



European Association for Professions
in Biomedical Science

Diagnostic Partner

Concept to Reality

Dublin 16th October 2014

European Association for Professions in Biomedical Science
EPBS is an International Non-Profit Association (AISBL) registered under the Belgian law.
Place Jean Jacobs, 3
1000 Bruxelles (Belgium)

On behalf of the European Association for Professions in Biomedical Science (EPBS) I am delighted to welcome so many delegates from all over Europe to our inaugural conference.

The EPBS has been working on its vision of the future for Biomedical Scientists since 2012. Central to this vision is education and scope of practice. In 2009 the EPBS issued its policy statement on Education and since that time has been working towards the objective of access to Masters Programmes. We have examined current scope of practice and are considering what knowledge, skills and competencies will be required in the future for Biomedical Scientists to take their place as Diagnostic Partners in the Multidisciplinary Healthcare Team.

The programme today explores educational opportunities, technological advances, and the practice of Biomedical Science both current and future. In addition we will see the work that is going in parallel in the EU with the ESCO project examining the knowledge, skills and competencies of all healthcare professions in Europe.

At the end of the day we hope to have a clear pathway with signposts to our future.

I look forward to hearing the presentations and to the fruitful discussions

*Marie Culliton. MSc, MBA, FAMLS
President EPBS*

08:30 Registration
Session 1: Biomedical Science in Europe

09:15 President Welcome

09:20 Biomedical Laboratory Science in Europe: Achievements and Challenges

Marie Culliton, President EPBS, Ireland
Session 2: Post Graduate Education Opportunities: Academic and Professional
Chair: Marie Nora Roald, NITO, Norway

09:40 Professional Certification VS Masters Degree: Complementary Career Routes

Gro Jensen, Diakonhjemmet Hospital, Oslo, Norway

10:00 Advanced Practitioner: Histopathology Dissection

Matthew Griffiths, Derby City Hospital, United Kingdom

10:20 European Masters in Biomedical Science

Fernando Mendes, General Secretary EPBS, Portugal

10:40 Coffee – Poster Walk

Session 3: Technology Advancements and Opportunities for Personalised Medicine
Chair: Anneke Geurts, EPBS, Netherlands.

11:20 Molecular Karyotyping and Array Technology in Clinical Practice

Gabriele Sander, UK für Kinder und Jugendheilkunde-Klinische Genetik, Salzburg, Austria

11:40 Personalized medicine, cutting edge technologies in the laboratory

Steve Meaney, Dublin Institute of Technology, Ireland.
Session 4: Skills, Competency and Occupational Standards
Chair: Marie Culliton, President EPBS, Ireland

12:00 Defining European Occupational Standards in Healthcare

David Górria, Chair Sectoral Reference Group Healthcare and Social Work, ESCO

12:30 Lunch

Session 5: Diagnostic Partner: Current Practice
Chair: Anne Berndt EPBS, Sweden.

14:00 Standards in Pre Analytics

Mika Paldanius, Association of Biomedical Laboratory Scientists in Finland.

14:20 Management of Point of Care Testing in the Community

Fabio Como, SiMEL, Italy

14:40 Diagnostic Partnership in a MDT Paediatric Coagulation Clinic

Irene Regan, Our Lady's Hospital For Sick Children, Dublin, Ireland

15:00 Diagnostic Partnership in Management of Rhesus Disease

John Quigley, The National Maternity Hospital, Dublin, Ireland

15:30 Coffee – Poster Walk

Session 6: Diagnostic Partner: Future Possibilities
Chair: Fernando Mendes, General Secretary EPBS, Portugal

16:00 BLS as Diagnostic partner: The Norwegian Project

Ms. Lisbeth Vedde and Heidi Kolseth Medical Biochemistry, Innlandet Hospital Trust, Norway

16:20 Activism and Lobbyism - Branding the BLS Profession as a Diagnostic Partner

Christina Grunwald and Martina Jurs dBio, Denmark
16:40 Session 7: Diagnostic Partner: Bringing Our Concept to Reality
Marie Culliton, President EPBS, Ireland

Oral Presentations

Session 1: Biomedical Science in Europe

President Welcome

Biomedical Laboratory Science in Europe: Achievements and Challenges

Marie Culliton, President EPBS, Ireland

Marie Culliton. M.Sc., M.B.A., F.A.M.L.S.,

President E.P.B.S. (Ireland)

Marie Culliton has been a delegate to the EPBS since 2001. She has been President of EPBS since 2004.



Marie Culliton entered the profession of Medical Science in 1973. She was awarded the Diploma in Medical Laboratory Science (Microbiology) in 1978 and Fellowship of the Institute of Biomedical Science in 1980 specialising in Clinical Chemistry. Further professional development resulted in the award of MSc in Clinical Biochemistry from Trinity College in 1990 and the MBA in Health Services Management in from UCD and RCSI in 2001

Marie worked in the Endocrinology Laboratory at St Vincent's University Hospital for many years where she had research interests in Congenital Adrenal Hyperplasia and Polycystic Ovarian Disease. In 2004 Marie was appointed Chief Medical Scientist/Laboratory Manager at the National Maternity Hospital, the largest maternity hospital in Europe. Current research interests are in the field of 1st trimester screening and fetal wellbeing.

Marie has been a member of the Council of The Academy of Medical Laboratory Science since 1985 and has completed 2 terms as its President.

Marie has worked with the Management Body in the production of Statutes and Internal Regulations, registration of EPBS in Belgium and in the production of the position paper on education standards. She has appeared before a committee of the European Parliament outlining the objectives of EPBS and seeking the establishment of a common platform.

Marie is committed to working with member associations to ensure that Biomedical Scientists are recognised as key contributors to healthcare and to ensuring that they have the education and experience necessary to be leaders in Laboratory Medicine.

Marie has been appointed by the Minister for Health and Children to the Council of CORU, the Registration Council for Allied Health Professionals.

In this presentation Marie will set the scene of Biomedical Science and highlight the achievements and challenges facing Biomedical Scientists and the EPBS.

For Biomedical Scientists to become Diagnostic Partners requires a paradigm shift. To become more involved in the patient care pathway we must change our mindset and step out from behind the closed doors of the laboratory. We must demonstrate the added value we bring to healthcare by interacting with clinicians, patients, healthcare managers and politicians.

Session 2: Post Graduate Education Opportunities: Academic and Professional

Chair: Marie Nora Roald, NITO, Norway

Professional Certification VS Masters Degree: Complementary Career Routes

Gro Jensen, Diakonhjemmet Hospital, Oslo, Norway

Advanced Practitioner: Histopathology Dissection

Matthew Griffiths, Derby City Hospital, United Kingdom

European Masters in Biomedical Science

Fernando Mendes, General Secretary EPBS, Portugal

Marie Nora Roald, Norway



I work as a senior consultant at NITO BFI, The Norwegian Institute of Biomedical Science.

I am a Biomedical Laboratory Scientist, graduated in 1992. I have work experience within the fields of microbiology, medical biochemistry, hematology and blood banking. I have the last eleven years worked as a senior consultant in the Norwegian Institute of Biomedical Science, NITO BFI.

