

April | 14

Mandate SSPH+ «Bologna Cycle Degree Programs in Public Health in Switzerland: An Explorative Study»

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Executive Summary and Recommendations from Project

The appearance and growth of complex societal challenges such as ageing populations, new health threats, social inequality etc. has led to a call for a multidisciplinary, formally trained Public Health workforce. As a result, over the recent years, more than 100 Master programs in Public Health and 28 Bachelor programs have been established in the US. Although the Bologna process provides the groundwork for educational changes in Europe, Public Health education lags behind. This is especially true for Switzerland. Here, a broad range of postgraduate Public Health offers exists, yet there are virtually no established basic Public Health education programs. This project aims to (1) compare the status of Public Health education in Switzerland with the situation abroad, and (2) to contribute to the discussion around the possible establishment of Bologna cycle degree programs in Public Health in Switzerland. Based on literature research and interviews, the project puts forth the following conclusions and recommendations:

1. In Switzerland, a documented shortage of formally trained Public Health workers does exist. This gap is especially evident in the younger age groups (20-29 years old Public Health workforce).
2. In order to overcome these gaps, it is strongly recommended to establish Public Health training programs at all Bologna levels (Bachelor, Master, PhD).
3. The creation of such programs is primarily the task of higher education institutions; a division of labour must exist between universities and universities of applied sciences.
4. The provisions of basic Public Health education should cover all regions of Switzerland and take existing Public Health programs into account.
5. The newly created educational provisions may encompass Bachelor and Master degrees with general orientation in Public Health as well as with different speciality denominations. On a Bachelor level, the programs shall have a strong practice orientation and a national focus.
6. Permeability from one level to the next and student mobility must be guaranteed. It should be ascertained that Bachelor degree holders from various disciplines of study are accepted in Bologna Master programs in Public Health and that Bachelor graduates in Public Health can pursue their studies in other disciplines relevant for Public Health.
7. The establishment of Bologna cycle degree programs in Public Health should (optimally) be the result of interdepartmental/interfaculty collaboration. The responsibility for each new study program may lie with one designated higher education institution.
8. The well-functioning system of Swiss postgraduate education in Public Health should be maintained. However, after the establishment of undergraduate and graduate programs, adjustments in the postgraduate offers have to be foreseen.
9. Round tables with all relevant stakeholders in Public Health education (incl. financing bodies) should take place in order to discuss the integral architecture of Public Health education in Switzerland.
10. The Swiss School of Public Health should take the leadership in coordinating these tasks. A well-coordinated and internationally compatible system of Life Long Learning in Public Health in Switzerland should be the goal.

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1 Introduction

Public Health has become a key function in all modern societies. In this context, it is crucial that Public Health services are delivered and organized by a well-educated workforce. Recent WHO/OECD studies reveal that only 5-35% of persons working in identifiable Public Health positions have formal training^{1,2,3}. These numbers have been confirmed by a recent Public Health workforce study in Switzerland. According to the results, only a third of the estimated 6000-10'000 Public Health workforce in this country have attended a formal training and less than 5% have finished with a Bologna cycle degree in Public Health (Bachelor, Master or PhD). It is also striking to see that only 7.2% of the Swiss Public Health workforce belongs to the 20-29 age group⁴. These numbers mirror the fact that there are currently no Bologna cycle degrees in Public Health (Bachelor/Master level).

Institutions in the United States, and in several European cities, have successfully implemented Public Health Bachelor and BA/BSc/Master programs, suggesting that similar developments could also be beneficial for Switzerland. Therefore, this proposal will explore the feasibility and desirability of establishing Bologna cycle degree programs in Public Health (especially on Bachelor and Master level). Special attention will be given to the specific Swiss framework conditions and realities in Public Health (e.g. needs of labour market for students with Bachelor and Master degrees, integration of new program offer into existing initiatives of Public Health education, etc.)

1.1 Points of Reference

In a recent Lancet review article, the authors concluded that professional education in medicine has not kept pace with the challenges of demographic and epidemiological transitions influencing health of the population⁵. The authors call for a transformation of medical/health education. In this context, competence-based thinking might be of particular importance. The Association of Schools of Public Health (ASPH) and The Association of Schools of Public Health in the European Region (ASPHER) both have identified core competency catalogues for Public Health study programs^{6,7,8}. Together with similar Swiss documents (e.g. "Training Portfolio Prävention und Gesundheitswesen")

¹ Zurn, P. 2012, "Overview of the health workforce in Switzerland", Swiss Public Health Conference Lausanne, 30 August 2012.

² World Health Organization (2006) Working together for health: World Health Report 2006. Geneva, Switzerland.

³ The Organisation for Economic Co-operation and Development (OECD) (2011). Reviews of Health Systems: Switzerland. World Health Organization/OECD, 2011.

⁴ Frank M, Weihofen A, Paccaud F (2013) Public health workforce in Switzerland: are Public Health workers lacking? Int J Public Health. doi:10.1007/s00038-013-0481-2

⁵ Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, et al. (2010) Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet 376: 1923–1958.

⁶ Association of Schools of Public Health (ASPH) (2011) Undergraduate Public Health Learning Outcomes FINAL Model Version July 14, 2011

⁷ Association of Schools of Public Health (ASPH) (2006) Master's Degree in Public Health Core Competency Model Version 2.3 August 2006

⁸ Birt, C., Foldspang, A. 2011, European Core Competencies for MPH Education. The Association of Schools of Public Health in the European Region (ASPHER).

and other relevant international material (e.g. international accreditation standards for basic medical education), these lists could serve as reference point in the development of a Bachelor/Master program in Public Health in Switzerland.^{9,10}

Planned or existing Public Health education programs in Switzerland can serve as further references for the establishment of Bologna degree programs in this domain. Established Swiss Public Health education programs (universities and universities of applied sciences, UAS) must be considered (see Annex 1) and special attention paid to the current plans of some UAS to establish a professionally oriented, health promotion/prevention Bachelor program. It is essential that new Public Health programs do not overlap the existing study programs, but instead augment and enhance the current offers.

Successfully established Bachelor or Master programs abroad can also serve as benchmark for corresponding developments in our country. According to Frenk et. al (2010), there are currently 467 schools/departments of Public Health worldwide.¹¹ ASPHER counts eighty of those institutions located in Europe. There are 28 undergraduate Public Health programs in the US (accredited as part of institutions by the Council on Education for Public Health) and approximately 20 in Europe.^{12,13} There are also other Bachelor's degrees in Public Health related fields (nutrition, health management, etc.). According to CEPH, "An undergraduate degree may be professional or academic. An undergraduate degree should be considered professional if it is designed to train students at the baccalaureate level to enter the Public Health workforce. An undergraduate program would be considered academic if it were designed to provide students with a core of knowledge of Public Health such that upon graduation they are prepared for further study and scholarship."¹⁴ Currently, there are three types of accredited programs: Bachelor of Science in Public Health (BSPH), Bachelor of Arts (B.A.), and Bachelor of Science (B.S.) (See Annex 2). It is worth noting that traditionally, students in Public Health enter at the masters (MPH) level. Increasingly, however, more students are entering at the undergraduate level: there are now approximately 977 BPH graduates per year in

⁹ World Federation for Medical Education 2003, "Continuing Professional Development of Medical Doctors: WFME Global Standards for Quality Improvement," University of Copenhagen 2003.

¹⁰ Swiss Training Portfolio „Prävention und Gesundheitswesen“, Sept. 2003: <http://www.public-health.ch/logicio/client/publichealth/file/fmh/Portfolio.pdf>

¹¹ Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, et al. (2010) Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet* 376: 1923–1958.

¹² Maraquita Hollman (29 Sept 2012) Email correspondence with A. Weihofen. Council on Education for Public Health, Silver Spring, MD.

¹³ ASPHER Working Group on Innovation and Good Practice in Public Health Education (2012) What do Schools of Public Health and Employers of Public Health Professionals think about Performance of Public Health Professionals? Survey of European Schools and Departments of Public Health and Employers of Public Health Professionals. February 2012.

¹⁴ Counsel on Education for Public Health (2012) Including Undergraduate Public Health Degree Programs in Your Self-Study Document (Technical Assistance Document) http://www.ceph.org/assets/Undergraduate_TA.pdf Retrieved 14 November 2013.

Europe and 1149 MPH graduates.¹⁵ Many then continue to a master's program, or are part of a combined BPH/MPH program, and others stop after the BPH and enter the workforce. According to the Association for Schools of Public Health, in the US, the number of BPH programs is rapidly growing (although no aggregate numbers of graduates are currently available).¹⁶ The trend in Europe and abroad is an increasing number of undergraduate offerings.

Lastly, any results from this proposed project should be in line with the needs of the Public Health workforce in Switzerland. These needs are taken up by the vision expressed in the taskforce document "A proposal for a Swiss School of Public Health".¹⁷

1.2 Relevance and Benefits of Project

Since 1990, Public Health education in Switzerland has gradually developed and currently can be expressed in the form of a "reversed education pyramid": quite a number of excellent postgraduate programs (MAS) exist, followed by the establishment of two Master of Science programs and the PhD course program. The bottom of the educational pyramid is underdeveloped; so far no Bachelor program in Public Health has been established. As a consequence of this educational structure, we notice a clear lack of young, formally trained Public Health workers in our country. It is expected that the establishment of Bologna cycle degrees in general Public Health in Switzerland would be able to close this gap and contribute to the further promotion of Swiss Public Health education at other levels. Bachelor programs in Public Health might attract students from many disciplines, as these programs target also Public Health workers outside of the classic Public Health professions.

Some of the perceived benefits of a Bachelor or Master program in general Public Health would be:

1. creation of a generation of well-trained, young Public Health workers
2. feeding new participants into the existing Public Health education programs
3. possibility to expand the offering to a PhD program
4. structured education offerings for persons working outside the usual Public Health domains
5. cross-fertilization to other disciplines/other higher education institutions

A risk in the development of a Bachelor or Bologna cycle Master program in Public Health is the potential employability of graduates. Since the programs will be new, job placement is not

¹⁵ ASPHER Working Group on Innovation and Good Practice in Public Health Education (2012) What do Schools of Public Health and Employers of Public Health Professionals think about Performance of Public Health Professionals? Survey of European Schools and Departments of Public Health and Employers of Public Health Professionals. February 2012.

¹⁶ Hartman et al (2011) Trends in Higher Education and Schools of Public Health, Association of Schools of Public Health Report, October 17, 2011

¹⁷ Swiss School of Public Health. A proposal for a Swiss School of Public Health: Task Force Report. Zürich, Switzerland, 2011. (www.sspplus.ch/downloads).

guaranteed and the programs might need some time to establish trusted reputations. Furthermore, the needs of the Swiss labour market for people with such competences have not yet been evaluated. However, the Zürich University of Applied Sciences (ZHAW) does have one initial study completed and are planning a more in depth study for a Bachelor in health promotion and prevention.¹⁸ Other perceived risks in the development of a Bachelor program in Public Health are the limited human resources and eventual difficulties in finding the optimal structure and the correct content focus for such a study offering. It is the task of this feasibility study to explore these topics and to present potential answers to the critical open questions.

In light of the perceived gaps in Public Health education, the WHO recommends establishing Public Health education programs at all levels and to expand Public Health practice from outside the formal Public Health workforce.^{19,20} In Switzerland, Public Health education has expanded gradually, but surprisingly still lacks a pregraduate (Bachelor) and graduate program (Bologna Master) in general Public Health. International examples suggest a high need for such programs and that they can be implemented and run successfully. Such plans align with the vision of a future School of Public Health in Switzerland: such a school shall “promote a skilled Public Health workforce” in Switzerland and should “provide and assure high quality education and training at all Public Health degree levels”.

The proposed project helps to explore if such options are feasible and under what conditions they could be implemented. This project would be a substantial contribution to the creation of an internationally recognized School of Public Health, as planned in 2017.²¹

¹⁸ ZHAW unpublished report (October 2013)

¹⁹ OECD/WHO (2011), OECD Reviews of Health Systems: Switzerland 2011, OECD Publishing.

²⁰ WHO (2012) Draft: European Action Plan for Strengthening Public Health Capacities and Services. 23 January 2012

²¹ Swiss School of Public Health. A proposal for a Swiss School of Public Health: Task Force Report. Zürich, Switzerland, 2011. (www.sspplus.ch/downloads).

2 Goals and Methods of Project

2.1 Project goals:

- 1) To analyse the needs for formal Public Health education in Switzerland on all Bologna levels, taking into consideration the needs of the Swiss labour market and the perspective of the involved stakeholders
- 2) To analyse current developments in Public Health education in Switzerland and to compare undergraduate and graduate education in Public Health in Switzerland with the situation in the US and other European countries
- 3) To explore what the optimal profile and content of such Bachelor/Master programs would be and to explore possible university faculties in Switzerland where a Bachelor/Master of Public Health could be offered (feasibility analyses)

A fourth study goal, namely “to explore successive study options for those students finishing with a Bachelor or Master degree in Public Health” could only be pursued indirectly in this project. Reason for this is the fact that graduate degree programs at Swiss universities are entitled to define specific admission criteria for their courses. Therefore automatic permeability of the system – while foreseen by the politics – does not exist in reality and depends on the nature and content of the study programs offered (this has still to be defined for future Bologna cycle Public Health programs).

