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### An overview of global CME/CPD systems

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#### ABSTRACT

**Purpose:** Engagement in CME/CPD has a positive impact on healthcare professionals' (HCPs) knowledge, skills, and performance, and on patient outcomes, therefore it is critical to better understand the components of CME/CPD systems that foster engagement, high-quality education, and impact.

**Methods:** An assessment of CME/CPD systems was conducted using a mixed-methods approach that included interviews with in-country subject matter experts and qualitative and quantitative data from practicing in-country physicians.

**Results:** Results demonstrate areas of consistency in CME/CPD systems across world regions that included: types of educational providers; types of credit; educational formats; self-tracking of participation; high-degree of compliance when education is mandatory; overall satisfaction with available education; strong support for interprofessional education; and lack of alignment or evaluation of engagement in education with population health outcomes. Areas of variation included: whether engagement in education is required as a condition to practice medicine; whether regulations are uniformly applied; if mechanisms to ensure independence existed; and physician perceptions of independence.

**Conclusion:** Results of this assessment maybe used by a variety of different stakeholders to assess how well country-level CME/CPD systems are meeting the needs of practicing physicians and determine what, if any, changes might need to be implemented to improve outcomes.

#### ARTICLE HISTORY

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#### KEYWORDS

Continuing medical education; continuing professional development; global assessment; CME/ CPD systems

#### Introduction

Globally, healthcare professionals (HCPs) are committed to engage in lifelong learning across the education continuum, from undergraduate (duration 4–8 years), through post-graduate (duration 1–5+ years). For physicians, continuing medical education (CME)/continuing professional development (CPD) is an expectation for continued competency for a duration of 30+ years, yet the CME/CPD systems that support that engagement vary widely around the world.

There is a robust body of evidence to demonstrate that engagement in CME/CPD has a positive impact on HCPs'/ physicians' knowledge, skills, and performance, and has a positive impact on patient outcomes [1]. Therefore, it is critical to better understand the components of CME/CPD systems that foster engagement, high-quality education, and impact.

This manuscript presents a summary of findings from assessments of CME/CPD systems in 38 countries and builds on a report published by the United Kingdom's General Medical Council (GMC) on CPD systems for physicians in 27 countries [2]. This summary expands on the previous GMC report by incorporating the perspectives of

#### **Practice points**

- There is a robust body of evidence to demonstrate that engagement in CME/CPD has a positive impact on HCPs' knowledge, skills, and performance, and has a positive impact on patient outcomes.
- It is critical to understand the components of CME/CPD systems that foster HCP engagement, high-quality education, and impact.
- There are several areas of consistency in CME/CPD systems globally, although they may still be considered as potential opportunities for improvement.
- Variation among CME/CPD systems globally tend to reflect differences in regulatory requirements and independence from the influence of commercial interest organizations.
- Comparison of global CME/CPD systems to best practices may be used to evaluate system maturity and provide physicians and country leaders with opportunity to determine what, if any, changes might be implemented to improve outcomes.

in-country subject matter experts (SMEs) as well as

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practicing physicians through focus groups and surveys, and by incorporating evaluation of more contemporary educational models, such as team-based or interprofessional continuing education (IPCE).

The purpose of this summative manuscript is to describe the global landscape of physician CME/CPD systems that currently exist, compare those systems to evidence-based best practices in CME/CPD, and to provide recommendations that may be adopted or adapted by countries to improve their own CME/CPD systems and positively impact the health of their own populations.

In this assessment, CME and CPD were defined as:

- Continuing Medical Education (CME) educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession (ACCME, 2022) [3].
- Continuing Professional Development (CPD) involves not only educational activities to enhance medical competence in medical knowledge and skills, but also in management, team building, professionalism, interpersonal communication, technology, teaching, and accountability [4].

In this assessment, interprofessional continuing education (IPCE) was defined as:

 Interprofessional Continuing Education (IPCE) when members from two or more professions learn with, from, and about each other to enable effective collaboration and improve health outcomes. IPCE relates to practicing health care professional team-based education. In comparison, interprofessional education (IPE) relates to health care students (undergraduate) [5].

In this assessment, independent CME/CPD was defined as:

CME/CPD for which financial, or in-kind, contributions • given by a commercial interest, which is used to pay all or part of the costs of an activity. The definition of roles and requirements when commercial support is received are outlined in the ACCME Standards for Commercial Support and although this is a US-based organization, it is accepted as the standard for defining roles and responsibilities. The commercial supporter cannot be involved in the planning, delivery, or evaluation of the educational activities, and all decisions are made by the educational provider (Adapted from IACPD, 2019) [6]. Note: The 'ACCME Standards for Commercial Support' are now the 'Standards for Integrity and Independence in Accredited Continuing Education' and 'commercial supporter' is now 'ineligible company.'

#### **Review of the literature**

One premise underpinning CME/CPD systems globally is a belief that it is critical for physicians and other HCPs to engage in CME/CPD once they graduate from their formal academic training programs. Once formal training concludes, physicians will be practicing in complex systems with new evidence being produced exponentially faster each day. Without engaging in CME/CPD, they will not be able to remain competent and provide up-to-date, evidence-based care [7].

#### Evidence supporting engagement in CME/CPD

The relationship between CME/CPD and HCP performance and patient outcomes has been studied extensively since the 1960s and results demonstrate that CME/CPD improves HCP performance and patient health outcomes; that the relationship between CME/CPD and HCP performance is stronger than that between CME/CPD and patient health outcomes; and that CME/CPD is more effective when it is more interactive, uses multiple formats, is longitudinal, and is focused on outcomes that are relevant to the HCP [1].

An overview of the learning requires a process of encoding, consolidating, and then retrieving information [8]. Therefore, CME/CPD is most effective when it is interactive (frequent and deliberate practice); uses multiple formats (interleaving new and old content and elaborating or varying content); and is longitudinal (distributed or spaced practice and retrieval practice) [1,8]. There is also evidence that using spaced education pedagogy may be more effective at increasing clinical knowledge and changing practice as compared to 'one and done' models of education delivery [9].