I have recently been involved in publishing a Norwegian analysis looking at future trends in biomedical laboratory science. Another interest is systems for assessing continuing training and further education. I have been involved in developing a specialist certification program for Norwegian BLS as well as a European project looking at European guidelines for Continuing Professional Development (CPD) - EucoLABS. Furthermore I am interested in the development of BLS education in an international perspective.

Gro Elisabeth Jensen, Oslo, Norway

Educated as a biomedical laboratory scientist in 1984, MSc in biomedicine at Oslo and Akershus University College with specialization in: "Evaluation of renal function parameters in patients over 80 years. Comparison of different algorithms for estimating GFR using serum creatinine and cystatin C, individually and in combination".

Head of the Department of Medical Biochemistry, Diakonhjemmet hospital, Oslo, Norway, since 1988. Member of BFI's board and Specialist Committee.

Master's degree versus professional certification: complementary education and career routes?

Gro Elisabeth Jensen,

Head of the Department of Medical Biochemistry, Diakonhjemmet Hospital, Oslo, Norway

In Norway several universities and colleges are offering a Master's Degree according to international standards, also for Biochemical Laboratory Scientists (BLS's).

At present most programs follow a pre-defined and relatively fixed pattern and deals with problems within molecular biology, cell biology and medical genetics. We fully agree that there is a need for master degrees in these fields. But it is also important, however, to get students involved in more common laboratory problems like medical biochemistry, haematology and morphology. We therefore want to promote master's programs to be more flexible. This may be done by allowing courses from universities and colleges to be combined, and hence get master degrees tailored to meet the needs of the various workplaces. In this connection the different labs also must be more creative in the offer of project facilities for master candidates.

In our country The Norwegian Institute of Biomedical Science (BFI) administer a Specialist's Approval for BLS's. To achieve the title "BLS with specialist certification" the candidate must fulfil the following criteria:

- Working for a minimum of 3 years as an authorized BLS
- Further education, minimum 30 ECTS (European Credit Transfer System)
- Minimum 100 hours upgrading
- Written and oral presentations, minimum 100 points (BFI System)
- A written paper/dissertation (10-20 pages)
- Specialists must apply for recertification every five years

The specialist certification provides that the candidate has necessary theoretical knowledge and practical skills within their particular professional field, equivalent to advanced studies above the level for a bachelor degree. The program is designed to suit the specific competency requirement of each candidate and her/his respective workplace. Specialist certification is targeted at biomedical laboratory scientists who are working in medical laboratories, and thus help to ensure high professional standards at their workplace.

Different opinions exist among managers and BLS's about what is most relevant, master's degree or professional certification. In my opinion, both of them are very relevant. More opportunities for education will result in more BLS's to continue education. For candidates reluctant for some reasons to start a heavy master's program, a personal specialist certification may be a more realistic alternative. Perhaps some of them also will continue with a master's degree later on.

I want competent, satisfied, motivated, skilled and proud employees who do highly qualified work and also are good collaborators for other professionals in the hospital.

What will I choose a master or a BLS with professional certification? It will always depend on the expertise I just need.

Advanced Practitioner: Histopathology Dissection

Matthew Griffiths

Royal Derby Hospital, England.

I am a Specialist Dissector, leading the Urological pathology service, and deputising on the Gastrointestinal and Gynaecological pathology service. I am the quality and audit lead within the department, with a keen interest in evidence based practice and research. I have worked through all areas of cytology and histology, and have come to specialise in specimen dissection. Working closely with our pathologist and clinical colleagues we strive to aid the diagnostic process.

My on-going doctoral research into quality control in specimen dissection was presented at the IBMS congress 2013, winning the prize for the best short paper in Cellular Pathology. I have recently become involved with the IBMS Scientific Advisory Committee, working to ensure high standards in examinations, arranging congress speakers and educational matters.

I have worked throughout England over my career, and am more enthusiastic than ever about the state of our profession.

The concept of pathological dissection being performed by non-medically qualified staff (specifically, qualified Biomedical Scientists) has been present for some time in the UK. There has been considerable variation in range and scope of practice, until recently this has been uncoordinated and left to local agreement. In recent years there have been steps to formalise and standardise the range of specimens and personnel that are authorised to work with them, notably by the IBMS and the RCPATH.

A higher concordance with Standard Operating Procedure is found with BMS than pathologists, and that the quality of dissection was not reduced when compared with pathologists. It is noted that an increased number of blocks and levels was seen in BMS dissected specimens, but the additional work of the increased number of blocks was more than offset by the time saved by pathologists. Whilst no investigation into the costs associated with this has been performed, it is probable that a cost saving was made, as BMS time is substantially cheaper than pathologist time. This is an area for further investigation, which would allow an evidence based approach to staff structuring and budgeting in this area. Additionally, a study reported an increase in lymph node yield when dissection was performed by BMS. Shaw *et al.* confirmed this, showing BMS (median 15, range 12–20) identified more lymph nodes than consultant pathologists (median 10, range 7–13).

Questions have been raised regarding whether the BMS is aware of important and unusual clinical features, and when specimens might be best dealt with by a non-standard approach. However, this is specifically addressed in the IBMS document relating to good practice in dissection – they explicitly recommend that BMS dissectors should seek advice on unusual or complex cases. The protocols recommended in the RCPATH minimum datasets and tissue pathways are evidence based, A 2005 best practice article details much of the reasoning behind the protocols and minimum dataset points. Whilst this is essential information, there is no way in which the knowledge, awareness and comprehension of these points is tested in either BMS or consultants once they have passed their exams – there is no requirement for a periodic or on-going skills test or CPD.

The practice of the BMS in dissection must step beyond that of simple description and sampling. Interpretation of the clinical picture, the previous history and the radiology must be made and applied to the specimen on the bench. The BMS must have the ability to assess the medical and pathological aspects and aid in the differential diagnosis. They must be confident in their ability to recognise, describe and sample the appropriate features. To act as a diagnostic partner the BMS must be able to step beyond their traditional roles and engage more closely with our medical colleagues. There are benefits to the BMS, pathologists, wider care team and the patients.

European Masters in Biomedical Science

Fernando Mendes^{1, 2, 3}, Camilla Hesse⁴, Christine Schnabl⁵, Steve Meaney^{6, 7}, Veronika Stefanik⁵,

Armando Caseiro², Marie Culliton^{1, 8, 9}

¹European Association for Professions in Biomedical Sciences, Brussels, Belgium.,

²Biomedical Science Department, ESTeSC-Coimbra Health School, Polytechnic Institute of Coimbra, Coimbra, Portugal., ³Superiors Health Technicians in the Area Diagnostic and Therapeutic Union, Porto, Portugal.,

⁴Biomedical Scientist, Department of Clinical Chemistry and Transfusion Medicine, Sahlgrenska University Hospital, Gothenburg, Sweden.,

⁵Biomedical Science Department, University of Applied Sciences Campus Vienna, Austria.,

⁶Biomedical Science Department, Dublin Institute of Technology, Dublin, Ireland.,

⁷Environmental Health Sciences Institute, Dublin Institute of Technology, Dublin, Ireland.,

⁸Department of Pathology and Laboratory Medicine National Maternity Hospital, Dublin, Ireland., ⁹Academy of Medical Laboratory Sciences, Dublin Ireland.



