

Proceeding of the stakeholders' consultative workshop to review draft curriculum in Health Supply Chain Management

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Summary

A two-day workshop was held to review the draft curriculum for Health Supply Chain Management in which 40 participants representing different institutions. The workshop started by key note addresses made by representatives of different stakeholder institutions which was followed by presentations detailing the findings of the need assessment and competency mapping for HSCM and the curriculum development process that was followed by presentation of the draft curriculum. In addition, presentations were made on global capacity building efforts to enhance reproductive health commodity security procurement and on the experiences of the East African Center of Excellence for health, vaccines and immunization logistics training. Following this, plenary and group discussions were made on the presentations and the draft curriculum.

A number of issues were raised during the group and plenary discussions that sought to further improve the draft curriculum. Some of the issues had to do with comments to improve the curriculum contents and to emphasize some contents deemed important. These include the need to revise the background and rational section, introduce an additional prerequisite module for non-pharmacists as well as suggestions for improvement of the syllabus of the modules. In addition, discussion focused on strengthening contents such as medical equipment and supplies, quality standards of the health commodities as well as in the supply chain management activities, cost consciousness, professionalism and ethical issues, leadership and governance, policy issues and medicine financing.

The discussion also focused on issues that need decision such as on the admission criteria, graduation requirement, nomenclature of the program, rearranging of some module contents and renaming of some modules. The other major issue were suggestions to introduce new modules on international business, laws and regulations, management information system, management of medical supplies, equipment and reagents and cold chain management, the need to (re)introduce some of the courses as electives and finally to delete the module on biostatistics and epidemiology with contents to be transferred to a related module.

Following the completion of the discussions, the workshop was closed by remarks made by Mr. Bruck Messele on behalf of the school of Pharmacy and the members of the taskforce. In his remarks he acknowledged the active participation of the workshop attendants and the technical and financial support of UNFPA Ethiopia. He reiterated that the taskforce will review all the comments and incorporate the feedbacks in an appropriate and timely manner.

Day One

Welcome address and participants' introduction

Ato Gamachis Galalcha, the moderator for the session, welcomed all participants on behalf of the Task Force that was responsible for driving the initiative to launch the MSc program in Health Supply Chain Management (HSCM). He then briefed participants about the objective of the workshop that was followed by inviting participants to introduce themselves. Participants have come from different organizations including those from higher learning institutions including the School of Pharmacy (SOP) and School of Commerce (SOC), Addis Ababa University as well as from Schools of Pharmacy from Mekelle University, Gondar University, Jimma University, Haromaya University and Wollega University; Regional Health Bureaus, Pharmaceuticals Fund and Supply Agency (PFSA), Higher Education Relevance and Quality Agency (HERQA), United Nations Population Fund (UNFPA), development partners such as the USAID country office, USAID funded projects such as USAID | DELIVER PROJECT, Management Science for Health (MSH)/Systems for Improved Access to Pharmaceuticals and Services (SIAPS), and Clinton Health Access Initiative (CHAI).

Key note addresses

Following the participants' introduction, key note addresses were made by representatives of the different stakeholders including Dr. Ariaya Hymete, Dean of the School of Pharmacy (SoP), Addis Ababa University (AAU); Dr. Matiws Ensermu, Program Owner of the Logistics and Supply Chain Management MA program at the School of Commerce (SoC) and Associate Dean



at the College of Business and Economics, AAU; Dr. Sabine Beckmann, Country Director, United Nations Population Fund (UNFPA); Mr. Paul Dowling, Country Director, USAID|DELIVER.

Dr. Ariaya Hymetewelcomed all participants organized to review draft curriculum in Health Supply Chain Management (HSCM). He then appreciated the efforts made by the task force members and different stakeholders such as USAID/DELIVER and UNFPA

in preparing the draft curriculum. Following this Dr, Ariaya mentioned in the past few decades access to health care service have been increased which is attributed to the economic growth within the country. In line with this, public demand has increased, PFSA has done significant expansion, and private sector contribution is also worth mentioning. He underscored that health supply chain sector which is rapidly increasing requires adequately trained staff in addition to the other inputs to function effectively and efficiently. Due to the unique features of the health sector and its supply chain system, Dr Ariaya said that School of Pharmacy and School of Commerce jointly prepared draft curriculum in HSCM that satisfy government's plan and expansion activities to make health commodities and health care services more accessible efficiently and effectively. Finally he concluded his keynote address by wishing all a successful undertaking during the two-day workshop.



Dr. Matiws Ensermu cited that the SoC/AAU run an MSc program on Logistics and Supply Chain Management that however deals on generic aspects of supply chain management. He stressed his School's commitment on availing all resources, human or material for the success of the program. Dr. Matiws also stressed the joint effort between school of pharmacy and school of commerce in running the program is by nature what supply chain management demands – cooperation and collaboration.

He also reminded that the National Logistics Strategy and establishment of Ethiopian National Logistics Council is believed to support the supply chain programme.

Dr. Sabine Beckmann of UNFPA noted UNFPA's long standing habit and commitment supporting the country in producing high quality trained human resource so that life saving products are always availed to the client. She also cited FMOH leadership, collaboration among schools and coordination among stakeholders has made the process robust and inclusive which



should be appreciated. Dr. Sabine also affirmed UNFPA's commitment for the successful launch and running of the program.



Mr. Paul Dowling reminded participants that the situation on the ground and the needs assessment shows strong linkage of the pharmacists and health supply chain in the country. He also raised the issue that as the demand is increasing at an alarming rate the time for sub speciality in various function of the health supply chain like quantification, procurement, warehousing, inventory management, distribution etc. should not lag behind.