In 2018, Moore et al. [10] shared a conceptual framework describing best practices that facilitate learning in CME/CPD and IPCE. This framework embeds the scientifically based learning science strategies described by Van Hoof and Doyle to promote active and engaged learning; incorporate deliberate practice, assessment, and feedback; and facilitate the transfer of learning into applied practice.

The National Academies of Sciences, Medicine, and Engineering (NASEM) report 'How People Learn II' [11] incorporates the need to integrate an understanding and appreciation of context and culture into the learning environment for education to be most effective. The report highlights that the content of education must be contextually relevant and important to learners and that learning environments are socially constructed and shaped by the cultures in which they exist [11]. They describe learning as hard work requiring significant emotional energy and impacted by physical influences, such as nutrition and sleep, all important factors when considering the context of the health care practice environment and CME/CPD for HCPs.

## Health care professional educators (HPEs) and CME/CPD

HPEs need to be facile leaders who strive to foster learner self-reflection, stimulate learner curiosity, and build learner problem-solving skills [7,12,13]. HPEs also need to use active learning strategies that increase learner engagement as increased engagement is associated with improved educational outcomes [14,15]. Finally, HPEs must be able to integrate performance and practice data and provide real time feedback to help learners grow [16].

The impact of cognitive load theory (CLT) within the context of memory and retrieval is also important to consider in the development of effective CME/CPD. HPEs need

to understand the implications of CLT including intrinsic load, extrinsic load, and germane load to ensure that the instructional techniques employed, and sequenced delivery of content are aligned with the development stage of the learner. HPEs also need to understand that some techniques for engaging learners in new content may not be successful when engaging more mature learners who may also have to 'unlearn and relearn' knowledge and skills [17].

HPEs need to support HCPs in becoming 'master adaptive learners' across the education continuum. Master adaptive learners have the skills necessary to independently identify a question or problem, and then follow a framework of planning, learning, assessing, and adjusting their clinical practice [18]. HPEs can support the development of adaptive expertise by using such strategies as presenting case studies or practice-based challenges in CME/CPD, helping to engage learners in the processes of self-reflection, supporting learners to use critical-thinking skills to assess and analyze, and fostering innovation.

Finally, HPEs must also evolve their evaluation skills to better understand the impacts of their CME/CPD programs, moving away from measuring participation, satisfaction, and knowledge gain to more impactful measures, such as practice change, communication and collaboration skills, and networking/community [19]. In addition, HPEs are increasingly developing CME/CPD based on competency-based or performance based medical education, a heutagogical learning theory, a focus on capabilities, rather than competencies; and a post-modern perspective [20].

#### **Evidence supporting engagement in IPCE**

The need for physicians/HCPs to engage in team-based or IPCE is also well documented as a critical strategy to improve collaborative practice, reduce errors, and improve patient health outcomes [21]. Leading global organizations including the World Health Organization, the Institute of Medicine (now the National Academies of the Sciences, Engineering, and Medicine), and the Josiah Macy Jr. Foundation have consistently called on the HCP community to embrace and invest in IPCE [22–25]. Accrediting bodies, such as the Accreditation Council for Continuing Medical Education, the Accreditation Council for Pharmacy Education, and the American Nurses Credentialing Center have collaborated to develop standards for organizations that plan, evaluate, and implement IPCE in an effort to encourage more organizations to develop team-based education [26].

Engaging in team-based education has been shown to positively influence the motivation of physicians/HCPs to engage in lifelong learning [27]. Applying a social theory of learning lens to analyze outcomes of CPD programs is also critical to achieving results as one study by Allen et al. demonstrated [28], with themes of interactivity, mutual engagement, and negotiation of meaning found to be critical to the social process of learning—outcomes that may be fostered through more engagement in interprofessional CE.

#### Previous assessment of global CME/CPD systems

In July 2011, the General Medical Council (GMC) published a summary report of CME systems that built upon three previously published reports of smaller scale. The report focused solely on physicians and included details from 27 countries (Europe—16; Australasia—2; North America—3; Africa—2; Asia—4).

As reported in 2011, there was a movement to mandate physician participation in CME by governmental or regulatory bodies. In countries where physician participation remained voluntary, physicians were encouraged to engage. In countries where engagement in CME was mandatory, standards or guidelines for participation generally existed. Engagement was most often required and reported as annual credits earned for participating in CME activities, and credits were more often represented as 1 h of CME = 1 credit. Some countries dictated that physicians participate in a specific type of CME activity and/or a certain number of credits in a specific topic area. Consequences of failure to participate in mandatory CME varied widely and were reported as difficult to track and enforce.

Auditing was the method most often used to assess compliance with mandatory participation requirements. Physicians were expected to keep records of their participation and provide evidence to the responsible authority when/if required.

Accreditation of CME activities and/or providers did exist in these 27 countries and most often were delegated to a regulatory or medical association/society. There was no description of the rigor or standards of accreditation in the report, just that an accreditation process did exist.

Revalidation, or the process of renewing a license or certification required to practice medicine, did exist in some of the countries in the 2011 report. Generally, if revalidation was required, participation in CME was a required component. Physicians were most often required to attest to their participation and provide proof if audited.

In a study [29], researchers evaluated 27 European countries' CME systems to determine whether e-learning systems could be used as effective methods in Europe for CME delivery. Results indicated that 26 of the 27 countries had a CME system. The study found that most of the CME systems had similar requirements, accreditation and acknowledged e-learning as a method for CME [29]. This study demonstrated similarities, but variances were also noted, giving support to assess CME/CPD systems to identify opportunities for CME/CPD standardization.

Supplementary Appendix A are summary table of the CME/CPD and regulatory requirements for each country included in this assessment.

#### Summary

This review of the literature forms the basis for the need to update the characteristics of CME/CPD systems globally and supports the purpose of this assessment of the current state of physician CME/CPD systems, to compare best practices, and to share recommendations to enhance physicians CME/CPD systems globally. As countries continue to refine their own systems to maximize physician/HCP performance and achieve desired patient/population health outcomes, the systems must be based on the best available evidence to achieve success. There is an established body of evidence in the literature that supports the need for physicians/HCPs to engage in CME/CPD, and increasingly the need to engage in IPCE. There is also robust evidence to describe the best methods for engaging and motivating adult learners, creating high-quality educational activities, and developing health professions educators. This assessment of CME/CPD systems incorporates an updated description of the characteristics of each CME/CPD system by country as well as recommendations from In-Country SMEs and practicing physicians/HCPs. The results of these assessments may be used by country leaders to evaluate their own systems and implement changes, if needed, to maximize success.

