JAASP http://www.aaspjournal.org
Journal of Asian Association of Schools of Pharmacy 2024; 13: 29–39
doi: https://doi.org/10.62100/jaasp.2024.13105

Research Paper

Social and administrative pharmacy in the Philippines: A descriptive study of pharmacy education and its implication on Universal Health Care implementation

Margarita M. Gutierrez*, Monet M. Loquias, Erica Nicole J. Tayko, Joseph Benedict L. Carpio, Karen Mae A. Chua, Christia Marie O. Senson and Jose Emmanuel A. Vitacion

College of Pharmacy, University of the Philippines Manila, Manila, Philippines

Received August 7, 2024
Revised October 17, 2024
Accepted November 4, 2024

*Corresponding author
Department of Pharmacy, College of Pharmacy, University of the Philippines Manila, UP Manila Compound, Taft Avenue Manila, Philippines 1000
E-mail: mmgutierrez2@up.edu.ph

ABSTRACT

Background: With the implementation of Universal Health Care (UHC) Law in the Philippines and the limited resources in healthcare, Social and Administrative Pharmacy (SAP) courses must be taught in the undergraduate pharmacy curriculum. Objectives: To identify the type, frequency, and extent of SAP education in schools and colleges of pharmacy and determine the perception of faculty members towards SAP competencies and UHC implementation. Methods: A descriptive study design was employed to collect data from 13 schools and colleges of pharmacy in the Philippines through documentary review, survey, and focus group discussions. Quantitative data were cleaned using Microsoft® Excel® 2019 MSO and Stata/BE 17.0 for Windows, then summarized using descriptive statistics. Results: Gaps were identified on practiced and demonstrated aspects of SAP competencies. The faculty participants generally agreed that the current curriculum is adequate and equips students for UHC implementation. Conclusions: This study shows that SAP core competencies have been integrated to existing pharmacy curricula. However, these are introduced as concepts and lack opportunities for practice and demonstration.

Key words: Social and Administrative Pharmacy, Universal Health Care, pharmacy education

1. Introduction

Sustainable Development Goal (SGD) 3 commits to promoting wellbeing "for all, at all ages" by 2030, with SGD 3.8 committing specifically to universal health coverage (UHC) (WHO, 2022). This emphasis on universal health coverage has strengthened national and international commitments to equitable delivery of primary health care services in low resource settings, and has rekindled interest in primary health competencies as a means of implementing UHC (Tulenko et al., 2013). The UHC Law was passed in the Philippines in 2019 to improve health equity by strengthening support for primary care and outpatient services (Bernal-Sundiang et al., 2023) Health systems and health workers, such as pharmacists, must participate in advocacy efforts that promote a culture of responsible primary health care implementation (Amit et al., 2022).

The field of Social and Administrative Pharmacy (SAP) has been fueled by the limited resources in Philippine healthcare and the necessity to create competencies in its application. Social Pharmacy has been defined by academics from Denmark and the United States as "studying the drug/medicine sector from the social scientific and humanistic perspectives". Administrative Pharmacy on the other hand, provides leadership and support to practicing pharmacists in any setting. Pharmacy administration exists in community pharmacy, health system pharmacy (at the hospital and corporate level), managed care pharmacy, and a variety of other areas.

Whether the discipline is called SAP, Pharmacy Administration, Social Pharmacy, or another name, it refers to "the endeavor to integrate drugs into a broader perspective and to include legal, ethical, economic, political, social and even communicative as well as psychological aspects into their evaluation in order to contribute to a safe and rational use of drugs" (Ryan et al., 2007). Given this breadth, it is extremely difficult to accurately coin a term that includes these curricular areas without some confusion.

Some countries, such as the United States, the United Kingdom, Thailand, and Malaysia, have integrated the social

sciences in their pharmacy curricula, and institutionalized social pharmacy courses to address the need to improve therapeutic outcomes through research and to prepare students for responsible leadership positions in academia, industry, or public service. Despite this, over the last several decades, pharmacy schools and colleges globally have struggled to identify a consistent title for the broad body of knowledge related to the social, economic, behavioral, and administrative aspects of pharmacy.

In the Philippines, the recent implementation of the Philippine Pharmacy Act (RA 10918) identified the roles of a pharmacist with the inclusion of public health and management roles as well as competencies expected as the pharmacy practice continues to shift towards a patient centered approach; thus, the role of the pharmacists in healthcare delivery has started to become more essential and visible. However, this may not have translated into the realization of the field of social pharmacy in the academe. Furthermore, the most recent version of the recommended minimum courses for a pharmacy program includes Public Health Pharmacy with Pharmacoepidemiology, Health Technology Assessment with Pharmacoeconomics, and SAP itself. At present, the University of the Philippines is the lone university that offers a graduate program in SAP starting September 2023 but has yet to produce any graduates at the time of writing this paper. This may have translated to a possible lack of faculty members equipped to effectively deliver SAP competencies to students. Hence, a description of the current educational backgrounds and perceptions of SAP faculty in the Philippines would be beneficial to assess the readiness of the faculty to train future pharmacists for the implementation of UHC under the context of equipping future Filipino pharmacists with necessary SAP competencies. It is vital that educators themselves are knowledgeable and confident teaching said courses, if not specialized

This research will then serve as a basis for recommendation for reforms in education, programs, and policies related to human health resource development that could contribute to the improvement of UHC implementation in the Philippines towards long term advantages for Filipino patients.

Because SAP content is an integral part of Philippine pharmacy curricula, and because the consistency of SAP content offerings is so varied, the major goals of this investigation were as follows:

1. To identify the type, frequency, and extent to which SAP courses are taught in schools and colleges of pharmacy curricula;
2. To describe the sociodemographic characteristics, educational background, and professional experience of those teaching SAP courses in the Philippines; and
3. To determine the perceptions of faculty members with regards to SAP competencies and UHC implementation.

2. Methodology

2.1. Study design

A descriptive study design was used in this study. This involved quantitative modes of data collection such as review of documents, survey, and focus group discussions (FGD).

2.2. Sampling

The research used purposive sampling to select participants based on the following criteria: For the FGD, the Deans, Program Heads, Department Chairs and/or equivalent administrators from the top 20 colleges and universities based on (1) number or students and graduates, (2) local and international accreditations, and (3) Philippine Pharmacist Licensure Examination performance, in that order of priority, were invited.

For the survey and FGD parts of the research, participants were selected based on the following characteristics: (1) a pharmacy faculty member in the Philippines that was recognized by Commission on Higher Education (CHED), (2) faculty member, identified by the Dean or Program Head as an instructor for courses that cover the social and administrative sciences, (3) and has a valid email as provided by the Dean or his/her representative. Participants may have graduate studies and specialties that are not exclusively pharmacy or pharmaceutical.

A sample size of 173 participants was calculated to be appropriate for the research. This is the estimated sample size needed to achieve the specified confidence interval width (0.8) at the 95% confidence level, given the population standard deviation (3.0) and accounting for the finite population correction factor. The calculation suggests that a sample of 173 individuals or units is required to achieve the desired precision in estimating the population mean. Furthermore, this number was increased to a final sample size of 200 participants to account for possible attrition.

2.3. Data collection

Publicly available curricula online were retrieved from the top 20 pharmacy schools for documentary review to serve as secondary data in the analysis. Subjects offered in the institutions were compared against the 2021 version of the recommended pharmacy curriculum from CHED. The frequency of schools following the prescribed offerings were noted and summarized in a table.

Primary data was retrieved using a survey per individual participant and FGD among participants of the same school or college of pharmacy. For the survey, all three authors drafted, reviewed, and finalized the items for inclusion as part of expert evaluation. The first draft of the survey was pre-tested via a cognitive interviewing session among co-SAP faculty from their institution with a total of 3 participants plus the authors. The respondents were asked to provide feedback per item verbally. Comments were noted and the survey was reviewed and finalized by the authors. Recruitment was done

in collaboration with the administrator of the participating universities. Recruitment began following receipt of all required approvals from the University of the Philippines Manila Research Ethics Board (UPMREB). Participants were invited using a database provided by the local partner by email. The first email sent to the identified faculty contained a cover letter that introduced the purpose of the survey and an informed consent.

The online survey form was then distributed to the participants after the duly signed informed consent was received. The participant could only fill out the survey if they provided their informed consent on the online survey form. A total of 3 reminder emails with 1 month intervals were sent to all participants to help encourage a high response rate. The online survey was conducted between April 2023 and August 2023. The survey was anonymous; thus, the investigators could not identify how respondents responded to the questionnaire items. As a token of appreciation for completing the survey, the respondents were given a PhP 100 Grab Voucher.

Zoom-based FGDs were held from June to August 2023. Email invitations were sent to Deans, Program Heads, Department Chairs, and/or equivalent administrators. The first email sent to the identified administrator contained an informed consent form, an introduction to the purpose of the FGD, and cover letter. Online discussions were recorded after obtaining informed consent from the participants through an email reply to the invitation. The project leader moderated the FGD using a semi-structured list of guide questions (Appendix L), with probing questions asked after initial responses, if deemed necessary. The transcript was encoded by a project staff present in the meeting. During the FGD, the curriculum, syllabi, and instructional design were also requested from the administrators for document review.

To avoid cases of missing data on the survey, all data points in the survey were set as 'required fields' on the online survey form. In cases where data was missing in the FGDs, participants were sent a copy of the data collection form from their respective FGDs and were invited to fill in the highlighted missing data points. The researchers then rechecked the additional entries for completeness and cleanliness.

A data protection plan using a HIPAA compliant database system using Google Drive was strictly followed to minimize the risks of breaching subject confidentiality.

2.4. Instrumentation

A survey questionnaire was initially developed using previous literature that targeted the nature and breadth of SAP content taught (Appendix K). This questionnaire consists of 3 sections – the first section consists of questions about the faculty's background, training and other sociodemographic characteristics; the second asks about the SAP courses available at the respondent's institution; and the third section asks about perceptions and challenges of teaching SAP. This questionnaire was pre-tested and changes were made accordingly.

The survey mainly utilized closed-ended questions to gather relevant demographic, professional, and institution data from Items 1–13 under the first section. Under the second section Items 14–18, levels of competencies were defined based on the level of familiarity, competency, and confidence expected at each degree: Not yet covered, Learned (introduced, discussed), Practiced (reinforced, practice opportunities), and Demonstrated (mastered). For the last section from Items 19–22, a 4-point scale rating was used to demonstrate perception in terms of agreeability to provided statements combined with three open-ended questions to facilitate future discussions during FGDs. Due to the diverse and lengthy nature of the data to be gathered, participants were given a week to complete the survey form, accounting for the time to be spent retrieving and uploading their updated program curriculum.

2.5. Data analysis

The FGDs were video recorded, transcribed verbatim, and reviewed twice to ensure accuracy. These data were analyzed to identify and summarize themes and subthemes through a manual thematic analysis. Codes were assigned based on their applicability to relevant statements. Themes were then developed after identifying agreeable codes that could be grouped together. Two researchers independently reviewed transcripts to identify these emerging themes and subthemes, and consensus was reached through discussion.

For the quantitative data, data were first checked for missing data. Stata/BE 17.0 for Windows (Revision 17 Jan 2022) and Microsoft® Excel® 2019 MSO (Version 2112 Build 16.0.14729.20224) 32-bit were used to organize the data and perform all statistical analysis. Descriptive statistics (frequency, percentage, mean, and standard deviation) was conducted to generate a summary of results.

