



C1.1 "Introduction to Global Health"

Mario Raviglione, Full Professor of Global Health, University of Milan, Italy

With contributions from:

Elil Renganathan, Professor of Public Health and Policy, Sunway University, Kuala Lumpur, Malaysia

Andrea Atzori, Head of international relations, Doctors with Africa CUAMM, Padova, Italy

Hannah Monica Dias, Cross-Cutting Lead, WHO DG Flagship Initiative Find.TreatAll, Multisectoral Accountability, TB Elimination and Public-Private Mix to end TB Programme, World Health Organization, Geneva, Switzerland

Raphaël Zaffran, Deputy Director, University of Geneva's Centre for Continuing and Distance Education

Hours & Format

26 hours

11h of video lectures and 15h of exercises

Main Objective

To introduce Global Health as a modern "cross-discipline" for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide emphasizing trans-national key health issues, determinants, and solutions; involving different disciplines within and beyond the health sciences; and promoting inter-disciplinary collaboration. To introduce concepts of global health advocacy, communication and relationships with stakeholders and donors. The module also directs participants' attention to the central importance of pre-decision analysis and planning and provides them with various methodologies to use some key tools (problem/decision tree analysis, SWOT analysis), which will help them prepare the groundwork for decision-making, whether on their part or on the part of the decision-makers they advise.

Learning aims

Candidates will become familiar with global health principles, main themes, and the new paradigm in facing health challenges and identifying solutions. They will get a preparatory knowledge for the deeper analysis of the various global health themes addressed by the Master courses. They will also understand the world-wide spectrum of main actors and institutions. They will be exposed to some of the fundamental and key issues in global health. Additionally, they will learn how crucial advocacy, communication and science dissemination are in today global health work. Finally, participants will be exposed to the strategic dimension of policy-making processes and to the key notion that "context matters", helping them develop strategies to moderate



potential barriers (structural, bureaucratic, timing, access, human cognitive biases) that may constrain decision-making processes.

Expected skills gained

Full understanding of global health and its principles and readiness to face the next, deeper level of learning that will constitute the core of the master course.

Essential knowledge of advocacy, communication, science dissemination and capacity to present key topics in global health to stakeholders.

Familiarity with some theories that explain how decisions are made in international policy; understanding for the various individual & organizational biases that may affect decisions; grasp for the 7 steps of the decision-making process; Ability to apply decision-making tools to public health/development projects.

PRE-RECORDED VIDEO LECTURES – 11 HOURS

Prof. Raviglione

6 hours

- What is global health (GH)? Definitions and principles
- Evolution of GH from tropical medicine to public and international health
- Recent phenomena that influenced GH and the future perspectives in the era of the UN Sustainable Development Goals (SDG)
- Principles of the global burden of disease
- The World Health Organization and other GH actors in the international scene

Prof. Atzori

4 hours

- Resource mobilisation to face the greatest global health challenges
- International scenario and trends
- Bilateral donors & Multi-lateral donors & UN agencies
- Private foundations
- Corporate sector and CSR initiatives
- Strategic partnership for resource mobilization
- Fundraising for emergency vs development

Prof. Dias

1 hour

Political Health Advocacy and knowledge dissemination



EXERCISES – 15 HOURS

Prof. Raviglione (with collaboration of Prof. Renganathan)

2 hours

Webinar Focus on the World Health Organization and its functions

Prof. Zaffran

8 hours

Essential Skills in Policymaking" (part I) - The Craft of Decision-making: Processes, Biases & Tools

- Webinar: Introduction: theory & skill-training **2.5 hours**
- Independent work **3 hours**
- Webinar: Group work, Presentations & key take-aways **2.5 hours**

Prof. Dias

3 hours

Webinar Political health advocacy and knowledge dissemination

- Building political momentum and leveraging partnerships
- Transforming technical resources into easy-to-understand and graphic content tailored for key audiences
- Harnessing the power of digital communications and social media

Prof. Atzori

2 hours

Webinar Creating a winning pitch for your project

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This new book has been conceived as a practical and handy textbook offering a succinct yet comprehensive overview of the main challenges, issues and solutions in global health in relation to the UN's Sustainable Development Goals (SDG) 2030 Agenda. Coordinated and edited by teachers involved in the Master in Global Health (MGH) at University of Milan, its chapters are written largely by professors teaching at the MGH covering virtually all themes subject of the MGH Course.
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14. [Charitable giving in the USA, an overview of individual giving in the USA, the Charities Aid Foundation of America 2019](#)
15. The SDG Giving Landscape An insight into philanthropic giving to the SDGs, Charities Aid Foundation of America 2019
16. CAF WORLD GIVING INDEX, Ten years of giving trends - October 2019, the Charities Aid Foundation 2019



C1.2 "Quantitative methods in global health: epidemiology & biostatistics"

Giovanni Sotgiu, Clinical Epidemiology and Medical Statistics Unit Department of Medical, Surgical and Experimental Sciences University of Sassari, Italy

Maria Cristina Monti, Department of Public Health, Experimental and Forensic Medicine, Unit of Biostatistics and Clinical Epidemiology, University of Pavia, Pavia, Italy

Hours & Format

48 hours

20h of video lectures and 28h of exercises.

Main Objective

To describe statistical and epidemiological methods adopted in the global health research.

Learning aims

Main basic elements used in the statistical and epidemiological research.

Expected skills gained

To be familiar with the principles of the medical statistics and epidemiology; to know the statistical and epidemiological terminology adopted in the scientific research to describe populations and samples.

To possess adequate knowledge on the statistical inference, and on the methodological tools adopted to understand the design of a scientific study. To use basic statistical and epidemiological techniques for the appropriate interpretation of the findings of a scientific study.

PRE-RECORDED VIDEO LECTURES – 20 HOURS

Prof. Sotgiu

10 hours

- Evidence-based medicine
- Observational studies
- Experimental studies
- Design of a scientific study
- Epidemiological indicators



Prof. Monti

10 hours

- Descriptive statistics, plots and tables
- Central tendency and variability indicators
- Population and sample and hypothesis testing
- Inference and hypothesis testing
- Descriptive and inferential statistics using Excel

EXERCISES – 28 HOURS

Prof. Sotgiu

14 hours

- **Webinar** Introduction **2 hours**
- **Groups' assignment** homework **10 hours**
- **Webinar** presentation and feedback of groups' assignment **2 hours**

Prof. Monti

14 hours

- **Webinar** Introduction **2 hours**
- **Groups' assignment** homework **10 hours**
- **Webinar** presentation and feedback of groups' assignment **2 hours**

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C1.3 "Research, evidence and policy making"

Paola Muti, Full Professor of Health Research Methodology and Scientific Coordinator of the Centre for Chronic Disease Clinical Research at the University of Milan

Bogomil Kohlbrenner, Institute of Global Health, University of Geneva, Geneva, Switzerland

Charles Palmer Larson, Director McGill University Global Health Program, Montreal, Canada

Christian Lienhardt, Institut de Recherche pour le Développement, University of Montpellier, France

Holger Schünemann, McMaster University, Hamilton, ON, Canada

Raphaël Zaffran, Deputy Director, University of Geneva's Centre for Continuing and Distance Education

Hours & Format

48hours

20h of video lectures and 28h of exercises.

