

1 **Competency development for pharmacy: adopting and adapting the Global**
2 **Competency Framework**

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28 Conflict of interest: None

29 Funding: This research did not receive any specific grant from funding agencies in the public, commercial,
30 or not-for-profit sectors

32 **Abstract**

33 **Background:** With current accelerated changes in the role of the pharmacists across different
34 sectors, evidence-based developmental tools are needed to re-define the scope of practice for
35 early career pharmacists (foundation level) and to support pharmacists' career development. This
36 study aimed to develop a foundation competency framework for pharmacists in Kuwait using the
37 International Pharmaceutical Federation (FIP) Global Competency Framework (GbCF) in an
38 adopt and adapt approach.

39 **Methods:** A 4-phase adopt and adapt approach was followed to develop the Kuwait Foundation
40 Competency Framework (KFCF). Phase one involved translating the FIP GbCF, into Arabic
41 using parallel translation. Phase two utilises 2 consensus panels validation involving pharmacists
42 from public and private sectors. Phase three involved a national survey to all registered
43 pharmacists in Kuwait. The final phase involved focus groups with pharmacists and a consensus
44 panel validation with key policy and decision makers in the pharmacy practice and education
45 sectors in Kuwait. Qualitative data were thematically analysed, while quantitative data were
46 analysed using IBM SPSS Statistics for Windows.

47 **Results:** The translation phase yielded a bilingual framework that could be utilised by
48 pharmacists in Kuwait. The initial validation phase identified 70 behavioural statements (out of
49 the GbCF's 100) as 'highly relevant' or 'relevant' to pharmacy practice in Kuwait. Findings
50 from the national survey identified a list of behaviours that could be adapted in Kuwait context
51 as well as competencies that were perceived as least relevant to Kuwait practice. The final
52 validation phase generated a list of 98 behavioural statements to be included in the KFCF along
53 with recommendations and an action plan to facilitate the adaptation of the framework.

54 **Conclusion:** This study presents the first bilingual (Arabic/English) pharmacy foundation
55 competency framework that builds on the FIP GbCF. The KFCF could be utilised as a
56 developmental tool to support pharmacists' performance at foundation level.

57 **Words:** 299/300

58 **Keywords:** Competency framework, Competency development, Global Competency
59 Framework, Kuwait

60 **Introduction**

61 In the last decade there has been a shift in pharmacy practice from product-oriented to patient-
62 centred care. This shift implies expansion in the scope and provision of pharmaceutical services ¹.
63 In order to fulfil their expanded scopes, pharmacists need to be competent and commit to deliver
64 the full range of pharmaceutical services and to meet the challenges facing global health and
65 patient care.

66 The International Pharmaceutical Federation (FIP), through the FIP Education (FIP*Ed*) developed
67 an evidenced-based FIP Global Competency Framework (FIP GbCF), a document that contains a
68 set of competencies and core behavioural statements that are intended to be generally applicable
69 for the pharmacy workforce worldwide ². Competencies included in the FIP GbCF have been
70 developed with reference tools and frameworks from more than 40 countries worldwide and the
71 FIP GbCF has been found to be relevant and provide initial guidance for foundation-level scope
72 of practice across all settings around the globe ². The FIP GbCF includes 100 behaviours grouped
73 under 20 competency domains and four broad competency clusters (see table 1). The framework
74 was developed to act as a mapping tool for the creation of country-specific frameworks based on
75 local needs for the development of practice and pharmacists' professional development. Ireland
76 was the first country to adapt the FIP GbCF ³. Croatia is another case example of using the FIP
77 GbCF to develop a country-specific competency framework ⁴. In Ireland and Croatia, the
78 adaptation process involved sequential steps, including validation through consultation with
79 pharmacists and other stakeholders. The adaptation process also involved a profession-wide
80 consultation across all practice settings to ensure that the final framework is flexible to meet the
81 needs of pharmacists working in different settings ^{3,4}. In Croatia, the adaptation process has an
82 additional step which included translation into Croatian to facilitate local implementation.
83 Findings from Croatia showed that the FIP GbCF, as a precursor for country-specific pharmacy
84 framework, could be used, validated, and adapted to national needs in non-English speaking
85 countries ⁴.

86 At the time of this research, there were no competency frameworks for pharmacists in Kuwait.
87 There were also no defined standards for pharmaceutical care services. The lack of these
88 fundamental standards and frameworks presented a barrier for pharmacists to identify their

89 learning and training needs as well as advance in their careers. The healthcare system in Kuwait
90 provides primary, secondary, and tertiary healthcare services in both public (government) and
91 private sectors. Pharmacists in Kuwait are distributed among six general public hospitals, nine
92 specialised hospitals and around 90 public primary care clinics, in addition to several private
93 hospitals and clinics, and semi-private research institutes and industry sectors ⁵. Although
94 pharmacy practice has transformed dramatically over the last 20 years towards a newer scope of
95 practice including patient-centred care, pharmacy is still under-developed in Kuwait with
96 inadequate levels of pharmaceutical care provision and training, and the clinical role of
97 pharmacists, across all sectors, is not effectively utilised ⁶⁻¹⁰. The duties of hospital pharmacists
98 mainly include administrative roles, such as drug orders, stock control and personnel management
99 ^{9,10}. Also, with the current lack of re-licensure regulations for pharmacists in the public sector,
100 maintaining competence and fitness to practice is questionable. There is a need for an evidence-
101 based developmental tool that would define the scope of practice for early career pharmacists
102 (foundation level) and support pharmacists' career development. This will support a seamless
103 transition from initial education into early career practice and towards advanced practice ¹¹.

104 This study aimed to develop the Kuwait Foundation Competency Framework (KFCF) for
105 pharmacists using the FIP GbCF using an adopt and adapt approach. The KFCF would aid in
106 defining the scope of practice, reforming the pharmacy workforce development and providing
107 support required to create an accountable, flexible, and adaptable workforce.

108

109 **Methods**

110 The KFCF was adopted from the FIP GbCF and adapted to develop a country-specific framework
111 following four phases: translation, initial consensus panels validation, a national survey, and a final
112 consensus panel validation (Figure 1).

113 Phase one involved translation of the FIP GbCF into Arabic to ensure proper utilisation of the
114 developed framework by pharmacists in Kuwait as the official language in the country is Arabic.
115 Translation was performed using a parallel blind translation technique. In this method, two
116 translators work independently to translate the required document to the targeted language and
117 then meet to compare their translations, discuss any discrepancies, and agree on a final translated

118 version ¹². Two expert pharmacists who have experience in developing bilingual (Arabic and
119 English) pharmacy material and experience in translating documents for research purposes worked
120 independently to translate the FIP GCF from English into Arabic. Both translators and the principal
121 author met to discuss discrepancies and to decide on one final Arabic version. The final version of
122 the framework was bilingual (English and Arabic). Further verifications were conducted in
123 subsequent phases to ensure that the final translated version is a true reflection of the original
124 document.

125 In the second phase, two face-to-face consensus panels were formed. They were conducted
126 between December 2017 and January 2018. with two aims: (1) to obtain agreement on the
127 outcomes of phase 1 - the translation and (2) to establish initial consensus competencies and
128 behavioural statements were relevant to Kuwait practice. Participants were recruited using a
129 purposive sampling strategy based on their years in practice and being fluent in both Arabic and
130 English. Early career pharmacists (one to three years' working experience) and experienced
131 pharmacists (working for more than five years) were identified and invited to participate in Panels
132 1 and 2, respectively. Characteristics of panel members are presented in Table 2. The FIP GbCF
133 was originally developed with a focus on 'foundation' practice which is beyond "Day 1",
134 encompassing up to approximately the first three years of career development, and it was also
135 intended to help ensure competence across all settings. Therefore, participants for consensus Panel
136 1 were purposively selected to be pharmacists with 1-3 years of experience (n=5). This sampling
137 method yielded a panel that included only Kuwaiti pharmacists from the public sector because the
138 law in Kuwait necessitates that, for Kuwaiti pharmacists to work in the private sector, they should
139 have at least five years of experience (either in the public sector or industry) and expatriate
140 pharmacists need to have at least three years of experience in their home country before they can
141 obtain a licence to practice in Kuwait. Consequently, all members of Panel 1 were Kuwaiti
142 pharmacists working in the public sector with 1-3 years of experience. Therefore, it was deemed
143 necessary to have another Panel 2 (n=4). This enabled viewpoints to be sought from pharmacists
144 in a broader context. Panel 2 was needed to make sure that relevance to practice is assessed in
145 other settings, not only the public sector. This panel consisted of pharmacists working in public
146 (primary and secondary care) as well as private (hospital and community) sectors with more than
147 three years of experience and are different from participants in Panel 1. Due to the small number

148 of participants in each panel, Delphi process was not applied. The FIP GCF/Arabic was presented
149 to each panel and participants in both panels were asked to answer the following two questions: 1-
150 Are competencies and behaviours identified relevant to the practice and are there any missing?,
151 and 2-Does the translated version of the FIP framework contain clear and understandable
152 language?. Panel members were asked to discuss their own opinion about the equivalency of the
153 translation. They also assessed the degree of relevance of each behavioural statement to the current
154 practice using a 4-points Likert-type scale (1= not relevant, 2=low relevance, 3= relevant, 4=highly
155 relevant). Participants discussed their own opinion about the equivalency of the translation and the
156 degree of relevance of each behavioural statement with the entire panel. The final consensus was
157 obtained when the entire group reached a unanimous decision on the degree of relevance of each
158 behavioural statement. Panel discussions lasted 120-150 minutes and both panels were guided by
159 the same facilitator to ensure consistency. Panel discussion were not audio recorded; however,
160 notes were taken by a scribe and the facilitator.

161 The third phase – carried out between April to July 2018 - involved the assessment of the relevance
162 of the FIP GbCF behavioural statements across a wider population of pharmacists in Kuwait across
163 all settings to develop the KFCF. A cross-sectional survey using an online questionnaire through
164 Qualtrics Survey Software QSS (Qualtrics, Provo, UT, USA) was used. The questionnaire was
165 adapted from one previously developed and validated by Bruno ¹³ and Udoh et al. ¹⁴. Although the
166 original FIP GbCF included 100 behavioural statements, seventeen statements were excluded from
167 the national survey because they were rated as ‘highly relevant’ by all members in both consensus
168 panels; they were therefore excluded to reduce time to complete the questionnaire. The
169 questionnaire comprised 91 questions. Eight questions were related to demographic information
170 and the remaining 83 questions referred to 83 behavioural statements and participants were asked
171 to rate the relevance of each behavioural statements to their current practice using a 4-point Likert
172 scale (1= not relevant, 2=low relevance, 3= relevant, 4=highly relevant).

