



# INFACT - Sustainable Capacity Building Programme (European Health Information Training Programme - EHITP)

Task 6.2 - February 2020

Luis Lapão, André Beja, Hanna Tolonen,  
Sarah Craig, Jelena Brcanski, Maja Krstic, Isabel Noguer,  
José Martins, Gonçalo Viegas Fernandes, Paulo Nogueira

Sciensano | Rue Juliette Wytsmanstraat 14 | 1050 Brussels | Belgium| e-mail:  
[infact.coordination@sciensano.be](mailto:infact.coordination@sciensano.be)| Website: [www.inf-act.eu](http://www.inf-act.eu)|Twitter:  
[@JA\\_InfAct](https://twitter.com/JA_InfAct)



This project is co-funded by the Health Programme of the European Union

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## I. Background

Health information is a comprehensive area, in a maturing process. It includes mainly procedures resulting from data collection, data analysis and inference, indicator development, information management and translational research for developing new policies. Regarding health education and training, components of health information are often taught in different courses, as modules of information systems or as part of many courses, more in depth in epidemiology/public health programmes, but most of the courses are vertical and theoretical with a focus on one or only some of the topics.

Health and health information, as many other matters, while being diverse across Europe are also facing the challenges defined by modern social dynamics and technological advances. A currently data-driven society brings both challenges and opportunities that must be faced and conquered.

It is also clear that knowledge and capacities on health information vary between EU MS. The research carried out on the previous task of *InfAct – the Joint Action on Health Information* WP6, highlighted the different installed capacities and needs on Health Information across European countries (Lapão et al., 2019).

Based on the work carried out in D.6.1, public health specialists, public health researchers and epidemiologists seem to be the most common professionals who resort to health information systems. Together with statisticians, these professionals are part of the range of people who need additional training concerning health information systems. In a long-term perspective, within 10 years, public health program managers and health professionals (e.g. physicians and nurses) will also need additional training. The D.6.1 report also indicates the significant existence of training programmes related to health information, both at the academic level and at the level of professional training. These training courses were found both at universities and national institutes of public health.

Finally, it was considered necessary to have a sustainable capacity building programme (flagship programme) in health information that focused on the following areas: data analysis and interpretation, especially interoperability of data sources, derivation of European Core Health Indicators (ECHI) indicators and foresight/scenario analysis; transfer from data to policy, especially policy

translation tools and data presentation; data collection methods, sources of data, metrics and indicators, especially issues related to health examination surveys; and data privacy and ethical issues, especially how to deal with requirements of EU General Data Protection Regulation (GDPR).

To cope with the challenges associated with strengthening Health Information capacity health professionals require health information capabilities complying with their tasks. Nowadays, most health and management functions require specific health information skills. As an example worth noting, though HI is not a central theme in ASPHER defined “core competencies” for Public Health specialists, it is remarkable that health information knowledge and skills are present in the six areas of this ASPHER framework (Foldspang et al., 2018).

Given that the European Health Information panorama is mainly a challenge of heterogeneous capacity rather than of lack or low capacity, as pointed out by the INFAC project departing point, the definition of a strategic plan for Health Information must envisage reducing inequities across all member states and include all relevant stakeholders and resources.

Therefore, it is believed that the strategic plan should consider in its core the following:

**Mission** – Strengthening of Health Information capacity in Europe in a harmonised and sustainable way

**Vision** – All European Union Member-States share high standard Health Information capacity using shared resources, integrated approaches, harmonized and sustainable methodologies

**Strategy** – Integration, optimisation, harmonization of all existing Health Information Training resources systematised under a Health Information Training Framework

**Plan** – Establish awareness, integration, harmonisation, and collaboration of all Health Information related European stakeholders towards a sustainable Health Information Capacity Programme

**Programme** – Framework for Health Information Training in Europe for a global harmonized and sustainable Health Information Capacity

This report provides a framework for sustainable European level capacity-building programme in the form of an European Health Information Training Programme Proposal. It offers a flexible framework with potential to guide future implementation of Health Information training in Europe while setting possible implications for what Health Information should be in Europe in the upcoming future.

From this work, a specific course will be designed and piloted to demonstrate the proposed aspects of the proposed framework (this will be task 6.3). All WP6 outcomes will be included in the sustainability plan of the InfAct project which is aimed at integrating the results into EU protocols and national health information structures.