2.2 Methods:

- 1) Literature and information review, exploration of case studies in US/Europe and CH.
- 2) Development of a semi-structured, piloted questionnaire, as basis for the survey about feasibility and desirability of BA/MA programs in CH.
- 3) Interviews with 23 selected experts from higher education institutions and representatives of the Swiss labour market (list of interview partners in Annex 7)
- 4) Analyses of results and synthesis of findings (including recommendations for further procedures)
- 5) Reporting on behalf of SSPH+ (written and oral)

3 Needs of the Public Health Workforce Globally and Nationally

3.1 Documented Shortage of Trained Public Health Workers Globally

Beaglehole et. al. (2003) aptly stated that efforts to improve the efficiency of the global Public Health workforce would have a direct effect on health system performance and therefore population health.²² However, the WHO World Health Report (2006) cited a “major mismatch” between the health needs of the population and the current state of the Public Health workforce (numbers, relevant training, and practical competencies).²³ The WHO calls for “multifaceted efforts” to improve the effectiveness and capacity of the Public Health workforce worldwide. The Association of Schools of Public Health (ASPH) in the US has also documented a “Public Health workforce crisis.” Their statement argues that the trained Public Health workforce is diminishing (aging out), and the need for workers is ever increasing, “To replenish the workforce and avert the crisis, schools of Public Health would have to train three times the current number of graduates over the next 12 years.” To combat this shortage, ASPH advocates for increased funding and educational opportunities. The report states specifically, “Increasing undergraduate Public Health education is one way of availing basic training to all health professions’ students, as well as those in policy-related fields of study.”²⁴

3.2 Documented Shortage of Trained Public Health Workers Nationally

The SSPH+ Taskforce report (2011) states that Public Health education was not developed in CH until recently and it is therefore difficult to assess its needs, composition, training, and performance.²⁵ However, a recent report by Frank et al (2013) showed that despite a high level of general education, the Public Health workforce in Switzerland is largely not trained in the domain of public health – 2/3 do not have a formal Public Health education. The report advocates that training efforts in Switzerland focus on increasing the number of workers trained specifically in Public Health sciences.²⁶ Another astonishing gap is that all Swiss Public Health workers with a Bologna MPH degree have obtained this degree abroad (many in the US). These workers are often in high-level positions. Unfortunately, these Public Health leaders have no “Swiss specific” Public Health training, and must learn “on the job.”

²² Beaglehole, R., & Dal Poz, M.R. (2003). Public health workforce: challenges and policy issues. *Human Resour. Health* 2003;1(1):4.

²³ World Health Organization (2006) Working together for health: World Health Report 2006. Geneva, Switzerland.

²⁴ Association of Schools of Public Health (2008) Confronting the Public Health Workforce Crisis: ASPH Statement on the Public Health Workforce. Washington, USA; 2008.

²⁵ Swiss School of Public Health. A proposal for a Swiss School of Public Health: Task Force Report. Zürich, Switzerland, 2011. (www.sspplus.ch/downloads).

²⁶ Frank M, Weihofen A, Paccaud F (2013) Public health workforce in Switzerland: are Public Health workers lacking? *Int J Public Health*. doi:10.1007/s00038-013-0481-2

3.3 Competencies of Public Health Undergraduates/Graduates and Work Options

The recent studies cited above show that a healthier public and a more efficient health system are contingent upon a better-trained Public Health workforce in Switzerland and abroad. One strategy to combat this shortage of workers is to offer more and better Public Health training options with competencies shaped by “real world” practice needs. The Council on Education for Public Health (CEPH) (2005) defines competencies as, “What a successful learner should know and be able to do upon completion of a particular program or course of study.”²⁷ The Council on Linkages between Academia and Public Health Practice explains the three tiers of Public Health core competences (listed below) and advocate thinking of an individual refining their skills over a career²⁸:

- Tier 1: non-management (BPH, or MPH with no experience)
- Tier 2: program management or supervisory (MPH, some experience)
- Tier 3: senior management (MPH, with experience)

Several documents outline competencies for Public Health workers at all levels of education and career level. For example, the CDC Task Force Report on Public Health Workforce Development (1999) outlines the facets of the Public Health workforce (Public Health agencies at state and local levels, healthcare providers, public safety agencies, human service and charity organizations, education and youth development organizations, recreation and arts-related organizations, economic and philanthropic organizations, and environmental agencies and organizations).²⁹ Emphasis for the CDC is on job *function* as opposed to job *title*. The competency needs are listed as basic, crosscutting and technical. The CDC also outlines their “Ten Essential Public Health Services” listed below:

1. **Monitor** health status to identify and solve community health problems.
2. **Diagnose** and investigate health problems and health hazards in the community.
3. **Inform, educate, and empower** people about health issues.
4. **Mobilize** community partnerships and action to identify and solve health problems.
5. **Develop** policies and plans that support individual and community health efforts.

²⁷ Council on Education for Schools of Public Health (CEPH), Accreditation Criteria for Schools of Public Health, Washington DC, 2005, Available at: www.ceph.org, Accessed on 14 November 2014

²⁸ The Council on Linkages Between Academia and Public Health Practice (2010) Core Competencies for Public Health Professionals Revisions Adopted: May 2010 Available from: <http://www.phf.org/>, Accessed on 14 November 2013

²⁹ Task Force Report on Public Health Workforce Development (2000). CDC/ATSDR Strategic Plan for Public Health Workforce Development: Toward a life-long learning system for Public Health practitioners. Centers for Disease Control.

6. **Enforce** laws and regulations that protect health and ensure safety.
7. **Link** people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. **Assure** competent public and personal health care workforce.
9. **Evaluate** effectiveness, accessibility, and quality of personal and population-based health services.
10. **Research** for new insights and innovative solutions to health problems.

Many Public Health competency lists exist for all levels and facets of Public Health practice and career level. Experts compiled a collection of 81 separate competency lists for Public Health workers at the Public Health Workforce Development Annual Meeting (2001) Athens, GA, divided into Core - Basic Public Health (addresses the essential services of Public Health), New Topical Areas (emergency response, genomics, law, Functional Areas (leadership, management, supervisory, secretarial), Discipline Specific (professional, technical, entry-level, student), and Other Topical Areas (Maternal and Child Health, Sexual Health, etc.).³⁰ ASPH also outlines an MPH core competency model, which includes five core disciplines and their foci (biostatistics, environmental health sciences, epidemiology, health policy and management and social and behavioral sciences) as well as seven interdisciplinary/cross-cutting competency areas (communication and informatics, diversity and culture, leadership, Public Health biology, professionalism, program planning and systems thinking).³¹ The association also created a core competency model for Bachelor's in Public Health students.³²

In Europe, less has been done for Public Health specifically, and more for higher education across the continent. The Bologna process has been key in outlining competencies that can be generalized across disciplines. These documents outline the three-cycle system, quality assurance procedures, and international recognition of credits and standardized lengths of study. The European Qualifications Framework (EQF) is a “common euro reference framework, which links countries’ qualifications systems together, acting as a translation device to make qualifications more readable and understandable across different countries and systems in Europe.” This process allows for greater mobility of learners and workers and provides an 8 level framework that provides “a set of

³⁰ Centers for Disease Control (CDC) sponsored Public Health Workforce Development Annual Meeting (2001) Competencies for Public Health Workers: A Collection of Competency Sets of Public Health-Related Occupations and Professions, Available at: http://www.phf.org/resourcestools/Documents/List_of_Competencies_Sets.pdf, Accessed on 14 November 2013.

³¹ Association of Schools of Public Health (ASPH) (2011) Undergraduate Public Health Learning Outcomes FINAL Model July 14, 2011

³² Association of Schools of Public Health (ASPH) (2006) Master's Degree in Public Health Core Competency Model Version 2.3 August 2006

descriptors indicating the learning outcomes relevant to qualifications at that level in any system of qualifications (knowledge, skills and competence).”³³ A comparison of the Bachelor and Master’s competencies from the various groups is found in Annex 3.

In the health field The CompHP Project on Developing Competencies and Professional Standards for Health Promotion in Europe “was developed in response to the need for new and changing health promotion competencies to address health challenges.” This group was integral in developing competency-based standards and an accreditation system for *health promotion*, a quality assurance process (accreditation system), linking standards in Europe, among other activities.³⁴ ASPHER has also produced a list of core competencies for MPH education, which lists core competencies and specific indicators.³⁵ Finally, researchers in the UK developed a Public Health Skills and Career Framework (2008), which:

*“...Is a tool for describing the skills and knowledge needed across all groups, domains and levels of the Public Health workforce. It was developed in response to the strong expressed need for a mechanism that facilitates collaboration and coherence across this diverse workforce, in order to maximize its collective contribution and underpin the influence of Public Health in the UK. The Public Health Skills and Career Framework provides this by helping to ensure rigor and consistency in skills, competence and knowledge at all levels, regardless of professional background, and by enabling flexible Public Health career progression.”*³⁶

The group has created The Public Health Skills and Career Framework Cube, which can be found in Annex 4.

3.4 Argument for Undergraduate Education

Gebbie et al and the Institute of Medicine (2003) argue that “all undergraduates should have access to education in Public Health.”³⁷ In 2006, a Consensus Conference on Undergraduate Public Health Education was held and produced the following statement, “Undergraduate Public Health education

³³ European Commission. (2008). The European qualifications framework for lifelong learning (EQF). Luxembourg: Office for Official Publications of the European Communities

³⁴ Dempsey, C., Battel-Kirk, B., & Barry, M. M. (2011). The CompHP core competencies framework for health promotion handbook. Galway: Executive Agency for Health and Consumers (EAHC), National University of Ireland Galway.

³⁵ Birt, C., Foldspang, A. 2011, European Core Competencies for MPH Education. Association of Schools of Public Health in the European Region.

³⁶ The UK Public Health Skills and Career Framework (2008). Available at: www.phru.nhs.uk, Accessed 14 November 2013

³⁷ Gebbie K, Rosenstock L, Hernandez LM. Who will keep the Public Healthy? Educating Public Health professionals for the 21st century. Washington DC: National Academy Press, 2003: 144.

can prepare students to pursue professional education in Public Health and other health professions, and students who pursue education in disciplines from law to business to international affairs will have a broader population health perspective.”³⁸ Recent surveys of Public Health schools and programs indicate that the majority of the approximately 40 accredited schools (ASPH, unpublished data, 2006) and >60 accredited programs (Association for Prevention Teaching and Research [APTR], unpublished data (2006)) offer undergraduate Public Health course work.³⁹

The ASPH has created a Task Force on Undergraduate Public Health Education, which has set out the following priorities: a process for data collection (on bachelor Public Health programs e.g. students, alumni, etc), a statement on principles for developing an introductory Public Health course, and examining the options for articulation of undergraduate and graduate curricula. A goal of the Task Force is to introduce Public Health studies within undergraduate general education, thus addressing the education of all students with the aim of developing an educated citizenry.⁴⁰ Additionally, the CEPH is now accepting applications for accreditation of standalone BPH programs. Finally, the ASPHER Undergraduate Working group has put forth a new set of ambitious goals to promote, support and find best practices in European BPH programs (Annex 5).

Comment: The review of international literature reveals an increasing mismatch between health needs of the population and the current state of Public Health workforce (both shortage of trained Public Health workers and need for development of new competences). As reaction to that in the US and Europe Bachelor and Master programs in Public Health have been launched and commonly agreed models of core competencies for the different educational levels have been published. Switzerland lags behind in these developments. Recent studies reveal an important shortage of formally trained Public Health workers. Study programs in general Public Health do not exist yet. There are arguments to fill in these gaps, both on undergraduate and graduate level.

³⁸ Riegelman, R. K., Albertine, S., & Persily, N. A. (2007). The educated citizen and Public Health: a consensus report on Public Health and undergraduate education. Council of Colleges of Arts and Sciences.

³⁹ Riegelman, R. K., Albertine, S., & Persily, N. A. (2007). The educated citizen and Public Health: a consensus report on Public Health and undergraduate education. Council of Colleges of Arts and Sciences.

⁴⁰ ASPH Undergraduate Public Health Education Task Force Email Updates (2013), information also found on www.asph.org

4 Current Public Health Education Provisions: Switzerland and Abroad

4.1 Situation in Switzerland

General Remarks About the Swiss Higher Education System

Switzerland, like other European countries, offers three levels of university-based Bologna accredited basic education. This form of education is funded by federal and cantonal money. The first is the Bachelor's degree, which typically takes 3 years and totals 180 ECTS. The Bachelor's degrees offered in Switzerland are: the BA (Bachelor of Arts), BEng (Bachelor of Engineering), BLaw (Bachelor of Law), BMed (Bachelor of Medicine), BSc (Bachelor of Science) and the BTh (Bachelor of Theology). These degrees can be awarded by polytechnic schools (e.g. ETH), universities and schools of applied sciences (Fachhochschulen). It is important to note that, worldwide, undergraduate Public Health degrees are awarded as either BA's or BSc's.

In Switzerland, students who have taken and passed the "Matura" examination are eligible to enter any university bachelor's program in the country. However, the drop-out rate after the first year is often quite high for the more academically rigorous schools. A high dropout rate is how certain schools develop a more elite reputation. Certain disciplines, Medicine for example, do require special tests and offer only limited places.

Four types of academic Masters degrees are offered by Swiss universities, polytechnic institutes, and schools of applied sciences in Switzerland: consecutive, specialized, joint, and professional. These degrees include: Master of Arts (MA), Master of Science (MSc), Master of Engineering (MEng), Master of Law (MLaw), Master of Medicine (MMed), and Master of Theology (Mth). Consecutive degrees are a continuation of a particular Bachelor degree and include 90 to 120 ECTS. Specialized masters programs are interdisciplinary, the focus is specialized, and there are specific admissions criteria (also 90-120 ECTS). Universities in Switzerland can offer "joint master's" degrees among themselves or with universities abroad. University master's degrees are research-oriented or practice-oriented and entitled to subsequent PhD (doctorate). It is important to note that Schools of Applied Sciences can only offer MA's and MSc's. The doctoral degree (PhD) is a university-only academic degree that follows a master's program. These degrees cannot be awarded by Fachhochschulen.

