

Interdisciplinary Program in Translational Medicine

Report September 2016 – June 2017

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LIST OF ABBREVIATIONS

ESP	Ecole de Santé Publique
EUPATI	European Patients' Academy
I³h	Institute for Interdisciplinary Innovations in healthcare
IP	Intellectual Property
IMI	Innovative Medicines Initiative
Solvay BSEM	Solvay Brussels School in Economics and Management
TM Program	Translational Medicine Program
ULB	Université libre de Bruxelles
VUB	Vrije Universiteit Brussel

1. Overall organization & management of the program

1.1. I³h organization

1.1.1. The core team

The executive team comprises its founders, Professor Michel Goldman and Professor Bruno van Lierde and three collaborators: Hilde Stevens, Marie Neunez, and Valérie Brahimi. The three collaborators are supported by the Fund Baillet Latour.

Hilde Stevens holds a Master Degree in Biomedical Science (Ghent University, Belgium), a Master Degree in General Management (Vlerick Business School, Belgium), a Master Degree in Intellectual Property Law (Brussels University, Belgium) and a PhD in Biomedical Sciences from the University of Leuven (Belgium). Hilde worked as a science consultant and was a patent engineer for several years.

As the Baillet Latour Chair, she sets up and manages the educational program by identifying the common thread for the program and selects top speakers for the specific topics included. She prepares case studies workshops to implement practically what has been taught during the various lectures. She also collaborates with other faculty members to rightly implement the Interdisciplinary Program in Translational Medicine (TM Program) in the Master Program of Biomedical Sciences (ULB) as well as other Master Programs in other Belgian universities (KU Leuven, UGent, VUB and others). Additionally, she coordinates the program evaluation and is the contact person for the participants. Lecturer in the TM Program, she translates her knowledge to the attendees on themes at which she excels: intellectual property (IP) and collaborative innovations models.

Marie Neunez holds a Master Degree in bioengineering (Université Catholique de Louvain, Belgium), a Postgraduate Degree in Management (ICHEC Business Management School, Belgium) and a Certificate in Clinical Studies (Cefochim, Belgium). After a 2-year experience as clinical research coordinator (Institut Jules Bordet, ULB), she decided to start again medicine studies at ULB.

As foreseen in the annual base budget first submitted to Baillet Latour, Marie works as part time research assistant. She helps in the setting up of the educational program, the communication through the digital platform, the program evaluation and collaborates with the I³h team in the management of the TM Program.

Valérie Brahimi has a background in Humanities and Social Sciences and holds a Master Degree in Management and Communication (Lille University). She has several years' experience at working as a communication manager (education, events and tourism) and in participating in a European program for 'vocational education and training' at the ULB.

As program coordinator, she handles the I³h logistics for the educational activities (book auditoria, contact speakers, handle speakers travels and accommodations, distribution of course materials ...). She is also in charge of the TM Program communication and promotion in collaboration with the I³h team.

1.1.2. The partnerships

To remain at the forefront of health technology development and innovation, I³h collaborates with various Belgian universities and different stakeholders from the healthcare system on the current healthcare challenges. A non-exhaustive list of these partnerships is illustrated in the Figure 2. These joint efforts enable I³h to expand its network and expertise in various fields which in turn can be used to improve and continuously update the educational activities.