173 Before dissemination, the questionnaire was piloted with a convenience sample of 14 pharmacists
174 practising in primary and secondary care settings. Further modifications were made to the
175 questionnaire based on the pilot test results. All registered pharmacists were eligible to participate
176 in the national survey. A list of 4331 registered pharmacists (as of February 2017) was retrieved

177 from the Kuwait Pharmaceutical Association (KUPHA). The web-based questionnaire was sent as
178 an anonymous link to all emails included in the registry list. Of the 4331 registrants, 1483
179 pharmacists had contact email addresses in the database. Of the 1483 email addresses, 492 bounced
180 upon receiving the first email; 991 pharmacists were recipients of the emails. As the registry list
181 did not include emails for all registered pharmacists, another mode of recruitment was undertaken
182 to maximise response rate. The anonymous link to the web-based questionnaire was posted on
183 existing Kuwait pharmacy groups in social media such as Facebook and WhatsApp. Pharmacists
184 were also requested to forward the anonymous link for the online questionnaire to other valid
185 participants. Reminders were sent every two weeks for three months.

186 A final validation of the developed framework was undertaken between October 2018 and January
187 2019 using purposive and convenience sampling. In this phase, two validation steps were
188 undertaken. First, a consensus panel discussion with decision and policy makers was conducted to
189 agree on the list of behaviours to be included in the KFCF based on the findings from previous
190 phases. People in positions of authority to influence the change by the development and
191 implementation of policies were identified and invited to take part. Decision-makers (n=5) were
192 identified by purposive sampling based on their position in KUPHA, the Ministry of Health
193 (MoH), Kuwait University (KU), and the Life Science Academy (LSA). Second, a focus group
194 with pharmacists (n=18) was conducted to assess the acceptability of the KFCF as a developmental
195 tool from the end-users' (i.e. pharmacists') perspectives. In this step, behaviours in the KFCF were
196 attached to a self-assessment rating scale and presented to pharmacists in the focus group
197 discussion. The group discussions were not audio-recorded; however, notes were taken by the
198 researcher. Participants were provided with a draft of the KFCF and were asked to use flipchart
199 paper and write their answers to the following questions: 1- If you will use the framework to help
200 you in your professional development, what do you think about the scale used in the framework?
201 The rating scale included four scale points: consistently (100-85% of the time), usually (84-51%
202 of the time), sometimes (50-25% of the time), and rarely (24-0% of the time), 2- How do you feel
203 about the convenience and suitability of using the framework for your professional development?

204

205 **Data analysis**

206 Data from the initial consensus panels validation were entered into an Excel spreadsheet and
207 analysed using frequency and percentages and presented using tables and figures. Data were
208 collected and reported in aggregates.

209 Data from the national survey were analysed using IBM SPSS Statistics for Windows, version 25
210 ¹⁵. Replies to the questionnaire were automatically coded and exported to SPSS using the survey
211 software (Qualtrics, Provo, UT, USA). Demographic characteristics were summarised using
212 frequencies and percentages. Respondents' perceptions of relevance to behavioural statements
213 were also summarised using frequencies and percentages. The four-point Likert scale was
214 aggregated into three categories. The 'highly relevant' and 'relevant' ratings were condensed into
215 one category: 'relevant', while 'low relevance' and 'not relevant' ratings remained separate
216 categories. A decision of identifying a 'not relevant' competency to current practice was guided
217 by published healthcare research ^{4,14,16}. Consensus on relevance to practice was attained when not
218 more than 25% of responses were in the 'not relevant' rank. Competency groups with high 'not
219 relevant' responses were further analysed, and inferential analysis was conducted using the
220 Pearson's Chi-Square (χ^2) test to evaluate the relationship between survey responses and
221 respondents' characteristics such as the area of practice and length of practice, as well as other
222 demographics. The χ^2 tests were carried with statistical significance predefined as $p \leq 0.01$. Areas
223 of disagreement were analysed according to the following predictor variables: (a) gender: male
224 and female; (b) nationality: Kuwaiti and non-Kuwaiti; (c) country of undergraduate degree:
225 Kuwait and other countries; (d) postgraduate certificate: yes and no; (e) years in practice: ≤ 3 years
226 and >3 years; (f) patient-facing settings: Direct Patient Care (DPC) and Non-Direct Patient Care
227 (NDPC); (g) practice sector: public, private, and others; (h): practice setting: primary care,
228 hospital, community, regulatory, and others.

229 Data from the final consensus panel validation were analysed thematically using two pre-defined
230 acceptability themes (appropriateness and convenience) according to Sekhon et al.'s ¹⁷ and Sidani
231 and Braden's ¹⁸. Pharmacists' suggestions on how to improve the scale and/or the overall structure
232 of the KFCF tool were also included in the analysis. Data from the panel discussion with decision
233 and policy makers were thematically analysed to develop an action plan for targeting 'not relevant'
234 behaviours.

235 Several measures were undertaken to enhance the trustworthiness, rigour and credibility of
236 qualitative data generated from this study. The same facilitator (AA) conducted all panels as well
237 as the pharmacists focus group to maintain consistency across groups and to minimise the
238 variability that can occur when using multiple interviewers. Moreover, after each panel, the
239 facilitator and the scribe had a debriefing session which allowed for the notes to be compared and
240 comments and observations to be shared. A debriefing session was important as it highlights
241 critical discussion points and reduces facilitator/interviewer bias¹⁹. Although all participants were
242 fluent in Arabic and English languages, all panels were conducted in Arabic to avoid problems of
243 interpretation and ensure accurate meaning was captured during data collection^{20,21}.

244 **Ethical considerations**

245 Ethical approval for this research project was granted from the Ethical Review Committee at
246 University College London (Ref 10969/01) following Data Protection registration and approved
247 permission from the necessary governing bodies in Kuwait such as the Health Sciences Centre
248 Research Committee (VDR/EC/2955) and the Ministry of Health Scientific Research Committee
249 (2016/487).

250 **Results**

251 **Initial validation**

252 This phase aimed to establish initial consensus on the relevance of the competencies and
253 behaviours included in the FIP GbCF to pharmacy practice in Kuwait, as well as to verify the
254 Arabic translation of the original English document.

255 Panel 1 recommended that 15 statements needed re-translation (re-ordering words or rephrasing
256 Arabic statements). Minor revisions were made to the wording in response to comments from
257 panel members. The corrected version was then used for Panel 2. Members of Panel 2 did not have
258 any recommendations regarding translation. All members found the translated statements
259 equivalent to the original English statements. They all agreed that the translation was correct, and
260 the Arabic words and phrases used were understandable.

261 Out of the 100 behavioural statements, 70 were considered either ‘relevant’ or ‘highly relevant’ to
262 pharmacists’ current practice in both panels, and 17 of the 70 were identified as highly relevant to

263 practice by all members in both panels. These 17 behavioural statements were mainly related to
264 dispensing, communication, and patient education. Differences in the level of relevance of
265 behavioural statements between the two panels can be found in Figure 2. Compared to Panel 1,
266 Panel 2 considered fewer competencies to be ‘highly relevant’. Panel 2 comprised pharmacists
267 with more years in practice compared to Panel 1. Findings from phase 2 provided some evidence
268 on the relevance of the behavioural statements to pharmacy practice in Kuwait and showed that
269 relevance to practice may vary according to years in practice and pharmacists’ practice
270 setting/sector.

271 **National survey**

272 A total of 229 replies were received (5.3% of all registered pharmacists). Respondents’
273 demographics and other characteristics are shown in Table 3. Of the 229 respondents, 155 (67.7%)
274 were female. The average length of practice of respondents was 9.8 years (S.D \pm 6.3 years).

275 *Overall perception of relevance*

276 Responses in aggregate (across all questions) showed that, 45.8% of all responses were in the
277 ‘relevant’ category, while 29.4% and 24.8% of all responses were in the ‘low relevance’ and ‘not
278 relevant’ categories respectively. It was found that respondents from the private sector were more
279 likely to perceive the behavioural statements ‘relevant’ to their current practice compared to
280 pharmacists working in the public sector and other sectors (Figure 3). Moreover, respondents with
281 >3 years in practice were more likely to perceive the behaviours as ‘relevant’ to their current
282 practice compared to respondents with \leq 3 years in practice (Figure 4).

283 *Perception of relevance per cluster*

284 Findings showed that all clusters have higher percentages of responses in the ‘relevant’ category
285 compared to other categories, with cluster 1 scoring the highest percentage (54.9 %) of ‘relevant’
286 responses (Table 4). Higher percentages of ‘not relevant’ responses were evident with cluster 2
287 and 3 (19.5% and 35.1% respectively) compared to cluster 1 (9.4%).

288 *Perception of relevance per competency group*

289 For this analysis, and for more accurate estimates of competency groups that are ‘not relevant’ to
290 practice, behavioural statements that were previously excluded from the questionnaire have been

291 added to their competency group, and sums and percentages of rating categories were re-
292 calculated. For each of the added 17 behavioural statements, an assumption was made that ‘not
293 relevant’ is equal to zero count (0%). Therefore, for each of the 17 behavioural statements, a (0)
294 count was added to the ‘not relevant’ category and was used to re-calculate the group aggregate.
295 A total group responses count was also re-calculated. This was achieved by adding a number =
296 total count of a single behavioural statement in the same group. When there are different total
297 counts for behaviours in a group, the number = least total count was added to the total group count.
298 A total group percentage of 100 was maintained. Re-calculating group ‘not relevant’ categories
299 and total group count was believed necessary in order not to overestimate or underestimate results
300 from group aggregates (Figure 5).

301 Figure 5 shows that six out of twenty competency groups have a percentage of “not relevant”
302 responses above the pre-defined consensus level. These are Patient consultation and diagnosis
303 (26.6%), Budget and reimbursement (43.4%), Human resources management (32.4%),
304 Procurement (40.2%), Legal and regulatory practice (26.1%), and Quality assurance and research
305 in the workplace (28.1%).

306 Inferential analysis (Pearson's Chi-Square (χ^2)) test showed that respondents working in the public
307 sector (compared to private sector), and those working in hospital settings (compared to primary
308 care, community, regulatory, and other settings) were found more likely to perceive behaviours in
309 the following competency groups as ‘not relevant’ to their current practice: Budget and
310 reimbursement, Human resources management, and Procurement ($P < 0.01$). Respondents working
311 in the public sector were found more likely to perceive behaviours included in competency group
312 Quality assurance and Research in the workplace as ‘not relevant’ to their current practice
313 ($P = 0.01$). No significant association was found between respondents’ demographics and relevance
314 rating of behaviours included in competency group Legal and regulatory practice and Patient
315 consultation and diagnosis. There were no significant associations between the respondents’
316 relevance rating and their other demographic characteristics ($p > 0.01$).