A fourth type of masters is the professional masters designed for experienced workers with a university degree seeking to continue their education in a specific field: Master of Advanced Studies

(MAS), Master of Public Health (MPH) Master of Business Administration (MBA) and the Executive Master of Business Administration (EMBA)). These programs total 60ECTS or more and costs are paid by the individual and vary widely by institution. Professional students can also obtain other qualifications such as the Diploma of Advanced Studies (DAS, 30 ECTS), or the Certificate of Advanced Studies (CAS, 10 ECTS or more). CAS can usually be combined to form a MAS.⁴¹

Public Health Education Switzerland- First and Second Cycle:

Students seeking a Public Health education in Switzerland have a variety of options, mainly in Public Health related topics (as opposed to general Public Health) and mainly focused on continuing education. Currently, there are no established undergraduate degrees in general Public Health in Switzerland. However, there are a few programs in Public Health related fields. The University of Basel offers a Bachelor in Exercise and Health Sciences, and its Bachelor in Biology includes a block course in Epidemiology. The University of Neuchatel has a Bachelor in Science and Sport, and the University of Bern a Bachelor in Sport Science. Several universities of applied sciences offer undergraduate degrees in health related sciences (nursing, physiotherapy, midwifery), but not in a Public Health science, such as epidemiology or environmental sciences.

When compared to undergraduate offers, there are many more bologna graduate offerings in Public Health and related fields in Switzerland. Many schools offer degrees in human and veterinary medicine, pharmacy and biostatistics. Listed below are other specific related degrees by school:

The Swiss Federal Institute of Technology Zürich (ETH-Z)

- MSc in Environmental Sciences with a Major in health, nutrition, environment (including modules in Public Health / Infectious Diseases Nutrition and Health / Environmental Health)

The University of Basel

- MSc in Epidemiology
- MSc Exercise and Health

The University of Neuchatel

- Master in Law, Health Orientation and Biotechnology

University of Lugano

- MSc in Communication, Management and Health

University of Fribourg

- Masters in Sports Science and Health Research

University of Lausanne

⁴¹ Information obtained on www.berufsberatung.ch, accessed on 14 November 2013

- Master in Human Movement Sciences and Sport- Adapted Physical Activity and Health
University of Luzern
- Master in Health Sciences

Continuing Professional Education in Public Health:

SSPH+ also supports many continuing professional education offers (MAS, DAS and CAS). The University of Basel offers five MAS degrees: a Master in Public Health (jointly with the universities Bern and Zurich), a Master in Insurance Medicine, a Master in International Health, and an MBA in International Health Management. The University of Geneva also offers a Master in Public Health (MAS). Lausanne has a MAS in Science and Health Organization and an Executive MBA in Healthcare Management. Lugano offers a MAS in Health Economics, Management and Community Health. ETH Zurich and the University of Lausanne offer a MAS and a DAS in Work and Health⁴². In addition to the MAS and DAS offerings, several CAS programs exist in Public Health related topics at the eight SSPH+ partner universities.

Several non-SSPH+ supported continuing education MAS offers also exist: MAS in Healthcare Management (Bern), Joint MAS in Advanced Epidemiology (Bern), MAS Evaluation (Bern), MAS Applied Statistics (Several Universities, ETH), and a MAS Medicine Development /DAS Pharmaceutical Medicine /Drug development (Basel).

Schools of Applied Sciences in Switzerland also offer many Public Health related continuing education MAS, DAS and CAS degrees. Eight different schools offer nine MAS courses, two DAS diplomas, and 13 CAS certificates in topics such as health promotion and prevention, health management, health economics and policy and health science (See Annex 1).

4.2 Situation Abroad

Public Health Education Abroad: Europe

Currently, there are 450 schools of Public Health worldwide (Paccaud, 2011). This excludes departments, or academic units providing individual courses in Public Health, or related topics. Eighty of the 450 worldwide Public Health schools are located in Europe. According to the Association of Schools of Public Health in the European Region (ASPHER) member survey in 2011, 17 institutions offer 20 Bachelor programs. Twelve of these programs are in general Public Health, and the others are in Public Health management, health management, health promotion and

⁴² Today, the Universities of Zurich and Lausanne offer a DAS in Work and Health.

management, Public Health communication and Public Health nutrition. Two of the institutions offer more than one Bachelor. One program is 140 ECTS (2.5 years), 11 are 180ECTS (3 years), and 8 are 240ECTS (4 years). Enrolment ranges from 18-300 students per year (median 59, total 1302 in 2011) with an 80% average graduation rate. The schools, on average, have a relatively low amount (under 10%) of international students.⁴³

There is currently no commonly agreed upon European standard for learning outcomes or competencies at an undergraduate level, but individual schools (e.g. Copenhagen and Maastricht) have developed their own documents.^{44,45} ASPHER currently has an Undergraduate Working Group, whose current tasks include mapping undergraduate Public Health programs, reviewing existing programs, conducting a needs assessment and working with other ASPHER taskforces (e.g. competencies). The group is also working on producing a “recommendations” document to highlight best practices for programs in Europe (Annex 5).

According to the ASPHER 2011 member survey, 29 out of 66 institutions offer a total of 42 second cycle Bologna masters programs (32 Masters in Public Health or Master of Science in Public Health). Twenty-five of these programs are 120ECTS (two year) programs, and 6 are 60 ECTS one year programs. Seven other programs range between 1-3 years and 65-180 ECTS. One other combination masters/bachelors in medicine program is 360ECTS, and two programs did not indicate an answer. The range of students is from 12 to 175 with a median of 29 (1474 total) students per year.⁴⁶

Public Health Education Abroad: United States

According to the Council on Education for Public Health (CEPH) there are 29 accredited Bachelor’s programs in Public Health (15 in general Public Health) in the United States (including elite schools such as: John’s Hopkins University, University of California Berkley, and Tulane). This number is rapidly growing. There are currently no data on the total amount of students enrolled in these programs and their graduation rate.

⁴³ ASPHER Working Group on Innovation and Good Practice in Public Health Education (2012) What do Schools of Public Health and Employers of Public Health Professionals think about Performance of Public Health Professionals? Survey of European Schools and Departments of Public Health and Employers of Public Health Professionals. February 2012.

⁴⁴ Quality Assurance Netherlands Universities (QANU (2010) Assessment of the Bachelor’s Programme European Public Health at Maastricht University, www.qanu.nl

⁴⁵ Study Board for the BSc and MSc in Public Health September 2009 Competency profile for the Bachelor Degree in Public Health at the University of Copenhagen, <http://publichealthscience.ku.dk>

⁴⁶ ASPHER Working Group on Innovation and Good Practice in Public Health Education (2012) What do Schools of Public Health and Employers of Public Health Professionals think about Performance of Public Health Professionals? Survey of European Schools and Departments of Public Health and Employers of Public Health Professionals. February 2012.

In response to the growing number of programs, the CEPH is currently working on a standardized accreditation of standalone baccalaureate Public Health programs. The council now offers a standardized accreditation process for standalone programs.⁴⁷ Concurrently, the Association of Schools of Public Health (ASPH) published undergraduate Public Health learning outcomes in 2011. The goal of this document was to “express what every undergraduate, as an educated member of society, should know and be able to do to promote population health both locally and globally,” (ASPH, 2011). ASPH also hosted an Undergraduate Education for Public Health Summit in October of 2012, which was attended by over 120 educators and professionals.

According to the Council on Public Health Education (CEPH) there are 144 schools offering an accredited MPH program in the US. There are 24 schools that offer a combination of Bachelors/Masters programs, either a BA-MPH a BS-MPH or both. CEPH also lists many accredited dual-Masters programs including combined Masters such as JD-MPH (law), MD-MPH (medicine), MSW-MPH (social work), and MBA-MPH (business) and several MPH-PhD (or other doctorate e.g. PsyD) combination degrees.⁴⁸ According to Hartman et al (2011), the number of MPH degrees awarded has increased 33% between 2000 and 2009. They state, “Between 2000 and 2010, enrollment in Schools of Public Health increased by 57%, from 16,777 to 26,340 students.” This is a tremendous amount of growth and mirrors national trends of master’s enrolment, particularly in the health field.⁴⁹

Public Health Education Abroad: Germany

Changes in the health system and education system have triggered the development of Public Health education in Germany. In the early 90’s a number of postgraduate Public Health offers have been established in order to enhance the qualification level of health professionals. In the beginning of 2000, the Bologna process has promoted the establishment of first and second cycle Public Health programs. In the year 2013 ten UAS and a number of universities offered Bachelor (180 ECTS) or Master programs (90-120 ECTS) in the domains of Public Health, health sciences and health promotion. These provisions have been supplemented by one doctoral program (Dr PH, University of Bielefeld). Alumni surveys of the UAS in Magdeburg has shown, that nearly 80 -90% of the graduates of their Bachelor program in health promotion found a job in the health sector after graduation. A

⁴⁷ History and Overview of Baccalaureate Accreditation <http://ceph.org/constituents/programs-baccalaureate-level/history-and-overview/>
⁴⁸ Counsel on Education for Public Health (2013) website www.ceph.org accessed on 14 November 2013

⁴⁹ Hartman et al (2011) Trends in Higher Education and Schools of Public Health, Association of Schools of Public Health Report, October 17, 2011

substantial proportion of students (60%) continued with a Master degree. Responses of the study coordinators of some other Bachelor programs show that the annual demand for these undergraduate degree programs is far exceeding the effective number of places available (several hundred of candidates for 30-50 places).

Comment: In Switzerland, the Public Health education system has expanded gradually and currently expresses in the shape of a “T- model”: a high number of postgraduate programs (MAS) have been launched, but only limited options on the undergraduate and graduate level do exist. In contrary to other countries in the European region, Switzerland surprisingly still lacks a pregraduate (Bachelor) and graduate program (Bologna Master) in general Public Health. As a consequence of this educational structure, we notice a clear lack of young, formally trained Public Health workers in our country. It is expected that the establishment of Bologna cycle degrees in general Public Health in Switzerland would be able to close this gap and serve the purpose of cross-fertilization into other disciplines (e.g. Economics, Law, Sociology, Engineering, etc.), thus providing basic Public Health competencies to a “wider” Public Health workforce. Over the past years, in the US and Europe about 50 accredited BA programs and 200 MA programs have been successfully launched and implemented. They can serve as benchmarks for the establishment of corresponding programs in Switzerland.

5 Six Case Studies: Summary and Discussion

5.1 Three Case Studies Switzerland

There are three newer program developments in Switzerland that deserve special consideration and attention. These programs are described in detail below:

Master in Health Sciences (MSc) University of Lucerne: This Bologna Master's in English is brand new and its first students started in September 2013. The two-year (120 ECTS) program is offered by the Department of Health Sciences and Health Policy and "provides in-depth knowledge of health, functioning and disability and approaches health from a bio-psychosocial and interdisciplinary perspective." Students choose from the following majors after their first semester: Health and Social Behaviour, Health Economics and Health Policy, Health Communication, Research Methods, or Human Functioning Sciences. Core courses, offered during the first three semesters, include Human Functioning Sciences, health systems and services, research design, and qualitative and quantitative methods, scientific and professional skills development. Students must also participate in an internship and a research project as part of their third semester. Students complete their research project and master's thesis during the fourth semester. Admissions rates are confidential.

Master of Science in Epidemiology (MSc), University of Basel: This is another new Bologna Master conducted in English and offered by the Swiss Tropical and Public Health Institute (Swiss TPH). The degree is normally 3 semesters and 90 ECTS. Applicants are required to have a Bachelor degree in natural sciences, medicine or veterinary medicine (with a minimum grade point average of 5.0). During the first semester students participate in lectures in Epidemiology and Biostatistics, and during the second two semesters students work on a Master's thesis and take optional courses. This year, out of 45 applications to this program, 14 were admitted, and 10 enrolled.

Planned Bachelor in Health Promotion and Prevention (BSc), Zürcher Hochschule für Angewandte Wissenschaften (ZHAW): The Department of Health at ZHAW plans to create a Center for Health Sciences and a Bachelor in Health Promotion and Prevention within this center. The program would start earliest in 2015 with approximately 60 students (graduating the first students in 2018). The program is planned in response to the growing number of life-style related, preventable chronic diseases. The school states that the professionalization of Health Promotion and Prevention is well-established with 13 Bachelor's programs in Germany alone. Graduates are prepared in effective and efficient practical implementation of health promotion and preventative actions in various population groups and settings. ZHAW also arranged a survey to gather information about opinions

in the field with regards to this planned Bachelor's program. They interviewed 29 experts and stakeholders from public, private and nonprofit health and educational institutions (e.g. Federal Office for Public Health, Swiss School of Public Health, Migros, and AIDS Switzerland). Twenty-one of 29 experts felt that an undergraduate bachelor's degree program in health promotion and prevention is sensible, necessary or desirable. Seven expressed skepticism and two rejected the idea of this program. Those for the program cited reasons such as the current shortage of professionals, the increasing demand for skilled workers in demographic, epidemiological and social development (health society, occupational health management), and the integration of such a program in the Bologna education system ensuring long-term quality of the training and equal status in the health field. Those who were skeptical cited points such as: the overlap with existing training and education, lack of a need for professionalization, and conversely, the complexity of the field of action (one expert believed that a UAS education is insufficient for the complex field of action).⁵⁰

5.2 Three Case Studies from Abroad

Three in depth case studies were completed to provide a detailed overview of specific programs in Public Health: two in Europe and one in the US. Maastricht's program stands out as the largest, most successful (largest number of students and growth) program. It is unique in that it is a Bachelor's in European Public Health, making it quite attractive to international students. Yale stands out as a combination bachelor and master program. It is attractive in that it saves students time and money by starting the master's level courses during the final year of undergraduate study. This program is quite small and elite. Copenhagen is a good example of a more typical European Bachelor's in general Public Health, taught in the local language. All three selected programs are accredited by local boards, and all list their own learning outcomes: Maastricht and Copenhagen are program specific, and Yale uses the Association of Schools of Public Health competency catalogue for graduates.