## **II. A conceptual approach**

The Zachman framework, which proposes an infrastructure to support an organization in the development, integration, management, and access of its information system (Pereira & Sousa, 2004; Zachman, 2006) is a tool to structure the use of health information by health organizations. The Zachman framework is usually presented in a matrix (Table 1 - below).

The Health Information considered within the Zachman framework (Zachman, 2006) suggests a logical structure to categorize, arrange and depict the detailed picture of how a health organization, its professionals, and its responsables collect, maintain, manage, own, provide and use information. A primary objective of the Zachman framework is to create an infrastructure that supports an organization in developing, integrating, designing, managing and accessing an organization's information system. The Zachman framework concerns information systems in an organization and is normally depicted in six rows and six columns. (Table 1)

*Table 1 - The Zachman framework applied to Health Information Systems*

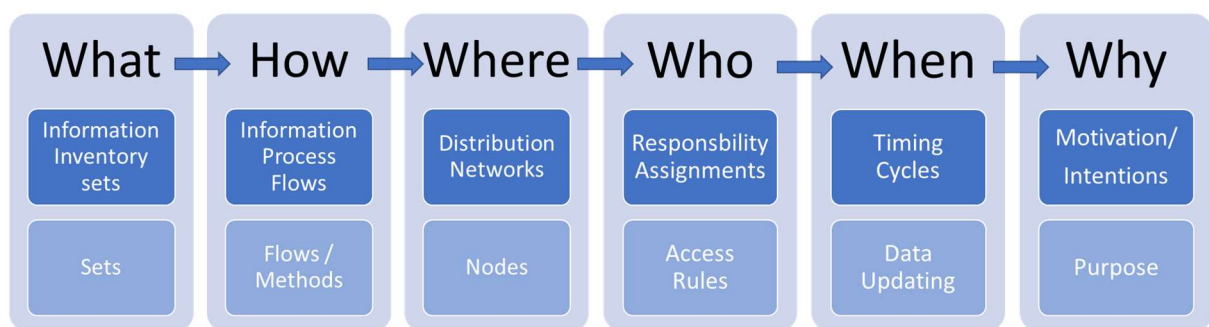
	WHAT health Information Inventory Sets (Data)	HOW “Informatio n Process Flows” (collection, analysis, presentatio n processes)	WHERE health “Distributi on Networks”	WHO Responsibility Assignments (Access rules for health information professionals)	WHEN data updating “Timing Cycles”	WHY health and management “motivation Intentions”
Objectives/ Scope (Planner)	Identify Required Health Data	Identify the set of data collection/u se processes	Define the different health data collection/ use settings	Identify the collectors/use rs of health data	Define the availabilit y of data	Define the objectives for using health data
Business/ Enterprise model (Owner)	Define Data semantic model (snomed)	Define Health organization al /process model	Define Health data distributio n system	Define Organizational workflow model	Define availabilit y of data requireme nt (PERT)	Define Organization al/ business Plan
System model (Designer)	Define Health logical data model (protocols)	Define Application Architecture	Define Data System Architectur e	Define Human Interface Architecture	Define Data Processing Architectu re	Define Business Rules
Technology model (Builder)	Define Physical Data Model	Define Health System Design	Define Technology Architectur e	Define Presentation Architecture	Define Data Control Structure	Rule Design
Detailed representations (Programmer)	Define Data Definition (Database)	System Program (CODE)	Define network architectur e	Define Security Architecture	Define timings	Rule Specification
Functioning system (User)	Define data (to be collected/us ed)	Define functions	Define network	Define organization	Define Schedule	Define strategy for population health

The rows show perspective (in the health context), such as Planer (Scope), owner (Enterprise Model), designer (System Model), builder (Technology Model), Subcontractor (Detailed Representations), Actual System (Functioning Enterprise) and the columns represent six basic questions (What, How, Where, Who, When, Why) (Marques & Sousa, 2004):

- The health “Information Inventory Sets” are the What (e.g. mortality or diabetes prevalence).
- The “Information Process Flows” (collection, analysis, presentation processes) are the How.
- The health “Distribution Networks” (Nodes) are the Where.
- The “Responsibility Assignments” (and Access rules for health information professionals) are the Who.
- The data updating “Timing Cycles” are the When, and,

- The health and management “motivation Intentions” (e.g. national health plan) the Why.