#### **Assessment design**

This is a mixed-methods assessment of CME/CPD systems in different countries/regions of the world. The Association of Medical Education in Europe (AMEE) conducted this assessment in four separate regions—China, Europe, Latin America, and the Middle East/North Africa. The assessment was funded by an independent educational grant and was led by a global health professions educator (HPE) in collaboration with Regional subject matter experts (Regional SMEs) and In-Country subject matter experts (In-Country SMEs).

#### **IRB** approvals

This assessment was conducted in accordance with the principles embodied in the Declaration of Helsinki and in accordance with local statutory requirements. Formal IRB approval was obtained by the Regional SMEs and authors in Latin America and China.

#### Assessment aims

Describe the current requirements, if any, for physicians to engage in CME/CPD in each country or province.

- Explore the perceptions of In-Country SMEs as they relate to their specific CME/CPD systems.
- Describe the perceptions of In-Country physicians as they relate to their specific CME/CPD systems to include IPCE and independent CME/CPD.
- Compare and contrast these regional assessments to best practices in CME/CPD to better understand current gaps (final overarching summative report).
- To provide recommendations that may be adopted by organizations/countries to improve the quality and effectiveness of their current CME/CPD systems and better meet physician and other health care professionals' learning needs.

#### **Regional and in-country SMEs**

Regional SMEs were used to facilitate the recruitment of In-Country SMEs and to provide translation as needed. There was one Regional SME for each assessment conducted in China, Latin America, and the Middle East/North Africa and one In-Country SME for selected countries, provinces, or municipalities within each region. While there was effort to recruit In-Country SMEs for all countries within each region, some were not available or accessible. In the European assessment, there was one In-Country SME for each selected country who was recruited by the HPE. Regional SMEs were not used in the European assessment as all In-Country SMEs spoke English and translation during the interviews was not needed.

Regional SMEs were selected because of their close affiliation with AMEE and their broad knowledge of their respective regions. All held leadership positions within their organizations and countries. Each of the Regional SMEs had demonstrated involvement in the CPD systems and processes within their respective regions and had access to the most recent guidelines and accreditation requirements (if they existed). The In-Country SMEs were recruited by the appropriate Regional SME or HPE based on their knowledge and experience with the CME/CPD systems within their countries and demonstrated recent experience with the CPD systems and accreditation requirements in their countries. They were interviewed by the HPE leading the project before being accepted as the In-Country SME.

Countries (or provinces/municipalities) with an In-Country SME included:

- China (7): Beijing (municipality), Changsha (Hunan province), Chengdu (Sichuan province), Guangdong (province), Hangzhou (Zhejiang province), Shanghai (municipality), Xian (Shaanxi province).
- Europe (14): Austria, Croatia, Finland, France, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Turkey, United Kingdom.
- Latin America (11): Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Peru, Uruguay, Venezuela.
- Middle East/North Africa (12): Algeria, Kingdom of Bahrain, Dubai (UAE), Egypt, Israel, Jordan, Kingdom of Saudi Arabia, Kuwait, Lebanon, Morocco, Oman, Qatar.

#### Participants

Recruitment methods for countries for participation in the quantitative survey included methods, such as direct email invitations from In-Country SMEs, emails through the AMEE mailing list, sharing, and posting on social media platforms including but not limited to Twitter/X and LinkedIn.

A total of 4348 physicians were included in these assessments across China, Europe, Latin America, and the Middle East/North Africa. In each assessment, physicians from some countries (or provinces/municipalities) responded in greater numbers therefore results are more reflective of those perspectives, specialties, and practice settings.

#### Data collection

The mixed-methods assessment strategy was employed in a 3-pronged approach that included 1:1 interviews with In-Country SMEs facilitated by a Regional SME (as needed), and an electronic survey (Supplementary Appendix B, Survey) to capture both quantitative and qualitative data from in-country physicians. The survey that was used to capture data from in-country physicians was used in two previous assessments conducted in Japan and the Asia-Pacific region; therefore, the results of these assessments provide an opportunity to compare results globally. Each In-Country SME participated in a 1:1 focused interview with the HPE and Regional SME (Regional SMEs only in China, Latin America, Middle East/North Africa) to provide an overview of his/her CME/CPD system. In-Country SMEs used PowerPoint presentations and open discussion to deliver the content. Interviews lasted between 30 and 60 min and were guided by the HPE using a standard set of questions (Supplementary Appendix C, Interview Questions). If translation was needed, the Regional SME provided the service. Country level data were summarized in table format and sent back to the In-Country SME for validation. In-Country SMEs confirmed the data and/or made changes to ensure the data were accurate.

The electronic survey that was used to capture quantitative and qualitative data from in-country physicians was translated into native language by the Regional SME and/ or In-Country SME. Once translation was complete, the survey was disseminated electronically by In-Country SMEs who also engaged partner organizations if needed. Purposive, heterogeneous sampling was used to access respondents as the aim of this assessment was to capture the perceptions of physicians who represented diversity across specialties, practice settings, age, and experience. Respondents self-selected to participate. No incentives for participation were provided.()

Following each survey close, data were downloaded and sent to the Regional SME for translation if needed.

#### Data analysis

Quantitative analyses were conducted using IBM SPSS Statistical software Version 28 and included descriptive statistics (mean, standard deviation, %). Thematic analysis was conducted on the qualitative data collected *via* the survey (e.g. open response questions) with aggregated and

Table 1. Demographic characteristics of respondents.

summarized comments by overall theme as they related to the survey item. The six-step process used for thematic analysis: familiarization, coding, generating themes, reviewing themes, defining and naming themes, and writing up themes was followed for this analysis [6]. Qualitative analysis was conducted on the interview responses and openended questions on the survey. This manuscript is an aggregate summary of findings from the regional assessments. To assure duplicates were not counted more than once, the researchers deduplicated the survey responses before conducting the analysis.

#### Assessment findings

Select key elements of CME/CPD aggregate results for each assessment are reported in this manuscript. Supplementary Appendix A includes summary tables for each country.