Maastricht University Bachelor's Programme in European Public Health is offered by the Faculty of Health, Medicine and Life Sciences at Maastricht University (Maastricht, The Netherlands). This program was started in 2006, and is offered in English. One of the most successful undergraduate Public Health programs in Europe, it accepts 100 students per year, and this number is growing. The program is 180 ECTS taught over three years in English. Applicants need the appropriate Dutch diploma or equivalent non-Dutch diploma, or admissions exam, plus language proficiency.

⁵⁰ ZHAW unpublished report (October 2013)

“The mission of the program is to train students to become state-of-the-art, all-round specialists in European Public Health, specialists capable of appreciating, analysing and comprehending the impact of European and transnational integration on Public Health, health systems, health services, and the changing role of citizens, clients and patients.”⁵¹

Its focus is:

- “Public health as collective action for sustained population-wide health improvement, reflecting the present-day academic context of Public Health;”
- “The European dimension of Public Health issues and developments within local, regional, national and global Public Health arrangements, thus reflecting the European perspective of the program;”
- “A contemporary and adaptive European agenda for Public Health, listing current and future Public Health issues, problems and challenges in the European region, thus providing the scope and limits of the curriculum.”⁵²

Students learn the “shape of Public Health in Europe today; form, function and place of national health programs and institutions within the EU and the globalising world.” They become familiar with the themes of population health, universal and equal-access healthcare, the “europatient,” good governance including free movement of goods/services/capital across borders. The courses are taught in the vision of a “New Public Health⁵³” and teach students how to initiate change at all levels. Students are encouraged to study abroad or at another Maastricht faculty and they are required to take a practical research internship and complete a bachelor’s thesis.

The program is accredited by the Dutch-Flemish Accreditation Organisation (NVAO) and the German Akkreditierungsagentur für Studiengänge im Bereich Gesundheit und Soziales (AHPGS) and the program is especially outstanding in detailing its learning outcomes.

Related Masters Programs: European Public Health, Epidemiology, Health Education and Promotion, Health care Policy, Innovation and Management, Health Sciences Research

⁵¹ Quality Assurance Netherlands Universities (QANU (2010) Assessment of the Bachelor’s Programme European Public Health at Maastricht University, www.qanu.nl

⁵² Quality Assurance Netherlands Universities (QANU (2010) Assessment of the Bachelor’s Programme European Public Health at Maastricht University, www.qanu.nl

⁵³ “The new Public Health no longer only includes the traditional disciplines of epidemiology, social medicine, microbiology, human biology, socio-medical hygiene and prevention, and is not focused only on public groups at risk, but in the modern vision includes as its most important areas for attention environmental hygiene, ecology, health promotion, mental and social health hygiene, social sciences such as sociology, economics, psychology, political science and organisation and administrative studies, as well as research and theory in the field of care and health care systems.” www.qanu.nl

Listed Career Prospects: International health consultant, policy advisors, health information officers, project managers, prevention specialists, Public Health advocates, staff personnel, European affairs managers, research scientists in organizations such as local/regional/national/European governments, NGOs, insurance companies, international organizations and corporations, universities, hospitals

The Yale University Five-Year BA-BS/MPH Program is a combined Bachelor and Master program located in New Haven, CT and offered by the School of Public Health. Founded in 2007, the program is taught in English and is quite elite accepting only 17 students per year (although this number will most likely grow). The program lasts five years and totals 18 “course units.” Of the three programs explored in detail for this report, Yale’s requires the most rigorous admissions standards and has the lowest admission rate (of the 30-40 applicants per year only 15-17 are admitted). Students must have the pre-requisite science and math courses, transcripts, SAT scores (standardized testing), and letters of recommendation and applicants are encouraged from the sciences, social sciences and the humanities. Students can apply during the fall semester of their third undergraduate year.

Students learn to translate Public Health concepts and theories learned in the classroom to “real-world” contexts including:

- “the formulation and implementation of health and social policies;
- the design of experiments testing the efficacy of health promoting interventions;
- the administration of programs, organizations, and interventions that alter health-related behaviors or the delivery of health care services;
- the development of new institutional arrangements for tackling global health concerns;
- the collection and analysis of data to improve the health of communities; and
- the application of laboratory techniques to reduce the threats of various infectious diseases.”

Students are able to combine another undergraduate major with the Public Health concentration. Students often blend their Public Health education with related professions (medicine, law or management, as well as the physical and social sciences). Upon graduation, approximately 50% of graduates enter the workforce, and the other 50% continue their education (MD, PhD, JD etc). Students are required to do an internship and encouraged to study abroad. The program is accredited by the Council on Education for Public Health (CEPH) in the US.

Staff involved in creating the program cited some difficulty gaining faculty buy-in. Professors felt that the students would be too young and inexperienced to enter an MPH program directly from a bachelor's program without any work experience. Currently, there is a general feeling that this is not the case. Combination degree students are perceived as excellent contributors to the classroom atmosphere. Professors find that these students mix well with the more seasoned members of the classes.

Another concern was that combination students would experience repetition in subject matter between their undergraduate courses and their MPH courses. This is not a common complaint from students because the undergraduate students begin to take masters level courses directly during their 4th year. Specifically, students take four MPH level courses during their last undergraduate year (including core MPH courses in Biostatistics and Epidemiology). "Students complete a Public Health internship between the fourth and fifth years of the BA-BS/MPH Program. They are in full-time residence at the School of Public Health during their fifth year in the program, during which time they complete their remaining ten courses and the master's thesis (2 course units)."

The Copenhagen University Bachelor Degree in Public Health, located in Copenhagen, Denmark is offered by the departments of Health Sciences, Social Sciences, Natural Sciences, and Humanities (although the administration and majority of the faculty come from the Department of Public Health). The three-year (120 ECTS) program was started in 1999 and is taught in Danish and English. Students number approximately 65 per year. Of these, approximately 45 graduate every year. The program is taught in Danish, but several elective courses, and the international health course is taught in English. Students must pass a Qualifying Examination, and have passing grades in Danish A, English B, Mathematics A. The program is accredited by ACE Denmark (a Danish accreditation board). Students are encouraged to study abroad.

The school explains that undergraduate students are given a broad knowledge of the theories and concepts of Public Health, but can continue in a consecutive MPH program with more advanced methodological skills and in depth Public Health knowledge.

The study structure is as follows:

Year 1	Semester 1	Semester 2
	<ul style="list-style-type: none"> - Ethics of Philosophy of Science (5 ECTS) - Health Care Systems Structure and Function (7,5 ECTS) 	<ul style="list-style-type: none"> - Introduction to Epidemiology (7,5 ECTS) - Qualitative Methods (7,5 ECTS)

	<ul style="list-style-type: none"> - Sociology (5 ECTS) - Social epidemiology and Public Health (5 ECTS) - Disease Prevention and Health Promotion (7,5 ECTS) 	<ul style="list-style-type: none"> - 1st year Project (15 ECTS): - (Sociology (5), Social epidemiology and Public Health(5), Disease Prevention and Health Promotion (5)).
Year 2	<p>Semester 3</p> <ul style="list-style-type: none"> - Human Biology and Diseases (see 4th semester) - Psychology, Learning Theory and Health Communication(7,5 ECTS) - Social Medicine and Rehabilitation (7,5 ECTS) - Demography (5 ECTS) 	<p>Semester 4</p> <ul style="list-style-type: none"> - Human Biology and Diseases (20 ECTS) - International Health (10 ECTS) - Medical Sociology (5 ECTS) - Organisation Analysis (5 ECTS)
Year 3	<p>Semester 5</p> <ul style="list-style-type: none"> - Environmental and Occupational Health (7,5 ECTS) - Health policy analysis (2,5 ECTS) - Principles of Economics and Health Economics (10 ECTS) - Introduction to Statistics (10 ECTS) 	<p>Semester 6</p> <ul style="list-style-type: none"> - Elective courses or Internship (10 ECTS) - Bachelor Thesis (20 ECTS)

The university states that possible job opportunities upon graduation (with the bachelor's degree only) could include in the Interior and the Ministry of Health, National Board of Health, the regional and local health departments, from engineering and consulting firms with tasks within health and social care, pharmaceutical and food industry, in international organizations like the Red Cross, the UN and WHO, patient organizations as well as research institutions such as the National Institute for Public Health and the country's universities.

Program leadership explained that, currently, there is a need for more PH intervention and specialists with analytical skills in the country. Concurrently, health related topics and Social Sciences are growing in popularity at the university. These external factors contribute to a rise in applicants and the continued success of the program and its graduates. The largest struggle for the program was to forge its own identity separate from the Medicine programs. Additionally, some of the staff and

faculty feel that there is a need to continue on to the MPH program – the bachelor's is only “half way.” A final complaint by students who do continue on to the Masters program is that there is a great deal of overlap.

5.3 Alumni Impressions

A selected case study of alumni of bachelor's in Public Health programs globally provided a few interesting impressions listed below:

- What made you enter the bachelor in Public Health program?
 - “I was working in (a) Hospital- (doing) community development, school health program, women and child health, sanitation and hygiene, microfinance etc. (The program) gave me a wonderful base on working in Public Health to upgrade community health in rural communities.”
 - “(To) Improve the basic primary health care in my country”
- What were the most important courses for labour market preparation?
 - “Epidemiology, Research, Statistics, Health Education, Health Promotion”
 - “Community diagnosis, district management, infectious disease control, research, environmental and occupational health”
- Do you think an undergraduate program in Public Health works as a standalone program, or is it better combined with a masters or doctoral degree?
 - “Better combined with at least Masters program”
 - “I think, undergraduate program should be different from master or doctoral degree. I would say, undergraduate program on Public Health is the base on Public Health. After graduation, they should work a couple of year(s) to realize and understand the community and real problem(s) of the community. It will upgrade their skill and knowledge which will help to sharpen from Master or doctoral degree later on.”
 - I think it is better to combine with masters and doctoral degree. I am living outside (my country) and for me to be able to apply for a job I will need a Masters degree.”
- For those continuing to an MPH, did you find the degree programs to overlap significantly in course content?
 - “I have just started my Master degree. It seems to me that will overlap slightly”
 - “Yes 10 %”

Comment: Selected case studies of Bachelor and Master programs in Public Health from the US and Europe suggest a high need for such programs and prove that there is a labour market for graduates leaving universities with the various Bologna degrees. In Switzerland small but encouraging steps have been undertaken to foster Public Health education at undergraduate and graduate level. Recently created study programs are facing a vast demand but these attempts focus on specific areas within Public Health and therefore satisfy only narrow group of workers in the field. Moreover these attempts are still scattered and are not embedded in a coherent architecture of Public Health education in Switzerland. Switzerland should be encouraged to follow international calls for more trained workers at all levels^{54, 55}. On Bachelor level graduates may follow different pathways, such as entering the workforce, continuing directly to an MPH degree or entering the workforce and later returning to an MPH or other degree.

⁵⁴ Task Force Report on Public Health Workforce Development (2000). CDC/ATSDR Strategic Plan for Public Health Workforce Development: Toward a life-long learning system for Public Health practitioners. Centers for Disease Control.

⁵⁵ World Health Organization (2006) Working together for health: World Health Report 2006. Geneva, Switzerland.

6 Viewpoint of Experts

In order to assess the need for formal Public Health education on all Bologna levels, 23 Public Health experts and representatives of the Public Health labour market have been interviewed on the basis of a semi structured questionnaire (see Annex 7, Interviews partners and questionnaire). A list of interview partners was created by listing of relevant PH working domains according to the “Public Health workforce report”. Representativeness was not the goal of this interview series. However, interview partners were selected in a way to assure that the voice of major working domains have been represented in our survey: federal and cantonal government, education/research institutions, hospital facilities, NGOs, professional associations, health insurance, foundations, etc. Much weight was given to the inclusion of representatives of those institutions, which would be entitled to provide Public Health education programs (Universities, UAS). A total of 23 out of 30 invited experts participated in a one-hour telephone interview. According to the different topics of the questionnaire, the following main results were achieved:

6.1 Major strengths and weaknesses of the current national Public Health education system

Existing postgraduate education offers in Public Health as well as the recently established PhD programs have been perceived as major strengths of the system today. The fact that current programs are often held in cooperation and in some cases even cross language borders has been emphasized as strong point, too. Furthermore the strong liaison between medicine and Public Health as well as the inclusion of health economics into the SSPH+ are counted as positive assets of the current situation.

The lack of Public Health education at pregraduate and graduate level (basic education) is perceived by almost all experts as “the” major problem. Several interview partners pointed to the documented shortage of trained Public Health workers, especially in the domain of prevention and health promotion. The gap in basic education is also important as such educational offers would be needed to strengthen the “professional identity” of Public Health in Switzerland. All these factors lead to poor visibility and knowledge about Public Health in general population, and especially in young people who could be interested in a Public Health education.

