Review

MEDICATION SAFETY IN PEOPLE ON THE MOVE: A NARRATIVE REVIEW OF CHALLENGES AND CLINICAL RECOMMENDATIONS FOR HEALTH PROFESSIONALS

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ABSTRACT

Mobility has become a defining feature of contemporary patient populations, yet medication safety frameworks still assume a patient who stays in one place, sees the same prescriber, and collects medicines from the same pharmacy. This narrative review aimed to identify the mechanisms through which mobility generates medication-related risk across the medication-use process, and to derive practice recommendations for health professionals caring for refugees, migrants and displaced people in reception, primary care and hospital settings. Literature was retrieved from PubMed/MEDLINE, the Cochrane Library and Scopus (January 2000 to May 2026) and supplemented by institutional documents from the World Health Organization, the United Nations High Commissioner for Refugees and humanitarian organizations. Thirty-six cited sources informed the paper; thirty-four of these contributed to the thematic synthesis. Five risk domains were derived: interrupted continuity of pharmacological treatment; language barriers and unverified comprehension; parallel and informal medicine supply; unrecognized clinical vulnerability; and structural and legal determinants. Several findings are consistent, including the association between limited language proficiency and adverse events involving physical harm, and frequent inappropriate self-medication among immigrant groups. Pooled tuberculosis data do not support the assumption that migration status predicts poor adherence. Recommendations address history-taking, professional interpretation, comprehension verification, documentation and continuity planning, with the nursing contribution identified at each point. Medication safety in mobile populations is a demanding application of established professional standards under conditions that make those standards harder to meet.

Keywords: *Medication Errors; Patient Safety; Transients and Migrants; Refugees; Medication Adherence; Health Personnel*

INTRODUCTION

Movement is no longer an exception in clinical populations. At the end of December 2025, the United Nations High Commissioner for Refugees counted 117.8 million forcibly displaced people worldwide, among them 41.6 million refugees, 9 million asylum-seekers and 68.7 million people displaced inside their own countries (1). Forced displacement is only part of a larger picture: the World Health Organization (WHO) estimates that roughly one in eight people alive today is a migrant of some kind, and its first global review of refugee and migrant health concluded that these populations are not intrinsically less healthy than the communities that receive them (2). Poorer outcomes, where they occur, follow from the conditions in which people live, work and seek care.

Medication safety sits awkwardly within this reality. The third WHO Global Patient Safety Challenge, launched in 2017, set the goal of halving severe avoidable medication-related harm and identified three priority areas: high-risk situations, polypharmacy and transitions of care (3, 4). Medication-related harm accounts for a substantial share of preventable harm in health care, with associated global costs estimated at

approximately US$42 billion annually (3, 5). The Challenge assumes, however, a reasonably continuous system around the patient. Transitions of care are conceived as a move from ward to home, or from specialist to general practitioner. For a person crossing a border, losing legal status, moving between reception centers or working seasonally in a different country each year, the transition is of a different order entirely: the prescriber, the pharmacy, the language, the formulary, the funding mechanism and the medical record may all change at once, sometimes repeatedly.

Health professionals encounter the consequences of this before the health system records them. Someone must ask what medicines the patient is taking, notice the blister pack with foreign labeling, recognize that a month's supply has been stretched over three months, and explain a regimen in the closing minutes of a consultation through a relative who has volunteered to interpret. Nurses are frequently the professional group positioned at each of these points, particularly in reception facilities, outpatient departments and outreach services, but the tasks themselves are distributed across nursing, medicine and pharmacy. These situations are common, clinically consequential and poorly represented in the standard medication safety literature.

TERMINOLOGY

The populations discussed in this review are not homogeneous. Legal status determines entitlement to subsidized medicines, eligibility for continuous primary care and the degree of contact a person is willing to have with health services, and these differences have direct consequences for medication safety. Terms are therefore used in this review as defined in Table 1, following the International Organization for Migration Glossary on Migration and the definitions applied by WHO in its evidence reviews on health and migration (6, 7). Where the collective expression "people on the move" is used, it denotes the whole of this heterogeneous group, and no legal status is implied.

Table 1. Terminology used in this review.

Term	Definition as applied in this review	Principal implication for medication safety
Migrant	Umbrella term, not defined in international law, for a person who moves away from their place of usual residence, within a country or across a border, temporarily or permanently, for any reason (6)	Broad category; entitlement and continuity vary widely within it
Refugee	A person recognized under the 1951 Convention as being outside their country of nationality owing to a well-founded fear of persecution (6)	Usually holds defined entitlement; risk concentrated at resettlement and transition
Asylum seeker	A person seeking international protection whose claim has not been finally decided (6)	Entitlement often provisional; frequent relocation between reception facilities
Migrant in an irregular situation (undocumented)	A person who has crossed an international border without authorization to enter or remain (6)	Entitlement most restricted; avoidance of services common
Internally displaced person	A person forced to flee their home who has not crossed an internationally recognized border (6)	Supply depends on humanitarian provision within the country
Labor migrant	A person who migrates for the purpose of employment (6)	Continuity disrupted by seasonal or circular movement between countries
Displaced person	A person forced or obliged to flee or to leave their home or place of habitual residence because of conflict, violence, human-rights violations or disaster, whether or not an international border has been crossed (6)	Umbrella for forced movement; entitlement and supply depend on whether the person remains inside the country or has crossed a border
Mobile populations	Descriptive, non-legal term used in this review for people whose movement or temporary residence across locations may interrupt continuity of health care; not a category defined in (6) or (7)	Used where the shared clinical problem is discontinuity of the medication-use process rather than a specific legal category
People on the move	Collective term covering all of the above	Used where a mechanism applies across categories