#### Demographics (Table 1)

China had the most physician respondents to the survey, followed by Latin America, Middle East, and Europe. Table 1 provides details of the volume of respondents in the quantitative survey that had the most influence on assessment findings.

In all regions, more respondents were from general practice or internal medicine/medical specialty than any other specialty or sub-specialty. An analysis of those who selected 'other' also included a large number of respondents who noted practice in specific medical specialty areas. In aggregate, there was little representation from respondents practicing in surgery, surgical subspecialty, pediatrics, psychiatry, or obstetrics/gynecology. Most respondents practiced in a hospital setting, though some respondents selected multiple settings that most often also included a hospital (e.g.

	China	Europe	Latin America	Middle East	North Africa
Number of respondents included in analysis (N)	2951	270	708	374	45
Specialty area of practice (%)					
General practice	15.5%	13.3%	45.9%	25.4%	77.8%
Internal medicine	9.3%	7.4%	8.6%	13.6%	15.6%
Internal medicine subspecialty	13.2%	13.3%	12.4%	12.6%	0
Pediatrics	6.7%	7.8%	7.2%	20.1%	6.7%
Surgery	5.0%	3.0%	8.1%	7.5%	0
Surgery specialty	9.0%	8.5%	6.6%	4.8%	0
Obstetrics/gynecology	6.3%	3.0%	3.1%	16%	0
Psychiatry	1.6%	1.1%	8.1%	0	0
Other	33.3%	42.2%	0	0	0
Place of employment (%)					
University hospitals	28.7%	42.6%	12.1%	32.1%	17.8%
Affiliated hospital	N.D.	4.1%	3.2%	8.6%	2.2%
Government hospital	N.D.	5.2%	26.4%	22.2%	24.4%
Teaching hospital	7.2%	N.D.	N.D.	N.D.	N.D.
Other public hospital	37.2%	N.D.	N.D.	N.D.	N.D.
Private hospital	7.4%	N.D.	N.D.	N.D.	N.D.
Community hospital	10.5%	5.9%	8.5%	0	0
Medical college (as teaching faculty)	0.8%	10.4%	12.6%	5.6%	4.4%
Other (non-specified)	5.6%	25.2%	33.2%	23%	37.8%
l do not do clinical work	2.6%	6.7%	4%	1.9%	0
Years since graduation (%)					
<6	22.1%	9.6%	19.6%	9.4%	17.8%
6–10	19.0%	7.8%	13.4%	9.6%	8.9%
11–15	21.2%	8.1%	11.6%	14.7%	24.4%
16–20	14.4%	14.4%	12.3%	11.2%	15.6%
21–25	11.0%	13.0%	7.2%	11.2%	6.7%
>25	12.3%	40.0%	34.2%	40.6%	22.2%
Average number of patients seen per day (mean/SD)	N = 2660	N = 208	N = 512	N = 361	N = 45
	28.07 (28)	15.56 (11)	17.85 (12)	19.35 (17)	23.87 (19)

Table 2. Perspectives of in-country physicians: awareness and participation	Table 2.
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	China	Europe	Latin America	Middle East	North Africa
Number of respondents included in analysis (N)	2951	270	708	374	45
Aware of CME/CPD system in country (%)					
Yes	31.2%	78.5%	41.0%	53.7%	31.1%
No	19.0%	4.8%	22.2%	14.2%	17.8%
Not sure	49.8%	9.3%	25.6%	16.6%	22.2%
There is no formal system		7.4%	11.3%	15.5%	28.9%
Hours of CME/CPD in past year					
0	26.0%	8.9%	27.3%	27.5%	31.1%
1–10	N.D.	20.7%	N.D.	N.D.	N.D.
11–20	36.5%	13.3%	21.0%	28.6%	20.0%
21–30	13.9%	9.6%	11.0%	12.0%	13.3%
31–40	7.8%	10.7%	9.0%	10.7%	17.8%
41–50	9.7%	16.7%	14.8%	10.7%	6.7%
>50+	6.0%	20.0%	16.8%	10.4%	11.1%
CME/CPD available meets my needs					
Strongly agree	13.1%	23.3%	12.9%	23.0%	28.9%
Agree	68.4%	53.7%	51.3%	48.9%	35.6%
Disagree	16.8%	18.9%	26.6%	19.3%	15.6%
Strongly disagree	1.7%	4.1%	9.3%	8.8%	20.0%
Participation in CME/CPD should be compulsory					
Strongly agree	11.7%	39.3%	33.9%	29.9%	86.7%
Agree	45.9%	48.1%	46.8%	51.1%	8.9%
Disagree	38.7%	11.5%	15.5%	15.2%	4.4%
Strongly disagree	3.7%	1.1%	3.8%	3.7%	
Interprofessional CE is needed					
Yes	82.1%	71.9%	84.5%	79.4%	91.1%
No	6.5%	5.2%	2.5%	3.7%	0
Not sure	11.4%	11.9%	10.7%	14.7%	8.9%
Missing	0	11.1%	2.3%	2.1%	0

Table 3. Perspectives of in-country physicians: independence and commercial influence/bias.

	China	Europe	Latin America	Middle East	North Africa			
Number of respondents included in analysis (N)	2951	270	708	374	45			
CME/CPD in my country is free from control by pharma	ceutical or other co	ommercial interes	sts					
Strongly agree	12.6%	14.4%	5.5%	12.3%	37.8%			
Agree	63.1%	35.6%	35.5%	41.2%	15.6%			
Disagree	22.5%	29.3%	34.7%	24.3%	24.4%			
Strongly disagree	1.8%	5.6%	8.3%	5.3%	17.8%			
Missing	0	15.2%	16.0%	16.8%	4.4%			
I have participated in CME/CPD that has been developed by independent CME/CPD providers with financial support from pharmaceutical or other								
commercial interest organizations								
Yes	65.8%	58.5%	50.4%	52.1%	73.3%			
No	34.2%	26.3%	33.6%	31.0%	22.2%			
Missing	0	15.2%	16.0%	16.8%	4.4%			
CME/CPD funded by pharmaceutical or other commercial interest organizations can be free from bias								
Strongly agree	8.4%	6.3%	10.0%	8.8%	35.6%			
Agree	50.2%	35.2%	39.0%	39.8%	33.3%			
Disagree	39.5%	30.4%	27.4%	29.4%	17.8%			
Strongly disagree	1.9%	11.1%	7.6%	5.1%	8.9%			
Missing	0	17.0%	16.0%	16.8%	4.4%			

Table 4. Perspectives from in-country physicians: what independence in CME/CPD means.

