TAME

Training Against Medical Error

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D4.3, Quality Control Report

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PART I – INTRODUCTION: QUALITY EXPECTATIONS

1. INTRODUCTION

TAME – Training Against Medical Error, is the first medical education project that aims at avoiding errors by deliberately allowing students to make errors safely without damage to patients. This project introduced innovative pedagogy method and modified curricula for teaching and learning in safe environment. The core idea was in improving of teaching methods changing the national healthcare systems, thus increasing the quality of therapy and trust in medicine.

2. PROJECT OVERVIEW

Currently many curriculums are built around interactive virtual patients that allows students to not only explore, manage and solve problems but also to make mistakes. VPs are perfectly suited to teach clinical decision-making in a safe environment giving students an opportunity to experience medical error processes in a constructive manner. Therefore, one of the main objectives of the project is to develop a Virtual Patient methodology based on VP histories in order to enable future physicians to avoid most common medical errors in a safe environment before exposure to real patients.

TAME builds upon previous experience in curriculum modification and introduction of interactive VP cases for training in ePBLnet and Clinical Reasoning in CROESUS. The project is closely based on the work of ePBLnet taking scenario-based learning into a next level concentrating on the value of clinical decision-making and simulating clinical management processes safely before exposure to patients.

With the help of these existing medical education networks TAME aims to create, share and disseminate its multi-lingual and multi-cultural resources, aimed at avoiding medical errors.

WP 1. Curriculum modification to implement teaching against medical error

Within this work package an existing curricula was planned to be reviewed and analyzed in each PCU to identify the place of VP paediatric cases. Partners focused on their local healthcare needs to identify subject areas, prospective modules and clinical sites for new cases.

In the frames of TAME project the following was accomplished regarding WP1: (i) Each PCU identified curriculum modules to fit pediatric cases. The identified modules were reviewed and put into the appropriate year. (ii) 6 paediatric cases provided by SGUL were translated, adapted and tested locally. After they are modified according to the feedback all 6 paediatric cases are ready for further implementation in WP2. (iii) All PCUs reviewed available resources to train staff and designated a training lead. 6 trainers were trained by SGUL and certified according to the standards of the current SGUL course. (iv)The partners are now identifying learning outcomes to create the assessment strategy of students' achievements.

WP 2. Modification and implementation of paediatric cases to teach against medical error

This WP focuses on translation and cultural adaptation of paediatric VP cases to local healthcare culture, implementation and assessment of achievement of learning outcomes by students.

SGUL will finalize its set of paediatric VP cases exploring medical error. The trained faculty members of each PCU will then translate and adapt these cases to local healthcare culture. The cases will first be tested on staff and small number of students and the feedback will be collected. Using the feedback the cases will be modified and then implemented in each PCU for the selected groups of students in clinical paediatric attachment. The assessment instruments will be developed and used to assess the achievement of learning outcomes and students' attitude to paediatric cases.

WP 3. Development and implementation of new cases to teach against medical error

This WP focuses on using the experience from adapting, implementing and assessing the paediatric cases to train the new faculty members, develop new VP cases exploring medical error, implement them in a previously selected clinical attachment and assess the achievement of learning outcomes by students.

Under the supervision of SGUL and KI, PCUs will provide the training for new faculty members to develop the new cases exploring medical error. The trained faculty members of each PCU will then develop these cases for the selected clinical attachment. The cases will first be tested on staff and a small number of students and the feedback collected. Using the feedback the cases will be modified and then implemented in each PCU for the selected groups of students. The assessment instruments will be developed and used to assess the achievement of learning outcomes and students' attitude to new cases.

WP 4. Evaluation and Quality Control

This WP determines how project quality will be monitored, the quality procedures to be put in place, and the process for immediate, flexible and mandatory responses to be made to any evidence of unsatisfactory quality. It will also evaluate the effectiveness of all phases of the project and determine whether anticipated outcomes are met.

Quality assurance and evaluation activities will be organized by the activity leads. Each partner will be responsible for collecting data, participating in evaluation activities, submitting information data and will participate in meeting quality assurance standards and project outcomes as outlined in the quality and evaluation plans. MU will carry out the overall management of quality checks ensuring all partners are quality assuring and evaluating their activities.

WP 5. Dissemination

This WP ensures that the project and its outputs are shared with the wider community. This will be done through a project website detailing project information and resources, interaction with dissemination networks, interaction with non-medical /healthcare

communities in partner universities, interaction with wider educational community through conference presentations, journals, workshops, webinars, etc.
Dissemination activities will be built into the overall project plan and AUTH will ensure all activities from this WP are met. AUTH will manage the organization of partners' involvement in this work package. All partners will be expected to contribute to both public and private parts of the website. Partners will take part in delivering web-seminars describing their experience in the project, where possible in local languages. Specific webinars will be focused on engaging with organized educational networks, targeting their specific needs and requirements.

WP 6. Project management

The management WP aims to deliver the project in the most cost effective and timely manner. The WP will manage the overall running of the project and coordinate communication between the partners; this includes organizing partner meetings both in person and online. At the start of the project, the project plan will be agreed by partners and finalized. The consortium agreement will also be agreed and signed by all partners. Partners will also agree on how often meetings should take place and the format of these.
The project lead will have overall responsibility for the management of the project, and determine how the WP will run throughout the project. The lead will coordinate and liaise with external organizations and the EC where appropriate. The lead partner will ensure the budget is adhered to and managed as required by the EC. A yearly project report will be produced by the lead organization with input from all the partners. The report will highlight the key activities and developments during that reporting period.
Each partner will have agreed to lead a WP before the start of the project. The lead for each WP will have overall responsibility for its activities and deliverables and will coordinate with the participating organizations.

3. QUALITY EXPECTATIONS

The TAME project quality expectations were as follows:

- The project was expected to perform as described in the proposal approved by the EACEA, achieving results and delivering products as planned in due time and in line with the budget
- The project was expected to perform smoothly, with partners working together in cooperation, for the benefit of target groups , partners themselves, and the wider university context in partner countries
- The project was expected to provide high quality trainings for universities stuff in error cases development, adaptation and integration in existing curricula of partner universities; to train new stuff to work with paediatric cases and new case writing
- The project was expected to provide high quality "mentoring" between EUU and PCUs in adaptation paediatric error cases, development of new cases to teach against medical errors, monitoring local trainings of academic staff
- The project was expected to adapt paediatric error cases and develop new error cases in different medical specialties and to implement these cases in new integrated

curricula for PCUs, which can be implemented into universities after testing and during project lifetime

- The project was expected to benefit the mentioned target groups and the participating Universities in terms of skills acquisition and training in medical education
- The project was expected to prepare a plan of the development of sustainable international networks

3.1 REFERENCE DOCUMENTS FOR QUALITY STANDARDS

Internal documentation from the agency such as:

- Project Proposal and planning document
- Project reports
- Relevant policy documents and strategy papers, research and discussion papers
- Surveys and special studies
- Relevant correspondence, minutes of meetings
- External Documentation such as:
- Relevant government policy and planning documents
- Any external studies or surveys which are relevant (e.g. by carrying out a literature search on the topic)
- Information from monitoring of Deliverables were used for the review and assessment of:
- Relevant (deliverables) reports:
- Information on process indicators about the way the work was carried out, on the outputs of activities (number of people trained, etc).
- Information about the impact indicators from reports or reviews was used to assess changes
- Tools relevant to gathering and analyzing information

The quality control is based on the Quality Control Plan, the document that summarizes all attempts, strategies and methods in terms of quality assurance in TAME, and Quality Assurance checks.

3.2 QUALITY ASSURANCE OBJECTIVES – CONCEPTUAL MODEL OF QA OF TAME PROJECT

Quality control enables the project to meet its objectives through monitoring and controlling activities at all stages of the Project.