These define the architecture. The architecture allows the (Health Information) users to collect, circulate and use information. A well-defined architecture is very helpful for new development in existing processes and information technology systems to identify important alterations. In this context, developers need tools or instruments to help the development of an information system from architecture to implementation. This is also very helpful in identifying the needs of health information users. There is no quality data without an information system.



**Figure 1.** Information architecture scheme (adapted from Zachman 2006)

In this conceptual context, the current information system at the EU level has characteristics that meet what is intended to be built within the WP. And we can easily construct Health Information training around this framework. We need training about data (what), about methodologies (how), about data sources and diverse levels (geographical, diseases, institutions, etc.) (where), about regulatory use, access and compliance (who) and on systematic updating of information (when). It may seem we don't particularly need training about the motivations that propel our Health Information capacity (why), but it is of paramount importance because understanding that we are building Health Information capacity in an integrated, cohesive and logical way helps its sustainability and survival. Considering that, at this level, we have ministries and similar institutions with funding roles which, many times, are not fully aware of the added value of high quality health information in their respective areas, because they are focussing on costs of data generation and analysis rather than the potencial benefits, it is not that unlike that such training need exists.

As a result of the mandatory commitments made by MS over the years to Eurostat and the European institutions, with respect to each of the pillars identified (What....Why), it is now possible to consider the model presented as an integrator of the information system.

Across Europe, most member-states have an extensive amount of statistical data cover almost all health-related areas. Their collection and processing are carried out using harmonised methodologies either concerning to regular-frequency data or information areas based on population or other surveys. Nevertheless, this accumulated statistical data, mainly resulting from historical collection of the existing health care systems evolution, and of its citizens' use, is not a complete source for all health information; namely, challenges emerge when information on general health determinants; functional capacity; cognitive limitations of the elder and so on is sought.

In addition to the institutions within the European Union, several international organisations such as the OECD, WHO (European region), structures such as IARC, IRDES, INSERM, different Public Health Institutes, maintains protocols of collaboration in the production of statistical information in the area of public health, allowing a substantial extension of the availability of harmonised information. This collaboration enables the same organization, to disseminate and share the data by other organizations, also ensures less burden of national statistical systems and at the same time greater reliability of data.

Despite these well intended organized efforts of having harmonized methodologies it is known that many limitations still exist. As example, EU-level data collections such as EHIS, EU-SILC, etc. have limitations in comparability even though they use harmonized methods. Pre-harmonization is not always the tool to obtain comparable results if tool does not measure correct phenomena in all included countries. There is so much cultural variation in Europe that questionnaire surveys are still far from the desired harmonization. While this is a challenge it is also an opportunity for evolution and for innovation.

European Statistics have a legal framework in Regulation (EC) No 223/2009 of the European Parliament and the Council, which states that the statistical authorities of the Union and the Member States produce and disseminate European Statistics in strict compliance with some statistical principles, including



professional independence, objectivity, impartiality, reliability and statistical secrecy.

The Principles of the Code of Conduct, together with the Principles related to Quality Management, represent the common reference framework for the quality of the European Statistical System, of utmost importance as a reference instrument for guarantee the confidence and credibility of statistical systems.

The Code of Conduct for European Statistics (ESCC) is a self-regulatory instrument, the key objective of which is to improve confidence in member states' statistical authorities by strengthening their independence, integrity and responsibility. The periodic conduct of *peer reviews* is part of the European Statistical System (EES) strategy to implement the Code of Practice (CoP). Its goal is to increase the integrity, independence, and accountability of statistical authorities:

<https://ec.europa.eu/eurostat/web/quality/peer-reviews>

We believe that, in part, the fundamental supports of the system architecture are consolidated. However, asymmetries remain between MS regarding their positioning on each of the referenced pillars. The formative component is, therefore, the support that has enabled greater parity between information systems, a context that should remain. That's the question. What a realignment, for the training needs in HI. The range of diversity of formation is vast.

### III. A nomenclature proposal

Many nomenclature seem to exist related to training in general. Often names diverge in different setting, either in academic context or other less formal ones. We have to acknowledge that different persons for cultural, experience, or background reasons have diverse names for the same things (here meaning elements of a training programme).