Finally, Mr. Paul thanked the stakeholders for the initiative and expressed his support for the



program.

[Presentations](#)

The moderator then highlighted on the major activities of the two day workshop following which participants took a coffee/tea break. Upon returning from the break, he invited Dr. TeferiGedif to make his two presentations.

Development process of the draft curriculum on health supply chain management (HSCM) by Dr. Teferi Gedif, SoP/AAU

Dr. Teferi started his presentation by informing participants about some of the activities preceding the curriculum development process. Among these he cited about related activities coordinated by the Federal Ministry of Health (FMOH) which identified the need to develop human resource capacity in supply chain management in a more structured and sustainable manner to mitigate constraints related to the availability of pharmaceuticals and other health supplies. This had led to the SoP/AAU being tasked to lead a task force comprised of relevant stakeholders for the preparation and launching of a postgraduate program in health supply chain management (HSCM). With this background, Dr. Teferi described the different steps undergone in the curriculum development process until the present time and what activities remain. Some of the major activities carried out by the taskforce included:

- Conduct of a consultative workshop on consensus building for the needs of the program. The main objectives of that workshop were general need identification in HSCM and identifying appropriate competency framework in HSCM for competency mapping exercise. The outcomes of the workshop was consensus on need for graduate program in HSCM and for adoption of the Competency framework developed by PtD to guide the subsequent exercises by adding knowledge and skills in public health, leadership, communication and pharmaco-economics in the curriculum.
- Study tour to LOGIVAC Health Logistics Training Center at Regional Institute of Public Health, Benin by task force members to assess implementation of a similar program. Lessons learnt from this bench marking include:

- The need for generating evidence in terms of HR need in Health SCM which includes roles and responsibilities in Health SCM system, required competencies and skills

with the aim of identifying the gap

- The need for comprehensive strategies in order to address HR need in Health SCM.



- Distance learning phase requires costly material preparation and follow up on delivery
- Training should be supported by well-organized demonstration sites
- Competency mapping and targeted needs assessment on the different stakeholders to identify gaps in supply chain.
- Draft curriculum development with all necessary components on HSCM. In this regard, draft curriculum was crafted based on competency based curriculum development by involving educators, practitioners and curriculum development experts. The draft curriculum was then reviewed and inputs solicited from relevant experts from: School of Commerce/ AAU, People that Deliver, Marshall School of Business/University of Southern California (USA) and an international consultant from UK
- The remaining tasks include the conduct of the present workshop to enrich the draft curriculum and then the finalization of the draft curriculum for submission to the concerned bodies.

Needs assessment and competency mapping for HSCM by Dr. Teferi Gedif, SoP/AAU

- Dr. Teferi started his presentation by discussing the rationale and objectives for the needs assessment and the competency mapping; methodological approaches that included cross-sectional survey using standardized self-administered questionnaires for practitioners (mostly pharmacy personnel) working in the different levels of the public health supply chain combined with qualitative interviews with key informants that were mainly relevant officials in the federal and regional health bureaus and different levels of the Pharmaceuticals Fund and Supply Agency. The findings of the self-administered questionnaire study revealed largely entry or middle level of expertise among practitioners. The key informant interview revealed higher demand for the MSc program in HSCM and to be launched first that can also be easily handled in the existing career structure for the sector while cascading the other PG diploma and certificate programs gradually. For the mode of delivery, the face to face was the most preferred followed by the mixed face to

face and internship program. The other blended programs including the distance programs were recommended for launch at a later date.

- In summary, the assessment revealed although there are developments, the country's health SCM is still characterized by frequent stock outs of essential medicines and many factors contribute to this,
 - HR related challenges include;
 - limited capacity in SCM
 - inadequate, infrequent and non-comprehensive trainings and limited capacity in SCM,
 - lack of systematic approach to HR for SCM,
 - lack of performance support and motivation for SCM related tasks, and
 - high turnover were identified as key contributors to the problems
 - majority of personnel working in PHSCM system of the country self-rated them as having entry level proficiency in the 33 competencies identified by PtD
 - Majority of the participants showed interest to advance their career in HSCM and the policy makers also support the launching of the program
 - Highest proportion of respondents preferred the launching of MSc program and face to face delivery method
 - Largely participants did have either entry level or midlevel competencies to the five major supply chain domains' competencies identified by PtD.
 - Hence, competency based training program(s) should be in place so as to strengthen the health SCM of the country.

The moderator then invited Ato Dawit Teshome to make his presentation.

Draft Modular Curriculum for Master's Degree in Health Supply Chain Management by Ato DawitTeshome

Ato Dawit highlighted on the outlines of the draft curriculum of the MSc program of the HSCM presentation. He then went on to discuss in detail. The summarised points of his presentation are as follows:

- The mission of the program is to produce customer-driven professionals who lead, design, integrate and evaluate the health supply chain system to effectively and efficiently utilise resources to bring positive health impacts.
- The goals of the program are to meet the demand for health supply chain professionals, to strengthen the research capacity in the area of health supply chain and to meet the demand of instructors of health supply chain management in higher institutions.
- The detailed graduate profiles of the student was also presented.
- In order to be considered for admission to the health supply chain MSc program the candidate must have a Bachelor degree in pharmacy or other health related fields. Candidates from non-pharmacy related disciplines however are required to audit undergraduate modules, namely 'Introduction to Pharmacy', and Integrated Pharmaceutics and Physical Pharmacy I and II before they are allowed to register for the MSc modules. Pass written and/or oral entrance examinations and fulfilling general admission requirements of AAU will also apply as stipulated in the Senate Legislation
- A candidate who successfully completed the coursework with a minimum CGPA of 3.00 ("B"), and has successfully defended the thesis with a minimum of 'satisfactory' remark will be considered legible for graduation.
- Degree Nomenclature is proposed to be "The Degree of Masters of Science (MSc) in ``Health Supply Chain Management`` in English and "(የማስተርስዳይንስዲግሪ በጤና ግብአት አቅርቦት ሰንሰለት ማኅፅመንት) "in Amharic.
- Two academic years is allotted duration for full program. Of this, 6 - 9 months will be allotted for research.
- Both School of Pharmacy (SOP) and School of Commerce (SOC) have 18 permanent staff (5 PhD holders, 4 PhD candidates and 9 lecturers with MSc degrees) who can be involve in teaching, advising and assisting students of Health Supply Chain Management program.
- Availability of supply chain practitioners in PFSA, FMHACA, Ethiopian Shipping Line Enterprise and Public Procurement Agency would also serve to mentor students during their hands on training. To enable students grasp theoretical and practical experiences

on HSCM globally, SOP is forging partnership with University of South California, Marshall Business School, in terms of faculty and students exchange.

- Student centered teaching-learning strategies including interactive lecture, group learning activities, self-directed learning, practical attachment and site visits will be used as appropriate.
- The mode of delivery for the program will be a regular full time bases using face to face and practical attachments. Depending on the types of the modules in the program, students are required to undertake self-study, explorations and projects with the support of the instructors.
- The letter grading system, which has a fixed scale, as per AAU senate legislation will be done. In addition, students are expected to defend their thesis in the presence of examiners and they will be graded as “Excellent”, “Very good”, “Good”, “Satisfactory” or “Fail”.
- Variety of assessment methods (formative and summative) will be used as appropriate to ensure the availability and proper balance of knowledge, skills and attitude test items in line with the learning outcomes.
- To assure quality of the program modules will be standardized, the program will be evaluated by students and peers; curriculum will be reviewed; stakeholders and employees feedback will be collected.
- Finally, the Common Modules which is proposed in this curriculum are
 - Fundamentals of Epidemiology and Biostatistics
 - Public health leadership
 - Project management and Logistics Management Information System
 - Public health policy and pharmaco-economics
 - Health Research Methods
 - Seminar I
- Core Modules in Health Supply Chain Management are
 - Seminar II
 - Fundamentals of Health supply Chain Management

- Selection, Quantification & Use
- Procurement
- Materials Management
- Transportation & Distribution
- Strategic Health Supply Chain Management
- Humanitarian Logistics Supply Chain Management
- Thesis
- Overall, a student is supposed to take a total 95 ECTS (28.5 ECTS for common modules, 36 ECTS in HSCM modules and 30ECTS for thesis)

Plenary discussion

The moderator then invited task force members to the podium to respond to the queries that may be raised from the participants. Workshop participants actively participated by appreciating efforts made towards drafting the curriculum, raising queries and forwarding comments on the presentations. Among queries raised include on:

Reflection from the Participants

General comments on the curriculum

- Concern about less focus given on medical equipment and supplies
- The need to include a course on International Business given the low level of knowledge on contract management, import-export, etc. that was demonstrated by the competency mapping assessment
- Concern that issues on cost consciousness not well-addressed given reports of resource wastage such as expiry, unsustainable use of medical equipment



- Concern that pharmaceutical, procurement and business laws have not been given due attention despite the importance of compliance with national and international laws and regulations in supply chain management activities
- Concern that ethical issues have been limited in relation to procurement activities only but not for other aspects
- Inquiry as to whether the private businesses involved in distribution and private colleges were involved in the development process of the curriculum and if they were not to consider involving them in the future endeavours.
- Comments on the dynamic nature of the supply chain curriculum and to consider new technologies and environmental sustainability issues in the curriculum.
- Comments on the need to emphasize on ethics and good governance as well as on quality standards in the curriculum. It was emphasized that ISO standards should be included in all steps of the health system and for their introduction of at least basic standards in the curriculum.
- Comments were also made to strengthen in-service and pre-service trainings.
- Comments on the need to see the SCM competencies and compare the contents of the curriculum in line the competencies this being a competency-based curriculum

Comments on other parts of the curriculum

- the broadening of the admission criteria to include not only pharmacists and other health professionals but also professionals trained in supply chain management and procurement
- information about admission whether it is limited only to applicants from the public sector only and about admission chances for those coming from the private sector or self-sponsored applicants
- commending the inclusion of public health background in the curriculum given its importance
- Comment on the need to clarify the definition of 'health supplies' and the proportion of pharmaceuticals given its relevance for the degree nomenclature and admission

requirement. The participant in this regard cited that the prerequisite courses for non-pharmacy professionals were more of pharmaceuticals related and if it was better to just limit admission to pharmacists only.

Comments on the Modules

- Comments to rename module of “materials management” as “pharmaceuticals management
- Inquiry as to why quantification was a module on its own right instead of being included in the procurement module
- Comments to give adequate emphasis to leadership training given its crucial nature to produce higher level professionals.
- Comments on the inclusion of courses having in their nomenclature the term, ‘fundamental’ indicative of basic courses for a master’s program which instead should have included advanced courses building upon basic courses that are assumed to have been taken in the undergraduate program or otherwise audited prior to admission.
- Comments for the curriculum to focus on supply chain management related areas instead of public health courses which should have been taken at the undergraduate level by the candidates.