CONCEPTUAL FRAMING

It is tempting to treat migration status as a patient characteristic, in the way that age or renal function are patient characteristics. That framing is misleading. Mobility is better understood as a property of the relationship between the patient and the health system than of the patient alone, and it is the relationship that fails. The WHO global evidence review on the continuum of care for non-communicable diseases across the migration cycle makes the same point at system level: risks accumulate at the junctions between origin, transit and destination, and a continuum of risk requires a corresponding continuum of care that is rarely available (7).

Consider what the medication-use process assumes. Prescribing assumes an accessible history. Dispensing assumes a functioning entitlement and an affordable price. Administration and self-administration assume comprehension, stable storage and predictable meal and sleep patterns. Monitoring assumes that the patient will return, and that whoever sees them next will have access to what was decided previously. Each assumption is a point of articulation between patient and system, and displacement disarticulates them one by one. European scoping evidence confirms that this disarticulation is structural rather than incidental: access and utilization differ systematically between migrant and host populations even where formal entitlement exists (8).

This explains a pattern familiar to clinicians working with these groups. The individual medication decisions are often entirely correct, and the outcome is nonetheless poor. A correctly prescribed antihypertensive is of no benefit if the patient is dispensed one month's supply and then moved to accommodation ninety kilometers away. Insulin prescribed at an appropriate dose becomes hazardous if the patient's living arrangements offer no reliable refrigeration and no certainty about the timing of meals. Framing these as adherence failures locates the problem in the patient and, in doing so, tends to prevent the system from correcting itself.

AIM AND SCOPE

The aim of this narrative review was to identify and describe the mechanisms through which mobility generates medication-related risk across the medication-use process, and to translate those mechanisms into practice recommendations for health professionals.

Three objectives followed. The first was to identify the recurring domains of medication-related risk reported in the literature on refugees, migrants and displaced people. The second was to derive, from those domains, actions applicable in routine practice conditions rather than in idealized ones, identifying where the contribution of nurses is particularly relevant. The third was to state explicitly where the evidence is insufficient to support firm recommendations.

The scope was bounded as follows. The review concerns adult populations in reception, primary care and hospital settings in countries of transit and destination and covers the pharmacological aspects of care: continuity of supply, communication about medicines, informal medicine use, medicine-related clinical vulnerability, and the structural conditions governing access to medicines. It does not cover vaccination programs, infectious disease screening policy, mental health treatment as a clinical field, pediatric dosing, or health economics. Psychotropic medicines are mentioned only where they enter the medication-use process during transit; no attempt is made to review psychiatric treatment. Evidence specifically addressing medication care before migration within countries of origin was excluded; population-level epidemiological evidence was retained only where it was used to contextualize a clinical medication-safety risk relevant to patients after migration.

METHODS

DESIGN

This is a narrative review. The term is used consistently throughout to signal that the synthesis is interpretative, and that no systematic search protocol, formal quality appraisal or meta-analytic pooling was undertaken. The SANRA scale for the quality assessment of narrative review articles was consulted during preparation and revision as a framework for improving transparency, particularly with regard to the justification of importance, statement of aims, description of the literature search, referencing, scientific reasoning, and the appropriate presentation of data; where the source publications report confidence intervals for their principal estimates, these are reproduced here (9). No review protocol was registered. The review analyzed only published literature and involved no human participants, so approval by an ethics committee was not required.

SEARCH STRATEGY

Searches were conducted in PubMed/MEDLINE, the Cochrane Library and Scopus for material published between January 2000 and May 2026. Search terms were combined in three groups, the principal terms of which were: (i) medication safety, medication errors, medication adherence, self-medication, medication reconciliation, pharmacovigilance; (ii) refugees, asylum seekers, migrants, undocumented, displaced persons, transients and migrants; and (iii) language barriers, interpreters, health literacy, continuity of patient care, nursing. Each group also included controlled vocabulary headings and further free-text

variants; the complete database-specific strategies are given in Supplementary Table S1. Terms within each group were combined with OR and the groups with AND. Reference lists of retrieved articles were hand-searched for additional sources.

Institutional and grey literature was searched separately, since a substantial part of the relevant evidence in humanitarian health is published outside indexed journals. This comprised the publication repositories of WHO, the United Nations High Commissioner for Refugees, the International Organization for Migration and Médecins Sans Frontières.

