

I. Appendices

APPENDIX A – TERMS OF REFERENCE

Consulting services on modernization of education system in medicine

Strategic partnership for modernization of academic programs including the “Oncology: oncological laboratory diagnostics” and “Clinical pharmacology” disciplines

A. Background

1. Social Health Insurance Project: Improving access, quality, efficiency and financial protection (the Project) is a joint initiative co-financed by the Government of Kazakhstan and International Bank for Reconstruction and Development (IBRD, WB, or the Bank). Its objective is to improve accessibility, quality, and efficiency of health service delivery, and reduce financial risks to the population that are caused by serious health problems.

2. Expected Project Outcomes (not related directly with the project):

1) healthcare financing will be less dependent on out-of-pocket payments at the time of service delivery as these payments are ineffective and inequitable;

2) population is protected against catastrophic expenditures spent for treating diseases;

3) the Social Health Insurance Fund (SHIF) carries out strategic purchasing of health services and medicines, and also improves cost and quality ratio based on well-functioning information system;

4) increased competition among health service providers promotes enhancement of efficiency;

5) service package is clearly defined based on health technology assessment, rational drug use, and a more effective system of selection of drugs is to assure efficiency;

6) increased transparency and accessibility of health services for the population through a clear definition of rights (in the benefits package) and reduced uncertainty about out-of-pocket payments (especially, informal payments);

7) improved coordination within the health system while the population gets services of higher quality (from a clinical point of view); people are increasingly rely upon early disease prevention measures, health promotion, and ambulatory care;

8) establishment of a public health service enables improvements in efficiency of management of risk factors, especially for non-communicable diseases (NCD), reduce the incidence of complications from NCDs and, thus, optimize health resources in the long-term period;

9) provision of health services is optimized with priority placed on primary health and social care, promotes healthcare integration and reduction of excessive utilization of hospital services, and potentially reduces excessive bed capacity;

10) availability of well-trained health professionals in respective clinical specialties;

- 11) increased efficiency of use of healthcare resources;
- 12) improved population health status through better accessibility (thanks to health insurance) and quality of health care, especially in relation to non-communicable disease prevention and control;
- 13) level of financial risks of population is reduced due to a decline in catastrophic expenditures on treatment of diseases and in amount of savings for unexpected health emergencies, and investments (expenditures) in other types of economic activities is increased.

3. Objective of subcomponent 2.3 «Strengthening of human resources for healthcare based on strategic partnership» is to develop an effective Human resources policy for the sector which ensures provision of high-quality health services through strategic partnerships.

During the 2010 – 2015 period, the Ministry of Health (MoH) within the Kazakhstan Health Sector Technology Transfer and Institutional Reform Project, co-financed by the WB, implemented a series of activities on transfer of best international practices and their adaptation to increasing public expectations for highly qualified health professionals.

In cooperation with international experts, new methods of selection and admission of students to medical schools oriented towards assessment of non-academic (personal) features of students have been piloted in medical universities. Necessary work is carried out to implement a staged transition of universities to autonomy. Physical infrastructure of universities is being strengthened: clinical training centers have been established and equipped with modern simulation tools, research labs for collective use have been opened in two universities.

All medical universities in the country have passed institutional accreditation and are included in the World Database «Avicenna Directory» of the World Health Organization/World Federation of Medical Education (WHO/WFME). National standards of specialized accreditation (WHO/WFME) have been developed, which served as the basis for accreditation of a series of academic programs of bachelor's, residence, master's and PhD degrees. New certification procedure for health specialists and graduates of medical schools has been elaborated, and the Republican Center for Knowledge and Skills Assessment has been established with a network of simulation centers in 16 regions of the country.

Key competencies for faculty staff of medical schools have been identified, which were used as the basis for development of academic program «Medical School Teacher». Academic programs for all levels have been revised based on competencies approach according to European standards of education and needs of practical healthcare in Kazakhstan.

4. Within the framework of the State Health Development Program «Densaulyk» for 2016 – 2019 years, aiming at effective implementation of further plans on development of medical schools of Kazakhstan, it is necessary to establish and develop strategic partnerships of medical universities of the MoH with leading medical schools worldwide. The MoH jointly with national medical universities determined priority areas of future development for each organization with account of university capabilities and capacity. For this reason, modernization of academic programs including the «Oncology: oncological laboratory diagnostics» and «Clinical pharmacology» disciplines is defined as the priority area for the Republican State enterprise on the right of economic management «West-Kazakhstan State Medical University named after Marat Ospanov» (hereinafter «the WKSMU»). The WKSMU has a great experience in education of clinical pharmacologists with scientific and academic degree, its graduates constitute a highly qualified pool of specialists of this field throughout the country, and implement international and national research in pharmacology the results of which are published in international peer-reviewed scientific journals and are presented at

international conferences. Oncological departments of the University clinic (oncosurgical department, chemotherapy department, department of radiotherapy, palliative therapy department and clinical diagnostic department) are the base for the department of oncology of the University and has experienced faculty (oncologists and teachers).

To choose potential strategic partner the WKSMU carried out comparative analysis of advanced foreign universities that provide training of competitive specialists in oncology and clinical pharmacology. The analysis was performed based on the pre-defined criteria of selection: i) History of cooperation; ii) Available strong background for education of doctors; iii) Available independent assessment of quality of education of health human resources; iv) Available strong background on priority areas "Oncology: Oncological laboratory diagnostics" and "Clinical Pharmacology"; and v) Suitable conditions for rational use of funds in the course of strategic partnership implementing. Situational analysis based on the specified criteria was carried out among the Poznan University of Medical Sciences (Poland), Riga Stradins University (Latvia) and Yonsei University (South Korea). In accordance with the Resolution of the Academic Council of the WKSMU №8 (718) dated March 29, 2016 the Poznan University of Medical Sciences (hereinafter the PUMS) is defined as the Strategic Partner with a signed Memorandum on integration of education, healthcare, academic and research activity.

The Strategic Partner is one of the best and largest medical universities in Poland, which is an educational, research and clinical center with nearly a hundred years of academic experience and great potential for development. Poznan University of Medical Sciences demonstrates high results in examinations of health professionals on licensing and certification (USMLE-86%, US Residency Match rate - 93%), and having a good starting position on the local labor market PUMS is the member of the Global Health Learning Opportunities program AAMC that facilitates global mobility of students.

Educational programs of this University have international recognition/accreditation by the US Department of Education and ECFMG, Medical Council of Thailand, Medical Board of California, Polish National Accreditation Commission, Association of American Medical Colleges, Canada Students Loan Program, European Union Council, European Medical Association, Global Health Learning Opportunities (GHLO), ERASMUS, WHO, Foundation for Advancement of International Medical Education and Research (the FAIMER) and others, in particular, for the "Oncology: oncological laboratory diagnostics" and "Clinical pharmacology" specialties. According to the world trend in healthcare concerning prevention, early diagnosis and monitoring of cancer treatment, the University urgently implements educational programs and projects on oncology, especially laboratory diagnostics in oncology. PUMS is actively involved in implementation of the National Program for Control of Malignant Diseases, while the Immunohistochemistry laboratories of PUMS have positive assessments from "Nordic immunohistochemical Quality Control" (NordiQC). PUMS is involved in many international clinical programs of malignant disease studies that are evaluated by external validators: European Organization for Research and Treatment of Cancer (EORTC), KESTREL, SAMSUNG.

In addition, in order to comply with European standards on improvement of quality, efficiency and safety of pharmacological treatment, the University conducts training of clinical pharmacologists. Department of Clinical Pharmacology of PUMS is a regional center for monitoring the drugs that induce undesirable side effects, the center acts in accordance with state and European standards. PUMS' professors are members of the Pharmacopeia Polska pharmacotherapy expert group, which is a part of the European Pharmacopoeial Commission,

and are the regional consultants in the clinical pharmacology specialization. Professors from PUMS are members of the Agency for Assessment of Medical Technologies, in particular medications.

Thus, under the Memorandum between the WKSMU and PUMS, during the I stage of strategic partnership (2016), since June 2016 individual contracts with experts of partnering University have been concluded at the expense of the Kazakhstani University for implementation of joint preparatory activities aimed at effective implementation of follow-up objectives specified in the present Terms of Reference within the frame of the Project. The team of experts from PUMS carried out assessment of internal educational (undergraduate and postgraduate) and scientific activity of the University and provided educational events on various topics. During the period of June 7-11, 2016 during the first visit the experts from PUMS presented a master-class for the managers of the WKSMU on the best practice in medical education (practice of European countries).