			Latin	Middle	North
	China	Europe	America	East	Africa
Number of respondents included in analysis (N)	2951	270	708	374	45
CME/CPD that is developed by an independent CME provider with financial support					
from pharmaceutical or other commercial interest organizations means					
Pharma or commercial interest must review and approve all content	37.2%	13%	11.7%	16.3%	11.1%
Pharma or commercial interest can suggest speakers	35.6%	25.2%	24.6%	26.7%	42.2%
Pharma or commercial interest works with the educational provider to develop content	54.1%	25.6%	21.2%	23.8%	26.7%
Pharma or commercial interest has no influence on content and speaker selection	44.3%	25.6%	16.0%	22.5%	24.4%
Content is developed independently by the education company to address the needs of learners	40.5%	28.9%	20.5%	22.2%	31.1%
l don't know	17.6%	13.0%	20.1%	19.5%	8.9%

hospital and medical school; hospital and private practice). Years of experience (captured by survey item 'years since graduation' were relatively evenly distributed in the China and North Africa assessments, but more heavily weighted towards physicians with more than 25 years of experience in the European, Latin American, and Middle East assessments. Most respondents in all regions practiced clinically and reported seeing patients. Physicians in China reported the highest patient per day ratio (average of 28 patients/day) while physicians in Europe reported the lowest patient per day ratio (average of 15–16 patients/day).

#### **Characteristics of CME/CPD systems**

Descriptions of CME/CPD systems were provided by In-Country SMEs and are reported in detail in each regional assessment manuscript. A summary of the characteristics of CME/CPD systems from the regional assessments is provided below.

#### Licensing or regulatory agency to practice medicine

In all countries (or provinces/municipalities) included in this assessment, there is a licensing or regulatory agency with the authority to grant and govern the practice of medicine. Generally, that authority rests with a governmental body but may also rest with a council or college of physicians. If CME/CPD is required to practice medicine, the same agency may be responsible for setting those requirements, monitoring compliance, and implementing sanctions if needed or may delegate some or all of that responsibility to another agency. If delegated, the responsible agency is often one that is focused on continuing education for physicians, a medical council/committee, a local government agency, or a local hospital. If CME/CPD is not required to practice medicine, there is likely no regulatory body monitoring compliance however some countries do have professional organizations that continue to encourage and support physician participation. Participation in CME/ CPD may not be required by the governing body to practice medicine but may be required or strongly encouraged by physician employers.

#### CME/CPD requirements to practice medicine

Of the 44 countries (or provinces/municipalities) included in this assessment, 20 (45%) countries require participation in CME/CPD to practice medicine for all physicians, and 3 (7%) countries require participation for specialist physicians only. There is no requirement for physicians in the other 21 (48%) countries to participate in CME/CPD as a condition to maintain a license and/or practice medicine. If CME/CPD participation is required, the number of required credits generally ranges from 20 to 50 per year with countries in Europe requiring the most hours annually as compared to other countries in this assessment. In the Latin American assessment, several In-Country SMEs noted that the move to mandatory participation in CME/CPD was strongly opposed by practicing physicians, citing inability to access, high-cost, and mistrust of the system as primary barriers.

#### **CME/CPD** providers

In all countries, multiple types of organizations can provide CME/CPD. Most often, CME/CPD providers include hospitals, professional associations, universities, and private education companies. In countries with regulated, structured systems, pharmaceutical companies most often are not permitted to directly provide CME/CPD though they may help with funding or in-kind support. In countries without regulated, structured systems, pharmaceutical companies can and often do provide CME/CPD.

#### CME/CPD formats, credit systems, and sanctions

In all countries included in this assessment, CME/CPD is provided in multiple different types of formats that include content delivered live and in-person, content delivered live or recorded *via* web-based platforms, and self-directed learning activities. Most countries have some CME/CPD credit system which is most often based on hours of participation to earn hours of credit. Some CME/CPD systems have incorporated points rather than hours of credit and may use sliding scales to determine the number of credits that may be awarded based on pre-established criteria that reflect the quality of the education (e.g. more credit awarded for higher quality education). Even in countries where CME/CPD credit is not needed for revalidation, credit may be awarded.

As described by Regional and In-Country SMEs, most countries in this assessment, physicians maintain a record of their own participation in CME/CPD even if participation is not required to practice medicine. Of the countries in this assessment, only Austria and Qatar have implemented a mandatory, comprehensive, country-level tracking mechanism for physician participation. In most countries, physicians have the option of submitting evidence of their participation to an accrediting or regulatory body. In countries with mandatory participation, physicians generally attest to meeting the required number of credits or points and may be audited by the responsible authority on a periodic basis to validate compliance. As described by Regional and In-Country SMEs, in countries with mandatory participation, there is generally high compliance with participation in CME/CPD and few sanctions implemented for failure to participate even if the regulatory authority has the right to implement those sanctions.

#### Commercial interest organizations

Regulations that limit the influence of commercial interest organizations in CME/CPD systems in the countries included in this assessment varied widely. Reported in this assessment by Regional SMEs and if an effective accreditation system exists in more regulated and structured systems, the influence of commercial interest organizations is strictly limited whereby commercial interest organizations may provide funding to support CME/CPD but have no ability to provide CME/CPD directly or to control the content of CME/CPD provided by others. In other countries that have little to no regulatory structure, commercial interest organizations may directly provide CME/CPD or may influence the content of CME/CPD that is developed and provided by other organizations.

#### **IPCE**

Among the countries in this assessment, there is little investment in, and physician engagement in IPCE. Most In-Country experts described IPCE availability as rare except for countries in Europe and the Middle East where IPCE is more commonly available and encouraged. In-Country experts described IPCE as an opportunity for improvement in their systems.