ELIGIBILITY CRITERIA

Sources were eligible if they met all of the following criteria: published between January 2000 and May 2026; published in English; reporting primarily on adult populations of refugees, migrants, asylum seekers, undocumented residents or displaced people, or providing international guidance applicable to those populations; and addressing at least one component of the medication-use process, namely prescribing, dispensing, administration, self-administration, adherence, reconciliation or monitoring. Systematic reviews, meta-analyses, international guidance documents and larger observational studies were prioritized. Qualitative studies were eligible where they illuminated mechanisms that quantitative designs capture poorly, such as the reasons patients decline to disclose medicines obtained outside the treatment service.

Sources were excluded if they addressed migration or displacement without reference to medicines; if they concerned vaccination or screening policy without a medication-use component; if they were confined to pediatric dosing or to disease management in children; if they were conference abstracts, editorials or commentaries without primary data or formal guidance status; or if the full text was unavailable. Studies conducted in pediatric settings were retained only when the mechanism under examination was not age-specific and was considered transferable to adult medication-safety practice; that extrapolation is identified when those sources are cited and is restated in section 6.

SELECTION OF SOURCES

Records identified by the database searches were screened by title and abstract for relevance to the review question and against the eligibility criteria. The searches were rerun on 4 September 2026 using the database-specific strategies provided in Supplementary Table S1, while retaining the prespecified publication window of January 2000 through May 2026. The rerun retrieved 59 records from PubMed/MEDLINE, 94 records from Scopus, and 24 Cochrane Reviews, giving 177 records before deduplication (Supplementary Table S2). Five retrieved records, corresponding to three unique publications, were published after 31 May 2026 and were excluded, leaving 172 in-range records. Deduplication using DOI and, where DOI was unavailable or discordant, normalized exact title matching yielded 126 unique in-range records. These 126 records were screened at title and abstract level against the eligibility criteria. The final thematic synthesis retained 34 sources selected for direct relevance, methodological contribution, non-redundancy and coverage of the five retained risk domains, including database-derived, hand-searched and targeted institutional or grey-literature sources. Of the 34 synthesis sources, 26 were derived from the database searches and 8 were identified through hand-searching of reference lists or targeted searching of institutional and grey-literature repositories. The 34 synthesis sources comprise eight institutional guidance or statistical documents issued by WHO, UNHCR or the International Organization for Migration; nine systematic or scoping reviews or meta-analyses; sixteen primary observational, qualitative or modeling studies; and one international clinical guideline. SANRA (9) is cited only as a reporting framework. Donaldson et al. (3) is cited only to locate the launch of the WHO Medication Without Harm challenge and did not enter the thematic coding.

DATA EXTRACTION AND SYNTHESIS

Data were extracted into a matrix recording, for each source, the study design, population and setting, the component of the medication-use process addressed, the principal quantitative findings where reported, and the mechanism proposed by the authors to explain those findings. No new data were generated; all material analyzed is available in the cited publications, and the data extraction matrix underlying the synthesis is available from the author on reasonable request.

Synthesis followed a thematic approach. Extracted mechanisms were first coded descriptively and then grouped into candidate themes based on the process point at which the failure occurred. A candidate theme was retained as a risk domain if it satisfied three criteria: it was reported in at least three independent sources; it corresponded to a distinct point in the medication-use process rather than a restatement of another domain; and it was actionable at the level of clinical practice rather than solely at policy level. Two candidate themes were considered but not retained. Discrimination and racism in health care were reported in the source literature but were not medication-specific and could not be separated analytically from the language and structural domains. Digital health interventions were discussed in several sources, but the available evidence concerned feasibility rather than medication outcomes, and the theme was therefore judged premature. Five domains met all three criteria and are reported in section 3.

All screening, selection, extraction and synthesis were performed by a single author. The implications of this are addressed in section 6.

RESULTS

OVERVIEW OF INCLUDED SOURCES

The sources that informed the synthesis were geographically concentrated. Evidence on language barriers and patient safety derived predominantly from the United States; evidence on treatment interruption derived largely from humanitarian programs in Jordan; evidence on self-medication was drawn from studies conducted across Europe, North America, Australia and South-East Asia. European evidence concentrated on structural and entitlement questions rather than direct medication-safety outcomes. Table 2 identifies the sources providing the principal data for each risk domain and records their design and scale. To avoid duplication, the domain sections that follow report what those sources found rather than restating their study characteristics, which are given in the table.

Table 2. Principal sources informing each risk domain.