- The key aims of the Quality control are:
- Provide a summary of progress basing on the indicators foreseen;
- Capture strength and weaknesses of the Project realization;
- Capture conflicts within the Consortium;
- Compliance the timeframes of the Deliverables and Work Packages;
- Dissemination and Sustainability relevance.

3.3 DESIGN (KEY ACTORS AND INSTRUMENTS) FOR QC DEVELOPMENT

All project members are responsible for QC processes in the project. Specifically:

- The Project Coordinator (PC) has a primary role in QC of the project. He is responsible for assessing the quality of the outcomes using the indicators of progress.
- Project Steering Group (PSG). This is the highest-level management body and is constituted by one representative from each beneficiary, appointed at the beginning of the project. The PSG is responsible for all high-level decisions, and performs risk management and conflict resolution when necessary.
- Institutional and course governance:
- From each institution teachers, administrators and students contributed to QC processes.
- Contributed in preparing self-assessment report of new program.
- Accreditation agencies, National Erasmus Offices and/or Health Ministries.
- The Management and Organizational structure is created, including an external Advisory group.
- The structure is reviewed and quality assured by the Advisory group
- Processes and regulatory mechanisms for communication systems and format specifications for documents are reviewed and accepted by the Consortium
- Activities are monitored by deliverable leader and Coordinator, to ensure meeting the predefined deadlines. Significant changes or delays are monitored by the Coordinator, reasons are defined in writing for exceptional delays, and the PSG notified.
- Deliverables are checked by WP leader, and reviewed by another WP leader after deliverable deadline. Workpackages are monitored by the Coordinator, who reports to the PSG.
- Quality Assurance Checks conducted every 6 month for monitoring the overall activity
- Milestones are monitored by the PSG then during the first two years signed off by the NEO during the three monitoring visits, followed by final sign-off by the EC.

- F2F meetings
- On - line meetings

PART II – QUALITY CONTROL REPORT

Quality control of the project is an on-going process that aims to trace the project during each period if its implementation, to see the gaps, capture the weaknesses and strengths, to summarize the outcomes and the outputs at the end of the project. The quality control establishes the measurements, as well as benchmarks and indicators to verify the outcomes of each action planned. All the indicators, as well as deadlines for the activities, are prescribed in the Logical Framework Matrix and work plan of the Grant Agreement.

1 QUALITY INDICATORS

The indicators refer to the managing of the project (project costs and number of conflicts), its objectives (number of VP cases adopted, created, reviewed etc.) and results (number of dissemination events, publications, participants etc.).
Short and long term quality indicators are signed off by the highest level management body, PSG, as satisfactorily achieved, and any deviations from project plan, outputs or performance are noted. If necessary these deviations from plan are reported to the EC.
The PSG is constituted by one representative from each beneficiary.
The quality indicators are based on the short-term and long term impacts that are presented below.

1.1. Short term impact

Indicator 1: New curriculum will be enforced by, and more targeted on Training Against Medical Error
Target groups/potential beneficiaries: Faculty of PCU
Quantitative indicators: Modernized curricula in 6 PCUs
Qualitative indicators: Training Against Medical Error is implemented and targeted by new MD curricula at PCUs

Analysis: In the frames of the project the curriculums of 6 Higher Medical Institutions were analyzed and prospective modules to fit paediatric D-PBL error cases were identified.
Each PCU also modified its existing curriculum in order to implement new cases with medical errors. Different medical areas were chosen for new D-PBL errors implementation. KSMU and AMU decided to teach 5th year students in the module of general medical practice. ZSMU and BSMU were going to implement teaching on medical errors among students of the 6^{th} year of study. New cases of ZSMU covered surgery module, and new cases of BSMU related to internal medicine module. HMU developed new cases for the students of the 5^{th} and 6^{th} year of study within the module of infectious diseases. And HUMP's new cases were delivered to the 6^{th} year students in the frames of the internal medicine, obstetrics and surgery modules.
(The more detailed information on curriculum modification was gathered, analyzed and presented in the D1.1 report).

Indicator 2: Academic staff will be empowered in using new teaching methodologies, including use of VP cases, targeting medical error
and delivering skills
Target groups/potential beneficiaries: Academic Staff and Students of MD Program at PCU
Quantitative indicators: Academic staff uses at least 6 VP cases targeted at training against medical error during teaching

Analysis: The D-PBL teaching methodology was innovative for some of the PCUs. Due to this, the D-PBL trainings were provided to the academic staff of each PCUs (Kazakh, Ukrainian and Vietnamese) by the SGUL. The training were conducted in several steps: on-line (to acquaint teachers with medical errors and branch cases), F2F (to show the D-PBL teaching methodology on-site) and local trainings (the selected tutor trainers organized trainings locally to share the knowledge among the other teachers of one's PCU). The 6 pediatric cases were shared by SGUL among the partners as links and archives for downloading into the Open Labyrinth platform in English language. The translated and adapted versions of cases were successfully delivered to students in 6 PCUs in 2016-2018 academic years.
(The more detailed information on pediatric D-PBL cases implementation was gathered, analyzed and presented in the D2.2 report).

Indicator 3: Clinical reasoning outcomes to avoid medical error will be developed focusing on future practices based on patient safety
Target groups/potential beneficiaries: Students of MD Program at PCU
Qualitative indicators: Improved outcomes in clinical reasoning (based on targeted assessment using MCQs) in students of MD Programs at PCUs

Analysis: The assessment of students' performance covered the results of the pediatric and developed cases at PCUs. The analyses of the results showed that students were highly experienced in the areas covered by the cases. And the results of new cases implementation in some PCUs showed the improving skills process due to the branch cases usage.
(The results of students' assessment and evaluation are presented in the D3.4 and 4.4 reports).

Indicator 4: Academic staff will be empowered in developing, adaptation and writing of new VP cases targeting in training against medical error
Target groups/potential beneficiaries: PCUs Academic staff
Quantitative indicators: Academic staff adapted at least 6 pediatric VP cases targeted on TAME
Academic staff developed/wrote at least 6 new VP cases targeted on TAME in selected subject area

Analysis: 6 pediatric repurposed D-PBL cases with the outlined learning objectives and 10 deadly errors (Bravado/Timidity, Insufficient skills, Poor communication, Poor team working, Playing the odds, Ignorance, Sloth, Poor triage, Fixation/loss of perspective, System error) were delivered by SGUL to the PCUs divided into a tutor version with introduction and commentaries and student's version for 2 tutorials. Each VP case consisted of several very different paths that focused on 3-4 key decision points.

Taking into account diversity of nations involved into the Project, and thus differences of view of the world and medical systems of the Partner Countries the important part and the first step of the pediatric cases implementation in each PCU was to repurpose, reconsider and adapt the cases to local health care culture.

The adaptation process covered:

- Linguistical aspects;
- Ethical aspects;
- Geographical aspects;
- Healthcare aspects.

Each PCU formed a working group on translation, adaptation and revision of the cases.

KSMU translated to Russian and Kazakh languages.

AMU and ZSMU translated to Russian language, BSMU translated to Ukrainian language, and Hue UMP and HMU translated the cases to Vietnamese language.

After the trainings on D-PBL methodology and trainings on D-PBL cases writing delivery, and the first year of D-PBL cases realization the academic staff of the PCUs supported by the SGUL specialists were empowered for developing D-PBL error cases in the selected area.

Creation of new cases allowed the PCU to continue problem-based learning with medical errors among students in another medical specialty, to involve into the project more specialists to spread information and share experience in this technology of teaching, train more students.

The learning outcomes for new cases were identified in time, all 10 medical errors present in cases of each PCU. The trainings on writing new cases were conducted.

After the careful analysis of medical field, choosing topics for new cases, developing learning outcomes for them, training on VP cases with medical errors creation (December in London and local trainings in each PCU) the working groups in each institution started creation of VP cases. After the process of creation each partner conducted internal and external reviews of their cases. KSMU exchanged cases with AMU. According to AMU's recommendations, KSMU made some modifications to the case structure.