317

318 *The list of behaviours to be included in the KFCF according to findings*

319 Findings from consensus panels and the national survey helped identified the list of behaviours
320 that could be included in the KFCF (table 5). The analysis of competency groups showed that the
321 main factor that affected pharmacists' perceptions of the relevance of behaviour to their practice
322 was their practice sector (private/public). Differences in practice between the two sectors
323 necessitate the adjustment of behavioural statements to best fit the nature of each sector. Therefore,
324 behaviours were categorised into three categories:

325 **Core behaviour:** a behaviour that is ESSENTIAL for all pharmacists in their first one to three
326 years in practice AND applies to all practice settings,

327 **Supplementary for public:** a behaviour that is ESSENTIAL for all pharmacists in their first one
328 to three years in practice AND applies to the public sector only, and

329 **Supplementary for private:** a behaviour that is ESSENTIAL for all pharmacists in their first 1-3
330 years in practice AND applies to the private sector only.

331 A core behaviour is a behavioural statement that was found to be relevant to practice from the
332 consensus development panels and the responses from the national survey (score of 'not relevant'
333 <25%). However, behaviours that scored > 25% in the 'not relevant' category (according to the
334 pre-defined consensus level) were then further analysed according to the sectors. A behavioural
335 statement that showed significant different ($p \leq 0.01$) between the two sectors was labelled as
336 supplementary behaviour for that sector (supplementary file 1).

337 Sixteen behavioural statements were rated by >25% of respondents as 'not relevant' and showed
338 no significant association with either public or private sector (see supplementary file 1). The survey
339 showed that practice settings or other demographic characteristics did not fully explain the
340 disagreement in these 16 behavioural statements (22, 24, 29 30, 38-39, 44, 46-47, 71, 80, 87, 89-
341 91, 95). Those 16 behaviours were presented to the final validation consensus panel to decide
342 whether they should be included or excluded from the KFCF.

343 **Final validation**

344 Decision and policy makers who participated in the final validation consensus panel agreed with
345 having core and supplementary behavioural statements within the foundation framework to act as
346 a roadmap for pharmacists' career development.

347 The panel members discussed the 16 behavioural statements that were perceived as ‘not relevant’
348 to current practice. The panel members agreed on changing some behavioural statements’ wording
349 to make it more relevant to Kuwait practice (e.g. “develop and implement a contingency plan for
350 shortage” was amended to “participate in the implementation of a contingency plan for a
351 shortage”), and transfer of a behavioural statement from one competency group to another (e.g.
352 “acknowledge the organisational structure” was moved from ‘Budget and reimbursement’ to
353 ‘Workplace management’). Further amendments encompassed exclusion of two behavioural
354 statements that were not supported by Kuwait pharmacy practice (e.g. “assess and diagnose based
355 on objective and subjective measures”), or too advanced for foundation level framework and is
356 immeasurable (e.g. “recognise and manage the potential of each member of the staff and utilise
357 systems for performance management (e.g. carry out staff appraisal”). The remaining 12
358 behavioural statements were all considered as core in the KFCF. An action plan was created by
359 panel members to target these core behaviours on three main aspects: education, practice, and
360 policy.

361 The action plan created by the panel members is presented in Table 6. The action plan clarifies
362 “Why”, “What”, “Who” and “How” to ensure a comprehensive approach to change. In Table 6,
363 the first column states the behavioural statements under discussion. “Why” the behavioural
364 statements were perceived as “not relevant” is explained in the second column. The third column
365 explains “What” should be done to address each specific behavioural statement, and whether the
366 behavioural statement under discussion should be included or excluded from the KFCF. Actions
367 to facilitate implementation and adaptation are explained in the fourth column and clarifies the
368 “Who” and “How” of the changes could happen. Column 4 is divided into three parts reflecting
369 the three main aspects identified. Panel members agreed on three main recommendations for
370 effective implementation of the KFCF and the advancement of pharmacy practice in Kuwait (table
371 7). Participants reported that continuing support and training is required for pharmacists to adapt
372 the 98 behaviours within the KFCF. This could be achieved by having a national foundation
373 training programme designed and delivered through collaboration with KU, KuPhA and the MoH.
374 Pharmacists participated in the focus group provided insights on the acceptability of the KFCF as
375 a developmental tool. Participants reported that the scale used to assess performance was helpful.

376 They believed the scale could support pharmacists to develop their knowledge and skills. They
377 also indicated that the scale included in the KFCF is useful and adaptable.

378 *Participant 2: “We see the four-point scale [as] very useful... it is easy to use as a way*
379 *to assess or evaluate performance... we can adapt it to the annual staff appraisal as*
380 *well.”*

381 Participants indicated that the KFCF is easy to use for professional development. They believed
382 that using this tool will provide them with more job satisfaction as they will be more aware of the
383 improvement of their performance. However, participants reported that the wording (consistently,
384 usually, sometimes, rarely) and the ranges used for the rating (100-85%, 84-51%, 50-25%, 24-0%)
385 might need revision. The group’s recommendations regarding wording and rating were to add the
386 Arabic translation next to the English wording for easy interpretation of the scale.

387 *Participant 3: “Suggestion: revise the rating to be easier to estimate... for example, the*
388 *rating could be 100-81%, 80-51%, 50-26%, 25-0%... add Arabic translation next to*
389 *‘(consistently, usually, sometimes, rarely)’...”*

390

391 Participants’ suggestions and recommendations regarding the scale and overall structure of the
392 KFCF were used to modify the developmental tool (the final version of the KFCF is available upon
393 request).

394 **Discussion**

395 This study is, to our knowledge, the first study that translated, used, adjusted, and validated the
396 GbCF among Arabic-speaking countries and in the Eastern Mediterranean Region (EMR).
397 Previous research showed that the FIP GbCF proved relevant to practice across all settings globally
398 ^{2,14}. The process used in this study to develop the KFCF shared similar methodologies to the ones
399 used in Ireland and Croatia; however, the adaptation process yielded a different framework ^{3,4}.

400 This study utilised a 4-phase adopt and adapt approach including several validations to ensure the
401 development of a country-specific and context-relevant pharmacy competency framework. Using
402 consensus development panels in adapting a competency framework to the country’s local needs
403 as in the present study, was found effective in a previous study ⁴.

404 The national survey showed that cluster 1- Pharmaceutical public health (54.9%) scored highest
405 in the 'relevant' category, followed by cluster 2- Pharmaceutical care (50.6%). The cluster that
406 scored lowest in the 'relevant' category was cluster 3- Organisation and management (35.9%).
407 Similar studies that assessed the relevance of behavioural statements included in the GbCF
408 globally ¹³ and in African countries ¹⁴ showed similar results to the present research.

409 Findings from this research showed that respondents with >3 years in practice were more likely to
410 perceive behaviours included in the KFCE as 'relevant' to their current practice compared to
411 respondents with ≤3 years in practice. This was not evident in previous research ^{13,14}. The findings
412 from this research may indicate that, in Kuwait, more experienced pharmacists are still performing
413 at foundation-level rather than at more advanced and speciality levels. Findings from this research
414 add to the body of literature that previously showed that pharmaceutical services are yet to develop,
415 and called for the role of pharmacists in Kuwait to be expanded ^{7,8,10,22,23}.

416 Analysis of relevance of competency groups in the present study showed that the main factor that
417 may influence pharmacists' perception was their practice sector (public or private) and practice
418 settings (primary care, hospitals, community, regulatory, others) and this was found to be
419 consistent with evidence from previous research ^{13,14}. Respondents from the private sector were
420 more likely to perceive behaviours included in the KFCE as 'relevant' to their current practice
421 compared to pharmacists working in the public sector and other settings. This may be in line with
422 the scope of practice of pharmacists in the private sector since they routinely carry out more
423 activities related to health promotion, minor ailments, procurement and reimbursement compared
424 to pharmacists in the public sectors ^{9,23-25}. On the other hand, most procurement, budgeting, and
425 reimbursement activities for the public sector healthcare facilities are conducted on a national level
426 and governed by the Central Medical Stores (CMS), and there is minimal or no control from
427 individual hospitals or pharmacists.

428 Although previous studies conducted in Kuwait showed that hospital pharmacists devoted their
429 time to administrative roles such as personnel management ^{9,10}, findings from the present study
430 showed that pharmacists in the public sector and those working in hospital settings were more
431 likely to perceive behavioural statements related to 'human resources management' as not relevant
432 to their practice. This could be explained by the fact that staffing issues are managed at an

433 organisational level rather than at the departmental level in most of the healthcare facilities in
434 Kuwait; therefore, respondents who are engaged in staffing issues may think this factor is not
435 highly relevant to their pharmacy profession.

436 The disagreement observed with 'quality assurance and research in the workplace' was only
437 related to practice sector; pharmacists working in the public sector were more likely to perceive
438 some of the behavioural statements within this competency group as 'not relevant' to their current
439 practice. This is consistent with findings from other studies where pharmacists in the hospital
440 settings were found to rarely conduct research activities ^{26,27}. Moreover, a study conducted in
441 Kuwait found that 67% of public hospital pharmacists surveyed were unable to apply research
442 evidence to patient care ²⁸. Findings from the present research highlight the need to build research
443 capacity in the pharmacy field in Kuwait.

444 On the other hand, 'patient consultation and diagnosis' and 'legal and regulatory practice' were
445 identified as 'not relevant' competencies and this was not fully explained by the area of pharmacy
446 practice or other characteristics of respondents. Previous research showed that pharmacists'
447 behaviours related to 'patient consultation and diagnosis' and 'legal and regulatory practice' were
448 highly relevant to their practice ^{13,14}. However, the present study showed that there was no
449 significant difference observed between pharmacists practising in different sectors or settings in
450 relation to behavioural statements included in these two competency groups. this added to the
451 increasing body of evidence from other studies conducted in Kuwait that suggest that pharmacists
452 are not routinely involved in diagnosis or consultation activities ⁶⁻⁸, and are not well engaged in
453 health and medicine policies due to the lack of official procedures on pharmacy-related policy
454 development and implementation in Kuwait ⁶.

455 The survey showed that practice sectors or settings did not fully explain the disagreement in 16
456 behavioural statements. The findings from the final validation phase in this study showed that these
457 16 behavioural statements are mainly related to behaviours that pharmacists are not currently
458 doing. Pharmacists in Kuwait have limited access to patient medical notes, are not responsible for
459 budgeting or procurement in the public sector, have limited resources and support to conduct
460 research, and there is no code of ethics that binds pharmacy practitioners with a code of conduct.
461 These were found to be consistent with barriers and limitations to the pharmacists' role that have

462 been highlighted in previous studies conducted in Kuwait ^{6,8,9,28,29}. Pharmacists' limited role, as
463 well as the product-centred approach to practice, was also evident in some countries in the Eastern
464 Mediterranean Region ^{30,31}. The key for addressing these barriers and limitations to improving
465 practice is collaboration between education, practice and policy to expand the role of pharmacists
466 and define the scope of practice in the foundation as well as advanced levels ^{30,31}.

