

# A modified Delphi study to establish consensus on continuing education requirements for pharmacists' relicensing in Saudi Arabia

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**Abstract.** – **OBJECTIVE:** Continuing education is a key priority for pharmacy workforce development and the achievement of the nation's health goals. The current study was conducted to evaluate continuing medical education requirements for pharmacists' re-registration in Saudi Arabia. It also aimed at establishing a continuous professional development (CPD) system that fills the gaps in the current continuing medical education (CME) system.

**MATERIALS AND METHODS:** A modified Delphi method was utilized. Data extraction and statement development (review of key documents) was initially conducted by benchmarking the current CME requirements for pharmacists' re-registration in Saudi Arabia to continuing professional development models from 3 countries: the UK, Ireland, and Australia. This stage identified the gaps in the current model and was used in developing the data collection tool (11 statements). A 3-round Delphi, with 15 expert panel members, was used to reach consensus and to establish a suggested guideline document for a national CPD model for pharmacists' re-registration in Saudi Arabia.

**RESULTS:** A CPD model for pharmacists' re-registration was developed. Panel members reached consensus on the need to shift the current CME system to a CPD model and individualize CPD plans according to the pharmacists' identified knowledge gaps and areas of practice. They agreed on the incorporation of unplanned activities and non-accredited CPD activities into the new model if they improve pharmacists' practice. They also noted that the current biennial re-registration is appropriate, considering pharmacists' busy work schedules.

**CONCLUSIONS:** This study used the modified Delphi technique to develop a suggested CPD model for pharmacists' re-registration in Saudi Arabia. Expert panel members reached consensus on shifting from a CME model to a CPD model, increasing CPD credits to 40 per annum and incorporating unplanned CPD activities, while keeping re-registration to every two years.

## Key Words:

Pharmacists, Relicensing, Saudi Arabia, Continuous professional development, Pharmacy.

## Introduction

A knowledgeable, skillful, and competent pharmacy workforce is a crucial element for achieving safe and effective delivery of health services and health goals<sup>1</sup>. Lifelong continuing education (CE) for pharmacists has been identified as a priority for workforce advancement by key decision-makers in pharmacy practice<sup>2</sup>. Many countries around the globe have made continuing education mandatory for pharmacists' prelicensure, relicensing, and competency development of the pharmaceutical workforce<sup>3</sup>.

According to the International Pharmaceutical Federation (FIP) definition, Continuing Professional Development (CPD) is "the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers<sup>3</sup>". On the other hand, CE is defined as a "structured educational activity designed or intended to support the continuing development of pharmacists and/or pharmacy technicians to maintain and enhance their competence<sup>4</sup>". The terms CPD and CE are often used interchangeably. However, the CPD model is now more common worldwide, replacing the hour-based traditional CE model.

CPD activities have been found to increase intrinsic motivation by permitting pharmacists to decide on their personal learning processes, settings, and curricula. These activities were also reported to improve self-evaluation and reflec-

tion skills, and to improve pharmacy practice by helping pharmacists identify knowledge gaps and learning needs<sup>1,5</sup>.

In Saudi Arabia, pharmacist's licensing and re-registration are regulated by the Saudi Commission for Healthcare Specialties (SCFHS)<sup>6</sup>. Mumaris Plus (Mumaris+) is the electronic portal used by SCFHS for pharmacist's registration for and renewal of their license to practice pharmacy. The portal reflects the Continuing Medical Education (CME) hours awarded to pharmacists who attend professional activities offered by providers who are accredited by SCFHS. Pharmacists are expected to complete 40 CME hours every two years. These CME hours are chosen from two groups: the first includes a maximum of 25 hours for conference attendance, seminars, workshops, training courses, research, journal articles and book publication. The second group includes a maximum of 15 hours of internal activities, approved web-based activities, and general workshops<sup>7</sup>. Moreover, the SCFHS is responsible for accrediting organizations as CME providers for both face-to face and online activities.

