

The Determinants of Nursing Continuous Professional Development: A Systematic Review

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Abstract

Continuous professional development (CPD) is essential for sustaining nursing competence, supporting career progression, and strengthening care quality in health systems characterised by rapid clinical and technological change. Yet nurses' engagement in CPD remains uneven across settings because participation is shaped by interacting personal, organisational, and contextual determinants. This systematic review synthesises evidence on determinants of nursing CPD, with specific attention to barriers, facilitators, and implementation conditions that influence sustained participation. The review was conducted using a structured systematic design guided by established reporting and evidence-synthesis standards. Across the included studies, nurses consistently recognised CPD as professionally necessary and clinically valuable for updating knowledge, strengthening confidence, and enhancing patient care. However, participation was frequently constrained by time pressure, high workload, staffing shortages, financial costs, scheduling inflexibility, and limited managerial support. Stable facilitators included clear relevance of CPD to practice, supportive leadership, protected learning time, accessible delivery formats (including blended and online approaches), and organisational cultures that value learning. The synthesis further indicates that CPD needs and barriers vary by career stage, with novice and experienced nurses facing different motivational drivers and practical constraints. Overall, the evidence supports a systems perspective in which CPD participation is produced through alignment between individual professional goals and organisational and policy mechanisms that enable equitable access, workload planning, and context-sensitive programme design.

Keywords: continuous professional development; nurses; lifelong learning; determinants; barriers; facilitators; systematic review

1. Introduction

Continuous professional development (CPD) enables nurses to maintain competence, respond to evolving clinical standards, and sustain safe and effective practice throughout their professional careers. In contemporary health systems, the imperative for CPD has intensified due to rapid technological change, expanding scopes of practice, and escalating expectations for quality improvement and patient safety. These pressures position CPD as a workforce capability priority that requires system-level planning and organisational support rather than reliance on individual initiative alone (World Health Organization, 2021).

Despite strong professional endorsement of CPD, participation among nurses remains inconsistent across settings. A persistent issue in the literature is the gap between nurses' positive attitudes towards learning and their actual engagement in structured development activities. Nurses frequently report high motivation to update clinical knowledge and strengthen career prospects, yet sustained participation is constrained by operational barriers, particularly workload intensity, scheduling limitations, staffing shortages, and weak institutional support (Hamukoto et al., 2025).

Evidence from reviews and primary studies indicates that CPD participation is shaped by interacting determinants that span personal motivation, career stage, organisational culture, managerial leadership, access to resources, and broader system conditions. Synthesis work consistently highlights that CPD is most effective when it is relevant to practice, supported by workplace learning opportunities, and reinforced through enabling leadership, whereas weak learning cultures and limited access mechanisms undermine engagement and learning transfer (King et al., 2021).

This review addresses a practical and conceptual gap for nursing management and workforce policy by organising determinants of nursing CPD into a coherent analytical structure. Although many studies report barriers or facilitators within specific contexts, the evidence remains fragmented across countries, career stages, and study designs. A focused synthesis is therefore necessary to clarify which determinants recur most consistently and how they interact in real practice environments.

This systematic review aims to synthesise determinants of nursing CPD and identify the principal barriers and facilitators influencing participation. The review is guided by three questions: (a) What personal determinants influence nurses' engagement with CPD? (b) What organisational and contextual determinants shape access to CPD? and (c) Which factors most consistently facilitate or constrain sustained CPD participation across settings?

2. Methodology

This study was conducted as a systematic literature review (SLR) to synthesise evidence on the determinants of nurses' continuous professional development (CPD). The review was designed and reported in line with the PRISMA 2020 statement to ensure transparent and reproducible reporting of study identification, screening, eligibility assessment, and synthesis decisions (Page et al., 2021). Search reporting was structured using PRISMA-S to strengthen documentation of information sources, search logic, and record management procedures (Rethlefsen et al., 2021). Methodological and reporting guidance documents were used to inform review conduct and reporting but were not included as part of the determinant evidence base.

The search targeted contemporary CPD evidence in nursing while retaining foundational CPD studies required for conceptual continuity. Four databases were used as core sources Scopus, Web of Science, PubMed/MEDLINE, and CINAHL because they provide complementary coverage of nursing, health services, professional education, and workforce development research. Boolean operators were used to combine nursing terms with CPD-related terms (e.g., continuous professional development, continuing education, professional development) and determinant/implementation terms (e.g., determinants, barriers, facilitators, motivation, organisational support, workload). Two complementary search strings were applied: one emphasised CPD/continuing education terminology and the other emphasised determinants and implementation terminology, to reduce concept loss due to variations in indexing and terminology across databases (Rethlefsen et al., 2021).