467 This study also investigated decision-makers' and education providers' perspectives about areas
468 for disagreement identified from the national survey. An action plan targeting the three
469 components – education, a support system, and policies – was created to obtain a holistic and
470 comprehensive approach to re-shape the pharmacy workforce and pharmacy practice in Kuwait.
471 Discussion with decision-makers and education providers confirmed that clear policies and
472 regulations that would facilitate the advancement of pharmacy practice in Kuwait are lacking and
473 a comprehensive and multi-dimensional action plan is needed. Studies that have been conducted
474 in Kuwait consistently recommended that joint sustained collaboration between the MoH, KuPhA
475 and KU is essential to design and implement effective development plans and programmes ^{6,8,24,29}.
476 The action plan created by decision-makers and education providers who participated in this study
477 could be the first step towards establishing a sustainable and comprehensive approach for the
478 development of workforce strategic planning.

479 Evidence showed that competency frameworks are an acceptable tool for the facilitation and
480 evaluation of performance development ³²⁻³⁵. However, investigating pharmacists' acceptance of
481 a competency framework before its actual use in performance assessment is rarely studied ³⁶. There
482 is limited research on the engagement of pharmacists in the design and refinement of developed
483 competency frameworks. This study provided evidence of the acceptability of the developed
484 competency framework from pharmacists' perspectives. Participants reported that the KFCF is a
485 useful tool to guide their professional development. This was found to be consistent with previous
486 research where pharmacists believed that a competency framework would be useful in evaluating
487 and assessing competencies and skills needed to provide services on a day-to-day basis ³⁶.

488 Finally, The KFCF has been adapted by the Kuwait MoH in March 2019. The adaptation process
489 started with small scale pilot programme with pharmacists from primary and secondary care
490 settings. A wide national endorsement is planned to start on September 2020. Future research could

491 aim to evaluate the KFCF applicability to Kuwait context. Future research may also aim to
492 investigate the validity of the KFCF in other Arabic-speaking countries. This will support other
493 countries, which currently lack a foundation competency framework, to effectively plan for
494 pharmacy workforce development and advancing the pharmacy practice. Moreover, future
495 research may work on developing advanced-level competency frameworks and expanding the role
496 of pharmacists to include speciality services. This will ensure that pharmacists are supported while
497 they are evolving in their career pathways.

498 *Implications for development by other nations*

499 High-quality healthcare services can only be provided by a competent and capable workforce. A
500 competent workforce is fundamental in strengthening a nation's health systems, and for achieving
501 population healthcare needs. This research presents the first bilingual (Arabic/English) pharmacy
502 foundation competency framework that builds on the GbCF. It provides a pioneering approach that
503 will guide educators, policymakers, and leaders in other countries to develop competency
504 frameworks in their contexts. This study presents a flexible 4- phase adopt and adapt approach to
505 a global framework that yielded a country-specific and context relevant competency framework.
506 The unique design of this present study adds to the literature an important aspect of engaging
507 stakeholders (e.g. pharmacists) in the design and refinement of a professional development tool
508 before piloting it. Pharmacists' input in the refinement of the KFCF and their participation in
509 assessing its acceptability from their perspectives fulfilled an important gap in the process of
510 change and involved pharmacists in the development of the KFCF to enhancing adaptation rate.
511 The study also demonstrates a practical and flexible approach to adopting and adapting the FIP
512 Framework, allowing for other countries to develop agile categories of the competency statements
513 that reflect local practice and service needs & priorities.

514 **Limitations**

515 This study has some limitations. Back translation was not utilised in this study and this may have
516 had impacted the final translated version of the framework. However, subsequent verification of
517 the translation was conducted with the two consensus panels to verify that the final version is
518 meaning-based translations rather than word-for-word translations, i.e. conceptual equivalence

519 ^{37,38}. Another limitation is that only 229 responses were received from the national survey.
520 However, the number of responses received in this study is comparable to the number of responses
521 in similar studies conducted elsewhere ^{3,4}. In Croatia, after public consultation with all registered
522 pharmacists (n=53431), the response rate was 0.04% (only 26 responses were received). Moreover,
523 in Ireland, all registered pharmacists were consulted (n=5245), only 485 responses were reported
524 (response rate=9.2%). Moreover, this study may be subjected to non-response bias. Non-
525 respondents may not have an interest in competency development or foundation level practice or
526 may have had other reasons not to respond to the questionnaire. Furthermore, participants of
527 consensus panels were purposively identified and recruited, and therefore, the researcher may not
528 have identified other stakeholders that would have valuable input. Finally, the cross-sectional
529 nature of the data might be another limitation of this study. Data collected represented one point
530 in time and therefore do not reflect any changes in respondents' perceptions over time. Although
531 there are some limitations to the methodologies applied to develop the KFCF, the level of relevance
532 showed in this study was found appropriate by key decision and policy makers in the relevant
533 institutes in Kuwait.

534 **Conclusion**

535 This study aimed to develop the Kuwait Foundation Competency Framework, using an evidence-
536 based approach to create clear and purposeful post-graduation education and support pharmacists'
537 career development. The KFCF could be utilised as a developmental tool to guide and support
538 pharmacists' performance at foundation level.

539

540 **Acknowledgement**

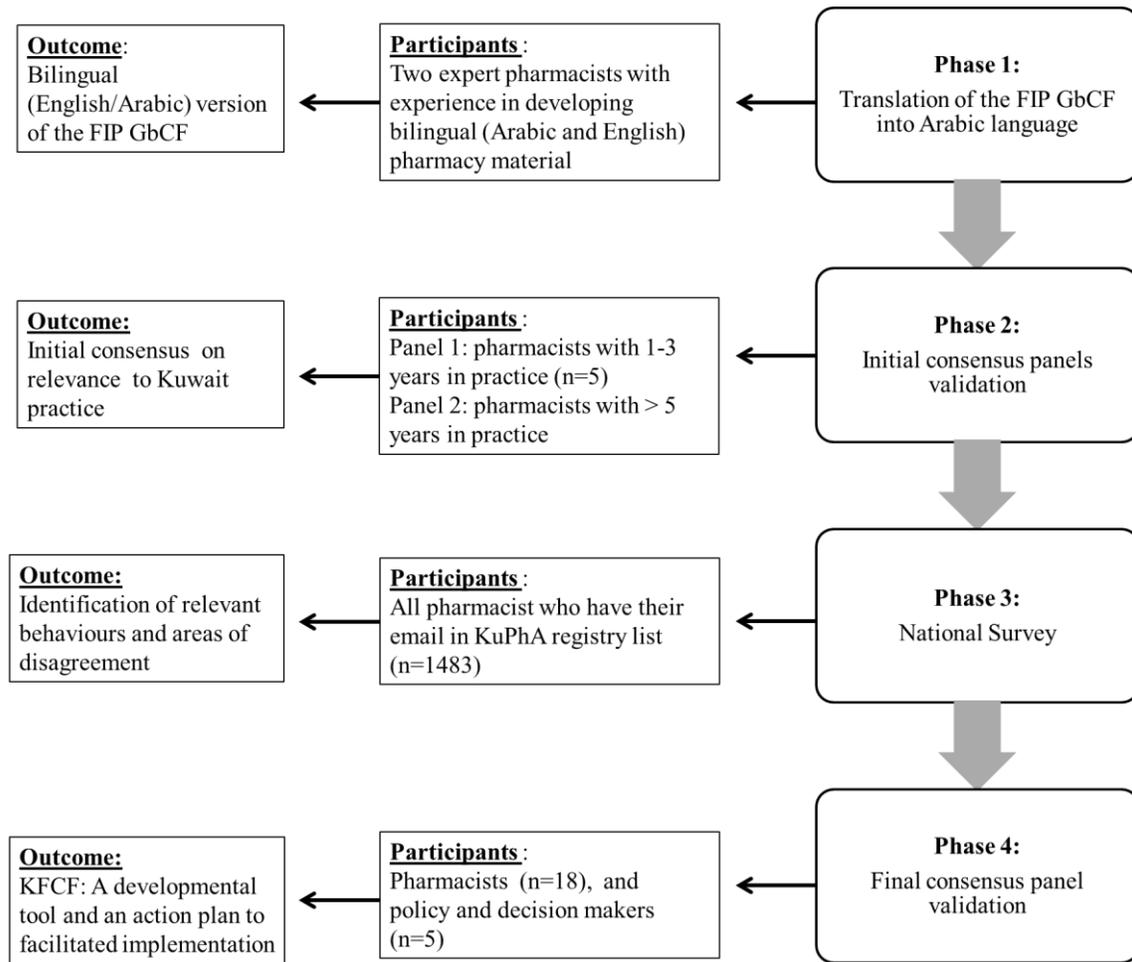
541 The authors would like to thank Dr. Salah Waheedi and Haila Al-Dosari for their assistance in
542 conducting pharmacists focus group. The authors also thanks Adnan Hajjiah and Shaimaa
543 Shaima Elmetennawy for translating the GbCF into Arabic language.

544 References

- 545 1. International Pharmaceutical Federation. Transforming Pharmacy and Pharmaceutical
546 Sciences Education in the Context of Workforce Development.
547 <https://www.fip.org/file/1387>. Published 2017. Accessed 20 February 2018.
- 548 2. International Pharmaceutical Federation. A global competency framework: for Services
549 Provided by Pharmacy Workforce.
550 https://www.fip.org/files/fip/PharmacyEducation/GbCF_v1.pdf. Published 2012.
551 Accessed 11 November, 2016.
- 552 3. The Pharmaceutical Society of Ireland. Core Competency Framework for Pharmacists.
553 [https://www.thepsi.ie/libraries/publications/psi_core_competency_framework_for_pharm](https://www.thepsi.ie/libraries/publications/psi_core_competency_framework_for_pharmacists.sflb.ashx)
554 [acists.sflb.ashx](https://www.thepsi.ie/libraries/publications/psi_core_competency_framework_for_pharmacists.sflb.ashx). Published 2013. Accessed 29 April, 2017.
- 555 4. Mucalo I, Hadziabdic MO, Govorcinovic T, Saric M, Bruno A, Bates I. The Development
556 of the Croatian Competency Framework for Pharmacists. *American Journal of*
557 *Pharmaceutical Education*. 2016;80(8):134.
- 558 5. State of Kuwait: General Statistics Bureau. Statistical Review, ed 36.
559 <https://www.e.gov.kw/sites/kgenglish/Forms/StatisticalReview-2013.pdf> Published
560 2013. Accessed 30 September, 2016.
- 561 6. Lemay J, Waheedi M, Al-Taweel D, Bayoud T, Moreau P. Clinical pharmacy in Kuwait:
562 Services provided, perceptions and barriers. *Saudi Pharmaceutical Journal*
563 2018;26(4):481-486.
- 564 7. Al Haqan A, Al-Taweel D, Hussein AI, Wake DJ. Pharmacists Attitudes and Role in
565 Diabetes Management in Kuwait. *Medical Principles and Practice*. 2017.
- 566 8. Katoue MG, Awad AI, Schwinghammer TL, Kombian SB. Pharmaceutical care in Kuwait:
567 hospital pharmacists' perspectives. *International Journal of Clinical Pharmacy*.
568 2014;36(6):1170-1178.
- 569 9. Matowe L, Al-Kandery AS, Bihzad SM. Pharmacy in Kuwait. *American Journal of*
570 *Health-System Pharmacy*. 2003;60(15):1591-1592.
- 571 10. Al-Taweel DM, Awad AI, Johnson BJ. Pharmacists' contributions to the delivery of
572 pharmaceutical care to patients with type 2 diabetes in Kuwait. *International Journal of*
573 *Diabetes in Developing Countries*. 2014;34(2):108-115.
- 574 11. International Pharmaceutical Federation. Pharmaceutical Workforce Development Goals.
575 <http://www.fip.org/www/index.php?page=educationreports>. Published 2016. Accessed
576 November 17, 2016.
- 577 12. Hambleton RK, Patsula L. Adapting Tests for Use in Multiple Languages and Cultures.
578 *Social Indicators Research*. 1998;45(1):153-171.
- 579 13. Bruno AF. *The feasibility, development and validation of a global competency framework*
580 *for pharmacy education*. London: School of Pharmacy University of London. London;
581 2011.