A recent evaluation<sup>7</sup> of the Saudi pharmaceutical workforce development needs, using the FIP 21 workforce development goals, identified the Professional Development cluster as a priority for Saudi pharmacists, over the Academia and Systems clusters. The lack of a competency framework for pharmacists in Saudi Arabia has had a negative impact on pharmaceutical workforce development. One of the consequences is that registration requirements for pharmacists are not linked to a needs-based evaluation, nor are they necessarily related to pharmacists' scope of practice<sup>7</sup>. Another study<sup>8</sup> suggested that the current CME activities are not linked to practical competencies or relevant to the individual's scope of practice. It also focuses on the need to adopt a more comprehensive CPD. Similarly, Alkhazim et al<sup>9</sup> argued that CME activities have some limitations in terms of quality and effectiveness. They also claimed that CME activities accredited by the SCFHCS are not closely monitored for quality and outcomes.

The current study was conducted to evaluate continuing medical education requirements for pharmacists' re-registration in Saudi Arabia using a modified Delphi method. It also aimed at establishing a continuous professional development system that fills the gaps in the current CME system.

## Materials and Methods

### Study Design

Consensus techniques are used in healthcare research to create evidence through a systematic mean of reaching agreement from experts in the field<sup>10,11</sup>. The classic Delphi design is an interactive process using sequential surveys and controlled group feedback, while keeping participants anonymous. The first round includes collecting information, followed by several rounds of prioritization until consensus is reached. A modified Delphi technique, however, allows literature reviews to generate the first round data<sup>12</sup>. This research implemented a modified Delphi technique comprised of 3 rounds. The reasons for selecting a modified Delphi method were: allowing the anonymity of panel members, minimizing biased opinions imposed by dominant participants, and limiting group pressure by allowing participants to freely generate and express ideas. Another important advantage was the ability to obtain opinions from geographically dispersed team members without physically bringing them into a face-to face group discussion<sup>13,14</sup>.

### Participants

The Delphi participants were selected for their expertise in the chosen subject matter. A criterion-based purposive sampling technique was adopted to recruit pharmacists to the Delphi expert panel. An invitation letter was sent to potential participants *via* email. Selection of participants was based on the following criteria: being a registered pharmacist in Saudi Arabia with a valid license, being familiar with the SCFHS software system (Mumaris+), being an expert in continuing education or being involved in career development in their respective areas of practice, having at least 5 years of experience, and having conducted at least 1 accredited CME/CPD activity in the past 5 years. Countrywide and regional representation was considered in recruiting panel members. In published literature, the optimal panel size is debatable, with a size typically lower than 50 and generally ranging from 10 to 15 members<sup>15</sup>. Fifteen panel members were included in this research.

### Procedure and Analysis

#### *Data extraction and statement development (review of key documents)*

This aspect of the process involved benchmarking the current continuing education main-

tenance requirements for registered pharmacists in Saudi Arabia to three different international systems from the UK, Ireland, and Australia<sup>16-19</sup>. A summary of the mapping is available in Table I. One criterion for selecting these 3 countries was their use in a previous study that assessed the trends for lifelong learning of pharmacists; these 3 countries provide varied exemplary models for the continuing education of pharmacists<sup>20</sup>. Other reasons were the availability and accessibility of credible and reliable sources in a language familiar to the study authors. The USA was excluded because of the diverse continuing professional development requirements in different states<sup>20</sup>. A total of 11 statements were identified based on the benchmarks. These were initially drafted and peer-reviewed by the study authors. The questionnaire was then piloted with two academics who have expertise in pharmacy continuing education. Some questions were clarified based on their feedback. The validated tool was used to confirm the suggested changes to the current CME requirements for pharmacists in Saudi Arabia.