Responses made by the Presenters

Task force members for their part appreciated the active participation and that the queries and comments forwarded were valid and to be considered in the curriculum. They then responded to some of the queries the summaries of which are given below:

- Regarding the decision to limit admission to pharmacists and other health professionals mention was made about the study findings where the large majority of professionals managing pharmaceuticals and other health commodities were pharmacists with the involvement of other health professionals to a certain extent and thus the rationale to meet the current training demand of these professionals initially. In due course, the

admission requirement may be revised to entertain other professionals provided that demand arises.

- Regarding the issues raised on the need to include topics such as contract management and other areas, their inclusion in the draft curriculum need to be checked during the group discussions to review the draft curriculum in detail.
- With regards to the public health topics, mention was made of debates during the workshop to draft the curriculum on the extent of the contents to be included.
- Contents on the health, pharmaceutical and other relevant policies have been included.
- Admission is open for both public and private but as a public higher educational institute (HEI), priority will be given to the HEI, public sector and then the private and other sectors.
- The limitation in the credit limits and training period were also mentioned as issues to limit contents on the Leadership and other modules.
- Principles relating to medical equipment and supplies will be addressed in relevant modules with practical attachments used to strengthen the class discussion.
- The concern of recent technological advancement in supply chain and related issues that have not been included in the draft curriculum can be considered in review process.
- The private sectors have not been included in the curriculum development process.
- Courses on public health, biostatistics given at the undergraduate level are not adequate and thus the rationale for inclusion of such courses at the MSc level.
- Evening and other programs to enhance access to the training can be launched in the future.
- Module-based competency has not yet been approved by the FMOE and thus the issue of completion of specific competency level training (e.g. in procurement) to be able to be certified in that area and be able to practice is not yet approved.

Representative from HERQA noted that his agency currently does not accredit the publicly launched programs and only focuses on the private sector despite ongoing debates with regards to the uniform applicability of quality standards be it that the training is offered by a public or private sector. Finally, it was noted that all the valid points raised will be considered

during the detailed review of the curriculum. The moderator summarized the morning discussion and highlighted the program for the afternoon. He mentioned that participants would be assigned to work in groups on specific modules. He advised for them to be critical and make suggestions and comments to improve the curriculum.

Group discussions

The afternoon session was started by Ato Habtamu Berhe (USAID | DELIVER) presenting on 'Orientation on how to review the curriculum' which also included the assignment of participants into 5 groups with their respective segments of the draft curriculum to review for a half day. Mr Habtamu also informed that the group was formed by considering areas of expertise of the participants. Experts from the same organization were also arranged to distribute evenly into the five groups. Each group elected its chairperson to lead the discussion and secretary to document and present consensus points and proceeded with its discussion.

Day Two

The day was started by Ato Abebe Kassahun recapping on Day One Sessions.

Presentations

Global program to enhance reproductive health commodity security procurement capacity building by Karen Rasmussen, Commodity Service Branch/UNFPA

Ms. Karen Rasmussen started her presentation by stating that UNFPA has two main segments to develop capacity, namely the e-learning and in-country training and institutionalization. Some of the e-learning courses available in different languages include the Introduction Module, Ethics in Procurement, Quality Assurance and Good Governance for Medicines (by WHO). The objective of this system is to provide access to free training in real time. To date 560 individuals have received training in 15 countries and institutionalization is being implemented in different countries such as DRC, Niger, Pakistan, and Sierra Leone. Here the local UNFPA offices forge the relationships with local stakeholders, be it the health ministry or the educational institutions in the capacity building for procurement and supply chain. The e-modules have been used in Bachelors and Masters Programs in Sierra Leone. Ms. Rasmussen also mentioned cases of UNFPA collaborations with the Universities in Mongolia and Burkina Faso where UNFPA courses were hosted in the educational institutions. She also mentioned that in their surveys done in workshop in different African countries the proportion of participants that have been certified in quality and other issues was low. She went on to demonstrate as to how one could make use of the e-learning program to take a module and be certified.

Regional (EAC) center of excellence (RCE) for health, vaccines and immunization logistics by Dr. Michael Tekie

- Dr. Michael Tekie discussed about the East African Communities (EAC) experience with establishing a center of excellence for RH SCM. According to Dr. Michael's explanation this regional excellence is aimed to improve supply chain management of health commodities through strengthening human resource capacity in the region,

professionalizing health supply chain management and creating a hub from which innovation in health supply chain management can be disseminated in the region. Rwanda was selected to host and the management of the day to day activities of the center within the University of Rwanda's School of Public Health. In order to operationalize the RCE and ensure sustainability and further resource mobilization, a "EAC Regional Steering Committee" was established that will be coordinated and chaired by the EAC Partner States on a rotational basis based on the EAC Rules of Procedure. On the other hand, a technical arm "Inter-Agency Advisory Group" was established. It provides technical advice to "EAC Regional Steering Committee". In this endeavour, a private company, DHL, was involved in funding. The program plans to offer a Master's program along with PG Certificate (3 programs in Operational HSCM, Strategic HSCM and Optimization of HSCM) and PG Diploma programs (which comprises of all modules in less in the MSc program less the dissertation). In addition, they also intend to run short accredited professional courses. Trainers are expected to come not only from Rwanda but also from the EAC region and outside of it. The curriculum development and validation is planned for May-September 2015; official launch in October 2015 and first delivery of the short course. Funding has been secured for the first course from GAVI.

Plenary discussions

The moderator then invited the participants to raise questions on the presentations.

The questions focused on:

- Issue of professional development for pharmacists and other health professionals and how Ethiopia can make use of UNFPA's experience and resources.
- The possibility for collaboration of SOP/AAU with the EAC regional center of excellence initiative.
- Funding possibility to establish a center of excellence for the Horn of Africa similar to that of the EAC.

- The issue of the involvement of the private sector like DHL to fund the public sector initiative and whether such endeavours can be replicated in Ethiopia.