- 582 14. Udoh A, Bruno A, Bates I. A survey of pharmacists' perception of foundation level
583 competencies in African countries. *Human Resources for Health*. 2018;16:16.
- 584 15. IBM Corp. SPSS Statistics for Windows (Version 25.0) [Computer software]. Armonk and
585 NY: IBM Corp. Published 2018. Accessed.
- 586 16. Hutchings A, Raine R. A systematic review of factors affecting the judgments produced
587 by formal consensus development methods in health care. *Journal of health services
588 research & policy*. 2006;11(3):172-179.
- 589 17. Sekhon M, Cartwright M, Francis JJ. Acceptability of healthcare interventions: an
590 overview of reviews and development of a theoretical framework. *BMC Health Services
591 Research*. 2017;17(1):88.
- 592 18. Sidani S, Braden CJ. *Design, evaluation, and translation of nursing interventions*. John
593 Wiley & Sons; 2011.
- 594 19. Krueger RA. *Focus groups : a practical guide for applied research*. 5th edition / Richard
595 A. Krueger, Mary Anne Casey. ed: Los Angeles : SAGE; 2015.
- 596 20. Esposito N. *From Meaning to Meaning: The Influence of Translation Techniques on Non-
597 English Focus Group Research*. Vol 112001.
- 598 21. Smith HJ, Chen J, Liu X. Language and rigour in qualitative research: Problems and
599 principles in analyzing data collected in Mandarin. *BMC Medical Research Methodology*.
600 2008;8(1):44.
- 601 22. Alsaleh FM, Alzaid SW, Abahussain EA, Bayoud T, Lemay J. Knowledge, attitude and
602 practices of pharmacovigilance and adverse drug reaction reporting among pharmacists
603 working in secondary and tertiary governmental hospitals in Kuwait. *Saudi
604 Pharmaceutical Journal* 2017;25(6):830-837.
- 605 23. Awad A, Waheedi M. Community Pharmacists role in obesity treatment in Kuwait: a cross-
606 sectional study. *BMC Public Health*. 2012;12:863.
- 607 24. Awad A, Abahussain E. Health promotion and education activities of community
608 pharmacists in Kuwait. *Pharmacy World & Science*. 2010;32(2):146-153.
- 609 25. Matowe WC, Abahussain EA, Awad A, Capps PA. Self-Monitoring of Blood Pressure and
610 the Role of Community Pharmacists in Kuwait. *Medical Principles and Practice*.
611 2008;17(1):27-31.
- 612 26. Awaisu A, Bakdach D, Elajez RH, Zaidan M. Hospital pharmacists' self-evaluation of their
613 competence and confidence in conducting pharmacy practice research. *Saudi
614 Pharmaceutical Journal*. 2015;23(3):257-265.
- 615 27. Sultana K, Al Jeraisy M, Al Ammari M, Patel R, Zaidi STR. Attitude, barriers and
616 facilitators to practice-based research: cross-sectional survey of hospital pharmacists in
617 Saudi Arabia. *Journal of Pharmaceutical Policy and Practice*. 2016;9:4-4.
- 618 28. Buabbas AJ, Alsaleh FM, Al-Shawaf HM, Abdullah A, Almajran A. The readiness of
619 hospital pharmacists in Kuwait to practise evidence-based medicine: a cross-sectional
620 study. *BMC medical informatics and decision making*. 2018;18(1):4.

- 621 29. Awad A, Al-Ebrahim S, Abahussain E. Pharmaceutical care services in hospitals of
622 Kuwait. *Journal of Pharmacy & Pharmaceutical Sciences*. 2006;9(2):149-157.
- 623 30. Kheir N, Fahey M. Pharmacy practice in Qatar: challenges and opportunities. *Southern
624 med review*. 2011;4(2):92-96.
- 625 31. Bader LR, McGrath S, Rouse MJ, Anderson C. A conceptual framework toward
626 identifying and analyzing challenges to the advancement of pharmacy. *Research in Social
627 & Administrative Pharmacy* 2017;13(2):321-331.
- 628 32. Rutter V, Wong C, Coombes I, et al. Use of a general level framework to facilitate
629 performance improvement in hospital pharmacists in Singapore. *American Journal of
630 Pharmaceutical Education*. 2012;76(6):107-107.
- 631 33. Stojkov S, Tadic I, Crnjanski T, Krajnovic D. Assessment and self-assessment of the
632 pharmacists' competencies using the global competency framework (GbCF) in Serbia.
633 *Vojnosanitetski pregled*. 2016;73(9):803-810.
- 634 34. Brown AN, Gilbert BJ, Bruno AF, BPharm GMC. Validated Competency Framework for
635 Delivery of Pharmacy Services in Pacific-Island Countries. *Journal of Pharmacy Practice
636 and Research*. 2012;42(4):268-272.
- 637 35. Antoniou S, Webb DG, Mcrobbie D, Davies JG, Bates I. A controlled study of the general
638 level framework: Results of the Southof England competency study. *Pharmacy Education*.
639 2018;5(4).
- 640 36. Carrington C, Weir J, Smith P. The development of a competency framework for
641 pharmacists providing cancer services. *Journal of Oncology Pharmacy Practice*.
642 2011;17(3):168-178.
- 643 37. Kashgary AD. The paradox of translating the untranslatable: Equivalence vs. non-
644 equivalence in translating from Arabic into English. *Journal of King Saud University -
645 Languages and Translation*. 2011;23(1):47-57.
- 646 38. Esposito N. From meaning to meaning: the influence of translation techniques on non-
647 English focus group research. *Qualitative Health Research*. 2001;11(4):568-579.
- 648
- 649

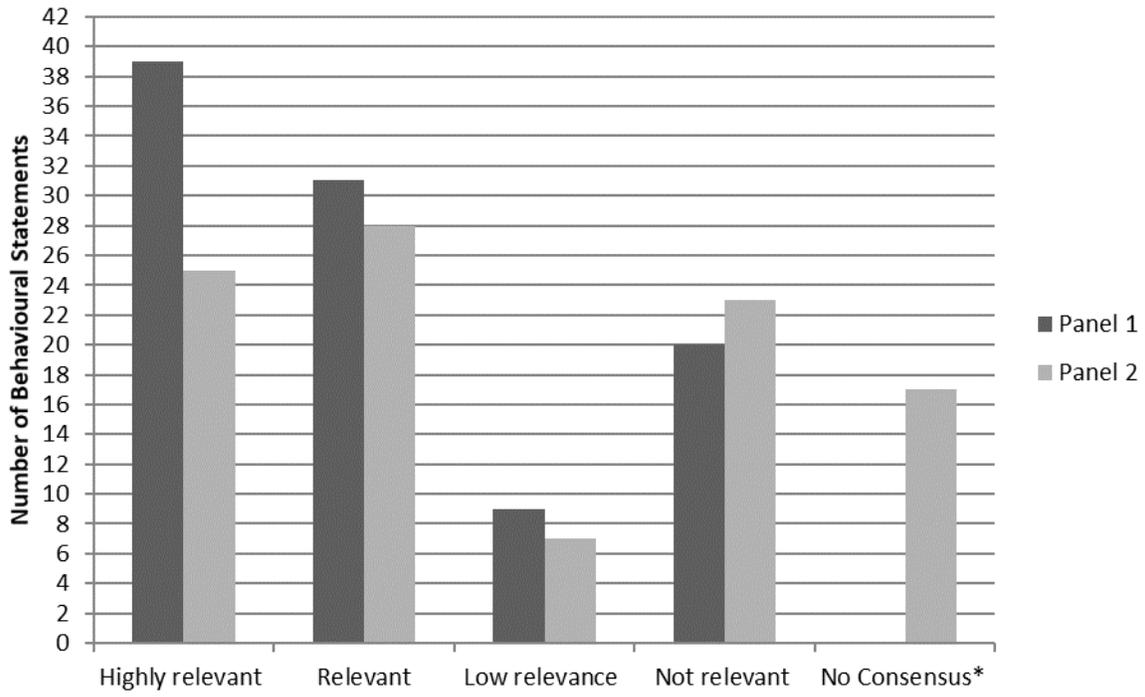


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652 **Figure 1: The adopt and adapt approach used to develop the KFCCF**

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655 * No consensus indicates that members could not reached a unanimous decision on the degree of relevance to practice

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657 **Figure 2: Differences in the level of relevance between the two panels**

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661 **Table 1: Distribution of 100 behavioural statements within the FIP GbCF**

Cluster	Competency group (number of behaviours)
Cluster 1: Pharmaceutical public health competencies	A- Health promotion (2)
	B-Medicines information and advice (2)
Cluster 2: Pharmaceutical care competencies	C- Assessment of medicines (2)
	D- Compounding medicines (2)
	E- Dispensing (8)
	F- Medicines (4)
	G- Monitor medicines therapy (3)
	H-Patient consultation and diagnosis (6)
Cluster 3: Organisation and management competencies	I- Budget and reimbursement (5)
	J- Human resources management (6)
	K- Improvement of service (2)
	L- Procurement (7)
	M- Supply chain and management (6)
	N- Workplace management (6)
Cluster 4: Professional/Personal competencies	O- Communication skills (5)
	P-Continuing professional development (8)
	Q- Legal and regulatory practice (7)
	R-Professional and ethical practice (5)
	S- Quality assurance and research in the workplace (9)
	T- Self-management (5)