### **Round 1**

The first round was conducted by e-mail, requesting responses to the validated data collection tool from all 15 panel members. These professionals work in various pharmacy practice settings: community pharmacy (n=3), hospital pharmacy (n=3), regulatory (n=3), academia (n=3), and pharmaceutical industry (n=3). They were asked to provide demographic information about themselves and to rate their agreement to the continuing medical education requirements by using a five-point Likert rating system (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) beside each statement. Participants were also encouraged to add comments and suggest additional items that were not included in the initial questionnaire. Completed questionnaires were returned to the study authors by e-mail, then the data were retrieved and organized for the second round of Delphi. The frequency of responses to each item was calculated and entered on an Excel spreadsheet. The literature indicated no agreed-on consensus level for a Delphi study; however, 70% agreement was reported to be the gold standard<sup>20</sup>. In the current study, 80% consensus was selected based on a previously published article that used the same agreement level<sup>14</sup>. Statements that obtained  $\geq 80\%$  agreement from the panel members were accepted into the final guideline document. Statements that obtained

$>80\%$  consensus were omitted from round 1 and included in the second round.

### **Round 2**

A report was generated at the end of round 1. This report, which contained the omitted statements from round 1, along with the group scores and comments on all statements, was e-mailed to the experts' panel. The same voting strategy was used in round 2. Hence, experts could reflect upon the group results and change their opinions. These responses were analyzed as in round 1 – the statements which did not meet the agreement level of 80% or more were retained for discussion in round 3. This methodology was adopted from the previous study<sup>21</sup>.

### **Round 3**

This round involved a virtual discussion. The aim of this round was to reach consensus on the statements which were not agreed upon in round 2, using the same voting strategy, i.e., 80%. The experts were encouraged to discuss the remaining statements and decide whether to keep, modify, or delete them from the final CPD requirements for pharmacists' re-registration. The remaining time was spent in developing a suggested guideline document for continuing professional development requirements. The summary of the three rounds of Delphi responses is shown in Figure 1.

### **Statistical Analysis**

The collected data were downloaded, entered, and analyzed using Microsoft Excel. Demographic and background information were described in terms of frequencies.

The frequency of responses to each item was calculated and entered into an Excel spreadsheet. Statements that obtained  $\geq 80\%$  agreement from the panel members (12 of 15 experts) were accepted into the final guideline document. Statements that obtained  $>80\%$  consensus were omitted from round 1 and included in the second round.

## **Results**

### **Demographic Data**

The demographic characteristics and the number of participants in each round of the process are shown in Table II. Fifteen participants were identified as experts in pharmacy continuing education and expressed interest in participating. The round 1 questionnaire was completed by all 15

**Table I.** A summary of the mapping of the current continuing education maintenance requirements for registered pharmacists in Saudi Arabia to three different international systems, from the UK, Ireland, and Australia.