The clinical laboratory has a vital role in informing medical decisions and delivery of healthcare. However it is an almost invisible part of the healthcare system. Clinical laboratory science and technology have advanced significantly over the last few decades. This has placed ever growing demands on the clinical laboratory and has driven the development of new specialist disciplines in biomedical science. The role of the BMS has also evolved - increasingly specialist skills and competencies are required to meet the requirements for patient diagnosis and treatment. However, the capacity to provide advanced education in this field has not kept pace and there is significant potential for a future skills gap in this sector. There are a lack of appropriate postgraduate training programmes capable of delivering the required knowledge, skills and competencies. There is thus a risk of a mismatch between the requirements of the profession and the availability of suitably qualified personnel which may potentially threaten the provision of high quality patient care. Therefore we propose to establish a high-quality European transnational MSc program in biomedical science that will provide a route for specialist postgraduate education. This programme will involve cooperation between leading educational providers in Austria, Ireland, Portugal and Sweden. It will deliver the students with a learning experience which will be unique in Europe. The development process and structure of this programme will be outlined.

Session 3: Technology Advancements and Opportunities for Personalised Medicine

Chair: Anneke Geurts, EPBS, Netherlands.

Molecular Karyotyping and Array Technology in Clinical Practice

Gabriele Sander, UK für Kinder und Jugendheilkunde-Klinische Genetik, Salzburg, Austria

Personalized medicine, cutting edge technologies in the laboratory

Steve Meaney, Dublin Institute of Technology, Ireland.

Anneke Geurts, The Netherlands



Anneke Geurts has been a delegate to EPBS since 2005 and has been treasurer of EPBS since October 2011. She works as Biomedical Laboratory Scientist at the Department of Laboratory Medicine of the Radboud University Medical Centre in Nijmegen, the Netherlands. The laboratory supports patient care with routinely and specialized based laboratory activities and comprehends the field of Clinical Chemistry, Hematology, Immunology, Genetics, Endocrinology and Metabolism. One day per week she is busy with work for the Works Council of Radboudumc.

Besides her scientific work (coauthor of more than 70 publications, member of the executive committee as treasurer of the PathoBiology Group of the European Organisation for Research and Treatment of Cancer (EORTC)), Anneke is involved in education of (bio)medical (laboratory) students and retraining and continuous professional development (CPD) of (bio)medical laboratory scientists and technologists in order to keep abreast with research and development within the specialties of laboratory medicine. Her topic on which she stakes is the recognition and registration of (bio) medical scientists in the Netherlands and in Europe in order to maintain the profession of laboratory scientist as dynamic, challenging and fascinating.

Gabriele Sander, Salzburg Austria

Gabriele Sander entered the profession of Biomedical Science in 1981 at the Maternity Hospital Salzburg. After a career break of 5 years (2 children) she started working at the Department of Internal Medicine in 1992 mainly concerned with research in the area of coronary heart diseases.



Due to her interest in Genetics she was offered the post of a BMS at the Institute of Clinical Genetics at the University Clinics of Salzburg in 1999.

She is currently concerned with cytogenetic and molecular genetic investigations focusing on postnatal karyotyping, where she is mainly responsible for Microarray Analysis and Multiplex Ligation Dependent Probe Amplification (MLPA) of subtelomeric regions in patients with idiopathic mental retardation and developmental delay.

She gives lectures at the Salzburg University of Applied Sciences / Fachhochschule (FH) and at the Private Medical University of Salzburg (PMU) on the subject of Molecular Biology/ Bioinformatics/ Microarray and advises BMS students in thesis writing and poster presentation.

Her future interests are Next Generation Sequencing and Whole Genome Sequencing.

From 1998 – 2008 Gabriele served as Vice-President of the Austrian Association for BMS – biomed-austria.

From 2002 - 2010 she was General Secretary and from 2010 - 2012 Director of the European Association for Professions in Biomedical Science (EPBS), a challenge to which she had risen in order to promote BMS in Europe.

To date she is active in the regional group of biomed-austria in Salzburg and has initiated a career plan for BMS at Salzburg University Clinics, which is about to be implemented by now.

Molecular karyotyping and array technology in clinical practice

Gabriele Sander¹, Peter Strasser², Ingrid Vlasak¹, Ingrid Bader¹, Elisabeth Haschke Becher², Olaf Rittinger¹,

¹ Universitätsklinik für Kinder und Jugendheilkunde – Klinische Genetik, Salzburg, Austria

² Zentrallabor, Christian Doppler Klinik, Salzburg, Austria

Molecular karyotyping or array-based whole genome analysis allows the genome-wide detection and characterization of submicroscopic imbalances. For clinical practice, one of the first recommended applications has been the diagnostic assessment of patients with unexplained developmental disorders.

In Salzburg, a microarray-based analysis system has been in use for about three years at the Clinical Genetics Unit. After evaluating whole genome array technology in a pre-study on PWS deletion subtypes we established genome-wide screening of paediatric patients with idiopathic mental retardation (MR) and/or dysmorphologies for copy number variation (CNVs) and regions of homozygosity (ROHs).

Using Affymetrix CytoScan HD array and Chromosome Analysis (ChAS) software (N 1.2.0. / NA32 / hg19), 139 children with unexplained developmental disorders have been screened for CNVs/ROHs to date. In 18 of them, clinical relevance of detected CNVs is unclear so far. In another 16 patients, presumably disease-causing CNVs were identified.

The pitfalls of the technology arise from non standardized phenotypic descriptions and from technical limits (e.g. genome wide marker density and limited algorithms). Biomedical Scientists (BMS) of the future should have a profound knowledge in bioinformatics and molecular biology. Interpretation of results is a challenge and needs constant development of databases (in-house and international), bio-informatics updates and exchange of clinical/medical knowledge.

In Salzburg we therefore have established a microarray analysis board consisting of a BMS, a Genetic Counsellor and a Clinician. All patient reports are discussed, finalised and signed by all representatives of the board according to the advice of the European Molecular Genetics Quality Network (EMQN), External Quality Assessment (EQA) Scheme Instructions 2014.

Steve Meaney, Ireland

Affiliations

- 2007/Nov Dublin Institute of Technology, School of Biological Sciences & Environmental Health Sciences Institute
- 2007/Sept Royal College of Surgeons in Ireland
- 2007/Jan Health Research Board
- 2005/Jan Karolinska Institutet, Inst. for Laboratory Medicine

Education

- 2003 PhD Medical Biochemistry, Karolinska Institutet



- 2001 Licenciante Medical Biochemistry, Karolinska Institutet
- 1999 BSc Applied Science, Trinity College Dublin
- 1999 Diploma Biomedical Science, Dublin Institute of Technology

Research

My primary research interests are in the biochemistry and molecular biology of sterols, mainly cholesterol and its oxidation products, and how it impacts on human health and disease. At present I am very interested in the potential for epigenetics to modulate endogenous levels of oxysterols for therapeutic benefit (see <http://journal.frontiersin.org/Journal/10.3389/fgene.2014.00311/abstract>). My research encompasses basic science, laboratory models and investigation of new diagnostic approaches and therapies.