Studies were eligible for inclusion if they were peer-reviewed journal articles published in English, focused on practising nurses in any clinical setting, and examined at least one determinant of CPD participation or engagement. Determinants were conceptualised as multilevel and included

personal determinants (such as motivation, perceived relevance, competence, self-efficacy, and professional identity), organisational determinants (including leadership support, learning culture, and access structures), structural barriers (such as workload, staffing constraints, limited time, and financial cost), learning access and flexibility (including feasibility of online or blended formats), career-stage or role-context influences, policy or regulatory provisions, and CPD-related outcomes when these were analysed in relation to participation or engagement. Studies were excluded if they did not focus on nurses, did not address CPD (or closely related continuing professional education/professional development) as the primary phenomenon of interest, or did not present determinant-relevant evidence.

Study selection followed PRISMA 2020 stages (Page et al., 2021). As summarised in Figure 1, 192 records were identified in the first search string and 71 records in the second (total 263). After excluding 51 duplicates, 212 articles remained for further evaluation. Application of the inclusion and exclusion criteria through abstract screening and text analysis resulted in exclusion of 178 articles, leaving 34 studies included in the final review.

A structured extraction matrix was used to ensure consistency across included studies. Extracted items included bibliographic details, study design, country/setting, sample characteristics, and the determinant domains examined. Determinants were coded using a predefined framework aligned to the review questions and the multilevel interpretation of CPD. The coding domains comprised intrinsic motivation and perceived relevance; professional competence/self-efficacy/professional identity; organisational support/culture; time/workload/resource barriers; learning access/flexibility; career stage/role context; policy/regulatory provisions; and outcome evaluation.

Quality appraisal was conducted using design-appropriate tools to strengthen the credibility of synthesis conclusions. Quantitative studies were appraised using the JBI quantitative critical appraisal tools, applying criteria related to sampling adequacy, measurement validity, management of confounding, and analytic transparency (Barker et al., 2023). Qualitative studies were appraised using the Critical Appraisal Skills Programme (CASP) qualitative checklist, with attention to methodological coherence, adequacy of data collection and analysis, and credibility of interpretation (Critical Appraisal Skills Programme, 2018). For mixed-method and multi-component studies, appraisal was conducted by component, applying the relevant quantitative or

qualitative criteria to each element and considering the transparency of integration for determinant-related findings.

Given heterogeneity in study designs and outcome measures, findings were synthesised using a structured narrative thematic approach anchored in the determinant coding framework. Evidence was integrated across contexts to identify recurring barriers and facilitators, clarify how determinants cluster across individual, organisational, and system levels, and support development of an organised determinant framework for nursing CPD participation.