Risk domain	Principal sources	Design and scale	Nature of contribution
Interrupted continuity of pharmacological treatment	Rehr et al. (10); Ansbro et al. (11); Patel et al. (12); Nellums et al. (13); Tezcan-Güntekin et al. (14); Dotta-Celio et al. (15); Hultin et al. (16)	Cross-sectional survey (n = 8,041, estimates with 95% CI); retrospective cohort (5,045 enrolled; 4,044 analyzed); systematic review (15 studies); systematic review and meta-analysis (15 studies; 258 migrant and 174 non-migrant patients); qualitative interviews; qualitative study in chronic dialysis; qualitative study among foreign-born residents	Frequency and causes of interruption; demonstration that structured programs reverse it; contested adherence data; recent qualitative evidence on treatment discontinuity and medication knowledge
Language barriers and unverified comprehension	Divi et al. (17); Flores et al. (18); Nápoles et al. (19); Talevski et al. (20); Hultin et al. (16); Hultin et al. (21); Al Musawi et al. (22)	Multi-site adverse event study (6 hospitals); error analysis of 57 pediatric emergency encounters; primary care encounter analysis; systematic review; qualitative migrant study; qualitative healthcare/ pharmacy staff study; multistage focus groups	Severity of harm associated with limited language proficiency; interpreter error rates; effectiveness of comprehension verification; migrant-specific communication and medication-information barriers, including access to written medication information
Parallel and informal medicine supply	Thin et al. (23); Kay et al. (24); Aljadeeah et al. (25); Tresànchez-Lacorte and Figueras (26); Djuv et al. (27); Håkonsen and Toverud (28); WHO (29)	Systematic review (32 studies); qualitative study; cross-sectional survey; cross-sectional study; cross-sectional general-practice study; qualitative study; institutional estimate of product quality	Prevalence and appropriateness of self-medication; sources of informally obtained medicines; herbal co-use and low disclosure (Djuv in a general, not migrant, population); product quality
Unrecognized clinical vulnerability	Howes et al. (30); Hassanein et al. (31); Kwan et al. (32)	Bayesian geostatistical model; international consensus guideline; systematic review of medication reconciliation	Distribution of enzyme deficiency in populations of origin; structured management of therapeutic fasting; harm potential of undocumented discrepancies, including incomplete allergy history
Structural and legal determinants	Winters et al. (33); Lebano et al. (8); Baccolini et al. (34); Baumeister et al. (35); WHO (7)	Systematic review (29 studies); scoping review; systematic review and meta-analysis; Cochrane review of interventions; global evidence review	Entitlement gradients and the implementation gap; European access patterns; health literacy prevalence, including a refugee subgroup; evidence on health-literacy interventions; continuum of care across the migration cycle

DOMAIN 1: INTERRUPTED CONTINUITY OF PHARMACOLOGICAL TREATMENT

Interruption of chronic treatment is the most consistently documented medication problem in displaced populations. In a cross-sectional survey of 8,041 adult non-camp Syrian refugees in northern Jordan, 21.8% (95% CI: 20.9-22.8) reported at least one non-communicable disease, and among those requiring regular medication, 23.1% (95% CI: 20.4-26.1) reported an interruption in supply; unaffordability was the dominant reported reason, cited by 63.4% (95% CI: 56.7-69.6) (10).

In a retrospective cohort analysis of a Médecins Sans Frontières primary-level non-communicable disease program in Irbid, Jordan, mean systolic blood pressure among hypertensive patients fell by 12.4 mmHg, from 143.9 mmHg (95% CI: 140.9-146.9) to 131.5 mmHg (95% CI: 130.2-132.9), and the probability of treatment interruption declined both as the

program matured and as individual patients accumulated time within it (11). The program combined free medicines, context-adapted protocols, and a multidisciplinary team including nurses, health educators and pharmacists.

The adherence literature more broadly is less tidy. A systematic review of medicine adherence in immigrants and refugees identified 15 studies across six countries and found reported adherence rates ranging from 10.1% to 74.5%, generally lower than in host or non-migrant comparison groups, with language proficiency, educational level, financial burden and health beliefs recurring as associated factors (12). The width of that range itself is informative: definitions and measurement methods varied so much that pooling was not possible, and only two of the fifteen studies examined the clinical consequences of non-adherence at all. More recent qualitative work adds detail to these aggregate findings: studies among older migrants in Germany, migrant patients in a Swiss dialysis unit, and foreign-born residents of Sweden describe treatment discontinuity, medication-information gaps, changes in prescribers and differences in medication knowledge as recurring barriers (14–16).

The tuberculosis evidence provides a contrasting finding. A systematic review and meta-analysis of multidrug-resistant tuberculosis treatment adherence in migrants in high-income, low-incidence countries found pooled adherence of 71% (95% CI: 58-84), comparable to that of non-migrants (risk ratio 1.05; 95% CI: 0.82–1.34) and approaching the global treatment-success target of 75% (13). The review authors emphasize that adherence remains inadequate in migrants and non-migrants alike; the point relevant here is that the two groups did not differ.

DOMAIN 2: LANGUAGE BARRIERS AND UNVERIFIED COMPREHENSION

Language is not merely an obstacle to conversation; it is a measurable patient safety variable. In a study of adverse events across six accredited hospitals in the United States, 49.1% of adverse events involving patients with limited English proficiency resulted in some degree of physical harm, compared with 29.5% of events involving English-speaking patients (17).