Main Objective

Developing competences in health research approaches along a continuum from fundamental to clinical trial methods and operational research to build evidence and translate it into policies responding to major global health challenges. Developing competences in basic study methodology such as measure of event frequency, measure of risk, errors in measurements, study validity and different study designs, from the quantitative and qualitative spectrum of research. In particular, two general strategies will be discussed for the assessment of association (between exposure and health conditions) in observational studies: a) studies using populations or groups of individuals as units of observation -the so-called ecologic studies; and b) studies using individuals as observational units, which include the prospective and retrospective cohort, the case-control, and the cross-sectional study designs. Understanding the principles governing the preparation, conduct and analysis of clinical trials for investigation of new products or intervention strategies and their implications for policy making. This module will also help participants gain and consolidate skills in communicating & convincing systematically through learning about the art of writing effective policy & strategic memos. This constitutes a key tool for participants to be able to articulate issue backgrounds and formulate policy options & recommendations within given public health/development projects.

Learning aims

A student should be able to identify approaches where research will successfully contribute to building new evidence, select the appropriate methods, set-up and plan operational field research and clinical and intervention trials to inform policy making and improve population's health.

A student should be able to define different methods to assess disease frequency and its distribution in population as well as determinants of health conditions. In addition, she/he will be able to understand the concepts of risk of disease, attributable risk and their application in population studies and public health.

A student should understand the objectives of a memo and the contexts in which they are most effectively used and know some of the best practices and common mistakes in writing memos.

Expected skills gained



Vision on various dimensions defining health problems, identification of methodologies and application of research to face field problems, capacity to assess evidence through systematic reviews and GRADE system for rating guidelines and develop evidence-based policies. Ability in critical reading of observation studies literature and interpretation of data. Ability to perform computations commonly used in epidemiology and to derive rough estimates of association between exposure and disease. Ability to assess internal and external validity of observational studies. Ability to evaluate implementation of health interventions by integrating the approach responding to “what works, for whom, in what respects, to what extent, in what contexts, and how?” with health staff in context and with beneficiaries. Ability to write concise professional memoranda to senior management and apply the memorandum methodology to the assessment of public health/development projects.

PRE-RECORDED VIDEO LECTURES – 20 HOURS

Prof. Lienhardt

5 hours

- The continuum of research: from fundamental investigations to clinical trials, operational and policy research **2 hours**
- Clinical trials: aims, type/phases, design, safety, ethical issues, administration **3 hours**

Prof. Muti

4 hours

Observational studies: case-control, cohort, retrospective studies, cross-sectional studies

Prof. Schunemann

4 hours

- Systematic reviews 1 hour
- Meta-analysis **1 hour – this lesson is on Pdf slides ONLY**
- GRADE system: certainty of evidence **1 hour**
- GRADE system: developing guidelines **1 hour**

Prof. Kohlbrenner

3 hours

- Anthropology and OR **1 hours**
- Realist evaluation **1 hours**
- eSwatini diagnostic project experience **1 hour** (*with the support of Dr. Thavisha Gunaratne*)

Prof. Larson

4 hours

Integrated Innovation **1 hours**

TTS Overview making a promise a reality, or the sequence: Proof of Concept-Transitioning to Scale (focus on L/MICs)-Health Policy/Scaling up **1 hours**

Case studies: Zinc treatment of childhood diarrhea and Post sepsis discharge on under-five children **1 hours**

Critical appraisal of TTS proposals **1 hours**



EXERCISES – 28 HOURS

Prof. Lienhardt

2 hours Webinar (**Q&A on lectures**) Designing a protocol for a clinical trial: the essential

Prof. Muti

Critical Evaluation of evidence produced by observational studies with particular emphasis on chronic diseases

Introductory **webinar** Introduction **1 hour**

Homework **6 hours**

Webinar final discussion **2 hours**

Prof. Schunemann

2 hours Webinar (**Q&A on lectures**) Producing Guidelines through the GRADE system

Prof. Kohlbrenner

1 hour Webinar Anthropology and Operational Research

Prof. Larson

1 hour preparing as well as appraising TTS proposals in terms of impact, feasibility, sustainability, and policy implications

4 hours homework

2 hours homework discussion and feedback

Prof. Zaffran

"Essential Skills in Policymaking" (part II) "The Art of Writing Policy Memos: Writing & Communicating Efficiently"

Webinar: Introduction: theory & skill-training **2 hours**

Independent work: **3 hours**

Webinar: Group work, discussion & conclusions **2 hours**



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C1.4 “Monitoring & Evaluation, Surveillance, and Demographic Surveys”

Charalampos (Babis) Sismanidis, PhD Medical Statistics, Team Lead “Surveillance, epidemiological studies, data for action”, Global TB Programme, WHO, Geneva

Giovanni Piumatti, PhD in Psychology, Researcher in Social Sciences Fondazione Agnelli, Torino

Giorgia Gon, PhD in Epidemiology, London School of Hygiene and Tropical Medicine

Philippe Glaziou, MD, MPhil (biostatistics; epidemiology), Former Global TB Programme, WHO, Geneva

Antoine Flahault, Director, Institute of Global Health, University of Geneva, Switzerland

Hours & Format

38 hours

20h of video lectures and 18h of exercises.

Main Objective

To understand the different types of health data (produced by routine surveillance, epidemiological studies, randomized trials), how they are generated, what objectives they address when used and the key principles of their analyses. Case studies will be presented as examples to promote the understanding of key concepts.

Learning aims

- Defining the main categories of health data and the objectives they address, with examples.
 - surveillance data: planning, monitoring programmatic performance, evaluating progress towards set targets, measuring impact, measuring burden, detecting and addressing outbreaks, identifying risk factors and comorbidities.
 - medical records data: providing patient-centred health care and clinical management.
 - periodic studies and surveys: burden estimation.
 - other research data: answering hypotheses.
- Defining key design principles for the main categories of health data, with examples.
 - routine surveillance systems: civil and vital registration systems (mortality), TB case notification systems (incidence);
 - research data: observational studies and cross-sectional surveys (population-based and health facility-based), interventional studies (key epi study designs: cohort, case-control, trials: clinical and cluster-randomised, implementation and operational research studies).
- Explaining the rationale of M&E for planning, monitoring and evaluation, and the importance of measuring results (outcomes, and impact vs. other categories); learn how district-based surveillance & monitoring



systems are the basis for global burden estimates. Defining different types of study designs for evaluation and having a general sense on how data underpin modelling of global estimates.

- Appraising, comparing, and applying the basic concepts of Monitoring and Evaluation (M&E) with the preparation of and implementation of group work – from examples of real-life programs identify what design can be used and suitable indicators should be monitored to evaluate the effectiveness of distinct public health interventions.

Expected skills gained

Demonstrate a basic understanding of the different types of health data and how they are used. Apply knowledge of study design to answer a research question. Use basic M&E skills in the context of a country situation.