Personalized medicine, cutting edge technologies in the laboratory

Steve Meaney^{1,2}

¹School of Biological Sciences, Dublin Institute of Technology, Dublin, Ireland, ²Environment, Sustainability and Health Institute, Dublin Institute of Technology, Dublin, Ireland,

Personalized medicine promises to herald in a new era of medicine, allowing clinicians to tailor therapies specifically to patient needs. This alignment is dependent on the evolution of the availability of appropriate technologies in the laboratory to detect and characterise the molecular changes that are the basis for the difference between patients. The rapid advancement in technologies means that increasingly sophisticated approaches are now being applied in clinical laboratories. In this presentation I will give an overview of the concepts of personalised medicine and highlight the importance of the laboratory in driving this paradigm shift in diagnostic and therapeutic practice.

Session 4: Skills, Competency and Occupational Standards

Chair: Marie Culliton, President EPBS, Ireland

Defining European Occupational Standards in Healthcare

David Górria, Chair Sectoral Reference Group Healthcare and Social Work, ESCO

David Gorria, ESCO



ESCO is the multilingual classification of European Skills, Competences, Qualifications and Occupations relevant for the EU labour market and education and training.

To ensure that the competences required to engage in further learning and the labour market are acquired and recognised throughout general, vocational, higher, and adult education and to develop a common language and operational

tool for education / training and work: a European Skills Competences and Occupations framework

The objective is to create a European Tool that reflects reality and could be real and added value for mobility. The ESCO project and its three pillars should be linked with other EU initiatives, policies or directives, such as the Directive on the Recognition of Professional Qualifications, Skills panorama, Diploma supplement, CPD and LLL and also National Legislation.

Work started by reviewing the list of occupations using ISCO 08 and was then amended based on the expertise of the group members. However, because of the evolution of healthcare it needs to be updated and new occupations added.

ESCO is working with EPBS to ensure that the Profession of Biomedical Scientists is properly represented in the classification

Session 5: Diagnostic Partner: Current Practice

Chair: Anne Berndt EPBS, Sweden.

Standards in Pre Analytics

Mika Paldanius, Association of Biomedical Laboratory Scientists in Finland.

Management of Point of Care Testing in the Community

Fabio Como, SiMEL, Italy

Diagnostic Partnership in a MDT Paediatric Coagulation Clinic

Irene Regan, Our Lady's Hospital For Sick Children, Dublin, Ireland

Diagnostic Partnership in Management of Rhesus Disease

John Quigley, The National Maternity Hospital, Dublin, Ireland

Anne Berndt, Sweden.

Anne Berndt is an advisor for biomedical scientists at Vårdförbundet (the Swedish Association of Health Professionals) located in Stockholm. She received her training as a biomedical scientist with a specialty in histopathology and cytology. Anne has worked as a cytotechnologist and biomedical scientist for about 11 years at different labs in Sweden and for 4 years abroad as a research technologist (Chicago and Zürich). In 2007, Anne received her Master's Degree in Quality Management and Leadership and the same year was given the opportunity to combine her interest in the profession and in people and work at the Swedish Institute for Biomedical Laboratory Science (IBL, the professional organization for biomedical scientists). Here Anne became involved in promoting the profession, both nationally and internationally. Anne currently holds a position on the board of directors of IBL. At Vårdförbundet she continues this work and is currently focused on the organization and awareness of continuous professional development and professional ethics.



Mika Paldanius, Finland



Mika Anton Paldanius was born in 1966 in Oulu in the Northern Finland. He is a Biomedical Scientist, has a master degree in health science (2000) and PhD degree in microbiology (2007). He has studied health administration, nursing science, economy and microbiology in the University of Oulu. He has published 38 scientific articles in various scientific papers. Mika Paldanius has worked as a researcher in the National Public health Institute and National Institute for Health and Welfare. Nowadays he works at NordLab laboratory in Oulu as a Biomedical Scientist. Mika Paldanius is vice president and journalist in the Association of Biomedical Laboratory Scientists in Finland and he is involved in many working groups in the Association. One of the working group`s results “Good recommendations for pre-analytics ” will be heard in this Vision Conference. Mika loves music and he is a vinyl record collector (rock and pop music). He used to be a competitive swimmer and he is still interested in sports. In the summertime Mika loves to spend spare time with his family in the summer cottage in Kainuu area in the Eastern Finland.

Standards in Pre-analytics

Mika Paldanius, BMSc, MSc, PhD, Vice president, The Association of Biomedical Laboratory Scientists

In Finland we started “Good recommendations for pre-analytic project” in 2012. We have a multiprofessional team¹, who aim is to improve quality on pre-analytics. We have pointed out our guidelines for all the health professionals. The main health professional groups are those, who send patient`s to laboratory examinations and guide them to the phlebotomy. We seek best practices for patient`s guidance and for the phlebotomy of laboratory samples.

In our multiprofessional group, we have members from The Association of Biomedical Laboratory Scientists in Finland, Labquality, Hospital Chemists, Finnish Society of Clinical Chemistry (FSCC) and Finnish Medical Association of Clinical Chemistry. In September 2013, we made an agreement with Nursing Research Foundation (NRF), who develop and establish evidence-based nursing in Finnish health care. The Nursing Research Foundation (HOTUS in Finnish) is a non-profit research and development organization. NRF`s tasks are to produce, to disseminate and to support the implementation of the best available evidence. We have done systematic seek and review about

information for patients and users, request form information, instruction for pre-collection activities and instruction for collection activities.

After systematic seek and review, we have continued to read and go through specific articles in smaller groups (from two to three persons per group). We have used Joanna Briggs Institute's Review manual and current care guidelines in the review process, when we rated the strength of evidence of the selected articles and publications. We have discussed about the issues and articles in our monthly meetings and we have had a mentor from the Nursing Research Foundation, who has helped us in the process. We have written a few drafts and our aim is to finish this recommendation at the end of this year.

Reliable laboratory results are based on good pre-analytics and patient's guidance before phlebotomy. Most of the errors, even 60-90% depending on the environment, are indicated before analyses. The pre-analytic phase is a complex and dynamic process, which needs standards. The processes can differ within the hospital and from one hospital environment to the next. Standards/recommendations reduce the impact of the pre-analytical errors. They should support strategies and practical issues that would ease the implementation of standards in practice.

¹ Koskinen M-K., Lahdenperä R., Laitinen H., Muukkonen L., Kouri T., Nikiforow M., Paldanius M., Tick-Sinkkilä T., Saijonkari M., Tuokko S. (chairman) and Korhonen A. (mentor).

Fabio Como, Italy

I work in the Italian Public Health System since 1996 in different Laboratory Segments and today in Novi Ligure.

1992/93 Alessandria USSL 70

Certificate of qualification as Medical Laboratory Technologist.