ZSMU exchanged their cases with BSMU. ZSMU has made some spelling corrections and technical errors. BSMU has improved diagnostic and therapeutic aspects.

HMU and Hue UMP had to exchange the cases between each other.

Indicator 5: Students will be satisfied with trainings, and their performance to avoid medical errors is enhanced

Target groups/potential beneficiaries: Students of MD Program at PCU

Quantitative indicators: At least 60% of students show high satisfaction by TAME, provide positive feedback and own performance to avoid medical errors

Analysis: Before the implementation the VP cases went through the validation process: they were tested internally by the staff and students and externally by the staff of other PCU within the country (KSMU-AMU, ZSMU-BSMU, HMU-Hue UMP). After the testing, the cases were modified basing on the feedbacks. The pediatric D-PBL cases were delivered to the students and their attitude was evaluated through on-line questionnaires A1 Learner experience of pediatric cases, and their performance was assessed through A2 Learner performance relating to Paediatric cases. The students highly valuated the content of the cases and its importance and the assessment of their performance showed better results of MCQ for students engaged in D-PBL tutorials concerning the areas covered by the cases.

Indicator 6: Active collaboration within created TAME project partners` network, sharing educational materials
Target groups/potential beneficiaries: TAME project partner institutions
Qualitative indicators: Shared educational materials among members of TAME project partners` network

Analysis and results: The process of active collaboration started from the very beginning of the TAME project with the PBL trainings delivered by ZSMU to BSMU partners in February, 2015. As a partner who had experience in ePBLnet Project of TEMPUS programme it was useful to share good practices with the other Ukrainian partner.
As a part of sustainability strategy, it was agreed to share the created educational materials between the Kazakh and Ukrainian PCUs.

1.2 Long term impact

Indicator 1: TAME outcomes will develop and implement educational culture based on patient safety through training against medical error using VPs that will be spread across undergraduate level of MD education through enhancing it on postgraduate training levels, as well as on continued professional development.
Target groups/potential beneficiaries: PCUs` undergraduate and postgraduate (including residency) programs` staff and students.
Quantitative indicators: Implemented staff development plans at 6 PCUs focused on developing skills in modernization and adaptation of further modules/components of their own curricula.
Qualitative indicators: Reports showing enhanced patient-doctor relationships, resolving barriers in full disclosure of medical errors in PCUs` undergraduate and postgraduate (including residency) programs` staff and students.

Analysis and results: The implementation of the Project influenced the tutors' styles of teaching and broadened the list of pedagogic tools for delivering material that can change the attitude In the long-term perspective

Indicator 2: TAME project will create network of Universities (institution), which will enforce sustainability of the project outcomes.

Target groups/potential beneficiaries:

Qualitative indicators: Signed multi- and bilateral Memorandum of Understandings among, as well as outside TAME partnership

Analysis and results: The Network of Universities created within the TAME project was supported by the signing bilateral Memorandums of Understanding among the members of the Consortium and activities beyond it.

The MOUs were signed between KSMU and ZSMU, KSMU and BSMU, BSMU and AMU, ZSMU and AMU, ZSMU and HUMP, BSMU and HUMP.

Karaganda State Medical University has signed MOU with HMU for exchange of Master degree student in 2017 - May 2018 academic year.

Additionally, a MOU was signed between ZSMU and Medical Faculties Network of the Czech Republic and Slovakia (MEFANET) for sharing good practice in innovative pedagogical methodologies within conferences and MEFANET journal publications.

Within the network, KSMU invited personnel of SGUL as experts for organizing trainings for Academic Staff of KSMU and other higher medical institutions of Kazakhstan.

Beyond the network, Tajik State Medical University named after Abuali Ibn Sino, Tajikistan, Dushanbe, in the frames of the World Bank grant, invited KSMU to conduct a course on PBL for trainers and on D-PBL error cases creation. (The project starts in January 2019).

1.3 Managerial indicators

The financial situation and application of project funds were strictly monitored and reported.

The project cost reports were delivered to the responsible person from the coordinating institution twice a year at every F2F meeting.

The expenditures based on the Guideline for the Use of the Grant and principles of actual and unit costs.

For proper implementation of the Project, it was agreed that each Partner Country had to purchase equipment taking into consideration the minimum hardware equipment specification provided by Masaryk University in January 2016, and equip the rooms for tutorials and trainings.

According to the Guideline for the Use of the Grant, each Partner Country had to announce a tender, install the purchased equipment and register each item locally.

All partner country Universities have successfully purchased the obligatory equipment and provided the supporting documents for the tender: KSMU ended tender in August 2016; AMU purchased the ones in June 2016; BSMU completed a tender on purchasing of

equipment on December, 2016; ZSMU purchased the equipment in June 2017. HMU and Hue UMP finished the tendering procedures for purchasing equipment in February 2017. The rooms were equipped for further teaching and training activities.

Obstacles met while purchasing equipment:

- Vat exemption
- The Vietnamese Universities could not receive the Vat exemption certificate. According to the local decision within the Vietnamese Universities, it was agreed to cover these expenses from their own Universities' resources.

Level of management: the Administration of the Universities.

For Ukrainian universities the Vat exemption required the registration of the project in the Ministry of Trade and Science of Ukraine. The process of collecting necessary documents took time

Level of management: the Administration of the Universities, The Erasmus+ Office in Ukraine, Ministry of Education of Ukraine, Ministry of Trade and Economics of Ukraine.

- Tender procedure/ Lack of proposals/ Unconscientious of suppliers

ZSMU has met the difficulties with the newly adopted system for tender procedures "Prosoro". The question was that 2 proposals were enough for completing the tender according to the Ukrainian legislation, according to the Guideline for the Use of the Grant 3 proposals were a minimum. For this reason and some other reasons concerning irresponsibility of some suppliers and delay in documents provision the tender procedures had to be repeated.

Level of management: Treasury of Ukraine, Administration of ZSMU

- Hardware equipment specification

The minimum required characteristics were provided, but some equipment characteristics could be not available in a country of the partner university or could cost more than prescribed in the financial tables. Not essential characteristics were neglected.

Level of management: Administration of ZSMU

After the compulsory purchasing procedures some Partner Country Universities requested European Commission for approval to buy additional equipment that could be useful for the Project implementation and sustainability purposes. The consortium members used for these purposes funds left in the item "Equipment" due to savings in prices during the first tendering procedure. The PCUs prepared lists of the equipment needed and justification for its purchase. Authorization letters have been received from: 2106/2018 for HMU, 30/04/2018 for BSMU, 26/02/2018 for ZSMU, 07/02/2017 for AMU, 12/01/2017 for KSMU. After the approval of the EC the partners started the tender procedures for the following equipment.

Table 1. Additional equipment purchased by the PCUs

	KSMU	AMU	ZSMU	BSMU	HUMP	HMU
Additional equipment bought buy each PCU	Computer (2 items) Multi-function Printer (1 item) Camera (1 item) Video Camera (1 item) Tablets (10 items) Smart Board (1 item) Laptop (3 items)	Laptop (1 item) Multi-function Printer (1 item) Camera (2 items)	Android Tablets (10 items) Mini Laptops (4 items) Power banks (25 items) Smart board (1 item) Photo camera (1 item)	Smart board (1 item)	-	PC computers (10 items) Cartridges for printer

2 PROJECT DELIVERABLES

All Work packages have Team for monitoring the activity and quality of the work done by partners, to review concrete outputs of the work package (deliverables) depending on quality indicators. WP leadership is distributed among EU Partners. They report to the coordinator, oversee WP objectives, ensure that deliverables are achieved and obstacles overcome. Each WP Leader is also responsible for resolving WP internal problems and reporting to the PC.

Deliverable Leaders were chosen from the consortium based on their experiences and skills. They are responsible for delivering the project activities, and preparing deliverable reports in a timely fashion. They report to the WP leads on the progress of each deliverable. These have been appointed at the kick off meeting.