The presenters responded to the queries raised as follows:

- With regards to the continuing professional development, it was stressed that it was mandatory as per ISO certification. UNFPA was said to conduct trainings on quality assurance (QA) on procurement for different professionals, be it pharmacists or procurement professionals as per the requested need. It was disclosed that UNFPA was well-capable to do workshops so long as there was a plan and budget and that depends on the priorities of the Ethiopian government.
- The launching of a center of excellence for the horn of Africa was mentioned to be a possibility as it was in line with the Maputo Plan of Action of the African Union as well as regional initiatives such as New Partnership for African Development (NEPAD) and the Inter-Governmental Authority for Development (IGAD) frameworks.
- Linking of the present initiative housed at AAU with the EAC initiative is a possibility and in fact an interest has been expressed from the EAC side to come and visit the country to share experiences. Mention was made of Jimma University which is soon to graduate students from the MSc program in Pharmaceutical Supply Chain Management (PSCM) which was also of interest to the EAC side and one of the purposes of their planned exploratory visit.
- With regards to the involvement of a private company, DHL, in funding the EAC initiative it had to do with fulfilling their corporate responsibility to contribute to the supply chain given that they are outsourced by the Rwandan government to partake in the supply of some of the health commodities there.

The moderator reflected on the discussions and appreciated the presenters for their efforts. He then announced that it was time for tea/coffee break that would be followed by further group discussions and presentations.

Group presentations and discussions

Group 1: DrEphrem Engdawork (chairman) and Ato Teferi Guji (secretary)

Group one was assigned to review general issues in the introductory part of the curricula and presented its comments through its secretary as follows:

- **Background and Rationale:** The group proposed additional information about SoP/AAU (the program host), the national expenditure on health in general and health supplies in particular, international experiences on how such a program improved SCM, major findings of the need assessment and explanation of current practices and challenges in SCM to be included. In addition, the group recommended this section to be rewritten in a way that ensure flow of ideas: introducing Sop/AAU, defining what health supplies/health commodities/pharmaceuticals are, describing the current SCM practice and initiatives by government so far, how the program contributes to the present SCM problems and describe the curriculum development process.
- **Program description:** the group commented that the program description should give clear picture of the program. In light with this, the following points are proposed to be incorporated:
 - unique feature of the program
 - the way the curriculum is structured , taught, and assessed
 - specific skills to be acquired by students
 - carrier opportunities after graduation
- **Program Mission:** the group commented the program mission seems complicated and proposed the following modification: *“To produce competent professionals that lead, design, implement and evaluate the health supply chain system to improve the health outcomes of the population”*.
- **Program Goal:** the group proposed to rename as ‘program aim’ and modification as follows:
 - To meet the demand of supply chain professionals in the health sector
 - To strengthen research capacity in the area of the health supply chain management

- To meet the demand of instructors of health supply chain management in higher education and other institutions
- Graduate Profile: proposed renaming Graduate Profile to 'SCM Competencies' since competency based curriculum is crafted. Modification of fifth competency profile to “design and coordinate storage improvement project for health products” was also suggested.
- Admission Requirements: the group proposed pharmacists only to be admitted justifying that the need assessment findings (>95.5% pharmacists practicing on health supply chain) and government's current need is to improve the pharmaceutical SCM. In addition, “medical supplies, equipment and reagents” course was also suggested to be audited in addition to the modules indicated if other than pharmacy professionals are to be admitted.
- Quality assurance: additional quality assurance methods like; External evaluation of the competencies by employers after completion of the training (after deployment) and evaluation annually and review of the curriculum every five years was suggested so as to assure quality of the program.
 - In addition, the group presented the admission requirement (i.e. pharmacists only vs. other health professionals) and degree nomenclature (health vs. pharmaceutical supply chain management) for plenary discussion.

Comments/questions from audience on presentation from Group 1

- Admission should be limited to pharmacists only for the moment given that the service is delivered by pharmacists currently to alleviate gaps in the service. The admission criteria can be revised based on the curriculum review suggested to be done after three years.
- Similar program at Bachelor level should be launched to address issues with pharmacy technicians.
- AAU design template for program design should be followed.
- Admission requirement should be dictated by the rationale of the curriculum document with regards to the proportion of pharmaceuticals from the health budget which could

serve as justification for their importance and the pharmacist being the one to be admitted. Other health professionals such as nurses and laboratory technicians being end users, their role should be limited to just using it. Furthermore, interested professionals can join the generic program at the SOC/AAU.

- Question on the need of a master's program to solve problems if short term trainings can solve problems in the supply chain.
- Distribution companies including PFSA procure pharmaceuticals, medical supplies and reagents which may require the use of other relevant health professionals as pharmacists may face challenges in managing the supply of commodities other than pharmaceuticals and thus the need to train laboratory technicians, nurses and even other professionals to be able to provide the service.

Group 2: Dr. Michael Tekie (chairman) and Ato Berhanemeskel W/Gerima (secretary). This group has come up with comments on the following modules:

- Health Research Methods: Proposed renaming as “research methods on health supply chain”. In addition, the group also commented the module description to revise to reflect learning outcomes like conducting research and at the same time proposed modification of one learning outcome four to “communicate and disseminate research findings”.
- Fundamentals of Epidemiology and Biostatistics: the group presented that the module's relevance was debated but agreed with some modifications in naming - Epidemiology and Biostatistics. Deletion of learning outcomes 1, 6, 7, 8, 9 was proposed whereas learning outcome 4 change to “interpret and use Surveillance data” was proposed. The comment on module content was to include Unit 3- frequency measures used in Epidemiology under Unit 1 as an overview and for Unit 8 bullet #2-3-change into “use and interpret surveillance data”.
- Public Health Management and Leadership: the group commented that leadership has to be given more emphasis and proposed renaming to “Public Health Leadership” taking the management part (Unit 4 up to 9) to Project Management Module. On the top of this, the

group commented Unit on “communication and presentation” needs revision since the topics included are shallow to Masters Level and also are covered in Under Graduate courses.

