

Evaluating What ExMAT Actually Changed: Learning Under Disruption

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The story so far — and today's discussion

WHERE WE LEFT OFF

- Defined the OAMT implementation gap (2.2% coverage vs. $\geq 20\%$ benchmark)
- Triangulated determinants across patients, providers, and policy (survey • focus groups • NGT)
- Mapped determinants → ERIC strategies → mechanisms (NIATx as the delivery vehicle)



TODAY'S QUESTION

How do we know whether the strategy worked — and for whom?

EVALUATION DESIGN, not just implementation design.

How an evaluation framework fits together:

THE CHANGE

A policy, funding, protocol, or leadership decision alters what implementers are allowed or required to do

IMPLEMENTATION STRATEGY

Coaching, training, or facilitation cycles (e.g., change teams, learning collaboratives) help sites and staff translate the change into everyday practice.

DATA INFRASTRUCTURE

Routine data (registries, EHRs, admin records) can be sufficient, but new instruments or primary data collection are often still needed to close fidelity and outcome gaps.

EVALUATION DESIGN

Because exposure is rarely randomizable, choose the design best suited to how the change actually rolled out — by date, by site, or by dose.

OUTCOMES

Pair a reach/uptake measure with a quality/retention measure.

DISCUSSION QUESTION – 5 minutes

What would you do?

- State your implementation gap
- Come up with the Change
- Define the strategy
- Identify what outcomes you would measure to evaluate the strategy

By 2014, the implementation gap remained very high, despite availability of opioid agonist therapy beginning in 2004



Implementation gap: a highly effective practice existed, but the delivery system reached only a small fraction of the population who could benefit.

GAP = 7811/295200 or 2.2 %. Evidenced based benchmark commonly used for meaningful population impact: ≥20% coverage

Implementation gap: a highly effective practice existed, but the delivery system reached only a small fraction of the population who could benefit.

Change: Increase the recommended MMT dose in the national guidelines

Strategy: Coaching providers on optimal dose safety

**Evaluation Outcomes:
Patient Census,
Retention in Care,
HIV Incidence**

DISCUSSION QUESTION – 5 minutes

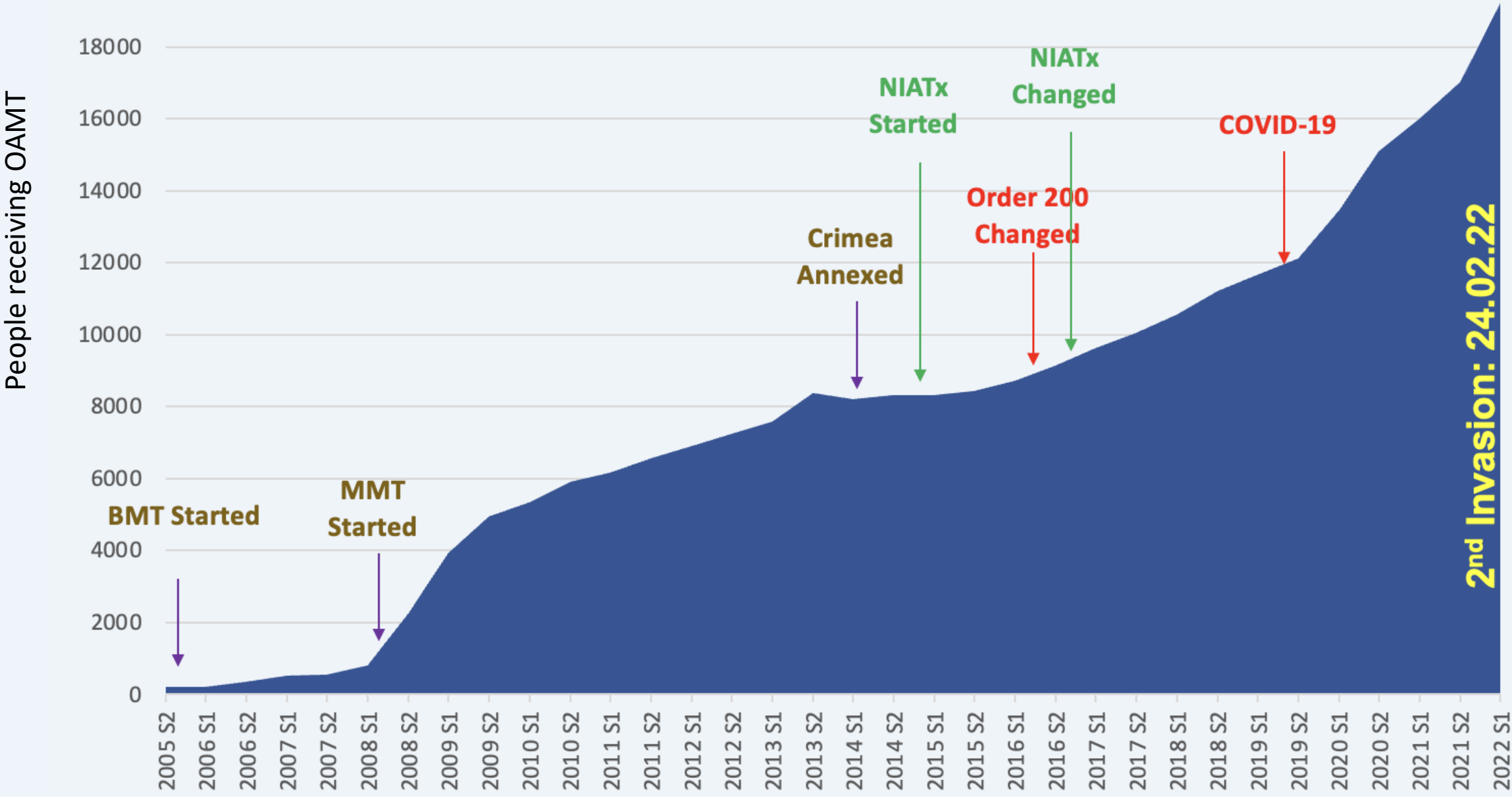
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The evaluation-design menu for strategy evaluation

Design	What it does	Main limitation
Randomized controlled trial	Randomly assigns exposure to compare groups	Not feasible, policy or adoption applies unevenly, not by lottery
Interrupted time series (ITS)	Uses many repeated pre/post measurements to model a change in trend at a known date	Needs enough time points on both sides; other events at the same date can confound it
Single-group pre/post	Compares the same population before vs. after	Secular trend, seasonality, maturation confound the estimate
Comparative prospective cohort	Enrolls a new cohort under each condition, follows both forward	Cohorts must be genuinely comparable at entry
Retrospective cohort, time-varying exposure	Uses existing registry data; exposure status changes over follow-up	Exposure not researcher-assigned, residual confounding

Context of the Implementation Timeline



Three lenses on the same programme

CASE 1 • 2016–2021

Regional Adopter Clusters

After Order 200 legalized flexible OAT delivery, 25 regions engaged with NIATx at very different rates — revealing natural clusters of adopters.

CASE 2 • 2020

COVID-19 Emergency Guidance

The Ministry urgently relaxed take-home dosing rules nationwide.

CASE 3 • 2022–2024

War-Related Displacement

Russia's invasion displaced patients and disrupted delivery across regions of varying conflict intensity.

All three were evaluated using SyRex — Ukraine's national OAMT registry

Order 200: what actually changed

The 2016 reform that made regional variation possible

PATIENT CHOICE

Patients could choose between methadone (MMT) and buprenorphine (BMT) for the first time, rather than being assigned a single modality by their clinic.

PHARMACY DISPENSING

Prescriptions could be filled at community pharmacies, not only at dedicated narcology dispensing sites.

DIRECT BUPRENORPHINE ACCESS

Removed a referral layer that had previously slowed buprenorphine initiation for eligible patients.

