

Bridging the Education and Research Gap in Transfusion Medicine

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Abstract

After the outbreak of the HIA/AIDS epidemic in the early 1980s, attention was focused on the restructuring and reorganization of nationally supported safe and sustainable blood systems. Networking and human capacity building in transfusion medicine were developed through World Health Organization (WHO) initiatives. Educational materials like Aide Mémoires and distance learning materials (DLM, paper and digital) were created and workshops were organized for the primary and some secondary functions of the vein-vein blood transfusion chain. However, the management, legislative and governance aspects as well as the applied health science research in transfusion medicine were not addressed.

In 2000 WHO created a Quality Management Training (QMT) course and initiated the establishment of an Academic Institute for International Development of Transfusion Medicine at the Faculty of Medical Sciences of the University of Groningen in the Netherlands. The Institute would focus on the development of a postgraduate Master course in management of transfusion medicine and the development of applied research programs for transfusion medicine related health sciences.

To implement the academic postgraduate educational and scientific program into the blood supply practice of low- and medium Human Development Index (HDI) countries an International Quality Management Development (IQM) organization was created focused on quality management, governance, legal frameworks and organizational structures and infrastructures, functioning as a global non-profit consulting and advice service and actively guiding applied health science research in transfusion medicine.

Keywords: Education; Research; Development; Quality Management; Blood Supply Organization

Introduction

When the HIV/AIDS epidemic outbreak manifested in the early 1980s, the World Health Organization (WHO) focused attention on the restructuring and reorganization of nationally supported safe and sustainable blood supply systems.

In 1988, the WHO together with the International Red Cross and Red Crescent Society (IRCS), the International Society of Blood Transfusion (ISBT), and the World Federation of Hemophilia (WFH) decided to initiate a Global Blood Safety Initiative (GBSI), which was charged with a baseline assessment of the operational blood supply situation in the world and with the design of a series of practical and feasible recommendations for strengthening and ongoing improvement. This led to the creation of simple Aide Mémoires [1] for key aspects in transfusion medicine and the setting up of distance learning materials (DLM) [2] to help strengthen and improve the ca-

capacity for education involving large parts of the world, in particular the low to medium Human Development Index (HDI) [3] countries, as classified by the United Nations Development Program (UNDP) [4].

By the year 2000, it was concluded that most of the fields in transfusion medicine were covered by educational material. However, nothing had been developed to improve the managerial and governance aspects of Transfusion Medicine (TM) and the security of the blood supply. A focused management-oriented course in transfusion medicine was therefore needed, primarily intended for senior management at national or regional level. In addition, such a course was intended to encourage the development of academic health sciences-related applied research to support sound policy and decision making in TM. The baseline assessment disclosed a number of serious barriers in the many Low- and Medium-HDI countries around

the Globe which triggered the strategy to develop a structured approach to guide and assist these countries to implement the academic postgraduate educational and scientific program into the blood supply practice. An International Quality Management Development (IQM) organization was created focused on quality management, governance, legal frameworks and organizational structures and infrastructures, functioning as a global non profit consulting and advice service and actively stimulating and guiding applied health science research in transfusion medicine [5].

The Academic Institute

The WHO Department of Blood Safety under the directorship of Dr Jean E. Emmanuel developed the concept of creating a university-related Academic Institute for International Development of Transfusion Medicine (IDTM) that would take responsibility for both the development of a post academic master's course in Management of Transfusion Medicine (MMTM) and applied health sciences-related research. In the year 2000, upon request of WHO, the concept was introduced to the Dean of the Faculty of Medical Sciences of the University of Groningen. The response was unequivocally positive. The Dean of the Faculty thus proposed the creation of an academic institute within the Faculty of Medical Sciences to the Rector Magnificus and to the board of the University, who without hesitation charged the Dean to organize. The director of the Regional Blood Establishment was asked to create an organizational structure and subsequently asked to lead the practical development and implementation of the concept [6]. The original objectives that were formulated were:

- a. To develop and implement post graduate master's courses on management of TM;
- b. To promote a connection between the development of theoretical knowledge and practical implementation;
- c. To create internal and external resources to finance transfusion medicine education;
- d. To serve as an international knowledge resource for the management of transfusion medicine;
- e. To promote and implement applied scientific research in the field of development and governance of transfusion medicine;
- f. To provide modular post graduate academic training programs in the governance and management of transfusion medicine for economically restricted countries;
- g. To support, advise and guide economically restricted countries to develop safe, efficacious, and sustainable national blood supply systems;
- h. To develop applied research programs for transfusion medicine-related health sciences; and
- i. To serve as a reference and knowledge economy organization to WHO, the WFH, and the International Consortium for Blood Safety (ICBS).

In 2001 the Academic Institute IDTM was thus established. This institute was set up in a simple and straightforward way, taking on board an office manager, a quality manager, and an executive secretary in addition to the director. The latter was provided by the University the academic position of special professor of international development of transfusion medicine at the Faculty of Medical Sciences, University of Groningen.

The design and curriculum of the WHO initiated post graduate education in transfusion medicine management and governance were realized in close collaboration with both WHO HQ

Geneva and the WHO European Regional Office in Copenhagen. The concept of electronic distance learning (e-learning) [7] was felt preferable to allow fellows to follow the academic theoretical part (Modules) in their respective home countries, to be completed with real time practical management and governance exposure of limited length in the Netherlands, and an academic health science related scientific thesis, leading to a formal graduation (diploma) at the University of Groningen.

As e-learning needs a digital environment, technical support was gained through contract with a specialized company to build an e-Academy and its e-library, and to provide an advanced digital environment and support to run the course. The Academic Institute would be responsible for the contextual part, the ultimate curriculum of the course at post academic level with its corps of academic teachers, where the contracted company would be responsible for the digital system and environment. This concept has created a unique and globally accessible institution for post academic education in transfusion medicine [9].

However, concept and digital environment appeared to be too advanced to implement in situations that struggle with existing barriers and challenges. For that reason, an initiative was developed creating and implementation an advice and guidance organization focused on top down and sustainable organization, structures and infrastructure, governance, legal frameworks, quality systems and the management of these systems: International Development of Quality Management in Transfusion Medicine, the IQM consulting service [5]. IQM Consulting also operates at a non-profit base.

IQM Consulting offers a wealth of experience and knowledge in the field of TM and related Health Sciences research. The emphasis is on the principles of Quality as a Culture. Key elements in the approach are

- Integration of Transfusion Medicine in Health Sciences and Health Care, underpinning the clinical base of TM;
- Professional capacity building: knowledge and skills, knowledge economy, quality management;
- Applied academic Health Sciences-related research;
- Network, and reference, advice and guidance functions.

The academic institute decided to develop a tailor-made quality management system, based on ISO 9001:2000 principles and structure. June 2007 this was implemented and ready for auditing by Lloyd's Register, Rotterdam, The Netherlands. As a result, the institute has been certified by the ISO 9001:2000 Quality Management System This system is applicable to 'institutionalized education (teaching and training) and scientific research (health sciences) to support developing countries.' Since September 2007, the first fellows from economically restricted countries have entered and completed the course successfully. Implementation in the day-to-day practice is given a sustained follow up by IQM Consulting.

What knowledge and research are being offered?

The master's course is composed of 9 modular e-books, each intended for a study period of 4 to 6 weeks, followed by a multiple-choice e-exam, which can be repeated only twice (at 2-week intervals) [9]. The modules were prepared by a selected academic faculty of expert teachers and transformed into e-books. The 9 e-modules (1 months) are organized into 3 parts consisting of an Introductory module (part 1) and 2 specific cluster modules (parts 2 and 3).