- Health Policy Analyses and Pharmaco-economics: comments on this module were renaming to “Policy Analyses and Pharmaco-economics”, adding Health Policy analysis in the content as it is included in learning out comes and splitting Unit 3 into two units i.e. Unit 3 Decision analysis and Unit 4 cost and time preference.

Comments/questions from audience on presentation from Group 2

- Medicine financing, revolving drug fund (RDF) and similar other issues need to be addressed in the curriculum.
- The offerings of courses with similar names as with the undergraduate program such as ‘Epidemiology and Biostatistics’ is acceptable so long as the levels of cognitive dimensions are different at the different levels.
- Transferring half of the contents of ‘Public Health Leadership and Management’ to another module ‘Project Management’ may not be feasible as it could unduly burden the latter.

Group 3: Dr Mathios Ensermu (chairman) and Paulos Asfaw (secretary),

- General comments from the group:
 - The management information system contents included in the public health leadership should come under separate module along with monitoring and evaluation and performance management given their importance for successful management of the supply chain.
 - The module ‘Fundamentals of Biostatistics and Epidemiology’ should be removed but relevant contents in it should be incorporated under ‘Research Methods’.
 - Specifications of the different commodities should be included in the ‘Selections’ module.

- 'Use' chapter should be omitted and relevant subunits should come under selection.
- Contents on QA on systems and in relation to products should be incorporated.
- Admission requirement: Pharmacy degree and Pharmacy diploma with any other BA or BSc degree
- Graduation Requirement: completion of course work and thesis or project work or optional thesis /project.
- Project management: nomenclature and contents are generic and should be modified to include HSC as it should be tailored for this area.
- Strategic HSCM: should include first chapter on strategic management and topics on risk management, green health supply chain and sustainability in health supply chain
- Humanitarian Logistics and Supply Chain Management: No comment

Comments/questions from audience on presentation from Group 3

- Including the term 'HSCM' in the modules 'Research Methods' and 'Project Management' is not appropriate and it was up to the instructor to include appropriate examples.

Group 4: AlemTewelde (chairman) and EdaoSado (secretary)

- Health product Quantification: proposed for deletion of role of DTC in the pharmaceutical selection and proposed inclusion of the formulary system and standard treatment guideline should be incorporated in the type of reference sources for pharmaceutical selection. The group also proposed merging of units on forecasting and supply planning and addition of quantification tools for labs. The following topics



[Type text]

are also proposed to be included under last unit7 (to be merged with Unit 1):

- Managing for rational use of MSER
- Managing for rational use of vaccines
- Strategies to improve rational use of pharmaceuticals
- Procurement: the following comments were given by the group
 - Unit 1:Definition of procurement should be replaced by introduction to procurement and good health commodities is better replaced by pharmaceuticals
 - Unit 2: Program should be replaced by procurement planning and topics on KPI, market research& order tracking system/bar coding are proposed to be included
 - Unit 3: Steps and requirements of QA should be included Under QA for health products and ISO qualification certificates in suppliers and supplier selection under basic data. Obtaining good health products during procurement is commented to be deleted.
 - Unit 4:Addition of topics on “Medical equipment specification” and “
 - Green procurement and global responsibilities” were suggested
 - Unit 6: proposed addition of the following topics
 - Auditing of procurement process
 - In procurement before customs clearing
 - Performa invoice
 - Performance bond
 - Proposed additional unit on: Banking and Insurance
 - Application for foreign currency
 - Insurance application
 - Apply for LC/CAD
 - Notification of the LC/CAD among banks and suppliers
 - Role of regulatory bodies in procurement (National bank of Ethiopia, FMHACA, ERCA , RA and Standardization agency)

Other general comments by the group: Use of term 'pharmaceuticals' consistently on module description and other sections was recommended. The group recommended for the curriculum to address others such as medical supplies, equipment and reagents and to remove sections on the role of DTC as graduates are not expected to be working there. Further mention was made about the need to make candidates aware on QA and pharmaceutical product market approval process even though the actual work may be done by the regulatory body.

Comments/questions from audience on presentation from Group 4

- Addition of units on 'banking and insurance' and 'Quality Assurance on procurement' needs to be considered.
- Need for awareness current challenges on the role of DTC and challenges need to be given attention as there are problems in that regard in our country.
- medical supplies, equipment, reagents and others need great emphasis to understand the problems in our settings and should be dealt with in adequate depth and thus recommendation for inclusion of a course on 'Medical supplies, reagents and reagents'.
- The module 'Biostatistics and Epidemiology' is a necessary inclusion given its importance for candidates handling of their research project.

Group 5: Yared Yiegezu (Chair Person) and Abebe Kassahun (Secretary)

The group commented on the following modules.

- Pharmaceuticals Management I (Storage and warehousing):
 - Addition of learning outcome: Use of inventory data for decision making and strategic planning
 - Moving HR for warehousing, role of warehouse managers/supervisors/operators (move from unit 3 to Unit 1) - as it is an introductory concept
 - Unit 2: Warehouse layout design and planning (including costing) in light of pharmaceutical management
 - Warehouse Safety and Security is better given special focus and should be discussed in detail at the end of Unit 3.