Project deliverables were expected to be ready at the specific date, as indicated in the table below:

Table 2: Deliverables' deadlines and reporting dates

Deliverable	**Deliverable Due to**	**Deliverable report**	**Stage**	**Date**	**Comments**
D1.1.	14.02.20	14-04-201	Final	February	

	16 (M5 Year 1)	6 (M7 Year 1)	version provided	2016	
D1.2.	14.01.2016 (M4 Year 1)	14-03-2016 (M6 Year 1)	Final version provided	January 2016	The report was provided together with the D2.1
D1.3.	14-03-2016 (M7 Year 1)	14-05-2016 (M9 Year 1)	Final version provided	March 2016, January 2017	The tendering procedure took more time that it was expected due some reasons described above. The draft of the report was prepared in time, then it was updated by the PCUs.
D1.4.	14-03-2016 (M6 Year 1)	14-05-2016 (M8 Year 1)	Final version provided	March 2016	
D2.1.	14-05-2016 (M10 Year 1)	14-7-2016 (M12 Year 1)	Final version provided	January 2017	The report was provided together with the D1.2
D2.2.	14-05-2018 (M8 Year 3)	14-08-2018 (M10 Year 3)	Final version provided	June 2016	
D2.3.	14-05-2018 (M8 Year 3)	14-08-2018 (M10 Year 3)	Final version provided	June 2016	
D3.1.	14-01-2017 (M4 Year 2)	14-04-2017 (M6 Year 2)	Final version provided	March 2016, January 2017	Provided together with 1.3
D3.2.	14-06-2017 (M9 Year 2)	14-08-2017 (M11 Year 2)	Final version provided	August 2017	
D3.3.	14-04-2018 (M7 Year 3)	14-07-2018 (M9 Year 3)	Final version provided	August 2018	Report delayed due to changes in D-PBL cases delivery of Vietnamese partners
D3.4.	14-05-2018 (M8 Year 3)	14-08-2018 (M10 Year 3)	Final version provided	December 2018	Report delayed due to translation process
D4.1.	14-9-2018 (M12 Year 3)	14-08-2018 (M12 Year 3)	Final version provided	April 2016	
D4.2.	14-07-2018 (M10 Year 3)	14-08-2018 (M12 Year 3)	Final version provided	May 2016	
D4.3.	14-01-20	14-08-201	Final	Dec.	The activities were carried out

	19 (M11 Year 3)	8 (M12 Year 3)	version provided	2018	till the end of the Project
D4.4.	14-01-2019 (M12 Year 3)	14-08-2018 (M12 Year 3)	Final version provided	December 2018	The activities were carried out till the end of the Project
D5.1.	14-05-2016 (M8 Year 1)	14-08-2016 (M10 Year 1)	Final version provided	March 2016	Current version 1.3 (update from 1.2: 10th October 2018
D5.2.	14-9-2018 (M12 Year 3)	14-08-2018 (M12 Year 3)	Final version provided	December 2018	The activities were performed and results collected till the end of the project
D5.3.	14-9-2018 (M12 Year 3)	14-08-2018 (M12 Year 3)	Final version provided	December 2018	The activities were performed and results collected till the end of the project
D6.1.	14-12-2015 (M3 Year 1)	14-03-2016 (M5 Year 1)			
D6.2.	14-9-2018 (M12 Year 3)	14-08-2018 (M12 Year 3)			Handbook provided Finances were reported twice a year
D6.3.	14-9-2018 (M12 Year 3)	14-08-2018 (M12 Year 3)			Finances were reported twice a year

3 QUALITY ASSURANCE CHECKS

According to the Quality control plan quality assurance checks should be conducted during the project realization. Thus, checks are aimed at summarizing the progress of the project. Up to date four checks were conducted.

Quality assurance activities were organized by the activity lead - Karolinska Institute, Sweden, including the tools to be used and when the checks would take place. Each partner was responsible for submitting information and participating in quality assurance activities.

Table 3. Analysis and results of QA checks

Check No	**Date**	**Analysis and Results**	**Other comments**

Check 1	**September 20, 2016.**	The Consortium Agreement is signed The Project web-site was developed All the Partners have analyzed the curriculum The pediatric cases were shared for translation and modification Training rooms were identified by all partners None of WPs was completed	
Check 2	**10February, 2017**	All the Partners have translated and repurposed the paediatric cases The plan for training the staff to do case writing has been implemented None of WPs was completed	
Check 3	**April 10, 2017**	**WP2** D 1.3 – equipping of the training rooms is in process at ZSMU, D 1.4 - the multiple choice questions are not uploaded in the appropriate platform. **WP2** Paediatric cases are translated, modified, tested and delivered to students in all Partner Country Universities. Assessment instruments are in the process of translation and modification in some institutions. **WP3** . The learning outcomes for the new cases in other subject were defined. The curriculum plan is not modified in Hue UMP. The new cases are in the process of creation in ZSMU and BSMU. All other partners confirmed the completeness of new cases creation process. Cases are not tested and evaluated, the feedbacks from students and tutors are not obtained. **WP4** - quality control and evaluation plan are provided, reports are in process of development. **Dissemination WP** is an on-going process . The dissemination strategy is identified and developed. Articles, publications, oral presentations, conferences, workshops are captured by the D and WP leaders. **WP6 .** All partners confirmed the PA signing Summing up, as of APRIL 2017 – none of	**HMU hasn't participated**

		WPs is completed.	
Check 4	**October 10, 2017**	The questions concerning the Deliverables that have been already completed were removed As of October 10, D1.3 is not completed D1.4, D2.1 and D 2.2 are completed. D 2.3 (Assessment instruments) is in process. D3.2 is not completed. All Universities have created new cases, but some Institutions have not tested, evaluated and modified them. Only AMU have delivered cases to students. D3.3, 3.4 not signed off. D4.2 is completed. D4.1, 4.3 and 4.4 are in process.	**All partners participated**
Check 5	**April 18, 2018**	According to the results the WP1 and WP2 were completed, D3.2 and D3.3 and D3.4 of WP3 were still in process. Partners identified creation of new D-PBL error cases in the chosen areas, finished equipment purchase, regular meetings as strengths of the development stages of the project, and peculiarities of tendering procedure and differences in case delivery at Partner Country Universities as weaknesses of the project stages realization. D4.3 and D4.4 not completed. D5.2 and 5.3 were in progress, as well as D6.2 and D6.3. The partners indicated no conflicts in management of the Project.	9 partners responses received
Check 6	**September 28, 2018**	For the Final Assurance Check 50 questions were proposed. A number of questions regarding the sustainability of the Project were added besides the standard questionnaire. The first section of questions dealt with the deliverables implementation and report creation. Totally 10 responses were received, stating that D3.2 and D3.3 were completed, they had appropriate form and were provided in the correct format for distribution. The assessment instruments for	**All partners participated**

		measuring students' performance in the newly created cases were developed, the template report for D3.4 was provided in correct format but the WP3 itself was still on-going due to the students' performance analysis. The template for D4.3 and D4.4 reports are created in appropriate format and shared among the partners, capturing weaknesses concerning rooms equipping and lack of experience and teamwork and for overcoming difficulties. All partners agreed that the dissemination strategy was identified and developed, the project outcomes were presented both internally and to broader medical education community, the number of participants at events were captured, the number of internal/external workshops and presentations were given and captured, the Project outcomes were published locally and internationally, number of articles and other publications were captured, number of brochures printed and the number disseminated captured. D5.2 and D5.3 both used correct format and were in process of finalizing. The WP was completed but the report for D5.2 was in process. The managing deliverables, i.e. D.6.2 and D6.3, also used the appropriate form and shared among the partners. The interviewers responded that no conflicts were identified but if they were online and F2F meetings with partners could help to discuss and solve any conflicts (SGUL). The WP6 and the Deliverable reports were in process. All partners confirmed presence of dissemination plans for TAME project after its termination and provided their ideas as a response to the open question (see section **Dissemination and Sustainability plans** in this report for the full answer to the question). All partners confirmed strong desire to continue using VP cases in their institutions in different clinical modules and provide trainings to the academic staff to popularize the D-PBL methodology wider; some of partners pointed plans to provide trainings for VP case writing. The network created will be sustained by	

		future collaboration between the partners via project proposals submission, mobility activities, joint publications of project outcomes.	