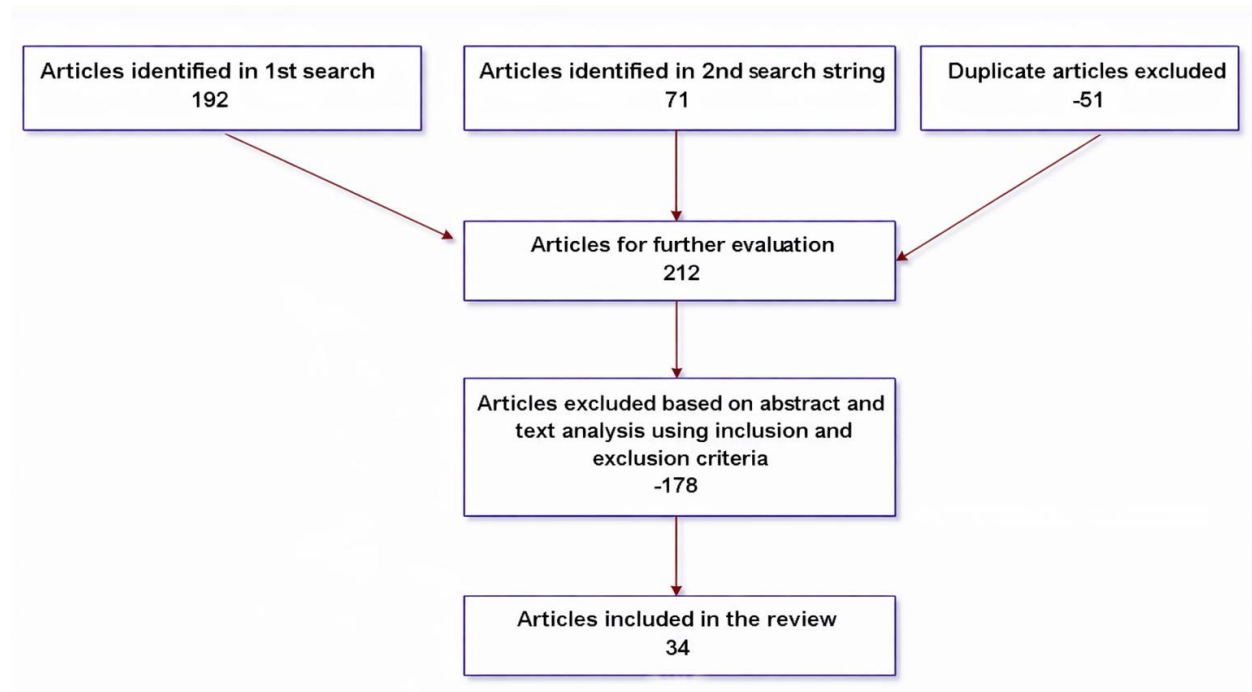


Figure 1: The Systematic Review Process

3. Determinants of Nursing Continuous Professional Development

Implementing and sustaining nursing CPD is a multidimensional process shaped by the interaction of individual drivers and structural conditions. CPD participation is rarely determined by a single factor; rather, it emerges from the way motivation, confidence, and professional goals intersect with staffing levels, time availability, leadership support, access to learning opportunities, and regulatory expectations (Walter & Terry, 2021). This multilevel pattern is visible across hospital, community, and long-term care contexts, where similar determinants recur but operate with

different intensity depending on local service pressure and organisational arrangements (Walter & Terry, 2021).

The evidence base also demonstrates substantial methodological and conceptual diversity. Some studies concentrate on barriers and facilitators, others evaluate educational interventions, and others examine motivational profiles, professional identity, or workplace learning climate. As a result, contemporary reviews emphasise the need to integrate determinants into a coherent explanatory framework that spans the nursing career trajectory rather than treating determinants as separate and unrelated domains (Hakvoort et al., 2022). A similar conclusion is evident in metasynthesis work on lifelong learning in nursing, where organisational conditions and individual factors are consistently presented as interdependent rather than independent influences (Mlambo et al., 2021).

To map this evidence systematically, Table 1 synthesises 34 key studies (direct CPD studies and closely related nursing continuing education/professional development studies) and codes which determinant domains are addressed in each study. The matrix was compiled from indexed records and full abstracts/pages where available (including PubMed/PMC and journal-indexed pages). The coded domains include motivation and perceived relevance, competence/self-efficacy/professional identity, organisational support and culture, time/workload/resource barriers, learning access and flexibility, career stage/role context, policy/regulatory provisions, and outcome evaluation.

Table 1: Literature Review Matrix

No	Author(s) and Year	Motivation/relevance	Self-efficacy	Professional identity	Organisational culture	Leadership support	Workload/pressure	Financial support	Learning access	Career stage	Policy requirements	Outcome evaluation
1.	Ahmed et al. (2025)		✓						✓			✓
2.	Aleo et al. (2024)				✓	✓			✓	✓		✓
3.	Aljadir et al. (2025)	✓										
4.	Al-Mahameed & Bani Younis (2025)	✓	✓		✓	✓	✓	✓	✓		✓	
5.	Alsadaan & Ramadan (2025)	✓			✓	✓	✓	✓			✓	