The quantity of offers in UAS is perceived as strength by some, but the majority see it as a weakness. For one person, the heterogeneity of Public Health offers in UAS is a strength and a weakness at the same time. Others speak of „uncontrolled growth“ of programs in the UAS and also criticize the high costs of these offers. It is interesting to see that in these statements, UAS offers are characterized as „Public Health programs.“ For others, these same programs are not Public Health oriented enough

and much too close to offers on health promotion and prevention; one criticism is therefore that these programs fail to enhance a broad and truly inter- or pluridisciplinary perspective inherent to Public Health. The separation of UAS and universities is another point of criticism, as well as lack of coordination between basic education and postgraduate education in Public Health.

The proximity of Public Health and medicine in Switzerland appears also to be a weakness to some interview partners. For some, actual Public Health education is too „academic“ and they perceive a need for low-threshold offers in Public Health.

6.2 Desirability of Bachelor and Master programs in Public Health in Switzerland

In general, experts agree that there is a necessity to develop basic education provisions in Public Health in accordance with Bologna regulations (Bachelor and Master degrees). There is also consensus about the value of coordinating Public Health training programs to establish the field as a profession of its own.

However, respondents cited different priorities, logics and argumentations: A slight majority of experts, and mainly those working somewhere in the educational system themselves, think that the first priority should be the establishment of Bologna Master degrees. Others emphasize the importance of starting with Bachelor programs and degrees, which then can be completed with an education offer on a Master degree level.

The complexity of Public Health including its poorly defined boundaries, the multitude of related disciplines and types of knowledge, and the various methods and techniques encompassed are a huge challenge for designing a possible Bachelor program. Therefore, some argue a Bachelor degree in Public Health would be „something and nothing“, subjects and problems could merely scratch the surface, never achieving the necessary depth. Some also fear that a Bachelor degree in Public Health could become a collecting basin for very diverse groups of persons, which could potentially mean a loss in quality. It is perceived as a huge challenge to define the „basic competences“ of Public Health workers, which should be the basis for a Bachelor degree.⁵⁶

6.3 Profile of a Bachelor / Master program in Public Health

Concerning the profile of a Bachelor program a slight majority of interviewed experts favour an orientation towards general Public Health, with a focus on practice and national structures. These experts feel specialisation could be achieved on Master level. Those who are sceptical towards a general Public Health Bachelor degree stress the professional „identity-building“ aspect of more

⁵⁶ For an overview of the „core competencies“ of Public Health, please look at the report of the mandate of SSPH+ on continuing education in Public Health in Switzerland from November 2010, extracts also in Annex N° 9.

specific Bachelor programs (such as nursing, social work, and others), which then could and should be followed by a Master degree in general Public Health.

Concerning the direction of a Master program, there are different opinions: about half of the interviewed experts are clearly preferring a Master in general Public Health, giving students the needed time to acquaint themselves with the broadness of Public Health. The other half think that a specialisation on the Master level would be appropriate, e.g. in epidemiology, health promotion and communication.

Generally speaking, all experts think that for pregraduate and graduate Public Health education a general approach should be combined with a more specialised, disciplinary one. However, opinions about emphasizing one or the other, as well as the best chronological order, differ widely.

The crucial point would be the employability of the future degree holders, and therefore academic and practical aspects should both be weighed equally. International Public Health issues are seen as important, but national and regional specifics should be also taken in account. A Bachelor program should be delivered in the regional language, a Master program could mix regional language with courses taught in English. Only one expert opts for a Bachelor and Master program delivered completely in English.

6.4 Structure of a Bachelor / Master program in Public Health

Many of those who opt for a Bachelor degree program in Public Health think that these programs should be taught in UAS. Others argue for the universities in Public Health education to take a stronger role both at Bachelor and Master level. Representatives of all Swiss universities (incl. ETHZ) pointed to the openness of their corresponding higher education institutions towards interdisciplinary or interfaculty endeavours but currently no concrete plans do exist to establish new pregraduate or graduate Public Health programs.

All participants thought that cooperation between universities and UAS should be enhanced and promoted, but there are also very critical voices and some resigned statements on the administrative and bureaucratic barriers for such initiatives. The need for more cooperation and collaboration of all actors in the tertiary sector is widely accepted, but negative examples of frustrating experiences are much easier to find than the opposite.

The following interview partner statements mirror expert opinions expressed three years ago, when an SSPH+ mandate explored the extent of and need for collaboration between UAS and universities and concluded in the following way⁵⁷:

- All interviewed experts stressed the need to promote and intensify cooperation between universities and UAS in the domain of Public Health. It is estimated that the Swiss Public Health workforce would benefit greatly from coordinated education and research in this area.
- A clear majority of interviewed experts opted for strategic and content-based collaboration both in education and in applied research.
- The interviewed experts clearly prefer a stepwise process towards closer collaboration models and almost half supported the vision of a National School of Public health (NSPH) established with broad scope and clear bridges between academia and Public Health practice.
- The major perceived barriers concern federalism, structural and institutional divergences between universities and UAS and the close-mindedness of involved representatives.
- Collaboration between universities and UAS could start with punctual collaboration projects, e.g. in the domain of postgraduate and continuous education.
- A further step would be to establish a cooperation structure that would allow the partners to discuss issues of strategic importance and to clarify each other's roles in cooperative actions.
- Throughout the process of closer cooperation, universities and UAS could learn from examples of good collaborative practices in Switzerland and abroad.

Many of the interviewed experts concluded that secured structural pathways alone will not guarantee the implementation of new education offers in Public Health. Success will depend on (1) readiness to take on a certain risk, (2) pioneering spirit and (3) committed people who are willing to work together. One expert also states that it is a shame to see that many of the innovations in Public Health teaching in Switzerland are developed outside of working hours and sometimes from retired people.

According to the undivided opinion of all experts the favourable structural frame of a future Bachelor or Master program in Public Health should be one provider committed to see the project realized. While joint programs are perceived to be an alternative it is noted that support structures for such common enterprises are lacking. This is seen as a possible future role for the SSPH+. With the same clarity, the experts called for the participation of a variety of faculties and departments in the construction of a Public Health training program. Medicine, economy, social sciences and law were mentioned the most. Some of the experts pointed out that interdisciplinary cooperation could also

⁵⁷ For the discussed forms of cooperation between different educational institutions in the field of Public Health see also „Collaboration of Universities and UAS in the Domain of Public Health“, mandate of the SSPH+, realised by Rolf Heusser in April 2011.

lead to obstructive discussions about „ownership“ of the contents and the program. The same holds true for the collaboration between different institutions on the tertiary level, namely universities and UAS (see above).

6.5 Job market options for Bachelor and Master degree holders

Some of the interviews reveal an amount of uncertainty concerning the job market options for Bachelor degree holders. Some of this hesitation may be explained by a lack of experience; other experts think a study time of three years is generally too short to achieve enough competences – be it in Public Health or in any other field.

There are clear statements affirming the employability of Bachelor degree holders in routine work practically in all public and private health institutions (federal and cantonal health departments, research institutes, health insurance, NGO's, foundations, etc.). Such educated Public Health workers would be responsible e.g. for planning of projects, data collection, quality assurance issues, the organisation of prevention and health promotion programs, communication, etc. A basic Public Health training could foster an over-individual, population-based focus of thinking, which is inherent and indispensable for good Public Health. More complex tasks in policy building, hospital planning, managed care, health economics etc. should be limited to holders of a Master degree who are empowered to think and act in analytical and integrative terms.

6.6 The value of practice experience before taking a Master degree for Bachelor degree holders

Here, experts were asked to give and to explain their preference for model A or B.

Model A: After getting the BA degree students go directly to workplaces and eventually return later to complete with a Master degree in Public Health or in other disciplines.

Model B: After getting the BA degree students are encouraged to continue directly to a master degree in Public Health or in other disciplines; upon graduation they would enter the workplaces.

A majority opts for model A, both for practical reasons (earn money etc.) as well as for „academic“ reasons (practical experience fosters the ability to manage situations of high complexity). Only one person prefers model B, being persuaded that a three years study is not enough to handle even easier and more routine-work-oriented tasks in Public Health.

6.7 Importance of competences provided in a Bachelor / Master degree in Public Health

Which competence cluster from the following four do you think is the most important?

- a) Knowledge of human cultures and the physical and natural world as it relates to individual and population based health (basics knowledge of various health sciences)
- b) Intellectual and practical skills (inquiry and simple analyses of scientific data)
- c) Communication skills, teamwork, problem solving, creative thinking
- d) Personal and social responsibility (civic skills/engagement, ethical reasoning, skills for life-long learning, etc.)

The answers to this question have been quite heterogeneous. Basically all interview partners judged all of the mentioned learning outcomes to be indispensable for Public Health graduates. Most people rate practical skills and soft skills as mentioned in c) and d) as extremely important in the working reality. Also, readiness to take social responsibility and to discuss and mediate values and ethical questions in society are judged as indispensable.

6.8 Relationship between graduate and postgraduate Public Health education

Virtually all interviewed experts insist on the importance of both basic and postgraduate/continuing training and education in Public Health. They accentuate the divergent characteristics of these two target audiences.

The existing postgraduate training offers in Public Health are perceived to be successful, and at the same time too broad (too many offers), inconsistent and uncoordinated. The possibility to transform existing postgraduate offers into basic education programs on Bachelor and/or Master level is only seen as the „second best“ option, mainly due to structural problems.

In general, the experts are convinced that a coherent architecture of Public Health education in Switzerland would valorise the field of Public Health.

6.9 Statements on Public Health education and training situation in Switzerland

A series of statements were submitted in the interviews. Some of the statements were widely and strongly agreed upon, others were controversial:

Statement: Switzerland needs more Public Health workers with formal Public Health training on all levels.
Comments by experts: Fully agreed by everyone.
Statement:

We should move towards a “reverse T- Model” of Public Health education in Switzerland (broad range of pregraduate and graduate offers, supplemented by specific PhD programs and specific postgraduate degrees).

Comments by experts:

All agree to invest into the expansion of basic Public Health education (Bologna level degrees).

Statement:

Lack of human resources is a major barrier to build up Bologna cycle Public Health programs in Switzerland.

Comments by experts:

Generally contradicted by the experts, but there are some points, such as:

- Lack of human resources could be translated in “lack of interest of decision makers” and therefore be a hint that more lobbying is needed.
- Public Health experts could come from abroad, but it is indispensable to have a solid knowledge about national and regional specifics and cantonal laws and regulations.
- In general, people working in Public Health are overloaded with work. Development of new educational offers is often not considered prestigious, so incentives must be established.

Statement: Undergraduate education in Public Health belongs only to an UAS setting.

Comments by experts:

Bachelor degree: General agreement, but not forcibly “only”, more likely “also” concerning the Bachelor degree.

Master degree: Disagreement when it comes to judge the Master degree level. Many experts see the Master level *only* at universities, a few *mainly* at universities.

Statement: I fear that there are no qualified jobs available for students with a Bachelor in Public Health degree.

Comments by experts:

Some of the experts are convinced that there are no jobs for Bachelor degree holders – or not yet. Others are persuaded that there is a great need for a formally, but not extremely deeply, trained Public Health workforce. And therefore opt resolutely for a Bachelor in Public Health.

Statement: I fear that the quality of Bachelor students will be too low in order to contribute

effectively to the Public Health labour market.

Comments by experts:

See above. Most of the experts see no reason for this fear. For those – very few – who do, it is a general issue, stating that a Bachelor degree is not enough for the needs of the labour market.

Statement: Switzerland is too small to create a successful undergraduate Public Health program.

Comments by experts:

Nobody agrees to this statement, but some mention the challenge and the difficulties to offer the tailor-made program in all (linguistic) regions in a country as small and diverse as Switzerland.

6.10 Priorities to enhance the standing of public education in Switzerland

Asked about their most important or highest priority to enhance the standing of Public Health in Switzerland, the expert's reply is most frequently: **to establish basic public education programs** in Switzerland. They often point out how the whole field of Public Health could be advanced through such a measure. The architecture of Public Health education on all levels (pregraduate, graduate, postgraduate) should be part of a coherent and correlational system of Public Health training, education and research. The following statements were made by experts to clarify their priorities:

- **Round tables for discussion and decision making:** Needed competences of the Public Health workforce in Switzerland, as well as structural and organisational issues around Public Health education (which institution offers what, when and for whom) should be discussed in round tables.
- **Coordination:** A National Institute for Public Health could enhance such coordinative initiative. The coordinative role of the SSPH+ should be debated in this context, too.
- **Cooperation first:** In tertiary Public Health sector, cooperation should prevail competition. The best form of division of labour (e.g. UAS organize Bachelor programs, universities Master programs and PhD) has to be defined.
- **Permanent education:** A lifelong learning approach for Public Health is needed (LLL)
- **Implementation prevention:** One priority would be the implementation of prevention programs; for this job, Bachelor degree holders are qualified.
- **Public health profile:** It is important to develop more clearly and in a more coherent way what possible career pathways could be offered in Public Health, especially for young people.

Comment: Experts in our interviews acknowledge the existence of a shortage of trained Public Health workers in Switzerland. As consequence they stress the necessity to invest in the establishment of Bologna cycle degree programs in Public Health. For this process, universities and UAS would have to work together. The corresponding roles and the architecture of Swiss Public Health education in general (incl. postgraduate offers) should be clarified in round table talks. The establishment of pregraduate and graduate education programs should encompass programs with orientation in general Public Health, as well as programs with speciality denominations. Degrees in “art” and “science” are both possible, thus reflecting self-conception and the reality of Public Health in CH. While some uncertainty exists about whether the labour market is ready to accept Bachelor graduates in Switzerland, it also seems evident that Bachelor in Public Health students could easily manage many job responsibilities within Swiss Public Health institutions. For more complex areas in Public Health the analytical and integrative skills of Master graduates are required. Due to its broad nature and definition, training programs in (general) Public Health should optimally be dealt with an interfacultary/interdepartemental approach. Outside of this recommendation the experts believe that one committed provider should take the lead in establishing a new program. The importance of personal commitment and pioneering spirit in such endeavours has been stressed. Representatives of several universities indicated general openness for interdisciplinary and interfacultary collaboration in the area of education. Their readiness to concretely invest in pregraduate and graduate Public Health education has to be explored as soon as there is agreement about the profile and content of such future programs.