## Quantitative survey data—Perspectives of in-country physicians: Awareness and participation (Table 2)

From analysis of the quantitative survey findings that included perspectives from in-country physicians, the majority of physicians in Europe, Latin America, the Middle East, and North Africa were aware of their CME/CPD system. In China, more respondents were unsure of the CME/ CPD system despite much of the country having a structured and regulated system. Most respondents in China, Latin America, the Middle East, and North Africa participated in 20 or fewer hours of CME/CPD in the previous 12 months. These results may have been impacted by the COVID-19 pandemic, as survey data were collected between 2020 and 2022. In Europe, the majority of respondents participated in 21 or more hours of CME/CPD in the previous 12 months. The European survey was launched in May 2022 therefore the impact of COVID on hours of participation may have been less. Most respondents in this assessment agreed or strongly agreed that the CME/CPD available to them meets their needs and that participation in CME/CPD should be compulsory. There was strong support in every region for the need to engage in IPCE.

# Quantitative survey data—Perspectives of in-country physicians: Independence and commercial influence/ bias (Table 3)

The majority of respondents in China, Europe, the Middle East, and North Africa agreed or strongly agreed that the CME/CPD in their countries is free from control by pharmaceutical or other commercial interests, despite the differences among the CME/CPD systems that address independence at the country level. More respondents in Latin America disagreed or strongly disagreed that the CME/CPD in their countries was free from the control of pharmaceutical or other commercial interests as compared to respondents from the other regions. There are fewer restrictions for pharmaceutical or other commercial interest organizations in Latin America as compared to the other countries in this assessment therefore that finding may be expected. Most respondents from all regional assessments have participated in independent CME/CPD that was funded by a pharmaceutical or other commercial interest organization. More respondents in the North Africa assessment agreed or strongly agreed that CME/CPD funded by pharmaceutical or other commercial interest organizations could be free from bias despite the countries having no regulated CME/CPD system and with most CME/CPD provided by the pharmaceutical industry. More respondents in the China assessment disagreed or strongly disagreed that CME/CPD funded by pharmaceutical or other commercial interest organizations could be free from bias, and as there has been a significant effort in China to implement regulations that limit undue influence, this may be reflected in responses.

## Quantitative survey data—Perspectives of in-country physicians: What independence in CME/CPD means (Table 4)

Perspectives of in-country physicians related to independence in CME/CPD were explored in several survey item questions. Respondents were provided with the definition of independent CME/CPD for reference before responding to the survey item to help ensure that respondents were aware of the elements of independence (e.g. CME/CPD for which financial, or in-kind, contributions given by a commercial interest, which is used to pay all or part of the costs of an activity. The commercial supporter cannot be involved in the planning, delivery, or evaluation of the educational activities and all decisions are made by the educational provider).

When respondents were asked to select statements that reflected elements of independence in relation to developing CME/CPD (e.g. what a pharmaceutical or other commercial interest organization can or cannot do when providing financial support) a relatively large number of respondents across all regions agreed with statements that violate the principles of independence. For example, the following statements all demonstrate a violation of the principles of independence, yet in the China assessment, 35–54% of respondents agreed that statements 1–3 reflected independent CME/CPD and more than 40% of the respondents from North Africa agreed with statement 2 below.

- 1. Pharma or Commercial Interest must review and approve all content.
- 2. Pharma or Commercial Interest can suggest speakers.
- 3. Pharma or Commercial Interest works with the educational provider to develop content.

When agreeing with statements that did reflect independence in CME/CPD, more respondents from the China assessment agreed than those from any other region.

# Quantitative survey data—Perspectives of in-country physicians: Missing from CME/CPD systems and barriers to participation (Table 5)

Respondents from all regions were relatively consistent in describing what is missing from the CME/CPD available to them with the ability to choose education that meets my specific needs and variety of educational formats selected within the top 5 in every region. Respondents from Europe appear to be most satisfied with the CME/CPD that is available to them based on the highest percentage of respondents reporting 'nothing is missing.'

When asked about barriers to participation, respondents from all regions selected not covered within my budget and not offered at convenient times most often. More respondents in Europe, Latin America, and the Middle East reported 'I do not have any barriers' as compared to respondents from China and North Africa.

#### Physician CME/CPD system consistencies/variations

There are several areas that were identified in this assessment where there is considerable consistency across countries and regions. Although consistent, they may still be considered as potential areas of opportunity for improvement.

Overall, areas of consistency included:

- CME/CPD is offered in multiple formats.
- Universities, associations, private education companies, and hospitals are able to be providers of CME/CPD.
- Credit is often awarded for participating in CME/CPD, most often as hour of participation = hour of credit.
- Self-tracking of participation in CME/CPD is predominately done by individual physicians.

Table 5. Perceptions of in-country physicians: missing from CME/CPD system and barriers to participation.

	China	Europe	Latin America	Middle East	North Africa
Number of respondents included in analysis (N)	2951	270	708	374	45
What is missing from the CME/CPD currently available to you?					
Ability to choose education that suits my specific needs	54.3%	20.0%	29.4%	28.3%	42.2%
Ability to keep up to date with the most current research	50.8%	14.0%	23.0%	20.3%	26.7%
Ability to network with colleagues	43.2%	20.0%	18.1%	20.6%	40.0%
Content that is current/up to date	40.5%	10.4%	17.5%	13.9%	20.0%
Variety of educational formats (i.e. Live, online, web-based, experiential, preceptorships)	50.7%	23.7%	29.7%	20.9%	28.9%
Innovative learning environments and new creative formats	34.7%	29.3%	27.4%	19.8%	33.3%
More frequent and more diverse programs	30.5%	19.6%	28.2%	19.5%	35.6%
Patient-focused programs	31.3%	14.8%	19.1%	23.3%	24.4%
Not applicable enough	24.7%	10.4%	8.8%	9.1%	2.2%
Nothing is missing	4.7%	17.4%	3.7%	11.0%	6.7%
What are your barriers to participating in CME/CPD (if any)?					
Not covered in my budget	47.1%	31.1%	23.3%	16.6%	26.7%
Topics are not relevant/clinically important to me	43.0%	14.4%	3.2%	6.1%	6.7%
Quality is not high	25.6%	14.8%	2.5%	4.0%	2.2%
Learning objectives are not clear	21.3%	14.1%	2.4%	1.1%	6.7%
Not offered at convenient times	66.2%	20.4%	10.9%	16.6%	13.3%
Formats are not flexible enough	27.9%	13.3%	8.8%	3.2%	2.2%
Not enough skill building exercise	31.8%	13.0%	6.6%	6.7%	11.1%
I do not have any barriers	4.8%	20.4%	15.4%	19.3%	8.9%