During the second visit (September 6-12, 2016) the experts from PUMS based on outcomes of the analysis of managerial, educational and scientific operation of the WKSMU provided a series of master-classes for the employees of the WKSMU oriented towards the improvement of: i) undergraduate education of health professionals; ii) training system for doctoral students PhD in “Medicine” specialty; and iii) research and scientific competences of the faculty. In the course of these educational activities PUMS experts assessed existing system of education of health specialists and identified strategic initiatives of the WKSMU for the 2017-2020 period (Strategic Development Plan until 2020). Since 2017 PUMS experts have been involved as mentors in educational process of Kazakh’s University.

To get introduced to the best practice in management of medical education WKSMU employees (prorectors, deans and heads of departments) participated in upgrading courses at Poznan University of Medical Sciences (November 2016).

Within the framework of the Memorandum signed with the advanced world university and under academic mobility program undergraduates students (22 students) and doctoral students PhD undergo training under the PUMS framework.

Activities carried out during the first stage of cooperation are the prerequisites for implementation of major objectives in modernization of educational system of the WKSMU specifically in the “Oncology: oncological laboratory diagnostics” and “Clinical Pharmacology” specialties which include modernization of University processes management and recognition of its educational system at the world market of educational services to be achieved through improvement of educational programs, building the capacity of faculty and creation of a University clinic. Cooperation with the advanced university of the world will enable the Kazakh partner to achieve set goals, namely to enter the TOP of world universities in the nearest years of carried out reforms.

Taking the above into account and based on priorities of the WKSMU (“Oncology: oncological laboratory diagnostics” and “Clinical pharmacology”), involvement of Poznan University of Medical Sciences as the strategic partner (the Strategic Partner) is considered practical for the WKSMU since the continuation of the cooperation would allow upgrading competitiveness of national health professionals in international market of health services.

B. Objective and tasks

5. The Objective of this assignment is to provide technical and methodological assistance in strengthening the capacity of the WKSMU in modernization of the system of health professionals’ education, including specialists in oncological laboratory diagnostics and clinical pharmacologists.

6. Tasks:

- 1) Improvement of the current system of health professionals' education of the WKSMU:
 - A) Improving educational process of undergraduate medical education;
 - B) Building the capacity of academic staff and employees of the WKSMU;
 - C) Development of institutional research capacity of the WKSMU.

2) Improvement of educational process and educational programs for the "Clinical pharmacology" (2A) and "Oncology: oncological laboratory diagnostics" (2B) disciplines.

C. Scope of Services

7. It is expected that the partnering University (the Consultant) provides advisory and methodological assistance in the following areas based on best international practices and analysis of the current situation in Kazakhstan:

Task 1.Improvement of the current system of health professionals' education of the WKSMU:

A) Improving educational process of undergraduate medical education:

- 1) Development of a Plan for improvement of undergraduate programs of medical education;
- 2) Improvement of internal policies and procedures of management of educational and scientific activities;
- 3) Development of an Action Plan on effective clinical training at clinical sites;
- 4) Development of an Action Plan for improvement of medical education at the PhD level

B) Building the capacity of academic staff and employees of the WKSMU :

- 1) Development of a competencies model of WKSMU teachers including the criteria to the system of selection, recruitment, training and evaluation of teachers;
- 2) Participation of the partnering University experts in the process of capacity building of teaching staff of the WKSMU in accordance with the Plan;
- 3) Development of the program of academic mobility of teachers of the WKSMU and partnering University;
- 4) Development of training programs for teachers in online certification courses offered at the partnering University;

Note: Costs for participation of Kazakh specialists in in-country trainings is to be funded from the WKSMU budget

C) Development of institutional research capacity of the WKSMU:

- 1) Assistance in establishment of research laboratories through training of the employees and provision of methodological support with subsequent implementation;
- 2) Involvement of teaching staff as research advisors for research activities to be conducted as part of doctoral/PhD programs;
- 3) Support to organization of post-doctoral studies to be hosted by the partnering University;
- 4) Development and joint conduct of research projects.

Task 2. Improvement of educational process and educational programs in the “Clinical pharmacology” and “Oncology: oncological laboratory diagnostics” disciplines.

Task 2A. Improvement of educational process and educational programs in the “Clinical pharmacology” discipline

1) Development of undergraduate educational program for the "Clinical Pharmacology" discipline;

2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialists in clinical pharmacology ;

3) Development of collaborative online learning programs (courses, cycles) for students in the “Clinical pharmacology” discipline.

Task 2B. Improvement of educational process and educational programs in the “Oncology: oncological laboratory diagnostics” discipline

1) Development of educational program for the "Oncology: Oncological Laboratory Diagnostics" discipline;

2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialists in “Oncology: oncological laboratory diagnostics”

3) Development of collaborative online learning programs (courses, cycles) for students in the “Oncology: oncological laboratory diagnostics” discipline.

Costs for participation of teaching staff members and other employees of WKSMU in trainings held at PUMS will be covered by the Client.

D. Expected outcomes

8. It is expected that based on strategic partnership a competitive high-quality system of education of health human resources would be created in WKSMU that would facilitate a gradual integration of medical education, science and practice through:

1. Improvement of educational process of health specialists;

2. Improvement of educational process and academic programs in the “Oncology: oncological laboratory diagnostics” and “Clinical pharmacology” disciplines.

№	KPI*	by the end of 2020
1	specific weight of faculty staff trained on the Model of Competencies of the WKSMU	20%
2	number of articles submitted to international peer-reviewed journals	10
3	number of any researches (projects) in which both Universities are involved	3
4	number of faculty staff trained as part of academic mobility program (research and teaching skills upgrading courses, capacity building cycles), both in the Client’s and Consultant’s country, according to the detailed schedule , see Appendix A1	At least 15
5	number of faculty staff trained in online programs	30

6	number of PhD candidates initiated to be trained jointly with the partnering University (initiated cooperation with co-promoter from PUMS)	3
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Each KPI achievement requires the appropriate involvement of WKSMU. The Client takes the whole responsibility for the adequate WKSMU contribution to the project realization. In the case of inappropriate WKSMU involvement leading to the failure of KPIs achievement, the Consultant assumes no responsibility for this.

E. Reporting requirements

9. The Consultant (the Strategic Partner) will work directly with the Department of Science and Human Resources of the MoH (the DSHR), the Republican Center for Health Development, and the West-Kazakhstan State Medical University named after Marat Ospanov, in close collaboration with the Coordinator of Subcomponent 2.3 "Strengthening of human resources for healthcare based on strategic partnership" of the Project Management Unit (PMU).

10. The Consultant will be accountable directly to the Director of DSHR.

11. The list and timeframe for submission of deliverables is presented in Appendix A1.

12. Contents of all reports should be discussed and agreed with the DSHR. The deadline for acceptance of reports or provision of comments is 15 days from the date of submission of an electronic version of specific report in English language.

13. The Consultant will provide quarterly reports (the electronic version each 10th day of the month following the reporting quarter, the paper version – after receiving the ultimate acceptance from the Client) on the progress of activities under the partnership.

14. All reports should be submitted in electronic form (English) and on paper (three copies) for the DSHR, the PMU, and the WKSMU. The postage date will be considered as the date of submission of the paper version reports.

F. Qualification requirements

15. Requirements to the partner organization:

- The partnering University shall have internationally accredited educational programs for training of medical staff, including programs on oncological laboratory diagnostics and clinical pharmacology;

- The partnering University should be included into the TOP universities rankings;

- Obligatorily administration of examination of the University graduates according to NBME (National Board of Medical Examiners) requirements and its successful results.

16. Recommended composition of a team of experts.

1. Team leader with work experience in organization and management of medical education

General qualification:

- Medical Education MD;

- A Master of Science degree, MBA or a doctorate (PhD) in medicine / public health / medical education;
- At least 10 years of practical experience in medical education and science;
- At least 5 years of proven experience in coordination and consulting services provision in the course of implementation of national and/or international projects in the field of health professionals training process;
- Membership in national / international medical educational and scientific associations – would be an advantage.

Specific requirements:

- At least 5 years of proven experience in organization and management of educational process in medical schools;
- At least 5 years of proven experience in development of educational programs of all levels of health professionals' education.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

2. Experts in improvement of educational process and educational program in the "Oncology: oncological laboratory diagnostics" discipline

General qualification:

- Medical Education MD;
- A master's degree or a doctorate (PhD) in medicine / public health / medical education / MBA;
- At least 10 years of practical experience in the field of medical education;
- At least 5 years of practical experience in healthcare organizations;
- Membership in national / international medical associations would be an advantage.