DECENTRALIZED PRESCRIBING

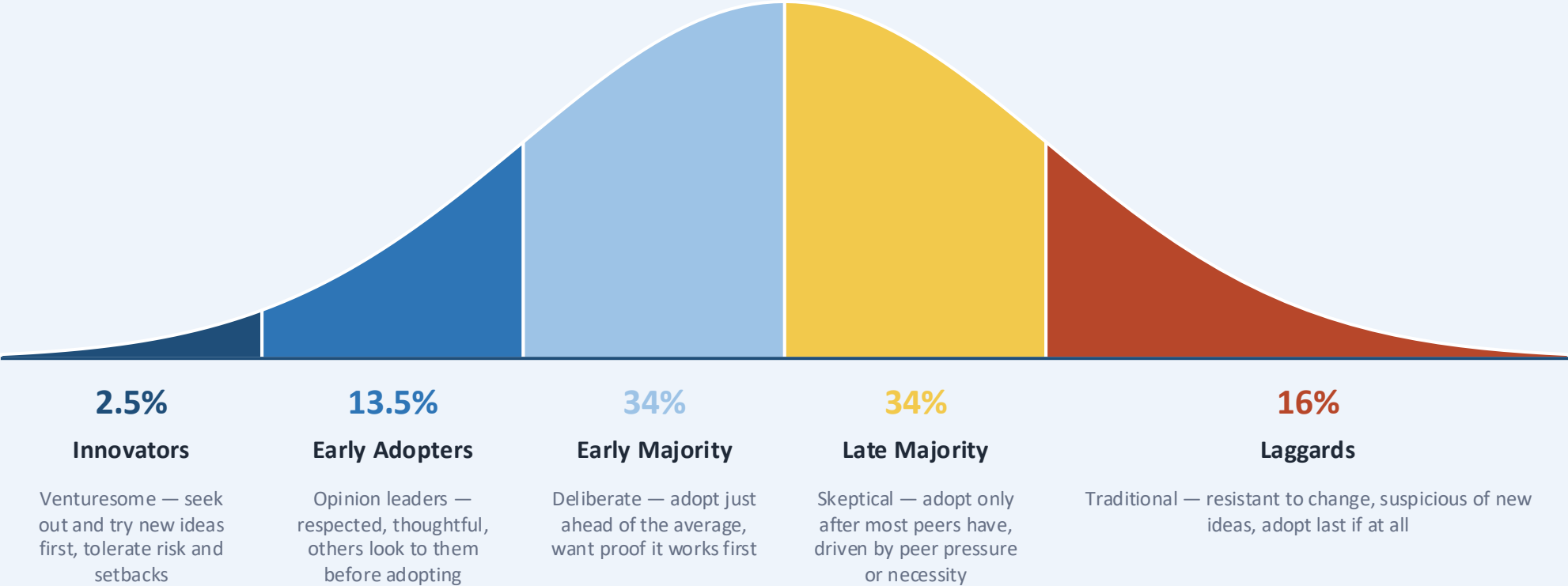
Expanded which physicians could prescribe and where, reducing travel burden for patients in rural and frontline-adjacent areas.

TAKE-HOME DOSING

Allowed take-home dosing up to 10 days for the stabilized patients who spent at least 180 days in MMT .

Rogers' Diffusion of Innovation: Types of Adopters

How a population takes up a new practice over time — from first movers to last holdouts



WHY IT MATTERS The same policy reaches Innovators and Laggards on very different timelines, and that variation is often the exposure an evaluation can use.

STUDY 1

Order 200 & NIATx: three clusters of regional adopters

Madden L, Ivasiy R, et al. OAT state of the union in pre-war Ukraine (in preparation).

CONTEXT

Order 200 reform

THE QUESTION

NIATx coaching was offered to all 25 regions — but engagement varied widely. Could that variation itself be used to evaluate impact?

CLUSTER VARIABLES

US collaborative-visit participation, collaboration climate (COPAN-3), peer-rated risk-taking, and NIATx meeting participation, entered into two-step cluster analysis

RESULT

Three data-driven clusters of regions: Engaged Collaborators, Risk-Takers, and Laggards

OUTCOMES COMPARED

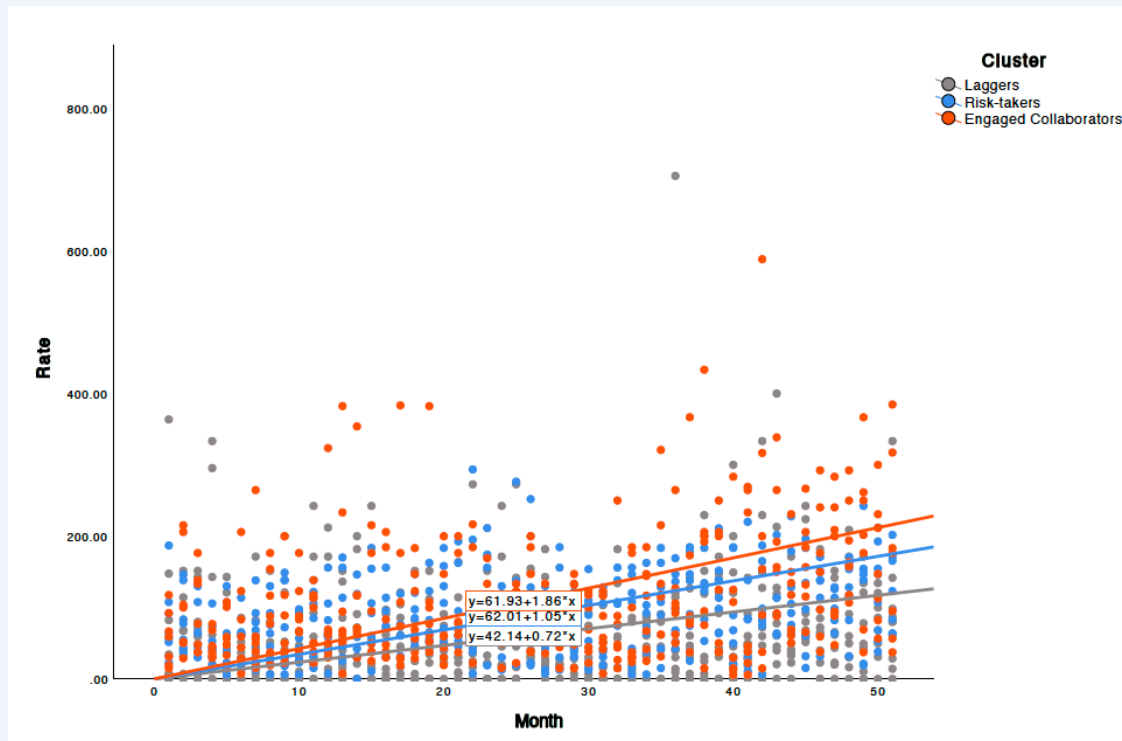
Acquisition rate and drop rate (per-PWID, monthly) — then retention before/after Order 200

ANALYSIS

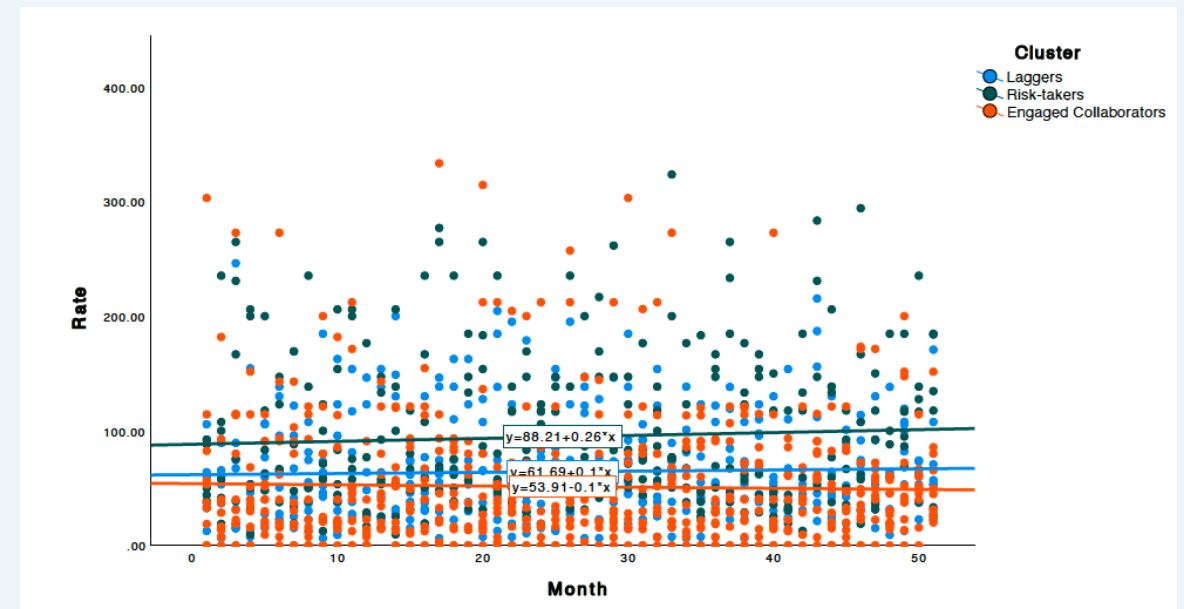
GLM (cluster × month) for rates; recurrent-event Cox frailty regression for retention across multiple treatment episodes

Engagement clusters predicted acquisition AND dropout

MONTHLY ACQUISITION RATE (per PWID), Jan 2017–Mar 2020



MONTHLY DROP RATE (per PWID), Jan 2017–Mar 2020



Fastest adopters weren't the best retainers

RETENTION AFTER ORDER 200

52% → 59% overall 1st year retention, before → after Order 200

Improved significantly for Engaged Collaborators & Risk-Takers.