2004/2005 Pescara University "G. D'Annunzio di Chieti"

Degree in "Biomedical laboratory techniques" (SNT 3)

2006-2007 Rome University "Unitelma"

Master “Management and coordination functions of the health professions”. Title: “The importance of training in the light of the national program of Continuing Medical Education. Experience within an inter-department: problems and solutions”.

2010-2011 University Piemonte Orientale A. Avogadro di Novara

Master “coordination and management activities for decentralized diagnostic and laboratory” Title: “the importance of education and communication in the management of a point of care by a multidisciplinary team of professionals”.

I'm Regional Secretary for SIMeL-STeLB Piemonte and “Trainer Manager” for this society.

Member of the Permanent National Commission on Education for the SIMeL and in 2013 Deputy Chief Delegate at the EPBS, at the GGB held in Berlin on 18-19 October 2013 .

Since June 2014 Italian Chief Delegate for EPBS.

Management of Point of Care Testing in the Community

Fabio Como, SiMEL, Italy

Point-of-care testing (POCT), or bed-side testing is defined as medical testing at or nearby the site of patient care, but such systems have also found use in pharmacies, in doctors' practices and also in health care as a possible organizational solution linked to the downsizing of some small laboratories because of the policies of centralization of services.

The motivation which favors this choice is due to the reduction of the response time: Turn Around Time (TAT). TAT is defined as the time from blood collection to the delivery of the results (NACB). Adopting a POCT system allows to obtain results more quickly and more easily by cutting down the TAT, but a quicker result is useful and effective only if it is accurate and reliable.

Inside pathology laboratories, quality evaluation, internal quality control (QC) and external quality assurance (EQA) are tools to ensure that the quality of results being produced by laboratory testing will not compromise the clinical care of the patient.

This criterion applies equally when the environment during testing changes from the laboratory to the point of care, and the large laboratory instrument becomes a smaller device.

The Point-of-care testing (POCT) Instrumentation is one of the segments of the diagnostic market with the greatest growth. But although great progress has been made in the instrumentation and methods of analysis used, further improvements appear to be necessary to face another challenge: the "environmental" scenarios in which these tests are performed. Environments in which personnel with experience and training different from those of a laboratory technician.

The risks associated with this factor are drastically reduced, if not entirely eliminated, if particular attention is given to the training and communication, while respecting the competencies for each professional involved.

Additionally the so-called "self-testing" involves the patients using directly dedicated instruments, for which exist selections and training programs for patients.

This evidence opens up a new opportunity for a specialist clinical laboratory: overseeing the quality of the analysis regardless of where it is performed.

Other solutions that can be configured as a cross between a "self-testing" and a location POCT "monitored" are those adopted in pharmacies that provide some of the required tools.

The POCT system must be operated, in all its branches only and exclusively by personnel fully trained and regularly updated. Furthermore all guidelines suggest the need to create a group, a committee, a multi-disciplinary team with a POCT coordinator appointed.

In Italy in 2011/2012 the first Master In COORDINATION AND MANAGEMENT FOR BUSINESS 'DECENTRALISING DIAGNOSTIC LABORATORY' was held.

We should have a look at the system adopted in the United States and create little by little, a team of specialists in the field, a network of coordinators of POCT that through the collaboration of the suppliers can work together to help improve patient care by applying best practices and providing their experienced support in the field of Point of Care Testing, including hospitals, pharmacies and self-testing, in a non-hostile but collaborative environment in which different professionals involved take on a truly active part in the project.

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www.ehow.com/facts_5966395_point-care-coordinator-job-description.html

Irene Regan FACSLM FRCPath, Ireland

Irene Regan graduated in Biomedical Sciences from CIT/UCC and followed on with a Research MSc from Trinity College Dublin and later with a HDip in Training and Education (NUIG) and an MBA in Healthcare Management. In the last 2 years Irene has become a fellow of the Royal College of Pathologists in Haematology (FRCPath).



Irene is currently working as Chief Medical Scientist in Coagulation at Our Lady's Children's Hospital Crumlin (OLCHC), Dublin, Ireland where she is part of a Multi-Disciplinary Team (MDT) approach to laboratory medicine. Irene has been involved in many research projects from BSc and MSc level to Clinical Research Trials. Working in a specialised area such as coagulation has allowed her the opportunities to collaborate with other hospitals such as CWIUH, National Maternity Hospital and Rotunda Hospital and also with teams within OLCHC such as Pharmacy and Orthopaedics. Her most recent research has focussed on reference ranges for coagulation parameters for paediatrics; coagulation in scoliosis patients (collaboration with Orthopaedic Dept.); LMWH in paediatrics (collaboration with Pharmacy Dept.); inhibitors in patients with congenital haemophilia; reclassification of patients with VW Disease.

On a National level, Irene is currently President-Elect of the Academy of Clinical Science and Laboratory Medicine (ACSLM). She is currently a member of the Health and Social Care Professional Advisory Group where her remit is Research, Advanced Practice and CPD. She is also a Steering Committee Member of the Research Collaborative in Quality and Patient Safety (joint initiative between the HSE and RCPI) and a member of the committee involved in writing Laboratory Handbook guidelines for the Clinical Care Programme in Pathology.

Internationally, Irene is involved with a Royal College of Pathologists (UK) initiative to improve the Technical, Quality, Leadership and Research Skills of Diagnostic Services in five countries (20 public sector laboratories) in Africa.

Her aim as president of the ACSLM is to nurture the progression of Medical Scientists as diagnostic partners in delivering quality healthcare through recognition of their scope and expansion of that scope of practice.

Diagnostic partnership in MDT Paediatric Coagulation

Irene Regan, Our Lady's Children's Hospital Crumlin, Dublin, Ireland

Our Lady's Children's Hospital Crumlin is Ireland's largest paediatric hospital. The Coagulation Laboratory is dedicated to the highest-quality laboratory evaluation of haemostasis and thrombosis. State-of-the-art tests are performed to enhance diagnostic capabilities for congenital and acquired bleeding disorders, hypercoagulable conditions, platelet disorders, and autoimmune coagulation disorders. The laboratory and the medical scientists within it take pride in assisting our patients, clinicians and other clients to solve challenging coagulation problems, help in managing patients' coagulopathies, or the measurement of haemostatic variables in basic and applied research using the cutting-edge technology and critical analysis. Here I will present how the medical scientist as part of the multi-disciplinary team in coagulation adds value to the patient journey through the application of SCIENCE (Graham Beastall).

John Quigley, Ireland



John Quigley is a Medical Scientist in the field of Blood Transfusion & Immunohaematology. Since qualifying in 2005 with an honours degree in Medical Laboratory Science, John has worked as a Medical Scientist in the Blood Transfusion Laboratory of The National Maternity Hospital, Holles Street. John has also successfully completed a Master's Degree in Blood Transfusion & Transplantation Science through the University of Bristol. In 2012 John was elected to the Academy of Medical Laboratory Science Council and serves as Chairperson to the Academy's Transfusion & Transplantation Science Advisory Board. John has guest lectured on both degree and masters programmes on the topic of Blood Transfusion. He has been actively involved in the development of local Massive Obstetric Haemorrhage guidelines for The National Maternity Hospital and is currently involved in local obstetric and perinatal research. His main interests are in maternal alloimmunisation and fetal medicine and he has successfully led and collaborated on several joint studies leading to peer-reviewed publications.