Specific requirements:

- At least 5 years of proven experience in development of educational programs in the oncology and/or laboratory diagnostics and/or immunology and/or pathology and/or molecular biology disciplines;
- At least 5 years of practical experience in development of educational programs for laboratory diagnostics in oncology
- At least 10 years of practical experience in building the capacity of university teachers in development of educational programs on a competency-based approach.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

3. Experts in improvement of educational process and educational programs in the "Clinical pharmacology" discipline

General qualification:

- Medical / Pharmaceutical Education MD;
- A master's degree or a doctorate (PhD) in medicine/public health/medical education/ MBA;
- At least 5 years of practical experience in medical and/or pharmaceutical education;

- At least 3 years of practical experience in clinical pharmacology;
- Membership in national / international medical / pharmacological associations would be an advantage.

Specific requirements:

- At least 5 years of practical experience in development of educational programs in clinical pharmacology;
- At least 10 years of practical experience in development and implementation of training seminars on development of educational programs for teachers of Clinical Pharmacology.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

4. Expert in improvement of educational programs

General qualification:

- Medical Education MD;
- A master's degree or a doctorate (PhD) in medicine / public health / medical education / MBA;
- At least 5 years of practical experience in the field of medical education;
- Membership in national / international medical and educational associations would be an advantage.

Specific requirements:

- At least 5 years of practical experience in development of post-graduate educational programs (Master's, Doctoral, and Continuing Medical Education [CME]);
- At least 10 years of teaching experience in postgraduate educational activities;
- At least 10 years of proven experience as a research advisor in implementation of post-graduate programs.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

5. Expert in building the capacity of university faculty and specialists

General qualification:

- Medical education MD;
- A master's degree or a doctorate (PhD) in medicine / public health / medical education / MBA;
- At least 5 years of practical experience in the field of medical education;
- Membership in national / international medical educational and scientific associations would be an advantage.

Specific requirements:

- At least 5 years of practical experience in development of educational programs for university faculty staff;
- At least 10 years of practical experience in organizing and conduct of educational activities oriented towards teachers' capacity building;
- Hands-on experience in construction of the competencies-based model for teachers' capacity building.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

6. Expert in building university research capacity**General qualification:**

- Medical education MD;
- A master's degree or a doctorate (PhD) in medicine / public health / medical education / MBA;
- At least 5 years of practical experience in the field of medical education and science;
- Membership in national / international medical educational and scientific associations would be an advantage.

Specific requirements:

- At least 10 years of practical experience in organization of scientific activity at a university;
- At least 5 years of practical experience in organizing and conducting of scientific research in healthcare and clinical pharmacology.

Language proficiency:

- English – mandatory;
- Russian – would be an advantage.

G. Duration

17. Duration of assignment would be from June 2019 to March 2021 (22 months)
18. Expected input of the Consultant would be, at least, as presented in Table 1:

Table 1. Consultant's input, person/months

Activity	2019	2020	2021	Totally
Task 1. Improvement of the current system of health professionals' education of the WKSMU				
1A – Improving educational process of undergraduate medical education				
1) Development of a Plan for improvement of undergraduate programs of medical education	0.5	1.5	-	1.5
2) Improvement of internal policies and procedures of management of educational and scientific activities	0.5	1.0	-	1.5
3) Development of an action plan on effective clinical training at clinical sites	0.5	1.25	0.25	2.0
4) Development of an action plan for improvement of medical education at the PhD level.	0.5	1.0	-	1.5
	2.0	4.25	0.25	6.5
1B - Building the capacity of academic staff and employees of the WKSMU				
1) Development of a competencies model of the WKSMU teachers including the criteria to the system of selection, recruitment, training and evaluation of teachers	1.0	1.0	-	2.0

Activity	2019	2020	2021	Totally
2) Participation of the partnering University experts in the process of capacity building of teaching staff of the WKSMU in accordance with the plan	0.25	0.5	0.25	1.0
3) Development of the program of academic mobility of teachers of the WKSMU and partnering University	1.0	8.0	1.0	10.0
4) Development of training programs for teachers in online certification courses offered at the partnering University	1.0	1.25	0.25	2.5
	3.25	10.75	1,5	15.5
1C -Development of institutional research capacity of the WKSMU				
1) Assistance in establishment of research laboratories through training of the employees and provision of methodological support with subsequent implementation	1.0	2.75	0.25	4.0
2) Involvement of academic staff as research advisors for research activities to be conducted as part of doctoral/PhD programs	0.25	7.5	0.25	8.0
3) Support to organization of post-doctoral studies to be hosted by the partnering University	-	3.5	0.5	4.0
4) Development and joint conduct of research projects	0.25	6.0	0.25	6.5
	1.5	19.5	1.25	22.5
2A. Improvement of educational process and educational programs in the “Clinical pharmacology” discipline				
1) Development of educational undergraduate program for the "Clinical Pharmacology" discipline	1.0	0.5	-	1.5
2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of clinical pharmacologists	0.5	3.75	0.25	4.5
3) Development of collaborative online learning programs (courses, cycles) for students in the “Clinical pharmacology” discipline	0.25	1.0	0.25	1.5
	1.75	5.25	0.5	7.5
2 B. Improvement of educational process and educational programs in the “Oncology: oncological laboratory diagnostics” discipline				
1) Development of educational undergraduate program for the "Oncology: Oncological Laboratory Diagnostics"	0.75	0.75	-	1.5

Activity	2019	2020	2021	Totally
2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialists in oncological laboratory diagnostics	0.5	4.25	0.25	5.0
3) Development of collaborative online learning programs (courses, cycles) for students in the “Oncology: oncological laboratory diagnostics”	0.25	1.0	0.25	1.5
	1.5	6.0	0.5	8.0
In Total				60

H. Client’s input

19. For the Consultant to perform the assignment the MoH (represented by WKSMU) shall provide:

- a) Visa support;
- b) Necessary materials, documents and regulations;
- c) Space for business meetings and equipped office (e.g. wi-fi, computer, printer, office supplies)
- d) Logistic services for arrangement of seminars and participation of Kazakh specialists;
- e) Conducive environment for performance of the assignment based on partnership with existing institutional entities in the Kazakh’s health sector;
- f) Appoint specialists and other necessary staff for cooperation with the Consultant until conclusion of the contract with the Kazakh partnering University;
- g) Reimburse the costs of travel to Kazakhstan, visa, insurance policy, per diem, accommodation, and local taxes in Kazakhstan based on submission of documents confirming such costs.
- h) Free of charge guest rooms equipped with wi-fi for experts visting WKSMU
- i) The on-line learning platform for realization of on-line educational programs according to the project

G. General notes

20. The service does not obligate the Consultant to any other activities beyond described in the Appendix A1, (e.g. attendance meeting in MoH, other consultations).
21. The role of the Consultant is to advice and mentor according to the project (see Appendix A1). The Consultant is not responsible for the implementation of these programs at WKSMU. The WKSMU authorities (rector and prorectors) are responsible for the implementation of programs in accordance with the project and with advice service given by the Consultant.

Table 2. Types of reports and schedule of submission

Activity	Report form	Time for submission
Task 1. Improvement of the current system of health professionals' education of the WKSMU		
1A – Improving educational process of undergraduate medical education		
1) Development of a plan for improvement of undergraduate programs of medical education	Plan	December 2020
2) Improvement of internal policies and procedures of management of educational and scientific activities;	Report	March 2021
3) Development of an action plan on effective clinical training and at clinical sites;	Plan	March 2021
4) Development of an action plan for improvement of medical education at the PhD level;	Plan	March 2021
1B - Building the capacity of faculty staff and employees of the WKSMU:		
1) Development of a competencies model of WKSMU teachers including the criteria to the system of selection, recruitment, training and evaluation of teachers	Report	December 2020
2) Participation of the partnering University experts in the process of capacity building of teaching staff of the WKSMU in accordance with the Plan	Report	March 2021
3) Development of the program of academic mobility of teachers of the WKSMU and partnering University	Plan	March 2021
4) Development of training programs for teachers in online certification courses offered at the partnering University	Report	March 2021
1C - Development of institutional research capacity of the WKSMU		
1) Assistance in establishment of research laboratories through training of the employees and provision of methodological support with subsequent implementation	Report	March 2021
2) Involvement of academic staff as research advisors for research activities to be conducted as part of master's and doctoral/PhD programs	Report	March 2021
3) Support to organization of post-doctoral studies to be hosted by the partnering University	Road map	March 2021