No improvement for Laggards — yet Laggards had the **highest** post-Order 200 retention rate of all three clusters.

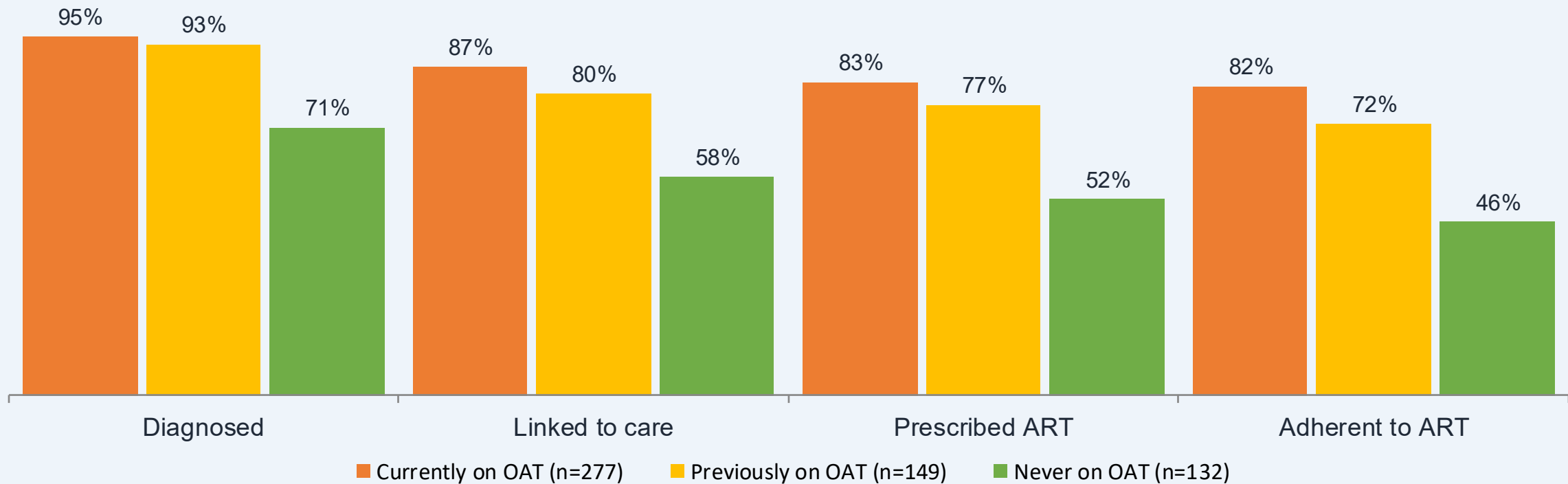
READING THE PARADOX

The interpretation: Engaged Collaborators and Risk-Takers enrolled more new, less-committed patients as they scaled up — still increasing their retention rate as census numbers grew. Laggard kept enrolling on the pre-adaptation rates, so the retention rates remained the same.

Lesson: acquisition and retention are two different outcomes, driven by different mechanisms — a strategy package that wins on one can lose on the other.

Touching OAT — Even in the Past — Strengthens the HIV Cascade

Bromberg DJ et al., AIDS. 2025;39(3):306–311. 2020–21 subanalysis by OAT engagement status, N = 558.



All differences across OAT-engagement groups were statistically significant ($p < 0.001$ at every cascade step).

KEY FINDING At every cascade step, patients previously on OAT still outperformed those never on OAT — engagement, not just current retention, carries lasting benefit.

Fig. 1 adapted from Bromberg et al., AIDS. 2025;39(3):306–311.

DISCUSS

Which adaptation would you choose?

Which adaptation would you pick for your context (in case of resource constraints, pandemic, natural disaster etc.)?

SMALL GROUPS • 5 minutes

STUDY 2

COVID-19 emergency guidance: a comparative cohort

Ivasiy R et al. *Addiction*. 2024;119(9):1585–1596.

DESIGN

Prospective comparative cohort — pre-COVID vs. COVID cohorts of newly-enrolling patients

WHY “NEWLY ENROLLING”

Removes lead-in and survival bias; both cohorts measured the same way, at the same career stage

EXPOSURE

Take-home dosing (THD) & optimal dosing — modeled as TIME-DEPENDENT covariates, not fixed at baseline

OUTCOMES

12-month retention (dropout) and mortality, as competing risks

POPULATION

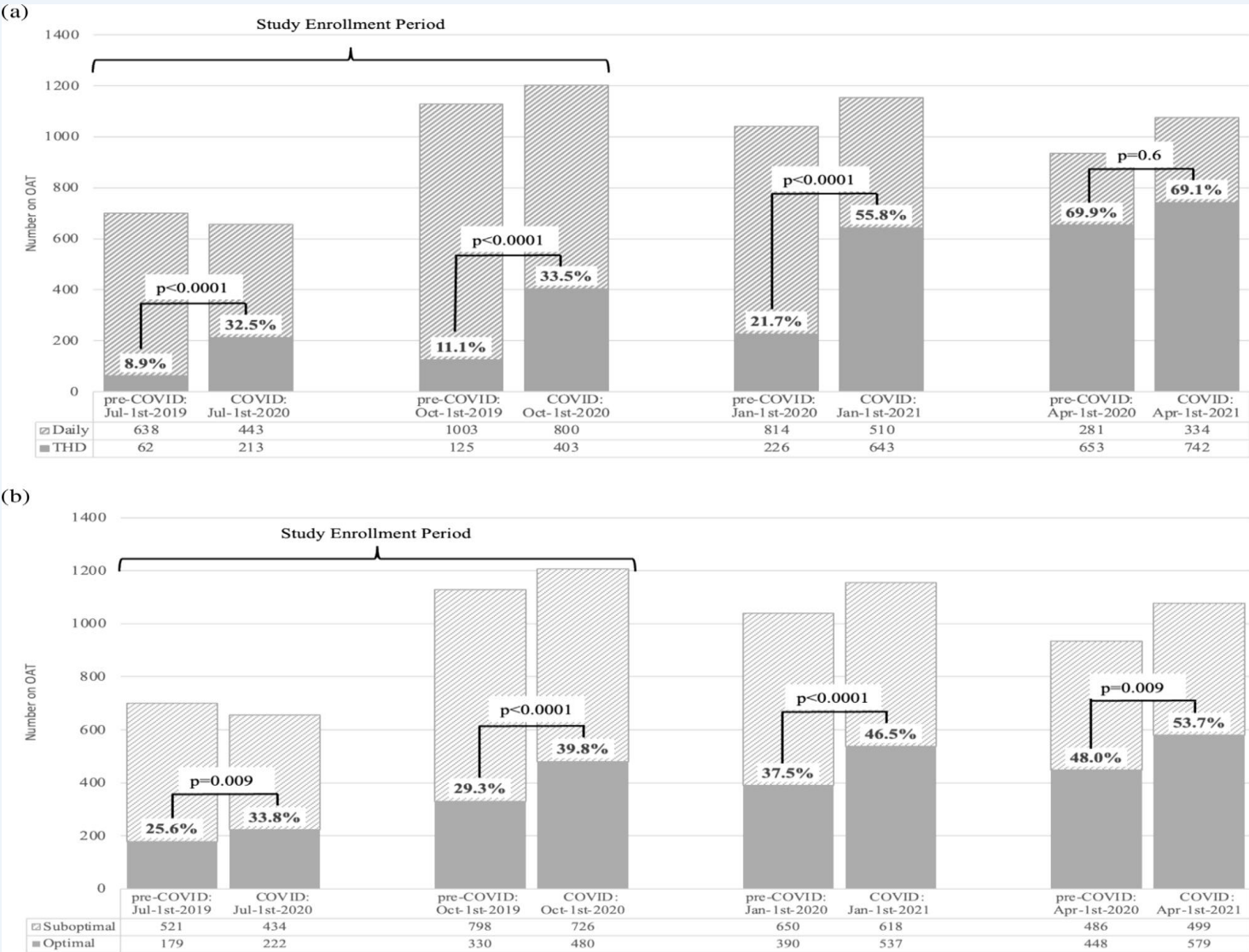
N = 2,798 (1,375 pre-COVID; 1,423 COVID) across 252 governmental clinics, 25 regions

ANALYSIS

Cause-specific proportional-hazards survival models,

The comparison that anchors the study

Cross-sectional quarterly proportions of newly-enrolled OAMT patients on take-home dosing (a) and on optimal dosing (b), pre-COVID vs. COVID cohort, at matched follow-up time points.



Notice: comparisons are made at the SAME calendar milestones in each cohort's own follow-up, not the same dates.

Figure 1, Ivasiy et al. *Addiction*. 2024;119(9):1585–1596.