- Attesting to meeting regulatory requirements for participation in CME/CPD is the primary mechanism for monitoring compliance.
- There is a high degree of compliance for physicians in countries where participation in CME/CPD is required as a condition to practice medicine.
- There are relatively few sanctions imposed on physicians for failure to comply even if the agency has the right to do so.
- Overall, the majority of respondents report that the CME/CPD available meets their needs.
- There is strong support for the need for more interprofessional CME/CPD.
- There is a lack of alignment between the CME/CPD that is provided and country/population health needs and/or there has been no effort to evaluate if alignment exists. Areas of variation included:
- Whether there is a regulatory requirement to participate in CME/CPD as a condition to practice medicine.
- If a regulatory requirement existed, whether it was applied uniformly to all physicians or to subsets of physicians.
- Whether a formal accreditation system existed.
- Whether there were mechanisms to ensure independence in CME/CPD from the influence of pharmaceutical or other commercial interest organizations and how those mechanisms were applied.
- Significant variation in physician perception of independence in CME/CPD.
- Whether pharmaceutical or other commercial interest organizations could be direct providers of CME/CPD.

## Areas of opportunity to improve systems from the perspectives of in-country SMEs

In-Country SMEs provided their perspectives on areas of opportunity to improve the CME/CPD systems in their countries. Results are reported in more detail in each regional assessment manuscript that are in progress. A summary of the perspectives on opportunities is provided below by region as the perspectives of the In-Country SMEs reflect regional differences.

#### China

Most In-Country SMEs reported that there is an opportunity to better align the CME/CPD systems to address gaps in practice at the local or regional level. They also stated that the mandatory requirements for credit to maintain licensure resulted in some physicians pursuing education just to obtain the credit as opposed to education to increase skills and improve practice. Respondents indicated that the cost to participate in CME/CPD is a barrier to engagement, whether the 'cost' was related to actual expenses for the CME/CPD activity or was related to loss of income from the clinical practice setting. There was little discussion about IPCE in the current CME/CPD systems in China. Examples of IPCE that were offered and that were more prevalent in the hospital clinical setting included teaching cardiopulmonary resuscitation (CPR) or advanced cardiac life support (ACLS) with multiple professions, or teaching nurses how to use equipment in the operating room. In-Country SMEs described a pervasive risk of corruption in CME/CPD that is supported by pharmaceutical companies, and efforts, such as new regulations that have been launched to separate any influence of pharmaceutical or commercial interest organizations from developing CME/CPD activities. On the other hand, some also described how pharmaceutical companies can support CME/CPD through independent grants to education providers, can market the CME/CPD events through academic associations, and can, via setting up educational scholarships, provide financial support for physicians and healthcare practitioners to attend CME/CPD activities upon successful application.

#### Europe

Overall, In-Country SMEs reported the quality of their CME/ CPD systems to be high with education focused primarily on knowledge gain and practice improvement. Several noted that evaluating the relationship between participation in CME/CPD and patient level outcome changes was challenging. The In-Country SMEs noted that there continues to be a need for increased funding to support physician participation, decreasing the administrative regulatory burden, increasing consistency within and across the professions, and incorporating more innovative, activelearner engagement strategies. There was limited acceptance of industry-provided CME/CPD in these countries and most have implemented strategies to limit any industry influence or control over content. In Turkey, an initiative to modernize the CME/CPD system was launched in 2019 but failed to gain traction due to the COVID pandemic. The In-Country SME noted an opportunity to collaborate across medical associations to improve overall structure and quality.

#### Latin America

Most In-Country SMEs reported that there is a significant need to increase standardization and regulation in the current CME/CPD systems. Respondents conveyed that there is more opportunity to link participation in CME/CPD to gaps in practice and/or patient health outcomes, better aligning the education system with the in-country population health needs. It was reported that there is an opportunity to upskill faculty in CME/CPD and increase opportunities for more active learning strategies to be implemented. Results indicated that CME/CPD should be tied to practice-based competencies and there is a need to increase engagement in IPCE. Respondents conveyed that there should be a system of incentives to encourage more physicians to participate. IPCE, although quite limited in some countries, was considered highly valued. Respondents reported wide acceptance of industry-supported CME/CPD in these countries, and physicians in most countries valued and appreciated the support that enables them to participate in education. In-Country SMEs from several countries noted that they have implemented new regulations that are focused on restricting industry control of content as they recognize the difference between promotional vs. independent education.

#### Middle East

In-Country SMEs in the Middle East cohort focused primarily on improving the existing structure, improving quality, and measuring impact within their CME/CPD systems as their systems were already well established. In-Country SMEs in several countries recommended expanding their accreditation systems, increasing more active learning engagement strategies, implementing evaluation strategies to assess the impact of participation in CME/CPD, and better aligning CME/CPD with country-level practice gaps and health care needs. In-Country SMEs also recommended developing more independent funding sources for physicians to participate in CME/CPD, implementing protected time for education, and continuing to expand interprofessional continuing education.

#### North Africa

In-Country SMEs recognized that their CME/CPD systems are in very early stages of maturity. As there is no regulation or oversight of CME/CPD in Algeria and Morocco (the countries from North Africa who participated as SMEs), InCountry SMEs recommended implementing a structured system that is based on standards, is regulated, and is widely available at little to no cost for physicians. The CME/ CPD in Algeria and Morocco is currently driven primarily by the pharmaceutical industry and content is focused on clinical areas of therapeutic interest, therefore there is little to no content that is tied to practice gaps or country-level health needs. In-Country SMEs recommended developing funding sources outside of the pharmaceutical industry, tying CME/CPD requirements to licensure, increasing faculty development support, expanding reach, and implementing methods to evaluate effectiveness. IPCE was not seen as a priority by the In-Country SMEs at this time.