Activity	Report form	Time for submission
4) Development and joint conduct of research projects	Report	March 2021
Task 2A. Improvement of educational process and educational programs in the "Clinical pharmacology" discipline		
1) Development of educational programs for the "Clinical Pharmacology" disciplines	Program	September 2020
2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of clinical pharmacologists	Report	March 2021
3) Development of collaborative online learning programs (courses, cycles) for students in the "Clinical pharmacology" disciplines	On-line program	March 2021
Task 2B. Improvement of educational process and educational programs in the "Oncology: oncological laboratory diagnostics"		
1) Development of educational programs for the "Oncology: Oncological Laboratory Diagnostics"	Program	September 2020
2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialist in oncological laboratory diagnostics	Report	March 2021
3) Development of collaborative online learning programs (courses, cycles) for students in the "Oncology: oncological laboratory diagnostics"	On-line program	March 2021

APPENDIX B - KEY EXPERTS

PROJECT SUPERVISOR – Andrzej Tykarski

TEAM LEADER – Jarosław Walkowiak

Task 1A

KEY EXPERTS:

Jacek Wysocki

Anna Mania

Ewa Wysocka

Anna Surdacka

Michał Nowicki

Bożena Raducha

Paweł Bogdański

Jarosław Walkowiak

Maciej Krawczyński

Dorota Zozulińska-Ziółkiewicz

Task 1B

KEY EXPERTS:

Maria Iskra

Dorota Formanowicz

Szczepan Cofta

Paweł Uruski

Magdalena Cerbin-Koczorowska

Paweł Żebryk

Łukasz Gąsiorowski

Rodryg Ramlau

Jacek Wysocki

Grzegorz Dworacki

Maciej Krawczyński

Bożena Raducha

Wojciech Leppert
Małgorzata Leszczyńska
Ewelina Swora-Cwynar
Krzysztof Książek
Magdalena Witt
Beata Buraczyńska-Andrzejewska

NON-KEY EXPERTS:

Patrycja Marciniak -Stępak

Task 1C

KEY EXPERTS:

Krzysztof Książek
Agnieszka Malińska
Witold Szaflarski
Maciej Krawczyński
Jarosław Walkowiak
Marzena Dworacka
Jan Nowak
Ewa Wysocka
Andrzej Tykarski

Task 2A

KEY EXPERTS:

Marzena Dworacka
Hanna Winiarska
Przemysław Mikołajczak
Edyta Szalek
Franciszek Główka
Marta Karaźniewicz-Łada
Beata Buraczyńska-Andrzejewska

NON-KEY EXPERTS:

Anna Wesołowska

Magdalena Borowska

Renata Forjasz

Katarzyna Kosicka

Danuta Szkutnik-Fiedler

Katarzyna Sobańska

Task 2B

KEY EXPERTS:

Ewa Wysocka

Sławomir Michalak

Szczepan Cofta

Grzegorz Dworacki

Paweł Kurzawa

Rodryg Ramlau

Maciej Krawczyński

Beata Buraczyńska-Andrzejewska

Form TECH-4
WORK SCHEDULE AND PLANNING FOR DELIVERABLES

Form TECH-4
WORK SCHEDULE AND PLANNING FOR DELIVERABLES

no	Task	MONTHS																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Task 1A1																					
2	Task 1A2																					report
3	Task 1A3																					plan
4	Task 1A4																					plan
5	Task 1B1																	report				
6	Task 1B2																					report
7	Task 1B3																					plan
8	Task 1B4																					report
9	Task 1C1																					report
10	Task 1C2																					report
11	Task 1C3																					
12	Task 1C4																					
13	Task 2A1																	program				
14	Task 2A2																					report
15	Task 2A3																					prog. online
16	Task 2B1																		program			
17	Task 2B2																					report
18	Task 2B3																					prog. online

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Appendix A1

The detailed approach, methodology and activity description for task 1A

Task 1. Improvement of the current system of health professionals' education at the WKSMU
1A – Improving educational process of undergraduate medical education
1) Development of a plan for improvement of undergraduate programs of medical education
<p>Content</p> <p>Based on the comparison of the programs of education for the undergraduate students of the Faculty of Medicine at the WKSMU and at PUMS preparation of the plan for improvement of undergraduate program of medical education (M.D. – students of medicine).</p> <p>Phase 1</p> <p>Preparation in English of the WKSMU documents concerning the programs of education in medicine (by the WKSMU). The analysis of these programs by PUMS experts. Meeting with deans and academic staff in Aktobe in order to explain the details and to clarify all doubts. Discussion regarding the specific conditions at the WKSMU which could influence the implementation of the modernized programs.</p> <p>Phase 2</p> <p>The detailed comparison of the WKSMU programs of medical education with those used currently at PUMS with the analysis of the needed changes. Preparation of the modernized program, harmonized with the European standards of medical education for students at WKSMU (the Bologna process).</p> <p>Phase 3</p> <p>Presentation of the proposed modernized program of medical education to deans and academic faculty of the WKSMU during a visit of Polish experts in Aktobe.</p> <p>Phase 4</p> <p>Preparation of the final document – the plan for improvement of undergraduate programs of medical education at the WKSMU (considering learning content and learning outcomes, except syllabuses).</p>

Duration of activity: June 2019 - December 2020.

Inputs:

- Number of person months – 1.5
- Number of visits to Kazakhstan: 2, one with 2 experts, one with 1 expert (1 x 2 persons x 5 work days + 1 x 1 person x 5 work days)

Key Experts:

- Jacek Wysocki
- Anna Mania
- Ewa Wysocka

Output:

- The plan for improvement of undergraduate programs of medical education at the WKSMU.

2) Improvement of internal policies and procedures of management of educational and scientific activities.

Content

Analysis of the current policy and procedures of managing the academic staff in the field of didactic and scientific activity. Detailed analysis of teaching load and academic achievement of randomly selected members of academic staff at the WKSMU.

Preparation of a proposal for an improvement of internal policy and procedures of management of educational and scientific activity considering the undergraduate stage of medical education.

Phase 1

Analysis of documents prepared in English at the WKSMU concerning the academic staff management, with particular emphasis put on:

- ✓ rules and conditions of recruitment and employment of the academic staff,
- ✓ ways of monitoring and evaluating the workload and quality of teaching activity,
- ✓ evaluation of scientific work,
- ✓ rules of promotion, extension and dismissal of academic staff.

Phase 2

Development of proposals for changes in academic staff management policy and procedures to improve the efficiency of teaching and scientific work.

Duration of activity: June 2019 – March 2021.

Inputs:

- Number of person month – 1.5
- Number of visits to Kazakhstan: 2, one with 2 experts, one with 1 expert (1 x 2 persons x 5 work days +1 x 1 person x 5 work days)

Key Experts:

- Jacek Wysocki
- Anna Surdacka
- Michał Nowicki
- Bożena Raducha

Output:

- Report with proposed changes in academic staff management policy and procedures.

3) Development of an action plan on effective clinical training at clinical sites.

Content

Analysis of the current clinical training of students at clinical sites at the WKSMU and the methods of teaching quality evaluation. Selection of the 4-5 most representative clinical sites and the evaluation of the quality of teaching using the students' opinion. Preparation of a plan for improvement of clinical training for the students.

Phase 1

Analysis of the current clinical training of students at clinical sites at the WKSMU and the methods of evaluation of the quality of teaching. Comparison of the methods used in Aktobe and at PUMS.

Phase 2

Preparation of student survey-based teaching quality assessment methods.

Phase 3

Preparation of a plan for the improvement of clinical training for the students in some selected clinical sites.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months – 2.0
- Number of visits to Kazakhstan: 3, one with 2 experts (1 x 2 persons x 5 work days) and 2 with 1 expert (2 x 1 person x 5 work days)
- Number of visits of the WKSMU academic staff in PUMS: 2 (2 x 4 persons x 5 work days)

Key Experts:

- Paweł Bogdański
- Jarosław Walkowiak
- Michał Nowicki
- Maciej Krawczyński
- Dorota Zozulińska-Ziółkiewicz

Output:

- Plan for improvement of the clinical training at selected clinical sites of the WKSMU.

4) Development of an action plan for improvement of medical education at the PhD level

Content

Comparison of PhD studies at the WKSMU and at PUMS. Analysis of scientific achievements of PhD students at the WKSMU. Preparation of an action plan for improvement of medical education at the PhD level.

Phase 1

Getting acquainted with the organization of PhD programs at the WKSMU and with scientific achievements of PhD students at the WKSMU.