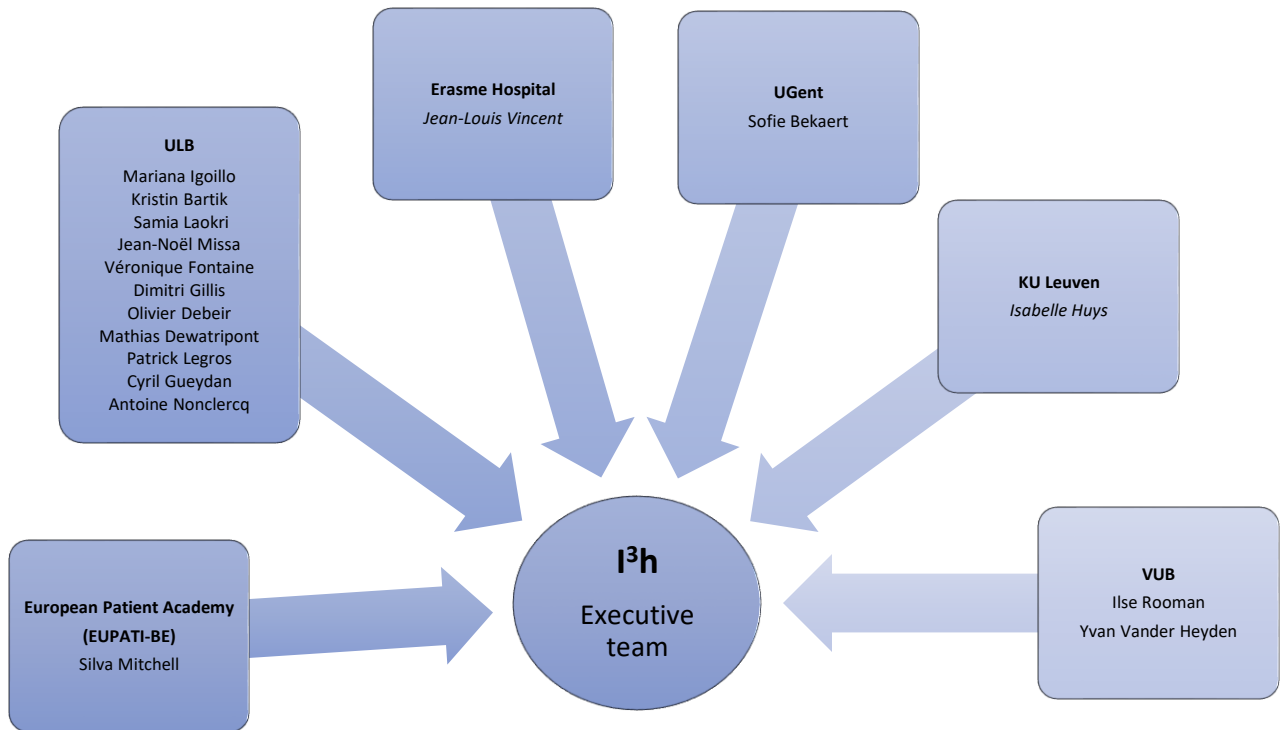


Figure 2. I³h, a Virtual Institute promoting research and education in healthcare

2. Key features and figures of the educational program 2016-2017

2.1. Objective

Since September 2016 I³h is supported by the philanthropic Fund Baillet Latour, to set up an Interdisciplinary Program in Translational Medicine, an innovative initiative that bridges competencies and develops activities across the faculties and curricula addressing healthcare matters.

This unique program is intended to provide the next generation of healthcare providers with an insight into the interdisciplinary skills needed to shape the future of medicine, to help them understand the respective roles of the different stakeholders in healthcare, and to offer unique opportunities to interact with experts and colleagues from a wide range of disciplines and

environments. The program is directed to master students, PhD students, post-doctoral fellows and professionals having an interest in healthcare.

Hence, the overall goal is to prepare a new generation of healthcare professionals able to foster ingenious solutions to implement innovative health technologies in the continuous evolving healthcare system thanks to their basic knowledge and understanding of the healthcare system and challenges.

2.2. Audience

After a Pilot Educational Certificate at ULB in 2016, I³h has enlarged its target audience and has set up an interfaculty collaboration at ULB as well as an interdisciplinary collaboration with various Belgium universities (KU Leuven, UGent, Vlerick, VUB). We implemented this successful and visionary program at the ULB to be the hub and the pillar of this consortia of Belgian universities.

The 2017 TM program was attended by Master students, PhD students, Post-Doctoral fellows and Medical doctors in training from various faculties (medicine, pharmacy, engineering, economy, management, public health) and universities (ULB, KU Leuven, UGent, Vlerick, VUB). Professionals from various healthcare sectors did also participate in the educational program (Figure 3). 69 participants attended the TM Program 2017.