Survival Analysis: One Time-Dependent Covariate (Dose)

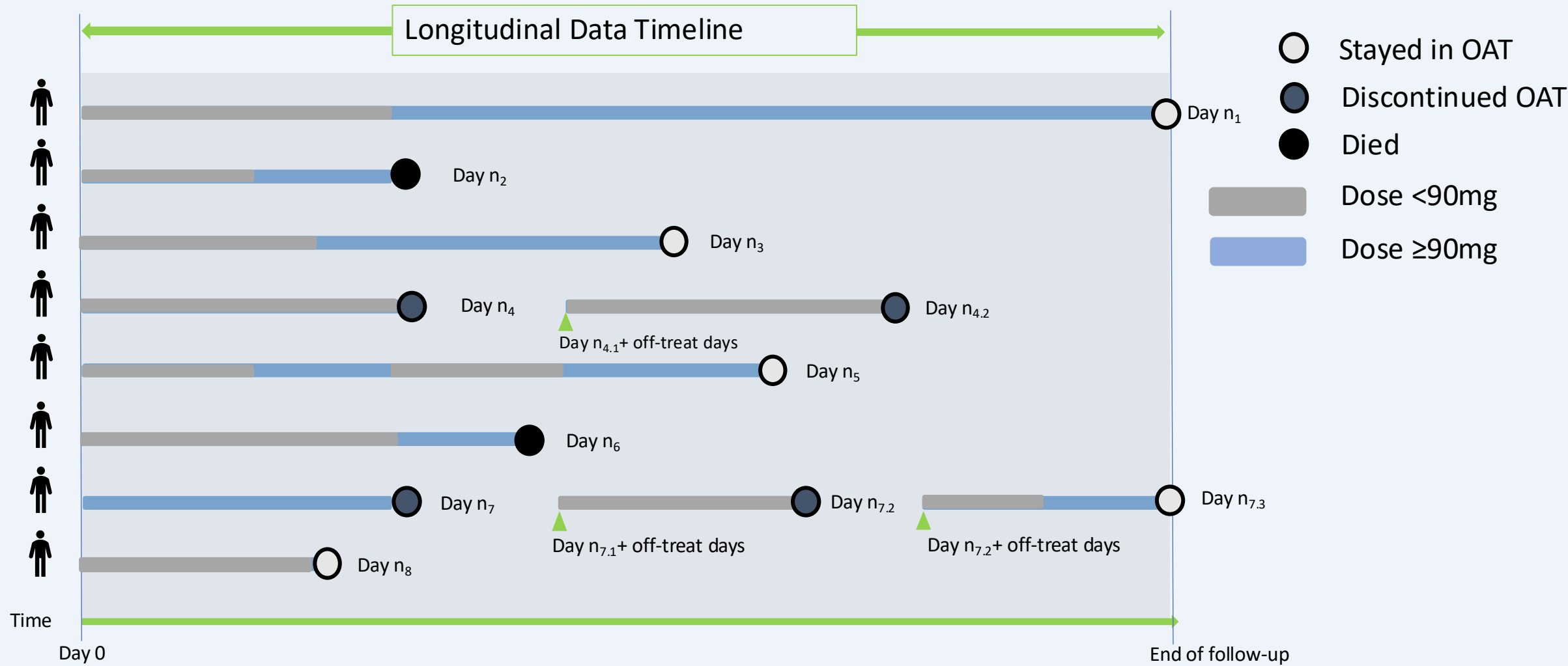
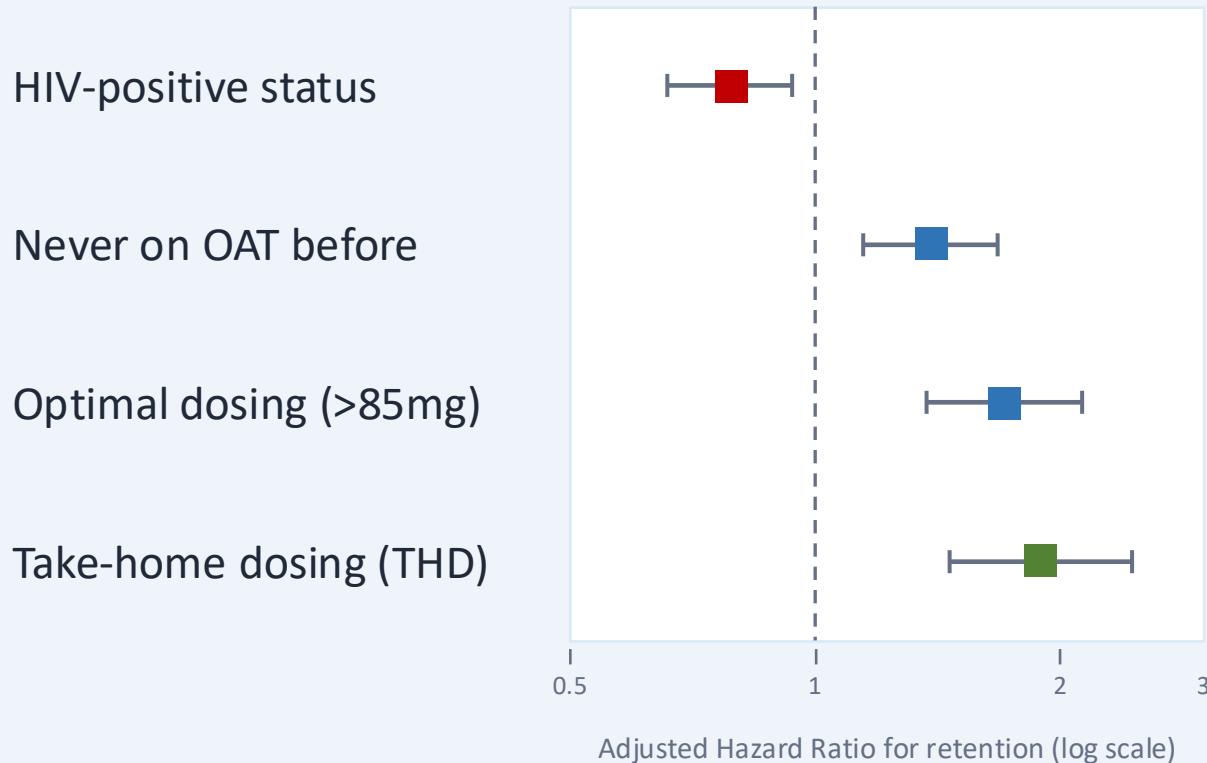


Figure 1, Ivasiy et al. *Addiction*. 2024;119(9):1585–1596.

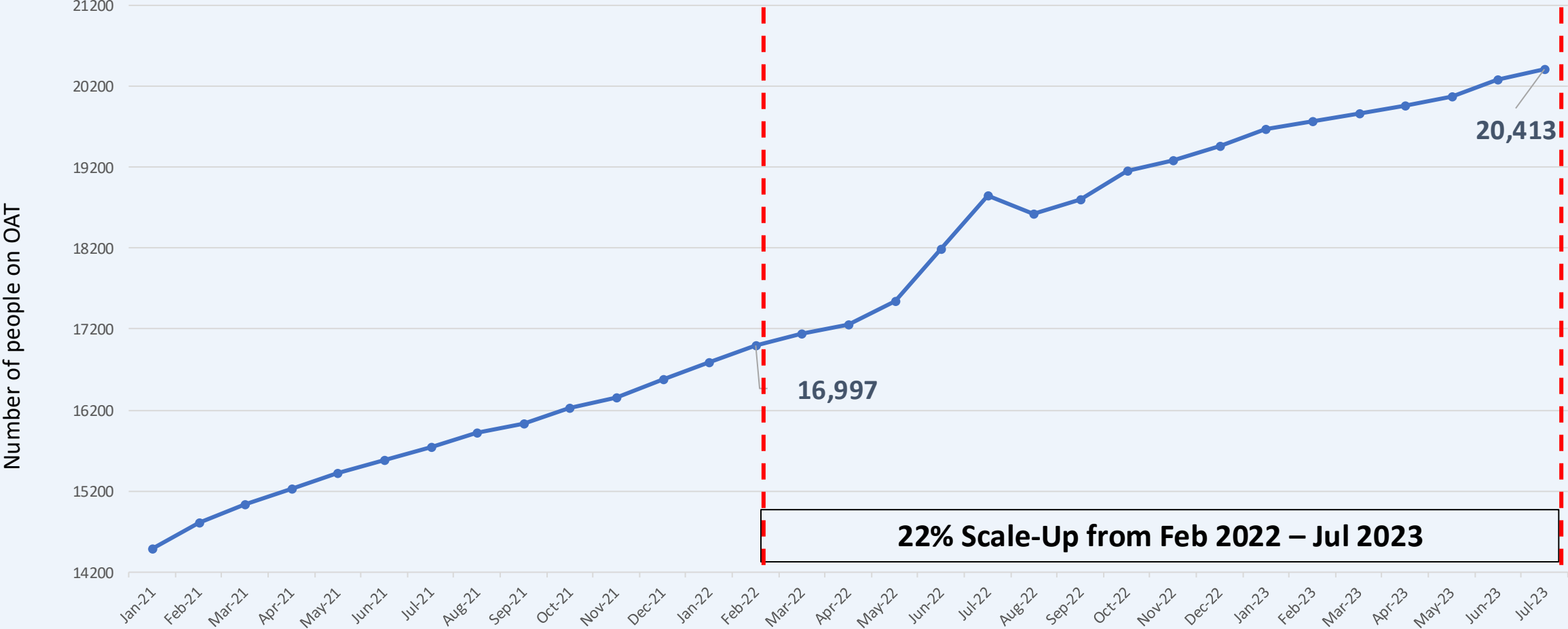
What predicted 12-month retention?