Diagnostic partnership in management of Rhesus Disease

John Quigley, National Maternity Hospital, Dublin

Haemolytic disease of the fetus and newborn (HDFN) is caused by clinically significant maternal IgG alloantibodies to fetal red cell antigens, present in the mother's plasma. These antibodies cross through the placental barrier and can cause destruction of the fetal red cells or their progenitors resulting in fetal anaemia.

With the development of molecular techniques, the improvements in ultrasound technology and the introduction of prophylaxis programmes, HDFN is now better managed, and in many cases, largely preventable. Yet despite these recent advancements severe cases are still encountered. Early identification, close monitoring and timely referral of immunised patients is key to the multidisciplinary management of HDFN. However in order to further reduce perinatal mortality and morbidity associated with HDFN, full introduction of a national Anti-D prophylaxis programme is essential, together with ensuring that treatment is focused on personalised medicine with a commitment to continuing to progress our science by keeping up to date with advancements within our discipline.

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Session 6: Diagnostic Partner: Future Possibilities

Chair: Fernando Mendes, General Secretary EPBS, Portugal

BLS as Diagnostic partner: The Norwegian Project

Ms. Lisbeth Vedde and Heidi Kolseth Medical Biochemistry, Innlandet Hospital Trust, Norway

Activism and Lobbyism - Branding the BLS Profession as a Diagnostic Partner

Christina Grunwald and Martina Jurs dBio, Denmark

Lisbeth Vedde



- Head of department of Medical Biochemistry in Sykehuset Innlandet hospital trust since 2003.
- Biomedical Laboratory Scientist in 1975
- Bachelor of science degree 1990

-Different courses in management

-Employed in different positions as Biomedical Laboratory Scientist, teacher and leader

Heidi Kolseth

-Graduated from Østfold college of Engineering in 1991 as a Biomedical Laboratory Scientist

-Worked at Ullevål University Hospital, Ålesund Hospital and Elverum Hospital

-Biochemical Laboratory Scientist in preanalytics and POC –coordinator, Hamar Hospital since 2008



Diagnostic Partner: The Norwegian Project

Marianne Larsen, Heidi Kolseth and Lisbeth Vedde

Summary:

In 2013 the Department of Medical Biochemistry, Hospital Innlandet HF, got 500.000 Norwegian kroner (€ 62000) from BFI (The Norwegian institute for Biochemical Laboratory Scientists) to try out the Biochemical Laboratory Scientist as a diagnostic partner. We had heard about the experience

from Denmark and were very motivated to try out the concept. We had now the opportunity to have two medical technologists for ten month, each 50% employed.

Project plan

Month	mars	april	may	june	july	august	sept	oct	nov	dec
Establish the project										
Employ project medical technologists										
Visit Hillerød Hospital , Denmark										
Inform and recruit clinics										
Prepare a questionnaire										
Document baselines										
Clinic 1										
Evaluate/adjust										
						holiday				
Clinic 2 og 3										
Evaluate/report										

The intention with the project is to make a better patient flow and facilitate a more cost-effective laboratory service. The Diagnostic partner establishes a close dialog with the clinic by being in the ward and attending relevant meetings.

We are halfway through the project and so far we have been cooperating with two clinics in two different hospitals, Hamar and Kongsvinger. It is too early to conclude, but the experience so far and the feedback from the clinics are very positive. We cannot document any real decrease in laboratory analyses. But the growth is less than in other clinics in the hospital. DRG (Diagnosis related Group) is a system to classify hospital cases. The number of analyses per DRG is decreased compared to the same period in 2013.

If this is going to be a future task for the Biomedical Laboratory Scientist we need to make them more confident about their own competence and ability to contribute.

Activism and Lobbyism – Branding the BLS Profession as a Diagnostic Partner

Martina Jürs, Vice-President, Christina Grunwald, Consultant

The Danish Association of Biomedical Laboratory Science (dbio)

How can a small profession as the Biomedical Laboratory Scientists gain influence on health care policies and management in Denmark? How does a growing population of elderly citizens with chronic diseases, laboratory automatization and the move of health care services from hospitals to the primary sector provide new opportunities for BLS?

Hear how dbio works strategically with political communication and member mobilization in order to ensure that the profession is part of the race towards new job areas in a changing health care environment.

Poster Presentations

Austria

Vision for the Profession – What Will BMS Do in 10 Years' Time

Christiane Maria Bauer¹, Nadja Baumgartner¹, Michaela Dommler¹, Nicole Ferstl¹, Erika Garner-Spitzer^{1,2}, Sieglinde Graf¹, Sylvia Handler¹, Barbara Kappeller^{1,2}, Birgit Luxbacher¹, Ute Maurer¹, Andrea Schiefthaler¹, Waltraud Schober¹, Karin Tomicek-Gruendl¹

¹*biomed austria* - Österreichischer Berufsverband der Biomedizinischen AnalytikerInnen, Vienna, Austria; ²European Association for Professions in Biomedical Sciences, Brussels, Belgium

Austrian health care structures are about to change within the next years due to the implementation of the concept of “Primary Health Care” (PHC), starting in 2015. Consequently, the perspectives of all health professionals involved in this process will be adapted to the conditions that are to be established for patients/clients consuming services in PHC-structures. Especially Biomedical Scientists, hitherto almost invisible for other health professionals, patients and the public, now have the chance to step up with the needs of a modern, health-conscious and ever more medically informed society to support our national health care system meeting the requirements of a medicine that is subsequently turning into a more personalized, gender-oriented, social-conscious, patient-focussed, and human instrument to fight the inequalities still present in our society.

Bearing these imminent changes in mind, the Austrian Association of Biomedical Scientists, *biomed austria*, would like to present their vision for the profession in ten years' time as follows:

As point-of-care-testing (POCT) is gaining ever more importance in PHC-structures all over Europe, quality management and quality control of POCT-devices is becoming a major issue – Biomedical Scientists, as so called “POCT-Coordinators”, should be in charge of all processes involved in quality management of POCT-devices, including quality control and instruction of health professionals and patients to insure maximum safety and reliable, reproducible test results. With regards to the increasing number of patients suffering from chronic diseases, e.g. diabetes, it is highly recommended that PHC-centres offer diabetes screening. Biomedical Scientists could not only do the screening examinations – they should be in charge of establishing and subsequently administering the Austrian Diabetes Register, reporting to the health ministry on a regular base. Another major goal for Biomedical Scientists is to obtain the status of “Diagnostic Partners”, cooperating with other health professionals such as doctors and nurses, and patients. In 10 years' time, Biomedical Scientists should not only be associated with phlebotomy and laboratory analyses – they should have expanded roles as health managers and health consultants, being capable of organizing complex diagnostic processes requiring not only analytical and medical, but also financial, social and communicative skills. This includes directing medical information pathways, therapy monitoring, proposal of therapies and reporting to other health professionals and patients. Thus, apart from performing classical laboratory examinations needed in clinical routine, their competencies should also include other tasks, e.g. decisions on appropriate selection of

laboratory parameters and the process of “biomedical validation”, which implies that test results and parameters validated by Biomedical Scientists are directly implemented into medical examination and laboratory reports, not requiring a doctor’s approval.