PRE-RECORDED VIDEO LECTURES – 20 HOURS

Prof. Sismanidis

6 hours

- Introduction to module and structure **1 hour**
- Main categories of health data and the objectives these address **1 hours**
- Introduction to the epidemiology of TB, global framework (end TB strategy), prevention and care pathway **2 hours**
- Key principles of routine surveillance systems, including monitoring & evaluation, for TB **2 hours**

Prof. Gon

4 hours

- Key principles of different types of evaluation design studies **4 hours**
 - Ecological and cross-sectional
 - Cohort and case-control
 - Randomised controlled trials
 - Quasi-experimental designs

Prof. Piumatti

8 hours

- Overview of most popular available software for quantitative data analysis in demography (e.g., R, Stata, SAS): pros and cons. Introduction to Stata v. 16 – Part I: Overview of basic commands for data management and descriptive analyses **2 hours**
- Introduction to Stata v. 16 – Part 2: Overview of basic commands for data manipulation with a focus on missing values treatment **2 hours**
- Introduction to ‘The Demographic Health Surveys’ (DHS) data sources: What are they and what can they be used for? **1 hour**
- Focus on the most recent (and most complete) DHS survey pertaining to Tanzania (i.e. 2015-2016). Tanzania maternal health indicators in the DHS (questionnaires and bio-markers) **2 hours**



- Limitations of population-based surveys in comparison to surveys targeting specific key populations
1 hour

Prof. Glaziou

2 hours

WHO methods to estimate the global TB burden: using clinic- and district-based data, surveys and other approaches to inform modelling of global tuberculosis estimates of incidence, prevalence, mortality and drug resistance.

EXERCISES – 18 HOURS

Prof. Sismanidis & Prof. Piumatti

15 hours

- **Webinar** to introduce joint assignment **1 hour**
- **Groups' assignment** homework **11 hours**
- **Webinar** feedback to group assignments **3 hours**

Prof. Flahault

2 hours

Webinar Precision epidemic forecasting: the case of Covid-19 and other epidemics

Prof. Glaziou

1 hour

Webinar interactive session on the use of routine surveillance for evaluation, example of the cohort analysis of TB treatment outcomes; blind areas unanswered within routine surveillance such as: what is the gap between notifications and incidence? what is the proportion of wrong clinical diagnoses of TB? How many routinely notified TB cases die from TB? Elaboration on evaluation questions that can be answered within routine data systems and others that cannot and require an external source of data from a research study.



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C1.5 "Global burden of Disease"

Richard Skolnik, Former Lecturer, Health policy and Management Department, Yale School of Public Health and Lecturer in the Practice of Management, Yale School of Management, New Haven, USA

Hours & Format

24 hours

10h of video lectures and 14h of exercises.

Main Objective

Understanding the importance of the concept of "Global Burden of Disease", its origin and aims, risk factors for diseases, and all disease burden information necessary to health researchers and policy makers, and learning how to interpret and apply the knowledge acquired.

Learning aims

A student should be able to understand fully history, aims and information pertaining to the global burden of disease, and, therefore, to and use apply this knowledge to policy thinking and making.

Expected skills gained

By the time students finish this module they should be able to: Discuss with clarity the concept of the global burden of disease and its associated risk factors. Articulate the leading causes of death and disability by World Bank region, World Bank country income group, sex, and age. Note the key risk factors for the global burden of disease and how it varies by region, country income group, sex, and age. Review with confidence the use of burden of disease and risk factor data in making health policy .Highlight key policy choices related to the burden of disease and risk factors in selected settings Articulate key findings on the global burden of disease for a range of countries in both presentations and policy briefs.

PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Skolnik

2 hours

- Introduction to the module and an overview of the global burden of disease approach.
- The goals of the module – the Instructor. Introduction to the Instructor.
- The Need for Burden of Disease and Risk Factor Data and Key Definitions.
- Key Approaches, Definitions, and Measures Explained: YLD, YLL, and the DALY.
- The Global Burden of Disease Studies – History, Methodology and Evolution of the Methodology.



- Learning objectives: By the time students finish this session, they should be able to discuss the value of data on the global burden of disease and risk factors. Discuss the concept of “the burden of disease”
- Review the concepts of YLD, YLL, and the DALY.
- Articulate the key points in the evolution of the burden of disease and risk factor methodology.
- Provide an outline view of the leading causes of death and disability globally, how they vary by region, country income group, sex, and age.

2 hours

- The Global Burden of Deaths, Finding and Using GBD Data, and Preparing Policy Briefs. An overview of GBD Data Becoming familiar with the GBD Compare Interactive Website. How to write a policy brief and how to present your findings ... with the burden of disease and its implications as the subject.
- Learning objectives:
- By the time students leave this session, they should be able to utilize the GBD Compare website
- Outline the leading causes of death by region, country income group, age, and sex
- Note the changes in the burdens of death 1990-2017 and the implications of these changes for health policy.
- Articulate the outlines of how that methodology has changed over time. Be comfortable with the instructor’s expectations for how a policy brief on burden of disease issues should be prepared.

2 hours

- The global burden of disability (YLD) and of disability adjusted life years (DALYs) and preparing a presentation on the Global Burden of Disease.
- Overview of GBD approaches to years of life lost to disability and to the DALY. A closer look at years of YLL and DALYs, by country income group, region, age, and sex
- Learning objectives:
- By the time students finish this session, they should be able to articulate the global burden of disability, by World Bank Region and World Bank Country Income Group for all Age Groups. Changes in the burden of disability from 1990 to 2017. The global burden of DALYs, by region, country income group, age, and sex. Changes in the burden of DALYs from 1990 to 2077.

2 hours

- Risk Factors A closer look at risk factors, by country income group, region, age, and sex.
- Learning objectives:

Articulate with clarity the key risk factors for the burden of disease and how they vary with region, country income group, sex, and age. Understand and be able to discuss the burden of disease and risk factors in a range of low, middle- and high-income countries.

2 hours

- The future burden of disease and examining GBD in a sample of low- and middle-income countries.
- Overview by the instructor on projections of the burden of disease and the factors that will influence changes in the burden of disease. Examining the burden of disease in selected countries: Ethiopia, Nigeria, Brazil, India, and China.
- Concluding comments on the module by the instructor. Learning objectives: By the time students leave this session they should be able to articulate in an integrated way the key burden of disease concepts and their meaning generally and in particular settings for health policy choices



EXERCISES – 14 HOURS

Prof. Skolnik

14 hours

- **Webinar** Introduction and Objectives of the module; overview on the assignment; and discussion of key points and students' questions **1,5 hours**
- **Individual assignment** homework **10 hours**
- **Webinar** Brief comments by the instructor; discussion of key points; and, student questions **1 hour**
- **Webinar** final webinar and Brief comments by the instructor; discussion of key points; and, student questions **1,5 hours**

Bibliography

The students should read the papers from the 2019 Burden of Disease Study for their main points.

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They should familiarize themselves at a fundamental level with comments in the papers on methodology, key data points, and the implications of the data

Link to main papers in one place:

[https://www.thelancet.com/journals/lancet/issue/vol396no10258/PIIS0140-6736\(20\)X0042-0](https://www.thelancet.com/journals/lancet/issue/vol396no10258/PIIS0140-6736(20)X0042-0)

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4. Five insights from the Global Burden of Disease Study 2019 Murray, A.
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C1.6 "Social and economic determinants of health"

Eduardo Missoni, Adjunct Professor, Università Bocconi

Hours & Format

24 hours

10h of video lectures and 14h of exercises.

Main Objective

The purpose of the course is to introduce students to the social and economic determinants approach to health.

Learning aims

At the end of the course students should be familiar with concepts, issues and policies related with a social determinants approach to health.

Expected skills gained

Ability to critically analyse the biomedical approach to health and the underlying societal model and identify main determinants of health and possible strategies to face the challenge.

PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Missoni

10 hours

- Introduction to the determinants of health **2 hours**
- Daily living conditions throughout life-course **2 hours**
- Global socio-economic and political context **2 hours**
- The urban-rural transition **2 hours**
- The environmental challenge **2 hours**



EXERCISES – 14 HOURS

Prof. Missoni

14 hours

- **Webinar** introduction to the course and to group assignment **2 hours**
- **Groups' assignment** Homework – “Covid-19 and the political economy of Infectious Diseases and epidemics”. Groups must go through the specific reading indicated in Bibliography (the political economy of Infectious Diseases and epidemics) than research on the current pandemic and produce a 10-minutes presentation commenting on how – in their view - Covid19 and the global response is related to social, economic, and environmental determinants **6 hours**
- **Exercise** – Reading The food system and its transformation
Students must go through the specific readings indicated in Bibliography.
Reflect on the question: “Which are the determinants of the transformation of the food system and how is this reflected in population health and global burden of disease?” **1 hour**
- **Exercise** – Reading Cancer and its societal determinants
Students must go through the specific readings indicated in Bibliography
Reflect on the question: “Along which pathways societal structure and development model act as a determinant of cancer?” **1 hour**
- **Exercise – Health and healthcare: sustainability and the global agenda**
Students must go through the specific readings indicated in Bibliography **1 hour**
- **Webinar** Feedback on “food-system”, “cancer” and “healthcare sustainability” Webinar to provide feedback and discussion on individual reading assignment **1 hour**
- **Webinar** Presentation Group assignment on “The political economy of Infectious Diseases and epidemics”. Each group will present its analysis on how Covid-19 and the global response are related to social, economic, and environmental determinants. Discussion will follow **2 hours**



Bibliography

Readings related to video lectures

1. Marmot, M. et al. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet* 2008; 372: 1661–69
2. Landrigan, P.J. et al. The Lancet Commission on pollution and health. *Lancet* 2018; 391: 462–512
3. Whitmee, S. et al. Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. *Lancet* 2015; 386: 1973–2028

Readings related to assignments

4. Missoni, E., Pacileo, G, Tediosi, F. Global Health Governance and Policy: An Introduction. Abingdon, Routledge, 2019.

Group Assignment

5. “The political economy of Infectious Diseases and epidemics” – read Chapter 11.3

Assignment

6. “The food system and its transformation” – read Chapter 11.4
7. Luzzati, T., Parenti, A, Rughi, T. Economic Growth and Cancer Incidence. *Ecological Economics*, 2018, 146:381-396.
8. Assignment:
“Cancer and its societal determinants” Missoni, E. Global Health Determinants and Limits to the Sustainability of Sustainable Development Goal 3. In: Flahaut, A. (ed.) [Transitioning to Good Health and Well-Being, MDPI, 2021](#)

Assignment and Webinar: Development, health and healthcare: sustainability and the global agenda



C1.7 "The UN Sustainable Development Goals (SDGs) from a multidisciplinary perspective"

Stefano Bocchi, University of Milan, Italy
Ariel Pablos-Mendez, Columbia University, New York, NY, USA

With contributions from:

Roberto Bertolini, MD MPH, Advisor to the Minister of Health of Qatar and Member of the Scientific Committee on Health, Environmental and Emerging Risks of the European Commission
Emanuela Parotto, MD, Anaesthesia consultant, Padua's University Hospital, Italy; PhD candidate, Global Surgery Institute, Dublin, Ireland
Daniela Lucini, Dept. of Medical Biotechnology and Translational Medicine, University of Milan
Vittorio Ingegnoli, Dept. of Environmental Science and Policy, University of Milan
Caterina La Porta, Dept. of Environmental Science and Policy, University of Milan
Silvana Galassi, Dept. Ecology, University of Milan
Luciano Pilotti, Dept. of Environmental Science and Policy, University of Milan
Antonio Longo, Dept. of Architecture and Urban Studies, DASTU – Politecnico Milan, Italy
Laura Piazza, Dept. of Environmental Science and Policy, University of Milan
Maurizio Maugeri, Dept. of Environmental Science and Policy, University of Milan
Guglielmina Diolaiuti, Dept. of Environmental Science and Policy, University of Milan
Marilisa D'Amico, Dept Italian and Supranational Public Law, University of Milan
Alberto Battezzati, Dept. of Food, Environmental and Nutritional Sciences, University of Milan
Ilenia Rossetti, Dept. Chemistry, University of Milan

Hours & Format

38 hours

20h of video lectures and 18h of exercises.

Main Objective

To enable students to understand and value genesis, context and progress of the U.N. SDGs through a multidisciplinary didactic approach.

Learning aims

Students learn an appreciation of the historical MDGs and focus their learning on the evidence and diplomacy involved in setting the SDGs, the metrics and resources in advancing them, with emphasis on goals # 2 & 3 but also all other health-relevant SDGs, and the international arrangements to support and hold actors accountable. The multidisciplinary approach provided by teachers from numerous fields outside that of health the overall aim is a full understanding of integrated approaches to major global health issues and the need to act across disciplines and sectors to achieve results.



Expected skills gained

While the course is introductory to several disciplines and sectors, students will gain a deeper knowledge of the SDGs, an appreciation of the values of equity behind them, an understanding on how advances in other disciplines and sectors are crucial for global health, and the evidence and negotiating skills involved in policy development at the international level. Given their crucial importance, students will become familiar with the “agri-food” system model for sustainable nutrition-sensitive agriculture, as well as with the impact of climate changes on population health.

PRE-RECORDED VIDEO LECTURES– 20 HOURS (+ 1 HOUR OPTIONAL)

Prof. Pablos-Mendez and Dr. Emanuela Parotto

4 hours

- The MDGs: history, evidence and impact **1 hour**
- The SDGs: history, significance, change of paradigm, the 17 goals and 169 targets **1 hour**
- Universal Health Coverage (UHC) as a key contributor to achieving the SDG: history, meaning, status in the world **1 hour**
- UHC: the battle to raise it as a global priority **1 hour**

Prof. Bocchi

16 hours

- Agrofood system, old and new paradigms – The green revolution and the seed base **1 hour**
- SDG 2 Zero hunger and sustainable agriculture - food security **1 hour**
- SDG 3 Good health and wellbeing – Lifestyles Daniela Lucini **1 hour**
- SDG 4 Quality Education. System approach - Vittorio Ingegnoli **4 hours**
- Diets and Human Health – big data - Caterina La Porta **1 hour**
- SDG 6 Clear water and sanitation – Silvana Galassi **1 hour**
- SDG 7 Affordable and clean energy – Ilenia Rossetti **1 hour**
- SDG 8 Decent work and economic growth – Luciano Pilotti **1 hour**
- SDG 11 Sustainable cities and communities – Antonio Longo **1 hour**
- SDG 12 Responsible consumption and production – Stefano Bocchi **1 hour**
- SDG 13 Climate Action – Maurizio Maugeri **1 hour**
- SDG 13 Climate Action – Guglielmina Diolaiuti **1 hour**
- SDG 16 Peace, justice and strong institutions – Marilisa D’Amico **1 hour**

(OPTIONAL) 1 hour

Agri-food system model for sustainable nutrition-sensitive agriculture – Laura Piazza



EXERCISES – 18 HOURS

Combined Webinar: putting everything together

Prof. Bocchi, Prof. Bertollini, Prof. Pablos Mendez and Dr. Emanuela Parotto

11 hours

- **Webinar** day 1 presentation of the module and assignment **1 hour**
- **Groups' assignment** homework **8 hours**
 - ✓ Establish 4-5 working groups
 - ✓ identify a country per group
 - ✓ identify any SDGs significant impact on health for the countries selected
 - ✓ discuss progress
 - ✓ challenges and solutions/strategies with a major impact on health to reach the SDG #3 targets
- **Webinar** combined round table Bocchi – Bertollini – Pablos Mendez with feedback to groups' assignment **2 hours**