Criterion	Saudi Arabia	United Kingdom	Ireland	Australia
Regulatory and licensing agencies	Saudi Commission for Healthcare Specialities (SCFHS)	The General Pharmaceutical Council (GPhC)	The Pharmaceutical Society of Ireland Irish Institute of Pharmacy (IIOP)	Pharmacy Board of Australia
Type of continuous education (CE)	Continuous Medical Education (CME)	Continuous Professional Development (CPD)	Continuous Professional Development (CPD)	Continuous Professional Development (CPD)
Registration renewal/time	Every two years/three months before the registration expires	Annually/at least two months before the registration expires	Annually/30 days before the registration expires	Annually by 30 November
Maintenance requirements for registered pharmacists	<p><b>Credits/points system</b> The following are required:</p> <ul style="list-style-type: none"> <li>A minimum of 40 CME hours are required</li> </ul>	<p><b>CPD entries, a peer discussion, and a reflective account (online portal)</b> The following are required:</p> <ul style="list-style-type: none"> <li>A total of 4 CPD entries each year (Two of them must be planned)</li> <li>Single peer discussion</li> <li>Single reflective account</li> </ul>	<p><b>A portfolio-based self-reflective model</b> The following are required:</p> <ul style="list-style-type: none"> <li>A flexible system that is not based on usual CPD points or collecting a number of contact hours. Electronic system that allows demonstration of professional development tailored for everyone. The e-portfolio enables pharmacists to record planning and completion of their activities and effects on their practice.</li> </ul>	<p><b>CPD credits</b> The following are required:</p> <ul style="list-style-type: none"> <li>A plan for CPD activities</li> <li>A total of 40 credits from CPD activities</li> </ul>
Type of activities	<p>CME hours/activities are categorized into two categories:</p> <p><b>First category:</b> A maximum of 25 hours attendance at conferences, seminars, workshops, training courses, writing books, publishing journal articles, conducting research.</p> <p><b>Second category:</b> A maximum of 15 hours of internal activities, approved internet activities, panel discussion, and general workshops.</p>	<p>CPD activities include:</p> <p><b>Planned learning:</b> Deciding on the knowledge and skills that need to be developed before carrying out the learning activities (at least two must be planned)</p> <p><b>Unplanned learning:</b> Unscheduled learning that happens because of an event without prior thought or planning. For instance, reading a journal or talking to a co-worker.</p> <p><b>Peer discussion:</b> This is a learning and development activity that motivates interaction between pharmacists and provides reflection on their learning and practice.</p> <p><b>Reflective account:</b> Pharmacists are required to give examples of how learning activities have benefited patients and reflect on the standards and their application in practice.</p>	<p>CPD activities include:</p> <ul style="list-style-type: none"> <li>Knowledge and skills developed by attending conferences and courses.</li> <li>Practice-based learning such as feedback from audits, analysis, and review of serious incidents.</li> <li>Reading, conducting or writing research, learning with colleagues. i.e., talking to co-workers or attending workshops.</li> </ul>	<p>CPD activities include:</p> <p><b>Group 1:</b> Information obtained without evaluation (one Board CPD credit per hour of activity). A maximum of 20 CPD hours of educational presentations and other activities with minimum to no interaction with audience</p> <p><b>Group 2:</b> Knowledge or skills improved with evaluation (two Board CPD credits per hour of activity) Activities must show that pharmacist's gain of knowledge or skills can be demonstrated, for instance, successful completion of some form of evaluation. The activities reflect a pharmacist's achievement of the continuing professional development objectives and individual feedback on preperformance in evaluation.</p> <p><b>Group 3:</b> Quality or practice improvement facilitated (three Broad CPD credits per hour of activity). These activities include evaluation of routine practice (individual performance or within pharmacy practice), the need for and obstacles to change in this practice is planned before designing a certain activity. The activity usually addresses identified continuing professional development needs with a reflection after completion of the activity to assess change in practice or effects of this practice. Group 3 activities usually take a few weeks or months to be completed.</p> <p>Out of the 40 CPD credits required to meet the annual CPD credits, a minimum of 20 CPD credits must come from Group 2 and/or Group 3 activities.</p>

Table continued

**Table 1. (Continued).** A summary of the mapping of the current continuing education maintenance requirements for registered pharmacists in Saudi Arabia to three different international systems, from the UK, Ireland, and Australia.