Phase 2

Comparison of the PhD studies at the WKSMU and at PUMS. Analysis of scientific achievements of PhD students at the WKSMU. Preparation of an action plan for improvement of medical education at the PhD level.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months – 1.5

- Number of visits to Kazakhstan: 2, with 1 expert (2 x 1 person x 5 work days)

Key Experts:

- Jacek Wysocki
- Maciej Krawczyński
- Michał Nowicki

Output:

- The action plan for improvement of medical education at the PhD level.

The detailed approach, methodology and activity description for task 1B

Task 1. Improvement of the current system of health professionals' education at the WKSMU
1B - Building the capacity of academic staff and employees of the WKSMU
1) Development of a competencies model of WKSMU teachers including the criteria to the system of selection, recruitment, training and evaluation of teachers
<p>Content</p> <p>Building the capacity of academic staff – especially teachers – and other employees is a key problem and task for the WKSMU. The professionalism, competencies and educational quality of both teachers and other faculty staff should be assessed, as well as the current policy and the system of recruitment. A model of the system of selection, recruitment, training, and evaluation of the staff will be proposed base on the comparison of the procedures of management of educational, scientific, and other academic staff at the WKSMU and PUMS and with the use of European standards</p> <p>Phase 1</p> <p>This phase of activity will cover the extended analysis of rules and methods of recruitment, selection and employment of the WKSMU teachers. It will be, in fact, the continuation of the preliminary analysis of this matter done by PUMS experts in 2016 in the frame of the strategic partnership. Unfortunately, the results of this preliminary analysis (the review was provided to the WKSMU authorities in 2016) have not been developed further nor put into practice by the WKSMU authorities. There are many reasons of the current situation in this field in the WKSMU, some of them completely</p>

independent of WKSMU authorities and academic staff. Consequently, there is a significant need to continue this process, now within the current project.

Phase 2

Preparation of a proposal of an overarching system of recruitment of teachers for the medical faculty, including criteria of candidate selection related and dependent on the position (assistant, lecturer, professor, head of the department): education level, academic degree(s), professional experience, specialization, on the field of scientific activity and on the list of publications (verified by the WKSMU Library basing on IF or on other internal factor, citations). The proposal will not only include the procedures recommended by PUMS experts, but also will consider all actual procedures applied currently in the WKSMU, and finally meet available human resources and regional demand for academic staff.

Phase 3

Preparation of a system covering the evaluation of academic teachers with respect to didactic and scientific activity. The system will be closely related to the position and workload in order to improve the ultimate effects and make the work planning more realistic and effective. For instance, a reduction of paperwork and the number of the obligatory teaching hours should be proposed to allow for scientific activity and academic staff self-learning.

Phase 4

The presentation and discussion of the new system proposal to the WKSMU authorities and staff.

Duration of activity: June 2019 - December 2020

Inputs:

- Number of person months – 2.0
- Number of visits to Kazakhstan: 1, with 2 experts (1x 2 persons x 5 work days)
- Number of visits of the WKSMU staff members in PUMS: 1, with 2 experts (1x 2 persons x 5 work days)

Key Experts:

- Maria Iskra

- Dorota Formanowicz
- Szczepan Cofta
- Paweł Uruski

Output:

- Proposal of the system of selection, recruitment, training and the criteria of evaluation of the WKSMU teachers.
- The report.

2) Participation of the partnering University experts in the process of capacity building of teaching staff of the WKSMU in accordance with the plan

Content

PUMS experts will participate in realization of the capacity building of teaching staff of the WKSMU according to the plan presented in task 1A 2) and task 1B1), providing their experience and preparing teaching courses.

Phase 1

The WKSMU experts will be asked to prepare a list of methodology procedures carried out at the Faculty of Medicine for academic staff, and a preliminary list of fields in methodology and didactics for medical studies that need to be improved in order to increase the teaching capacity of the WKSMU staff. In this phase, both the comparison of currently used methodological procedures at the WKSMU and PUMS, and the scope of necessary proposals, will be provided by PUMS experts. The methods of training and evaluation of the quality of didactic work for the WKSMU teachers, and a control system of the process of capacity building to be carried out at the WKSMU will be presented.

Phase 2

After precise comparison of the WKSMU and European system of capacity building in teaching staff, on the base of the PUMS example the appropriate plan of increasing the quality and effectiveness of both preclinical and clinical teaching at the WKSMU will be prepared and presented. The plan will comprise the proposal of the didactic methodology with varied training sessions at PUMS, with the participation of teachers and employees of the WKSMU.

Phase 3

PUMS experts will prepare a detailed program covering courses and workshops dedicated for the WKSMU teaching staff, which will be carried out in the partnering university at PUMS. The main objective of the educational program will be provision of methodological education and training of newly accepted and existing academic staff of the WKSMU.

The milestones in this process may encompass:

- a) Identification of educational needs
- b) Infrastructure set-up and preparation of content for lectures available online for the faculty (suggested themes can be modified according to the needs of the WKSMU):
 - Introduction: a paradigm change in medical education
 - Curriculum (designing curriculum, outcomes-based education, hidden curriculum)
 - Assessment (assessment of, for, and as learning, outcomes-based assessment, assessment methods in medical education)
 - Small vs. large group teaching
 - Feedback as a powerful tool for learning and developing skills
 - Leadership in medical education
 - Professionalism
- c) Follow-up survey and online interviews with the WKSMU authorities.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months 1.0
- Number of visits in Kazakhstan: 1 with 1 expert (1x1 person x 5 work days)
- Number of visits of the WKSMU staff members in PUMS: 2 (2 x 10 persons x 5 work days)

Key Experts:

- Magdalena Witt
- Magdalena Cerbin-Koczorowska
- Paweł Żebryk

Non Key Expert

Non- Key Experts:

- Patrycja Stępak –Marciniak

Output:

- Proposal of trainings for the capacity building of teaching staff and employees of the WKSMU
- The report
- 2 series of lectures, workshops, and/or seminars conducted in PUMS

3) Development of the program of academic mobility of teachers of the WKSMU and partnering University

Content

The program of academic mobility of the WKSMU teachers and PUMS academic staff, will be prepared by PUMS experts. Objectives of the academic mobility program will comprise:

- ✓ the development of mutual activities presenting current state of the didactic (teaching) activity and its level i.e., discipline-specific teaching methods and the most current knowledge in these disciplines,
- ✓ provision of methodological and content-related education to the WKSMU academic staff via courses in some disciplines. This will cover the content to be improved or introduced into the modernized program of medical studies, in accordance with the task 1 (new educational program for undergraduate students), e.g., in microbiology, immunology, emergency medicine, palliative care, laboratory diagnostic, dietetics, phoniatics with audiology and hearing protection, and other, also based on the WKSMU curriculum,
- ✓ provision of the WKSMU administrative staff members (e.g., the Strategic Partnership Department employees) with the possibility to acquaint with the principles, rules and schemes used by PUMS administrative employees for the management of the academic mobility process, enhancing mutual comprehension. Of note, PUMS procedures are adequate for cooperation within the European community.

To achieve the aims listed above there will be scheduled several lectures, seminars, and/or workshops focused on the fields and subjects appointed and established by both partners and given by PUMS experts in Poznań or in Aktobe.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months:10.0
Number of visits to Kazakhstan: 4 with 2 experts (4 x 2 persons x 5 work days)
- Number of visits of the WKSMU staff members in PUMS: 3 with 10 staff (3 x 10 x5 work days)

Key Experts:

- Maria Iskra
- Paweł Uruski
- Szczepan Cofta
- Rodryg Ramlau
- Jacek Wysocki
- Grzegorz Dworacki
- Maciej Krawczyński
- Dorota Formanowicz
- Łukasz Gąsiorowski
- Bożena Raducha
- Wojciech Leppert
- Małgorzata Leszczyńska
- Ewelina Swora-Cwynar
- Krzysztof Książek
- Michał Nowicki

Output:

- The proposal of the program (plan) of academic mobility of teachers of the WKSMU and partnering University.
- 2 series of lectures, workshops, and/or seminars conducted at the WKSMU
- 3 series of lectures, workshops, and/or seminars conducted in PUMS
- Training seminars/lectures/workshops materials.

4) Development of training programs for teachers in online certification courses offered at the partnering University

Content

The training programs for teachers in the WKSMU constitute the foundation for the process of improvement of medical education and scientific activity at the WKSMU. PUMS will prepare the program of e-learning courses based on task 1B predicted outputs, taking into the consideration teaching needs in the WKSMU. The program will provide a chance for the improvement in the methodological and content-related issues for more numerous WKSMU staff members in comparison to the directly (non-online) held classes. Learning programs will make use of a set of resources, including: educational materials, the enrollment module, the forum module, homework assignments, and quizzes. The series of classes will enable the installed software to identify the most effective of all the employed methods of knowledge transfer, paving way for future improvements. The series of classes will enable to seek the most effective methods of knowledge transfer for future use.

