The patient must still be reminded that chronic disease axes can reactivate if medication is stopped, an adverse lifestyle change occurs, high-risk medications are self-administered, or contact with the system is lost for too long.
HOW at Phase 4	Oriented towards maintaining the professional link, providing support when new issues arise, and preserving a minimum level of surveillance so that previously achieved gains are not lost. The patient may choose to undergo periodic health check-ups at a nearby facility while retaining a professional support link with Vien Gut.

Real-world Illustration — Case DTH: Four Treatment Phases over a 4-Year / 46-Visit Case

Case DTH (male, 58 years, gout ~20 years, cirrhosis F4 Child–Pugh B + CKD G5 + adrenal insufficiency + anaemia Hb 5.2 g/dL) is the only case at Vien Gut with complete 4-year longitudinal data sufficient to illustrate all four phases in a single real-world patient.

Phase 1 (Acute Stabilisation) — Control of complex developments (weeks 1–3 months): Simultaneous management of K^+ 5.6 mmol/L + Hb 5.2 g/dL + Cortisol 2.1 µg/dL. Follow-up every 1–2 weeks. ULT not yet initiated.

Phase 2 (Titration) — Temporarily stable, medication responding (months 3–12): GGT 397.1→180 U/L, K^+ normalised, Hb rising to 8–9 g/dL. Cautious low-dose Febuxostat started. Complete alcohol cessation. Follow-up every 3–4 weeks.

Phase 3 (Maintenance) — Clear positive change (years 1–3): AU 599→271–276 µmol/L (−54%). GGT 397.1→87.1 U/L. Fibroscan 23→11 kPa (F4→F3). Grade III splenomegaly fully resolved. Ascites disappeared. Hb 5.2→11–11.5 g/dL. No acute gout flares. Follow-up every 6–8 weeks.

Phase 4 (Crystal-free Assessment) — Sustainable maintenance (years 3–4): Stable over 46 visits / 4 years. Weight 54→65–67 kg. eGFR(CysC) stable 10–11 ml/min — RRT not yet needed. Tophi reduced 22–31%. Follow-up every 2–3 months.

→ Full data: DTH Case Report v5.4 CARE (Vien Gut, 2026). Evidence level: Level IV — proof-of-concept.

6. Ordering Principles in the Outpatient Treatment Plan

• Not every patient is examined the same way. A patient entering through the gout door does not automatically require full-depth hepatic, cardiac and renal assessments and vice versa. But the minimum safety core for cardiac–hepatic–renal status must be present from the first encounter.

• Every advanced paraclinical order must follow the current guideline for that specialty. WHAT is not replaced; HOW only organises how WHAT is applied to the right patient, at the right time, at the right safety level.

• The minimum paraclinical core is a system-safety core, not a core that examines all four axes.

• A test should only be ordered when the system knows what to do if the result is abnormal.

• Neither over-ordering nor under-ordering.

7. Minimum Paraclinical Core and Longitudinal Monitoring Baseline

The minimum paraclinical core in this model must be understood as the dataset sufficient for safe system operation — not a checklist for examining all four disease axes in every patient.

7.1 General Safety Core

Complete blood count

Creatinine, urea, eGFR

Basic electrolytes

Complete urinalysis

AST, ALT, bilirubin, albumin

Blood pressure measurement

Complete medication history

Glucocorticoid exposure review

Depending on risk and clinical context, additional tests may include: fasting glucose or HbA1c, lipid panel, thyroid function, hepatitis markers, coagulation, chest X-ray, ECG, abdominal ultrasound.

7.2 Guideline Basis for the Minimum Core

KDIGO 2024 [2]: CKD risk must be assessed with both albuminuria and GFR.

Heart failure guideline 2022 [4]: ECG, chest X-ray and TTE are essential initial components when heart failure is suspected.

AASLD [6]: initial work-up of abnormal liver biochemistry requires CBC, liver enzymes, bilirubin, PT/INR, albumin.

Endocrine guideline 2024 [7]: must identify patients with prolonged glucocorticoid use and screen for secondary adrenal insufficiency.