7 Conclusions

After the literature search, explorative interviews with representatives of US and European Public Health education programs, and a series of face-to-face or telephone interviews with Public Health experts from different professional fields and background in Switzerland, the results of this study can be stated as follows:

7.1 First project goal: To analyse the needs for formal Public Health education in Switzerland on all Bologna levels, under special consideration of the needs of the Swiss labour market and the perspective of the involved stakeholders.

The practice of Public Health is changing constantly. Today Public Health workforces are expected to have competencies in behaviour sciences, community mobilization, health economics, policy development, and more areas, for which many are unprepared. There is a well-documented shortage of trained Public Health workers, both on global as well as on national level. In Switzerland 70% of Public Health workers lack a formal training in Public Health, in the young age groups (20-29 years) this proportion is even exceeding 95%. For Europe and for Switzerland, no clear overview of needed Public Health capacity is available. In the meantime, a rough estimate about the quantitative needs for Public Health workers can be provided in making use of an analysis from the US (ASPH, 2008). For a population of 100'000 inhabitants, 220 professionals working in the area of Public Health are needed. Re-calculated for the population of Switzerland (7.8 Mio inhabitants) this results in a need for 17'160 Public Health workers using the same ratio. Given an attrition rate of around 2% per year up to 3'430 professionals would have to finish some education in Public Health in this country each year to fulfil these needs. A recent survey about the Public Health workforce in Switzerland revealed a Public Health workforce in the magnitude of 9'000-10'000 individuals and it has been estimated that each year about 200 individuals finish formal Public Health education at universities or UAS. These numbers make it evident that a strong deficit of well-trained Public Health workers in Switzerland exists. A gap is evident and becomes aggravated by the fact that today educational needs not only exist for the traditional Public Health workers, but also for a wider Public Health workforce, including those who are indirectly involved in Public Health activities through their work, across organizational boundaries. In summarizing these results it becomes clear that we should invest in Public Health education in Switzerland and that we should create undergraduate and graduate training programs, which address the needs of the younger generation in particular.

7.2. Second project goal: To analyse current developments in Public Health education in Switzerland and to compare undergraduate and graduate education in Public Health in Switzerland with the situation in the US and other European countries.

The US and Europe have reacted to the above-mentioned developments. Over the past years, close to 50 accredited BA and about 200 accredited MA programs in Public Health have been established (especially programs in general Public Health). Furthermore core competencies for graduates leaving their studies with a Bachelor and Master degree have been determined and form the basis of modern accreditation systems in this domain. Case studies from abroad show that Bachelor/Master programs work well and that job opportunities exist for students leaving with these degrees after 3/5 years.

Switzerland is lagging behind in these developments. For young interested people, few options for Public Health education on Bologna levels are available, mostly in highly specialized areas. Surprisingly, Bachelor or Master programs in general Public Health do not exist so far. Recent attempts in Switzerland (Lucerne, Winterthur) show a certain willingness to close up this gap, but for the time being, these are only small initiatives and not embedded in a coherent architecture of Public Health education in this country.

In Switzerland, in Public Health an educational “T- model” has been installed, with well-functioning postgraduate training in place for (older) Public Health specialists but lack of undergraduate and graduate study options for young interested students. There is an obvious need to move gradually from the actual T-model into a more pronounced “reverse T-system” of education in the realm of Public Health in Switzerland. In this process, international examples of BA/MA study programs can serve as benchmarks. Further reference points are the existing Public Health education offers in Switzerland and the established international catalogues of core competencies for graduates on all Bologna levels.

7.3 Third project goal: To explore possible university faculties in Switzerland where a Bachelor/Master of Public Health could be offered (feasibility analyses) and what the optimal profile and content of such programs would be.

The establishment of pregraduate and graduate education programs in Public Health in Switzerland should encompass programs with orientation in general Public Health as well as programs with speciality denominations. It is indispensable to build up a critical mass of Public Health workforce with formal education, as well as to establish Public Health “identity” among Public Health workers. According to the self-conceptualization of Public Health as combination of “art and science” all

degree options (BA/BSC/MA/MSC/MPH) appear to be suitable. If a Bachelor in general Public Health is established it should have a national and practice oriented focus.

Bachelor / Master programs in general Public Health must be build up by higher education institutions (HEIs) in Switzerland. Provision must be fitting into existing structures/offers and capitalize on them. It is important to clarify the roles of UAS/universities in this perspective. Architectural plans for Public Health education in Switzerland should be outlined. The role of SSPH+ in this process has to be clarified. For each of the new programs offered, a leadership role of one higher education institution is needed, accompanied by strong collaboration with other higher education partners. A preferable option would be to move from monofacultary to interfacultary endeavours, though administrative and organisational barriers should not be underestimated. In any case, personal conviction, vision and political momentum (incentives) are needed to implement such ideas.

7.4 Final comments

The intention of this project was not to collect representative opinions about the current status and the needs of Public Health education in Switzerland, or put forth prescriptive solutions about the necessary process of building up Bologna cycle degree programs in Public Health.

This project was exploratory, aiming to contribute to forthcoming discussions about the future architecture of Public Health education in Switzerland. We strongly recommend discussing the findings of this explorative study in workshops with participants of all relevant Public Health education stakeholder groups in this country.

Finally we would like to take the opportunity and thank all of the interview partners for their most fruitful collaboration!

Rolf Heusser and Alison Weihofen, Zürich, 15th April 2014

Terminology^{58,59,60,61}

Public Health: The science and the art of elaborating appropriate responses to the health needs of populations. Public health characterizes health needs, along with formulating and evaluating strategies to protect the health of the population. Public health focuses on population-based interventions, from the prevention of diseases to the organization of health care. These functions are those of health ministries and related agencies, employing Public Health practitioners. In line with what is sometimes called the “new Public Health”, this definition includes knowledge and skills from a variety of fields, e.g. population medicine, health economics, health policy, health services research, social medicine, medical and health sociology, medical anthropology, health psychology, environmental medicine, health law, insurance medicine, plus large parts of international health and primary care.

Education and Training in Public Health: is defined here as the formalized transmission of knowledge and skills, provided by qualified teachers and senior practitioners. Where academic education is concerned, the transmission includes the latest research advances in which the academic teacher is deeply involved.

Research in Public Health: is primarily the creation of knowledge upon which the disciplines of Public Health are built. Research includes the creation of the tools and systems used in practical Public Health.

Practice of Public Health: is the appropriate use of existing knowledge. Decisions must be firmly based on scientific evidence and, more generally, inspired by hard science.

Public Health Workforce: Human resources for health are classified into those providing care for individuals and those providing non-personal health services. The latter is a synonym for the Public Health workforce describing the human resources, whose prime responsibility is the provision of core Public Health (non-personal) activities, irrespective of their organizational base.

⁵⁸ Swiss School of Public Health. A proposal for a Swiss School of Public Health: Task Force Report. Zürich, Switzerland, 2011. (www.ssphplus.ch/downloads).

⁵⁹ University of Southern Denmark (2013, June 21). Public health science (bachelor's program). Retrieved 14 November 2013, from <http://www.sdu.dk/en/uddannelse/bachelor/folkesund>.

⁶⁰ Eurydice (2000), Two Decades of Reform in Higher Education in Europe: 1980 Onwards, Education and Culture Directorate General, European Commission, Brussels.

⁶¹ Association of Schools of Public Health (ASPH) (2011) Undergraduate Public Health Learning Outcomes FINAL Model Version July 14, 2011

Bachelor's Degree: Undergraduate programs in Europe overall lead to the following most widely accepted degrees: BSc.: Bachelor of Science and B.A.: Bachelor of Arts.

On a per-country, per-discipline and sometimes even per-institute basis, the duration of an undergraduate degree program is typically three or four years (fulltime), but can range anywhere from three to six years (part-time).

Bachelor's in Public Health (BPH): Bachelor's degrees in Public Health exist all over the world including Europe, North America, Australia and the Middle East. Typically programs last three to four years. Some are combined with a Masters in Public Health (*see models below*). Programs are either in general Public Health, or specialize in a more specific Public Health topic (e.g. European Public Health).

Typically 180ECTS, programs are designed to give a broad knowledge of Public Health theories and methods along with the tools necessary to understand, analyse and improve health behaviour. The following is a summary of typical learning outcomes from a BPH degree:

Knowledge:

- Understanding of population health concepts/theories, theoretical/evidence-based methods/strategies to promote and protect and improve population health
- Understanding of general Public Health theories and research methods

Skills:

- Collect and analyse population health information, including environmental and societal influences on physical, mental and social health/quality of life.
- Develop, administer, manage, implement and evaluate Public Health programs, policies and institutions.
- Communicate (written and oral) Public Health topics and theories in interdisciplinary and local, national, and international settings.
- Complete relevant tasks in a variety of Public Health work settings.

Attitudes:

- Personal and Social Responsibility (Civic knowledge and engagement—local and global, Intercultural knowledge and competence, Ethical reasoning and action)

- Foundations and skills for lifelong learning- Anchored through active involvement with diverse communities and real-world challenges

Master's in Public Health (MPH): Master's degrees in Public Health also exist globally. Typically programs last two years. Similar to the BPH, MPH programs are either general or specific (e.g. European Public Health). Students often choose a focus within their general MPH (e.g. biostatistics or maternal/child health).

Typically 120 ECTS, programs are designed to give a base knowledge of Public Health theories and methods and a more advanced understanding of specific areas. The following is a summary of typical learning outcomes from a MPH degree:

Knowledge:

- Public health: Example: Significant aspects of the history of Public Health theory and practice.
- Philosophy of science: Example: Major definitions of philosophy and philosophy of science.
- Demography, epidemiology and statistics: Example: Definition of demography as a science.
- Qualitative methods: Example: approaches to and concepts of qualitative methods frequently applied in Public Health.
- Sociology, social psychology and anthropology: Example: Major definitions of sociological and anthropological science.
- IT handling: Example: General aspects of IT functioning.
- Literature search and evaluation: Example: The existence of the most important literature databases and their main fields.
- Population Health and Its Social Determinants: Example: The level and trends of main population health indicators in European countries.

Skills:

- Epidemiology and statistics: Example: Estimate basic demographic and epidemiological parameters, such as: Population projection.
- Qualitative methods: Example: Identify main types of qualitative empirical methods in literature.
- IT handling: Example: The student shall be able to make use of the most common IT functions.

- Literature search and evaluation: Example: Plan a search profile involving the most important databases.
- Population Health and Its Social Determinants: Example: Produce forecasts for the health development of European populations and population groups.

Attitudes:

- Ethics: Example: Demonstrate the implementation of basic ethical principles in Public Health strategies making, such as a non-discriminatory approach to the target population and in human resources management.

ANNEXES 1-8

ANNEX 1: Public Health Educational Offerings in Switzerland

Bologna Degrees

- Human or Veterinary Medicine, Pharmacology: All Universities
 - Include basics in epidemiology and Public Health
- MSc Environmental Sciences at the Swiss Federal Institute of Technology (ETH)
 - Major in Health, Nutrition, Environment
- BSc Biologie (BS): University of Neuchatel
 - Includes a block course in Epidemiology
- Master in law, health law and policy of biotechnology: University of Neuchatel
- Many masters in (Bio)statistics offered
- MSc in Communication, Management and Health: University of Lugano
- MSc Sport Science, Health and Research: University of Fribourg
- Bachelor und Master of Science in Exercise and Health Sciences: University of Basel
- MSc Movement Sciences and Sport: University of Lausanne
- MSc in Epidemiology: University of Basel
- MSc Health Science: University of Lucerne
- Interdisciplinary PhD Program in Public Health (SSPH+)
- International Doctoral Courses and Seminars in Health Economics and Policy (SSPH+)
- PhD in Health Rights: University of Neuchatel
- PhD in Health Science: University of Lucerne

SSPH+ Continuing Education (MAS, DAS, CAS)

- University of Basel:
 - MAS in Insurance Medicine
 - MAS in International Health
 - MBA in International Health Management
- Universities of Basel, Bern, Zürich and University of Geneva:
 - Masters in Public Health (MAS)
- University of Lausanne:
 - MAS in Science and Health Organization
 - Executive MBA in Healthcare Management
- University of Lugano:

Bologna Cycle Degree Programs in Public Health in Switzerland: An Explorative Study

- MAS in Health Economics, Management and Community Health.
- University of Zurich and Lausanne:
 - DAS in Work and Health.
- Several CAS programs exist in Public Health related topics at the eight SSPH+ universities.