Triangulation of data was utilized to ensure consistency between the data obtained from documentary review, survey responses, and FGD transcripts, as well as clarity of themes and subthemes validated by specific quotes added to the narrative report.

2.6. Ethical considerations

Since the participation of human subjects is essential in the conduct of the research, the proposal was submitted to the UPMREB for evaluation. All participants had informed consent and may, at any time, opt out of the study. Subjects were required to read and agree to an Informed Consent form prior to participating in the study. Any participant who did not give their consent were automatically excluded from the population.

There were no identified serious physical, psychological, or social risks that may arise during the conduct of the study

that are outside the normal risk of being a part of a research. The survey participants were given a PHP 100.00 Grab voucher as a token, while FGD participants were given a PHP 300.00 Grab voucher.

The data protection plan using a HIPAA compliant database system was strictly followed to minimize the risks of breaching subject confidentiality. No personal information was released or displayed to the public.

No genetic tests were conducted. Familial genetic information used in answering the survey questions were kept confidential.

A precaution protocol will be in effect to avoid the dissemination of results to immediate family members or others without the permission of the researcher.

The patient and their legally appropriate representative will have access to his or her documents. They will be notified in a timely manner if information becomes available that may be relevant to their willingness to participate.

All information obtained from the study will be solely used for obtaining information regarding the objective of the study.

2.7. Scope and limitations

The scope of this investigation will be confined to the top 20 Pharmacy schools and colleges of pharmacy that are recognized by CHED. The study only covers 200 faculty member's perceptions of the SAP competencies, content and education, no triangulation from the student pharmacist's perspective will be done.

3. Results

A total of 28 participants, out of an intended 200 participants, from thirteen (13) schools and colleges of pharmacy in the Philippines responded to the online survey invitation and participated in the FGDs, for a response rate of 14.0%. A total of a week was provided for participants to answer the survey with most participants finishing it on an average of 4 days upon acknowledging receipt of the email.

3.1. Review of curricula

A review of CHED's curriculum (CHED, 2021) showed that it lacks the specialized SAP subjects involved in higher domains of the field involving health technology assessment and policy analysis. Its curriculum's courses mainly cover the first and sixth domains: pharmaceutical supply chain, the healthcare system, and pharmacy management. At most, it only covers the introduction to areas related to pharmacy policy, advocacy, and governance (SAP Section, 2023).

A total of twelve (12) publicly-available curricula from 20 of the top performing schools in the November 2022 pharmacy licensure examination were reviewed (Table 1). Based on the comparison with the prescribed general pharmacy curriculum by CHED, 12 out of 18 SAP courses rated 90% and above when it comes to implementation among schools. HTA & Health Policy with Pharmaco-economics as well as internships in Institutional and Public Health and Regulatory Pharmacy were rated the lowest at 66.7%, with eight out of 12 schools implementing said courses. Among internships, only experiential pharmacy practice in the areas of hospital and community were implemented by all schools given their importance in the current landscape of the local healthcare system. Most of the participants noted the courses 'Introduction to Healthcare System', 'Perspectives in Pharmacy', and 'SAP' as applicable for most of the specific competencies. It aligns with the CHED's proposed curriculum prescribing the delivery of the general concept of the healthcare system in the first year of pharmacy school. Similarly, Public Health Pharmacy (with Pharmacoepidemiology) is also a top course among domains aligned with CHED's recommendation; which is expected since public health pharmacy is closely tied with SAP, involving concepts of health policy, patient education, and epidemiology (Cameron et al., 2021).

Table 1 also presents the subjects that are not included in the CHED-prescribed pharmacy curriculum but implemented in the schools. A total of 11 subjects related to SAP were included in the schools' curricula which were not prescribed as per CHED. Nine out of the eleven subjects were unique to a single institution only.

The core competencies of pharmacy were divided into 6 domains, with each domain further subdivided into skillsets or competencies. Each domain was assessed on courses the competencies are taught, the mean number of hours, and teaching and learning activities used, and whether they are learned, practiced, or demonstrated.

Appendix B presents the top 3 courses where each competency is taught, along with the frequency of similar responses from the participants and the mean number of hours each course taught the competency at the level of 'Learned'. The course 'SAP' was shown to be the most common course that covered all the competencies listed, with frequencies as high as 14. 'SAP' also appeared frequently in Domain III: Medicine Use Behavior since it covers different health behavior models in pharmacy. Other courses involve practice of public health and community involvement aligned with CHED's curriculum but only limited until Practiced. Demonstrated involved conduct of theses and was only mentioned by 2 participants.

'Dispensing', 'Hospital Pharmacy', and 'Manufacturing' were also included given the need for supply chain management skills in practice. Hence, courses are present until Demonstrated which aligns with the recommended internship curriculum by PACOP (PACOP, n.d.)

The course 'Health Technology Assessment' was also the most frequently listed course for both 'Domain II: Pharmaceutical Policy Analysis' and 'Domain IV: Health Technology Assessment in the Healthcare System', with frequencies ranging from 6–8 and 11–12, respectively. HTA

Table 1. SAP courses offered in pharmacy schools.

CHED-Prescribed SAP Courses	Number of Schools Delivering the Course (N = 12)	%
1st Year		
Perspectives in Pharmacy	12	100.0
Introduction to the Healthcare System	11	91.7
Introduction to Pharmacy Administration, Management, and Leadership	12	100.0
2nd Year		
Dispensing 1	11	91.7
Pharmacy Informatics	11	91.7
3rd Year		
Dispensing 2	11	91.7
Hospital Pharmacy	11	91.7
Pharmacy Research Methods with Pharmaceutical Statistics	9	75.0
Public Health Pharmacy (with Pharmacoepidemiology)	11	91.7
Pharmacy Research and Thesis Writing	9	75.0
Health Technology Assessment & Health Policy with Pharmacoeconomics	8	66.7
Social and Administrative Pharmacy	9	75.0
Pharmaceutical Marketing and Entrepreneurship	11	91.7
Legal Pharmacy and Ethics	12	100.0
4th Year		
Experiential Pharmacy Practice in Institutional Pharmacy	8	66.7
Experiential Pharmacy Practice in Public Health and Regulatory Pharmacy	8	66.7
Experiential Pharmacy Practice in Community Pharmacy	12	100.0
Experiential Pharmacy Practice in Hospital Pharmacy	12	100.0
Non-CHED-Prescribed SAP Courses		
Pharm Care - Communication and Interpersonal Skills	2	16.7
Health Economics	3	25.0
Interprofessional Education and Practice	1	8.3
Community Pharmacy Services and Patient Interactions	1	8.3
Pharmacy Seminar	1	8.3
Intro Pharmacy Practice Experience in Phil Healthcare System	1	8.3
Foundations of Pharmaceutical Care	1	8.3
Introductory Pharmacy Practice Experience in Institutional Setting	1	8.3
Pharmacy Operations	1	8.3
Pharmacy Wellness and Health Promotion	1	8.3
Pharmacoepidemiology in Therapeutic Risk Management	1	8.3

is based on Republic Act 11223 which aims to assess the impact of drugs and devices from a systematic perspective (Congress of the Philippines, 2019). Despite not being part of the CHED prescribed curriculum, its inclusion attests to the increasing trend in HTA adoption among Asian countries (Liu et al., 2020).

At the level of 'Practiced', as seen in Appendix C, most courses listed are internship and thesis courses, such as 'APPE in Public Health and Regulatory Pharmacy' which covers some competencies for as much as 180 hours, on average.; and the courses 'SAP 'as well as 'Pharmacist in Public Health'.

Internship and thesis courses almost exclusively comprise the contents of Appendix D, with the course 'Pharmacy Thesis' as the course that covers the most competencies (frequency = 15). Internship courses, such as 'APPE in Public Health and Regulatory Pharmacy' and 'APPE in Community Pharmacy', also cover some competencies for the mean hours of 80 to 300. However, some competencies were shown not to have any courses that covered such at the level of 'Demonstrated', like in 'Domain II: Pharmaceutical Policy Analysis.'

As shown in Appendix H, teaching-learning activities for each domain at the level of "Learned" are predominantly lectures with frequencies ranging from 27–68. Majority of 'Learned' courses were mostly supplemented by group activities or engagements with professionals in the field. Moreover, worksheets and reporting are used less frequently in the introduction of SAP concepts with average frequencies of 10.5 and 6.0, respectively. SAP concepts are reinforced

Table 2. Percentage of learning gaps in the pharmacy curriculum per level.

Domain	Learned (%)	Practiced (%)	Demonstrated (%)
DOMAIN I: Pharmaceutical Supply Chain Management	4.6	27.7	89.2
DOMAIN II: Pharmaceutical Policy Analysis	6.2	32.3	100.0
DOMAIN III: Medicine Use Behavior	1.3	32.1	93.6
DOMAIN IV: Health Technology Assessment in the Healthcare System	1.7	37.6	99.2
DOMAIN V: Pharmacoepidemiology	18.0	47.4	81.9
DOMAIN VI: Pharmacy Management	10.3	37.2	83.3

and practiced in pharmacy schools through various modes of teaching-learning activities, with health technology assessment making as the most frequently used (frequency = 44) and roleplaying as the least frequently used activity (frequency = 1).

At the level of 'Demonstrated', the teaching-learning activities shift more towards data analysis and immersion with frequencies ranging from 1–6. However, the domain of Pharmaceutical Policy Analysis does not have any teaching-learning activities where pharmacy students can demonstrate their mastery of SAP concepts. The sixth domain covered a larger extent of competencies until Demonstrated which may be related to the current trends in local practice, one of which is retail (Reyes and Tabuga, 2020). Courses involving internships were mainly under Demonstrated given the required level of independence students were expected to perform while the instructors assumed more of supervisory roles.

Table 2 presents the percentage of learning gaps in the pharmacy curriculum of the 13 participating schools and colleges of pharmacy at each level. At the level of 'Learned', it was found that most schools were able to adequately cover each domain of SAP, as seen in percentage gaps as low as 1.3%. However, at the level of 'Practiced' and 'Demonstrated', larger percentage gaps as high as 47.4% and 100.0%, respectively, were found as no courses in the curricula encompassed the competencies listed per domain.

3.2. Background and characteristics of SAP teachers

Twenty-eight (28) faculty members from the top pharmacy schools participated in the study, 10 (35.7%) of which are male, and 18 (64.3%) are female. Almost half of the faculty participants have master's degrees (42.9%, n = 12), while 6 (21.4%) have doctorate, and the rest (35.7%, n = 10) have bachelor's degrees. No faculty member who participated has a degree in Doctor of Pharmacy (PharmD) (Table 3).

Most of the faculty have a Bachelor of Science in Pharmacy (n = 14), while the most common master's degree of the participants are Master of Public Health (n = 6), and Master of Science in Pharmacy (n = 5). Appendix A lists all the academic degrees of the faculty participants.

Most of the participants (n = 24) have prior professional experience in different fields of pharmacy before teaching. These professions are also listed on Appendix A.

Table 3. Summary of sociodemographic characteristics of participants.

Demographics	n	%
Sex		
Male	10	35.7
Female	18	64.3
Highest Educational Attainment		
PhD	6	21.4
MS	12	42.9
BS	10	35.7
PharmD	0	0

Table 4. Faculty background and training.