A cross-sectional error analysis of 57 audiotaped pediatric emergency department encounters identified 1,884 interpreter errors, of which 18% carried potential clinical consequences; errors with potential clinical consequences were significantly less frequent with professional interpreters than with ad hoc interpreters such as family members or untrained bilingual staff (18). The study population in that analysis was pediatric; the mechanism — clinically consequential interpreter error under ad hoc interpretation — is not confined to children, and the finding is applied here to adult medication counseling with that caveat. Recent migrant-specific qualitative research in Sweden likewise describes medication-safety risks arising from language discordance, incomplete information and difficulty navigating the medication system, while a linked study of healthcare and pharmacy staff identifies communication and information exchange as central safety issues (16, 21). Focus-group work with Arabic-speaking migrant women in Sweden reports comparable difficulty in obtaining and understanding medication information (22). An analysis of primary care encounters found that interpretation inaccuracies of clinical significance were substantially reduced when trained interpreters were used, whether in person or by video link (19).

The deeper hazard is that a patient nods. Nodding is a socially competent response to a situation in which one has not understood, and clinicians routinely read it as comprehension. Teach-back — asking the patient to explain the regimen back in their own words, framed as a check on the clarity of the explanation rather than on the patient's intelligence — is the standard remedy. A systematic review found teach-back to be effective across a broad range of settings, populations and outcome measures, while also noting that studies rarely describe the implementation strategies that make it sustainable in practice (20).

DOMAIN 3: PARALLEL AND INFORMAL MEDICINE SUPPLY

Patients who cannot rely on the formal system construct an informal one. A systematic review of self-medication in immigrants, comprising 32 studies, reported prevalence estimates ranging from 20.2% to 94.6% across settings and populations, with medicines commonly obtained from the country of origin, local shops and informal networks; approximately 46% of self-medication episodes were judged inappropriate, antibiotics being the most frequent problem (23). Roughly two-thirds of the included studies concerned antibiotics specifically.

Qualitative evidence suggests that this pattern may reflect barriers to obtaining medicines through the formal system. In many countries of origin, antibiotics are obtainable without prescription and are understood as decisive treatment, and reviews of self-medication in immigrant populations identify supply from the country of origin as a recurrent source (23); in the host country, the same patient may face cost, delay, documentation requirements or a consultation that ends without a prescription. Qualitative work in Australian primary care describes refugee communities navigating this gap, retaining medicines, sharing them within households and interpreting the absence of a prescription as the absence of care (24). Studies of medicine use among Syrian asylum seekers and refugees in Germany, and of medicines accumulating in households in Sahrawi refugee camps, describe the same pattern of partially used, mixed and unlabeled supplies (25, 26).

Two clinical consequences follow. The first is interaction and duplication: a patient may take a nationally prescribed medicine alongside an imported equivalent under a different trade name or combine prescribed treatment with herbal preparations

that are rarely volunteered. Co-use of herbal remedies with conventional medicines is documented in general practice populations, as is the low rate at which patients disclose it; the study cited for that disclosure pattern was conducted in Norwegian general practice and is not migrant-specific (27). Cultural framing of medicines — which are considered strong, which are considered harmful, and when they may legitimately be stopped — shapes use in ways that remain invisible unless specifically explored (28).

WHO estimates that approximately one in ten medical products circulating in low- and middle-income countries is substandard or falsified, based on an observed failure rate of about 10.5% across some 48,000 samples from 88 countries (29). Medicines carried across borders or purchased informally sit outside any regulated supply chain. Unexplained treatment failure in a patient using such medicines warrants consideration of product quality alongside dosing and adherence.

DOMAIN 4: UNRECOGNIZED CLINICAL VULNERABILITY

Beyond supply and communication lies a set of specifically pharmacological risks that arise when the clinical history is incomplete.

Allergy and adverse reaction history is frequently the first casualty. A patient who has previously reacted to a medicine may know only its local trade name, its color, or the fact that it was an injection. Documenting "no known allergies" in such circumstances records the absence of information as the absence of risk, and the distinction is worth preserving explicitly in the record. Medication reconciliation studies in general North American hospital populations have found that between 11% and 59% of unintended discrepancies carry potential for patient harm, which is the nearest available estimate of what incomplete histories cost (32).

Enzyme deficiencies and pharmacogenetic variation deserve more attention than they usually receive. Glucose-6-phosphate dehydrogenase deficiency, the most common human enzymopathy, is concentrated in regions where malaria is or has been endemic; Bayesian geostatistical modeling based on representative prevalence surveys from 1,734 spatially unique sites has mapped substantial affected populations across these areas (30). Patients originating from these regions may be exposed to oxidative drugs without any screening having taken place. This is not an argument for routine testing in all settings, which is often unavailable, but for maintaining diagnostic awareness when hemolysis follows the introduction of a new medicine.