7.3 Axis-Expansion Principle

Serum uric acid does not mean every patient must enter the advanced gout branch. ECG does not mean every patient must have an immediate echocardiogram. Renal ultrasound, renal elastography, abdominal ultrasound, hepatic elastography, DECT or advanced gout imaging are opened only when the corresponding axis is activated by the patient's registered disease, typical symptoms, or a major abnormality on the screening tier.

Real-world Illustration — Case DTH: Quantitative ascites monitoring by ultrasound — DATA-to-operate HOW

The EASL guideline on decompensated cirrhosis defines ascites as a decompensation milestone requiring identification, but does not describe HOW to quantitatively monitor ascites over time in an outpatient setting without endoscopy or invasive procedures.

Vien Gut developed a DATA-to-operate method for the hepatic axis: quantitative measurement of ascites via two ultrasound parameters (free-fluid thickness anterior and peri-hepatic, in mm), combined with abdominal circumference (cm) and eGFR(CysC) over time. This triad allows trend monitoring of ascites regression without invasive procedures.

Result in case DTH: ascites 38/81 mm → 0/0 mm after 4 years; abdominal circumference decreased in parallel; eGFR(CysC) stable at 10–11 without further collapse despite complete ascites regression — ruling out silently progressing hepatorenal syndrome (HRS).

This method has been incorporated into Vien Gut's longitudinal hepatic-axis DATA-to-operate and is one of the discussion points with the French hepatology expert group (Prof. Roulot-Marullo, Hôpital Avicenne AP-HP).

→ This is an example of HOW organising DATA-to-operate beyond what single-disease guidelines describe, while remaining fully compatible with EASL's WHAT.

8. Role of HOW – DATA-to-operate in Each Phase

In executing the treatment plan by phase, HOW and DATA-to-operate must be designed specifically for the complexity and priority of each phase.

Phase	HOW (Operating Layer)	DATA-to-operate (Guiding Dataset)
Phase 1 (Acute Stabilisation)	Pre-build contingency scripts for commonly encountered complex developments.	Contains scenario templates, alert thresholds, response plans, frequent follow-up schedules, drug-adjustment logic and reporting lines to the Clinical Conductor.

Phase 2 (Titration)	Shift focus to maintaining stability, standardising patient training, keeping the safety valve on standby, gradually reducing the frequency of major adjustments.	Support milestone prompts, trend monitoring and early warnings when the patient begins drifting out of the stable zone.
Phase 3 (Maintenance)	Oriented towards consolidation, maintenance, reducing direct-contact frequency while increasing the value of longitudinal monitoring.	Must be strong in trend dashboards, treatment-target milestone prompts and before–after comparisons.
Phase 4 (Crystal-free Assessment)	Transition to long-term maintenance mode and remote or on-demand professional support.	Archive achieved targets, prompt minimum check-up schedules and support rapid reconnection when a new event occurs.

9. The Clinical Conductor in the Outpatient Treatment Plan

The Clinical Conductor holds the longitudinal axis of the entire treatment plan. The role is not limited to summarising results or signing orders. The Clinical Conductor must be able to answer strategic questions at every phase: What phase is the patient in? Which axis is the priority vital organ? Is there an unresolved spiral? Is there a guideline conflict to resolve? Is the current treatment intensity still within the safety margin? Is the follow-up rhythm dense enough? Is it time to change phase or refer?

Which phase is the patient in?
Which axis is the priority vital organ?
Are there any unresolved pathological spirals?
Are there any guideline conflicts requiring resolution?
Is the current treatment intensity within the safety margin?
Is the monitoring frequency sufficient?
Is it time for a phase transition or referral?

In other words, the Clinical Conductor is where all workflows converge to transform “knowing a lot of data” into “making an integrated clinical decision.”

10. The Multidisciplinary Team as a Sensor–Response Chain

The MDT in the outpatient treatment plan does not operate as independent departments working in parallel. Each member is a link in a sensor–response chain, activated and coordinated by the Clinical Conductor according to the treatment plan.

MDT Position	Sensor–Response Role
Diagnostic imaging physician	Transforms images into longitudinal structural–functional monitoring tools.
Laboratory staff	Transforms tests into a radar for break-point detection and threshold-drift trends.