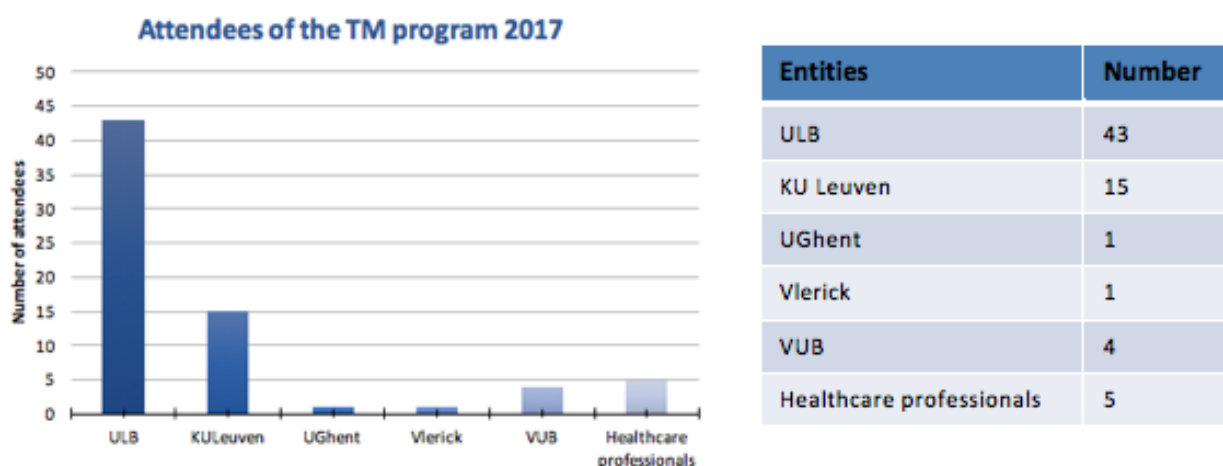
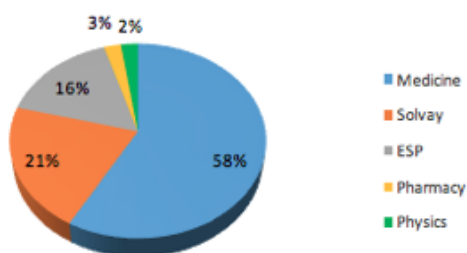


Figure 3. Attendees of the TM Program 2017

As highlighted in the Figure 3, participants were mainly coming from ULB and KU Leuven. Additional figures illustrate the interfaculty origin of those participants (Figures 4 and 5).

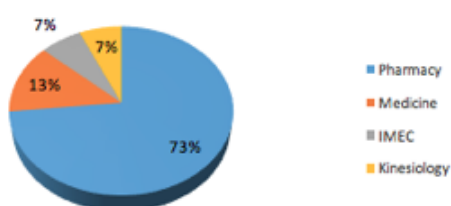
Attendees from ULB Faculties



ULB Faculty	Number
Medicine	25
Solvay	9
ESP	7
Pharmacy	1
Physics	1

Figure 4. Attendees from ULB faculties

Attendees from KU Leuven Faculties

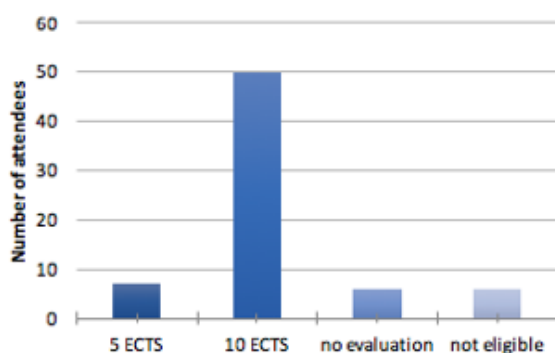


KU Leuven Faculty	Number
Medicine	2
Pharmacy	11
IMEC	1
Kinesiology	1

Figure 5. Attendees from KU Leuven faculties

To enlarge the audience, we proposed two types of evaluations: one academic evaluation targeting students in training (5 ECTS) and one continuous training for those who aimed at obtaining a Certificate. The Certificate targets researchers, scientists, professionals but also students (Figure 6). Although the educational program is the same, specific requirements had to be met for the 2 categories (see point 2.5. Evaluation of the attendees).