Religious and cultural practices interact with pharmacology in ways that are predictable and therefore manageable. Ramadan fasting is the clearest example. International guidance from the International Diabetes Federation and the Diabetes and Ramadan International Alliance recommends risk stratification several weeks before Ramadan, with individualized adjustment of glucose-lowering therapy, structured education and defined criteria for breaking the fast (31). Patients frequently do not raise the subject, either because they do not expect the clinician to be interested or because they anticipate being told simply not to fast. Asking in advance, without prejudging the decision, converts a hazard into a plan.

DOMAIN 5: STRUCTURAL AND LEGAL DETERMINANTS

The WHO global evidence review on the continuum of care during the migration cycle places these constraints at system level, describing how the conditions governing access to treatment differ across the phases of migration and how rarely services are organized to bridge them (7). Entitlement to subsidized medicines varies by legal status. A systematic review of health care service use by undocumented migrants in Europe, drawing on 29 studies, found consistent underutilization of services relative to entitlement, together with widespread unfamiliarity among patients with the entitlements they actually held; the authors describe an implementation gap between formal policy and practice on the ground (33). European scoping evidence points in the same direction across migrant categories more broadly (8). Where medicines must be paid for, rationing follows, and rationing takes clinically specific forms: tablets are halved, courses are stopped once symptoms resolve, and supplies are shared between family members with similar complaints.

Fear operates alongside cost. Where health services are perceived to be connected to immigration enforcement, patients present late, give incomplete addresses and do not return for monitoring; fear of deportation is reported as a barrier that persists even where formal entitlement exists (33). This is a rational response to institutional arrangements rather than a misapprehension to be corrected by reassurance, and it must be worked around rather than argued away.

Health literacy compounds all of it. A systematic review and meta-analysis of low health literacy across European Union member states found pooled prevalence estimates ranging from 27% (95% CI: 18–38) to 48% (95% CI: 41–55) depending on the assessment method used. In a meta-regression, refugees showed the highest prevalence of low health literacy among the population groups examined (meta-regression coefficient β 1.59; 95% CI: 0.26–2.92), although that subgroup estimate rests on two studies (34). A Cochrane review of health-literacy interventions in migrants, covering 34 randomized trials with 8,249 participants in high-income countries, found small to moderate improvements in some health-literacy outcomes, with moderate to low confidence in the evidence and uncertain long-term effects. Adapted medical instructions using simple language, illustrations or pictures may improve understanding of health information but may have little effect on medication adherence (35). Written information in a language the patient does not read is not information. Pictogram-based instructions, dose-time diagrams and demonstration with the device

or packaging are better instructional design rather than concessions to low literacy, and they benefit fluent readers too; on present evidence, however, format aids comprehension rather than adherence.

DISCUSSION

INTEGRATION ACROSS THE DOMAINS

The five domains are not independent and treating them as a checklist misrepresents how they operate. They are sequentially coupled: a structural constraint produces a supply interruption; the interruption produces recourse to the informal market; the informal medicine is not disclosed because the consultation offers no safe opening for disclosure; and the resulting clinical picture is misread because the history is incomplete. The mechanism that generates harm is accumulation, not any single link.

This matters for interpretation. Studies examining one domain in isolation will underestimate risk, attributing to a single cause an outcome that several produced jointly. The adherence literature illustrates the problem: measuring whether a patient took the prescribed dose, without establishing whether the medicine was affordable, whether instructions were understood, and whether another medicine was taken in parallel, produces a number that is accurate and uninformative.

INCONSISTENCIES IN THE EVIDENCE

The literature is not internally consistent, and the disagreements are informative rather than merely inconvenient.

The clearest concerns adherence. The systematic review by Patel and colleagues reports generally lower adherence among immigrants and refugees than among comparison groups (12), whereas the meta-analysis by Nellums and colleagues finds adherence in migrant patients treated for multidrug-resistant tuberculosis to be comparable to that of non-migrants (13). These findings are less contradictory than they first appear. Multidrug-resistant tuberculosis treatment in high-income, low-incidence settings is delivered with structured support, free medicines and active follow-up; most of the chronic disease care examined in the broader adherence literature is not. The difference plausibly reflects the presence or absence of program support rather than a property of the patients, which is precisely the interpretation supported by the Jordanian cohort data (11). The practical inference is that a health professional who assumes non-adherence based on migration status is likely to be wrong, and that the assumption itself damages the therapeutic relationship on which correct medicine use depends.

A second inconsistency concerns self-medication prevalence, reported across a range from 20.2% to 94.6% (23). Such variation is not a measurement artifact alone; it reflects genuine differences between populations with different entitlements, and it is a reminder that pooled figures for "migrants" conceal more than they reveal.

A third concerns entitlement itself. Formal entitlement and actual utilization diverge consistently, and the divergence is larger than differences in entitlement between countries would predict (8, 33). Policy change alone therefore does not resolve access problems, which have direct implications for what clinical services can be expected to achieve.

CLINICAL SIGNIFICANCE

For the individual patient, the findings identify where clinical attention yields most. The evidence on interpretation is the strongest in the review and the most actionable: the difference between professional and ad hoc interpretation is measurable, and medication counseling is precisely the kind of information-dense exchange in which interpretation errors carry clinical consequences (17–19). Verification of comprehension is the second point, supported by consistent though methodologically heterogeneous evidence (20). Systematic enquiry about informally obtained medicines is the third, supported by prevalence data that make the presence of such medicines more likely than not in some populations (23).