Criterion	Saudi Arabia	United Kingdom	Ireland	Australia
Unplanned activities acceptance	<b>Not well defined</b> Internal activities are accepted but not clearly outlined.	<b>Accepted</b> Defined as an event that occurs resulting in an unscheduled learning activity without previous thought or planning, such as reading a journal or talking to a co-worker.	<b>Accepted</b> Defined as non-formal learning, such as educational activities that are not formally accredited.	<b>Accepted</b> Group 1 activities are unplanned activities that include reading a journal or researching a drug information inquiry to help resolve a patient healthcare issue.
Relevance to scope of practice	<b>Not required</b> Any accredited CME activity is accepted, even if not directly related to scope of practice.	<b>Required</b> Pharmacists are required to provide a brief summary about the practice setting, responsibilities, and typical users of the service offered. Submitted entries should be relevant to the services provided for typical users. Also, pharmacists are required to give examples of how learning activities have benefited patients and reflect on the standards and their application in practice.	<b>Required</b> CPD entries in the e-portfolio are required to be appropriate for the pharmacist's scope of practice. The Core Competency Framework for Pharmacists is used to identify the competencies most relevant to pharmacists' practice, including those who have direct contact with patients.	<b>Required</b> CPD activities are required to be relevant to the pharmacists' scope of practice, as well as to be of a significant intellectual or practical content that deals directly with the practice of pharmacy.
Reflection	<b>Not required</b>	<b>Required</b> The reflective account has these main parts: <ul style="list-style-type: none"> <li>▪ A summary of the individual practice history for the last 12 months, including the typical users of the services.</li> </ul> A statement of the fulfilment of one or more of the standards for pharmacy professionals Examples to support the statement of how learning has benefited the user of the service	<b>Not required</b> Pharmacists are encouraged to take a reflective learning approach.	<b>Required</b> Reflection is included in the CPD plan. The identified area that requires continuing professional development, such as relevant competencies from the Competency Standards Framework must be included in the CPD plan. Details include the start and finish date of the activity, the provider details, the type of activity, topics covered in the activity, accredited or not, activity group 1, 2, or 3, how the activity affected the practice.
CPD is guided by identified needs	<b>Not required</b>	<b>Required</b> Pharmacists are required to reflect upon one or more of the standards. A range of standards for pharmacy professionals are selected each year. Pharmacists are required to provide information about their practice setting roles and responsibilities, and typical users of the services.	<b>Required</b> Pharmacists are expected to identify areas of development in knowledge, skills, and competencies that serve their scope of practice i.e., identification of their learning and development needs.	<b>Required</b> Pharmacists are encouraged to identify gaps in their knowledge that need to be developed further. Self-reflection and evaluation of their performance are keys to identification of CPD needs
Non-accredited CPD	Need further evaluation to be accepted.	Unplanned activities are accepted such as peer discussion and reflective accounts.	Non-accredited courses and programs are accepted if they enhance pharmacist's CPD.	Pharmacists are encouraged to evaluate non-accredited activities in terms of relevance to practice, quality, and suitability.

**Table II.** Demographic characteristics of participants in panels.

Variable	Number	Percentage	
<b>Age</b>			
23-29	0	0	
30-39	12	80	
40-49	3	20	
+50	0	0	
<b>Gender</b>			
Male	11	73.3	
Female	3	26.7	
<b>Nationality</b>			
Saudi	13	86.7	
Non-Saudi	2	13.3	
<b>Pharmacy sector</b>			
Hospital pharmacy	3	20	
Community pharmacy	3	20	
Regulatory	3	20	
Academia	3	20	
Pharmaceutical companies/ industry	3	20	
<b>University of graduation</b>			
National university	7	46.7	
International university	8	53.3	
<b>Years of experiences</b>			
<5	0	0	
5-10	6	40	
>10	9	60	
<b>Sector</b>			
	<b>Round 1</b>	<b>Round 2</b>	<b>Round 3</b>
Hospital	3	3	3
Community	3	3	3
Regulatory	3	2	2
Academia	3	3	3
Pharmaceutical companies	3	2	2
Total	15	13	13

panel members, comprised of three pharmacists from each of five sectors: community pharmacy, hospital pharmacy, regulatory sector, academia, and pharmaceutical industry. The majority of participants (12, 80%) was between the ages of 30-39 years. Just under three-quarters of participants (11, 73.3%) were male, and the majority was Saudi (13, 86.7%). Just over half (8, 53.3%) obtained their pharmacy degrees from outside the Kingdom and more than half (9, 60%) had more than 10 years' experience.

### Round One

All panel members completed the online questionnaire individually. Of the 11 statements in the questionnaire, 8 reached  $\geq 80\%$  consensus in round 1 (Table III). Only three statements did not

reach agreement, as follows. First, the number of credits to be increased to 40 credits of CPD activity per year attained 60% agreement. The statement that "non-accredited CPD activities and unplanned activities should be part of CPD accepted activities" received 66% agreement, while the proposal that "CPD activities should be submitted annually instead of once every two years" obtained 33.3% agreement. In some cases, panel members elaborated on the statements using the text facility in the online questionnaire. For example, participant 3 commented that "I am against accepting unplanned activities as it might not be objectively evaluated". Likewise, participant 11 commented on the same statement: "When it comes to unplanned activities, it is hard to judge whether the person did really encounter that event, or it was made up".