Biomedical Scientists’ contribution to the Austrian health care system should not be limited to working on behalf of patients who are already under medical treatment – they should equally be considered as health partners in preventive medicine, by providing services in health campaigns, like health education and health consultancy.

Taken together, BMS are to date fulfilling an important, multifaceted role in providing appropriate care for patients in the current health care system, and pending structural changes in our country will offer opportunities to expand this role. Yet in order to achieve the status of “diagnostic partners” we will actively and confidently have to claim responsibility in areas that are not classical tasks of our profession.

Croatia

Vision for the Profession where will we be in 10 years' time

Neven Sucic¹, Jasna Matic¹, Ernevaza Kopacin¹

¹ Croatian Chamber of Health Professionals - Professional Department for Medical Laboratory Activities, Croatia

Croatian Chamber of Health Professionals (CCHP) was founded on February 03 2010. In the Ministry of Health and social care of the Republic of Croatia where was held also the Assembly. Within the Chamber there are constituted four Professional departments and one of these is Professional department for medical and laboratory activities.

In the Croatian education system there today three professions of medical and laboratory professionals:

- Health laboratory technicians (health lab.teh. - high school education)
- Bachelors of medical laboratory diagnostics (Bsc)
- Master of medical laboratory diagnostics (Msc)

Medical laboratory activity is regulated profession on Croatian law and we apply Directive 2005/36 art. 11d.

Since our establishment, we have had many challenges and unresolved issues related to our profession. Many of them are solved, and we strive to improve the profession and the status of our profession in the society.

To date, our biggest successes are:

- PDMLA organizations and all bodies within the department,
- organization the office PDMLA
- organization of public powers to we perform on behalf of the Government (keeping a register of medical laboratory workers, issuing licenses, ongoing education, professional supervision, the process of recognition of foreign diplomas)
- support of the University of Rijeka, Split and Zagreb in the process of opening a master study
- participation in the development of a strategic plan for the development of human resources in health care for medical laboratory activities
- membership and active participation in the work EPBS
- organization of two congresses

For the forthcoming ten-year period we are primarily planning to:

- support the opening of doctoral study of medical laboratory diagnostics
- enable the education of the younger generations from the experts in our profession
- enable self-employment in our profession

- harmonize and amend legislation
- enable greater independence Bsc and Msc in health care provision
- enable greater independence of our professional department

We believe that our goal will be achieved if we continue to work with the same enthusiasm and energy as well as what we have done.

Estonia

Vision for Biomedical Scientists in Estonia

Mare Remm¹, Pille Mee², Aivar Orav^{1,2}

¹ Tartu Health Care College, ² Tartu University Hospital, United Laboratories

1. Biomedical Laboratory Scientists in Estonia today.

Biomedical laboratory scientists perform most of the daily operational work at medical laboratories in Estonia and commonly hold middle level supervisory positions. In Estonia responsibilities of phlebotomy and preanalytical phase largely lies on nurses from clinical departments. Medical laboratories include laboratories for biochemistry, hematology, immunology, histopathology, cytology, medical microbiology, medical genetics, blood banks and transfusion medicine. BMS's are authorized by the Estonian Qualifications Authority as health personnel but this is voluntary. Some hospitals have their own competence control system.

2. The number of Biomedical Laboratory Scientists in Estonia.

Currently 542 (at 18.08.2014) biomedical scientists are employed by the health services in Estonia. There are geographical differences in terms of access to biomedical laboratory scientists. Some regional health authorities have a shortage of them, while the situation elsewhere in Estonia is reverse – there is a lack of positions. In 2014 several medical laboratories — The North Estonia Medical Centre, East-Viru Central Hospital — reported that it was difficult to recruit biomedical laboratory scientists. Currently education of biomedical scientists in Estonia is offered only by Tartu Health Care College. This college has given the applied higher education for BMS since 1997. The duration of preparation time is 3.5 years or 140 ECTS. Eighty eight students have been matriculated in this time (12.09.2014). The study *“Biomedical Scientists in Medical Laboratories in Estonia”* (2012) conducted by M. Remm and students brought out conclusions for the curriculum: more focus on molecular diagnostics, on quality management and leadership studies; for labs: more inclusion of biomedical scientists in quality and lab management especially BMS with master degree; development of master studies of biomedical scientists. We still haven't the special master program for BMS now.

3. Technological developments in laboratory medicine.

Technological development entails increasing automation in all laboratory specialties. The POCT has got more and more attention in Estonia similarly to other countries, causing the change in the mission of biomedical scientists.

4. Association of Estonian Biomedical Laboratory Scientists (henceforth Association) is a medical association of clinical laboratory professionals. Association is a non-profit organization, which connects Estonian biomedical scientists, biomedical science students and lecturers. Association was founded in 1992. The Association's head office is situated in Tartu, Estonia. It has 322 members (December 31st 2013) – in comparison, there is about 540 biomedical scientists working in health care system in Estonia.

General purposes of association are:

- Sustaining and developing the profession of biomedical scientist. Collaboration with BMS curriculum compiled by Tartu School of Health Care and making proposals to it.
- Continuous updating and developing professional knowledge and experience.
- Organizing and directing members to complementary education, courses, seminars, conferences and arranging specialization to biomedical scientists etc.

Our organization has a website (<http://www.ely.ee/>) for sharing information to biomedical scientists, which contains: list of available trainings, courses and there are published presented lectures. There is also online registration to courses.

Portugal

Portugal Vision for the profession in 10 years' time

Almerindo Rego¹, Lucília Vicente^{1,2}, Diana Nogueira^{1,3}, Paulo Polónio^{1,4}, Fernando Mendes^{1,5}

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Introduction

The evolution of biomedical scientist (BMS) profession has been exponential both professionally and academically at European level. At this time the professionals in Portugal have a higher level of education as a minimum qualification, with a professional title being required for the exercise of a qualified profession. BMS profession is regulated in Portugal as well as in the majority of the European countries. This fact determines a rigorous monitoring and support to colleagues in countries where this level of qualification has not yet been achieved, being this one of the first and most important priorities of EPBS work in our point of view.

In Portugal and several European countries, the majority of the biomedical sciences laboratory activity are performed by BMS, associate with other professionals, also at a higher level of education, but with no specific training to the provision of health care, generically known as clinical chemists and/or senior caregivers. This reality determines the necessity of a strategy that allows the fusion of all these professionals in a single professional profile under the name of biomedical scientist. In Portugal, to achieve this aim we choose to propose to merge those careers as a strategic instrument for the constitution of a single professional profile in biomedical sciences.