As it is intended to propose a flexible framework for potential Health Information training in Europe, to have a single language, we are defining here a possible nomenclature to help to describe it.

The different *elements* of the Health Informations training programme can consist of

- **A Theme or a Topic** – is an area of training falling within one column (WHWWWW) of Zachman scheme
- **A format** – is a type of training activity which can be a course, a webinar, a e-learning material, a exchange programme etc.
- **A Course** – is a training unit about one or more theme/topic
- **A Module** – is a set of courses or other format of capacity building activities
- **A Training plan** – a set of one or more modules

These elements have main properties such as

- A *course* can be **very short, short, normal, or long**
  1. A very short course is very limited learning opportunity on a specific topic (like a seminar<sup>1</sup>, a webinar<sup>2</sup> or an online course).
  2. A short course is a learning programme that gives combined content or specific skills training in a short period of time. Short courses often lean towards the more practical side of things and have less theory than a university course – this gives you a more hands-on experience within your field of interest.
  3. Normal course – equivalent to an academic discipline<sup>3</sup>.
  4. Long course – a long-term learning programme that aims at providing specialized skills and competencies.<sup>4</sup>
- A *training plan* can be **rapid, small, standard, extended or specialized**

A training plan is differentiated in term of its duration.

  1. A rapid *training plan* can be an ad-hoc course, a webinar or a fast course performed in one or a few hours up to one week.

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<sup>1</sup> A seminar is a course.

<sup>2</sup> A webinar is a course provided telematically.

<sup>3</sup> The normal term might not be the most expected here. This attempts to make a course be equivalent to an ordinaire academic course on a single topic. E.g. an introductory course on biostatistics for medicine students.

<sup>4</sup> A long course is meant to be a set of modules on specific topics that confers a specialized skill certification to the trainee. E.g. a specialization course on Artificial Intelligence in Medicine.

2. A small *training plan* is meant as course that is performed within two weeks.
3. A standard *training plan* is meant to be equivalent to an academic discipline that can be taught in a time period from two weeks to two months.
4. An extended *training plan* to be an ambitious learning programme that takes longer than two months to be taught.
5. A specialized *training plan* meant to be equivalent to a post-graduate academic course, granting a specialized skill or competency, having a duration longer than one year up to two years.

Using this nomenclature, the European Health Information programme should be a flexible structure of courses and other capacity building activities, modules and training plans, covering all the areas related to Health Information easily tailored to tackle the different needs in EU Member-States; integrating all European institutions related to Health Information; and setting the way for an European core of Health Information specialists.

From the survey already carried out under *InfAct – the Joint Action on Health Information* - WP6, different HI needs have been identified in the various MS, conclusions that should be a starting point for future work. The diversity of situations can be concluded by the need for flexible training models that allow the various member states and/or institutions to identify options depending on their national, local and even regional needs. Among other models, different formative frames can be addressed:

- Ad hoc - depending on specific needs
- Rapid training (up to 1/2 weeks)
- Standard training (two weeks - 2 months) - the pilot model
- Or specialized training (more than 2 months) or Training of specialists (one to two years training plans) – the later would be equivalent to the ECDC Fellowship Programme (EPIET and EUPHEM).

To improve the available health information in Europe, any European HI Training *Programme* must incorporate modules provided by different organizations according to their specificities: ECDC, EMCDDA, IARC, Eurostat, OECD, WHO,

etc. Also, already available academic and non-academic well structures specialized training on Health Information (like ASPHER modules within Public Health training) must also be considered. The main idea is to provide complementarity capacity building activities, avoiding duplication, particularly in very specialized topics. This way health information capacity building in general remains cost efficient at the European level.

In addition to a flexible framework that allows the choice of differentiated training modules, it will also allow options as to the duration of the training program, depending on different needs.

For very specific training, specially the ones required to tackle inequalities in Europe in the health information area, a European level seems desirable to design training modules with selected specialized modules; or to set specialized training on health information.

For more standard training on health information any institution can create courses, and can provide health professionals with more suitable training for specialists; it will also be possible to consider an intermediate 'standard training'.