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665 **Table 2: Characteristics of panel members**

Panel 1 (N=5)	Panel 2 (N=4)
One primary care pharmacist with two years of experience	One community pharmacist with six years of experience
Three pharmacists working in a hospital setting with six months to 1.5 years of experience	Two pharmacists working in a hospital setting (private and public) with more than 10 years of experience
One pharmacist working in a “speciality centre” with one year of experience	One primary care pharmacist with five years of experience

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Table 3: Respondents' demographics (n=229)

Mean age (SD)	34.8 (7.3)
Gender	
Male	74 (32.2%)
Female	155 (67.7%)
Nationality	
Kuwaiti	168 (73.4%)
Non-Kuwaiti	61 (26.6%)
Country of the undergraduate degree	
Kuwait	121 (52.8%)
Others	108 (47.2%)
Do you hold any postgraduate certificate?	
Yes	86 (37.6)
No	143 (62.4%)
Years in practice	
≤3 years	54 (23.6)
>3 years	175 (76.4)
Practice setting	
Primary care (Polyclinic)	60 (26%)
General public hospital	63 (27.5%)
Private hospital	25 (10.9%)
Specialised public hospital	21 (9.2%)
Community pharmacy	31 (13.5%)
Central Medical store	6 (2.6%)
Food and registration Department	11 (4.8%)
Inspection Department	1 (0.4%)
Others	11 (4.8%)
Practice setting according to patient-facing component	
DPC	206 (90)
NDPC	23 (10)
Practice setting according to sector	
Public sector	144 (62.9)
Private sector	56 (24.5)
Other	29 (12.7)

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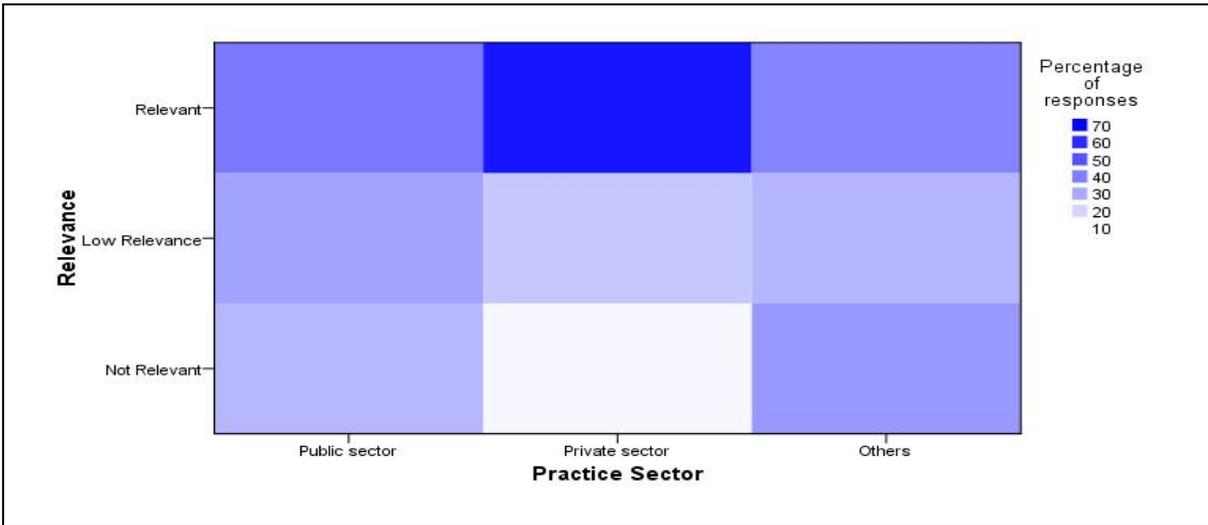
Table 4: Sum and percentage of each rating category within each cluster

Clusters	Not	Low	Relevant	Total
	relevant	relevance		
	Responses Count (%)	Responses Count (%)	Responses Count (%)	Responses Count (%)
Cluster 1: Pharmaceutical public health competencies	54 (9.4)	206 (35.7)	317 (54.9)	577 (100)
Cluster 2: Pharmaceutical care competencies	734 (19.5)	1127 (29.9)	1910 (50.6)	3771 (100)
Cluster 3: Organisation and management competencies	1412 (35.1)	1166 (29)	1441 (35.9)	4019 (100)
Cluster 4: Professional/Personal competencies	1100 (22.2)	1420 (28.7)	2435 (49.1)	4955 (100)

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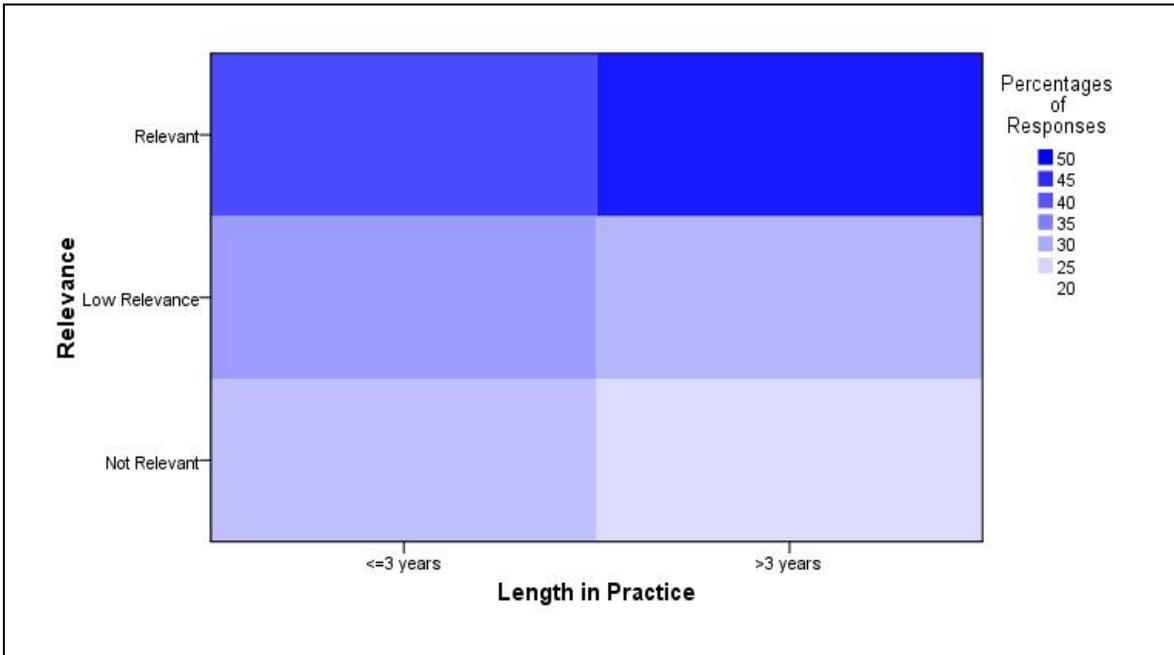
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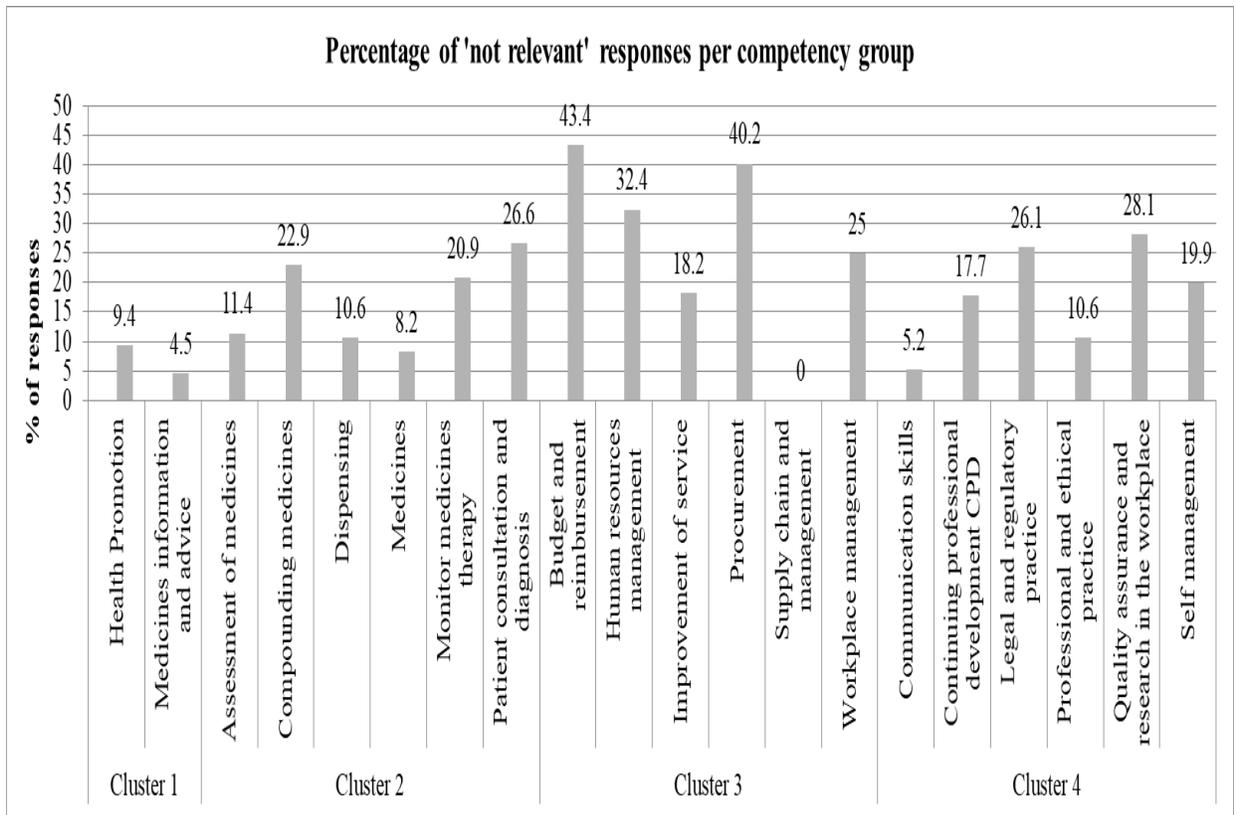
676 **Figure Error! No text of specified style in document.3: Percentage of responses to a relevant**
677 **category according to practice sector**

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679 **Figure Error! No text of specified style in document.4: Percentage of responses to a relevant**
680 **category according to respondents' length in practice**

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683 **Figure 5:** Adjusted percentages of ‘not relevant’ responses per competency group

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Table 5: Relevance rating of behaviours