Prof. Bocchi and Battezzati

2 hours

Webinar focus on Diets and Health – Alberto Battezzati

Prof. Pablos-Mendez and Dr. Emanuela Parotto

1 hour

Webinar The transition from MDGs to SDGs, the policy road to the SDGs and the UHC movement. Q&A

Prof. Bertollini

4 hours

Webinars on climate change and health

- Direct and indirect effects: challenges at global and national levels **2 hours**
- Adaptation and Mitigation: modernizing the public health agenda **2 hours**



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12. Svetlana Rodgers. *Minimally Processed Functional Foods: Technological and Operational Pathways*. Vol. 81, Nr. 10, 2016 *Journal of Food Science*
13. Mc Michael AJ. *Globalization, Climate Change and Human Health*. *N Engl J Med* 2013;368: 1335-1343



C1.8 "Global infectious challenges"

Andrea Gori, Full Professor of Infectious Diseases, University of Milan

Mario Raviglione, Full Professor of Global Health, University of Milan

Claudia Alteri, PhD, Assistant Professor in Microbiology and Clinical Microbiology, Department of Oncology and Hemato-Oncology, University of Milan

Marta Canuti, PhD, Research Fellow, Centre for Multidisciplinary Research in Health Science (MACH) and Centre for Epidemiology and Molecular Surveillance of Infections (EpiSoMI), Università degli Studi di Milano, Milan, Italy

Daniela Maria Cirillo, MD, PhD Head of Emerging Bacterial Pathogen Unit (EBPU), IRCCS Ospedale San Raffaele (OSR), Milan, Italy

Kefas Samson, MD Global Coordination and Partnership on Antimicrobial Resistance, World Health Organization (WHO), Geneva, Switzerland

Alberto Matteelli, Associate Professor in Infectious Diseases at the University of Brescia, Brescia, Italy

Antonio Montresor, MD, Neglected Tropical Diseases Programme, Geneva

Hours & Format

26 hours

16h of video lectures and 10h of exercises.

Main Objective

To present and discuss in specific terms the main infectious disease challenges in global health based on the global burden of disease estimates of deaths and human suffering.

Learning aims

Candidates will receive a proper education on the burden, progress and strategies related to the main infectious diseases ravaging the world, including HIV/AIDS, tuberculosis and non-tuberculous mycobacteria, malaria, neglected tropical diseases, hepatitis, and antimicrobial resistance.

Expected skills gained

Full understanding of the variety of high-burden infectious diseases and conditions, and of strategies and plans to handle them in all settings with special focus on those in low- and middle-income countries.



PRE-RECORDED VIDEO LECTURES – 16 HOURS

Prof. Raviglione

2 hours

Tuberculosis epidemiology: this lecture will introduce the basic epidemiology of tuberculosis as well as the description of the global epidemic

Prof. Gori

5 hours

- 3 hour HIV: epidemiology, clinical hints
- 2 hours Sexually Transmitted Diseases and Monkeypox - MD Davide Moschese - Ospedale Luigi Sacco

Dr. Marta Canuti (free assignment hour Prof. Raviglione and Prof. Gori, respectively)

1 hour

Emerging and re-emerging pathogens

1 hour

Coronavirus Infections

Prof. Montresor

2 hours

Parasitic and other neglected infectious diseases in low/middle-income countries

Prof. Cirillo

1 hour

The impact of technology on poverty related diseases: from diagnosis to individualized therapy

Prof. Alteri

1 hour

Virology and global health

Prof. Samson

2 hours

Antimicrobial resistance: I -global situation II global response and strategies for containment

Prof. Matteelli

1 hour

Malaria epidemiology and strategies



EXERCISES – 10 HOURS

Prof. Raviglione

2 hours

Webinar Tuberculosis – Challenges and strategies Q&A

With the participation of: Dr. Sayd Karamshah (Pakistan), Ghulam Nabikazi (Pakistan), Pierpaolo de Colombani (UniMI Consultant) e Marcos Espinal (Dominican Republic & former PAHO/WHO).

Prof. Gori

3 hours

Webinar HIV/AIDS **2 hours**

With the participation of: MD Andrea Gicomelli (Italy), MD Barbara Castelnuovo (Uganda), MD Giuliano Rizzardini (Italy)

1 hour

Webinar Sexually Transmitted Diseases and Monkeypox MD Davide Moschese

Prof. Montresor

2 hours

Webinar Neglected Tropical Diseases Q&A

Prof. Samson

1 hour

Webinar Antimicrobial resistance: a global health challenge

Prof. Matteelli

2 hours

Webinar Malaria epidemiology and strategies

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3. Infectious Disease Threats in the Twenty-First Century: Strengthening the Global Response David E. Bloom* and Daniel Cadarette Response. *Front. Immunol.* 10:549. doi: 10.3389/fimmu.2019.00549 <https://ghsm.hms.harvard.edu/research/infectious-disease>



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C1.9 "Global health challenges"

Paola Muti, Professor, Department of Biomedical, Surgical and Dental Sciences, University of Milan

Matteo Cesari, Associate Professor of Internal Medicine, University of Milan

Carlo Agostoni, Full Professor of Pediatrics, University of Milan

Viviana Mangiaterra, Associate Professor, SDA Bocconi School of Management, Milan, Italy

Davide Mosca, Realizing Health SDGs for Migrants, Displaced and Communities, Nairobi, Kenya

Luca Ragazzoni, Scientific Coordinator of Center for Research and Training in Disaster Medicine, Humanitarian Aid, and Global Health, University of Piemonte Orientale (UPO), Novara, Italy

Emiliano Albanese, Professor of Public Health and Director Institute of Public Health USI; Professor of Public Mental Health UniGe and Director WHO Collaborating Center, Switzerland

Patrizia Di Caccamo, Vice President, COI Cooperazione Odontoiatrica Internazionale, Torino, Italy

Sante Leandro Baldi, independent/freelance researcher in Global Oral Health; affiliated COI; MSc in Dental Public Health, University College London and 2nd Level Master in Global Health, University of Milan

Luca Arturo Pavesi, PhD, Adjunct Professor at University of Milan-Bicocca, Master in Oral health in disadvantaged communities and low-income countries at University of Turin

Hours & Format

26 hours

12h of video lectures and 14h of exercises.

Main Objective

To present and discuss in specific terms the main challenges in global health other than those of infectious nature dealt with within module C1.8 and based on the global burden of disease estimates of deaths and human suffering.

Learning aims

Candidates will receive a proper education on the burden, progress and strategies related to threats to maternal and child health; non-communicable diseases and conditions and their main risk factors and determinants; other emerging challenges in global health such as response and preparedness for epidemics and natural disasters, migrant health, proper nutrition, aging populations.



Expected skills gained

Full understanding of the variety of high-burden diseases and conditions, and of strategies and plans to handle them in all settings with special focus on those in low- and middle-income countries.

PRE-RECORDED VIDEO LECTURES – 12 HOURS

Prof. Mangiaterra

4 hours

- Maternal health: situation and response
- Child health: situation, challenges and response

Prof. Muti

1 hour

Non-communicable diseases (NCD): determinants and risk factors. This section focuses on the contemporary five key NCDs: cardiovascular disease, cancer, diabetes, chronic respiratory disease, and chronic neurologic disorders. It provides students with an understanding of the major determinants and risk factors in NCDs epidemiology. In particular, lifestyle risk-factors, alcohol intake, tobacco use, nutrition and new metabolic and molecular determinants will be discussed in the main lecture and in the related assignment exercises.