Evaluation scheme



Evaluation scheme	Number
5 ECTS	7
10 ECTS	50
No evaluation	6
Not eligible	6

Figure 6. Evaluation scheme of the TM Program 2017

There was no limit set for the number of attendees this year and we could therefore welcome numerous participants (69) having a common focus: interest in healthcare.

2.3. Digital learning

To promote transparency, interactivity and level-up the organization of the course, we set up a TransMed digital platform that is hosted by ULB Podcast. Through the TransMed platform, the participants could access all the information related to the program: the biography of the speakers, the slides presented during their lecture, the reference articles, a forum where they could interact and discuss with speakers and fellow participants, the quiz through which it is possible to continuously evaluate them, a feedback form, wherein they can provide their opinion on the different modules and make recommendations to help improve the program¹.

2.4. Educational sessions

2.4.1. Inaugural lesson

An Inaugural Lesson was organized on February 6, 2017, at the Belgian Palace of the Academies (Brussels). This networking event gathered both experts from the healthcare area as well as future participants to the educational program. It was our pleasure to welcome Professor Désiré Collen as guest speaker to talk about “From scientific breakthrough to patient care”.

This occasion was the perfect moment to launch the Interdisciplinary Program in Translational Medicine 2017, to promote the I³h and its educational activities and to raise the awareness of the need for interdisciplinary education and collaboration to foster innovations in healthcare.

2.4.2. Program

The Interdisciplinary Program in Translational Medicine 2017 was built thanks to the experience from the Pilot Certificate Program 2016 and by taking the feedback of the participants into consideration.

The 2017 TM Program consisted of 5 series of 5 modules, each module comprising of 1,5 day of master classes in which 3 interactive workshops were implemented to encourage interactivity, interdisciplinary collaboration and application of the concepts learned during the different lectures. The themes covered in the program were the following:

- Module 1:
 - Setting the scene of translational medicine
 - The healthcare landscape
- Module 2:
 - Health as a public good
 - Defining and measuring value in healthcare
- Module 3:
 - Harnessing information and communication technologies in healthcare

¹ To explore the TransMed platform, please follow:
www.i3health.eu and then click TransMed PLATFORM
 Or directly via <http://moodle-bf.biopark-it.be/login/index.php>
 Login: transmedtest
 Password: TRANSM3d!

- Global challenges in healthcare
- Module 4:
 - Harnessing disruptive technologies in healthcare
 - Handling data, materials and know-how in healthcare
- Module 5:
 - Entrepreneurship, business and management in healthcare (1)
 - Entrepreneurship, business and management in healthcare (2)

The program aims at teaching students and certificate applicants the various challenges emanating from the healthcare system through presentations of top-notch speakers from academia, big pharma, SMEs, regulatory agencies and payers as well as through participation in case studies simulating real challenges.

The value of the educational program is reflected by the quality of the speakers. To this end, speakers selected were top experts in their field, and were able to translate their story in exercises and case studies for the attendees (Figure 7). A moderator was assigned to each session to avoid overlap between lectures, to stimulate group discussion and to highlight the common thread of the day as well as the link between lectures.