	Mean	SD
Total years in the academe	11.1	9.6
Teaching load per semester (units)	18.7	6.2
SAP teaching load per semester (units)	4.4	3.1

The mean total number of years of the participants in the academe is 11.1 ± 9.6. The average teaching load per semester is 18.7 ± 6.2, with an average 4.4 ± 3.1 for Social and Administrative (SAP) courses per semester (Table 4).

3.3. Perceptions and recommendations of SAP teachers

As presented on Table 5, the faculty participants generally agree that the current curriculum adequately covers SAP and prepares students for future roles in UHC implementation, as they also generally agree that they are prepared to teach SAP courses. However, it is notable that there are still a number of faculty members who disagree that the current curriculum adequately covers SAP (21.4%) and agree that students pay more attention to basic sciences and clinical pharmacy courses than SAP (35.7%).

Common challenges encountered by faculties on teaching SAP courses are inadequate materials, insufficient time, lack of interest by both students and pharmacists, and the structure of curricula (Table 6). With this, capacity building was the most recommended for improving teaching of SAP competencies and UHC implementation competencies. Faculty participants recommended more training and seminars on SAP towards implementing active learning strategies.

Table 5. Perceptions of teaching SAP.

	n (%)			
	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
Current curriculum adequately covers SAP	4 (14.3)	17 (60.7)	6 (21.4)	1 (3.6)
Current curriculum prepares the student for their role in the UHC implementation	8 (28.6)	15 (53.6)	4 (14.3)	1 (3.6)
My education adequately prepared me to teach SAP courses	5 (17.9)	17 (60.7)	5 (17.9)	1 (3.6)
My professional experience adequately prepared me to teach SAP courses	10 (35.7)	13 (46.4)	4 (14.3)	1 (3.6)
I am prepared to teach competencies needed for UHC implementation	7 (25.0)	17 (60.7)	3 (10.7)	1 (3.6)
Students pay more attention to basic sciences and clinical pharmacy courses than they did SAP courses	10 (35.7)	12 (42.6)	6 (21.4)	0
I teach wider range of topics in my courses compared to other faculty members of other disciplines	8 (28.6)	11 (39.3)	9 (32.1)	0

Table 6. Challenges and recommendations on teaching SAP.

Descriptive Characteristics	Frequency
Common problems you encounter in teaching SAP courses	
Inadequate materials (Lack of references, resources, and relevant researches about SAP)	3
Insufficient time (Low number of units)	3
Lack of interest (both by students and pharmacists)	2
Structure of curricula	2
Outdated materials	1
Highly technical resources	1
Lack of cases contextualized to Philippine setting	1
Differences in teaching model used (Theory-based teaching vs Practice-based teaching)	1
Lack of dedicated and qualified instructors	1
Lack of opportunities in the field	1
None	2
No answer	18
Recommendations for improving teaching of SAP competencies	
Capacity building (training, seminars/webinars, short courses)	9
Encourage and increase SAP-based research	3
Implement active learning strategies (immersions, internships, real-world simulations, group discussions, role-playing, problem-solving)	2
Increase SAP partnerships	2
Increase SAP workforce	2
Publish books or modules on SAP courses for PH schools	1
Increase engagement with government policy-making	1
Conduct needs-assessment survey of SAP-practising agencies and organizations	1
Implement changes in curricula	1
No answer	18
Recommendations for improving teaching of UHC implementation competencies	
Capacity building (training, seminars/webinars, short courses)	5
Integrate UHC on curricula	3
Standard competency framework for PH pharmacy schools on UHC implementation, in collaboration with the DOH	1
Attend regular symposia on UHC	1
Address curricular rigidities	1
Address insufficient contextualization of healthcare delivery	1
Increase collaboration of health institutions with pharmacists	1
Be actively involved in UHC implementation of government agencies and institutions	1
Apply academic framework formulated by technical working groups	1
Student immersion	1
No answer	18

4. Discussion

The role of pharmacists has evolved to include functions in public health. Current pharmacy education aims to develop students' knowledge and skills focused on public health priorities. Thus, pharmacy education must be able to highlight societal health care needs and ensure competent service delivery (Anderson et al., 2009). Social and administrative pharmacy is a broad discipline that covers this area of practice together with other fields: social science, marketing, management, finance, and law. Its broad scope makes it difficult to identify a single arching term for the practice given the variety of subjects and overall approach (Kostriba et al., 2014).

The study showed that SAP programs' core competencies offered by pharmacy schools are taught across different courses. The fragmented nature of SAP courses reflect that it may not have been considered as foundational given current local practice. The data reflects the lack of identified and specific subjects for SAP among schools despite the provided general pharmacy curriculum by the Commission on Higher Education (CHED) and the Philippine Association of Colleges of Pharmacy (PACOP) which included SAP as a separate course already.

Moreover, CHED's curriculum (CHED, 2006) also lacks the specialized SAP subjects involved in higher domains of the field involving health technology assessment and policy analysis. Its curriculum's courses mainly cover the first and sixth domains: pharmaceutical supply chain, the healthcare system, and pharmacy management. At most, it only covers the introduction to areas related to pharmacy policy, advocacy, and governance (FIP, 2021). Meanwhile, subjects involving introduction and general concepts on public health pharmacy are expected given that these are closely tied with SAP, involving concepts of health policy, patient education, and epidemiology (Cameron et al., 2021). These subjects mostly cover the extent of 'Learned' due to their didactic nature of instruction such as lectures.

Courses involving dispensing, manufacturing, and hospital pharmacy were included as well. Manufacturing requires practice of efficient ordering, receipt, delivery, and production (Ebersole, 2020) while hospital pharmacy requires balancing between inventory management and anticipating demand (Litvinova et al., 2018). These courses are present until the level of Demonstrated which aligns with the recommended PACOP internship curriculum. It is expected that students immerse in the practice with partner institutions involving supply chain in community, hospital and regulatory fields focusing on application through research, case studies, and counseling.

Despite not being part of the CHED-prescribed curriculum, the inclusion of Health Technology Assessment shows the increased trend of its adoption among Asian countries (Liu et al., 2020) and its local relevance when it comes to assessing the impact of drugs and devices on a systematic perspective as per Republic Act 11223 (RA 11223, 2018). HTA as a course was only recently recommended by CHED in their 2021 revision of the recommended pharmacy curriculum while PACOP has not included the subject in their proposed curricula. Not all pharmacy schools have adopted the recent CHED curriculum version yet which may be due to its relatively recent revision last 2021 in response to HTA's introduction last 2019 together with the creation of the HTA Program aligned with the Universal Healthcare Law. The field mainly served its purpose during the pandemic with COVID-19 related technologies and its applicability remains a point for further evaluation and improvement mainly due to "inadequate local data"17 (Wong et al., 2022).

However, it should be noted that only seven to eight participants out of 28 mentioned it under Learned and even decreased further to a single participant as it evolved to Practiced, and none reported it under Demonstrated. 'Perspective in Pharmacy' also involved HTA but was only introduced, hence 'Learned', possibly to avoid redundancies among courses. The level of Practiced was predominantly covered by HTA, Public Health, and Pharmacy Thesis which aligns with the limited applicability of HTA locally. Its importance was highlighted due to the pandemic involving areas of public health but the transition to other areas such as essential medicines is still an ongoing process (Wong et al., 2022).

The low degree of competency shows its limited application since practice is mainly focused on hospital and community given the dominance of out of pocket expenditure when it comes to health (Reyes and Tabuga, 2020). Policy creation and its analysis is limited given lecture as the major strategy covering only until the discussion of laws. Its major application is limited to describing policies that apply to several areas of practice foundational for higher level courses branching out to different areas of specialization and not necessarily limited to SAP. HTA as a field may be more appropriate to explore in higher levels of education and specialization given its limited applicability in the basic areas of local practice.

In terms of declared competency levels, other courses involving practice of public health and community involvement aligned with CHED's curriculum but were only limited until Practiced. Demonstrated usually involved conduct of theses and was only mentioned by two participants. Accomplishing competencies until Practiced may be deemed sufficient by most of the faculty from participating schools hence the limited implementation of several courses among domains which does not reach until 'Demonstrated'.

Meanwhile, most fundamental SAP courses and specialized courses such as HTA covered the given domains adequately at least at the level of 'Learned' possibly due to the novelty of the subject as it is still an emerging field of pharmacy. Compared to those involving HTA and policy analysis, the

area of pharmacoepidemiology managed to reach the level of Demonstrated involving internships and thesis conduct. This aligns with the public health oriented practice of pharmacy locally recommended as one of the areas under PACOP's internship and CHED pharmacy curricula. Similarly, the domain involving public health and retail management, covered a larger extent of competencies until Demonstrated also which may be related to the current trends in local practice, one of which is retail (Reyes and Tabuga, 2020).

Majority of 'Learned' courses were mostly delivered through traditional teaching-learning activities that do not require more interactive setups. 'Practiced' courses mostly involved analyses, critiques, and interactive learning approaches for students while some retained a lecture-based approach. This demonstrates the need for more in-depth evaluation and application of concepts among included courses to supplement 'Learned' courses. Across all domains, courses mainly involved internships under Demonstrated given the required level of independence students were expected to perform while the instructors assumed more of supervisory roles. 'Pharmacy Thesis' was also majorly cited given that students must demonstrate related skills during their thesis development. However, it should be noted that many competencies often did not reach the level of 'Demonstrated'.

It was observed that the higher the level of the assessment reached, the larger the percentage gaps of the curricula are. As courses become more specialized, the lesser extent it covers particularly for courses on HTA. The general pharmacy curriculum already covers several areas which may not be reflective of the current capacity and needs of local practice. The focus of governing agencies such as CHED and a predominant pharmacy organization such as PACOP reflects such needs, indicating that basic practice may not necessarily require the study of higher courses involved in SAP.

In developing countries including the Philippines, the traditional roles of pharmacists still prevail, with limited involvement in public health. In South Asia, the focus is still on pharmaceutical sciences and the industry. Patient oriented care is still a relatively new concept due to the lack of understanding and training of educators on social pharmacy and its importance in healthcare (Hassali et al., 2011). These are further supported by the perceptions of the SAP faculty where they agree that priority is given to clinical subjects considering the nature of local practice and needs leading to lack of focus on SAP's key areas. Outdated and lack of resources, limited time for topics, lack of interest from students, and limited opportunities to practice SAP competencies were even identified as barriers by participants.

The broad nature of the subject topics and competencies also make it difficult to sufficiently incorporate it into the undergraduate curriculum. Several gaps were also observed from the inconsistent delivery of SAP competencies among schools of pharmacy as most are scattered across courses and year levels. In this regard, pursuing a higher degree may be the wiser choice if one wishes to focus on these areas of practice in SAP rather than relying on their basic pharmacy education. However, it is notable that SAP teachers generally agree that they have adequate background and professional experience to teach SAP. As evident in their educational attainment, many of them have acquired post graduate degrees in specialized fields of SAP, and have had years of practice in the academe, reflective of their competence and experience.

Moreover, there was a curriculum revision in the majority of Philippine universities due to the implementation of the K12 curriculum. Efforts towards strengthening the delivery and general pharmacy curriculum involving foundational courses may be key to developing graduates with a more relevant set of skills and expertise tailored to practice rather than congesting the curriculum with subjects which may be more appropriate to be included in higher studies instead.