Prof. Cesari

1 hour

The absolute and relative increases in the number of older persons are evident worldwide, from the most developed countries to the lowest-income regions. Multimorbidity and need for social support increase with age. Age-related (usually chronic) conditions and, in particular, disabilities are a significant burden for the person, his or her family, and public health care systems. To guarantee the sustainability of public health systems and improve the quality of care provided, it is becoming urgent to act to prevent and delay the disabling cascade. In this context, with the aim of promoting a more comprehensive and appropriate assessment of the aging population, the World Health Organization introduced the concept of intrinsic capacity. In this one-hour presentation, the relationships between aging, diseases, and healthcare systems are presented. Study material will be provided for going in-depth on the topic. A written assignment will then be requested. In a final one-hour webinar, the assignments will be discussed.

Prof. Agostoni

2 hours

Pediatric Nutrition in a global perspective: within and beyond COVID-19

Prof. Ragazzoni

2 hours

- Preparedness and response to natural disasters
- Preparedness and response to emerging epidemics: COVID-19 and health emergencies



Prof. Mosca

2 hours

- Understanding migration, and its health implications
- Migration and Health': an evolving global health issue. Origins, development, current trends and perspectives

EXERCISES – 14 HOURS

Prof. Agostoni – Gori - Raviglione

1,5 hours Optional extra-ordinary webinar

Nutrition today: from tradition to sustainable globalization & Q&A session

Prof. Mangiaterra

2 hours

Webinar Maternal and child health Q&A

Prof. Cesari

2 hours

Webinar Aging and health Q&A

Prof. Patrizia Di Caccamo ,Dr. Leandro Baldi and Dr. Luca Pavesi

2 hours

Webinar Global Oral Health Introduction, Epidemiology, Incidence and Prevalence (Global Burden of Oral Diseases), YLD/DALY; Challenges and barriers to oral health; WHO and Oral Health; Actions; Cost effective strategies for prevention and control; International Cooperation for Oral Health

Prof. Albanese

4 hours Mental Health

- **2 hours Webinar** Mental Global Health I
- **2 hours Webinar** Mental Global Health II

Prof. Mosca

2 hours

Webinar Operationalizing migrant health principles: case studies (including: COVID-19; regional perspectives from Europe, Africa; approaches to country agendas)

Prof. Ragazzoni

2 hours

Webinar Preparedness and response to health emergencies in humanitarian settings
Q&A



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<https://au.int/en/documents/20220504/migration-and-health>



C2.1 "International cooperation and humanitarian action as tools in global health"

Claudia Marotta, Public Health Medical Officer, Ministry of Health, Rome, Italy

Francesco Di Gennaro, Associate Professor in infectious diseases and tropical medicine, University of Bari, Bari, Italy

Giovanni Putoto, Head of Planning and Operational Research, CUAMM, Padova, Italy

Niccolò Ronzoni, Medical doctor specialized in infectious diseases and tropical medicine, Negrar Hospital, Verona, Italy

Andrea Atzori, Head of International Relations, CUAMM, Padova, Italy

Hours & Format

24 hours

10h of video lectures and 14h of exercises.

Main Objective

To provide a broad view of international cooperation activities and humanitarian actions implemented by the civil society (NGOs, FBOs) and the University system.

Learning aims

To understand: (i) the founding principles of international cooperation and its history; (ii) the key drivers of migration and the possible impacts on origin and destination countries; (iii) the burden and key drivers of the major epidemics seen from an international cooperation perspective; (iv) the scope and impact of health care associated infections; (v) the international cooperation in the health field from the NGOs perspectives; and (vi) the work in global health of faith-based organizations.

Expected skills gained

At the end of the module, the students will be able to: (i) understand the fundamental drivers of migration and the impact of migration on origin and destination countries; (ii) appreciate the key steps in planning a research and training project in a resource-poor country; (iii) understand the dynamic of Ebola Virus and cholera epidemics in sub-Saharan African countries; (iv) plan for implementation of key practices and activities for health care associated infections control, (v) appreciate the principles and experiences in cooperation with Africa with special reference to the NGO CUAMM; and (vi) understand how faith-based organizations can contribute to global health.



PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Marotta

3 hours

- Founding principles of international cooperation and its history
- Health and Migration
- The changing face of cooperation in the era of massive migration

Prof. Di Gennaro

1 hours

- Role of inter-university cooperation with resource-poor countries. Training and research

Prof. Putoto

2 hours

- Ebola. Cholera. Health Care Associated Infections (HCAI).
- Infection prevention and control. Antimicrobial resistance. Health Cooperation and NGOs. CUAMM's principles and experiences in cooperating with Africa

Prof. Ronzoni

2 hours

- HIV: epidemiology, clinical hints. Hepatitis: burden and response. Epidemics of infectious diseases. General principles. Background factors (biological, environmental and lifestyle and others)

Prof. Atzori

2 hours

Faith-inspired Engagement in Global Health: the example of the Catholic Church's Advocacy and Humanitarian Responses

EXERCISES – 14 HOURS

Prof. Marotta- Di Gennaro **7 hours (4h Di Gennaro – 3h Marotta)**

- **Preparatory webinar 1h**
- **Journal Club Homework 4 hours**
- **Feed-back and discussion - Webinar Q&A 2 hours**



Prof. Putoto- Ronzoni 7 hours (4h Putoto – 3h Ronzoni)

- **Preparatory webinar 1h**
- **Assignment Homework - Case study (theme: Ebola and the vaccine case) (4 hours)**
- **Webinar Q&A 2 hours**

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C2.2 "Health systems - Universal coverage, social protection, non-state sector"

Fabrizio Tediosi, Professor, Swiss Tropical and Public Health Institute & University of Basel, Switzerland

With contributions from:

Fahrad Rihai, MD Assistant Professor, Faculty of Medicine, McGill University, Montreal, Canada, and Global Head, New Commercial Partnership Models & Health Systems Engagement, Novartis, Basel, Switzerland

Tido von Schoen-Angerer, former Executive Director MSF Global Access Campaign, Geneva, Switzerland

Hours & Format

24 hours

10h of video lectures and 14h of exercises

Main Objective

The course analyses the relationships between global health strategies and national and local health policies and systems. It focuses on health systems frameworks, the role and behaviour of institutions and stakeholders, the major innovations in financing and delivering health services, the links between health systems and social protection systems and on how health systems are responding to global changes.

Learning aims

At the end of the course, participants will understand the importance of health systems and policies, and their relation to social protection, in achieving public health goals. Participants will be acquainted with systems approaches to global health challenges and the main conceptual elements of working within such frameworks.

Expected skills gained

Participants will be able to critically reflect how societies organize themselves in achieving collective health goals; analyze how health systems actors respond and adapt to global health challenges; appreciate how different actors interact in the policy processes to contribute to public health policy outcomes.