A more comprehensive, flexible and diverse view of what a Capacity Building should *be*, will enable more appropriate training to complement or reinforce specific knowledge in the different themes of Health Information. In addition to this flexibility the accreditation/certification component, a key element in this process. Eurostat has a consolidated track record at this level. The European Statistical Training Programme aims to provide continuous training in new methods, techniques and best practices and integrate the application of European concepts and definitions:

<https://ec.europa.eu/eurostat/web/european-statistical-system/training-programme-estp>

<https://ec.europa.eu/eurostat/documents/747709/6103606/2019-ESTP-catalogue-final.pdf>

There are, therefore, structures and mechanisms that will allow the adaptation of programs to different formative areas in the various proposed contexts.

## **IV. Construction of a Programme Proposal**

### **A. Justification/motivation**

As mentioned in section II, the definition of the envisaged training must consist of a framework for Health Information Training in Europe aiming at a global, harmonized and sustainable Health Information capacity. This implies a European integrated training programme, integrating all existing institutions already having training abilities, potentially all relevant courses from academia and specialized programmes and projects promoting methodological advances in Health Information. Entering the third decade of the 21<sup>st</sup> century this training programme proposal must also be new, fresh, bold and ambitious.

Differentiation from traditional training moulds must, therefore, be based on greater flexibility both regarding programmatic content, knowledge transmission and emerging technologies and methodologies. Training needs in increasingly specific areas depending on specific needs and training modalities based on e-learning, shared resources, distributed datasets and open programs' packages will be preponderant alternatives in the future.

Additionally, the increasingly effective and robust use of artificial intelligence in the use of data and the adoption of increasingly powerful and more easily usable tools in data processing, by a greater number of professionals / specialists from different areas, will imply the resurgence of a new phase of the theme "Health Information". New skills, in different areas, will be key added value for information systems. There will also be new challenges that will be posed to human development in which the role of information systems will be fundamental.

### **B. Main objectives**

The European Health Information Training Programme (EHITP) - aims to be an umbrella for all current and future training activities in Europe, targeting professionals working in public health and health information at national or European/international level. In general, the target audience is professionals in the EU MS who can benefit from acquiring skills and competencies for addressing chronic threats to health. The EHITP aims to meet the institutional needs of countries in order to have a competent workforce, effectively working and

interacting with experts of all areas at European Level, other countries and other international organisations at the EU-level.

The EHITP should support lifetime learning of people working in the field of public health and health information. It should be dynamic and able to respond to emerging needs in the ever-changing health information environment. Therefore, ECDC Training Programmes (<https://www.ecdc.europa.eu/en/training>) as well as ESC Educational programme (<https://www.escardio.org/Education>), are good examples of the comprehensive capacity building programmes which support lifetime learning. They include different types of capacity building activities targeted for people with different levels of expertise/different stages of their career.

A flexible EU sustainable capacity building programme for health information should enable a greater adaptation to specific training needs, whether for professionals who are at the beginning of their professional career and seniors, learning by doing should be the key approach. We need to provide activities for people from all levels of expertise.