The current global trend shows that Master of Science in SAP is being implemented only in few universities such in the United States (e.g. University of Minnesota, University of Wisconsin–Madison), and much focus is given on clinical pharmacy and pharmaceutical sciences graduate programs. It is however fortunate to see that more focus is being given by professional pharmacy organizations such as the International Pharmaceutical Federation (FIP) as evident from the recent establishment of the Social and Administrative Section (SAPS) of the organization. 20 (FIP, 2020) In the Southeast Asia region, only Thailand has universities with strong focus on MS SAP programs. In the Philippines, the University of the Philippines Manila College of Pharmacy (UPCP) is the first university to pilot implement its MS SAP graduate program in the first semester of academic year 2023-2024.21 (UPCP, 2023) The prospect is that this shall be a forward direction for other Philippine schools and colleges of pharmacy to develop their own graduate programs for SAP, through the headship and guidance of UPCP.

Overall, these are good starting points to infer that SAP experts in the Philippines are available and ready to implement SAP education. However, the lack of a uniform, consistent, and coordinated SAP-prescribed curriculum in the country seems to be a challenge among different universities, leading to learning outcomes that are not well-defined. There is then a need to review the prescribed undergraduate pharmacy curricula to supplement foundational SAP learning and since evidence also suggests that since competencies are most likely not being demonstrated during the implementation in BS Pharmacy undergraduate curriculum, there is a fundamental need to formulate and develop graduate pharmacy programs specializing in SAP in order to further reinforce and strengthen SAP knowledge and expertise among the Filipino pharmacists.

The study backs up the inclusion of SAP in the recommended pharmacy curriculum from CHED but also emphasizes the need for creation of programs for further SAP specialization based on: the highlighted differences and inconsistencies among SAP courses and their delivery across several domains and pharmacy institutions, the documented relevant SAP faculty background, competency, and experience among various pharmacy schools, and the gaps and challenges identified from the perspectives of SAP instructors. Available evidence from the study provides a baseline for the expansion of the roles of the pharmacist in public health practice covering several domains of social and administrative pharmacy.

To supplement and enrich the findings of the study, future research and studies may focus on the relevance of SAP courses and its degree of importance based on local context and practice needs. Researchers may also explore student perspectives and competencies and follow with the conduct of comparative analyses between the perceptions of faculty and those of their students when it comes to SAP courses at the undergraduate level. Furthermore, standardization of SAP competencies for the undergraduate degree may also be initiated and the knowledge assessment of students be conducted in suit.

Ultimately, the study may serve as a basis for recommendation for reforms in education, programs, and policies related to human health resource development that could contribute to the improvement of UHC implementation in the Philippines and ultimately lead to long term advantages for Filipino patients.

However, it should be noted that the study has several limitations which should be taken into account when using the data of the study for future studies or policies.

The list of subjects and competencies used to evaluate the extent SAP courses are being taught in pharmacy schools and colleges of pharmacy in the Philippines was based on the University of the Philippines graduate program for MS in SAP and may not be exhaustive. The differences in the operational definition of "levels of competency" have existed among the faculty members due to the broad nature of SAP, hence respondents interpreted terms differently than others; therefore, the researchers included operational definitions in the data collection tools and provided time to reconcile differences and clarify its definition and application to limit such variations.

The selection of the study's participants in the study started from the identification of the top performing schools based on PRC's most recent data where the respective school officials were contacted to nominate potential participants that may have limited the representation of the population. Non-top performing schools with SAP courses were not included which may have led to underrepresentation and limiting the sample size. To address this, the study ensured that the initial participants do not further discriminate among faculties invited to get a broader representation of the population and reduce risk of homogeneity. But it should be noted that only faculty members with valid email addresses were included as the survey has to be filled via Google Forms reflecting their email address for tracking. The investigators directly contacted deans and program administrators from multiple schools to engage members more effectively and efficiently leading to better participation rates. The study also ensured that the number of referrals was controlled by limiting the chain length per participant to a maximum of three nominations from the same school to avoid overreliance on one data source. Despite the invitations, the study also acknowledges that some invited participants may not respond, which the investigators tried to limit by providing financial incentives and making repeated contacts throughout the study duration.

In addition, the surveys are mainly self-reported when it comes to the perception due to the nature of the data collected. The study noted that the participating faculty only delivered select SAP courses which limited the information they could provide bound by their professional experience, educational background, and even existing cultural and contextual differences as well. Hence, further elaboration and understanding of the self-reported inputs via the survey were elaborated via the FGDs backed by the data from the initial curriculum design submissions. These factors may limit generalizability of the study given the contextual differences among institutions. Nevertheless, the provided standardized questionnaire of the study was key in managing this limitation.

Lastly, the methodology may not be as robust given that it was not fully executed with the qualitative method due to lack of data for sufficient qualitative data analysis. Given this, the consequent quantitative and descriptive methods of the study may only provide surface-level insights thereby limiting the comprehensiveness of the synthesized conclusions. Overall, generalizing results from this study must be made considering all of these factors to ensure appropriateness and applicability.

5. Conclusion

While there may be a lack of specific programs or courses for SAP in different pharmacy schools and colleges in the Philippines, this study showed that the core competencies of SAP have been integrated into existing courses in pharmacy curricula. However, these competencies are more commonly introduced to students as concepts, and there is a lack of opportunity to practice and demonstrate such competencies learned. While it was perceived that the current curriculum is adequate to cover SAP and prepare students for UHC implementation, recommendations for more training and seminars for faculty, and increased exposure and opportunities for students were made.

Acknowledgements

I express my deepest gratitude for the invaluable assistance of my research admin team: Kathleen Aquino and Angel Cabigting. I also extend my heartfelt thanks to the participating schools and their representatives for their cooperation. Special thanks to the University of the Philippines National Institute of Health and the UP College of Pharmacy for their generous support and the research grant provided.

Funding

This work was supported by the National Institutes of Health, University of the Philippines Manila. The funding source had no involvement in the preparation of the article.

Conflict of Interest

All authors declare that they have no conflicts of interest. No professional or personal relationships with other people or organizations that could inappropriately influence the bias of our work.

References

Amit AML, Pepito VCF and Dayrit MM. Advancing Universal Health Coverage in the Philippines through self-care interventions. Lancet Reg Health West Pac. 2022; 26: 100579.

Anderson C, Bates I, Beck D, Brock TP, Futter B, Mercer H, et al. The WHO UNESCO FIP Pharmacy Education Taskforce. Hum Resour Health. 2009; 7: 45.

Bernal-Sundiang N, De Mesa RYH, Marfori JRA, Fabian NMC, Calderon YT, Dans LF, et al. Governance in Primary Care Systems: Experiences and Lessons from Urban, Rural, and Remote Settings in the Philippines. Acta Med Philipp. 2023; 57(3).

Cameron GD, Chandra R, Ivey MF, Khatri CS, Nemire RE, Quinn CJ, et al. ASHP statement on the pharmacist's role in public health. Am J Health Syst Pharm. 2021; 79(5): 388-399. doi: 10.1093/ajhp/zxab338.

Commission on Higher Education. Policies, Standards, and Guidelines for the Bachelor of Science in Pharmacy Program. 2021. https://ched.gov.ph/wp-content/uploads/CMO-No-25-series-2021-PSG-for-BS-Pharmacy.pdf. [Accessed November 16, 2023].

Congress of the Philippines. Republic Act No. 11223. 2019. https://lawphil.net/statutes/repacts/ra2019/ra_11223_2019.html. [Accessed November 16, 2023].

Ebersole L. Manufacturing a product in a supply chain. Elmhurst University. 2020. https://www.elmhurst.edu/blog/manufacturing-a-product/. [Accessed November 16, 2023].

Hassali MA, Shafie AA, Al-Haddad MS, Abduelkarem AR, Ibrahim MI, Palaian S, et al. Social pharmacy as a field of study: The needs and challenges in global pharmacy education. Res Social Adm Pharm. 2011; 7: 415-420.

Kostriba J, Alwarafi A and Vlcek J. Social pharmacy as a field of study in undergraduate pharmacy education. Indian J Pharm Educ Res. 2014; 48: 6-12.

Litvinova T, Glazkova I, Kirillova O, Smyslova O and Ermakov D. Supply Chain Management in the Hospital Pharmacy. Journal of Pharmaceutical Sciences and Research. 2018; 10(5): 1248-1250.

Liu GG, Wu EQ, Ahn J, Kamae I, Xie J and Yang H. The development of health Technology Assessment in Asia: current status and future trends. Value Health Reg Issues. 2020; 21: 39-44. doi: 10.1016/j.vhri.2019.08.472

Master of Science in Social and Administrative Pharmacy. Program Brochure. College of Pharmacy, University of the Philippines Manila. 2023. https://cp.upm.edu.ph/wp-content/uploads/2023/07/Program-Brochure_MS-in-Social-and-Administrative-Pharmacy.pdf [Accessed December 5, 2023].

Philippine Association of Colleges of Pharmacy (PACOP). Course Specifications.

Reyes CM and Tabuga AD. A Profile of the Philippine Pharmaceutical Industry. Philippine Competition Commission; 2020.

Ryan K, Bissell P, Anderson C, Traulsen JM and Sleath B. Teaching social sciences to undergraduate pharmacy students: an international survey. Pharmacy Education 2007; 7.

Social and Administrative Pharmacy (SAP) Section. FIP - International Pharmaceutical Federation Our Uniting Interest Is the Organisation of Pharmacy Practice and the Provision of Evidence for Decision-making in All Areas Related to Pharmacy Policy and Advocacy. https://www.fip.org/administrative-pharmacy. [Accessed November 16, 2023].

Statutes of the Social and Administrative Pharmacy Section - Federation Internationale Pharmaceutique (SSAPS-FIP). Rules of Procedure. International Pharmaceutical Federation. 2020. https://www.fip.org/files/content/pharmacy-practice/administrative-pharmacy/SAPS_Statues-_Bureau_approved%202020.pdf [Accessed December 5, 2023].

Tulenko K, Møgedal S, Afzal MM, Frymus D, Oshin A, Pate M, et al. Community health workers for universal health-care coverage: from fragmentation to synergy. Bull World Health Organ. 2013; 91: 847-852.

Wong JQ, Co SL, Modina CAE, Fowler KC, Tarroc MG, Mallari EU, et al. An outcome evaluation of the Philippine Health Technology Assessment Program. Philippine Institute for Development Studies. 2022. https://www.pids.gov.ph/publication/discussion-papers/an-outcome-evaluation-of-the-philippine-health-technology-assessment-program. [Accessed November 16, 2023].

World Health Organization (WHO). World health statistics 2022: monitoring health for the SDGs, sustainable development goals. 2022.