4 COMMUNICATION. HUMAN RESOURCES.

This section depicts the interconnection between all the participants of the Project realization, both within the Consortium and locally within each PCU. It depicts the amount of staff involved by the end of the project (How many students were involved and tutors trained?), as well as the organization, strengths, approaches in online and F2F trainings of staff (See **ANNEX 1** for Interconnection charts of departments involved in the Project realization within each PCU).

As the level of PBL knowledge among PCUs varied, the basic training was mandatory for those partners who had no experience in using VPs. A training lead was designated in each PCU who was trained to facilitate the error cases. Each PCU identified teams of training participants. As 3 PCUs out of 6 already had a previous experience in PBL, the process was random but certain criteria were suggested. F2F trainings were arranged in MECs of each country for tutors from both national universities. Each participant was given a certificate; strengths and weaknesses of each tutor were identified; a training lead of each PCU was designated. Dr. Ella elaborated on this process in D1.3.
According to the project plan, 2 years of paediatric VP cases and 1 year of new VP cases implementation were foreseen. For different reasons more and more staff was involved into the Project, incl. students, tutors, etc.

Table 4. Direct beneficiaries of the Project per Institution

	Students	Tutors/Tutor Trainers	Case writers/ adaptors	Administrative staff /technical support etc.
KSMU	**1 year** Paediatric cases (Testing of cases – 36 students) ***2016-2017*** *Autumn term:* Branch - 32 students of the Kazakh groups (24-female, 8–male) + 32 students of the Russian groups (23 - female, 9 - male). **Total: 64 students** Linear – 32 students of the Kazakh groups (20- female, 12 -male) + 32 students of the Russian groups (24 -	20 (14 tutors+6 newly involved tutors)/1	5/12	19/2

	female, 8 - male). **Total: 64 students** *Spring term:* Branch - 9 students of the Kazakh group (6 - female, 3- male) + 8 students of the Russian group (6 -female, 2 male). **Total: 17 students** Liner - 10 students of the Kazakh group (4 - female, 10- male) + 10 students of the Russian group (6 -female, 4 male). **Total: 20 students** **2 year (New cases)** Testing of new GP cases – 36 students *2017-2018* *Autumn term:* Branch new GP cases: 16 students of the Kazakh groups (10-female, 6–male) + 16 students of the Russian groups (10 - female, 6 - male). **Total: 32 students** *Spring term:* Branch new GP cases: 16 students of the Kazakh groups (13-female, 3–male) + 16 students of the Russian groups (12 - female, 4 - male). **Total: 32 students** **2 year Paediatric cases** *Autumn term:* Branch new cases: 18 students of the Kazakh groups (13-female, 5–male) + 16 students of the Russian groups (8 - female, 8 - male). **Total: 34 students** *Spring term:* Branch new cases: 18 students of the Kazakh groups (13-female, 5–male) + 20 students of the Russian groups (19 - female, 1 - male). **Total: 38 students**			
AMU	**1 year**. Paediatric (Testing of cases –12 students) Branch –32 students (22-female, 10–male) Linear – 32 students (23- female, 9 - male) **2 year (New cases)** Testing of new cases – 21 students	12 (6 tutors+6 newly involved tutors)/1	6/6	6

	Branch (new cases) - 31 students (19-female, 12- male)			
ZSMU	**1st year** **Pediatric cases** (testing - 16 students) Branch – 32 students (22 female, 10 – male) Linear – 32 students (26 female, 6 male) **2nd year** **Paediatric cases** Branch group - 33 students (22 female, 11 male) **Surgical cases** (testing - 24 students) Branch group - 32 students (18 female 14 male) **3rd year** **Paediatric cases** Branch group - 33 students (25 female, 8 male) **Surgical cases** Branch group - 32 students (19 female 13 male)	13 (11 tutors+2 newly involved tutors)/1	5/5	23
BSMU	**1 year. Paediatric cases:** Testing of cases – 15 students; Branch – 32 students (23 female, 9 male); Linear – 34 students (21 female, 13 male). **2 year. Internal medicine cases:** Testing of cases - 21 students, Branch group - 38 students (27 female, 11 male) Linear group - 35 students (28 female, 7 male) **Paediatric (2 year)** - branch cases - 29 groups (including 8 groups of foreign students). Total 42 classes, nearly 280 students.	10 (8 tutors+2 newly involved tutors) /1	11 (6/5)	8

HMU	**Year 1: Paediatric cases** Testing cases – 8 students Branch cases: 28 students Linear cases: 28 students **Year 2: Paediatric cases** Branch cases: 28 students (13 females/15 males) **Year 2: Infectious Diseases cases** Testing new cases: 14 students (6 females/8 males) Branch cases: 36 students (6 groups)	19 (13 paediatric tutors + 6 newly involved tutors)/1	6/6	10
HueU MP	**1st year.** Paediatric cases Testing case: 15 students Branch – 32 students (17 females, 15 males) Linear – 32 students (17 females, 15 males) **2nd year.** 2 Internal medicine cases, 2 Surgery cases, 2 Obstetrics cases (New cases) Testing case: 15 students Internal Medicine Case (Branch group - 24 students (15 females, 9 males)) Surgical case (Branch group – 17 students (12-female, 5-male)) Obstetrics cases (Branch group - 15 students (12-female, 3-male))	36 (8 tutors + 28 newly involved)/ 2	10/12	2/2

The internal communication between the Consortium members was realized through several communication tools listed and specified below:

Table 5. Communication between Consortium members and stakeholders

Communication Type	Medium	Objective of communication	Owner/ Leader	Audience	Freq./amount	Documentation
Kick-off meeting	Face to Face	The project aims and milestones introduced. Partnership Agreement was	KSMU/ SGUL	All beneficiaries	once	Meeting minutes

		shared for signing				
Project TAME meetings	Face to Face	Project status updates, interim and final reports presentations, financial reporting, Synchronous discussions			7 meetings	
Project Team meetings online.	Omni Join	Project status updates, Synchronous discussions	KSMU	All beneficiaries	1-2 per month/29 in total	Meeting minutes
WP and deliverable meetings online	Omni Join, Skype,	Discussion, Co-development of activities, and review of outputs		WP leader, Deliverable leader, management	On demand	
Daily text communication	Skype, email, phone, WhatsApp, Facebook				On demand	
Shared electronic storage	Drop box	File sharing, electronic storage				
Shared electronic storage, external communication - dissemination	TAME website	Dissemination, file sharing and storage	MU	public		
External communication	Conferences	Dissemination		All beneficiaries	On demand/ Moderation of 11 Conferences, oral, poster participation and publishing on the	Conference papers, journal papers, presentations, project leaflets

					conference (dissemination events and publications are specified in D5.2 and D5.3)	

5 DISSEMINATION AND SUSTAINABILITY

The main aim of the dissemination activities was to share the TAME Projects ideas and outcomes at local, national and international levels to all target stakeholders. The overall dissemination strategy was created by the beneficiaries to present its objectives and responsibilities of partners involved.

The control of dissemination activities was based on dissemination reports and statistical data provided by the Deliverables leaders during the F2F and on-line meetings.

The target audience included Steering Group, Academic Institutions, Academic Staff of HEIs, Medical Doctors, Students, NGOs, Relevant networks and clusters Media (journal publishers etc.), EU bodies, Local/National authorities in Partner Countries (ministries, agencies etc.).

The communication was organized through the F2F and regular on-line meetings, Skype meetings, website, deliverable reports, conferences, seminars and workshops.