Cluster 1- Pharmaceutical public health			
Competency group	Behavioural statements	Relevance to practice	Category
A. Health Promotion	1-Assess the primary healthcare needs (taking into account the cultural and social setting of the patient)	Relevance confirmed*	Core
	2- Advise on health promotion, disease prevention and control, and healthy lifestyle	Relevance confirmed*	Core
B. Medicines information and advice	3- Counsel population on the safe and rational use of medicines and devices (including the selection, use, contraindications, storage, and side effects of non-prescription and prescription medicines)	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	4- Identify sources, retrieve, evaluate, organise, assess and disseminate relevant medicines information according to the needs of patients and clients and provide appropriate information	Relevance confirmed*	Core
Cluster 2- Pharmaceutical care competencies			
C. Assessment of medicines	5- Appropriately select medicines (e.g. according to the patient, hospital, government policy, etc.)	Relevance confirmed*	Core
	6- Identify, prioritise and act upon medicine-medicine interactions; medicine-disease interactions; medicine-patient interactions; medicine-food interactions	Relevance confirmed*	Core
D. Compounding medicines	7- Prepare pharmaceutical medicines (e.g. extemporaneous, cytotoxic medicines), determine the requirements for preparation (calculations, appropriate formulation, procedures, raw materials, equipment, etc.)	Relevance confirmed*	Core
	8- Compound under the good manufacturing practice for pharmaceutical (GMP) medicines	Relevance confirmed from consensus panels and significant difference in questionnaire (χ^2 -value= 13.94, p=0.007)	Supplementary for public sector
E. Dispensing	9- Accurately dispense medicines for prescribed and/or minor ailments and monitor the dispense (re-checking the medicines)	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	10- Accurately report defective or substandard medicines to the appropriate authorities	Relevance confirmed*	Core
	11- Appropriately validate prescriptions, ensuring that prescriptions are correctly interpreted and legal	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	12- Dispense devices (e.g. inhaler or a blood glucose meter)	Relevance confirmed*	Core

	13- Document and act upon dispensing errors	Relevance confirmed*	Core
	14- Implement and maintain a dispensing error reporting system and a 'near misses' reporting system	Relevance confirmed*	Core
	15- Label the medicines (with the required and appropriate information)	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	16- Learn from and act upon previous 'near misses' and 'dispensing errors'	Relevance confirmed*	Core
F. Medicines	17- Advise patients on proper storage conditions of the medicines and ensure that medicines are stored appropriately (e.g. humidity, temperature, expiry date, etc.)	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	18- Appropriately select medicines formulation and concentration for minor ailments (e.g. diarrhoea, constipation, cough, hay fever, insect bites, etc.)	Relevance confirmed responses from the questionnaire	Core
	19- Ensure appropriate medicines, route, time, dose, documentation, action, form and response for individual patients	Relevance confirmed*	Core
	20- Package medicines to optimise safety (ensuring appropriate re-packaging and labelling of the medicines)	Relevance confirmed*	Core
G. Monitor medicines therapy	21- Apply guidelines, medicines formulary system, protocols and treatment pathways	Relevance confirmed*	Core
	22- Ensure therapeutic medicines monitoring, impact and outcomes (including objective and subjective measures)	Not relevant to practice	
	23- Identify, prioritise and resolve medicines management problems (including errors)	Relevance confirmed*	Core
H. Patient consultation and diagnosis	24- Apply first aid and act upon arranging follow-up care	Relevance confirmed from consensus panels and significant difference in questionnaire (χ^2 -value= 16.9, p=0.002)	Supplementary for private sector
	25- Appropriately refer	Relevance confirmed from responses from questionnaire	Core
	26- Assess and diagnose based on objective and subjective measures	Not relevant to practice	
	27- Discuss and agree with the patients the appropriate use of medicines, taking into account patient's preferences	Relevance confirmed*	Core
	28- Document any intervention (e.g. document any allergies, medicines and food) in patient medicines history	Relevance confirmed*	Core
	29- Obtain, reconcile, review, maintain and update relevant patient medication and disease history	Not relevant to practice	
Cluster 3- Organisation and management			

I. Budget and reimbursement	30- Acknowledge the organisational structure	Not relevant to practice	
	31- Effectively set and apply budgets	Significant difference between private and public sector (χ^2 -value= 22.40, p<0.0001)	Supplementary for private sector
	32- Ensure appropriate claim for the reimbursement	Significant difference between private and public sector (χ^2 -value= 27.08, p<0.0001)	Supplementary for private sector
	33- Ensure financial transparency	Significant difference between private and public sector (χ^2 -value= 35.33, p<0.0001)	Supplementary for private sector
	34- Ensure proper reference sources for service reimbursement	Significant difference between private and public sector (χ^2 -value= 38.38, p<0.0001)	Supplementary for private sector
J. Human resources management	35- Demonstrate organisational and management knowledge (e.g. know, understand and lead on medicines management, risk management, self-management, time management, people management, project management, policy management)	Significant difference between private and public sector (χ^2 -value= 27.63, p<0.0001)	Supplementary for private sector
	36- Identify and manage human resources and staffing issues	Significant difference between private and public sector (χ^2 -value= 13.04, p=0.01)	Supplementary for private sector
	37- Participate, collaborate, advice in therapeutic decision-making and use appropriate referral in a multi-disciplinary team	Significant difference between private and public sector (χ^2 -value= 13.29, p=0.01)	Supplementary for private sector
	38- Recognise and manage the potential of each member of the staff and utilise systems for performance management (e.g. carry out staff appraisal)	Not relevant to practice	
	39- Recognise the value of the pharmacy team and of a multi-disciplinary team	Not relevant to practice	
	40- Support and facilitate staff training and continuing professional development	Relevance confirmed*	Core
	K. Improvement of service	41- identify and implement new services (according to local needs)	Relevance confirmed*
42- Resolve, follow-up and prevent medicines-related problems		Relevance confirmed* Relevance confirmed*	Core
L. Procurement	43- Access reliable information and ensure the most cost-effective medicines in the right quantities with the appropriate quality	Relevance confirmed from consensus panel Significant difference between private and public sector (χ^2 -value= 12.61, p=0.01)	Supplementary for private sector
	44- Develop and implement contingency plan for shortages	Not relevant to practice	
	45- Efficiently link procurement to formulary, to push/pull system (supply chain management) and payment mechanisms	Relevance confirmed from consensus panels and significant difference between private and public sector (χ^2 -value= 14.89, p=0.005)	Supplementary for private sector

	46- Ensure there is no conflict of interest	Not relevant to practice	
	47- Select reliable supplier of high-quality products (including appropriate selection process, cost effectiveness, timely delivery)	Not relevant to practice	
	48- Supervise procurement activities	Significant difference between private and public sector (χ^2 -value= 36.29, p=0.0001)	Supplementary for private sector
	49- Understand the trending methods and evaluation of tender bids	Significant difference between private and public sector (χ^2 -value= 23.57, p=0.0001)	Supplementary for private sector
M. Supply chain and management	50- Demonstrate knowledge in store medicines to minimise errors and maximise accuracy	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	51- Ensure accurate verification of rolling stocks	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	52- Ensure effective stock management and running of service with the dispensary	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	53- Ensure logistics of delivery and storage	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	54- Implement a system for documentation and record keeping	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	55- Take responsibility for quantification of forecasting	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
N. Workplace management	56- Address and manage day-to-day management issues	Relevance confirmed from consensus panels and significant difference between private and public sector (χ^2 -value= 13.77, p=0.008)	Supplementary for private sector
	57- Demonstrate the ability to take accurate and timely decisions and make appropriate judgments	Relevance confirmed*	Core
	58- Ensure the product schedules are appropriately planned and managed	Relevance confirmed from consensus panels Significant difference between private and public sector (χ^2 -value= 15.78, p=0.003)	Supplementary for private sector
	59- Ensure the work time is appropriately planned and managed	Relevance confirmed*	Core
	60- Improve and manage the provision of pharmaceutical services	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	61- Recognise and manage pharmacy resources (e.g. Financial, Infrastructure)	Relevance confirmed from consensus panels and significant difference between private and public sector (χ^2 -value= 21.06, p=0.0001)	Supplementary for private sector
Cluster 4- Professional/Personal			

O. Communication skills	62- Communicate clearly, precisely and appropriately while being a mentor or tutor	Relevance confirmed*	Core
	63- Communicate effectively with health and social care staff, support staff, patients, carer, family relatives and clients/customers, using lay terms and checking understanding	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	64- Demonstrate cultural awareness and sensitivity	Relevance confirmed*	Core
	65- Tailor communications to patient needs	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	66- Use appropriate communication skills to build, rapport and engage with patients, health and social care staff and voluntary services (e.g. verbal and non-verbal)	Relevance confirmed*	Core
P. Continuing professional development (CPD)	67- Document CPD activities	Relevance confirmed from responses from questionnaire	Core
	68- Engage with students/interns/residents	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	69- Evaluate accuracy of knowledge and skills	Relevance confirmed*	Core
	70- Evaluate learning	Relevance confirmed*	Core
	71- Identify if expertise needed outside the scope of knowledge	Not relevant to practice	
	72- Identify learning needs	Relevance confirmed*	Core
	73- Recognise own limitation and act upon them	Relevance confirmed*	Core
	74- Reflect on performance	Relevance confirmed*	Core
Q. Legal and regulatory practice	75- Apply and understand regulatory affairs and the key aspects of pharmaceutical registration and legislation	Relevance confirmed*	Core
	76- Apply knowledge in relation to the principles of business economics and intellectual property rights including the basics of patent interpretation	Significant difference between private and public sector (χ^2 -value= 13.33, p=0.01)	Supplementary for private sector
	77- Be aware of and identify the new medicines coming to the market	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	78- Comply with legislation for drugs with the potential for abuse	Relevance confirmed from consensus panels (universally relevant behaviour)	Core
	79- Demonstrate knowledge in marketing and sales	Significant difference between private and public sector (χ^2 -value= 38.94, p<0.0001)	Supplementary for private sector
	80- Engage with health and medicines policies	Not relevant to practice	
	81- Understand the steps needed to bring a medicinal product to the market including the safety, quality, efficacy, and	Significant difference between private and public sector (χ^2 -value= 18.58, p=0.001)	Supplementary for private sector

	pharmacoeconomic assessments of the product		
R. Professional and ethical practice	82- Demonstrate awareness of local/national codes of ethics	Relevance confirmed*	Core
	83- Ensure confidentiality (with the patient and other healthcare professional)	Relevance confirmed*	Core
	84- Obtain patient consent (it can be implicit on occasion)	Relevance confirmed*	Core
	85- Recognise own professional limitation	Relevance confirmed*	Core
	86- Take responsibility for own action and for patient care	Relevance confirmed*	Core
S. Quality assurance and research in the workplace	87- Apply research findings and understand the benefits risk (e.g. pre-clinical, clinical trials, experimental clinical-pharmacological research and risk management)	Not relevant to practice	
	88- Audit quality of service (ensure that they meet local and national standards and specifications)	Relevance confirmed*	Core
	89- Develop and implement Standing Operating Procedures (SOPs)	Not relevant to practice	
	90- Ensure appropriate quality control tests are performed and managed appropriately	Not relevant to practice	
	91- Ensure medicines are not counterfeit and quality standards	Not relevant to practice	
	92- Identify and evaluate evidence-based to improve the use of medicines and services	Relevance confirmed*	Core
	93- Identify, investigate, conduct, supervise and support research at the workplace (enquiry-driven practice)	Significant difference between private and public sector (χ^2 -value= 14.90, p=0.005)	Supplementary for private sector
	94- Implement, conduct and maintain a reporting system of pharmacovigilance (e.g. report Adverse Drug Reactions)	Relevance confirmed*	Core
95- Initiate and implement audit and research activities	Not relevant to practice		
T. Self-management	96- Apply assertiveness skills (inspire confidence)	Relevance confirmed from consensus panels and significant difference between private and public sector (χ^2 -value= 14.08, p=0.007)	Supplementary for private sector
	97- Demonstrate leadership and practice management skills, initiative and efficiency	Relevance confirmed*	Core
	98- Document risk management (e.g. critical incidents)	Relevance confirmed*	Core
	99- Ensure punctuality	Relevance confirmed*	Core
	100- Prioritise work and implement innovative ideas	Relevance confirmed*	Core