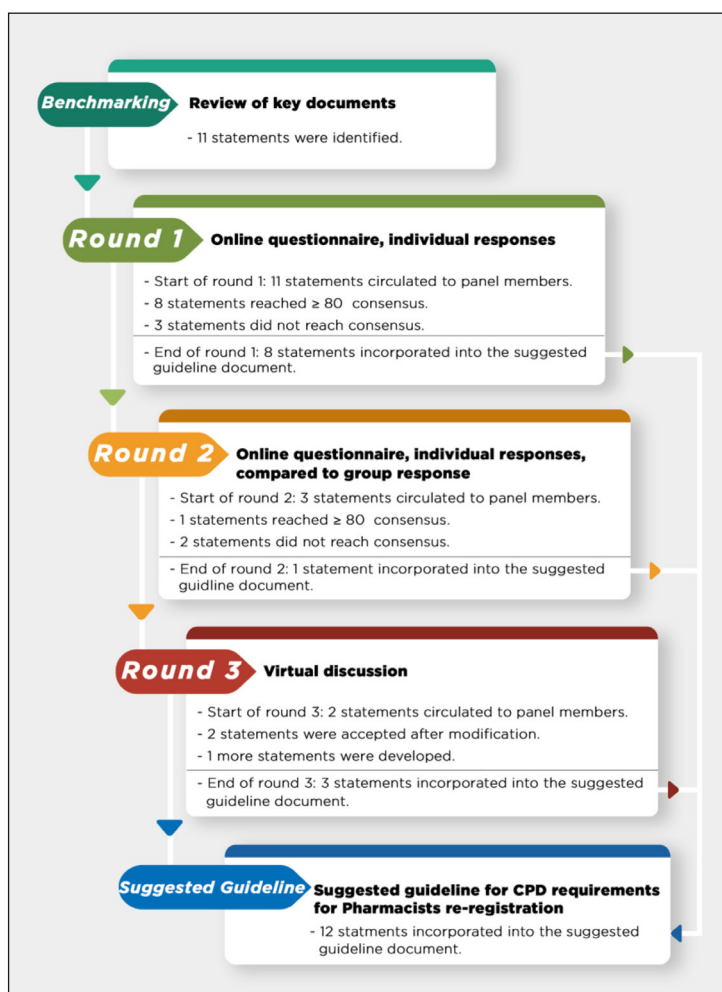


Figure 1. A summary of the Modified Delphi methodology and results.

### Round Two

Thirteen of the 15 members participated in this round. Of the 3 statements sent along with group consensus and comments, 1 reached  $\geq 80\%$  consensus, i.e., “non-accredited CPD activities and unplanned activities should be part of CPD accepted activities”. The remaining two failed to reach agreement. The statement “the number of credits to be increased to 40 credits of CPD activity per year” obtained 61.5%, similar to round 1. The third statement, “CPD activities should be submitted annually instead of once every two years” reached a higher agreement of 53.8%, but it was still lower than the acceptable level of consensus.

### Round Three

Thirteen of the 15 experts agreed to join an online discussion<sup>11,21</sup>. The aim was to discuss the remaining statements, determining wheth-

er to keep, modify, or delete them from the final suggested guideline for continuing education requirements for pharmacists’ re-registration. The statement “the number of credits to be increased to 40 credits of CPD activity per year” reached 84.6% consensus and was incorporated into the final suggested guideline document. The last statement “CPD activities should submitted annually instead once every two years” did not reach agreement and was omitted; therefore, evaluation will continue to be conducted every two years. An additional statement was suggested by panel members and attained agreement by voting. This stated that “Accredited CPD activities by regulatory bodies outside the country should be acceptable without further evaluation”. The remaining time was spent in finalizing the suggested guideline document of CPD requirements, which are summarized in Table IV.