PRE-RECORDED VIDEO LECTURES – 10 HOURS



Prof. Tediosi

5 hours

- Health system perspective to global health challenges definitions and objectives of health systems health systems frameworks; Relevance of a health systems approach to address global health challenges **2 hours**
- Financing Health Systems for Universal Health Coverage; Policy instruments to improve health system performance through better health financing policy **2 hours**
- Social health protection systems in low- and middle-income countries **1 hour**

Prof. Lonnroth

5 hours

- History of UHC in the global health agenda **2 hours**
- The role of the private sector in global health **1 hour**
- Income security in times of sickness **2 hours**

EXERCISES – 14 HOURS

Prof. Tediosi

10 hours

- **Webinar 1:** Q&A on recorded lectures and introduction to assignment **2 hours**
- **Assignment** Homework (feedback via email) **6 hours**
- **Webinar 2:** Presentation of assignment and discussion, **2 hours**

Dr Farhad Rihai

2 hours

Webinar the role of the private sector in global health

Dr Tido von Schoen-Angerer

2 hours

Webinar Q&A Experience with the MSF Global Access Initiative



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Social protection / income security

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TB case study on social protection

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C2.3 "Essentials of health economics"

Fabrizio Tediosi, Professor, Swiss Tropical and Public Health Institute & University of Basel, Switzerland

Hours & Format

24 hours

13h of video lectures and 11h of exercises.

Main Objective

The course provides an introduction to key health economics principles. The course focuses on: a) The relationships between population health and economic development; b) Health systems financing and the role of health insurance; c) Impoverishing effects of health expenditure; d) Methods to pay health care providers and the role of incentives; e) How to reduce waste in health systems; f) Setting health priorities on the basis of burden of disease.

Learning aims

It is expected that upon successful completion of the module, student will be able to: appreciate the relevance of the relation between health and economic development; appreciate the importance of understanding the health sector as an economic sector; assess alternative methods of raising revenue to fund health systems; assess alternative approaches to pay health care providers; identify and analyze the causes of inefficiencies in health systems; assess policy options to improve health systems performance.

Expected skills gained

By the end of the course, participants will understand economics aspects of health systems. Participants will have learned skills to:

- Use methods of economics to promote population health;
- Understand pros and cons of policy options to fund health systems;
- Understand pros and cons of different methods to pay health care providers;
- Identify and analyze health systems inefficiencies;
- Use burden of disease data to set priorities in health systems.



VIDEO LECTURES – 13 HOURS

Prof. Tediosi

13 hours

- The relationship between health and economic development **2 hours**
- Financing health systems **2,5 hours**
- Health and financial risks **2 hours**
- Health care provider payment systems **2,5 hours**
- Inefficiencies in health care **2 hours**
- Using burden of disease data to set priorities in health systems **2 hours**

EXERCISES – 11 HOURS

Prof. Tediosi

11 hours

- **Webinar** Introduction **1 hour**
- **Groups assignment** Homework **8 hours**
- **Webinar** presentation and feedback of assignment **2 hours**

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C2.4 "Principles of health management"

Federico Lega, Full Professor, University of Milan, Director of the Centre in Health Administration. Board Member European Health Management Association.

Hours & Format

30 hours

17h of video lectures and 13h of exercises.

Main Objective

The course provides an introduction to key health management principles, providing students the foundations of management and leadership, with specific reference to the health sector. As such, it will provide students with an overview of: a) the science of management by discovering what researchers have found in relevant fields like strategic management, human resource management, performance management; b) the roles managers must perform and the soft skills required; c) the four primary management functions: planning, organizing, leading, and controlling; d) How to develop effective project management and business modelling and planning.

Learning aims

It is expected that upon successful completion of the module, student will be able to:
master the contents of the major functions of managers: planning, organizing, steering, controlling; explain the difference and specificity of leadership vs. management and their practices and methods; develop a business model and outline the business planning of an investment or project; designing structures and roles in organization; doing effective project management.

Expected skills gained

By the end of the course, participants will have a deep understanding of the key management principles. Participants will have learned skills to:
Develop their aptitudes and skills as managers; Draft a strategic plan, develop an organizational chart, set up a performance management system, design a change management initiative; Develop cost and revenue analysis; Analyze and reconfigure the business model of organizations.



VIDEO LECTURES – 17 HOURS

Prof. Lega

17 hours

- Leading What makes good organizations great; Overcoming organizational “traps” to improving performance; Why professional contexts are “wicked” and their specific organizational and managerial challenges **2 hours**
- Planning Strategy-making in organizations: theory and practice; Scope and use of strategic planning and strategic plans **3 hours**
- Steering & engaging; Enabling and empowering decision-making at middle-level: the role of managers; From planning to budgeting: making managers accountable **2 hours**
- Organizing; Designing organizations; Structures and configurations **3 hours**
- Assessing and rewarding
- Appraisal and “pay” the performance of employees **2 hours**
- Motivation; What motivates people and how can we manage motivation?; When do jobs fit people and people fit jobs?; How can we make jobs more enjoyable? **2 hours**
- Change; Change management framework and “best” practices; Wrap up of the module **3 hours**

EXERCISES – 13 HOURS

Prof. Lega

13 hours

- **Webinar** Introduction **2 hour**
- **Groups assignment** Homework **9 hours**
- **Webinar** Presentation and feedback of assignment **2 hours**

Bibliography

Slides and readings selected by the instructor. Extracts from “Khan U., Lega F., Health management 2.0, Emerald, 2021”.



C2.5 "Innovations in Global Health: the "omics" and digital health"

Daniela Maria Cirillo, MD, PhD Head of Emerging Bacterial Pathogen Unit (EBPU), IRCCS Ospedale San Raffaele (OSR), Milan, Italy

Dennis Falzon, MD, Team Lead, Global Tuberculosis Programme, World Health Organization, Geneva, Switzerland

With the contributions of:

Yejin Lee, World Health Organization, Geneva, Switzerland

Alistair Story, Full Professor of Inclusion Health and Co-Director of the UCL Collaborative Centre for Inclusion Health, London, UK

Ali Merzouk, E-learning Coordinator, European Respiratory Society, Lausanne, Switzerland

Zelalem Temesgen, Professor of Medicine, Mayo Clinic, Rochester, MN, USA

Hours & Format

24 hours

10h of video lectures and 14h of exercises.

Main Objectives

- To familiarize with "omics" and digital technologies applied to the field of infectious disease and global health.
- To acquire knowledge on current and next-generation digital innovations (including "artificial intelligence") in support of global health through assessment of recent practices and evidence.

Learning aims

Regarding "omics", candidates will learn how technology has contributed to the advancement in the understanding the pathology and the interplay of host and parasite genomics in pathogenesis; its application to novel diagnostics and therapeutics; and to the design of new diagnostics, drugs and new approaches to the development of vaccines. Candidates will also acquire knowledge on how innovations will impact diagnostics in low resources settings.

Regarding digital technologies, candidates will acquire a conceptual framework to help them classify the landscape of digital technologies within various efforts in global health. The sessions will look at how various digital technologies are being applied in global health, the evidence base for impact and scope for more research as well as current and future perspectives in digital health, such as "artificial intelligence."



Disease models will be used to illustrate how innovations in the “omics” and digital technologies are being applied to the benefit of the individual and the community, focusing on priority global public health concerns like tuberculosis (TB) HIV infection, and antimicrobial resistance. TB is a major public health concern worldwide and the topmost bacterial cause of death, even if largely preventable and curable. Apart from approaches to disease control common to other communicable conditions, discussing how to end TB will engage broader discussion on topics at the heart of global health, such as poverty reduction, social protection, addressing stigma and implementation research, prospects that have been made more bleak by the COVID-19 pandemic. HIV remains a major global public health threat, having claimed over 40 million lives so far, with nearly 40 million people living with the disease, nearly 2 million acquiring HIV in 2021, and nearly a million people dying from HIV-related causes annually. Similar to what has been noted in efforts to combat TB, challenges to ending the HIV epidemic include stigma, discrimination, and social inequalities. Antimicrobial resistance (AMR) is a very serious threat to global public health that requires action across all government sectors and society. Students will familiarize with this emerging problem in nosocomial environment and the community and learn the different strategies to control this global threat. Discussion will focus on the best policies, cost of inaction and capacity to engage all stakeholders in the nosocomial settings and in the community.