The program of e-learning courses will be dedicated for:

- Academic staff of many specialties,
- Post-graduate students (PhD candidates, residents),
- Administrative employees of the dean's office, employees of the WKSMU administrative departments.

Phase 1

The extended analysis of the WKSMU needs concerning the detailed subjects of on-line courses, considering the results of tasks 1A 1), 1B 1) (new, modernized program for undergraduate students) and task 1B 3)(the program for the development of academic mobility), will be carried out by PUMS experts with the essential contribution of local WKSMU experts.

Phase 2

Several e-learning courses will be prepared for the WKSMU recipients.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person month: 2.5
- Number of visits in Kazakhstan: 1 with 2 experts (1x 2 persons x 5days)

- Number of visits of the WKSMU staff members in PUMS: 1 with 2 staff(1x 2 persons x 5days)

Key Experts:

- Maria Iskra
- Beata Buraczyńska-Andrzejewska
- Łukasz Gąsiorowski

Output:

- E-learning courses: a cycle of training in teaching methodology and 2 on-line cycles of training in medical disciplines
- Training seminars, lectures, and/or workshop materials.
- Report

The detailed approach, methodology and activity description for task 1C:

Task 1. Improvement of the current system of health professionals' education at the WKSMU

1C - Development of institutional research capacity of the WKSMU

1) Assistance in establishment of research laboratories through training of the employees and provision of methodological support with subsequent implementation

Content

Assistance in the establishment of research laboratories through training of the employees and provision of methodological support with subsequent implementation.

Phase 1

Expert advice on the leading directions of the WKSMU Research Laboratory. Expert advice regarding the purchase of the scientific laboratories equipment. The initial activity related to the phase 1 has been carried out since March 2018 by a PUMS expert who fulfills duties of the Vice-rector of Strategic Partnership in the WKSMU.

Phase 2

Training of the scientific staff in the routine maintenance of the equipment acquired by the WKSMU, installation and setting up of the laboratories. Training will be conducted in PUMS on the base of the same or very similar laboratory equipment. PUMS experts will advise in the process of installation and set-up of the laboratories in the WKSMU during their visits.

Phase 3

Continuous methodological support. PUMS experts will be able to advise on-line and will provide consultations to the WKSMU academic staff who will work in the newly established laboratory.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months: 4.0
- Number of visits to Kazakhstan: 3, one with two experts and two with one expert (1 x 2 x 5 work days + 2 x 1 x 5 work days)

- Number of visits of the WKSMU academic staff at PUMS: 6 (6x 1 person x 10 work days)

Key Experts:

- Krzysztof Książek
- Agnieszka Malińska
- Witold Szaflarski
- Maciej Krawczyński
- Jarosław Walkowiak

Output:

- Established laboratory.
- Report with the description of mentoring and training activities.

2) Involvement of teaching staff as research advisors for research activities to be conducted as part of master's and doctoral/PhD programs

Content

Involvement of PUMS research advisors as co-promoters for scientific activities to be conducted as part of MSc and PhD programs.

Phase 1

Identification of potential leaders at PUMS and the WKSMU. The initial activity related to the phase 1 has been carried out since March 2018 by a PUMS expert who fulfills duties of the Vice-rector of Strategic Partnership in WKSMU. Finding well-motivated and properly prepared prospective PhD candidates might prove to be a challenge. The long-term break in everyday scientific activity at the WKSMU due to the lack of basic scientific laboratory equipment resulted in insufficient scientific experience of academic staff. The overloading with teaching activity also hampers the development of local ambitious research projects. The realization of task 1A should be helpful in finding the adequate solution to this problem.

Phase 2

Elaboration of proposals of the leading directions of MSc and PhD projects.

Phase 3

Coordination of the scientific work and support in preparation of the final MSc/PhD dissertations as well as the publications based on them. The support from PUMS experts

will cover scientific consultations. In some cases, parts of research tasks could be carried out in PUMS. Since in the Republic of Kazakhstan PhD thesis may be prepared in one of 3 languages, we would like to bring the attention to the limited accountability of PUMS experts (co-promoters) for any texts in Russian –and especially in Kazakh – language. In fact, the thesis defense conducted in language other than English does not allow for real participation of the external co-promoter. Furthermore, the dissertation commission includes researchers from various fields, but not necessarily from the wide field comprising the defended thesis. All responsible persons will be obliged to provide text translated into English to PUMS experts.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months: 8.0
- Number of visits to Kazakhstan: 3 (3 x 1 person x 5 work days)
- Number of visits of WKSMU staff members in PUMS: 10 (10x5 work days)

Key Experts:

- Marzena Dworacka
- Krzysztof Książek
- Agnieszka Malińska
- Jan Nowak
- Witold Szaflarski
- Ewa Wysocka
- Maciej Krawczyński
- Andrzej Tykarski
- Jarosław Walkowiak

Output:

- Report with the description of mentoring and training activities.
- Lectures/workshops/seminars conducted in PUMS focused on research methodology and scientific issues related to PhD thesis preparation.

- Lectures/workshops/seminars conducted at the WKSMU focused on research methodology and scientific issues related to PhD thesis preparation.

3) Support to organization of post-doctoral studies to be hosted by the partnering University

Content

Post-doctoral fellowships to be hosted at PUMS in the perspective of creating post-doctoral studies by the WKSMU.

Phase 1

Development of the rules of recruitment and evaluation of the candidates.

Phase 2

Elaboration of proposals of the post-doctoral scientific activity of the WKSMU scientists.

Phase 3

Preparation of the post-docs to play a role of the scientific leaders after their return to the WKSMU.

Phase 4

Creation of roadmap

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months: 4.0
- Number of visits to Kazakhstan: 2 (2x1 personx5 work days)
- Number of visits of the WKSMU academic staff members in PUMS: 7 (5 persons x 5 work days + 2 persons x 3 months)

Key Experts:

- Krzysztof Książek
- Agnieszka Malińska
- Jan Nowak
- Witold Szaflarski
- Ewa Wysocka
- Maciej Krawczyński

- Jarosław Walkowiak

Output:

- Road map of new post-doctoral program.
- Report with the description of mentoring and training activities.
- Lectures/workshops conducted in PUMS and in the WKSMU focused in the organizational and merits-related problems with the development of post-doctoral scientific activity in the WKSMU.

4) Development and joint conduct of research projects

Content

Development and joint conduct of research projects. Elaboration of the long-term scientific cooperation program with proposals of the leading directions of joint scientific activity of PUMS and the WKSMU. The initial activity is maintained by PUMS' expert who fulfills duties of the Vice-rector of Strategic Partnership in the WKSMU. A profound analysis of the current WKSMU research capabilities. Attracting most competent and enthusiastic WKSMU staff members will be indispensable for the beginning of phase 1.

Phase 1:

Identification of common fields of interest.

Phase 2:

Starting of cooperation based on ongoing programs.

Phase 3:

Initiation of new projects.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months: 6.5
- Number of visits to Kazakhstan: 4 (4x1 personx5 work days)
- Number of visits of the WKSMU staff members in PUMS: 12 (2x6persons x5 work days)

Key Experts:

- Andrzej Tykarski

- Krzysztof Książek
- Agnieszka Malińska
- Jan Nowak
- Witold Szaflarski
- Maciej Krawczyński
- Jarosław Walkowiak

Output:

- Report containing: (1) the description of activities undertaken,(2) a list of common projects, and (3) a list of common manuscripts.

The detailed approach, methodology and activity description for task 2A – “Clinical Pharmacology”

Task 2A. Improvement of educational process and educational programs in the “Clinical pharmacology” discipline

1) Development of educational undergraduate program for the "Clinical Pharmacology" discipline

Content

The preparation of the educational program in clinical pharmacology for undergraduate students of medical faculty. In the academic year 2017/18, there were no separate courses covering clinical pharmacology issues for undergraduate students at the WKSMU. Clinical pharmacology was only a part of the course of internal medicine. Considering that clinical pharmacology is necessary for the development of personalized medicine, it is crucial to introduce a separate undergraduate course on clinical pharmacology.