**Table III.** Statements developed through benchmarking and consensus percentage during panel process.

Statements developed through benchmarking*	Round 1 (n=15)	Round 2 (n=13)	Round 3 (n=13)
	No. of participants who agreed (consensus percentage)		
1. Maintenance requirements for registered pharmacists should continue to be Continuing Medical Education hours (CME).	12 (80%)	-	-
2. Maintenance requirements for registered pharmacists should be replaced with Continuing Professional Development (CPD). The CPD process is a continuous four-step cycle to reflect, plan, act, and evaluate, with each step documented throughout the process.	13 (86.6%)	-	-
3. Maintenance requirements for registered pharmacists should be portfolio based. The portfolio system allows pharmacists to record how they have planned and completed their learning and its impact on their practice.	13 (86.6%)	-	-
4. The number of credits to be increased to 40 credits of CPD activity per year.	9 (60%)	8 (61.5%)	11 (84.6%)
5. CPD activities should be relevant to scope of practice. For example, certain credits must relate to pharmacist's who work in patient-facing roles, such as clinical knowledge, the ability to gather and appropriately interpret information from and about patients.	14 (93.3%)	-	-
6. Certain numbers of CPD credits must be selected in response to identified knowledge gaps or needs requiring further development, through self-reflection and assessment of their performance.	14 (93.3%)	-	-
7. A part of revalidation should include a reflection on how CPD activities benefited the people who receive the services.	14 (93.3%)	-	-
8. Non-accredited CPD activities and unplanned activities should be part of CPD accepted activities (not more than half of credits) such as reading a journal, undertaking an activity or task, or a discussion with a colleague owing to an interaction during a normal working day.	10 (66%)	11 (84.6%)	-
9. Pharmacists should develop a CPD plan which helps them to identify and undertake activities to meet their professional development needs	14 (93.3%)	-	-
10. CPD activities should be submitted annually instead of once every two years.	5 (33.3%)	7 (53.8%)	7 (53.8%)
11. Evaluation of a pharmacist's portfolio is conducted at a certain time every year by selecting a random sample of pharmacists applying for revalidation.	12 (80%)	-	-
12. Accredited CPD activities by regulatory bodies outside the Kingdom should be acceptable without further evaluation.	-	-	12 (92.3%)

\* Statements that obtained  $\geq 80\%$  reached agreement from the panel members.

## Discussion

A competent pharmacy workforce is essential for providing optimum healthcare<sup>22</sup>. In Saudi Arabia, the production of a skilled pharmaceutical workforce has drastically improved over the past couple of decades. At the pre-licensing stage, this was gradually achieved by completing accreditation of undergraduate pharmacy programs by the

National Center for Accreditation and Evaluation, as well as by requiring that newly graduated pharmacists take and pass the Saudi Pharmacists Licensure Examination (SPLE) in order to practice pharmacy in the country<sup>7</sup>.

At the re-licensing stage, changes have been made by SCFHS, such as requiring CME for pharmacists' re-registration and reducing the re-registration period from 5 years to 2 years.



**Table IV.** Suggested guidelines for CPD requirements for pharmacists' re-registration in Saudi Arabia.

Domain	Final Objective
Regulatory and licensing agencies	Saudi Commission for Healthcare Specialities (SCFHS).
Type of continuous education (CE)	Continuous Professional Development (CPD).
Registration renewal / time	Every two years.
Maintenance requirements for registered pharmacists	<b>CPD credits</b> A total of 40 credits of CPD Activities.
Type of activities	<b>Plan for CPD activities</b> Pharmacists are required to identify areas of development in knowledge, skills, and competencies that serve their scope of practice i.e., identification of their learning and development needs. <b>Planned learning CPD</b> Decide on the knowledge and skills that need to be developed before carrying out the learning activity. For example, conference attendance, seminars, workshops, training courses, writing books, publishing journal articles, conducting research. <b>Unplanned learning CPD</b> Unscheduled learning that happens because of an event without prior thought or planning. For example, internet activities, panel discussion, and general workshops, didactic lectures, peer discussion. <b>Reflective account:</b> Pharmacists are required to provide a brief summary on the practice setting, responsibilities, and typical users of the service offered. Also, pharmacists are required to give examples of how learning activities have benefited patients and to reflect on the standards and their application in practice.
Unplanned activities and non-accredited CPD acceptance	<b>Accepted</b> If they improve pharmacists' practice.
Accredited CPD activities by regulatory bodies outside the Kingdom acceptance	<b>Accepted</b> Without further evaluation.
Relevance to scope of practice	<b>Required</b> CPD activities are required to be relevant to each pharmacist's scope of practice
Reflection	<b>Required</b> Pharmacists are required to take a reflective learning approach as part of CPD activities.
CPD is guided by identified needs	<b>Required</b> Pharmacists are required to identify areas of development in knowledge, skills, and competencies that serve their scope of practice i.e., identification of their learning and development's needs.