- Pharmaceuticals Management II (Inventory Management): the group recommended rearrangement of topics in some of the units
 - Unit 1: Introduction to Inventory Management
 - Purpose and principles of Inventory Management in SCM
 - Inventory classification
 - Role of inventory managers
 - Unit 3: Inventory Operations
 - Monitoring Stock Movements
 - Decision rules: How Much and when to Order – EOQ, ROP, JIT
 - Methods of stock taking and verification.....is more broader term
 - Unit 4: Inventory control system design
 - Max- Min inventory control system
 - Forced ordering
 - Standard
 - Continuous
 - Principles and Application of selective inventory management Methods (Pareto Law – ABC/VEN, fast/slow movement, obsolete/defective, etc...)
 - Other inventory control system
 - Single-use Model (perishable goods and articles with short or fleeting life-cycle)
- Transportation and Distribution: Comments on this module were addition of transportation administration activities to Unit 1 and use of third party logistics providers Unit 5
- General comments by the group:
 - Curricula Harmonization with other existing curriculum
 - Limited references needs to be enriched
 - Module or contents on Management of Medical Supplies, Laboratory Reagents & Chemicals and Medical Equipment

- Cold Chain Management as stand-alone module proposing the following draft content if accepted
1. Introduction to cold chain
 2. Cold Chain products selection, quantification and procurement
 3. Special characteristics of cold chain products during transportation and distribution
 - Special consideration for cold chain products during transportation and distribution
 4. Cold Chain Warehouse and Storage Management
 - Cold chain warehouse management principles
 - Type and characteristics of cold chain managed products
 - Cold chain warehouse infrastructure design and layout (cold rooms)
 - Cold chain warehouse management operations
 - Cold chain warehouse equipment and management – operation and maintenance (refrigerators – solar/kerosene/electric, refrigerated containers & trucks, cold boxes, ice packs)
 - Considerations for cold chain in warehouse network modeling and optimization

5. Cold chain Maintenance

The renaming of Materials Management as “Pharmaceuticals Management” was also proposed as it is also raised on the large group.

Comments/questions from audience on presentation from Group 5

- Questioning the need to include a separate course to address medical supplies and reagents when all key functions for SCM, be it for pharmaceuticals or the medical supplies. Recommendation to address peculiar nature in the respective section or course. Given that medical supplies are becoming standardized their selection and supply management is becoming more manageable. Some deficiencies can be managed by short-term trainings such as the one by PFSA and EPA for which a training module has been prepared.

- The issue of managing a separate module on ‘medical equipment, supplies and reagents’ has been found to be challenging as per the experience of Jimma University which has not been able to find appropriate instructors. The issue has to do with whereby biomedical engineers or laboratory technologists assigned for the course tending to go in-depth and much beyond the scope of the curriculum which has been found to be challenging.
- Cold chain management needs adequate consideration with some suggesting delivery at a module levelling the curriculum as their proportion is increasing to 25% as is their wastage.
- The need for caution in using the term pharmaceuticals to denote medicines and other health supplies as different individuals and bodies define it differently. For example, biomedical engineers may not accept the term pharmaceutical to denote medical equipment and devices and thus the term may not be acceptable by all stakeholders.

Plenary session

- Issues related to being selective on the modules to be included in the curriculum were raised and discussed given also the credit limits and the need to produce graduates trained in specific and focused expertise. Example in this regard was given about two modules, ‘Fundamentals of HSCM’ and ‘Strategic HSCM’ which have similarity and the need to merge them. The possibility of considering electives for some specialized modules was also mentioned.
- The need to avoid ‘fundamental’ modules at master’s level and focus only on advanced level modules. Courses which were not taken at the undergraduate level should instead be audited.
- Competencies need to have been presented that could avoid some of the issues raised. Advice given to task force members to proceed with curriculum required for the competencies and the need to only include the ‘must to know’ only courses.

- The need to focus on planning, implementation and evaluate the tasks. Reiterating the importance of laws and regulations and their inclusion for the timely and efficient decision making in the HSCM.
- The pharmacy undergraduate curriculum does not adequately address basic principles of SCM and thus the rationale for the master's program that also includes some modules such as fundamentals.
- The issue of transferability among similar programs and need for harmonization among institutions such as the program with Jimma University was stressed by the representative from HERQA.
- Moving forward with the curriculum and the need to prepare timelines about upcoming activities was recommended in the end.

The task force members reiterated the steps taken during the curriculum development process and the care to focus on the critical aspects required by the SCM competencies and that the curriculum was not an answer for all the challenges but only for the most important and critical components.

Closing remarks

Closing remarks for the workshop was made by Ato Bruck Messele, representing the task force, where he appreciated the dedication of all participants for their active participation and the funding body, UNFPA. He promised that the comments would be taken and all valid points would be incorporated and curriculum submitted timely to appropriate bodies of AAU for approval.