6 PCUs have published information leaflets for the TAME project to present them on more than ten conferences at national and international levels.

11 conferences were moderated by members of TAME project: 5 at the international, 4 at the national and 2 at the institutional levels;

During the Project 79 works were published, including 7 articles, 1 manual, 71 abstracts.

The project TAME website has been created (http://www.tame-project.org) and has been operating since February 2016 giving a summary of the project, an overview of the project partners, original news, and samples of the VP scenarios. The news section continues to be updated on a regular basis. During the project the web-site was updated once in a month and after its termination it was agreed to be updates once in 3 months, led by the responsible team from MUNI. The data will cover the dissemination events and related projects. This web-page will be a valuable basis for wide spreading of D-PBL methodology and error WP cases beyond the Project timelines.

From 30.05.2016 to 28.11.2018 the project website was visited 1562 times by 956 unique visitors and equaled totally to 5069 sessions, an average duration of which was 04 minutes 26 sec proving that the content presented was quite interesting to the viewer. Site visitors were from 10 countries, including countries beyond the Consortium of the Project (France, India, USA etc.)

The official website provides also access to the Section Google Drive containing folders/documents that are visible only for members of the Consortium to share the main documents and reports among the beneficiaries.

Moreover, a local website has been created at each partner country institution providing information about the Project and main stages of its realization.
For fast and easy communication, teaching/training and dissemination purposes Facebook project group Training Against Medical Error: Clinical Tutors training was created. (https://www.facebook.com/groups/978569368878055/). It is run by E. Poulton, St. Georges´s, University of London.
The search query “TAME project” in the Google shows approximately 26 000 000 results first 5 of which are referred to the Homepage of the official website, TAME Facebook page, BSMU, KSMU and ZSMU local TAME pages.

In all communication and promotional material the rules of visual identity were respected and the EU flag and the TAME logo were displayed.

In the future, the project participants are planning to widely disseminate the project results in order to transfer knowledge and experience gained to other medical educational institutions for the purpose of improving the training of future doctors. There have been made plans to use the following types of dissemination activities: project general and local websites, flyers /brochures, programme meetings, conference presentations and posters, workshops, online discussions, journal articles, press releases etc.

Table 6. Responses of the PCUs and PCs concerning dissemination plans after the termination of the project in the final QA check

Institution's name	What are your dissemination plans?
Karaganda State Medical University	Karaganda State Medical University established Center of Transfer of Educational Technologies under Ministry of Health of Kazakhstan. TAME and D-PBL technology course was created and launched for teaching Kazakhstan medical teachers.
Zaporozhye State Medical University	Dissemination events, educational conferences (MEFANET, Annual conferences on Telemedicine at ZSMU...)
SGUL	The use of virtual scenarios will be captured and disseminated via the WAVES network and future projects
BSMU	Implementing pediatric and therapeutic cases in Ukrainian into educational process, informing the Ministry of Education about the results of Erasmus+, organization and participation in conferences, congresses, exhibitions, seminars, workshops of PBL at annual congress BIMCO at BSMU
Masaryk University	Based on communication channel built during the project, we plan to extend new cooperation in a form of further international projects.
Hanoi Medical University	We planned to organize internal and external workshops introducing about the TAME project and the new teaching method, presenting the outcomes and publications related to this new teaching

	approach.
Hue University of Medicine and Pharmacy	The VPs will be integrated in the New renovation curriculum of the university. The VPs is now preparing to submit to the Ministry of Health for A new Scientific and Technology Mission 2019
Astana medical university	Writing edition, elective discipline medical errors in clinical practice for 6-7 course students, modify working syllabus
KI	Continuous communication and support to the partners to maintain the VP cases and provide any further support they may need to create new scenarios.
AUTH	Publication of results, Scientific analysis of affective learning and behavioral analysis. Networking. Dissemination in scientific conferences, Organization of TAME workshops for education of healthcare practitioners

The core objective of the project sustainability assessment is to make sure that the creation of a network of institutions promotes future collaboration for sharing educational experience and continued usage of the project outputs.
The tools for gathering and analyzing information will be direct observation, checklists, reports and reviews.
The detailed plans of the Consortium members for sustainability are presented in the Sustainability strategy. The detailed data on dissemination strategy and dissemination results are presented in deliverable of the WP5.

6 CONFLICTS WITHIN THE CONSORTIUM

The report is to capture all conflicts and ways of its resolving. No crucial conflicts were identified during the Project implementation that was stated in the Final Quality Assurance Check by the participants. But there were some meaningful changes that have not effected the project realization.
During the project implementation the necessity appeared to change the composition of the Consortium due to the withdrawal of the Malaysian partners. With the consent of all Partner and Programme Countries, and on approval of the Educational, Audiovisual and Culture Agency of 26.07.2016 in Brussels two Vietnamese partners joined the Consortium.
Due to this situation the project implementation was stopped for a month and a half, and for proper finalizing of the project the prolonging of the Project for 3 month (till 14 January, 2019) was requested.
Advisory board aiming to provide advice on the solution of any potential conflicts and providing independent decisions in cases where partners could not reach a common agreement was appointed but not used.

7 SUMMARY AND CONCLUSIONS

All activities throughout the Project were monitored and controlled on different levels, including Project Coordinator, Project Steering Group, WP leads and Deliverable leaders.

The indicators and milestones were followed, the activities set in the logical framework successfully performed, the results on its implementation gathered in the deliverable reports.

The outcomes of the project were collected, analysed and presented to the broad audience at the conferences, webinars, workshops, as well as through social networks and official web-pages on local, national and international levels.

The quality of the products produced was provided by internal and external reviews. And the overviews of the created D-PBL cases are in free access on the official Web-site of the Project.

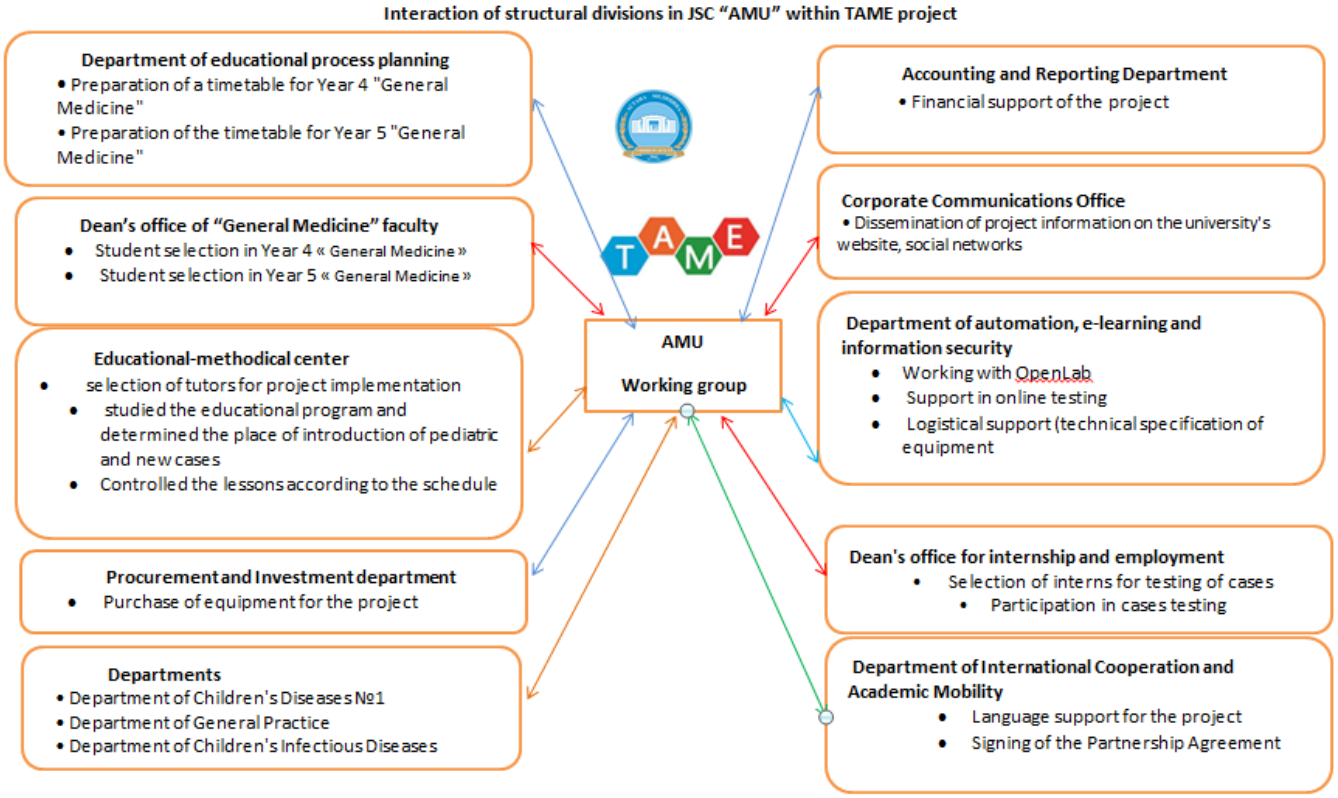
The Network created within the Consortium and strengthened by the MOUs signed will be a sufficient ground for further researches and practices on realization of D-PBL methodology and medical error teaching tool, preparing new joint projects and conducting mobility activities.