APPENDIX A: Educational Background and Professional Experience of Participants

Master's	
Doctorate	
Professional Experience	n
WHO (Cambodia, Philippines, Western Pacific Regional Office, Timor Leste, Papua New Guinea, Indonesia)	1

APPENDIX B: SAP in Curriculum (Learned)

Domain	Competency	No. of Courses	Top 3 Courses	Frequency	Mean Number of Hours
Domain I: **Pharmaceutical Supply Chain Management**	Explain how the pharmaceutical system operates within a particular health system	15	Introduction to Healthcare System	6	2.6
			Hospital Pharmacy	4	3.0
			Social and Administrative Pharmacy	4	1.5
			Others	18	3.3
	Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	11	Perspectives in Pharmacy	5	3.4
			Introduction to Healthcare System	4	4.0
			Social and Administrative Pharmacy	3	1.7
			Others	16	3.2
	Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain	12	Social and Administrative Pharmacy	7	2.0
			Introduction to Healthcare System	4	2.5
			Pharmacist in Public Health	4	3.5
			Others	16	4.0
	Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use	10	Social and Administrative Pharmacy	6	3.6
			Hospital Pharmacy	5	11.3
			Pharmacist in Public Health	4	3.3
			Dispensing	4	13.8
			Others	6	3.3
	Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them	13	Hospital Pharmacy	4	11.2
			Pharmacist in Public Health	4	3.7
			Social and Administrative Pharmacy	3	2.0
			Others	16	4.8
DOMAIN II: **Pharmaceutical Policy Analysis**	Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies	12	Health Technology Assessment	8	2.5
			Legal Pharmacy	6	3.0
			Social and Administrative Pharmacy	3	2.7
			Pharmacist in Public Health	3	2.7
	Describe how pharmaceutical policy issues are framed, policy	11	Others	9	3.7
			Health Technology Assessment	7	2.4

	arguments are substantiated, and policy responses designed, implemented, monitored and evaluated		Legal Pharmacy	5	3.1
			Social and Administrative Pharmacy	3	2.7
			Others	12	3.1
	Discuss the roles of actors and stakeholders in the policy process	10	Health Technology Assessment	7	2.4
			Legal Pharmacy	6	3.0
			Social and Administrative Pharmacy	3	2.7
			Pharmacist in Public Health	3	2.7
			Others	7	3.4
	Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods	8	Health Technology Assessment	6	2.3
			Legal Pharmacy	6	3.0
			Social and Administrative Pharmacy	3	2.0
			Others	7	3.8
	Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection	7	Health Technology Assessment	7	2.4
			Legal Pharmacy	6	3.0
			Introduction to Healthcare System	2	1.5
			Pharmacy Informatics	2	3.0
			Social and Administrative Pharmacy	2	3.0
			Others	2	6.5
	Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care	9	Social and Administrative Pharmacy	13	1.4
			Pharmacist in Public Health	5	3.7
			Dispensing	3	4.0
			Others		3.7
DOMAIN III: **Medicine Use Behavior**	Relate social factors to physical and mental health, including acute illness conditions, and mental illness	7	Social and Administrative Pharmacy	13	1.4
			Pharmacist in Public Health	4	3.8
			Introduction to Healthcare System	4	1.7
			Dispensing	3	5.5
			Others	3	4.7
	Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care intervention	9	Social and Administrative Pharmacy	14	1.5
			Pharmacist in Public Health	6	3.2
			Introduction to Healthcare System	3	1.5

			Others	7	10.2
			Social and Administrative Pharmacy	13	1.6
	Analyze the different applications of health behavioral models in pharmacy;	7	Introduction to Healthcare System	3	1.5
			Pharmacist in Public Health	2	3.0
			Clinical Pharmacy	2	6.0
			Others	3	23.5
			Social and Administrative Pharmacy	13	1.6
	Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	6	Pharmacist in Public Health	3	2.7
			Clinical Pharmacy	2	6.0
			Introduction to Healthcare System	2	2.0
			Others	3	2.3
			Social and Administrative Pharmacy	12	1.7
	Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research.	8	Clinical Pharmacy	2	6.0
			Introduction to Healthcare System	2	1.5
			Pharmacist in Public Health	2	3.0
			Others	4	4.0
			Health Technology Assessment	11	8.2
	Describe the process and purpose of HTA	4	Evidence-Based Medicine and Drug Information	1	3.0
			Introduction to Healthcare System	1	2.0
			Perspectives in Pharmacy	1	2.0
			Health Technology Assessment	11	8.2
DOMAIN IV: **Health Technology Assessment in the Healthcare System**	Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA	5	Evidence-Based Medicine and Drug Information	1	3.0
			Introduction to Healthcare System	1	2.0
			Perspectives in Pharmacy	1	2.0
			Pharmacist in Public Health	1	3.0
			Health Technology Assessment	11	8.2
	Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion	4	Evidence-Based Medicine and Drug Information	1	3.0
			Introduction to Healthcare System	1	2.0
			Perspectives in Pharmacy	1	2.0

			Health Technology Assessment	11	8.2
	Relate HTA to evidence-based policy making	4	Evidence-based Medicine and Drug Information	1	3.0
			Perspective in Pharmacy	1	2.0
			Introduction to Healthcare System	1	2.0
			Health Technology Assessment	11	8.2
	Develop an understanding of the issues associated with using HTA in policy decision-making	4	Evidence-Based Medicine and Drug Information	1	3.0
			Introduction to Healthcare System	1	2.0
			Perspectives in Pharmacy	1	2.0
			Health Technology Assessment and Health Policy with Pharmacoeconomics	11	8.7
	Critically appraise published research and its synthesis	4	Evidence-Based Medicine and Drug Information	2	3.0
			Perspectives in Pharmacy	1	2.0
			Research Methods	1	1.0
			Health Technology Assessment	12	8.1
	Apply framework and methods used for conducting HTA	3	Evidence-Based Medicine and Drug Information	1	3.0
			Perspective in Pharmacy	1	2.0
			Health Technology Assessment	12	8.7
	Design an evidence summary	3	Evidence-Based Medicine and Drug Information	1	3.0
			Perspectives in Pharmacy	1	2.0
			Pharmacist in Public Health	8	9.4
	Discuss the principles of pharmacoepidemiology and related concepts	7	Social and Administrative Pharmacy	2	1.8
			Dispensing	2	3.0
			Others	4	2.1
DOMAIN V: **Pharmacoepidemiology**	Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	5	Pharmacist in Public Health	10	8.0
			Dispensing	2	3.0
			Social and Administrative Pharmacy	2	1.8
			Others	2	3.0
	Differentiate pharmacoepidemiologic study	5	Pharmacist in Public Health	10	8.0

	designs according to their applications, features, strengths, and limitations		Dispensing	2	3.0
			Social and Administrative Pharmacy	2	1.8
			Others	2	3.0
			Pharmacist in Public Health	9	10.7
	Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	5	Dispensing	2	3.0
			Social and Administrative Pharmacy	2	2.5
			Others	2	3.0
			Pharmacist in Public Health	8	11.6
	Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class.	4	Social and Administrative Pharmacy	2	1.5
			Dispensing	2	3.0
			Clinical Pharmacy	1	3.0
			Pharmacist in Public Health	8	11.6
	Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	8	Dispensing	2	3.0
			Social and Administrative Pharmacy	2	1.3
			Others	5	3.5
			Pharmacy Administration, Management and Leadership	6	2.6
	Describes systems, policies, and events impacting public health	7	Pharmacist in Public Health	5	4.8
			Introduction to Healthcare System	2	2.5
			Others	4	2.0
			Pharmacist in Public Health	7	4.8
DOMAIN VI: **Pharmacy Management**	Applies public health sciences in delivering the 10 Essential Public Health Services	8	Pharmacy Administration, Management and Leadership	3	2.7
			Social and Administrative Pharmacy	3	2.0
			Others	5	2.1
			Pharmacist in Public Health	7	4.75
	Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	8	Pharmacy Administration, Management and Leadership	3	2.7
			Social and Administrative Pharmacy	3	2.0
			Others	6	2.1

Contributes to the evidence base for improving health	8	Pharmacist in Public Health	5	4.8
		Pharmacy Administration, Management and Leadership	3	2.7
		Social and Administrative Pharmacy	3	2.0
		Introduction to Healthcare System	2	2.5
		Others	4	3.6
Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization	7	Pharmaceutical Marketing and Entrepreneurship	8	3.8
		Pharmacy Administration, Management and Leadership	6	3.5
		Pharmacist in Public Health	2	9.0
		Social and Administrative Pharmacy	2	2.0
		Others	3	2.5
Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.	8	Pharmacy Administration, Management and Leadership	7	3.3
		Pharmaceutical Marketing and Entrepreneurship	7	4.0
		Pharmacist in Public Health	2	9.0
		Social and Administrative Pharmacy	2	2.0
		Others	4	3.9

APPENDIX C: SAP in Curriculum (Practiced)

Domain	Competency	No. of Courses	Top 3 Courses	Frequency	Mean Number of Hours
DOMAIN I: **Pharmaceutical Supply Chain Management**	Explain how the pharmaceutical system operates within a particular health system	10	APPE in Public Health and Regulatory Pharmacy	5	72.3
			APPE in Community Pharmacy	2	300.0
			APPE in Hospital Pharmacy	2	300.0
			Pharmacist in Public Health	2	3.5
			Others	6	22.4
	Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	12	Dispensing	6	9.8
			APPE in Hospital Pharmacy	5	189.6
			Legal Pharmacy	4	9.0
			Others	15	83.4
	Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain	11	APPE in Public Health and Regulatory Pharmacy	4	49.8
			APPE in Community Pharmacy	2	300.0
			APPE in Hospital Pharmacy	2	300.0
			Social and Administrative Pharmacy	2	3.5
			Others	6	22.8
	Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use	12	APPE in Community Pharmacy	5	290.0
			APPE in Hospital Pharmacy	5	290.0
			APPE in Institutional Pharmacy	2	120.0
			APPE in Public Health and Regulatory Pharmacy	2	153.3
			Dispensing	2	68.0
			Others	8	44.4
	Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them	13	APPE in Hospital Pharmacy	5	253.0
			APPE in Community Pharmacy	4	290.0
			APPE in Public Health and Regulatory Pharmacy	3	153.3
			Others	10	47.2
DOMAIN II: **Pharmaceutical Policy Analysis**	Explain key concepts and approaches in policy studies and their applications in addressing	5	Legal Pharmacy	2	4.0
			Health Technology Assessment	1	4.0

	specific issues related to medicines and other health technologies		Social and Administrative Pharmacy	1	1.0
			APPE in Public Health and Regulatory Pharmacy	1	180.0
			APPE in Primary Health	1	120.0
			Health Technology Assessment	2	3.0
	Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated	6	APPE in Primary Health Care Pharmacy	1	120.0
			APPE in Public Health and Regulatory Pharmacy	1	180.0
			Legal Pharmacy	1	3.0
			Pharmacist in Public Health	1	2.0
			Social and Administrative Pharmacy	1	1.0
			APPE in Primary Health Care Pharmacy	1	120.0
	Discuss the roles of actors and stakeholders in the policy process	5	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Health Technology Assessment	1	2.0
			Pharmacist in Public Health	1	2.0
			Social and Administrative Pharmacy	1	1.0
			Health Technology Assessment	2	2.5
	Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods	5	Social and Administrative Pharmacy	2	1.0
			Pharmacist in Public Health	2	4.0
			Others	2	3.8
			Pharmacist in Public Health	2	4.0
			APPE in Primary Health Care Pharmacy	1	120.0
	Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection	6	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Health Technology Assessment	1	3.0
			Legal Pharmacy	1	3.0
			Social and Administrative Pharmacy	1	1.0
			Social and Administrative Pharmacy	5	3.1
DOMAIN III: Medicine Use Behavior	Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care;	7	Public Health with Pharmacoepidemiology	3	4.5
			Social Organization and Community Involvement (Non-Curriculum)	2	20.0
			Others	4	104.0