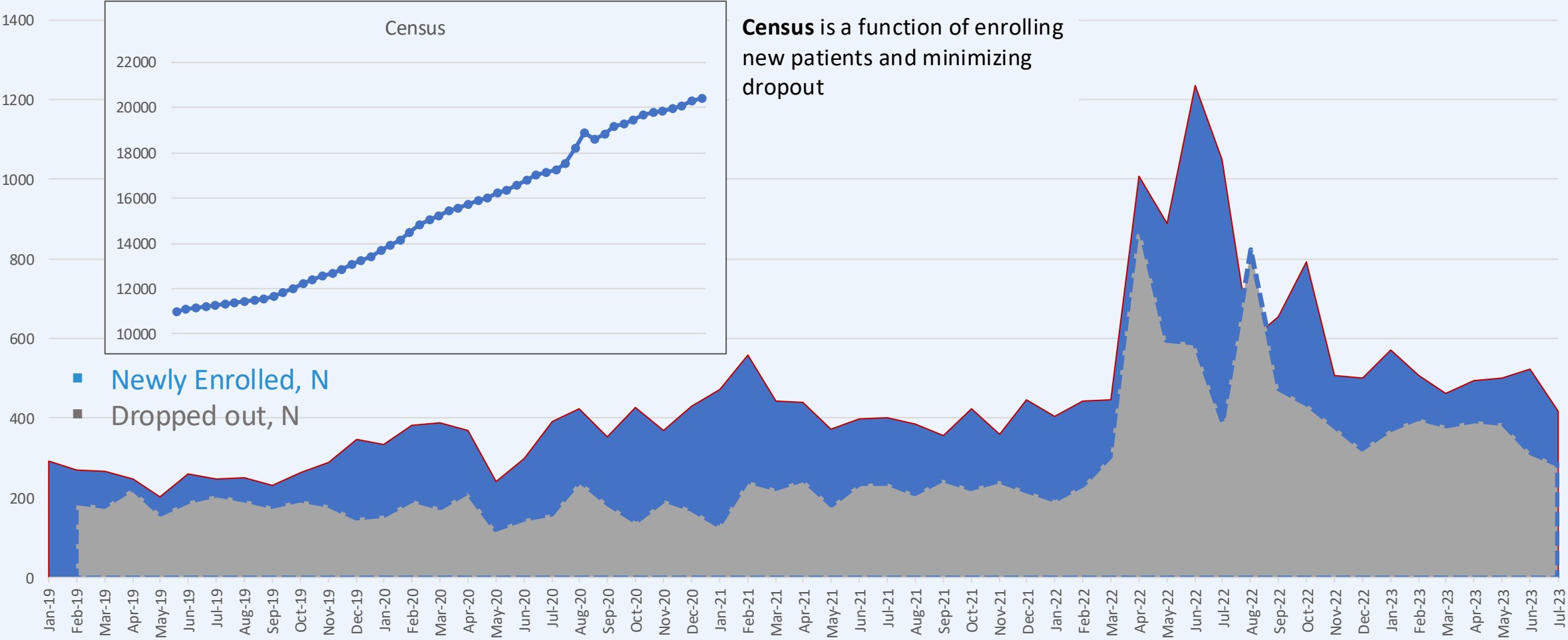
Take-home dosing and optimal dosing were the strongest protective predictors — stronger than cohort period itself, which dropped out of the model once these were added.

Ivasiy et al. Addiction. 2024;119(9):1585–1596. Adjusted for age, sex, drug-use duration, region.

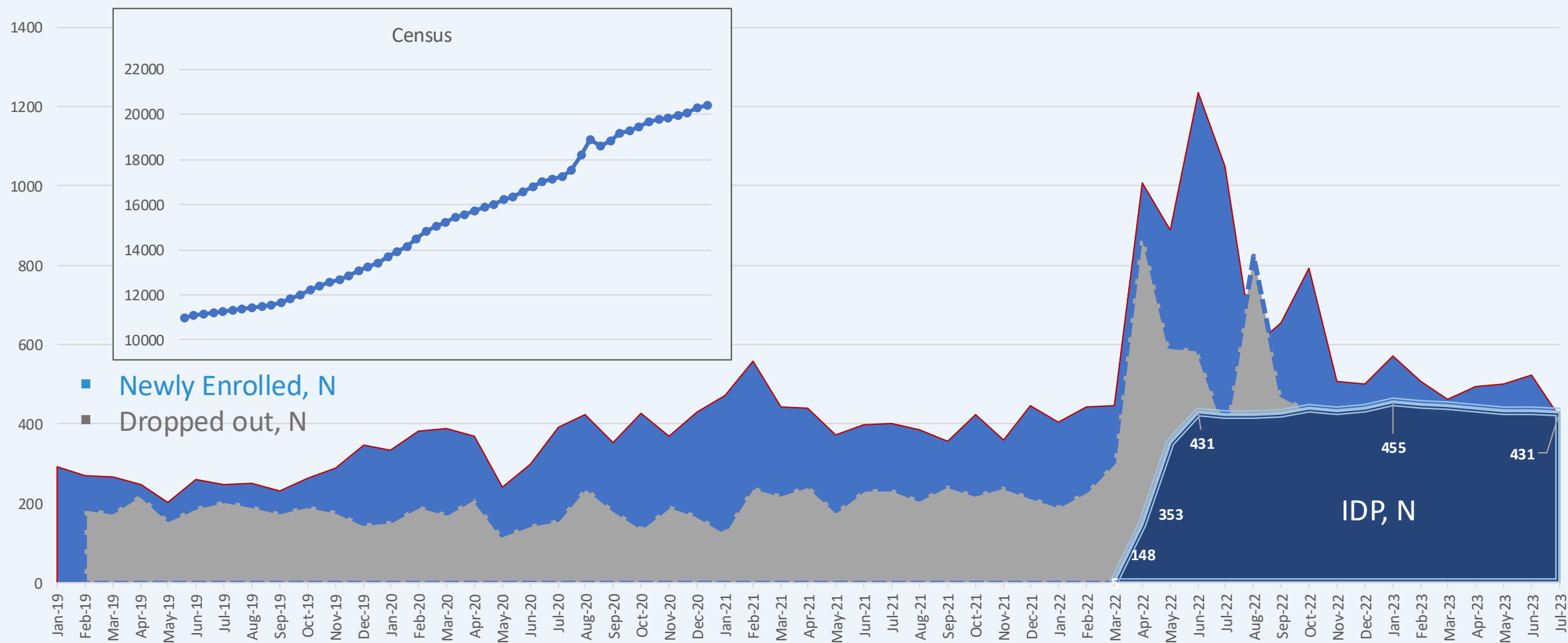
Background: Census of People receiving OAT in Ukraine



Census of People receiving OAT: Newly Enrolled vs. Dropouts



Census of People receiving OAT: Internally Displaced People (IDP)



STUDY 3

War-related displacement: a national registry cohort

Ivasiy R et al. *Lancet Regional Health – Europe*. 2026 (in press).