Ad hoc interpretation remains common, and in medication counseling it is particularly treacherous. The relative interpreting for the patient may not distinguish between "take when needed" and "take regularly", may soften a warning about alcohol out of respect, or may omit a question about traditional remedies because they consider it irrelevant or shameful. Children used as interpreters present an additional problem that no clinical benefit can offset. This is inference from the interpreter-error data, not a finding of the included studies.

Pregnancy, lactation, undiagnosed comorbidity and psychotropic treatment introduced during transit add further complexity, as does nutrition and hydration during a journey. The included sources did not examine these; they are clinical considerations, not review findings.

ORGANIZATIONAL SIGNIFICANCE

The Jordanian program data carry an organizational message that individual clinical effort cannot substitute for. Blood pressure control improved and treatment interruption declined because medicines were free, protocols were adapted to context, and a multidisciplinary team including nurses and pharmacists was in place (11). None of those are bedside decisions. Services that receive mobile populations should therefore be assessed on whether they provide professional interpretation as a routine rather than exceptional resource, whether they issue patient-held medication records, whether prescription duration is matched to expected length of stay, and whether relocation triggers a medicines continuity

check. Where nursing staff carry responsibility for admission assessment and discharge preparation, these are largely nursing-led processes, and their absence is an organizational failure rather than an individual one.

Accommodation shapes medicine use directly. Storage conditions, refrigeration for insulin and some antibiotics, privacy for injections, and a stable daily rhythm for timed doses are functions of housing, and frequent relocation between reception facilities disrupts the pharmacy relationship, the appointment schedule and the prescription cycle simultaneously. The included sources did not measure these effects; this is organizational inference.

IMPLICATIONS FOR CLINICAL PRACTICE

The recommendations below follow from the evidence reviewed and are framed for ordinary staffing conditions. They align with the competencies described in the WHO global competency standards for health workers caring for refugees and migrants, which set out expected behaviors in communication, cultural responsiveness and continuity of care (36). Each is applicable to health professionals generally; the final column of Table 3 identifies where the nursing contribution is particularly direct.

Take the medication history as if nothing is documented. In mobile populations the absence of a record is the normal state. Ask the patient to bring or show all packages, including those from other countries and any herbal or traditional preparations; physical inspection of what a person carries identifies duplication and unlabeled products that no verbal history will reveal. Medication reconciliation is an established patient safety strategy, and the harm potential of unintended discrepancies is set out in section 3.5 (32). Its magnitude in mobile populations has not been quantified directly.

Use professional interpretation for every medication conversation, and record that it was used. Given the evidence on interpreter errors with clinical consequences, medication counseling should be treated as a high-risk interaction rather than a routine one (17, 18). Where only telephone interpretation is available, it remains preferable to a family member. Where a relative must be used in an emergency, the fact should be documented and the counseling repeated with a professional interpreter at the first opportunity.

Verify comprehension rather than assuming it. Teach-back should be applied to the specific mechanics of the regimen: which medicine, how many, at what time, in relation to food, what to do about a missed dose, and which symptoms require immediate return (20).

Ask about medicines obtained outside the system without conveying disapproval. Disclosure depends on the patient's expectation of the response. A neutral formulation — asking what else the person takes when unwell, including anything brought from home or given by relatives — yields information that a question about correct medicine use will not (23, 24).

Plan for discontinuity in advance. Where relocation is foreseeable, the patient should leave with a written, patient-held summary of the regimen using international non-proprietary names, an adequate supply where regulations permit, and clear instructions on where to seek continuation. Patient-held records address the specific failure mode of this population, which is that the record does not travel with the patient.

Address storage and practicalities explicitly. Ask where the medicines will be kept, whether refrigeration is available, whether meals are predictable, and whether the person has somewhere private to inject.

Report suspected quality defects. Suspected substandard or falsified products should be reported through national pharmacovigilance channels; this is one of the few mechanisms by which frontline observation reaches the regulatory level (29).

Table 3. Risk domains, mechanisms, professional responses and the nursing contribution.