Discussion

In Portugal, as well as in most countries of Europe, we find ourselves in the middle of a severe economic crisis, with direct and indirect implications in financing our public health care system. Therefore, the emphasis with the focus on the management and best use of financial resources to perform work inherent to the health care system, being in the presence of extreme budgetary constraints, lacks a rigorous evaluation of the use that BMS can make as greater productive capacity, claiming to us the added value in the chain of management of resources available for the provision of quality health care. These strategic aims are based on the fact that there is the temptation and risk of diminishing skills, competencies, knowledge and level where we fit within the framework of health professionals, in order to reduce labour costs as a component/cost of health care providers.

We believe to be fundamental to elect as a second strategic priority, being key partners in the management of all levels in the health care system, contributing to a greater effectiveness and efficiency of services. For this it is crucial to highlight the importance of the profession of BMS, both in terms of training, knowledge, skills and competencies at all levels of social and political intervention in a society increasingly dominated by cost

rationalization. Being important to understand the changes in health policies, and the consequent adaptation of attitudes of health professionals, particularly at the level of partnerships. The fear of change and the ignorance of the implications of what we can and must do, can be an obstacle to the scope of intervention in a health team level. In this time of change, integrated in an association like EPBS, where we have not yet reached convergence of all countries whether in education as well as in the profession, it becomes difficult to achieve the ultimate goal of being a cohesive group of BMS, with projection and recognition of the profession internationally.

Thus, is capital to achieve the harmonization in education, skills, competencies, knowledge and conditions of access to the profession as well as an additional statement of how indispensable partners we've become in a team of health care providers. Only this way the next level will be achieved, full professional recognition and development, organized and concerted with European policies that affect us as professionals. In this sense it is urgent to define common and realistic goals, allowing us to embrace new opportunities in a broader horizon of activities and skills. Equally important is the continued accuracy in the fulfilment of these objectives, so that EPBS can be endowed with an action plan, which confers recognition of its representativeness at a negotiating level. However, it is crucial to accentuate the notion of trans nationality of the profession, either as a factor in developing self-esteem and self-identity of the BMS, as well the recognition by society.

Conclusion

The road ahead is long and we all have an obligation to contribute to the improvement of our professional and personal performance but, through an integrated process shared professional goals, aiming at professional culture that allows us to know at every moment what we are, to know the importance of our profession and what value it represents in the production of highly professional health care and indisputable quality As members of a union and a European Association for Biomedical Scientists we must have a greater voice and show to our colleagues that they can and should count with our support to achieve greater professional projection. However, this objective can only be achieved if we all internalize it is a process and a path to proceed in the whole of Europe, whatever greater or lesser projection of the profession in our countries.

Norway

Future Trends in Biomedical Laboratory Science – a Norwegian Perspective

Marie Nora Roald¹

¹Senior consultant, NITO The Norwegian Institute of Biomedical Science, Norway.

Introduction: NITO The Norwegian institute of biomedical science has been looking at the current state of biomedical laboratory science and looked at key trends and developments that will affect the future direction

of the education and the professional field of biomedical laboratory scientists, as seen from a Norwegian perspective. The goal has been to provide information to be used towards government, educations and other relevant partners as guidance in future planning for the health services. The document, published in 2014, is presented in this poster.

Description: Developments in technology create a continuously growing need for biomedical laboratory scientists with specialist training. The biomedical laboratory scientists of the future will need competences in highly specialised methods of analysis and automation. Greater use of point-of-care testing and patient self-monitoring will increase the need for biomedical laboratory scientists with competence on guidance and training of other health professionals and patients. There will also be a greater need for biomedical laboratory scientists to manage biobanks and to work in the field of bioinformatics.

By linking technological and analytical understanding with medical knowledge, biomedical laboratory scientists may, as diagnostic partners, provide guidance and help ensure that necessary results of analyses are delivered in time.

There will be a need for biomedical laboratory scientists who supplement their bachelor's degree with additional education, a master's degree or a PhD in a variety of subjects.

A close interaction between the educational programs and the field of practice will secure that BLS educations adapt to the future's needs.

Sweden

The Biomedical Scientist in 2025: A Swedish Perspective

Anne Berndt^{1,3}, Agneta Colliander^{2,4}, Michelle Dobos Sandell¹, Susi Nilsson¹, Maysae Quttineh^{2,5}, & Tanja Wijkmark²

¹Vårdförbundet (the Swedish Association of Health Professionals), Stockholm, Sweden; ²IBL (Swedish Institute of Biomedical Laboratory Science); ³European Association for Professions in Biomedical Science; ⁴Department of Laboratory Medicine, Örebro University Hospital, Örebro, Sweden; ⁵Department of Clinical Microbiology, Ryhov County Hospital, Jönköping, Sweden

Biomedical scientists play essential roles in a wide variety of settings from laboratories and clinics providing health and medical care services to pharmaceutical and academic research laboratories. In the post-genomic era, technology is changing rapidly, with pharmaceuticals, devices and diagnostics primarily responsible for large strides in longevity, and quality of life. At the same time, a healthcare revolution is underway to meet the challenges of an aging population, an increase in chronic diseases, and spiralling costs. Tomorrow's patients are well informed, expect choices and high-quality, personalized care. To keep pace with these changes, the biomedical scientist must evolve to participate in and stay on top of the

rapidly changing technologies required to meet these new challenges. Vårdförbundet and IBL are uniquely positioned to monitor this changing situation in Sweden and help influence policy, programs and the profession. We are working to promote the professional identity of the Swedish biomedical scientist, which we see as paramount in maintaining the field at the cutting edge of technological developments and ensuring an influx of quality students for the future. By extrapolating current trends, we have identified key considerations for future competitive success of our profession. In sharing this exercise, we hope to stimulate productive discussion and raise awareness to assure that we will continue to contribute unique knowledge, competencies and skills as Diagnostic Partner to meet the changing needs of the 21st century.

The Netherlands

Next Generation Biomedical Scientists in the Netherlands: The Future Vision of our Profession

Marianne Egbers, Wemmie Elsenga, Anneke Geurts-Moespot, Marjo Pospiech-Greijn, Nelly IJzerman

NvML; Nederlandse Vereniging van bioMedische Laboratorium medewerkers, The Netherlands

In the 18th and 19th century, scientists like Landsteiner, Koch, Papanicolaou, and Krebs performed all laboratory investigations themselves. With the discovery of new diseases, new diagnostic 'tools' became available and the need for assistance arose. The biomedical scientist was born!

Over the years, in The Netherlands three diagnostic disciplines developed: clinical chemistry, clinical microbiology and histopathology. Nowadays, laboratory investigations play a central role in clinical diagnostics, supporting and steering of therapies and controlling multiresistant bacterial strains. The introduction of new, often expensive, therapies and the use of new biologicals ask not only for complex laboratory investigations, but also for biomedical scientists able to interpret and handle the growing amount of data.

The ongoing increase in complexity of laboratory tests and the growing amount of test data are a challenge for the biomedical scientist. Subsequently a suitable education preparing the Dutch biomedical scientist for the future is needed.

Additionally, external factors such as consolidation of laboratory facilities, collaboration between the three main disciplines, national politics and finances and commercial interests have their influence on the scientist's profession. In The Netherlands for the future, we will need fewer but more elaborately trained scientists.

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