DESIGN

Retrospective analysis of a prospective national cohort — every patient on OAMT the day before the invasion

EXPOSURE CONSTRUCTION

War intensity built from 6 standardized indicators via k-means clustering → low-intensity / high-intensity / frontline

DISPLACEMENT

Modeled as a TIME-DEPENDENT covariate — updated dynamically as patients relocate and return

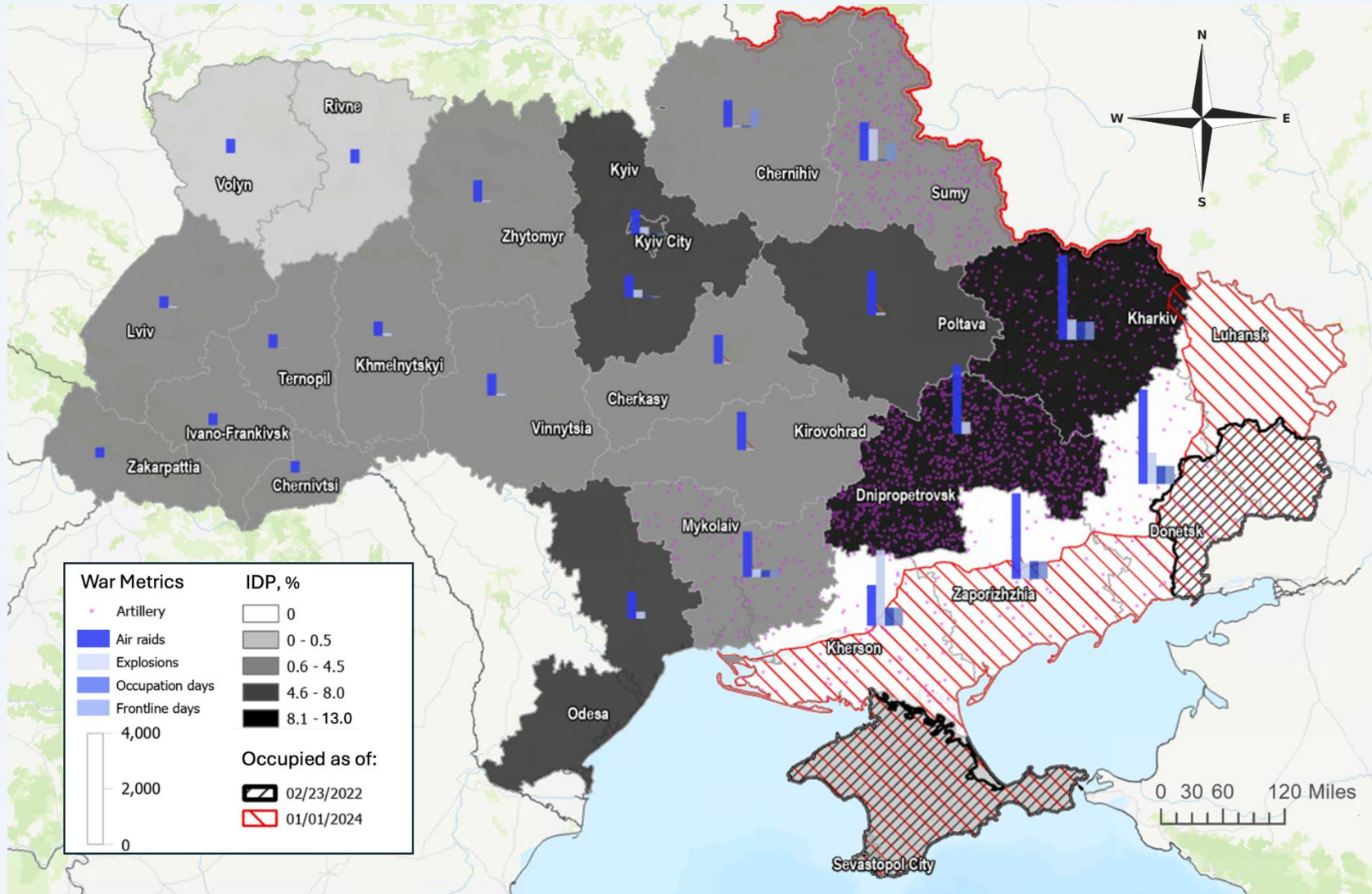
REPEATED EPISODES

Frailty-adjusted extended Cox model with patient-level random effects, for patients with multiple treatment episodes

POPULATION

N = 17,211 across 252 clinics, followed Feb 24, 2022 – Jan 1, 2024

Turning administrative data into an exposure variable



Six indicators fed the k-means clustering:

Artillery attacks

Days of active frontline combat

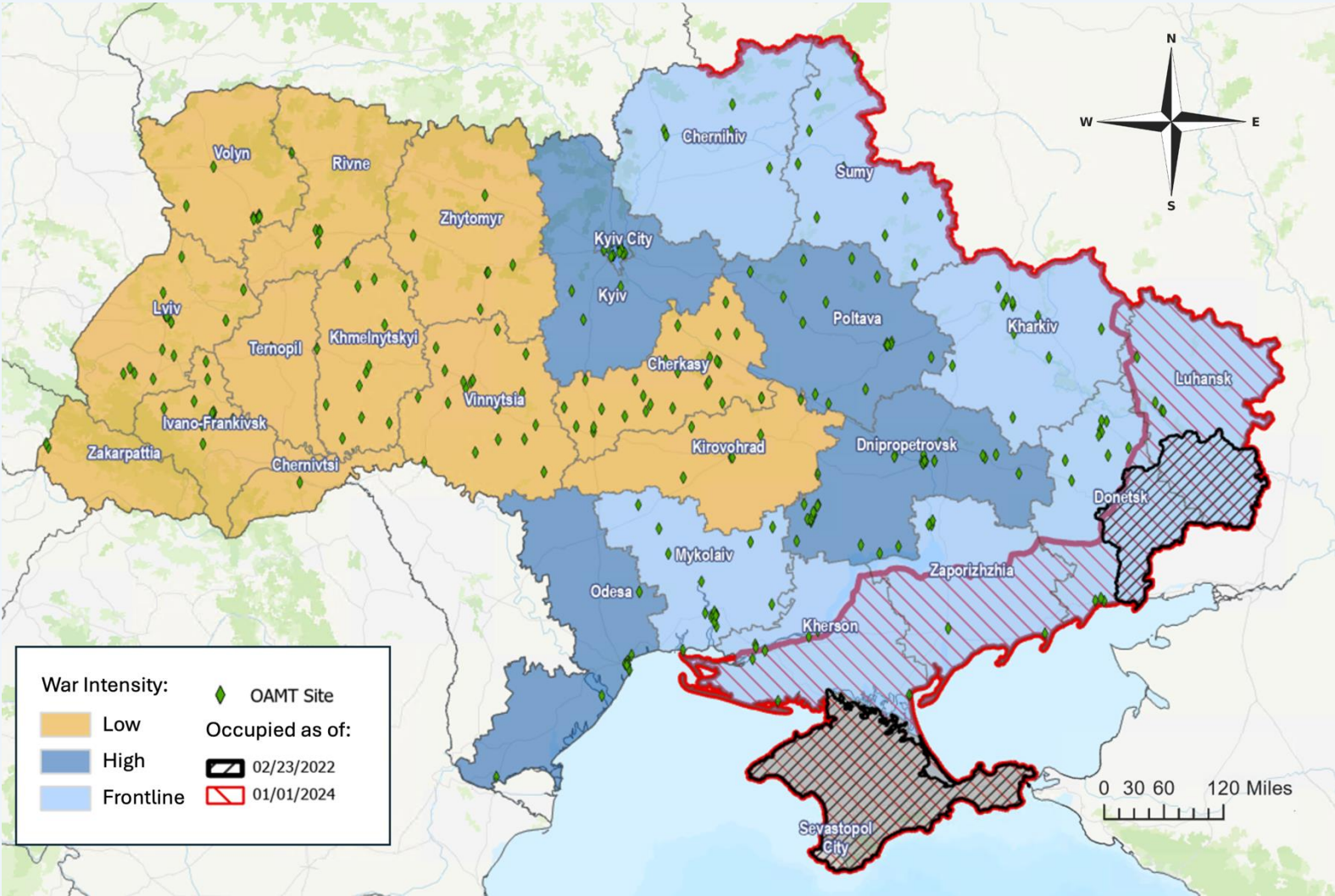
Explosions

Days of occupation

Air raid alerts

% internally displaced

Turning administrative data into an exposure variable



FRONTLINE

Prolonged active combat, occupation, extensive artillery attacks

32.4% of cohort (n=5,582)