	Relate social factors to physical and mental health, including acute illness conditions, and mental illness	6	Social and Administrative Pharmacy	5	3.1
			Pharmacist in Public Health	2	4.5
			Social Organization and Community Involvement (Non-Curriculum)	2	20.0
			Others	3	60.3
	Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions	6	Social and Administrative Pharmacy	5	3.1
			Social Organization and Community Involvement (Non-Curriculum)	2	20.0
			Public Health with Pharmacoepidemiology	2	4.5
			Others	3	60.3
	Analyze the different applications of health behavioral models in pharmacy	6	Social and Administrative Pharmacy	4	3.3
			Pharmacist in Public Health	2	7.5
			Social Organization and Community Involvement (Non-Curriculum)	2	20.0
			Others	4	60.3
	Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	6	Social and Administrative Pharmacy	4	3.3
			Pharmacy Thesis	2	54.0
			Social Organization and Community Involvement (Non-Curriculum)	2	20.0
			Others	3	45.3
	Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research.	5	Pharmacy Thesis	5	8.6
			Social Organization and Community Involvement (Non-Curriculum)	20	20.0
			Research Methods in Pharmacy	1	4.0
			APPE in Primary Health Care Pharmacy	1	120.0
DOMAIN IV: **Health Technology Assessment in the Healthcare System**	Describe the process and purpose of HTA	3	Pharmacist in Public Health	1	6.0
			Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
	Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA	3	Pharmacist in Public Health	1	5.0
			Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
	Analyze issues associated with gathering data and appraising the quality of available evidence	3	Pharmacist in Public Health	1	5.0
			Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0

	Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion	3	Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0
	Relate HTA to evidence-based policy making	3	Health Technology Assessment	4	4.5
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0
	Develop an understanding of the issues associated with using HTA in policy decision-making	2	Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
	Critically appraise published research and its synthesis	3	Health Technology Assessment	6	3.7
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0
	Apply framework and methods used for conducting HTA	3	Health Technology Assessment	5	4.0
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0
	Design an evidence summary	3	Health Technology Assessment	5	4.0
			Pharmacy Thesis	2	180.0
			Pharmacist in Public Health	1	5.0
	Discuss the principles of pharmacoepidemiology and related concepts	3	Pharmacist in Public Health	5	6.8
			Health Technology Assessment	1	3.0
			Pharmacy Thesis	1	54.0
	Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	3	Pharmacist in Public Health	4	8.0
			Health Technology Assessment	1	3.0
			Pharmacy Thesis	1	54.0
DOMAIN V: **Pharmacoepidemiology**	Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations	3	Pharmacist in Public Health	4	8.0
			Health Technology Assessment	1	3.0
			Pharmacy Thesis	1	54.0
	Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	3	Pharmacist in Public Health	4	8.0
			Health Technology Assessment	1	3.0
			Pharmacy Thesis	1	54.0
	Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class.	3	Pharmacist in Public Health	4	8.0
			Health Technology Assessment	1	3.0

			Pharmacy Thesis	1	54.0
			Pharmacist in Public Health	4	4.8
	Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	4	Health Technology Assessment	1	3.0
			Medication Safety	1	4.0
			Pharmacy Thesis	1	54.0
			APPE in Public Health and Regulatory Pharmacy	3	180.0
	Describes systems, policies, and events impacting public health	7	Pharmacist in Public Health	2	3.0
			Pharmacy Administration, Management and Leadership	2	2.0
			Others	4	33.8
			APPE in Public Health and Regulatory Pharmacy	3	180.0
			Pharmacist in Public Health	2	5.5
	Applies public health sciences in delivering the 10 Essential Public Health Services	6	Pharmacy Administration, Management and Leadership	1	2.0
			APPE in Primary Health Care Pharmacy	1	120.0
			Hospital Pharmacy	1	3.0
			Health Technology Assessment	1	2.0
			APPE in Public Health and Regulatory Pharmacy	4	124.0
DOMAIN VI: **Pharmacy Management**			Pharmacist in Public Health	3	4.3
	Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	6	APPE in Primary Health Care Pharmacy	1	120.0
			Health Technology Assessment	1	2.0
			Hospital Pharmacy	1	3.0
			Pharmacy Administration, Management and Leadership	1	2.0
			APPE in Public Health and Regulatory Pharmacy	3	180.0
			Pharmacist in Public Health	3	4.3
	Contributes to the evidence base for improving health	8	Pharmaceutical Administration	1	2.0
			APPE in Primary Health Care Pharmacy	1	120.0
			Hospital Pharmacy	1	3.0
			Health Technology Assessment	1	2.0
	Analyze sales and retail management for the viability of the market operations and to	5	APPE in Public Health and Regulatory Pharmacy	2	180.0

	sustain resource-dependent activities of the organization		Pharmaceutical Marketing and Entrepreneurship	2	8.0
			Pharmacist in Public Health	2	3.0
			Pharmacy Administration, Management and Leadership	2	2.0
			Others	1	3.0
	Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives	7	Pharmacy Administration, Management and Leadership	3	2.3
			Pharmaceutical Marketing and Entrepreneurship	3	4.3
			APPE in Public Health and Regulatory Pharmacy	2	180.0
			Others	4	4.3

*1 unit internship = 40 hours
**1 year thesis = 54 hours

APPENDIX D: SAP in Curriculum (Demonstrated)

Domain	Competency	No. of Courses	Top 3 Courses	Frequency	Mean Number of Hours
DOMAIN I: **Pharmaceutical Supply Chain Management**	Explain how the pharmaceutical system operates within a particular health system	3	APPE in Community Pharmacy	1	300.0
			APPE in Hospital Pharmacy	1	300.0
			Social and Administrative Pharmacy	1	1.0
	Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	2	APPE in Community Pharmacy	2	100.0
			APPE in Hospital Pharmacy	2	100.0
	Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain				
	Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use	2	APPE in Public Health and Regulatory Pharmacy	1	1 week preparation
			PharmaCEA: Community Engagement Project	1	180.0
	Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them.	1	PharmaCEA: Community Engagement Project	1	1 week preparation
DOMAIN II: **Pharmaceutical Policy Analysis**	Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies				
	Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated				
	Discuss the roles of actors and stakeholders in the policy process				
	Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods				
	Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection				
DOMAIN III: **Medicine Use Behavior**	Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care				
	Relate social factors to physical and mental health, including acute illness conditions, and mental illness				

DOMAIN IV: **Health Technology Assessment in the Healthcare System**	Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions				
	Analyze the different applications of health behavioral models in pharmacy	1	Pharmacy Thesis	1	4.0
	Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	1	Pharmacy Thesis	1	4.0
	Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research	3	Research Methods in Pharmacy	2	4.0
			Pharmacy Thesis	2	54.0
			Social and Administrative Pharmacy	1	1.0
	Describe the process and purpose of HTA	1	APPE in Public Health and Regulatory Pharmacy	1	80.0
	Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA				
	Analyze issues associated with gathering data and appraising the quality of available evidence				
	Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion				
	Relate HTA to evidence-based policy making				
	Develop an understanding of the issues associated with using HTA in policy decision-making				
	Critically appraise published research and its synthesis				
	Apply framework and methods used for conducting HTA				
	Design an evidence summary				
DOMAIN V: **Pharmacoepidemiology**	Discuss the principles of pharmacoepidemiology and related concepts	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	45.0

DOMAIN VI: Pharmacy Management	Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class	1	Pharmacy Thesis	2	51.0
	Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
			Pharmacy Thesis	1	54.0
	Describes systems, policies, and events impacting public health	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Applies public health sciences in delivering the 10 Essential Public Health Services	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
			Pharmacy Thesis	1	54.0
	Contributes to the evidence base for improving health	2	APPE in Public Health and Regulatory Pharmacy	1	180.0
	Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization	2	Pharmacy Thesis	1	54.0
			Pharmaceutical Marketing & Entrepreneurship	1	3.0
	Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.	2	Pharmacy Thesis	1	54.0
			APPE in Public Health and Regulatory Pharmacy	1	180.0

*1 unit internship = 40 hours
**1 year thesis = 54 hours

APPENDIX E: Frequency of Teaching-Learning Activities per Competency (Learned)

DOMAIN I: **Pharmaceutical Supply Chain Management**

Competency	Lectures	Case Studies	Journal Critiques	Quizzes	Worksheets	Others
Explain how the pharmaceutical system operates within a particular health system	16	2	2	2	1	4
Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	12	2	2	4	0	5
Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain	13	3	2	3	0	6
Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use.	14	5	5	1	4	17
Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them.	13	7	5	1	3	10
Total	68	19	16	11	8	32

DOMAIN II: **Pharmaceutical Policy Analysis**

Competency	Lectures	Discussions	Research Work	Group Works	Worksheets	Others
Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies	12	3	3	3	3	7
Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated	12	4	3	3	3	7
Discuss the roles of actors and stakeholders in the policy process	11	4	3	3	3	5
Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods	10	3	3	2	2	3
Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection	8	3	3	2	2	4
Total	53	17	15	13	13	26

DOMAIN III: **Medicine Use Behavior**

Competency	Lectures	Quizzes	Case Studies	Reporting	Webinars	Others
Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care	12	2	6	2	2	10
Relate social factors to physical and mental health, including acute illness conditions, and mental illness	7	5	2	2	2	9
Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions	11	2	2	2	2	6
Analyze the different applications of health behavioral models in pharmacy	6	2	1	2	2	4
Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	6	2	1	2	2	4

Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research	7	2	1	2	2	4
Total	49	15	13	12	12	37

DOMAIN IV: **Health Technology Assessment in the Healthcare System**

Competency	Lectures	Stakeholder Analysis	Quizzes	Discussions	Journal Critiques	Others
Describe the process and purpose of HTA	3	2	2	2	1	0
Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA	3	2	2	2	1	0
Analyze issues associated with gathering data and appraising the quality of available evidence	2	2	2	2	3	0
Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion	3	2	2	2	1	1
Relate HTA to evidence-based policy making	3	2	2	2	1	0
Develop an understanding of the issues associated with using HTA in policy decision-making	3	2	2	2	1	0
Critically appraise published research and its synthesis	4	2	2	2	2	2
Apply framework and methods used for conducting HTA	3	2	2	2	1	0
Design an evidence summary	3	2	2	2	1	0
Total	27	18	18	18	12	3

DOMAIN V: **Pharmacoepidemiology**

Competency	Lectures	Quizzes	Journals	Interactive Sessions	Reporting	Others
Discuss the principles of pharmacoepidemiology and related concepts	8	3	3	2	1	0
Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	7	3	3	2	1	0
Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations	7	3	3	2	1	0
Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	7	1	1	2	1	1
Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class	6	2	2	2	1	0
Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	9	3	1	2	1	0
Total	44	15	13	2	6	1

DOMAIN VI: **Pharmacy Management**

Competency	Lectures	Quizzes	Advocacy Making	Group Activities	Journal Critiques	Others
Describes systems, policies, and events impacting public health	13	3	2	1	1	4
Applies public health sciences in delivering the 10 Essential Public Health Services	11	3	2	1	1	4

Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	12	3	2	1	1	3
Contributes to the evidence base for improving health	11	3	2	1	1	1
Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization.	8	4	2	1	1	9
Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.	10	3	2	1	1	9
Total	65	19	12	6	6	30

APPENDIX F: Frequency of Teaching-Learning Activities per Competency (Practiced)