Clinical pharmacist	Polypharmacy safety gatekeeper, drug–drug interaction review, medication counselling.
Nursing / outpatient monitoring staff	Checklist execution, red-signal detection, follow-up or referral coordination.
Outpatient care worker	Longitudinal home-based follow-up; early detection of decline phases.
Visual-medicine / media staff	Standardising before–after photo–video as operational data; reinforcing trust and adherence.
Data/ops support unit	Time-series data aggregation, trend dashboards, break-point prompts and decision-log/audit-trail support.

This chain is what makes HOW operationally functional in practice.

11. Safety Referral Valve throughout the Treatment Plan

If at any phase the patient exceeds the outpatient safety margin, the system must not continue processing the case as a routine outpatient encounter. The safety referral valve must be activated immediately: the Clinical Conductor confirms the referral decision and prioritises vital-organ protection; nursing and outpatient monitoring staff organise emergency triage; the laboratory and imaging department prioritise critical data; the clinical pharmacist reviews medications and related risks; the outpatient care unit prepares a post-inpatient reintegration plan; and data/ops support completes the decision log and handover dataset.

The Clinical Conductor confirms the referral decision and prioritises vital-organ protection.
Nursing and outpatient monitoring staff organise emergency triage.
Laboratory and diagnostic imaging prioritise critical data delivery.
The clinical pharmacist reviews medications and related risks.
The outpatient care unit prepares post-inpatient reintegration.
Data/ops support completes the decision log and handover dataset.

> This is not a failure of outpatient care but the condition that allows outpatient care to be safe and to dare to retain patients who still have a window of opportunity.

12. Comparison with Fragmented and Cross-Sectional Care Models

12.1 International Evidence on the Limitations of Fragmented Care

International evidence from multiple independent sources shows that the fragmented care model — where each specialist manages in isolation — produces systematic and measurable limitations in complex chronic multimorbidity.

NICE NG56 [1] states that most single-disease guideline recommendations were developed from trials excluding multimorbid patients; mechanically applying these guidelines to multimorbid patients can lead

to excessive treatment burden and unresolved target conflicts. Hughes et al. (2013) [9] demonstrated that simultaneously applying multiple UK single-disease guidelines to a patient with even moderate multimorbidity creates an overwhelming treatment burden. Muth et al. (2019) [10] noted that over a decade after the international medical community acknowledged that single-disease guidelines are unsuitable for multimorbid patients, integrated clinical decision support remains critically deficient. The JA-CHRODIS consensus (2016) [11] concluded that the single-disease-oriented model leads to highly fragmented care, producing ineffective, inefficacious and potentially harmful interventions. Jiang et al. (2023) [12] showed in a systematic review that care fragmentation increases emergency visits, diagnostic test utilisation and overall healthcare costs in chronic-disease patients.

Hughes et al. (2013) [9] demonstrated that simultaneously applying multiple single-disease guidelines to a multimorbid patient leads to excessive polypharmacy and unresolvable drug–drug conflicts.

Muth et al. (2019) [10] noted that more than 10 years after the medical community acknowledged this problem, no operational solution has been implemented.

JA-CHRODIS consensus (2016) [11]: single-disease-oriented models lead to fragmented care, treatment contradiction and patient exhaustion.

Jiang et al. (2023) [12] in a systematic review showed that fragmented care increases treatment burden, self-management failure and readmission risk.

Real-world Illustration — Case DTH: Four life-saving interventions missed — systemic pattern of the fragmented model

Analysis of case DTH's 20-year journey through 5 healthcare facilities before Vien Gut (including tertiary hospitals) reveals four types of life-saving interventions consistently missed — not due to individual error, but due to the architectural limitations of the fragmented care model.

First missed intervention — Identification of secondary adrenal insufficiency from corticoids: The patient used uncontrolled corticoids for many years. No facility measured cortisol. At Vien Gut: Cortisol 2.1 µg/dL + ACTH 1.3 pg/mL — severe level (GIAI). No gout guideline describes HOW to detect and manage this in such a context.