HIGH-INTENSITY

Frequent air raids & missile attacks, minimal occupation, elevated displacement

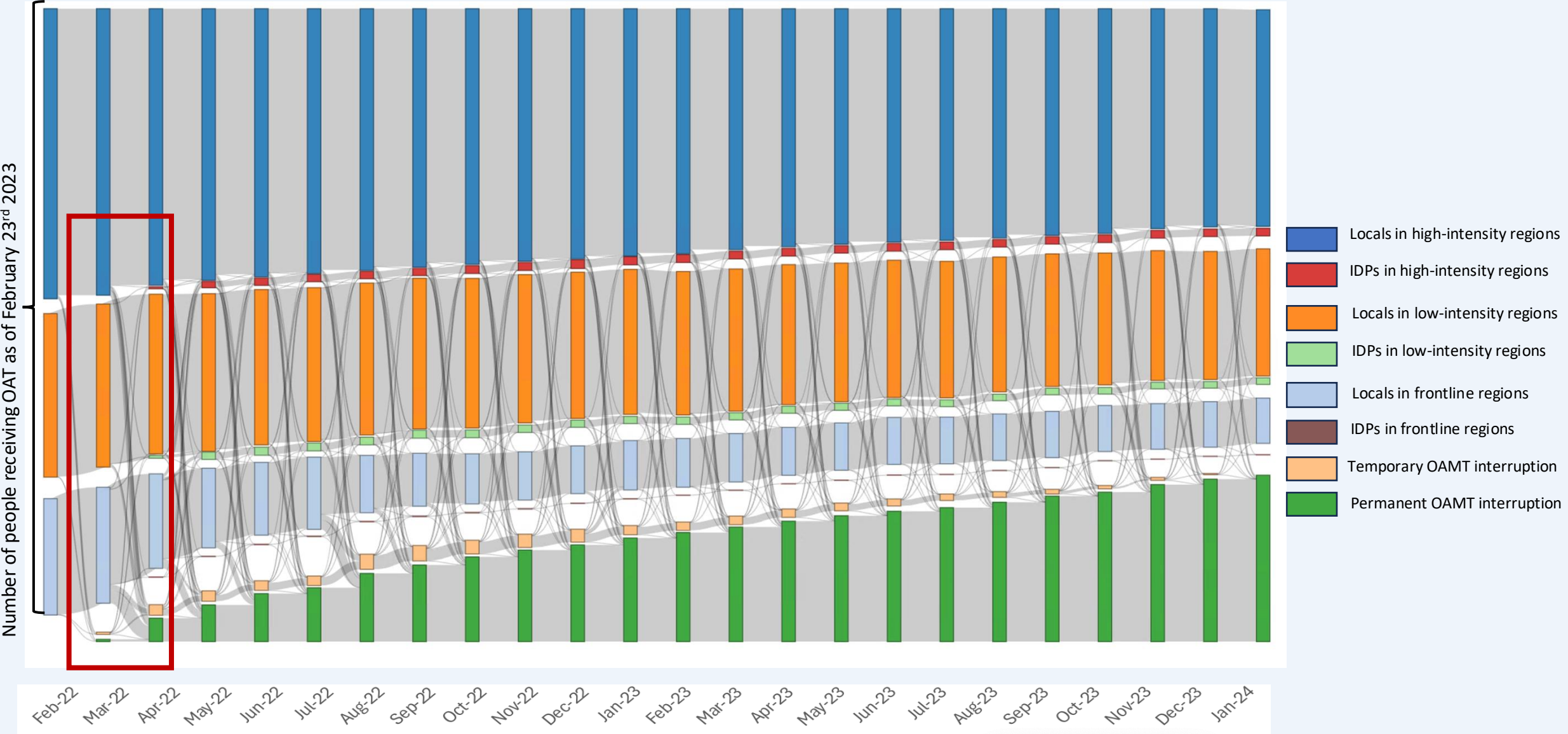
40.7% of cohort (n=6,998)

LOW-INTENSITY

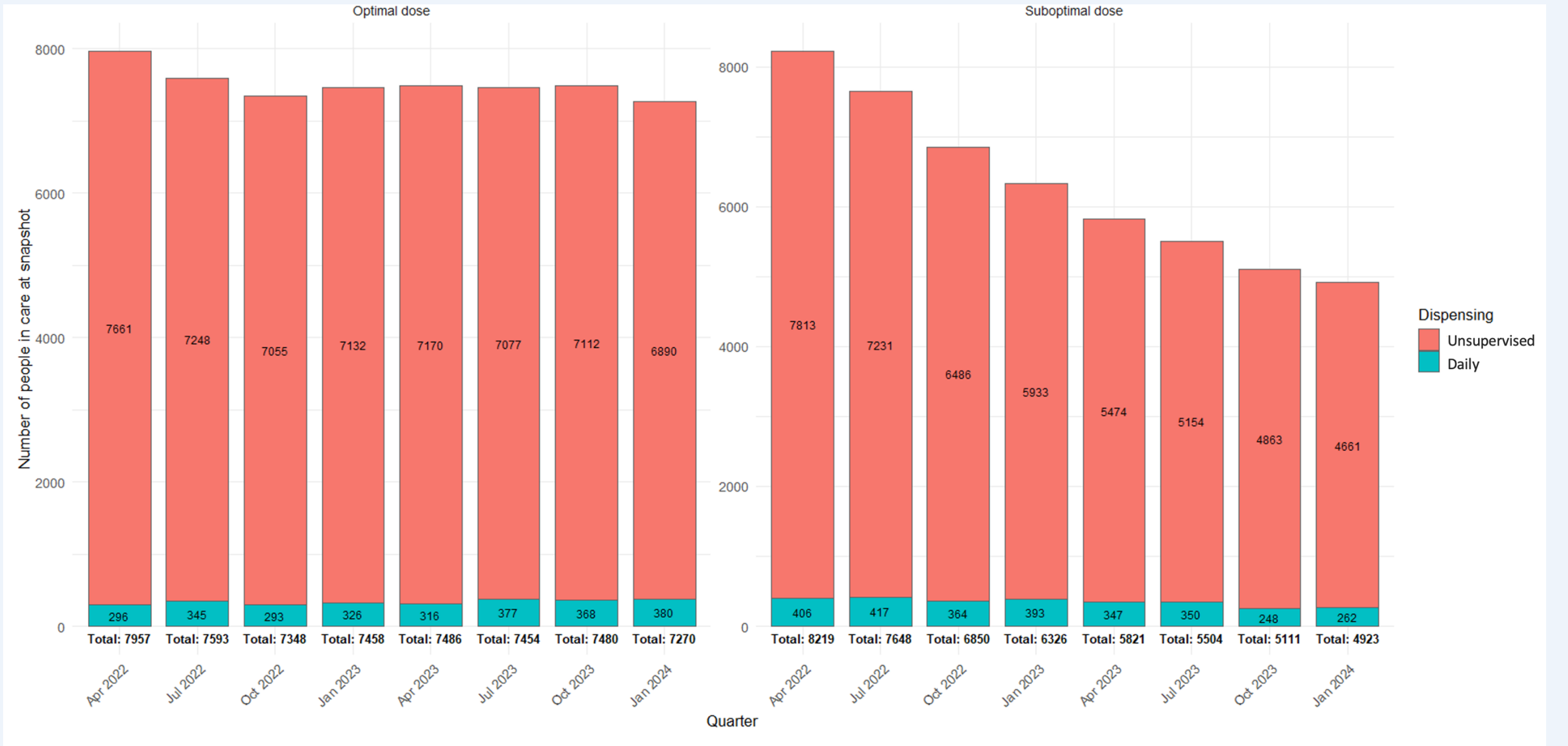
Limited direct hostilities, no occupation

26.9% of cohort (n=4,631)

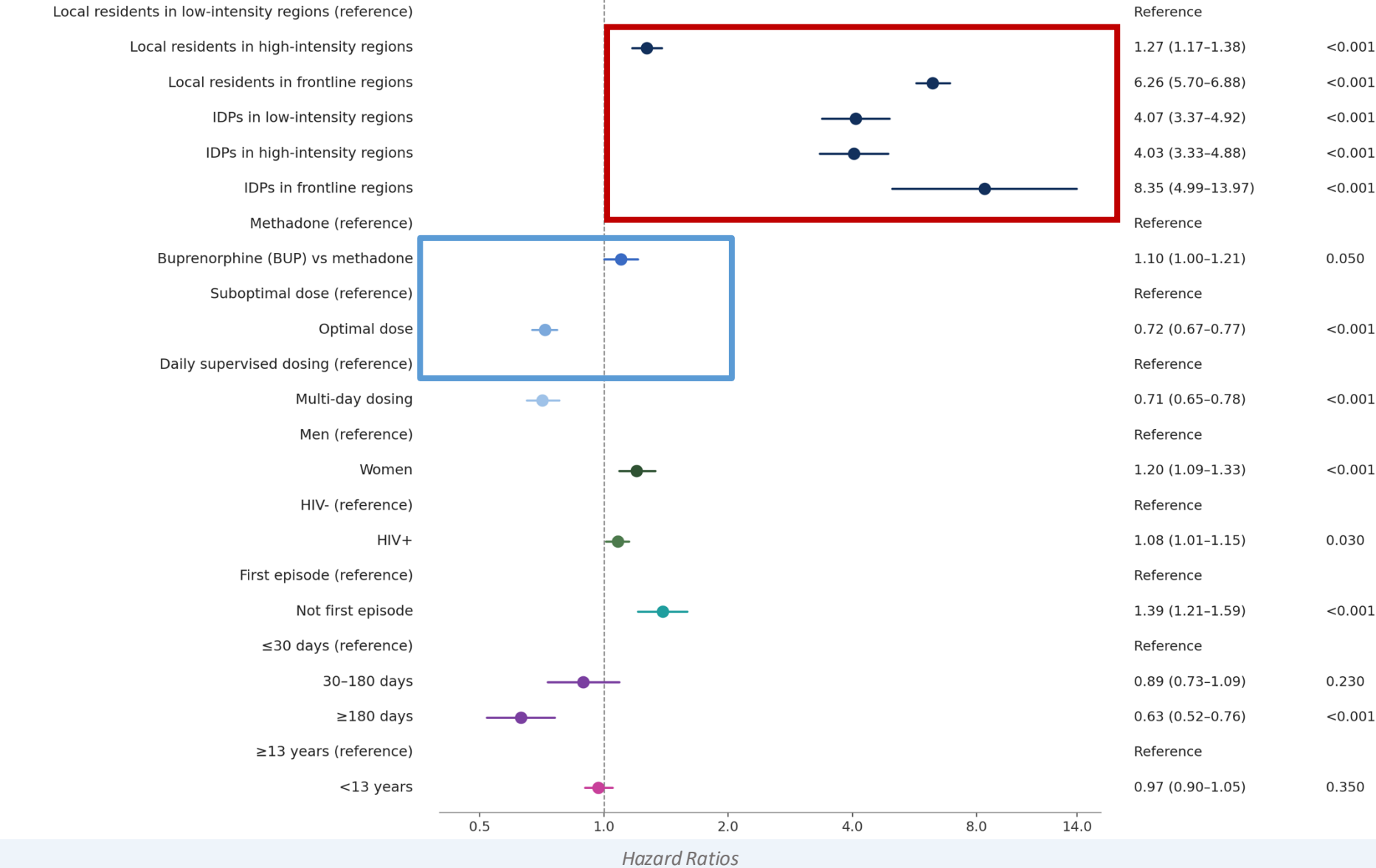
Tracking Patient Relocation Using Ukraine's SyRex Database