Phase 1

Evaluation of current course of clinical pharmacology at the WKSMU. Consideration of its content both in terms of quantity and quality (type) of teaching, the evaluation of facilities and methods. A meeting with the WKSMU specialists in the field of clinical pharmacology to discuss their current educational program, their needs and expectations.

Phase 2

Elaboration of a proposal of educational program (considering learning content and learning outcomes) in clinical pharmacology for the WKSMU undergraduate students of medical faculty, considering the modern solutions of educational problems in clinical pharmacology, according to the European standards and Bologna process. Holding a seminar performed at the WKSMU to introduce the proposal of new, modernized version of the program of clinical pharmacology. Presentation of a road map for the insertion of the new program into the education process.

Duration of activity: June 2019 – September 2020

Inputs:

- Number of person months – 1.5
- Number of visits to Kazakhstan: 2, one with 2 experts (1x 2 persons x 5 work days) and one with one expert (1 x 1 person x 5 work days)

Key Experts:

- Marzena Dworacka
- Hanna Winiarska

Output:

- The review of the current program in clinical pharmacology at the WKSMU.
- Training seminar materials. Report on the seminar.
- The proposal of the modernized program in clinical pharmacology for undergraduate students.

2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialists in clinical pharmacology.

Content

For the successful introduction and development of the modernized program in clinical pharmacology there is a necessity for the personal improvement of WKSMU teaching staff members in this field. Therefore, the education on the modern topics of clinical pharmacology will be provided to the WKSMU students and academic staff by PUMS experts. Lectures and workshops will be dedicated for:

- clinical pharmacology teaching staff,

- internal medicine, pediatric, obstetric, general medicine, surgery and other teaching staff,
- undergraduate students,
- post-graduate students (PhD candidates, residents),

Programs will cover:

- a) the most modern and hot topics in the clinical pharmacology specialty, i.e.:
 - ✓ Bioequivalence studies, generic and reference drug product
 - ✓ Therapeutic drug monitoring
 - ✓ Medication use in pregnancy and lactation
 - ✓ Clinical pharmacokinetics
 - ✓ Pharmacokinetic/pharmacodynamic relationships of antimicrobial drugs
 - ✓ Clinical trials
 - ✓ Medication use in the elderly and in children
 - ✓ Pharmacogenetics
 - ✓ Chronopharmacology
 - ✓ Drug-to-drug interactions
 - ✓ Pharmacoepidemiology
 - ✓ Pharmacovigilance
- b) the most modern and hot topics in the pharmacotherapy, f.e.
 - ✓ pharmacotherapy of pain
 - ✓ pharmacotherapy of CNS diseases
 - ✓ pharmacotherapy of cardiovascular diseases
 - ✓ pharmacotherapy of metabolic diseases
 - ✓ pharmacotherapy in oncology

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months – 4.5
- Number of visits in Kazakhstan: 2, each one with 2 experts (2 x 2 persons x 5 work days)
- Number of visits of WKSMU staff members in PUMS: 3 visits (3 x 10 persons x 5 work days)

Key Experts:

- Marzena Dworacka
- Hanna Winiarska
- Przemysław Mikołajczak
- Edyta Szalek
- Franciszek Główka
- Marta Karaźniewicz-Łada

Non Key Expert

- Wesółowska Anna
- Borowska Magdalena
- Forjasz Renata
- Kosicka Katarzyna
- Szkutnik-Fiedler Danuta
- Sobańska Katarzyna

Output:

- 3 series of lectures/workshops/seminars conducted in PUMS
- 3 series of lectures/workshops/seminars conducted at the WKSMU
- Training seminars/lectures/workshops materials.
- Lecture/seminars presentations.
- The report.

3) Development of collaborative online learning programs (courses, cycles) for students in the “Clinical pharmacology” discipline

Content

In order to facilitate access to the education in the field of clinical pharmacology, on-line learning programs will be prepared with the contribution of PUMS experts and in collaboration with WKSMU staff members of various specialties.

Learning programs will make use of a set of resources, including: educational materials, the enrollment module, the forum module, homework assignments, and quizzes. The series of classes will enable the installed software to identify the most effective of all the employed methods of knowledge transfer, paving way for future improvements.

The program of e-learning courses in clinical pharmacology will be dedicated for:

- clinical pharmacology teaching staff,
- internal medicine, pediatric, obstetric, general medicine, surgery and other teaching staff,
- undergraduate students,
- post-graduate students (PhD candidates, residents),

Programs will cover the most modern and hot topics in the clinical pharmacology, pharmacotherapy and new methodological approach in the teaching of clinical pharmacology.

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months – 1.5
- Number of visits in Kazakhstan: 0 (all necessary issues will be managed during a visit included into the task 1B4)
- Number of visits of the WKSMU staff in PUMS: 1 with 2 experts (2 persons x5 work days)

Key Experts:

- Beata Buraczyńska-Andrzejewska
- Marzena Dworacka
- Hanna Winiarska
- Przemysław Mikołajczak
- Edyta Szalek
- Franciszek Główka
- Marta Karaźniewicz-Łada

Output:

- On-line program: three on-line courses (cycles) of training in the field of clinical pharmacology
- Training seminar/lecture/workshop materials.

The detailed approach, methodology and activity description for task 2B – "Oncology: oncological laboratory diagnostics"

Task 2B. Improvement of educational process and educational programs in the "Oncology: oncological laboratory diagnostics" discipline

1) Development of educational undergraduate program for the "Oncology: oncological laboratory diagnostics" discipline

Content

The development of a new education program in "Oncology: oncological laboratory diagnostics" requires a thorough analysis of the current teaching in the this field across various disciplines in the WKSMU, which lacks a dedicated course of general laboratory diagnostics. The elements of laboratory diagnostics in the oncology course for undergraduate students are also insufficient. Only some topics are discussed in the WKSMU during the course of internal medicine and some others – during the aforementioned oncology course. According to the European standards laboratory diagnostics (laboratory medicine) is usually a separate course, which also contains a significant component of oncological laboratory diagnostics. Unfortunately, at the WKSMU there are no laboratory diagnostics specialists, who would be able to teach students on how to properly and effectively use laboratory parameters for the diagnosis and monitoring of diseases, and in particular with regard to cancers and other neoplasms. Considering the analysis of the current WKSMU situation, ranging from basic sciences to clinical practice, which was performed by PUMS experts in 2016, the development of the most adequate model of education of laboratory diagnostics in oncology for undergraduate WKSMU students will be undertaken. The significance of this topic is obvious taking into consideration the epidemiological burden of cancer in contemporary societies.

Phase 1

The evaluation of the current educational programs of internal medicine, pediatrics, surgery, gynecology and oncology, and pathology (pathomorphology) at the WKSMU with regard to oncological laboratory diagnostics. The evaluation of the quantity and quality (type) of teaching hours, facilities and methods of teaching will be performed.

A meeting will be held with the WKSMU specialists in internal medicine, pediatrics, surgery, gynecology and oncology and pathology (pathomorphology) and other related disciplines, to discuss their current educational programs and to find the courses' main strengths and weaknesses.

Phase 2

Development of the undergraduate educational program in laboratory diagnostics with the special emphasis on oncology (considering learning content and learning outcomes). Modern educational solutions will be utilized in order to match the requirements of the Bologna process. A training seminar will be held at the WKSMU with the aim of presenting PUMS proposal of a new program of laboratory diagnostics with the main component: oncological laboratory diagnostics. A road map of the insertion of the new program into the education process will be proposed.

After finishing phase 2 a report will be written to summarize findings and activities taken.

Duration of activity: June 2019 – September 2020

Inputs:

- Number of person months – 1.5

Number of visits to Kazakhstan: 2, one with 2 experts (1 x 2 persons x 5 work days) and one with one expert (1 x 1 person x 5 work days)

Key Experts:

- Ewa Wysocka
- Sławomir Michalak

Output:

- Review of the current educational model for laboratory diagnostics at the WKSMU, with special focus on content related to oncological laboratory diagnostics.
- Proposal of the modernized program for undergraduate medical students (M.D.), in laboratory diagnostics, including oncological laboratory diagnostics.
- Training seminar materials.
- Report on the training performed at the WKSMU by PUMS experts.

2) Involvement of partnering University faculty to conduct lectures and workshops at all levels of education of specialists in "Oncology: oncological laboratory diagnostics"

Content

A successful introduction and development of the modernized program in oncological laboratory diagnostics necessitates the improvement of individual WKSMU academic staff teaching methods. Simultaneously, the education in the modern topics of laboratory diagnostics and oncological laboratory diagnostics may be provided to the WKSMU students.