Second missed intervention — Diagnosing the cause of cirrhosis (ALD): GGT 397.1 U/L, AST/ALT >2, HBsAg negative, Anti-HCV negative — clearly meeting ALD criteria. No facility diagnosed ALD, initiated alcohol-cessation intervention or structured nutritional counselling.

Third missed intervention — Managing hyperkalaemia: K^+ 5.6 mmol/L at Vien Gut, 5 days after discharge from a tertiary hospital. No facility reviewed potassium-retaining drugs in the context of CKD G5 + cirrhosis.

Fourth missed intervention — Integrated polypharmacy governance: The patient was simultaneously taking medications from multiple specialties with no one reviewing comprehensive drug–disease interactions. Prescriptions from different facilities were never cross-referenced.

→ These are not four random errors — they are four consistent architectural blind spots of the fragmented care model when facing a complex multimorbid patient beyond single-disease guideline coverage. DTH Case Report v5.4 CARE (Vien Gut, 2026) — Level IV, proof-of-concept.

12.2 Specific Break Points of Fragmented Care in the Outpatient Treatment Plan

In the context of complex chronic multimorbidity outpatient treatment planning, five specific break points of the fragmented model can be identified:

Single-disease guidelines applied mechanically without integration — each specialist follows their own guideline independently.

No longitudinal monitoring axis — the patient moves between facilities without a continuous data thread.

No common conductor — no one maintains the integrated clinical picture.

The patient self-coordinates — forced to remember, synthesise and relay information across specialists.

No safety referral valve — no systematic protocol when the patient exceeds the outpatient safety margin.

12.3 Measurable Clinical Consequences

International studies have documented measurable clinical consequences including the following:

Monitoring objective	Fragmented model — evidence	Vien Gut Model
Target-organ damage identification	*Each specialty examines in isolation; no consolidated overview → patient self-connects information between specialties [13,15]*	**Clinical Conductor maps the complete picture from the first visit**
Treatment-plan coordination	*No common conductor; patient self-coordinates → exhaustion, feeling abandoned [13,15]; risk of conflicting orders between specialties [1,10]*	**Clinical Conductor maintains the longitudinal axis across all 4 phases**
Follow-up rhythm	*Fixed or patient-determined → no early detection of decline; increased risk of re-hospitalisation [14,16]*	**Adjusted by phase and clinical complexity**
Guideline conflict	*No formal resolution mechanism → simultaneous application of multiple single-disease guidelines causes excessive treatment burden [9,10]; increase in potentially inappropriate medications (PIM) [14]*	**HOW establishes priority order and integrated conflict resolution**
Patient education	*Each specialty provides independent guidance; inconsistency → conflicting information; reduced adherence; patient unaware of danger signs requiring immediate notification [13,17]*	**Phase 2 (Titration): standardise operational language for patient/family**
Safety referral valve	*Late activation or no clear protocol → fragmentation during re-hospitalisation increases in-hospital mortality and prolongs length of stay [16]; mortality increases with degree of fragmentation [14]*	**Always on standby; activation follows a planned pathway**

12.4 The Vien Gut Model's Response

The Vien Gut Model was developed directly from identifying the above break points. Each element of HOW – DATA-to-operate is designed to address one or more fracture points of the fragmented model:

The Clinical Conductor holds the longitudinal axis — resolving the 'no common conductor' break.

The MDT sensor–response chain — resolving the 'independent departments' break.
The safety referral valve — resolving the 'no referral protocol' break.
DATA-to-operate — resolving the 'no continuous data thread' break.

13. Scope Limitations

> **SCOPE BOUNDARY — THIS DOCUMENT DOES NOT COVER:**
> ✗ Document B.2 presents the architecture and logic of the four-phase outpatient treatment plan. It does not detail position-specific operational procedures (SOP/WI) — these are developed separately in supplementary documents.
> ✗ The document does not prescribe specific drug dosages or absolute laboratory thresholds; all clinical decisions on WHAT must be based on current guidelines for each specialty.
> ✗ The four-phase structure is a guiding framework; the specific rhythm and sequence for each patient are the Clinical Conductor's clinical judgement based on individual context.
> ✗ The document does not address the specific technical content of DATA-to-operate (database structure, dashboards, digital tools) — these fall within the scope of separate technical documentation.