No	Author(s) and Year	Motivationrelevance	Selfefficacy	Professionalidentity	Organisationalculture	Leadershipsupport	Workloadpressure	Financialsupport	Learningaccess	Careerstage	Policyrequirements	Outcomeevaluation
6.	Chaghari et al. (2017)	✓	✓		✓				✓		✓	
7.	Farid et al. (2025)	✓	✓						✓			✓
8.	Fernández-Castro et al. (2023)		✓		✓				✓			✓
9.	Hakvoort et al. (2022)	✓			✓				✓	✓		
10.	Hamukoto et al. (2025) (PMC)	✓	✓		✓	✓	✓	✓	✓		✓	
11.	Khatri et al. (2021) (researchonline.ljmu.ac.uk)				✓	✓		✓	✓	✓	✓	
12.	King et al. (2021)	✓			✓	✓			✓		✓	✓
13.	Kurtović et al. (2024)	✓			✓							
14.	Liu et al. (2025)	✓	✓							✓		
15.	Ma et al. (2023)	✓	✓						✓	✓		
16.	Ma, J. J. et al. (2022) (Paradigm)		✓						✓	✓		
17.	Mlambo et al. (2021)	✓		✓	✓							✓
18.	Ng et al. (2025)		✓						✓			✓
19.	Paul et al. (2024)		✓						✓			✓
20.	Pool et al. (2013)	✓			✓	✓				✓		
21.	Pracilio et al. (2023)	✓								✓		
22.	Price & Reichert (2017) (MDPI)	✓		✓						✓		✓
23.	Ross et al. (2013)										✓	
24.	Rouleau et al. (2019)								✓			✓
25.	Sapri et al. (2022)		✓						✓			✓
26.	Schumann et al. (2024)				✓							
27.	Shen & Feng (2024)				✓				✓			✓
28.	Vázquez-Calatayud et al. (2021)	✓			✓				✓			✓
29.	Walter & Terry (2021)	✓			✓	✓					✓	
30.	Wehabe et al. (2024) (PMC)	✓			✓	✓	✓	✓	✓		✓	
31.	Wright et al. (2025)		✓		✓		✓		✓			✓
32.	Yu et al. (2022)	✓	✓				✓			✓		
33.	Zhang et al. (2024)		✓		✓		✓		✓	✓		
34.	Alfaleh et al. (2023)	✓							✓			

Table 1 indicates that the literature is concentrated on individual-level determinants (motivation and competence-related factors) and organisational-level determinants (support and structural barriers), whereas policy and regulatory determinants are examined less consistently as

implementation drivers. This pattern suggests that the field has generated strong evidence on why nurses do or do not engage in CPD at the practice level, but weaker integrated models linking policy expectations to organisational implementation mechanisms and longer-term CPD outcomes across career stages (Hakvoort et al., 2022).

3.1 Core Determinants Enabling Nursing CPD Participation

Across the reviewed literature, motivation and perceived relevance to practice are among the most recurrent determinants of CPD participation. Nurses engage more reliably when CPD is explicitly connected to clinical practice needs, role expectations, and tangible improvements in patient care rather than framed as a general professional obligation (Ahmed et al., 2025). This relevance mechanism is reinforced by evidence showing that nurses' expectations for CPD are closely aligned with role-specific competency demands and contextual practice realities, particularly in settings with distinct service requirements (Ma et al., 2023).

A second core determinant involves self-efficacy and professional identity, which function as conversion mechanisms between CPD availability and actual engagement. Access alone is insufficient if nurses lack confidence in their ability to learn effectively, translate new knowledge into practice, or sustain participation amid competing demands. Evidence on motivational profiles for continuing education indicates that self-efficacy differentiates higher- and lower-motivation participation patterns (Liu et al., 2025). Related work links engagement in professional development to professionalism and developmental orientation, suggesting that professional identity can strengthen sustained participation when development pathways are perceived as meaningful and aligned with practice roles (Al-Mahameed & Bani Younis, 2025).

A third core determinant is organisational support, including leadership endorsement, scheduling flexibility, peer support, and managerial prioritisation of learning. Across synthesis work, time pressure, staffing shortages, and service demands emerge as persistent constraints, even among nurses who report strong motivation to participate (Walter & Terry, 2021). These constraints are intensified in resource-limited settings, where CPD access may exist in principle but is undermined by workload intensity, inequitable allocation of opportunities, and weak continuity of implementation support (Khatri et al., 2021).

3.2 Organisational and Delivery Context as Moderating Forces

Beyond motivation and organisational support, the evidence shows that learning design and delivery mode moderate both CPD uptake and effectiveness. Intervention studies indicate that well-designed continuing education formats such as simulation-based peer learning can improve knowledge and confidence when the intervention is aligned with workplace realities and supported through feasible participation conditions (Paul et al., 2024). Systematic review evidence in long-term care similarly emphasises that sustained CPD impact depends on organisational readiness and transfer conditions rather than the delivery format alone (Aleo et al., 2024).