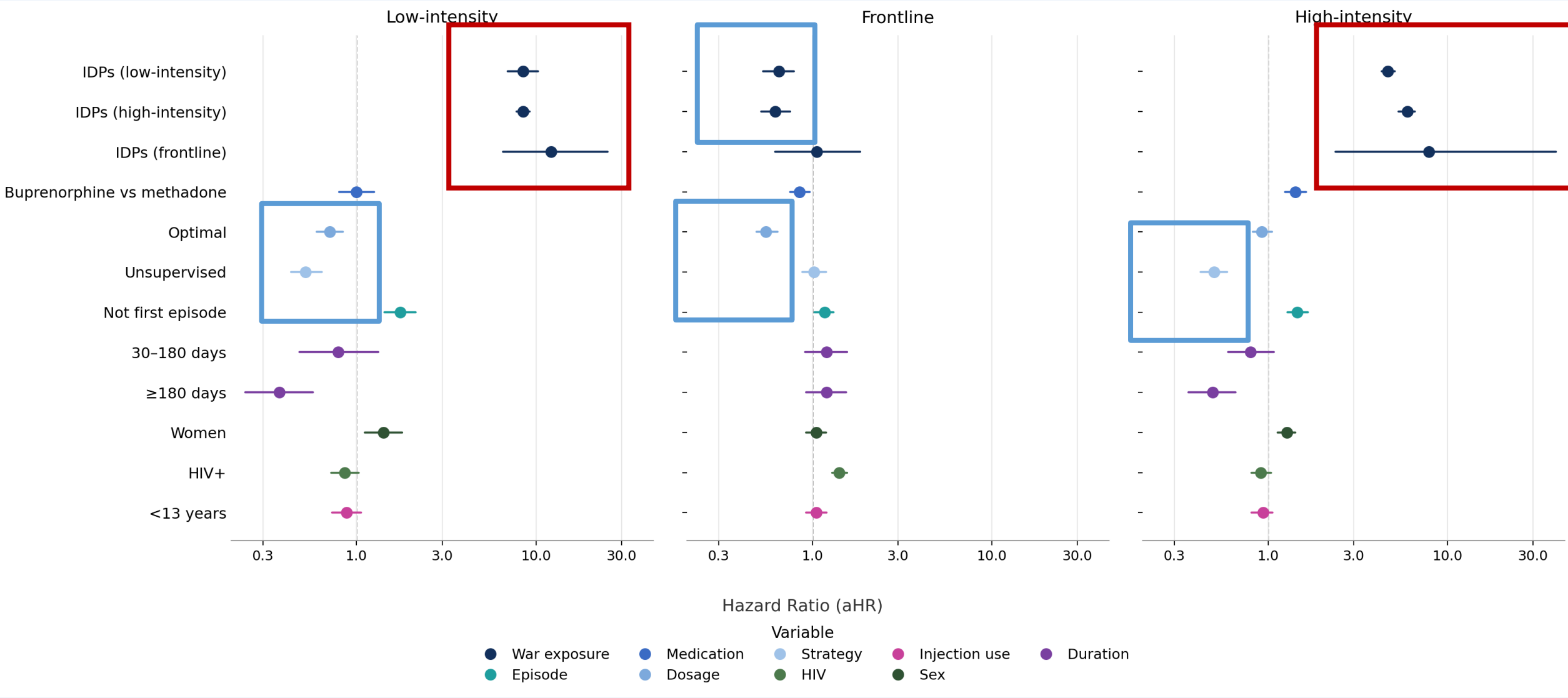
Quarterly Trends in OAT Retention by Dosing Regimen and Dispensing Format, Ukraine, February 2022 – January 2024



Discontinuation risk climbed with displacement AND intensity



Factors Associated with Treatment Discontinuation*



Conclusions

- War causes varying disruptions to HIV prevention depending on conflict intensity, which can be assessed by the level of artillery threat, air raids, and explosions — affecting internal displacement and treatment discontinuation.
- Compared with patients who received OAT in remote regions before the war, the highest rate of OAT interruption was observed among IDPs from frontline regions, followed by people who received OAT in frontline regions, and IDPs from targeted and remote regions.
- Factors protective against treatment interruption included program implementation features — receiving buprenorphine, achieving optimal dosage, and reducing patient burden through take-home dosing.
- Women and people living with HIV had an increased risk of treatment discontinuation.

Practical Implications

- During war and related events, implementation strategies must differ depending on distance from the conflict. Clinics far from the conflict should be prepared to rapidly scale up operations to ensure continuity of care, while clinics in regions close to the conflict should optimize dosing and expand take-home dosing practices (the government has authorized take-home dosing for up to 30 days).¹²
- These findings highlight the need for robust emergency preparedness and continuity-of-care planning for OAT services to ensure medical care during conflicts and other emergencies.
- Preparedness plans are critical for sustaining HIV prevention, particularly through OAT, since treatment discontinuation increases the likelihood of death and HIV transmission.

EXERCISE

Build an evaluation plan for the your strategy

Exposure & comparison group: *Who is exposed to the new pathway? Who is the comparison?*

Primary outcome: *What will you measure, and over what follow-up window?*

Data source: *Existing registry, new survey, partner-country data or a combination?*

Analytic approach (Study design): *Cohort studies, interrupted time series?*

Greatest limitation to validity (optional): *Name it — and how you would address or acknowledge it*

SMALL GROUPS (6–8) • 7 minutes

REPORT OUT • 3 minute per group

Five take-home lessons on evaluating under disruption

1

Exploit variation you didn't create

A policy date or naturally-occurring adopter clusters can both serve as a natural experiment — you don't need an RCT to learn something credible.

2

Build evaluation into routine data systems

A registry and coaching logs designed to run the programme can also power the evaluation, with no new data collection.

3

Model exposure as it actually happens

Take-home dosing, dosage, and displacement all change during follow-up — fix them at baseline and you'll understate their effect.

4

Pair uptake measures with quality measures

The Laggard paradox shows that acquisition and retention can move in opposite directions — judge a strategy on both.

References

- Madden LM, Ivasiy R, Polonsky M, Galvez SJ, Meteliuk A, Bromberg D, Farnum SO, Altice FL. OAT state of the union in pre-war Ukraine: the effects of NIATx implementation, legislative reforms, and COVID-19 on OAT dynamics (in preparation).
- Ivasiy R, Madden LM, Meteliuk A, Machavariani E, Ahmad B, Zelenev A, et al. The impact of emergency guidance to the COVID-19 pandemic on treatment entry, retention and mortality among patients on methadone in Ukraine. *Addiction*. 2024;119(9):1585–1596.
- Ivasiy R, Madden LM, Meteliuk A, Bromberg DJ, Machavariani E, Ahmad B, et al. War-related displacement and opioid agonist maintenance therapy discontinuation following Russia's full-scale invasion of Ukraine: a national longitudinal cohort study. *Lancet Regional Health – Europe*. 2026 (in press).
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- Bromberg, Daniel J., et al. "Transformation of the HIV treatment cascade for people who inject drugs in Ukraine." *AIDS* 39.3 (2025): 306-311.