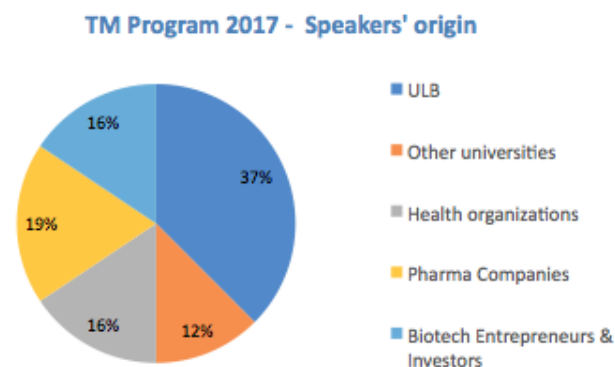


Figure 7. Speakers of the TM Program 2017

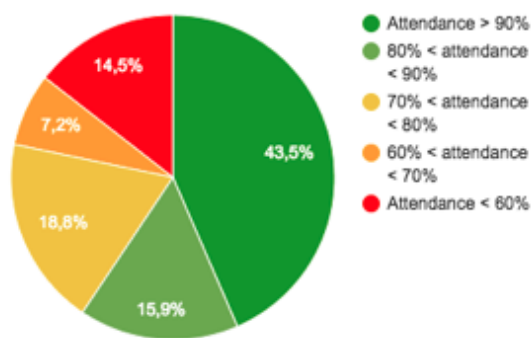
2.5. Evaluation of the attendees

2.5.1. Attendance rate

Two types of evaluations were implemented to increase interests in the TM Program 2017: the 5 ECTS evaluation and the Certificate training. To successfully pass the evaluations, a minimum attendance rate of 65% was required. In general, the attendance rate of the TM Program 2017 was high and few participants were rejected because of lack of presence: 6 participants² were not eligible because of their attendance rate (Figure 8).

² Figure 7 demonstrates that 10 participants had an attendance rate inferior to 65%. The 10 persons comprises of 4 members of the ULB faculties who came to have a glimpse of the TM Program while the remaining 6 were participants who initially aimed to obtain a Certificate.

Global attendance rate



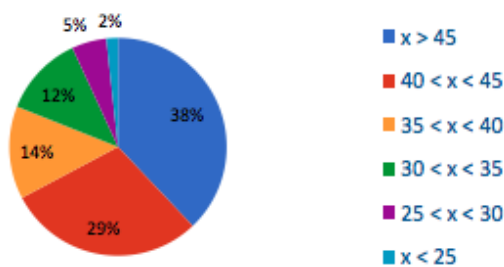
Attendance rate	# of participants	%
Attendance > 90%	30	43,5%
80% < attendance < 90%	11	15,9%
70% < attendance < 80%	13	18,8%
60% < attendance < 70%	5	7,2%
Attendance < 60%	10	14,5%

Figure 8. Global attendance rate

2.5.2. Continuous evaluation

Both evaluations comprised a continuous assessment of the knowledge gained throughout the modules. After each module, a quiz was created by the I³h-team based on the lectures presented. To ensure that the knowledge was acquired and that no questions remained, a feedback on each question was provided to the participant after their submitted they answers. A total number of 58 attendees participated in the quiz evaluations and globally the scores obtained were quite high (mean and median of respectively 41.1/50 and 42.6/50) (Figure 9).

Global score for participants (TM 2017)
continuous evaluation



Scores	# of participants	%
x > 45	22	37,9%
40 < x < 45	17	29,3%
35 < x < 40	8	13,8%
30 < x < 35	7	12,1%
25 < x < 30	3	5,2%
x < 25	1	1,7%

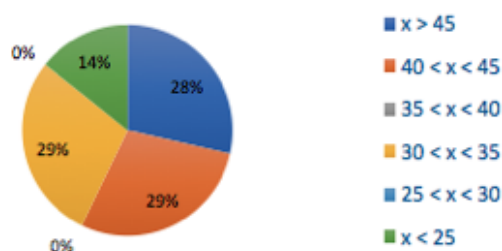
Figure 9. Global score for participants (continuous evaluation)

2.5.3. Students' evaluation

For the students' evaluation (5 ECTS), in addition to the continuous evaluation, we implement an oral examination (/50) before an interdisciplinary jury. The performances of the 7 students were again quite impressive³ (Figure 10). Generally speaking, the jury was more impressed by the effort made by these students considering their business and managerial background.

³ Except for one who clearly showed no preparation and little interest in the course.

Global score for participants (TM 2017)
5 ECTS evaluation



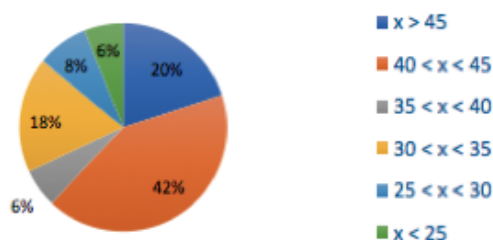
Scores	# of participants	%
$x > 45$	2	17,2%
$40 < x < 45$	2	36,2%
$35 < x < 40$	0	5,2%
$30 < x < 35$	2	15,5%
$25 < x < 30$	0	6,9%
$x < 25$	1	5,2%

Figure 10. Global score for participants (5 ECTS evaluation).