Organisational learning culture also appears as an important moderating condition, particularly through psychological safety, transition support, and the extent to which development is treated as protected work rather than an optional burden added to service delivery. Studies examining professional development in transition contexts indicate that nurses' willingness to engage is shaped by whether teams and organisations normalise learning and actively manage educational and cultural transitions (Schumann et al., 2024). Evidence from leadership and administrator-focused work reinforces that managerial behaviour and institutional norms can mediate feasibility by shaping priority-setting, access, and the credibility of development plans in practice (Alsadaan & Ramadan, 2025).

A further underdeveloped area concerns policy and regulatory integration. Mandatory CPD policies can increase participation pressure, but mandates alone do not resolve access inequities, funding constraints, or staffing shortages. Policy is effective only when translated into organisational processes, protected time, and fair allocation systems that make compliance feasible and development meaningful (Ross et al., 2013). This supports the need for a systems-oriented CPD framework in nursing that explicitly links policy requirements, organisational implementation, and individual motivation within a single explanatory model (Ma, J. J. et al., 2022).

Table 2. Summary of Key Factors Influencing Nursing CPD

Category	Factors identified in the literature
Individual factors	Motivation and practice relevance; competence orientation; developmental goals (Vázquez-Calatayud et al., 2021).
Organisational factors	Leadership/manager support; learning culture; equitable access; practical enablement (King et al., 2021).
Structural barriers	Workload and staffing pressure; limited protected time; scheduling constraints; financial costs (Wehabe et al., 2024).
Learning design factors	Accessible formats (online/blended/simulation) with credible transfer support (Shen & Feng, 2024).
Career and role factors	Career-stage and role trajectory differences shaping needs and constraints (Hakvoort et al., 2022).
Policy/system factors	Mandatory requirements and governance expectations, effective only when translated into operational support (Ross et al., 2013).

Table 2 summarises the determinant domains identified across the evidence base and provides a structured foundation for the conceptual framework developed in this review. The synthesis supports a multilevel interpretation of nursing CPD in which individual willingness is necessary but consistently insufficient without organisational capacity and implementation support (Kurtović et al., 2024).

4. Discussion

This systematic review demonstrates that nursing continuous professional development (CPD) is governed by a multilevel set of determinants that operate interactively rather than independently. The evidence does not support a narrow, individualistic account in which participation is primarily a function of nurses' attitudes or motivation. Instead, engagement becomes unstable when organisational systems fail to provide protected time, managerial endorsement, and practicable learning conditions within routine service delivery (Walter & Terry, 2021). This indicates that CPD participation is better interpreted as an organisational performance issue shaped by how work is designed and resourced than as an individual deficit in willingness to learn. Sustained participation further depends on the extent to which workplace structures normalise learning and create a credible culture of development, such that individual readiness is reinforced rather than undermined by the practice environment (Mlambo et al., 2021).

A second implication is that CPD engagement should be conceptualised as a career-stage process rather than a uniform professional behaviour. Determinants shift across the career trajectory: early-career nurses typically require structured transition support and guided integration into professional roles, whereas experienced and advanced-role nurses are more sensitive to the availability of role-development pathways and the alignment of CPD content with evolving scope and responsibility (Hakvoort et al., 2022). Practically, this undermines “one-size-fits-all” CPD models. Nursing management should treat CPD as a segmented capability pathway, designed around career phase and role trajectory, if participation and relevance are to be optimised.

Leadership and workplace culture also emerge as decisive, not only for attendance but for whether learning is translated into clinical practice. When supervisors actively legitimise CPD, align development with clinical priorities, and protect learning as part of the work system, nurses report stronger application of new knowledge and skills in patient care settings (Yu et al., 2022). Conversely, when CPD is framed and managed as compliance, participation tends to become procedural and the practical value of learning is diluted, because transfer conditions are not built into the operational environment.

The review further highlights that delivery modality and implementation fit are not secondary concerns; they shape feasibility and equity of access. Although barriers vary by setting, the recurring constraints are structural workload intensity, staffing shortages, scheduling conflict, and uneven access to accredited opportunities. Evidence from service-pressured contexts indicates that participation improves when organisations combine practice-relevant content with feasible scheduling, visible managerial support, and delivery models that match workplace realities, including blended and workplace-embedded approaches (Hamukoto et al., 2025). This reinforces the argument that CPD effectiveness depends on implementation architecture, not merely on the existence of training options.