PUMS experts will provide their help with:

- ✓ Techniques to improve lectures, seminars and practical exercises in the fields.
- ✓ Creating a database of patients' clinical presentation and clinical case analysis, including histopathology and blood test results.
- ✓ Effective use of laboratory tests in prevention and monitoring of diseases, including neoplastic disease.
- ✓ The rules for cost-effective selection of basic and advanced laboratory tests in different clinical conditions, especially in oncology.

The program will cover:

Part 1 Laboratory diagnostics - blood, urine and other body fluids

Objectives:

- a) to acquire the knowledge and skills for the proper selection and interpretation of laboratory tests in prevention and early diagnosis.
- b) to obtain knowledge and skills for proper selection and interpretation of laboratory tests in oncology patients – monitoring of the disease.

General thematic content:

1. Organization of work in a medical diagnostic laboratory. Quality assurance system.
2. Laboratory techniques: traditional methods and advanced technologies. Good Clinical Laboratory Practices.
3. Possible medical errors in laboratory diagnostics - pre-analytical, analytical and post-analytical.
4. Clinical and laboratory aspects of selection and interpretation of laboratory tests.

5. Diagnostic test panels (profiles) and individual laboratory test for different medical conditions.
6. Molecular biology for oncological laboratory diagnostics –genetic testing.
7. Laboratory tests measuring systemic disease's advancement, including systemic assessment of neoplastic disease.
8. Diagnostic meaning of neoplastic markers.
9. Clinical case analysis.

Part 2 Pathology

Body fluids, bone marrow, tissue biopsy, intraoperative material, postoperative material.

Objectives:

- a) to acquire knowledge and skills for proper selection of laboratory tests in pathology department.
- b) to obtain knowledge and skills to complete an accurate pathology report.

General thematic content:

1. Organization of work in a pathology department. Quality assurance system.
2. Laboratory techniques: traditional methods and advanced technologies. Good Clinical Laboratory Practices and Pathology Clinical Practice Guidelines.
3. Pathology report for proper therapy.
4. Clinical case analysis.

Part 3

Clinical case analysis– how to prevent, diagnose and monitor diseases

Objective:

- a) to obtain knowledge and skills to diagnose various stages of the disease and to propose adequate clinical management

General thematic content:

1. Early diagnosis of a neoplasm.
2. Paraneoplastic syndromes.
3. Advanced neoplastic disease.
4. Personalized cancer medicine.

Duration of activity: June 2019 – March 2021.

Inputs:

- Number of person months – 5.0
- Number of visits to Kazakhstan: 2, each one with 2 experts (2 x 2 persons x 5 work days)
- Number of visits of the WKSMU academic staff in PUMS: 5 visits (5x5 work days)

Key Experts:

- Ewa Wysocka
- Sławomir Michalak
- Szczepan Cofta
- Grzegorz Dworacki
- Paweł Kurzawa
- Rodryg Ramlau
- Maciej Krawczyński

Output:

- 5 series of lectures/workshops/seminars conducted in PUMS
- 3 series of lectures/workshops/seminars conducted in WKSMU
- Training seminars/lectures/workshops materials.
- Lecture/seminars presentations.
- The report.

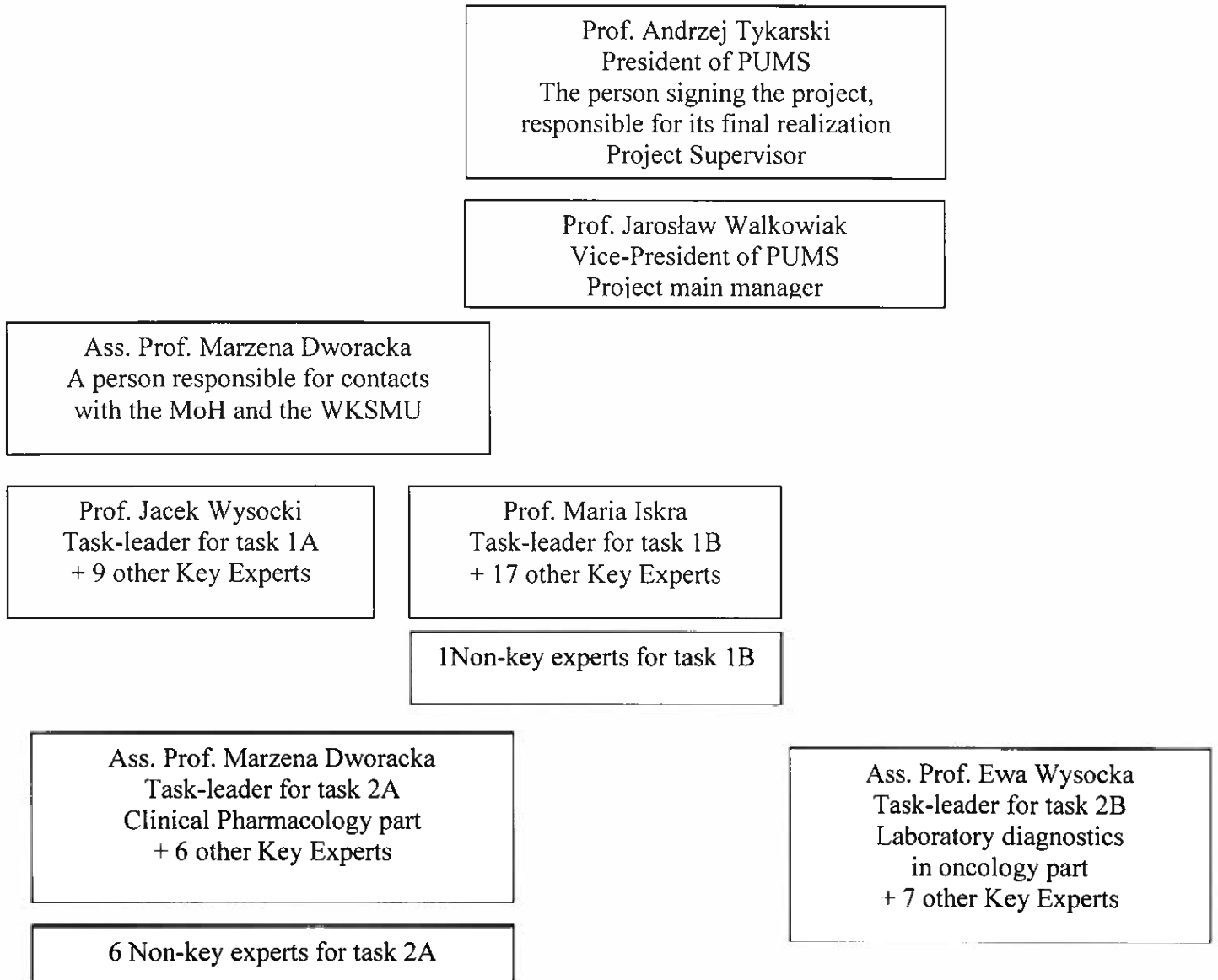
3) Development of collaborative online learning programs (courses, cycles) for students in the "Oncology: oncological laboratory diagnostics" discipline

Content

For the much easier access to the education in oncological laboratory diagnostics the on-line learning programs will be prepared with the contribution of PUMS experts and in collaboration with the WKSMU staff members of various specialties. Learning programs will make use of a set of resources, including: educational materials, the enrollment module, the forum module, homework assignments, and quizzes. The series of classes will enable the installed software to identify the most effective of all the

c) Organization and Staffing

The following scheme illustrates the structure and organization of PUMS experts contributing to the project.



employed methods of knowledge transfer, paving way for future improvements. The insertion of the learning program will be scheduled in order to improve knowledge and practical skills of proper clinical management in oncology, including selection and interpretation of laboratory tests.

The e-learning courses in oncological laboratory diagnostics will be dedicated for:

- academic staff in oncological laboratory diagnostics,
- academic staff in general medicine, internal medicine, pediatrics, gynecology, surgery and some other disciplines,
- undergraduate students,
- post-graduate students (PhD candidates, residents).

Duration of activity: June 2019 – March 2021

Inputs:

- Number of person months – 1.5
- Number of visits to Kazakhstan: 0 (all necessary issues will be managed during a visit included into the task 1B4)
- Number of visits of the WKSMU staff members in PUMS: 2 (2x5 work days)

Keyexperts:

- Beata Buraczyńska-Andrzejewska
- Ewa Wysocka
- Sławomir Michalak
- Rodryg Ramlau
- Paweł Kurzawa

Output:

- On-line program: three on-line cycles of training in oncology laboratory diagnostics
- Training seminars/lectures/workshops materials.

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