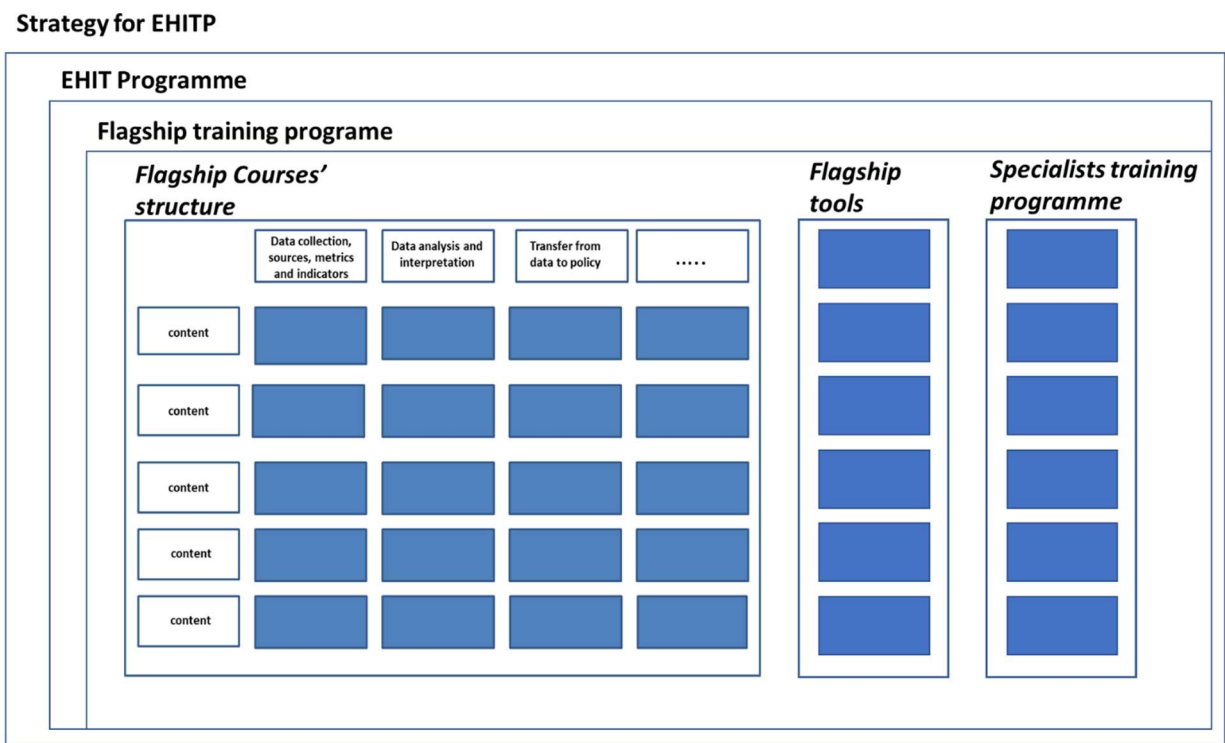
For people more towards the beginning of their professional career, programmes such as EPIET where you are working side-by-side with professionals on the field and you learn through your daily work in addition to some specific exercises/short courses are great and should be considered. For more senior people, capacity building is needed on more specific topics and these needs vary substantially between individuals, countries and over time.

We highlight the relevance of some thematic categories which in practice are evaluated in annual bases to see where specific activities are needed and in which mode. Based on what we have already written in the proposal/Grand agreement and what came out from evaluation of Task 6.1, those broad thematic categories could be 1) data acquisition including collection of new data through standardized methods, secondary use of already existing data, interoperability between different data sources, big data, my-data, etc.; 2) quality assurance of data including post-harmonization, data cleaning, validation etc.; 3) data analysis including different statistical tools/methods to be used for calculation of incidence/prevalence rates, trends, projections, BoD, associations, HSPA, derivation of standardized indicators, etc.; 4) transferring data to

policy/actions/treatment guidelines etc.; and 5) data privacy and ethics for health information including steps from data collection, data sharing, data analysis and data dissemination.

C. Framework model

The following figure aims to illustrate what we consider to be a general framework for EHITP. A flexible structure that integrates the components of courses, tools and specialist training programs, which allows adjustments according to the specific training needs.



**Figure 2.** Schematic for an European Health Information Training Programme framework

1. Courses

In this framework, we can encompass different training actions, whether they are courses of different levels and duration, webinars, workshops, e-learning materials, using different online tools available. They may also have a face-to-face format. Given the diversity of contexts and situations in different MS, the

mechanisms for validation and consolidation of the model should be widely flexible in order to make them more comprehensive.

## **2. Tools**

A wide range of credible and easily accessible instruments should be this component of the model. It will consist of diversified teaching tools and materials such as portals, MOOCs, e-learning courses, case studies, presentations, papers and reports, guidelines, protocols, among others...

While most of the remaining elements of this framework do not have particular infrastructural implications because they can be defined in abstract conceptual ways, and be thought as distributed by all MSs and institution. The definition of European tools implies a more centralized approach, not necessarily a unique structure, but definitively a structured management is mandatory.

## **3. Specialist training programmes**

This component should also be contemplated in order to make the EHITP as comprehensive as possible. Emerging specific areas associated to technological advancements applied to Health point out to the need of preparing specialist (e.g. Big Data, Data protection, Artificial intelligence,...) at European or national level. It is also important to included continuous training in more specific areas, and more focused on individual or even national/regional specificities.