Overall, the synthesis supports a strategic shift from compliance-oriented CPD to enabling CPD systems. The core question is not whether nurses value professional development, but whether organisations and health systems construct the operational conditions time protection, staffing coverage, supportive leadership, and transfer mechanisms through which CPD can be sustained and converted into improved practice (Kurtović et al., 2024). Under this interpretation, CPD should be managed as a workforce capability strategy integrated into service planning and governance,

rather than treated as an episodic educational requirement detached from the realities of clinical work.

5. Gap Within the Literature

Despite a growing body of research on nursing continuous professional development (CPD), several substantive gaps continue to constrain cumulative theory building and evidence-based implementation.

First, conceptual and measurement heterogeneity remains a persistent limitation. Studies frequently report “barriers” and “facilitators,” yet they operationalise CPD engagement using inconsistent definitions, varying indicator sets (e.g., attendance, hours, self-reported participation, motivation scores), and non-aligned outcome measures. This weakens comparability across settings and reduces the precision of synthesis-level inferences (Hakvoort et al., 2022). The problem is particularly evident where motivation, competence, and organisational variables are analysed together without an explicit model specifying how these determinants are expected to interact and at what level (individual versus unit or organisational).

Second, the evidence base is methodologically dominated by cross-sectional and single-site designs, limiting understanding of how determinants change over time. CPD participation is inherently dynamic because nurses’ developmental needs, role expectations, staffing conditions, and organisational constraints shift across career transitions and service contexts. However, relatively few studies trace determinant trajectories longitudinally or examine how career-stage transitions modify the balance between individual readiness and workplace enablement (Mlambo et al., 2021). This limits the field’s ability to distinguish transient participation barriers (e.g., temporary workload surges) from persistent structural constraints (e.g., chronic staffing deficits or enduring access inequities).

Third, determinant-to-outcome pathways remain under-specified and under-tested. Much of the literature assumes that stronger motivation, better organisational support, or improved access will translate into improved practice, care quality, or workforce outcomes, yet these causal mechanisms are rarely examined directly. Although intervention and effectiveness studies contribute valuable evidence on learning gains and feasibility, robust testing of whether particular determinant profiles

predict sustained behavioural transfer and downstream outcomes remains limited (Aleo et al., 2024). Consequently, the evidence is stronger on conditions associated with participation than on the mechanisms through which participation produces durable clinical or organisational impact.

A further gap concerns the lack of integrated multilevel analytic models. Reviews highlight broad patterns and single-context studies provide depth, but relatively few studies simultaneously model personal determinants (motivation, confidence), organisational determinants (learning culture, leadership support, workload conditions, access structures), and system-level determinants (policy requirements, governance mechanisms) within one explanatory framework. This leaves unresolved questions about interaction effects (e.g., whether leadership support buffers workload constraints) and about which configurations of determinants are most predictive of sustained engagement and learning transfer. Future research would be materially strengthened by multilevel mixed-method and longitudinal designs that capture both CPD participation and post-CPD application in practice, while incorporating policy and governance variables as explicit determinants rather than background context (Walter & Terry, 2021).

5. Conclusion

This review concludes that nurses' engagement in continuous professional development (CPD) is shaped by a stable set of interrelated determinants spanning individual motivation, career-stage needs, organisational support, and wider system conditions. Nurses generally recognise CPD as essential for maintaining competence and strengthening care quality; however, participation becomes inconsistent when learning is not supported by protected time, adequate staffing coverage, supportive leadership, and practical access to relevant learning opportunities. These findings support a systems-based interpretation of CPD in which sustained participation depends on alignment between nurses' developmental goals and the operational capacity of workplaces to enable learning as part of routine service delivery.

For nursing management and policy, the key implication is that CPD uptake improves when institutions align professional development expectations with operational realities. Protected learning time, credible supervisory support, career-stage differentiated pathways, and delivery formats that are feasible within work patterns should be treated as core structural requirements

rather than optional enhancements. When these conditions are established, CPD is more likely to be equitable, sustained, and translated into improved practice rather than reduced to procedural compliance.

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