14. Position within the Vien Gut Document System

Document B.2 is the central connecting axis of Part B. The four-phase treatment architecture built here is the common reference frame for B.3 through B.5 and the bridge between the HOW operational layer (Part B) and the target-organ evidence (Part C).

Document	Title & core content	Link to B.2
B.1	The first visit — trigger point for the integrated four-axis operating system	Provides baseline data and T1–T4 risk stratification for B.2 to determine the starting treatment phase
B.2	**Phase-based treatment and longitudinal monitoring — simultaneous T2T across four axes (this document)**	Central connecting axis — defines phase, rhythm, priority order and phase-transition conditions for the entire Group B
B.3	Necessary and sufficient conditions to find the window of opportunity for complex chronic multimorbidity patients	Deploys safety-valve assessment, polypharmacy and adherence evaluation throughout all four phases; especially critical in Phases 1–2
B.4	The patient's role — operational framework from the patient and family perspective	Patient execution capacity and barriers are integrated by B.2 into phase-transition decisions
B.5	Enabling conditions and priority principles when multiple diseases coexist	Provides priority principles for intervention decisions in each phase when multiple diseases are simultaneously present
Part A	Foundation: why this model exists + concepts to understand (A.0–A.5)	Provides academic rationale, EBM framework and operational concept set as the foundation for the entire Group B
Part C	Four verification targets on target organs — the centre of the entire document set (C.1–C.4)	B.2's four-phase architecture is the time framework for measuring progress towards each target in Part C

16. Training, Education and Treatment-Discipline Assessment

In the Vien Gut Model, patient education is not a one-time event at the beginning of treatment, but a continuous process embedded in each treatment phase and assessed at every follow-up visit.

16.1 Phase-Based Training Content

Phase	Priority Training Content	Format
Phase 1 (Acute Stabilisation)	Danger signs requiring immediate notification / emergency call. Reasons for stopping previous medications. Logic of vital-organ protection.	Direct explanation during consultation. Brief instruction sheet.
Phase 2 (Titration)	Treatment logic and flare paradox. Home monitoring. Clinical Conductor notification thresholds.	Guidance during consultation. Short video / infographic.
Phase 3 (Maintenance)	Reinforcing adherence. Recognising signs of relapse into decline. Meaning of improving numbers.	Discussion at follow-up. Trend dashboard.
Phase 4 (Crystal-free Assessment)	Long-term maintenance. Not self-discontinuing medication. Rapid reconnection for new events.	Scheduled reminders. Support contact channel.

16.2 Treatment-Discipline Assessment at Follow-up Visits

Each follow-up is an opportunity to assess adherence — not only through questioning but through time-series data. Indicators such as uric acid, eGFR, HbA1c, GGT and quantitative ultrasound results reflect actual adherence more accurately than patient self-report. Abnormal fluctuations or counter-expected trends signal the Clinical Conductor to investigate the cause — not to criticise but to identify the real barrier.

Medication adherence	Cross-reference biochemical trends with drug dosage and duration of use. Ask directly about missed doses, self-adjustment, side effects. Review remaining prescriptions (pill count when appropriate).
Lifestyle adherence	Assess via weight, waist circumference, lipid and glucose test results. Ask about alcohol, high-purine diet, physical activity. No judgement — record the actual situation to adjust targets.
Follow-up rhythm adherence	Track actual intervals between visits versus prescribed schedule. When the patient self-extends intervals excessively: identify the cause (financial, geographical, feeling well, fear of bad results).
Emergency-guidance adherence	Check whether patient and family remember the danger signs requiring immediate notification. Confirm the contact channel is still active and the patient knows how to use it.

16.3 Analysing Causes of Success and Failure — Learning Together with the Patient

The Vien Gut Model does not merely record outcomes but proactively analyses causes — both when outcomes are good and when they are poor — and shares the analysis with the patient in language they can understand. This is the foundation for transforming the patient from a ‘passive medication recipient’ into an ‘active partner’ in the long-term treatment journey.