Cluster 1 consists of 4 general managerial elements (secondary and steering functions): Organization and Structure, Legal and Regulatory aspects, Human Resource Management, and Economic aspects and Costing.

Cluster 2 consists of the 5 managerial aspects of the primary functions: Societal Interface, Clinical Interface, Process Management, and Quality Management.

Each e-book consists of chapters that accommodate a 1-week e-study program (6-12 exposure hours) and a self-assessment test. Each module is concluded with a time-controlled e-exam. Being a higher education program at post graduate level, the course has set a relatively high threshold for passing the exams. However, fellows are allowed to repeat the e-exams twice, each with a 2-week interval. If the second reexamination also fails, the module has to be repeated completely. The fellow has to apply for the e-exam, which has to be done within 2 weeks after completion of the module. This is automatically and electronically monitored. The material is organized in a user-friendly manner with available off-line e-books to be studied and e-exams taken.

The master's thesis is based on a specific and applied health science-related research project in the field of TM. and applicable to the county of origin of the fellow. This accommodates, in a learning setting, the objective to promote and do health sciences-related scientific research in the field of development and management of transfusion medicine.

Fellows prepare a thesis on health sciences-related applied research in the field of transfusion medicine. The project themes do relate to challenges and research questions in their home country. It is anticipated that the thesis as a written document will contribute to the creation of a scientific base for the approach to the problem and challenges investigated and that this research will serve to provide applied scientific information to serve as a reference for making policies and defining strategies for comprehensive developments of the blood supply and clinical transfusion systems at the national and the global level. It ranges from community, public awareness and potential donor issues to manufacturing, safety including the scale of laboratory safety testing issues, quality issues, and clinical efficacy and documentation (hemovigilance and patient blood management). After the first years and evaluation of the academic post graduate e-learning was performed [10].

... And The Future?

The future depends largely on the commitment and involvement, motivation, interest and vision of the leadership. Unfortunately, the education and research have been taken over by the Graduate School of Medical Sciences of the University Medical Center, but fortunately the IQM consulting is still active in supporting, advising and guidance and uses the WHO Guidance series that are part of the WHO 2020 Action Framework to Advance Universal Access to Safe, Effective and Quality-Assured Blood Products 2020-2023 [11] and beyond. This initiative is based on 6 unfortunately prolonged challenges and 6 focused Strategies to improve and strengthen organization and operations. An important observation over the last decade has been the prolongation of the 6 major challenges. In an attempt to overcome these challenges or developmental barriers, WHO together with the United States Agency for International Development (USAID) Office of Maternal and Child Health and Nutrition (MCHN) and the Boston Consulting Group (BCG)

designed a Self-Assessment Tool for blood systems (BSS) [12,13] used in the Blood Supply services in those countries. The BSS tool consists of a questionnaire based on strengths and weaknesses. The responses are used to identify the challenges and weaknesses of blood services and provide a menu of potential solutions to address existing challenges, changing existing weaknesses into strengths. Although progress takes time, this BSS tool is expected to identify the critical needs to achieve impact and accelerate implementation of the Action Framework 2020-2023 [5].

A strategy for funding selected potential fellows has been launched, exploring the major funding agencies that focus on higher education and human capacity building (leadership development) in economically restricted countries.

The future of the Academic Institute may and IQM Consulting will involve the global concept of:

1. Collaborating with WHO in the development and maintenance of a data base on education and training (institutions, courses and curricula, education and training materials, teachers and trainers) in transfusion medicine;
2. Assisting in the education and training of staff at all levels in transfusion medicine, including the preparation of teaching, training curricula, and materials [14];
3. Assisting in the development and implementation of evaluation criteria for education and training [15];
4. Assisting in designing health sciences-oriented research on the management of logistics, operations, and economics of blood transfusion services and blood banks (vein to vein), in particular in economically restricted countries (Low- and Medium-HDI).

Competing interests: The author declares to have no competing interests.

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