DOMAIN I: Pharmaceutical Supply Chain Management						
Competency	**Lectures**	**Researches**	**Case Studies**	**Quizzes**	**Worksheets**	**Others**
Explain how the pharmaceutical system operates within a particular health system	3	4	2	3	2	12
Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	4	3	5	4	4	12
Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain	4	5	2	3	0	11
Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use.	7	5	5	4	0	22
Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them.	7	4	6	3	1	20
Total	25	21	20	20	7	77

DOMAIN II: Pharmaceutical Policy Analysis						
Competency	**Policy Analyses**	**Policy Critique**	**Case Studies**	**Workshops**	**Roleplays**	**Others**
Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies	5	1	2	0	0	0
Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated	5	0	0	0	0	0
Discuss the roles of actors and stakeholders in the policy process	4	0	0	0	1	0
Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods	6	1	0	1	0	0
Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection	4	1	0	1	0	0
Total	24	3	2	2	1	0

DOMAIN III: Medicine Use Behavior						
Competency	**Researches**	**Case Studies**	**Counseling**	**Journal Critiques**	**Seminars**	**Others**
Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care	4	4	3	2	1	2
Relate social factors to physical and mental health, including acute illness conditions, and mental illness	4	4	2	2	1	2
Explain health inequities, social constructions of illness and medical	4	4	2	2	1	3

authority and its implications in health and pharmaceutical care interventions						
Analyze the different applications of health behavioral models in pharmacy	4	2	2	3	1	3
Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	4	1	2	2	1	2
Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research	5	1	0	0	1	4
Total	25	16	11	11	6	16

DOMAIN IV: **Health Technology Assessment in the Healthcare System**

Competency	HTA Making	Case Studies	Collaborative Learning	HTA Proposal and Defense	Lectures	Others
Describe the process and purpose of HTA	6	4	2	2	1	3
Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA	5	4	2	2	1	2
Analyze issues associated with gathering data and appraising the quality of available evidence	5	4	2	2	1	2
Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion	5	4	2	2	1	2
Relate HTA to evidence-based policy making	3	4	2	2	1	2
Develop an understanding of the issues associated with using HTA in policy decision-making	5	4	2	2	1	2
Critically appraise published research and its synthesis	5	4	2	2	1	2
Apply framework and methods used for conducting HTA	5	4	2	2	1	2
Design an evidence summary	5	4	2	2	1	2
Total	44	36	18	18	9	19

DOMAIN V: **Pharmacoepidemiology**

Competency	Case Studies	Researches	Journal Critiques	HTA Making	Lectures	Others
Discuss the principles of pharmacoepidemiology and related concepts	3	3	2	1	1	3
Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	3	3	2	1	1	3
Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations	3	3	2	1	1	4
Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	3	3	2	1	1	3
Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class	3	3	2	1	1	3

Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	3	3	4	1	1	1
Total	18	18	14	6	6	17

DOMAIN VI: **Pharmacy Management**

Competency	Lectures	Business Simulations	Case Studies	Interviews with Key Personnel	Internship	Others
Describes systems, policies, and events impacting public health	3	1	3	2	2	4
Applies public health sciences in delivering the 10 Essential Public Health Services	3	0	1	2	2	5
Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	3	0	1	2	2	6
Contributes to the evidence base for improving health	3	0	1	2	2	7
Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization.	3	4	3	2	0	5
Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.	2	7	3	2	0	6
Total	17	12	12	12	8	33

APPENDIX G: Frequency of Teaching-Learning Activities per Competency (Demonstrated)

DOMAIN I: **Pharmaceutical Supply Chain Management**

Competency	Immersion	Internship	Antimicrobial Stewardship
Explain how the pharmaceutical system operates within a particular health system	1	0	0
Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies	3	0	1
Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain	0	0	0
Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use.	0	2	0
Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them.	0	1	0
Total	4	3	1

DOMAIN II: **Pharmaceutical Policy Analysis**

Competency
Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies
Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated
Discuss the roles of actors and stakeholders in the policy process
Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods
Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection
Total

DOMAIN III: **Medicine Use Behavior**

Competency	Community Health Campaign	Study Implementation
Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care	0	0
Relate social factors to physical and mental health, including acute illness conditions, and mental illness	0	0
Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions	0	0
Analyze the different applications of health behavioral models in pharmacy	0	0
Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice	0	0
Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research	1	1
Total	1	1

DOMAIN IV: **Health Technology Assessment in the Healthcare System**

Competency	Lectures	Roleplays
Describe the process and purpose of HTA	1	1

Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA	0	0
Analyze issues associated with gathering data and appraising the quality of available evidence	0	0
Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion	0	0
Relate HTA to evidence-based policy making	0	0
Develop an understanding of the issues associated with using HTA in policy decision-making	0	0
Critically appraise published research and its synthesis	0	0
Apply framework and methods used for conducting HTA	0	0
Design an evidence summary	0	0
Total	1	1

DOMAIN V: **Pharmacoepidemiology**

Competency	**Data Analysis**	**Survey Collection**
Discuss the principles of pharmacoepidemiology and related concepts	1	1
Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies	1	1
Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations	1	1
Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them	1	1
Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class	1	1
Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management	1	1
Total	6	6

DOMAIN VI: **Pharmacy Management**

Competency	**Data Analysis**	**Market Analysis**
Describes systems, policies, and events impacting public health	1	0
Applies public health sciences in delivering the 10 Essential Public Health Services	1	0
Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services	1	0
Contributes to the evidence base for improving health	1	0
Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization.	1	1
Create a strategic vision for own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.	1	0
Total	6	1

APPENDIX H: Frequency of Teaching-Learning Activities per Domain (Learned)

DOMAIN I: Pharmaceutical Supply Chain Management							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Case Studies**	**Journal Critiques**	**Quizzes**	**Worksheets**	**Others**
	TOTAL	68	19	16	11	8	32
DOMAIN II: Pharmaceutical Policy Analysis							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Discussions**	**Research Work**	**Group Works**	**Worksheets**	**Others**
	TOTAL	53	17	15	13	13	26
DOMAIN III: Medicine Use Behavior							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Quizzes**	**Case Studies**	**Reporting**	**Webinars**	**Others**
	TOTAL	49	15	13	12	12	37
DOMAIN IV: Health Technology Assessment in the Healthcare System							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Stakeholder Analysis**	**Quizzes**	**Discussions**	**Journal Critiques**	**Others**
	TOTAL	27	18	18	18	12	3
DOMAIN V: Pharmacoepidemiology							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Quizzes**	**Journals**	**Interactive Sessions**	**Reporting**	**Others**
	TOTAL	44	15	13	2	6	1
DOMAIN VI: Pharmacy Management							
TEACHING-LEARNING ACTIVITIES		**Lectures**	**Quizzes**	**Advocacy Making**	**Group Activities**	**Journal Critiques**	**Others**
	TOTAL	65	19	12	6	6	30

APPENDIX I: Frequency of Teaching-Learning Activities per Domain (Practiced)

DOMAIN I: Pharmaceutical Supply Chain Management						
TEACHING-LEARNING ACTIVITIES	**Lectures**	**Researches**	**Case Studies**	**Quizzes**	**Worksheets**	**Others**
TOTAL	25	21	20	20	7	77
DOMAIN II: Pharmaceutical Policy Analysis						
TEACHING-LEARNING ACTIVITIES	**Policy Analyses**	**Policy Critique**	**Case Studies**	**Workshops**	**Roleplays**	**Others**
TOTAL	24	3	2	2	1	0
DOMAIN III: Medicine Use Behavior						
TEACHING-LEARNING ACTIVITIES	**Researches**	**Case Studies**	**Counseling**	**Journal Critiques**	**Seminars**	**Others**
TOTAL	25	16	11	11	6	16
DOMAIN IV: Health Technology Assessment in the Healthcare System						
TEACHING-LEARNING ACTIVITIES	**HTA Making**	**Case Studies**	**Collaborative Learning**	**HTA Proposal and Defense**	**Lectures**	**Others**
TOTAL	44	36	18	18	9	19
DOMAIN V: Pharmacoepidemiology						
TEACHING-LEARNING ACTIVITIES	**Case Studies**	**Researches**	**Journal Critiques**	**HTA Making**	**Lectures**	**Others**
TOTAL	18	18	14	6	6	17
DOMAIN VI: Pharmacy Management						
TEACHING-LEARNING ACTIVITIES	**Lectures**	**Business Simulations**	**Case Studies**	**Interviews with Key Personnel**	**Internship**	**Others**
TOTAL	17	12	12	12	8	33

APPENDIX J: Frequency of Teaching-Learning Activities per Domain (Demonstrated)

DOMAIN I: Pharmaceutical Supply Chain Management			
TEACHING-LEARNING ACTIVITIES	**Immersion**	**Internship**	**Antimicrobial Stewardship**
TOTAL	4	3	1
DOMAIN II: Pharmaceutical Policy Analysis			
TEACHING-LEARNING ACTIVITIES			
TOTAL			
DOMAIN III: Medicine Use Behavior			
TEACHING-LEARNING ACTIVITIES	**Community Health Campaign**	**Study Implementation**	
TOTAL	1	1	
DOMAIN IV: Health Technology Assessment in the Healthcare System			
TEACHING-LEARNING ACTIVITIES	**Lectures**	**Roleplays**	
TOTAL	1	1	
DOMAIN V: Pharmacoepidemiology			
TEACHING-LEARNING ACTIVITIES	**Data Analysis**	**Survey Collection**	
TOTAL	6	6	
DOMAIN VI: Pharmacy Management			
TEACHING-LEARNING ACTIVITIES	**Data Analysis**	**Market Analysis**	
TOTAL	6	1	

Appendix K: Survey Questionnaire

Survey Questionnaire

I. **Informed Consent Form**

This informed consent form is for individuals who wish to participate in research entitled “Social and administrative pharmacy in the Philippines: A mixed method review of pharmacy education and its implication on Universal Health Care implementation.” Please read the consent form carefully. Before you decide to participate in the research study, you can raise questions. You are free to ask questions before or after taking part in the research.

Introduction of the Study

You are invited to participate in the study that aims to: (1) To describe the sociodemographic characteristics, educational background, and professional experience of those teaching SAP content in the Philippines. (2) To identify the type, frequency, and extent to which SAP courses are taught in Philippines’ s schools and colleges of pharmacy curricula. (3) To investigate the perceptions of faculty members with regards to SAP competencies and UHC implementation.

This research will then serve as a basis for recommendation for reforms in education, programs, and policies to contribute to the improvement of UHC implementation in the Philippines. The researcher will obtain data from 200 pharmacy faculty members in the Philippines. There is no experimental element of the study.

Participant’s Role

Should you decide to participate in the research study you will be asked to answer the survey form and guided interview. All documents or data collected as a result of your involvement in this study will be used exclusively for research purposes and will be kept confidential. There are no conceivable conditions and/or explanations for termination of involvement in the research and no alternative approaches available to the participant.

Possible Risks and Discomforts

There are no identified serious physical, psychological, and social risks that may arise during the conduct of the study that are outside the normal risk of being a part of a research. One possible risk you may experience is anxiety when sharing personal or confidential details. We wouldn't want that to happen. You don't have to answer any questions that make you uncomfortable.

Benefits of the Study

After completing each survey, you will be given one hundred and fifty Philippine pesos (PhP 150.00 only) worth of Grab voucher only. For participants who will decide to discontinue their participation in the middle of answering the survey, they will no longer receive the compensation. No compensation shall be granted to the family or dependents of the participant in the event of disability or death resulting from study-related injuries.

For long term benefits, your participation will contribute to research that will recommend pharmacy education reform and program recommendation that will give long term advantages for Filipino patients.