Non-SSPH+ Continuing Education (MAS, DAS, CAS)

- MAS in Healthcare Management (Bern)
- Joint MAS in Advanced Epidemiology (Bern)
- MAS Evaluation (Bern)
- MAS Applied Statistics (Several Universities, ETH)
- MAS Medicine Development /DAS Pharmaceutical Medicine /Drug development (Basel)

Universities of Applied Sciences

- Health Promotion and Prevention: (FHNW, HSLU, HE-SO, FFHS)
- Health Management: (FHNW, HSLU, ZHAW, FHSG, BFH, SUPSI, HE-SO)
- Health Economy and Health Politics (ZHAW, FHSG, SUPSI)
- Health Sciences (FHNW, ZHAW)

ANNEX 2: Types of Bachelor in Public Health Programs

Bachelor of Science in Public Health (BSPH): “BSPH programs provide students with a broad introduction to general Public Health practices and often require coursework in the core areas of study within the field. Concentrations are also sometimes available in areas such as health behaviour, environmental health, and health policy.” (ceph.org)

Bachelor of Arts (B.A.) “B.A. programs often require both general education coursework and Public Health-related coursework. This type of program prepares undergraduate students for entry into social science-based Public Health graduate programs, such as health education and promotion, by providing a background in the social and behavioural sciences.” (ceph.org)

Bachelor of Science (B.S.) “B.S. programs tend to have a curriculum focused on the natural sciences and public-health related coursework, but also require general education classes. This type of degree program is well suited for students who are interested in entering the fields of epidemiology, biostatistics, or environmental health sciences.” (CEPH)

It is important to note that students often must be accepted into the university before applying to the Public Health undergraduate program. Usually, students apply during their first or second year to the School of Public Health. Admission is often dependant on a high grade point average. When students are allowed to apply directly to an undergraduate Public Health program, high school grades are considered, as well as test scores (SAT), and often an essay is required. (fullbright.com)

ANNEX 3: Bachelor in Public Health Competencies – First Cycle: 180-240 ECTS Credits

Dublin Descriptors – Bologna

*Association of Schools of Public Health
(ASPH- USA)*

*University of Copenhagen- Bachelors
in Public Health Program*

KNOWLEDGE	<p>Knowledge</p> <p>Have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that</p>	<p>Knowledge</p> <p>Knowledge of human cultures and the physical and natural world as it relates to individual and population health (sciences, mathematics, social science, humanities, histories, languages and arts).</p> <ul style="list-style-type: none"> - Ex. Define PH and related roles and 	<p>Knowledge</p> <ul style="list-style-type: none"> - Human biology and functions of the healthy human being, and basic pathology - Important diseases in Denmark and globally - Basic demographic concepts and methods - environmental and occupational factors on health - sociological, psychological and ethical theories relevant to the health field, including disease prevention and health service priorities - health economics, fundamental theories of public health - organisation analysis, and analyses of the way health services and health policies - preventive care and health promotion concepts/theories - statistical and epidemiological concepts and methods
	<p>Skills</p> <ul style="list-style-type: none"> • Can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study; • Have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include reflection on relevant social, scientific or ethical issues; • Can communicate information, ideas, problems and solutions to both specialist 	<p>Skills</p> <p>Intellectual and practical skills (Inquiry and analysis,</p> <ul style="list-style-type: none"> - Ex. Describe risk factors of infectious and chronic diseases and how these diseases affect both personal and population health. - Ex. Describe how the methods of epidemiology and surveillance are used to safeguard the population's health. - Ex. Identify scientific data and other information for assessing the well-being of a community. <p>Critical and creative thinking, Written and oral communication, Quantitative literacy,</p>	<p>Skills</p> <ul style="list-style-type: none"> - assess the results of empirical studies and data collection - interpretation of results in relation to the area of health or society concerned, and error assessment - assess the adequacy of the statistical and epidemiological analysis - assess different approaches to qualitative data - statistical data analyses using relevant statistics software - collect qualitative data and perform relevant analyses - resolve specific demographic challenges and to argue for the approach chosen - Analysing the health/economic consequences of therapeutic, rehabilitative and preventive measures - Working on projects in cooperation with different groups of specialists and staff from the health/social sciences <p>Communicating research results to relevant target groups and</p>
	<p>Attitudes</p> <p>Have developed those learning skills that are necessary for them to continue to undertake further study with a high</p>	<p>Attitudes</p> <ul style="list-style-type: none"> • Personal and Social Responsibility (Civic knowledge and engagement—local and global, Intercultural knowledge and competence, Ethical reasoning and action) • Foundations and skills for lifelong learning- Anchored through active involvement with 	<p>Attitudes</p> <p>Continued self-structured learning having defined the</p>

ANNEX 3: Masters in Public Health Competencies – Second Cycle: 60-120 ECTS Credits

Dublin Descriptors – Bologna

*Association of Schools of Public Health
(ASPH- USA)*

KNOWLEDGE

Knowledge

- Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor’s level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;
- Can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;

SKILLS

Skills

- Have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements;
- Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

ATTITUDES

Attitudes

Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

Knowledge

Biostatistics: Ex. Describe the roles biostatistics serves in the discipline of public health.

Environmental Health Studies: Ex. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.

Epidemiology: Ex. Identify key sources of data for epidemiologic purposes.

Skills

Communication and Informatics: The ability to collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process, and present information to different audiences in-person, through information technologies, or through media channels; and to strategically design the information and knowledge exchange process to achieve specific objectives. Ex. Describe how the public health information infrastructure is used to collect, process, maintain, and disseminate data.

Diversity and Culture: The ability to interact with both diverse individuals and communities to produce or impact an intended public health outcome. Ex. Develop public health programs and strategies responsive to the diverse cultural values and traditions of the communities being served.

Leadership: The ability to create and communicate a shared vision for a changing future; champion solutions to organizational and community challenges; and energize commitment to goals. Ex. Demonstrate team building, negotiation, and conflict management skills.

Attitudes

Professionalism: The ability to demonstrate ethical choices, values and professional practices implicit in public health decisions; consider the effect of choices on community stewardship, equity, social justice and accountability; and to commit to personal and institutional development. Ex. Embrace a definition of public health that captures the unique characteristics of the field (e.g., population-focused, community-oriented, prevention-motivated and rooted in social justice) and how these contribute to professional practice.

Systems Thinking: The ability to recognize system level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments. Ex. Explain how systems (e.g. individuals, social networks, organizations, and communities) may be viewed as systems within systems in the analysis of public health problems.

Dublin Descriptors – Bologna

Association of Schools of Public Health in the European Region (ASPHER)

KNOWLEDGE

Knowledge

- Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor’s level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;
- Can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within

SKILLS

Skills

- Have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements;
- Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

ATTITUDES

Attitudes

Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

Knowledge

Methods in Public Health
Public health: Example: Significant aspects of the history of public health theory and practice;
Philosophy of science: Example: Major definitions of philosophy and philosophy of science;
Demography, epidemiology and statistics: Example: Definition of demography as a science;
Qualitative methods: Example: approaches to and concepts of qualitative methods frequently applied in public health
Sociology, social psychology and anthropology: Example: Major definitions of sociological and anthropological science;
IT handling: Example: General aspects of IT functioning.
Literature search and evaluation: Example: The existence of the most important literature databases and their main fields

Population Health and Its Social Determinants
 Example: The level and trends of main population health indicators in European countries
 Example: Disease indicators, especially concerning cardiovascular diseases, cancer and other chronic non-communicable diseases

Population Health and Its Physical, Radiological, Chemical and Biological Environmental Determinants
 Example: Basic concepts of the natural sciences, in particular the biological sciences, e.g. Chemistry and physics;
Health Policy; Economics; Organizational Theory and Management
 Example: Significant aspects of the history in one European country of: e.g. Health policy; Social policy; Health services;
Health Promotion: Health Education, Health Protection and Disease Prevention
 Example: Significant aspects of the history of health promotion theory and practice, including main health promotion charters

Ethics
 Example: Major ethical theories and concepts relevant for public health, including human rights concepts;

Skills

Methods in Public Health
Epidemiology and statistics: Example: Estimate basic demographic and epidemiological parameters, such as: Population projection;
Qualitative methods: Example: Identify main types of qualitative empirical methods in literature;
IT handling: Example: The student shall be able to: Make use of the most common IT functions.
Literature search and evaluation: Example: Plan a search profile involving the most important data bases;

Population Health and Its Social Determinants
 Example: Produce forecasts for the health development of European populations and population groups.
Population Health and Its Physical, Radiological, Chemical and Biological Environmental Determinants
 Example: Perform risk assessment associated with components of the physical, radiological, chemical and biological environment;
Health Policy; Economics; Organizational Theory and Management
 Example: Develop and describe a public health strategy based on standard public health methods and guidelines
Health Promotion: Health Education, Health Protection and Disease Prevention
 Example: Identify population health challenges relevant for health promotion at various levels of social and political organisation (global/local)

Ethics
 Example: Identify ethical aspects of concrete public health interventions, strategies and policies;

Attitudes

ANNEX 4 Public Health Skills and Career Framework

Areas

Public health is divided into nine areas of work, as shown in Table below. There are four core areas that anyone working in Public Health must know about and have certain competences within. There are five non-core or 'defined' areas, representing the contexts within which individuals principally work and develop.

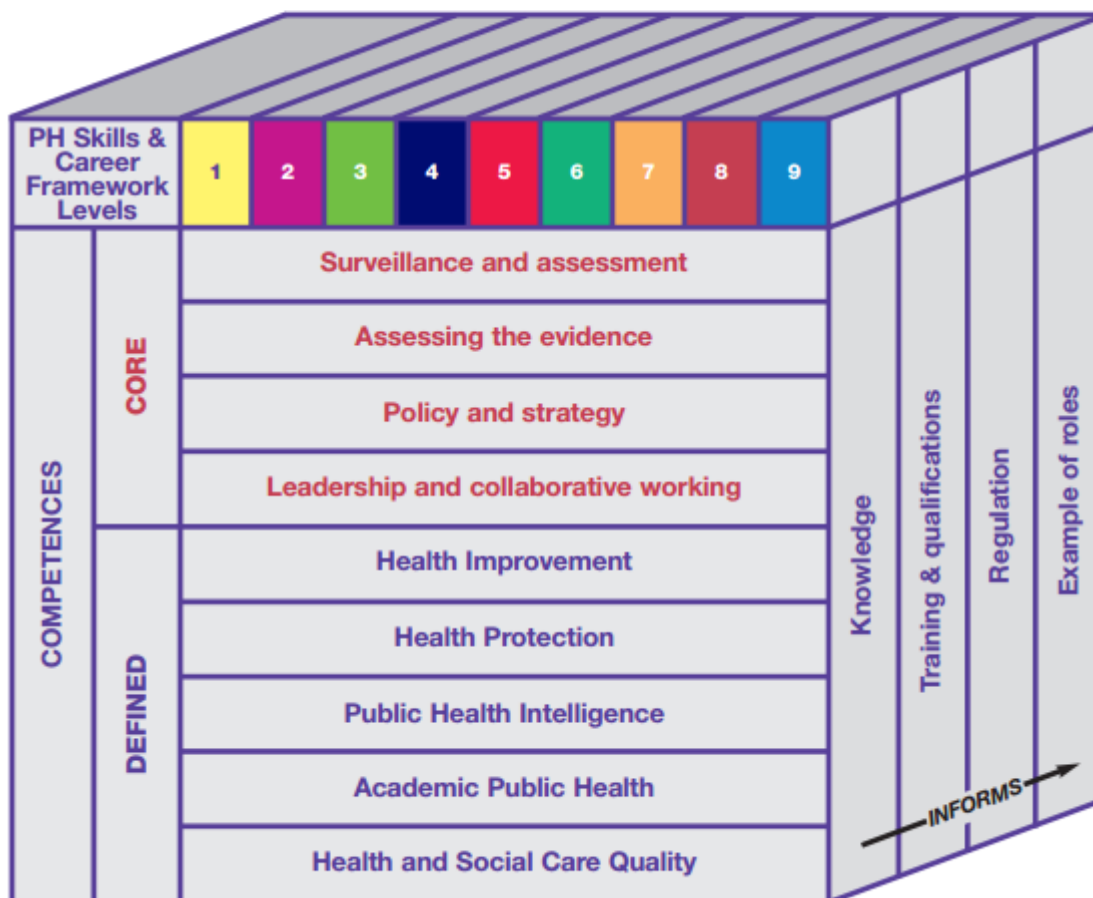
Levels, competences and knowledge

The framework defines nine levels of competence and knowledge. Those at level 1 will have little previous knowledge, skills or experience in Public Health, while those at level 9 will be setting strategic priorities and direction and providing leadership to improve population health and wellbeing. Table 2.2 identifies the main characteristics of each level.

2.3 The Public Health Skills and Career Framework cube

The framework consists of the collection of competence and knowledge statements for each area and level. It may be represented as a three-dimensional cube, as shown in Fig 2.1.

Figure 2.1 The Public Health Skills and Career Framework cube



ANNEX 5 ASPHER Undergraduate Public Health Education in Europe task force (UG WG)

Participants:

Louise Stjernberg, School of Health Science, Blekinge Institute of Technology, Sweden

Alison Weihofen, Switzerland

Ted Tulchinsky, Braun School Public Health, Hebrew University-Hadassah, Ein Karem, Jerusalem, Israel

WG's objectives

The '*Undergraduate Public Health Education in Europe*' task force' aims include:

1. to create and disseminate knowledge about current and best practices among Public Health bachelor degree training programs in Public Health across Europe;
2. to promote collaboration initiatives on bachelor programs across Europe among academic institutions; to support institutions to establish bachelor programs;
3. to generate knowledge on career progression and employability resources for graduates; and
4. to define core competencies for bachelor graduates to foster employability and accreditation of bachelor programs.

Work done

During 2013, the group's participants, objectives and activities are to be formed. Thus far three members are involved and new ones are being approached. The goals are to have members complementing each other's experiences and with equal gender distribution.

A telephone meeting was held in August to form the group and discuss items mentioned above and a follow-up teleconference is planned.

Ongoing focus and agenda 2014-2015

Ongoing focus

UG WG will carry out a follow-up survey on Schools of Public Health (Public Health) within ASPHER community and others to:

examine the Schools with bachelors programs in Public Health related subjects, including those being planned and now ongoing bachelors programs in Europe; to analyze and reflect on their curricula and contents, and to ascertain their need for support in defining best practice and core

competencies for bachelor graduates to foster employability and accreditation of bachelor programs.