New world trends in the sphere of education, new realities and fast development of society encourages the medical schools to re-evaluate their learning environment and modernize medical education through implementing teaching against medical errors using interactive VPs into their curriculum. Having got the cases with VPs and being aware of the essence of the training against medical error technology each Partner-University can continue implementation of the technology after the Project is completed to provide sustainable development of Project's results.

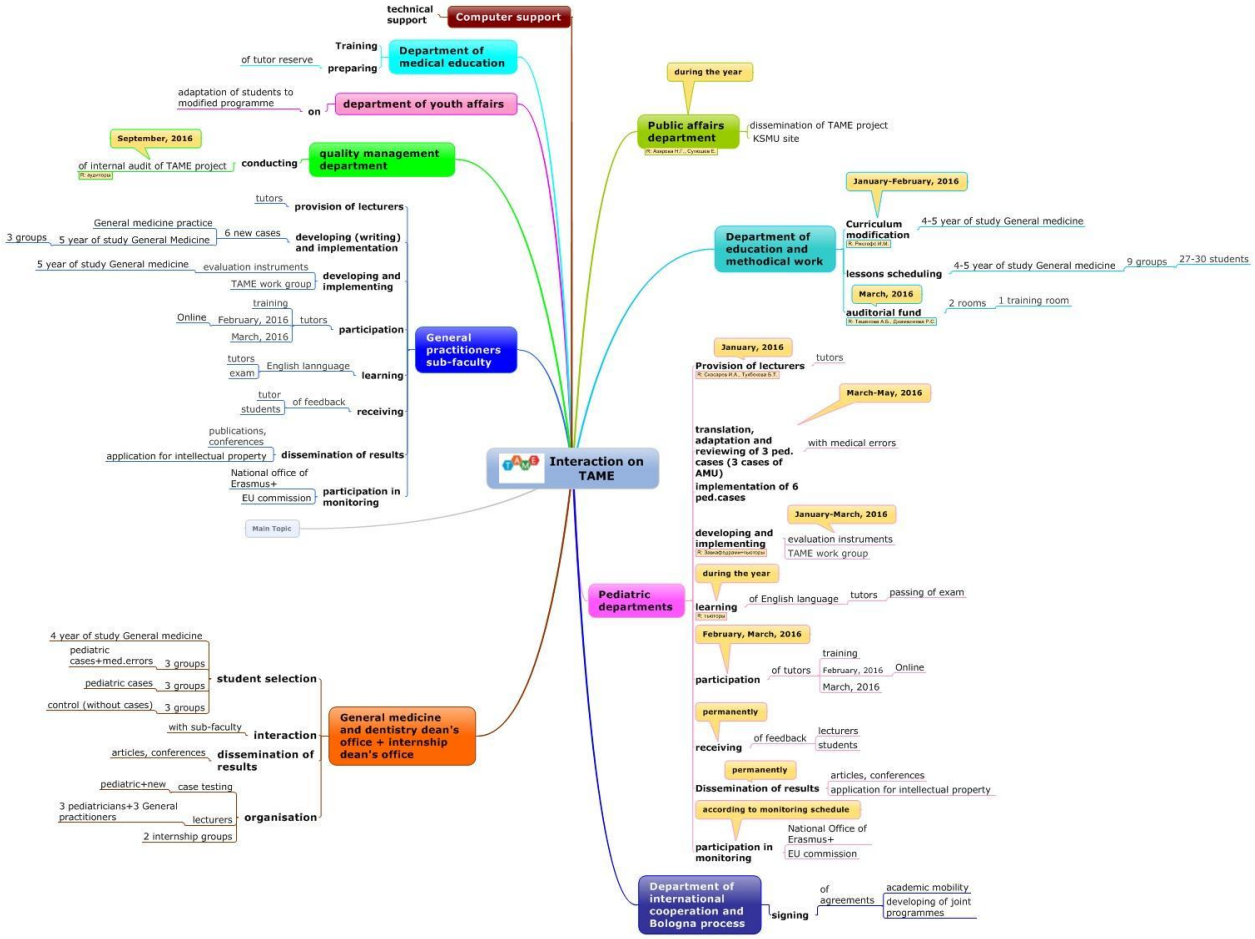
8 ANNEXES

ANNEX 1. Charts of interconnection between the stakeholders within the institution in the frames of the Project