## **D. Target groups**

Health Information training seems prone to be meant for Data Users. But, the European Health information Training programme must be flexible, dynamic and inclusive. While Data Users are obvious target training group, less obvious are the Data Owners who also are an important group of great importance.



## V. Example courses

InfAct WP6, of which this report is part of, aims at proposing a roadmap for a sustainable health information training in Europe. The main objective is to strength European capacity Building on Health Information in a homogeneized way across all member-states. In the first task of this WP, the existing Health Informaion capacities in Europe and needs were mapped. Accordingly to these needs it makes sense to propose a potential set of courses (it is done in section A below). This exercise and example shows that such courses are dynamic and required redefinition as the needs [on Health Information change] – this must be a characteristic of the European Health Information Training Programme.

On the other hand, InfAct WP9 set out to make a course on the methodological aspects of determining burden of diseases indicators, estimating Disease Adjusted Life Years (DALYs) and Years of Life Lost (YLLs). Such course is of great importance for the European level, since it is strategic that Europe as a whole and their member-states have the capacity of producing their own estimates. The course is summarazed in Section B.

### A. Design of a flagship course on Health Information based on currently identified need

#### 1. Structure

In general, a Health Information course should be easily derived from the course structure (template). Given results obtained from WP6.1 Task, a currently important courses should be promoted around four main themes/topics (bullets below) illustrated with potential examples of relevance:

- Health information data collection, sources, metrics and indicators:
  - Focusing on the practical example of health examination surveys contributions to health information in Europe.
- Health Data analysis and interpretation:
  - Focusing on specific cases of interoperability of data sources, Health Systems Performance and the use of ECHI indicators.
- Transfer from health data to policy:

- Focusing on specific cases of policy translation tools, Health Systems Performance and data reporting.
- Health Data privacy and ethical issues:
  - Focusing on how to deal with GDPR requirements.

## 2. Learning objectives

Participation in this course should give trainees a set of knowledge, skills and competences enabling them to:

- 1- Understand health information systems as maturing processes that include procedures resulting from data collection, analysis and management, indicator development, information management and translational research for developing new policies.
- 2- Know how to mobilize health data collection methods, tools and key primary and secondary data sources available at national and European level.
- 3- Recognize the current and future importance of using big data, artificial intelligence, m-health and the “internet of things” in health information-related activities.
- 4- Develop skills to collect and manage data using health data collection methods, m-health and the “internet of things”, adopting a European perspective.
- 5- Improve the ability to interpret and communicate data, in order to facilitate its use outside the health system and for policy translation purposes, within the European context.
- 6- Understand key aspects related to data privacy, data security and ethics in data collection, management and use.
- 7- Mobilize efforts to ensure implementation and application of GDPR requirements in their area of activity.

## 3. Duration

This course could be proposed in several timeframes configurations. Being the topics quite edgy being dominated mostly by a few Health Information Specialists

it makes some sense to make it a rapid course, i.e a course with a duration up to two weeks. One week seems reasonable here.

#### **4. Target audience**

Taking into account that the European Health Information Training Programme main objective include, currently, to address the European inequalities on practice-oriented health information training, to the target audience can be defined as:

- Professionals working in health information-related context (for more than 2 years): Health Information Specialist, Statistician, Epidemiologist, Economists, social scientists, Health Professionals, Health Researchers, etc.
- National and international members of Health information institutions.
- Junior health professionals aiming at obtaining, due to professional reasons, a training specialization in health information;

#### **5. Evaluation**

As an expected good practice evaluation of training must be performed. In the EHIT Programme tools, sets of training evaluation instruments should be progressively available. However, any educational partner institution may freely define their own evaluation instruments aligned programme objectives.

For this example course evaluation instruments could be:

- Pre-evaluation, either by a test/survey or through a call;
- Knowledge and competency test, at the end of the training;
- Satisfaction test, at the end of the training;
- Impact tests, after a certain period, to evaluate the impact on job performance;

## **B. Burden of Disease course example**

As the pilot course, a Burden of Disease course should be an integral part of the EHITP strategy. By including this second course, the EHITP becomes more clear, flexible and consistent in its mission to reduce or eliminate differences between the different countries of the European Union.

The selection of the components of this course was based on a report carried out on two workshops that took place in the InfAct project, by WP9 (MS31), related to the Burden of Disease.