687 * Relevance confirmed from consensus panels and responses from the questionnaire

Table 6: An action plan

Behavioural statement	Assigned label from the meeting/reason	Action plan		
		Needs-based education	System for support	Policy
22- Ensure therapeutic medicines monitoring, impact and outcomes (including objective and subjective measures)	<p>Core</p> <p>It is an accreditation standard,</p> <p>To strengthen (emphasise the important role) of the clinical pharmacists as well as the pharmacists in general</p>	After initial education, all pharmacists either with or without a higher clinical degree, are actually able to monitor medicine impact and outcome. This can be strengthened by regular follow-up CPD programmes	Provide support thorough tools to facilitate their performance such as permission to access patients' medical records	Accreditations standards necessitate monitoring the outcomes of drug therapy, and MoH is working towards activating policies for pharmacists' access to patients' records (request already submitted for pharmacists' access to diagnosis, lab results and other data)
26- Assess and diagnose based on objective and subjective measures	<p>Excluded</p> <p>The job description will not support this behaviour not possible with the current system especially in the government sector</p>	Excluded		
29- Obtain, reconcile, review, maintain and update relevant patient medication and disease history	<p>Core</p> <p>Med Rec is part of the PharmD experiential training; however, the new policy will state that pharmacists are not the first healthcare professional to do med rec but will be responsible for MUR services.</p>	Train pharmacists on medicine reconciliation based on the policies available in MoH or the healthcare facility	Provide in- house training (MoH currently provides training on Med Rec)	New policies are under development. The new policies will ensure that pharmacists check that Med Rec is done for all patient. The IT system will permit pharmacists accessibility to some patient data on the system
30- Acknowledge the organisational structure	<p>Core</p> <p>Very important as all pharmacists are working in independent health organisation linked to the ministry. This will ensure effective workflow; however, the obstacle is, currently, the structure is not clear.</p> <p>Move it from "budget and reimbursement" competency group to "workplace management" competency group</p>	The KuPhA may take the lead in explaining the MoH structure to pharmacy students, recent graduates and pharmacists	Manager and head of departments should ensure that the organisational structure of the pharmacy and the MoH is clear to all staff either in primary care or hospitals	A proposal for new pharmacy structure in MoH is submitted to the undersecretary for review

38- Recognise and manage the potential of each member of the staff and utilise systems for performance management (e.g. carry out staff appraisal)	Excluded Too advanced for foundation level practice, and it is immeasurable.	Excluded		
39- Recognise the value of the pharmacy team and a multi-disciplinary team	Core Pharmacists need to be competent and updated to be able to discuss guidelines and other drug therapy management issues with the medical staff Pharmacists and other healthcare professionals should be “speaking the same language” and “be on the same page.”	Training on teamwork, and conflict resolution for both pharmacists and pharmacy students	Make resources (online resources) available so that pharmacists will have input into the multi-disciplinary team, Pharmacists may need to look at the same guidelines’ physicians are using which are different from place to another	MoH should start developing national guidelines for disease prevention and management that include pharmacists as an integral part of the healthcare team
44- Participate in implementing contingency plan for shortages	Core Change from “ develop and implement a contingency plan for shortage ” to “ participate in the implementation of contingency plan for a shortage. ” This is even more important now with the shortage in logistics in the MoH and the unstable state of the region	In-house training on the contingency plans should be included in the orientation/induction for all new staff in all healthcare facilities	Heads of departments and pharmacy managers should ensure that the contingency plan is documented and communicated to all staff to ensure that everyone knows his/her role when the plan is activated	MoH has a policy for contingency plans (shortage of medicines/opening and functioning of health facilities in emergencies). An orientation/induction should be compulsory for all new staff in all healthcare facilities
46- Ensure there is no conflict of interest	Core Financial transparency is important in all sectors. People in the central medical store should indicate any conflict of interest especially that they are responsible for nationwide procurement (government sector)	Training on a code of ethics and principles of financial transparency	Developing a code of ethics for practising pharmacy in Kuwait would act as a guidance tool for pharmacists	A clear policy on how to indicate any conflict of interest is needed
47- Select reliable supplier of high-quality products (including appropriate selection process, cost-effectiveness, timely delivery)	Core It is important for early career pharmacists to learn how to do this although it may not be part of their	In-house training on the ordering system and how to ensure optimal delivery time (turn- out of orders). In initial education, pharmacists are	Tools to facilitate the selection of high-quality products should be available to support pharmacists	Managers and head of departments should lead the development of effective/clear procurement SOPs

	responsibilities in the first few years especially at MoH	introduced to the principles of Pharmaco-economics which is also part of the teaching curriculum in KU		
71- Identify if expertise needed outside the scope of knowledge	Core It is important to know when to ask for help and to know the limitation of one-self	Education and training on the role of pharmacists and other healthcare providers within each healthcare facility should be included within the induction/ orientation for newcomers and pharmacy students (initial education)	Development of tools for self-assessment Create a community of practice where pharmacists can share their experiences and learn from each other	Policies for induction/orientation (for newcomers) Policies for CPD should be developed (currently available but need improvement and updates)
80- Engage with health and medicines policies	Core Engagement of pharmacists with policies is required to ensure effective implementation	“Training the trainer” approach should be used to train the pharmacist on principles of policies and SOPs development	Pharmacists are recognised for their engagement when a policy is piloted to have their feedback	Feedback from pharmacists is needed when new policies are piloted; therefore, they are strongly engaged with health and medicines policies
87- Apply research findings and understand the benefits risk (e.g. pre-clinical, clinical trials, experimental clinical-pharmacological research and risk management	Core Applying research findings is the key for practising evidence-based medicine	Training and learning start with initial education where pharmacy students learn the principle for critical appraisal of published literature and searching databases	Make resources available in MoH and other healthcare facilities so that pharmacists will have access to recently published research	Assurance of quality of services depends on applying research findings in the workplace. Policies for staff education and training, drug therapy management should be guided by recent research findings
89- Develop and implement Standing Operating Procedures (SOP's)	Core Pharmacists are required to develop SOPs as part of the accreditation standards	Continuing training on how to develop proper SOPs is important to ensure the quality, efficiency, and effectiveness of the pharmacy workflow	Accreditation standards as a tool to guide the development and implementation of SOPs in pharmacies	Development and implementation of SOPs is an accreditation standard. Accreditation Canada provided “training the trainer” in developing policies and procedure, and the trainers are now leading the policy and SOPs committees in the MoH
90- Ensure appropriate quality control tests are performed and managed appropriately	Core Pharmacists are qualified to detect the quality of products and to	Training starts with initial education where pharmacy students learn the principle for quality assurance test	In house training on how services quality could be assured and what is the best services quality control test could be applied (including quality	Policies for staff education and training should be activated

	conduct the appropriate quality control test for the services they provided as well as the basic tests to check for the quality of the medicines they have in the pharmacy		of extemporaneous preparation in the preparation labs). Accreditation standards as a tool to guide the assurance of the quality of services provided	
91- Ensure medicines are not counterfeit and quality standards	<p style="text-align: center;">Core</p> <p>Counterfeit medication is a problem worldwide, and Kuwait is not an exception.</p> <p>Pharmacists need training on how to detect counterfeit medication as this is not included in initial education in Kuwait</p>	Continuing training is important for all pharmacists, not only those in the inspection department. This also should be a focus in initial education as the problem of counterfeit medication is a national and international problem	Clear process on how to detect and report counterfeit medication	Clear policy about counterfeit medication should be communicated and made available to all pharmacists in all sectors
95- Initiate and implement audit and research activities	<p style="text-align: center;">Core</p> <p>It is important for pharmacists to conduct audits in their work to ensure the quality and impact of their services</p>	<p>Raise the awareness about the concept of audit and the importance and benefits of conducting regular audits</p> <p>Continuing training on how to correctly conduct audits and how to do research</p>	<p>Create a culture of regular quality checks through regular audits</p> <p>Recognition or incentive for pharmacists who do regular audits and research in their workplace should be made available</p>	Audit is an accreditation requirement to address quality improvement projects

Table 7: recommendations from decision and policy makers' discussion

Recommendation	Panel members' comments	Quote
<p>1- A national foundation training programme for all recently graduated pharmacists should be developed</p>	<p>Participants reported that continuing training is required for all 98 behaviours within the KFCF. Therefore, a national foundation training programme is fundamental. The foundation training programme will support pharmacists to master all behavioural statements included in the KFCF.</p>	<p><i>Part 5: "I think there should be a programme that trains pharmacists on all these competencies."</i></p> <p><i>Part 4: "it is important to have an induction or orientation programme for recently graduated pharmacists."</i></p>
<p>2- The foundation training programme, as a project to re-shape the pharmacy profession in Kuwait, is a joint responsibility of KU, KuPhA and the MoH</p>	<p>Participants mentioned that pharmacy practice advancement through the implementation of a foundation training programme should be designed and delivered through collaboration with KU, KuPhA and the MoH. All participants reported that collaboration is a must for the success of the programme.</p>	<p><i>Part 5: "We have great projects from MoH, KU and LSA, including the recommended national foundation training programme.... These projects jointly will change the pharmacy profession in Kuwait."</i></p>
<p>3- After implementing the foundation-level training, future work should focus on expanding the scope of practice based on advanced pharmaceutical services</p>	<p>Participants mentioned that improvement of current practice should not stop at foundation-level training and future work should focus on advancing the scope of practice in Kuwait.</p>	<p><i>Part 4: "Then we can have competencies grouped according to services... this will depend maybe on the healthcare strategy for each organisation."</i></p>