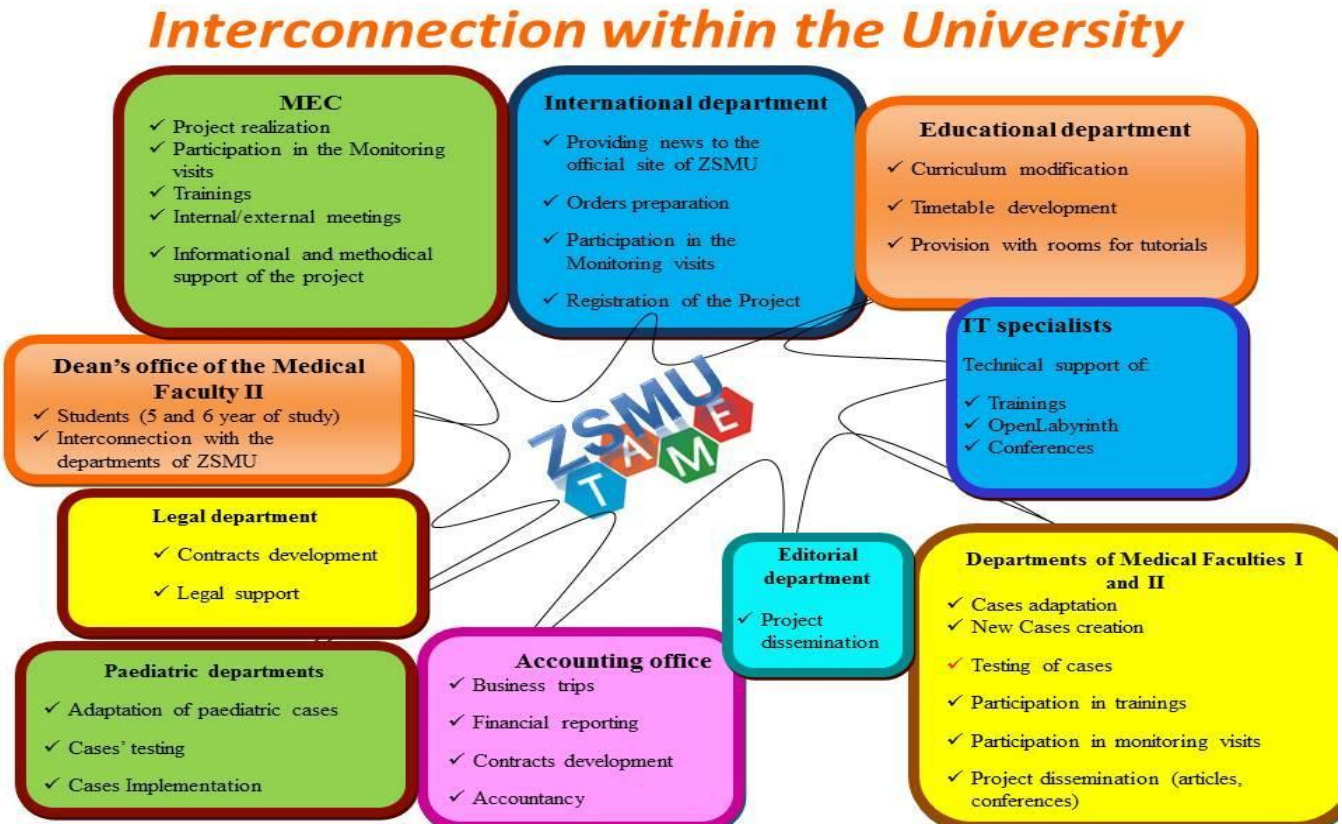
Astana Medical University - AMU



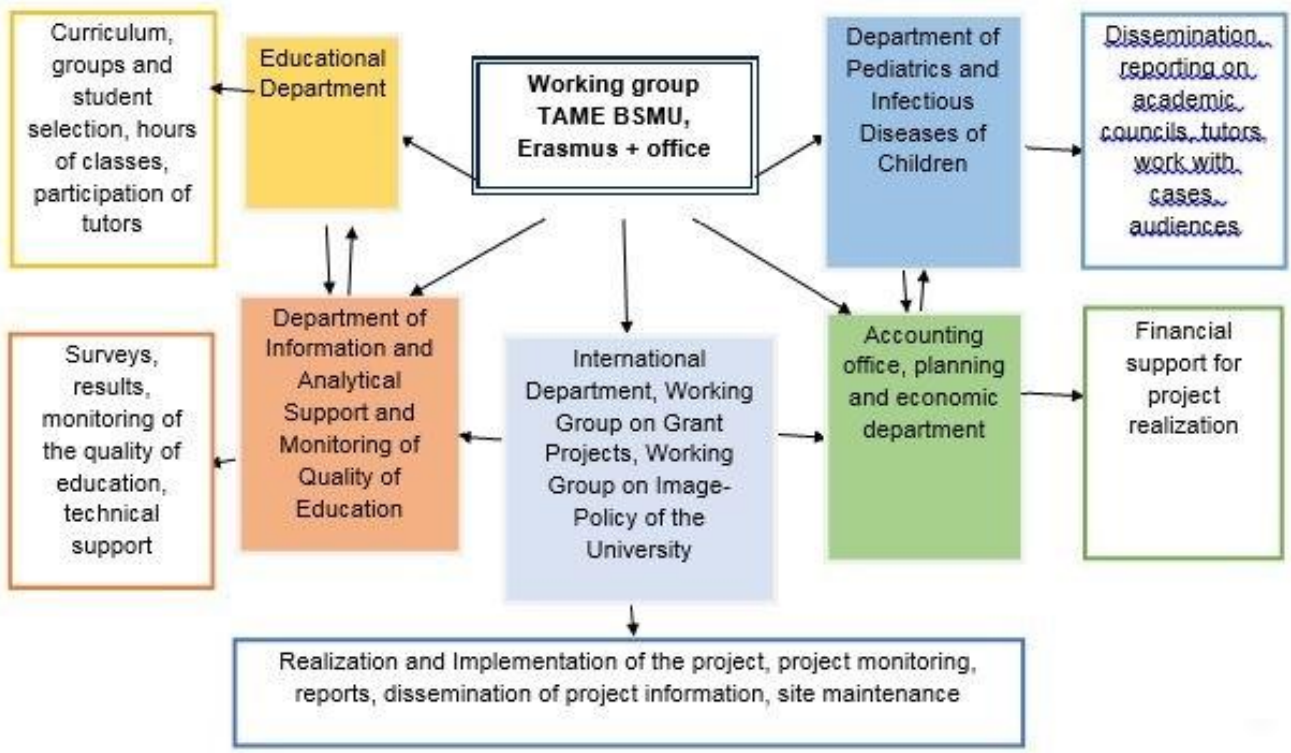
Karaganda State Medical University - KSMU



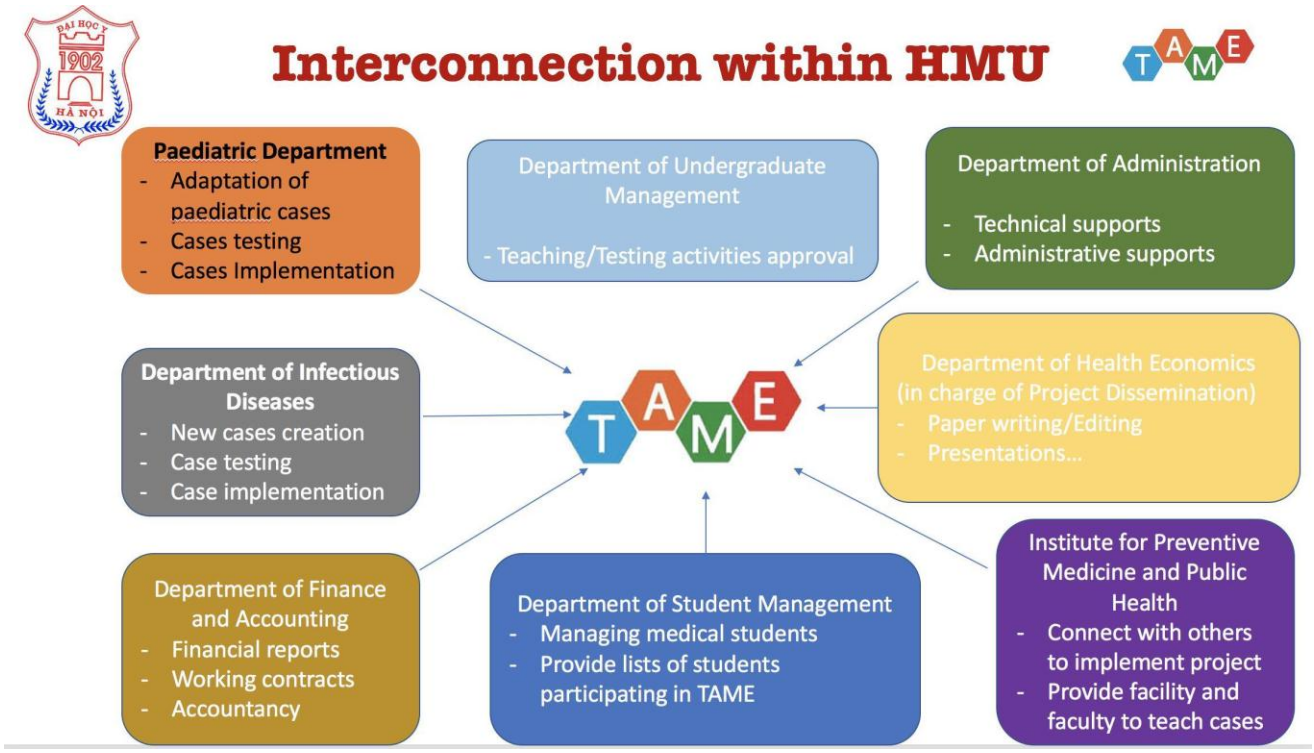
Zaporozhye State Medical University - ZSMU



Bukovinian State Medical University - BSMU



Hanoi Medical University - HMU



Hue Medical University - Hue UMP