2.5.4. Certificate applicants' evaluation

For the Certificate applicants, in addition to the continuous evaluation, they were asked to prepare a case study (/50). Participants prepared in groups of 3 to 4, a 10-pages dissertation on a specific topic and highlight the translational aspects of this chosen theme. They were asked to present this work in a 15-minutes presentation before an interdisciplinary jury. The case study dissertations and presentations were quite impressive: professional, original and some of them innovative with potentials perspectives of applications. Unfortunately, one group failed (3 participants) because of partial plagiarism (Figure 11).

Global score for participants (TM 2017)
case study evaluation



Scores	# of participants	%
$x > 45$	10	17,2%
$40 < x < 45$	21	36,2%
$35 < x < 40$	3	5,2%
$30 < x < 35$	9	15,5%
$25 < x < 30$	4	6,9%
$x < 25$	3	5,2%

Figure 11. Global score for certificate applicants (case study evaluation)

2.6. Feedback from attendees

Feedback, remarks and suggestions are key to further develop and increase the quality of the educational program. Therefore, we asked the participants to provide us with their feedback on the TM Program 2017 through the TransMed platform (Table 1).

Table 1. Summary of the feedback on the TM Program 2017

Item evaluated	Remarks
Content of the module	In general, most participants agree on the content
Structure of the module	In general, most participants were happy with the structure BUT some overlapping & repetitions between lectures BUT main messages of each lecture should be better highlighted
Interaction audience-lecturer	In general, participants had sufficient interactions with speakers BUT specific time for discussion/debate should be scheduled BUT some speakers were not interactive enough
Sufficient background to follow the module	In general, participants had sufficient background to follow the various modules BUT some key concepts/definitions/glossary should be given upfront
Case studies	Most participants really appreciated the case study exercises BUT clearer information is needed BUT more time for preparation / discussion / presentation BUT distinguish compulsory readings and optional ones.

Additionally, during the last module, we asked the attendees to evaluate each speaker of the TM Program 2017. It enabled us to rank the best speakers, to select those for future programs but mostly to provide the speakers with a feedback on their performance. The global mean and median of all speakers was 15.9 and 15.8/20 respectively. The highest and lowest score of the speakers were 18.8 and 13.9/20, respectively. Figure 12 illustrates the distribution of the scores.

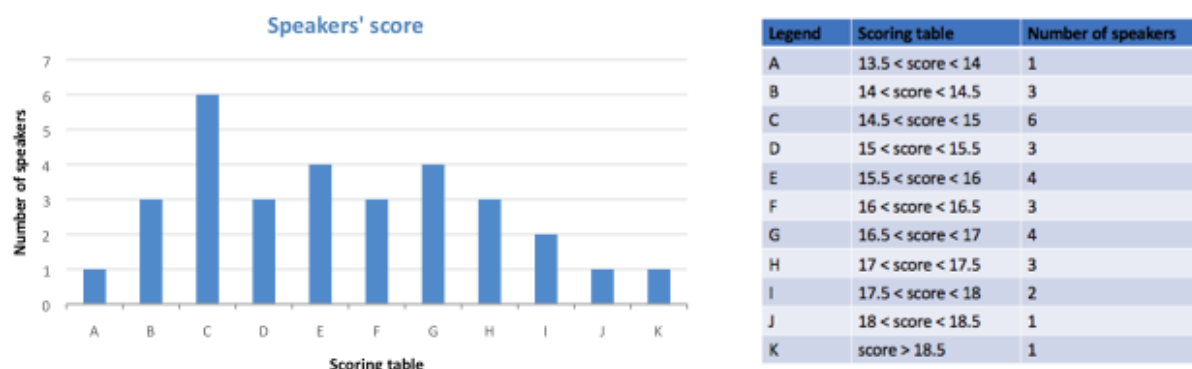


Figure 12. Speakers' score from attendees

In general, the overall feedback on the TM Program 2017 is very positive. Attendees highly appreciated the broad overview of the health sector, the quality of the speakers and the organization of the program. The majority of the attendees stated that they acquired valuable knowledge by following this program and would recommend colleagues to attend the program.