Confidentiality

Your personal data will be collected and processed for the purpose of this study. As such, your anonymity and confidentiality are guaranteed as the researcher will employ a strict protocol for participant coding. Records identifying you as a participant will be kept private and will not be made accessible to the public, to the degree allowed by law. Your identity will remain secret in the event that the findings of the analysis are released. However, any documents and data collected (not including your name) as a result of your involvement in the study may be reviewed by the applicable government agency or the institutional review board.

The data will be stored using a HIPAA-compliant system. HIPAA stands for Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule that ensures the protection of privacy, security, and integrity of protected health information. Only the primary researcher and qualified researcher assistants will have access to the study-

related documents. The data will be stored for 20 years in an external hard drive that will be secured by the principal investigator.

No genetic tests will be conducted. Familial genetic information as a result of answering the survey questions will be kept confidential. Precautions protocol is in effect to avoid the dissemination of results to immediate family members or others without the permission of the researcher. You have the right to deny potential data use and storage. You or your legally appropriate representative have access to your record and will be contacted in a timely manner when information becomes available that may be important to your willingness to continue participating.

Voluntary Participation
Your involvement in this research is absolutely voluntary. It's your preference whether to participate or not. Your preference would have no impact on your status in the university. If you change your mind about your participation in the study, you can withdraw your initial consent.

Person to Contact
If you have any questions or clarifications regarding the study, please feel free to contact the principal investigator Margarita M. Gutierrez through the contact number 09267475449 and/or email address, mmgutierrez2@up.edu.ph. The principal investigator is a registered Pharmacist working in the University of the Philippines Manila College of Pharmacy. The funding of the research is through the National Institute of Health of the Philippines.

The University of the Philippines Manila, Research Ethics Board has approved the study, and may be reached through the following contact for information regarding rights of study participants, including grievances and complaints:

Dr. Cecilia Jimeno, **UPMREB Panel 1 Chair**
Address: Room 126, Ground Floor, National Institutes of Health, UP Manila 623 Pedro Gil St., Ermita 1000 Manila
Email: upmreb@post.upm.edu.ph
Telephone Number: +63 2 8526-4346

Certificate to Consent
I have read the above information, or it has been read to me. I had the opportunity to ask questions about it, and any questions I asked were answered to my satisfaction. I freely agree to be a participant in this study for a period of six (6) months and acknowledge that I have the right to withdraw from the discussion / interview / survey / monitoring at any time.

Yes
No

II. **Faculty Background and Training**

1. **Sex**
   Male
   Female

2. **Highest Educational Attainment**
   Bachelor's Degree (BS)
   Master's Degree (MS)
   Doctor in Philosophy (PhD)
   Doctor in Pharmacy (PharmD)

3. **Name of Degrees**
   _____

4. **Total Years in the Academe**
   _____

5. **Teaching Load Units per Semester**

   _____

6. **Average Teaching Load Units for SAP Courses per Semester**

   _____

7. **Professional Experience Outside Teaching in the Field of Social and Administrative Pharmacy**

   _____

III. **Position of SAP Courses in the Curriculum**

1. **Check all Domains of Core Competencies for Social and Administrative Pharmacy that you teach in the university**.

   DOMAIN I: Pharmaceutical Supply Chain Management
   DOMAIN II: Pharmaceutical Policy Analysis
   DOMAIN III: Medicine Use Behavior
   DOMAIN IV: Health Technology Assessment in the Healthcare System
   DOMAIN V: Pharmacoepidemiology
   DOMAIN VI: Pharmacy Management

2. **Indicate the highest level of competency reached by the students for the following competencies in the current curriculum**.

	Not Yet Covered by the Curriculum	"**Learned**" (the topic/outcome is introduced, first time for the students to encounter this topic/outcome)	"**Practiced**" (the topic/outcome is reinforced and students are allowed to have opportunities to practice)	"**Demonstrated**" (indicates that students have had sufficient practice and can now demonstrate mastery at the degree exit level)
Explain how the pharmaceutical system operates within a particular health system				
Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies				
Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain				
Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use				
Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them				
Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and				

other health technologies				
Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated				
Discuss the roles of actors and stakeholders in the policy process				
Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods				
Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection				
Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care				
Relate social factors to physical and mental health, including acute illness conditions, and mental illness				
Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions				
Analyze the different applications of health behavioral models in pharmacy				
Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice				
Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research				
Describe the process and purpose of HTA				
Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA				
Analyze issues associated with gathering data and appraising the quality of available evidence				
Develop an understanding of the ethical, legal, social and				

health systems issues affecting technology diffusion				
Relate HTA to evidence-based policy making				
Develop an understanding of the issues associated with using HTA in policy decision-making				
Critically appraise published research and its synthesis				
Apply framework and methods used for conducting HTA				
Design an evidence summary				
Discuss the principles of pharmacoepidemiology and related concepts				
Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies				
Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations				
Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them				
Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class				
Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management				
Describes systems, policies, and events impacting public health				
Applies public health sciences in delivering the 10 Essential Public Health Services				
Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services				
Contributes to the evidence base for improving health				
Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization				
Create a strategic vision for				

their own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives				

3. **Identify the Top 3 courses where the SAP topic/outcome is introduced**:

   _____

4. **Identify the Top 3 courses where the SAP topic/outcome is practiced**:

   _____

5. **Identify the Top 3 courses where the SAP topic/outcome is demonstrated at a mastery level**:

   _____

IV. Perception and Challenges of Teaching SAP

1. Perception and Challenges of Teaching SAP

Please rank the following statements based on your agreement (from Strongly Agree to Strongly Disagree). Kindly select the option that best represents your answer.

	Strongly Agree	Agree	Disagree	Strongly Disagree
I believe that the current curriculum adequately covers SAP				
I believe that our curriculum prepares the students for their role in the UHC implementation				
My education adequately prepared me to teach SAP courses				
My professional experiences outside teaching adequately prepared me to teach SAP courses				
I am adequately prepared to teach competencies needed for UHC implementation				
Students pay more attention to basic sciences and clinical pharmacy courses than they did SAP courses				
I teach a wider range of topics in my courses compared to other faculty members of basic and clinical sciences				

2. **What are the common problems you encounter in teaching SAP courses?**

   _____

3. **What are your recommendations for improving teaching of SAP competencies?**

   _____

4. **What are your recommendations for improving teaching of UHC implementation competencies?**

   _____

Appendix L: **Interview Guide**

1. Introduce the members of the research team present in the FGD
2. Introduce the study to the participants
    a. Research objectives
    b. Significance of the study
    c. Roles of the participants
    d. Compensation for the participants' participation in the study
3. Explain the structure of the FGD to the participants
    a. Overview of the flow of the FGD
    b. Overview of the data to be collected from the participants
    c. Estimated timeline for the FGD
    d. Future steps after the FGD (e.g., reaching out to complete any missing data, if any, or dissemination of study results)
4. Reiterate the informed consent procedure to the participants
    a. Retrieve verbal consent to participate in the FGD; only proceed with the FGD once informed consent is retrieved
5. Ask for the participants' information
    a. Participant's initials
    b. Participant's school or college of pharmacy to which they are affiliated
6. Differentiate the definition of 'Learned', 'Practiced', and 'Demonstrated' domains to participants
7. Identify the courses that tackle the core competencies of each domain and determine the number of hours and teaching-learning activities involved in those courses:
    a. Domain I: Pharmaceutical Supply Chain Management
        i. Explain how the pharmaceutical system operates within a particular health system
        ii. Describe the laws, regulations, standards, and policies governing the pharmaceutical supply chain, particularly those with impact on access to medicines and health technologies
        iii. Explain how political, socio-economic, cultural and other factors affect the management of medicines across the pharmaceutical supply chain
        iv. Apply principles and frameworks of pharmaceutical supply chain management, drug/medicines management and medication use
        v. Analyze issues and challenges in the pharmaceutical supply chain and provide recommendations to address them
    b. Domain II: Pharmaceutical Policy Analysis
        i. Explain key concepts and approaches in policy studies and their applications in addressing specific issues related to medicines and other health technologies
        ii. Describe how pharmaceutical policy issues are framed, policy arguments are substantiated, and policy responses designed, implemented, monitored and evaluated
        iii. Discuss the roles of actors and stakeholders in the policy process
        iv. Evaluate policy problems and policy alternatives related to medicines and other health technologies using various tools and methods
        v. Apply criteria for pharmaceutical policy analysis with consideration to the ethical and political issues involved in criteria selection
    c. Domain III: Medicine Use Behavior
        i. Discuss sociological approach to understanding health and medicine, through an array of topics, ideas, issues, and terms used by those who study health and health care
        ii. Relate social factors to physical and mental health, including acute illness conditions, and mental illness
        iii. Explain health inequities, social constructions of illness and medical authority and its implications in health and pharmaceutical care interventions
        iv. Analyze the different applications of health behavioral models in pharmacy
        v. Apply the different sociological aspects and behavioral theories in explaining contemporary issues in health and pharmacy practice

vi. Develop conceptual or theoretical frameworks utilizing different sociological and behavioral concepts that can be applied in social pharmacy research

d. Domain IV: Health Technology Assessment in the Healthcare System
    i. Describe the process and purpose of HTA
    ii. Illustrate how different domains (e.g., clinical efficacy or effectiveness and cost-effectiveness) are related in HTA
    iii. Analyze issues associated with gathering data and appraising the quality of available evidence
    iv. Develop an understanding of the ethical, legal, social and health systems issues affecting technology diffusion
    v. Relate HTA to evidence-based policy making
    vi. Develop an understanding of the issues associated with using HTA in policy decision-making
    vii. Critically appraise published research and its synthesis
    viii. Apply framework and methods used for conducting HTA
    ix. Design an evidence summary
e. Domain V: Pharmacoepidemiology
    i. Discuss the principles of pharmacoepidemiology and related concepts
    ii. Describe the historical contributions of pharmacoepidemiology to improving drug use and health outcomes and their emerging roles in drug safety surveillance and comparative drug effectiveness and safety studies
    iii. Differentiate pharmacoepidemiologic study designs according to their applications, features, strengths, and limitations
    iv. Debate the threats to validity of pharmacoepidemiology studies and the approaches available to avert or control them
    v. Compose a written critique of a recently published pharmacoepidemiology study to be orally presented in class.
    vi. Apply pharmacoepidemiology principles in drug safety surveillance and therapeutic risk management
f. Domain VI: Pharmacy Management
    i. Describes systems, policies, and events impacting public health
    ii. Applies public health sciences in delivering the 10 Essential Public Health Services
    iii. Uses evidence in developing, implementing, evaluating, and improving policies, programs, and services
    iv. Contributes to the evidence base for improving health
    v. Analyze sales and retail management for the viability of the market operations and to sustain resource-dependent activities of the organization.
    vi. Create a strategic vision for their own institution after application of concepts from this course through careful organizational appraisal and use of strategy alternatives.

8. Ask the participants the following questions:
    a. What are the common problems you encounter in teaching SAP courses?
    b. What are your recommendations for improving teaching of SAP competencies?
    c. What are your recommendations for improving teaching of UHC implementation competencies?
9. Review the participants' answers with them in real time to fill in any missing data
10. Confirm with the participants if they have any additional comments, suggestions, or input for the FGD
11. Offer the compensation to the participants
12. Thank the participants for their active participation in the endeavor