### **1. Main objective**

The multiplicity of topics in this course makes EHITP more comprehensive and able to better train European healthcare professionals, which is the main objective of this course. Besides, this Burden of Disease course has a practical aspect that allows the health professional to understand how the implementation of the BoD methods can be done together with the inclusion of practical cases.

Finally, the course will be entitled: «Health Information Training Course on Burden of Disease»

### **2. Target Audience**

(Junior) Health professionals; national and international members of health information institutions.

### **3. Duration**

Total duration of the course: 28h

### **4. Model**

The course model is designed for one week with theoretical and practical themes.

*Table 2. Example of a BoD course*

	<b>Day 1</b>	<b>Day 2</b>	<b>Day 3</b>	<b>Day 4</b>	<b>Day 5</b>
<b>Morning session (09h00 -&gt; 12h30)</b>	About the Global Burden of Disease Study	Computational problems and solutions using BoD methods	Opportunities and barriers for BoD studies	Methodological support to implement BoD approaches	Using data to inform policy: successful examples
	Introducing the WHO BoD Manual	Using BoD to assess social inequalities	Methodological challenges in undertaking BoD studies and how to overcome them	Perspective from WHO Europe on BoD and recent policy developments	Pros and cons of using BoD as an indicator of policy
<b>Lunch (1h)</b>					
<b>Afternoon session (13h30 -&gt; 15h30)</b>	What type of data is needed to do BoD calculations	Subnational estimation of BoD – Case Study from UK	Strengths and weaknesses of BoD methods	Perspective from OECD	Use of Global Burden of Disease to monitor recent trends in life expectancy across Europe
	Intro to technical measures (YLL, YLD, DALYs, etc) with case studies	Social determinants of health as independent risk factors in BoD estimates	How to conduct a BoD study in a country? & How to guide a country without expertise in conducting BoD studies?	What do policy makers want/need from health statistics	Country-specific case studies & Next steps

## VI. DOCUMENT REFERENCES

CDC. (1999). *Framework for program evaluation in public health (No. RR-11)*. CDC - Centers for Disease Control and Prevention. <https://www.cdc.gov/eval/framework/index.htm>

Foldspang, A., Birt, C. A., & Otok, R. (Eds.). (2018). ASPHER's European List of Core Competences for the Public Health Professional. *Scandinavian Journal of Public Health*, 46(23\_suppl), 1–52. <https://doi.org/10.1177/1403494818797072>

Lapão, L., Beja, A., Fernandes, G. V., Martins, J., Machado, R. S., Nogueira, P., & Tolonen, H. (2019). *InfACT—Joint Action on Health Information: Report on mapping needs, capacities and training programmes in health information (WP6, Task 6.1, months 1-18)*.

Leviton, L. C., Khan, L. K., Rog, D., Dawkins, N., & Cotton, D. (2010). Evaluability Assessment to Improve Public Health Policies, Programs, and Practices. *Annual Review of Public Health*. <https://doi.org/10.1146/annurev.publhealth.012809.103625>

Pereira, C. M., & Sousa, P. (2004). A method to define an Enterprise Architecture using the Zachman Framework. *Proceedings of the 2004 ACM Symposium on Applied Computing - SAC '04*, 1366. <https://doi.org/10.1145/967900.968175>

Potter, C., & Brough, R. (2004). Systemic capacity building: A hierarchy of needs. *Health Policy and Planning*, 19(5), 336–345. <https://doi.org/10.1093/heapol/czh038>

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, & Office of the Director, Office of Strategy and Innovation. (2011). *Introduction to program evaluation for public health programs: A self-study guide*. CDC - Centers for Disease Control and Prevention. <https://www.cdc.gov/eval/guide/index.htm>

WHO. (2013). *WHO Evaluation Practice Handbook*.

Zachman, J. (2006). *The Zachman Framework for Enterprise Architecture*. Zachman Framework Associates. [https://books.google.pt/books?id=\\_a4ergEACAAJ](https://books.google.pt/books?id=_a4ergEACAAJ)

### European Reference Standards in Health Information

- ECHI - <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1338&from=EN>
  - EHIS <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A32018R0255&from=EN>
  - EHES - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6022327/>
- EU-SILC <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003R1177&from=EN>