3. Educational program 2017-2018: work in progress

Based on the experience gained throughout the Pilot Program (2016) and the TM Program (2017), the feedback received and the interfaculty and interuniversity meetings, we are preparing the TM Program 2018.

3.1. Inaugural lesson

The Inaugural Lesson of 2018 will be organized on January 25, 2018, at the Belgian Palace of the Academies (Brussels). This networking event, gathering experts from the healthcare sector as well as future and alumni participants of the TM Program will again be the perfect moment to further promote the work of the I³h and its educational activities. The guest speaker of next year, Jean-Marie Lehn, Nobel Prize Winner (1987), will talk about “Chemical sciences as driver for medical advances”.

We will include in this year’s edition an “Outstanding Students’ Award” for the group of students that, according to the interdisciplinary jury, defended the best Case Study.

Particular attention will again be devoted to the communication and organization of the Inaugural Lesson.

3.2. Program

Similar to this year’s program, the TM Program 2018 will consist of 5 series of 5 modules of 1,5 days comprising 3 interactive workshops. The 5 ECTS program and the Certificate program will be further distinguished as the 5 ECTS participants will no longer need to participate in the interactive exercises that will take place during 3 half days (3 x 3 hours). Indeed, we really want the workshops to be interactive, therefore, smaller groups of participants are more suitable to promote interactivity and interdisciplinary work.

3.3. Registrations and Target audience

Even though the target audience has not changed from last year, we hope to further develop the image and the fame of the educational program and therefore enlarge the target audience and include other faculties, other universities and/or professionals of the healthcare sector. To this end, several information sessions will be organized in the different faculties and universities that have implemented or plan to implement the TM Program in their Master Programs.

We expect a higher number of participants in the future programs⁴. However, we want to maintain and increase the quality of the TM Program. Therefore, we decided to restrict the access for Certificate applicants to maximum 80 participants. There will be no limitations on the 5 ECTS participants since the TM Program will be included in the Master Program of several faculties. Currently the TM Program is implemented in:

- the second year of the Master Program of Translational Medicine (Ma2), Biomedical Sciences, ULB
- the one-year Master Program of Translational Medicine, Biomedical Sciences, ULB
- The second year of the Master Program Drug Development, Pharmaceutical Sciences, KU Leuven

Currently, the TM Program is also included in several Master Programs as an optional course (Solvay Brussels School, VUB, UGent).

⁴ For the academic year 2018-2019, we had the confirmation of the Dean of the Faculty of Pharmaceutical Sciences, KU Leuven, that 40-45 students will participate in the Interdisciplinary Program in Translational Medicine 2019 (5 ECTS).

I³h does intends to extend its educational program beyond the Belgium borders since healthcare challenges and health technologies innovations cross boundaries in a comparable manner. The Institute aims at further developing collaboration with European Universities (via the EATRIS consortium, which includes four additional partners: two higher education institutes: Helmholtz Centre for Infection Research (Germany) and the Medical University of Vienna (Austria); one research institution: Karolinska Institute (Sweden) and one e-learning provider: Elevate (The Netherlands)) to efficiently address major unmet needs in public health. By combining the expertise and networks of different universities (KU Leuven, UGent, Vlerick, VUB, and the EATRIS consortium), the Institute will build on its strengths and hopes to soon offer its educational program at a European level.

Registration procedure will be simplified through our website (See point 4 - Finances). In order to guarantee interactivity, we restrict the number of Certificate applicants to 80 and the selection will be based upon their motivation letter.

3.4. Logistics 2018

3.4.1. Facilities

Some logistical improvements will be done for the future program (2018) and the coming programs since the facilities, kindly used from ULB, presented some problems (e.g. WIFI connections) that affected the quality of the TM Program 2017.

For next year's program, another auditorium has already been booked with additional rooms for the case study workshops. Alternatives are still under consideration to offer the best solution for the future participants.

3.4.2. Logistics and support

To improve the quality of the TM Program, to increase the documentation/training offered to the participants but mostly to attract international students/participants and open the frontiers of our educational program, I³h is currently working on various formula to start with digital education.