#### Discussion

This type of comprehensive assessment of the CME/CPD systems in countries, regions and/or provinces across China, Europe, Latin America, the Middle East, and North Africa has not been conducted previously to our know-ledge. This assessment expands on a previously published study of 27 countries around the world however that study did not include input from in-country subject matter experts or in-country practicing physicians which can serve to triangulate and validate how well the CME/CPD systems are meeting the needs of physicians in practice. This study, then, provides more information as to how the CME/CPD systems are or are not meeting the needs of physician stakeholders and also identifies areas of opportunity as reflected by both In-Country SMEs and practicing physicians.

When comparing the results of this assessment to best practices in CME/CPD as described previously, for CME/CPD systems to be effective, they must be based soundly on the learning sciences and on the principle of independence. In addition, the existing literature suggests that CME/ CPD systems should:

- Be accessible, affordable, and controlled by the profession(s) that they are regulating.
- Be based on measured educational needs and professional practice gaps.
- Support HCPs to engage in CME/CPD independently, within formal settings, and at the point of care.
- Encourage HCPs to engage in team-based education.
- Provide access to sources of practice-level data that HCPs can use to assess their own learning gaps and evaluate their own practice against benchmarks over time.
- Incorporate opportunity for HCPs to grow as educators across the education continuum.
- Have mechanisms for accountability and self-regulation.
- Include evaluation of change (learner, practice, health outcomes) longitudinally.
- Address relevant professional practice gaps at the local level.
- Align CME/CPD with population health needs.

These elements of best practices in CME/CPD systems could be used to evaluate to what extent the systems reflect maturity, i.e. to what extent do they reflect best practices. The concept of maturity in CME/CPD systems was reflected in the countries in this assessment particularly through the In-Country SME descriptions of areas of opportunity. For example, in countries that have implemented the majority of the structures for best practices as listed above, the In-Country SMEs described opportunities that reflected improving the quality of education, evaluating the impact of physician engagement in CME/ CPD using self-assessment and learning gaps, and increasing team-based education. In contrast, In-Country SMEs where the CME/CPD systems were less structured, and arguably then less mature, opportunities for improvement were reflected in implementing regulatory requirements, expanding reach to all levels of physicians, and separating education from the pharmaceutical companies.

### Overall recommendations based on assessment findings

Based on the assessment findings, the following recommendations should be considered:

- Standardization of licensing or regulatory agency requirements both within and outside various regions to practice medicine.
- Standardization of CME/CPD physician hours or points requirements.
- Variable acceptable formats that adhere to accreditation standards to supply CME/CPD, to include IPEC as an option for physicians and other HCPS.
- Sanctions for not meeting established CME/CPD for licensed physicians.
- Standardization of commercial support and CME/CPD funding.
- Continued evolution and support of international CME/ CPD program accreditation.

#### Implications

The results of this assessment may be used by a variety of different stakeholders. Physician and country leaders have an opportunity to evaluate how well their own systems are meeting the needs of their practicing physicians and determine what, if any, changes they might want to implement to improve outcomes. Physician and country leaders may also use this assessment to identify countries that have more robust and mature CME/CPD systems and engage those leaders in further dialogue on such topics as strategies that were implemented and barriers that might have been addressed. Professional associations might use the results of this assessment to develop tools and resources that could be used by physicians and country leaders to improve their CME/CPD systems, such as assessment tools to evaluate CME/CPD system maturity; educational programs (webinars, workshops, conference sessions) whereby interested stakeholders could learn best practices and engage with peers or experts; and convening forums to conduct deep dives into specific topic areas, such as IPCE. By sharing the results of this assessment, we hope to generate a global conversation that helps to elevate CME/CPD systems that support practicing physicians in their ongoing need for accurate, timely, accessible education whenever and wherever they need it. Future research that takes into consideration the impact of cultural differences among

different aspects of countries' generational, geographic, and cultural beliefs in mandated or voluntary CME/CPD for physicians is worthy of exploration.

#### Limitations

There are several limitations that impact the results of this assessment. The number of physician respondents to the survey portion of this assessment is a very small subset of the global physician population and only a few countries are represented in meaningful percentages, therefore results primarily reflect those countries. Selection bias was evident as the results are heavily weighted by respondents who chose to participate and those who did primarily practiced as general practitioners or in internal medicine/specialty and in the hospital setting. Therefore, there is a lack of diversity in practice setting and specialty practice areas making generalizability of results challenging. While every effort was made to recruit In-Country SMEs who were able to represent the country-perspective, the In-Country SMEs may not reflect the true nature of the CME/CPD system. The variability of survey data collection particularly during the COVID pandemic, added to the assessments' limitations as competing priorities during this time may have impacted participation and CME/CPD programs. This assessment focused on structures of medical education systems and did not evaluate how educational activities are planned, implemented, and evaluated with any detail therefore we are unable to assess whether CME/CPD systems incorporate evidence-based best practices that reflect the quality of education for physicians. Additionally, and specific to the European assessment, it was quite difficult to encourage participation in the survey, despite it being translated into seven languages, and having in-country partners endorse and distribute the link to the online survey. Variability of CPD/CME systems within the designated areas of China, Europe, Latin America, Middle East, and North Africa and the countries, provinces, and municipalities within each, is a noted limitation.

#### Conclusion

Health care systems continue to be increasingly challenged by a variety of different forces that include but are not limited to changes in practice delivery models, rapidly expanding evidence, workforce shortages, and global pandemics. Health care professionals must adapt to new demands on a continual basis. To support those in practice, the health care education community must also continue to adapt and the structures that support that adaptation must be grounded in the best available evidence.

There is a robust body of evidence to demonstrate that engagement in CME/CPD is essential for HCPs to deliver high-quality, evidence-based care. There is also the best available evidence on how adults learn, and how education should be planned, implemented, and evaluated. These best practices should be the basis for CME/CPD systems that support the health care professional workforce.

It is clear from this assessment of global CME/CPD systems that some areas of the world have adopted these best practices and are focusing their efforts on improving quality rather than infrastructure. In other areas, however, there is more work to be done. It is our hope that the global continuing education community can collaborate together, share support for each other, learn and grow together, and build and enhance the CME/CPD systems that support our HCPs in their delivery of care to the patients and families they serve.

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