Causes of success — reinforce and scale

When indicators improve (uric acid reaching target, eGFR stable, Fibroscan regressing), the system analyses contributing factors: was it medication adherence, lifestyle change, or follow-up rhythm? The answers are recorded and become reinforcement content for the patient and reference data for similar cases.

Causes of failure / interruption — no judgement, find barriers

When indicators move contrary to expectations or the patient interrupts treatment, the analysis focuses on root causes: barrier analysis, not blame.

⚠️ Critical HOW gap: Patients living >200 km away face significantly higher risk of care discontinuity due to geographical barriers — this is not the patient's fault but a systemic gap that must be filled with telemedicine protocols, proactive scheduling reminders and early detection of geographical discontinuity.

Scenario	Common causes	HOW response	Lessons learned
AU not decreasing despite medication	Missed doses / self-reduced dose. High-purine diet. Drug interactions.	Review prescription, pill count, ask about diet. Adjust dose or switch medication.	Retrain on the importance of continuous dosing.
eGFR continuing to decline without clear cause	Dehydration, subclinical infection, uncontrolled hypertension.	Immediate assessment of acute causes. Consider increasing monitoring frequency.	Standardise infection/dehydration screening questions at every visit.
Patient self-extends follow-up intervals	Feeling better. Travel costs. Fear of bad results.	Explain the value of follow-up rhythm. Support telemedicine where possible.	Integrate the question "Do you have any concerns about coming for a visit?" into routine.
Patient abruptly stops medication	Unreported side effects. Financial constraints. Advice from others.	Call/message immediately when detected. Investigate the cause.	Build an easy-to-use side-effect reporting channel.

16.4 Learning Feedback Loop — Continuous Improvement through Longitudinal Data

Each case is not only a treatment subject but a learning-data source for the system. When enough cases are analysed over time, Vien Gut can identify patterns: which barriers are most common by patient group, and which training interventions are most effective. This feedback loop — from individual data to system improvement — is one of the mechanisms that makes HOW progressively stronger over time.

✓ Learning from real cases: No case — whether failure or success — fails to leave valuable information for the system. The condition is that data must be recorded adequately, analysed systematically, and the results of analysis must feed back into training and operational processes.

15. Conclusion

The complex chronic multimorbidity outpatient treatment plan per WHAT – HOW – DATA-to-operate of the Vien Gut Model is not a rigid protocol but a phase-based treatment architecture. WHAT serves as the guideline-based treatment standard. HOW serves as the operational organiser, target coordinator, conflict resolver and safety-margin guardian. DATA-to-operate serves as the guide for longitudinal follow-up decisions, timely phase transitions and timely referrals.

The four-phase division is not for theoretical elegance but to reflect the reality of complex chronic multimorbidity outpatient care: initially controlling complex developments; then achieving temporary stability with decreasing need for major adjustments; then demonstrating positive change with the ability to extend the monitoring interval; and finally returning to a near-healthy life rhythm while retaining a professional link with the system.

This architecture enables pursuit of major targets such as crystal-free, dialysis deferral, cardiovascular decompensation reduction and cirrhosis re-compensation even in patients with complex chronic multimorbidity, provided the patient still meets outpatient criteria and the system is strong enough to correctly identify the window of opportunity.

PRACTICE PROVENANCE — ORIGIN OF PRACTICE

The four-phase outpatient treatment plan is the result of observation and systematisation from 18 years of integrated clinical practice at Vien Gut (2007–2025), not a product of theoretical design or guideline-derived reasoning.

2007	Vien Gut founded; systematic observation of chronic multimorbidity in the LMIC context begins.
2014	Contact with Prof. Thomas Bardin (EULAR); global gap between WHAT and HOW identified.
2019	Systematisation of four treatment phases from accumulated clinical observation; establishment of phase-based contingency scripts.
2025	WHAT–HOW–DATA-to-operate architecture finalised; academic publication set compilation begun.

Evidence basis: 18 years of integrated clinical practice at Vien Gut — Nguyen Dinh Quang (2007–2025).

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