Risk domain	Principal mechanism	Response by the health care team	Particular nursing contribution
Interrupted continuity of pharmacological treatment	Cost, relocation, gaps in entitlement, loss of the record at each transition	Match prescription duration to expected length of stay; issue patient-held medication summary in international non-proprietary names; verify continuation pathway before discharge	Discharge preparation and continuity check; identification of imminent relocation during routine contact
Language barriers and unverified comprehension	Ad hoc interpretation; comprehension inferred from nodding rather than tested	Professional interpretation for every medication conversation, documented in the record; teach-back on regimen mechanics	Delivery of medication counseling and teach-back; escalation when interpretation was inadequate
Parallel and informal medicine supply	Imported, informally purchased and traditional medicines used alongside prescribed treatment and not disclosed	Non-judgmental enquiry into all substances taken; physical inspection of packages; reconciliation against the prescribed regimen; pharmacovigilance reporting of suspected quality defects	Structured medication history at admission and at each contact; creation of the conditions in which disclosure is safe

Risk domain	Principal mechanism	Response by the health care team	Particular nursing contribution
Unrecognized clinical vulnerability	Absent allergy, enzyme, comorbidity and obstetric history; unanticipated therapeutic fasting	Record uncertainty explicitly rather than as absence of risk; pre-Ramadan risk stratification; maintain diagnostic awareness for pharmacogenetic reactions	Systematic questioning about prior reactions and fasting intention; observation and early reporting of unexplained deterioration
Structural and legal determinants	Restricted entitlement, unaffordability, fear of enforcement, unstable housing, limited health literacy	Practical assessment of storage, routine and cost; pictogram and demonstration-based instruction as a comprehension aid; referral to entitlement advice	Assessment of the living conditions in which the regimen must operate; adaptation of instructional format to literacy level

IMPLICATIONS FOR FUTURE RESEARCH

Four priorities follow from the gaps identified in this review. First, intervention research is required. No study evaluating a medication safety intervention designed specifically for mobile populations against a clinical or medication-error outcome was identified in the searches conducted for this review. Trials of patient-held medication records, structured reconciliation at reception facilities, and interpreter-supported medication counseling are feasible and warranted.

Second, adherence measurement requires standardization. Agreement on a common definition and on objective measurement would allow the question to be answered rather than merely restated (12).

Third, the evidence base requires geographical rebalancing. The quantitative evidence linking language proficiency to patient safety outcomes originates predominantly from the United States (17–19), and equivalent European data are largely absent despite substantial migration into European health systems that differ materially in funding and interpretation provision.

Fourth, disaggregation by legal status is needed. Since entitlement is a principal determinant of medicine access, aggregate findings for "migrants" have limited value. Research designs should report outcomes separately for asylum seekers, recognized refugees, labor migrants and undocumented residents wherever sample size permits.

LIMITATIONS

This review has several limitations, which qualify the confidence with which its conclusions may be held. The original search was conducted narratively rather than systematically and was not registered prospectively. A documented reproducibility rerun was performed on 4 September 2026 using the prespecified databases, strategies and publication window; its yield is reported in section 2.4 and in Supplementary Tables S1 and S2. Those figures document the rerun and do not reconstruct the historical screening log of the original search. Because no prospective protocol or complete historical screening log existed, the available literature was not searched comprehensively, the review should not be interpreted as a systematic review, and relevant sources may still have been missed.

Only publications in English were eligible. This excludes literature published in the languages of many of the populations concerned, and probably also excludes relevant national reporting from European countries, which is likely to have contributed to the geographical skew described in section 3.1.

No formal assessment of methodological quality or risk of bias was undertaken. Sources were prioritized by design hierarchy, but no validated appraisal instrument was applied, and findings from studies of differing methodological rigor are consequently presented alongside one another.

All screening, selection, data extraction and synthesis were performed by a single author, without independent duplication at any stage. This increases the risk of selection bias in what was retrieved and retained, and of interpretation bias in how the themes were derived and the findings characterized. The criteria for theme retention were specified in section 2.5 to make the process auditable, but they do not substitute for independent verification.

The literature is geographically concentrated, as noted above, and extrapolation from United States data on language and patient safety to European conditions is reasonable but not automatic. One of the two principal studies of interpreter error was conducted in a pediatric emergency department (18); the mechanism is not age-specific, but the setting is not identical to adult medication counseling. The evidence cited for non-disclosure of herbal co-use comes from a general-practice population rather than from migrants or refugees (27).

Finally, the category under examination is unstable. The collective term used here aggregates populations whose situations with respect to medicines have little in common, and although Table 1 distinguishes them, much of the underlying literature does not.

CONCLUSION

Against the first objective, this narrative review identified five interconnected mechanisms through which mobility generates medication-related risk. Against the second, it derived practical recommendations for health professionals, including medication

history-taking, professional interpretation, comprehension verification, non-judgmental enquiry about informally obtained medicines, and advance planning for treatment continuity. Against the third, the evidence supports particular concern about treatment interruption, language-related harm, informal medicine use, incomplete clinical histories, and structural barriers to access, while it does not support assuming poor medication adherence solely on the basis of migration status. Because no dedicated intervention trials were identified and the evidence base remains heterogeneous and geographically uneven, the recommendations should be regarded as well reasoned rather than proven, and targeted implementation research is needed.

ETHIC STATEMENT

None.

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CONFLICTS OF INTEREST

The author declares no conflicts of interest.

GENERATIVE AI STATEMENT

The authors used a generative AI tool to assist with language editing, formatting, and journal-specific manuscript preparation. All AI-assisted output was critically reviewed, revised, and verified by the authors, who take full responsibility for the final content. No AI tools were used for data collection, analysis, or interpretation.

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