Summary points for taskforce considerations and decisions

Issues that need attention and due consideration

- The background and rationale section need to be revised
- Timeline to be prepared for the upcoming activities of the curriculum and perform as per the plan.
- The benefits of involving private businesses in future activities of curriculum development process and/or program
- Emphasis should be given on:
 - selection and quantification of medical equipment and supplies;
 - ensuring quality standards of health commodities;
 - ensuring quality standards in the supply chain management activities
 - cost consciousness of the graduates;
 - professionalism and ethical issues;
 - leadership and good governance;
 - health, pharmaceutical and other relevant policies;
 - medicine financing and revolving drug fund (RDF)
- Revision of contents
 - module description, learning outcome and content
 - addition of a prerequisite undergraduate module on “Medical Supplies, Equipment and Reagents” for non-pharmacist health professionals

Issues that need decision

- Admission criteria:
 - limited to pharmacists only vs. inclusion of other health professionals vs. inclusion of all health professionals and others who have background training in supply chain management and procurement
- Graduation requirement:
 - Completion of course work and thesis vs. course work and project work.
- Nomenclature of the MSc program:

- “Health Supply Chain Management” vs “Pharmaceutical supply chain management”, the former citing global trend in naming health supplies and its broad nature, with the latter citing significant amount of the health expenditure is on pharmaceuticals and the definition of pharmaceuticals in the PFSA proclamation for pharmaceuticals.
- Harmonization with similar programs
 - Such as with the “Pharmaceutical Supply Chain Management MSc program” at Jimma University
- New modules proposed:
 - International Business to address the gaps of the graduate on contract management, import-export, etc. as demonstrated by the competency mapping assessment.
 - National and international laws and regulations in supply chain management activities.
 - Management information system (MIS) to emphasize on importance of MIS for the HSCS and the contents could include MIS, monitoring and evaluation and performance management
 - Management of Medical Supplies, Laboratory Reagents & Chemicals and Medical Equipment
 - Cold Chain Management: the detail content is also proposed for this module
- Electives introduced
 - The need to introduce some of the nonessential courses as electives given the credit limitation of the program
- Modules proposed to be deleted:
 - ‘Fundamentals of Biostatistics and Epidemiology’ : the essential content of the course to be addressed under research method
- Rearranging of module contents
 - Transferring contents (Unit 4 up to 9) from the module “Public Health Management and Leadership” to “Project Management”

- 'Use' chapter should be omitted from the module "Selection, Quantification & Use" and relevant subunits should come under selection
- Renaming of modules suggested
 - "Health Research Methods" vs. "ResearchMethods on Health Supply Chain" vs. "Research Methods"
 - "Fundamentals of Epidemiology and Biostatistics" vs. "Epidemiology and Biostatistics"
 - "Public Health Management and Leadership" To "Public Health Leadership"
 - "Project Management" vs. "HSC Project Management"
 - "Health Policy Analyses and Pharmaco-economics" vs. "Policy Analyses and Pharmaco-economics"

Annex

Workshop schedule

 <p style="text-align: center;">Stakeholders' Consultative Workshop to Review Draft Curriculum in Health Supply Chain Management (HSCM)</p> <p style="text-align: center;">Organized by School of Pharmacy/Addis Ababa University and Federal Ministry of Health in Collaboration with United Nations Population Fund (UNFPA)</p> <p style="text-align: right;">Date: July 2-3, 2015 Venue: Jupiter International Hotel, Addis Ababa, Ethiopia</p>	
Day One: Thursday, 2nd July, 2015	
8:30 AM	Registration
9:00 AM	Introduction to the Workshop <i>MrGamachis G, United Nations Population Fund (UNFPA)</i>
9:10 AM	Welcome Address <i>Dr. WondimagegnEnbiale, Director, Human Resources Directorate, Federal Ministry of Health</i>
9:20 AM	Opening Remarks <i>MrMeskeleLera, Director General, Pharmaceuticals Fund and Supply Agency (PFSA)</i>
9:35 AM	Keynote Address <i>DrAriayaHymete, Dean, School of Pharmacy, Addis Ababa University (SoP/AAU)</i> <i>DrMathiosEnsermu,, School of Commerce, Addis Ababa University (SoC/AAU)</i> <i>Dr Sabine Beckmann, United Nations Population Fund (UNFPA)</i> <i>Mr Paul Dawling, Country Director, USAID DELIVER</i>
10:00 AM	Development Process of the Draft Curriculum on Health Supply Chain Management (HSCM) <i>DrTeferiGedif, SoP/AAU</i>
10:30 AM	Health Break
11:00 AM	Need assessment and competency mapping for HSCM <i>MrGebremedhin B/Mariam, SoP/AAU</i>
11:30 AM	Content of the Draft Curriculum on HSCM <i>DesalegnGeremew, SoC/AAU</i> <i>DawitTeshome, SoP/AAU</i>
12:00 PM	Plenary Discussion <i>Participants</i>
12:30 PM	Lunch
1:30 PM	Guidance Note on Group Work <i>HabtamuBerhe, USAID DELIVER</i>
2:00 PM	Group Work <i>Participants</i>

3:15 PM	Health Break
3:30 PM	Group Work continued Participants
5:00 PM	Wrap up Facilitators
Day Two: Friday, 2nd July, 2015	
8:30 AM	Recap of Day One Sessions <i>Assigned participant</i>
8:45 AM	Potential Contribution of Partners: UNFPA's Case in Procurement and Related Subjects including Quality Assurance <i>Karen Rasmussen, Commodity Service Branch/UNFPA</i> Experience from Building Center of Excellence on Health Supply Chain Management <i>Dr. Michael Tekie, East and South Africa Regional Office/UNFPA</i>
9:15 AM	Group Work Continued Participants
10:30 AM	Health Break
10:45 AM	Preparation for Group Presentations <i>Participants</i>
12:30 PM	Lunch
1:30 PM	Group Presentations <i>Group Representatives</i>
3:00 PM	Health Break
3:30 PM	Plenary Discussion
4:30 PM	Way forward and Closing Remarks

List of workshop participants

Stakeholders' Consultative Workshop to Review Draft Curriculum in Health Supply Chain Management (HSCM) Organized by School of Pharmacy/Addis Ababa University and Federal Ministry of Health in Collaboration with United Nations Population Fund (UNFPA) Date: July 2-3, 2015 Venue: Jupiter International Hotel, Addis Ababa, Ethiopia			
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