At the General Assembly, taking place at the ASPHER/EUPHA conference in November 2013, the objectives and agenda are to be presented. Also, the Schools who plan to have or have an ongoing bachelor program will be invited to a meeting and informed of the purpose of the survey. The questionnaire will be sent out to all Schools within ASPHER before the end of the year.

Agenda 2014-2015

The results from questionnaire will be analyzed and documented in a report with the tentative title “Recommendations for bachelors program in Public Health”. Preliminary results will be presented at Dean and Directors retreat in May 2014. Also, an article will be prepared, to be published in a scientific journal.. For the progress of these aims, the group will have telephone meetings, meetings in real life at ASPHER/EUPHA meetings and Dean and Directors meetings. A workshop is planned for the autumn 2014. Draft of the report will be circulated within ASPHER’s members and executive board for continuously comments and advice. In meeting the current and future Public Health needs, collaboration with e.g. WHO and EPHO 7 as well as ECDC are important and prioritized.

Agenda 2020-Vision

The final and main output will be a Recommended Core Curriculum in Public Health grounded on a cohesive and integrative definition of the core knowledge and competencies of Public Health practitioners at bachelor level in the European Region as per the definition of both education provides and potential employers and that could potentially be endorsed by APHEA.

ANNEX 6 Interview questions

Project „Explorative study- Bologna cycle Public Health degrees in CH “

- 1. What are the major strengths and weaknesses of the current national Public Health education system?**
(open question)

- 2. Is it desirable to create a Bachelor program in public Health in CH ?**
What speaks in favour of it, what speaks against it
(open question)

- 3. If a Bachelor program in Public Health would be created, should it be** (choose option/explain)
 - a. a stand alone program or a combined BA/MA program
 - b. a degree in general Public Health or in specialized fields of Public Health
 - c. have a practice focus or an academic focus
 - d. have a national or an international focus

- 4. Do you believe that the job market (CH and/or abroad) has a need for students with an undergraduate Public Health degree? If yes, what types of jobs (sectors, functions) would be applicable for such students? Would you give a job to such a person in your own organisation?**

- 5. Same question but for students with a graduate Public Health degree (Bologna Master)?**

- 6. Please discuss the pros and cons of the following models of Public Health education:**

Model A: After getting the BA degree students go directly to workplaces and eventually return later to complete with a Master degree in Public Health or in other disciplines

Model B: after getting the BA degree students are encouraged to continue directly to a master degree in Public Health or in other disciplines; upon graduation they would enter the workplaces

7. How important do you rank the following competences for a student completing with a BA degree in Public Health (rank between 1-10, add comments):

- a) Knowledge of human cultures and the physical and natural world as it relates to individual and population based health (basics knowledge of various health sciences)
- b) Intellectual and practical skills (inquiry and simple analyses of scientific data)
- c) Communication skills, teamwork, problem solving, creative thinking
- d) Personal and social responsibility (civic skills/engagement, ethical reasoning, skills for life-long learning, etc.)

8. What could be the most appropriate structural embedding for a bachelor program in Public Health or a BA/MA combination)?

- a) Joint program (several HEIs involved) versus “one-provider” program
- b) One faculty involved versus interfacultary program
- c) Involvement of Universities versus involvement of UAS (Fachhochschulen)
- d) other partners to be involved

9. How do you see the relationship between graduate and postgraduate Public Health education, now and in the future?

(open question)

10. Please provide us with your opinion with regard of the following statements (1= do not agree at all to 10= I do fully agree, add remarks)

- a) Switzerland needs more Public Health workers with formal Public Health training on all levels
- b) We should move towards an “reverse T- Model” of Public Health education in Switzerland (general Public Health degrees on BA/Ma level, supplemented by specific PhD programs and specific postgraduate degrees)
- c) Lack of human resources is a major barrier to build up bologna cycle Public Health programs in Switzerland
- d) Switzerland is too small to create a successful undergraduate Public Health program
- e) Undergraduate education in Public Health belongs only in a UAS setting
- f) I fear that the quality of Bachelor students will be too low in order to contribute effectively to the Public Health labour market

g) I fear that there are no qualified jobs available for students with a BA in Public Health degree

11. Name three priorities in order to enhance the standing of Public Health education in Switzerland (open question)

ANNEX 7 List of interviewed experts

In alphabetical order:

Abel Thomas, ISPM Berne

Anderson Maria, ETH Zurich

Bachmann Gaudenz, Health Directorate St Gallen

Braun-Fahrländer Charlotte, Swiss TPH, Basle

Cassis Ignazio, member of national parliament

Chastonay Phillip, University of Geneva

Crivelli Luca, University of Lugano

Feisst, Karin, MPH coordination centre Zurich

Graf Michael, Addiction Suisse, Berne

Gutzwiller Felix, member of national parliament

Hafen Martin, HSLU Lucerne

Künzli Nino, Swiss TPH, Basle

Marietoz, Ewa, Health directorate, Vaud

Meyer Pit, ZAHW, Zurich

Paccaud, Fred, ISPM Lausanne

Puhan Milo, ISPM Zurich

Reschauer Georg, AHPGS, Freiburg I.B.

Szucs, Thmoas, Helsana, Zurich

Sottas Beat, Careum, Zurich

von Greyerz Salome, FOPH Berne

Wegmüller Bernhard, H plus, Berne

Wettstein Felix, FHNW, Olten

Zybach Ursula, Public Health Schweiz, Berne

ANNEX 8 Extract of the report “Continuing education in Public Health”, Mandate of SSPH+, author Rolf Heusser

Needs for the 21st century: Public health challenges

A study of experiences in New Zealand, Canada and the UK has divided models for assessing continuing competence into two broad categories:

- 1) Learning model => Employed in most European countries, sometimes combined with other models, seeking to improve clinical competence, but not identifying poorly performing physicians.
- 2) Assessment model⁶² => emphasizing performance as well as competence, therefore closer to the concept of revalidation. Assessment tools have been adapted from those in undergraduate and vocational education. It includes, for example, the interview, record reviews, and peer ratings, patient satisfaction questionnaires, observing patient encounters.

In the US, a shift from Public Health to personal health services (which take up to 40% of the Public Health agencies funds) can be observed. In Switzerland, Public Health has never been really strong. In both cases there are deficiencies (now) in key competency areas of community-based practice, such as community health assessment, community health planning, and environmental health. The Public Health workforce is now expected to be competent in behavioural sciences, community mobilization, health communications, policy development, and other areas for which many are unprepared by either educational preparation or work experience. Most Public Health workers have not been trained to deal with the challenges they will be facing in the 21st century.

The Public Health workforce is found in different settings, such as the (private) personal health services industry, educational institutions, official Public Health agencies, community-based organisations and the public sector. This group of workers is less defined by where they work than by what they do: to provide essential Public Health services to communities throughout the nation.

⁶² There are four types of assessment, but models a) and b) are not applied anywhere in Europe.

- a) Responsive: assessment only on receipt of a complaint => cannot identify all those who are performing poorly
- b) Periodic assessment for all => routine full assessment of all domains of competence
- c) Screening assessment for all => evaluations are made against a set of specific criteria; assessment aims to identify broader incompetence by focusing on certain quality indicators => this model has been adopted in Austria, France, Hungary, Ireland, the Netherlands, Slovenia and UK
- d) Screening a high-risk group: involves identifying a high-risk group for intensive scrutiny => difficult for the risk of contravening privacy and human rights laws. Norway requires renewal of licenses of physicians aged over 75 and Slovakia and Switzerland of physicians over 70.

In the US, there is a range of occupations⁶³ active in Public Health; it would be interesting for such figures to be established for Switzerland as well.

CDC/ATSDR⁶⁴ defines the pieces of infrastructure or preparedness in three categories:

1. The people who work in the field of Public Health.
2. The information and communication systems that help us collect and disseminate accurate data.
3. The organizations at the state and local level that are on the front lines of Public Health.

Competency needs of Public Health workforce can be divided in three broad categories:

1. Basic competency: fundamental understanding of what Public Health is, what it does and how it achieves its mission.
2. Cross cutting (core) competencies: general knowledge, skill, and ability in areas, which enable performance of one or more essential services (e.g. epidemiology, policy development, health communications, community needs assessment and mobilization, behavioural sciences, cost-effectiveness).
3. Technical competencies: technical knowledge, skills and abilities needed for a defined program area (e.g. control of infectious disease, chronic disease prevention). These technical competencies often build upon basic and core competencies and represent unique application of skills to a particular health problem or issue (e.g. emergency response to an act of bio terrorism).

Major barriers to achieving a competent 21st century Public Health workforce are identified by CDC, and an adaptation of these barriers to the situation in Switzerland could be of major interest and influence for the future strategy of Public Health continuing education in Switzerland. These are the barriers identified by CDC:

⁶³ Percentage of local health departments having at least one full-time employee in the listed job classification:

89%	nurses
66%	administrators
42%	sanitarians
36%	environmental health specialists
32%	dietitians/nutritionists
27%	public information specialists/health educators

⁶⁴ Unpublished paper from 2000: CDC/ATSDR Strategic Plan for Public Health Workforce Development; Toward a life-long learning system for Public Health practitioners.

1. In contrast to other professions, an updated inventory of the workforce does not exist. Planning is hampered by a lack of knowledge of the population in need of training and continuing education. A standard nomenclature on occupational title and organizational setting has not been used to enumerate the Public Health workforce. Information from which to forecast personnel needs or related training requirements is limited.
2. National consensus does not exist on the basic and cross cutting competencies or curricula/content elements needed in Public Health.
3. There is no integrated delivery system for LLL. The learner faces a fragmented array of choices using different technologies, perhaps of unequal quality or value, and often the lack of user-friendly systems for registration, course support and feedback.
4. Inadequate incentives exist for participation in training and continuing education. National competency standards could positively influence participation in LLL activities.
5. Uniform approach and commitment to evaluation are absent, whether the object of evaluation is the individual, program/curricula or the system itself.
6. Financing of workforce training and continuing education is hampered by the absence of a coherent policy framework and strategies for funding these activities.

CDC/ATSDR recommend **major strategies** for achieving a competent Public Health workforce:

Strategy 1: monitor workforce composition and forecast needs

Strategy 2: identify competencies and develop related content/curriculum

Strategy 3: design an integrated learning system. The structural system should have three elements:

- An online «shopping guide» and registration system
- Delivery of training, continuing education and/or other workforce development programs and
- Feedback on and documentation of individual competency.

Operationally, the system has three levels: local, state, and national; each with varying roles and responsibilities.

State health agencies, in collaboration with schools of Public Health, other academic institutions, and health care delivery organizations should be responsible for the on-going assessment of needs, coordination and support of workforce development programs, assurance of quality, and evaluation of competency.

State (or multi-state) regional learning centres should be established to serve every

state.

National leadership must be assured to provide for standards and policy development, research, and availability of quality learning experiences.

Strategy 4: Provide incentives to assure competency.

Strategy 5: Conduct evaluation and research.

Strategy 6: Assure financial support.

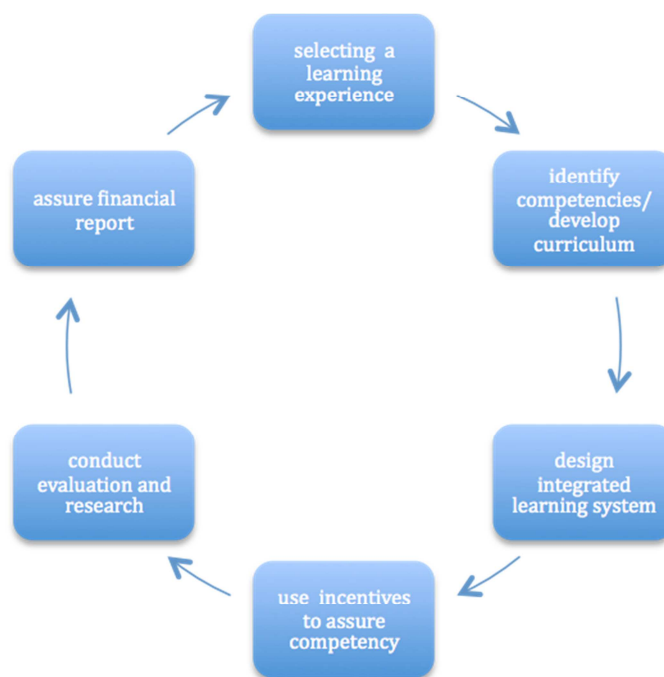


Figure 1: Major strategies to achieve a competent Public Health force⁶⁵

In accordance with the challenges and opportunities in Public Health described above, the Association of Schools of Public Health (ASPH) has identified core competencies for the Master of Public Health degree in graduate schools and programs of Public Health as well in 2006.⁶⁶ There are 12 core domains and 119 competencies that can serve as a resource for faculty and students for enhancing the quality and accountability of graduate Public Health education and training. The catalogue was developed using the Delphi method.

There are 5 core competencies:

⁶⁵ As stated by CDC/ATSDR.

⁶⁶ Calhoun JG, Ramiah K et al. Development of a Core competency model for the Master of Public Health degree. Am J Public Health 2008; 98: 1598-1607.

Bologna Cycle Degree Programs in Public Health in Switzerland: An Explorative Study

1. Biostatistics
2. Epidemiology
3. Social and Behavioural Sciences
4. Health Policy & Management
5. Environmental Health Sciences

and 7 interdisciplinary/crosscutting competencies:

6. Communication & Informatics
7. Diversity & Culture
8. Leadership
9. Professionalism
10. Programme Planning
11. Public Health Biology
12. Systems Thinking.