However, previous literature reported that the CME requirements are not linked to a needs-based initiative, nor are they always relevant to a pharmacist's scope of practice<sup>8,9,23,24</sup>. Hence, the current study was conducted to assess the current continuing medical education requirements for pharmacist's re-registration and suggest guidelines for CPD requirements.

A modified Delphi method was used in this study. The method began by comparing the current CME requirements for Saudi pharmacists' re-registration to 3 varied systems from the UK, Ireland, and Australia. Although the systems differ in the way that CPD is organized, regulated, and delivered, they have all fulfilled the CPD 4-step cycle: reflect, plan, act, and evaluate. They all require that pharmacists

plan their learning based on identified personal development needs, create a CPD plan that is designed to serve the typical user, and make it relevant to the pharmacist's scope of practice. All CPD models accept planned, unplanned, accredited, and non-accredited CPD activities, as well as require pharmacists to reflect on how CPD benefited the typical users and filled the identified knowledge gaps.

By contrast, the current CME system in Saudi Arabia requires accredited learning activities that are assigned a certain number of credit hours. These activities are not necessarily relevant to the individual's identified learning needs or tailored to benefit the typical user in the various sectors. No reflection is required, and unplanned activities are not typically accepted.

A recent study using the FIP 21 development goals identified professional development as needed for the advancement of the pharmaceutical workforce in Saudi Arabia<sup>7</sup>. Within the system cluster DG "9 Continuing", continuing professional development was identified to be suboptimal. The expert panel in this study supported shifting the current CME system to a CPD model, since some pharmacists might participate in non-preferred activities to accumulate the required credit hours for re-registration. The criteria of the new model – a self-guided, outcome focused, systematic, and ongoing approach to lifelong learning – were reported to develop and maintain competencies, advance professional practice, and assist in achieving career aspirations, according to the Accreditation Council for Pharmacy Education<sup>22</sup>.

The current study provided a comprehensive assessment of the continuing medical education model used in pharmacists' re-registration in the country. It adapted and adopted global CPD models to develop a Saudi CPD model using local panel expertise. Panel members reached consensus on the need to shift the current CME system to a CPD model and individualize CPD plans according to the pharmacists' identified knowledge gaps and areas of practice. They agreed on incorporating unplanned activities and non-accredited CPD activities into the new model if they improve pharmacists' practice. However, they found keeping re-registration to a biennial cycle to be more practical, considering pharmacists' busy work schedules.

### **Limitations**

The study has some limitations. The absence of a national competency framework for pharmacists in Saudi Arabia may negatively impact the implementation of the suggested CPD model, as pharmacists might struggle to identify their learning needs and to map them with relevant competencies. Another limitation is that some of the panel members declined to participate in rounds 2 and 3, which might have affected the findings. The suggested guidelines for the CPD model for pharmacists' re-registration in Saudi Arabia have not yet been approved by the SCFHS.

### **Conclusions**

This study used the modified Delphi technique to develop a CPD model for pharmacists' re-registration in Saudi Arabia. Expert panel members reached consensus on shifting from the current

CME model to a CPD model, increasing CDP credits to 40 per annum and incorporating unplanned CPD activities, while keeping re-registration to every two years.

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### **Conflicts of Interest**

The authors declare no conflicts of interest.

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### **Authors' Contributions**

Dalia Almaghaslah: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing - original draft, Writing - review & editing. Abdulrhman Alasayari: Formal analysis, Methodology, Resources, Validation, Writing - review & editing.

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### **Ethical Approval**

The Ethical Committee of Scientific Research at King Khalid University approved the research (ECM#2021-5809).

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