Students will learn the basics on the diseases including transmission models, and strategies for prevention and community engagement, such as health messaging for underserved populations. Approaches used by international agencies such as WHO or ECDC will be discussed.

Expected skills gained

A critical understanding of how current knowledge can inform optimal use of innovative approaches like the “omics” and digital technologies to improve problem solving in prevention, patient care, data management, and decision making, using examples from priority global public health threats.

Understanding of the barriers for implementation of technologies in low resources setting and time-lapse from discovery to country’s availability of new tools

VIDEO LECTURES – 10 HOURS

Prof. Cirillo

8 hours

- The impact of “omics” on poverty related diseases: from diagnosis to individualized therapy **2 hours**
- How the genomic of the host and the pathogen has contributed to our understanding of the major poverty related diseases **2 hours**
- Genomics for diagnosis of bacterial antimicrobial resistance **2 hours**
- From research to real world: the challenge of aligning the introduction of new diagnostics and new drugs **2 hours**

Dr. Falzon & Dr. Yejin Lee



1 hour

The landscape of digital technologies in support of public health action

Prof. Temesgen

1 hour

How can artificial intelligence and clinical decision support systems contribute to global health?

EXERCISES – 14 HOURS

Prof. Cirillo

7 hours

- **Webinar** the global need to control AMR: why laboratory strengthening is a priority in all countries **2 hours**
- **Assignment** Homework **4 hours**
- **Webinar** Live discussion on assignment **1 hour**

Dr. Falzon

2 hours

Webinar Landscape of digital technologies in support of public health action

Prof. Story

2 hours

Webinar Use of digital technologies to support patient adherence to treatment

Prof. Merzouk

2 hours

Webinar E-learning to increase professional capacity on a large scale

Prof. Temesgen

1 hour quiz “Precision medicine and clinical decision support for public health”

Homework with feedback via email

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Omics

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Digital technologies

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C2.6 "Global Health at the Human-Animal-Ecosystem Interface"

Prof. Dr. Jakob Zinsstag, Deputy Head of Epidemiology and Public Health Department, Swiss Tropical and Public Health Institute, Basel, Switzerland

Ilaria Bernotti, DVM - MVPH, University of Milan, Milan, Italy

With contribution of: **Dr. Amina Benyahia**, Head of the One Health Initiative (OHI) at the World Health Organization (WHO)

Hours & Format

Blended learning course of **29 hours** combining:

20 hours of lectures on an e-learning modality via *Swiss TPH's MOOC "One Health"* available on Tales (<https://tales.nmc.unibas.ch/en/one-health-connecter-les-humains-les-animaux-et-l-environnement-13/>).

5 hours estimated of exercises, integrated as part of the MOOC and a final assignment.

4 hours of face-to-face online webinars to debate and interact with experts.

Main Objective

Introduce global health students to the field of Global Health at the Human-Animal-Ecosystem Interface, providing them with an innovative approach that faces current and emerging problems in a transdisciplinary and intersectoral way.

Learning aims

At the end of this course, students should be able to:

- Describe and critically discuss the interdependence of human-animal-ecosystem health from the local to the global level.
- Explain the concept of One Health in its theoretical foundations.
- Justify the added value of integrated approaches to health in a qualitative and quantitative way.
- Provide examples of current and emerging issues in Global Health at the human-animal-ecosystem interface and explain how One Health could help in mitigating them.
- Apply transdisciplinary and system thinking, identifying the roles play by different disciplines, sectors and institutions in tackling complex Global Health issues at the human-animal-ecosystem interface.
- Apply critical and evidence-based thinking to generate ideas integrating interventionist-oriented knowledge to create assessable impacts in the One Health fashion.



Expected skills gained

Transdisciplinary, systemic and innovative thinking. applied to complex cross-sectoral health problems; Scientific argumentation; Presentation skills; Computer literacy specific to e-learning

PRE-RECORDED VIDEO LECTURES – 20 HOURS

Various Experts

20 hours

MOOC video lectures by experts from top international institutions.

EXERCISES – 9 HOURS

Dr. Bernotti, Prof. Dr. Jakob Zinsstag, Dr. Amina Benyahia

9 hours

- **Webinar** Introduction to the course, presentation of the online material and the pedagogic/learning approach **1 hours**
- **Exercises/quizzes** incorporated into the MOOC **5 hours**
- **Webinar: discussion about One Health and the role of international organization in the field with Dr Amina Benyahia** 1 hour
- **Webinar** Final assessment and presentation of activities, interaction and final exercises and quizzes **2 hours**



C2.7 "Global health and the law: international and national regulations"

Pedro A. Villarreal, Senior Research Fellow, Max Planck Institute for Comparative Public Law and International Law/German Institute for International and Security Affairs, Berlin, Germany

Claudia Nannini, Legal Officer, World Health Organization, Geneva, Switzerland

Hours & Format

24hours

10h of video lectures and 14h of exercises.

Main Objective

To introduce the legal dimension of global health as a necessary component of interdisciplinary approaches. The cross-border protection of human health often requires devising solutions between different countries. Public international law is a key tool for such purpose. Exploring different legal regimes in this field leads to the role of the international co-ordinating authority in this subject, the World Health Organization. Understanding its powers, as well as its limitations, can help in obtaining a comprehensive overview of how to deal with the persistent challenges of global health.

Learning aims

The course will show students how achieving the goals of global health may require creating obligations under public international law. Students will also learn how inter-state coordination may also require granting legal powers to an international institution, namely the World Health Organization. The course will also display how the legal determinants of global health operate in practice.

Expected skills gained

Students will understand the main legal obligations at the international level, and their linkage to national decision-making by authorities. The course will also allow students to employ basic legal criteria in their own future professional experiences related to global health.



PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Nannini

4 hours

- *Introduction* – Overview of Public International Law, the Law of IOs and Human Health; Key themes include: WHO's legal nature, objective and functions, and governance; Categories and examples of WHO's normative instruments; overview of ongoing Member State-led work on a "pandemic accord" and possible targeted amendments to the International Health Regulations (IHR) (2005) **1 hour**
- *WHO's partnerships and collaborations*: WHO's hosted partnerships, joint programmes and other initiatives; WHO's collaboration with individual experts; WHO's engagement with other intergovernmental organizations and non-State actors; WHO's Collaborating Centres and networks **1 hour**
- *General overview of the IHR (2005)*: History, legal status, objective and scope of the IHR; and Party status; Roles, responsibilities and obligations of States Parties and WHO under the IHR **1 hour**
- *Access and benefit-sharing in the field of influenza*: the WHO Pandemic Influenza Preparedness (PIP) Framework for the sharing of influenza viruses and access to vaccines and other benefits; Development, objective, scope, governance features and functioning of the PIP Framework **1 hour**

Prof. Villarreal

6 hours

- Non-Communicable Diseases and Law; Framework Convention on Tobacco Control and the Protocol to Eliminate Illicit Trade in Tobacco Products; International Agency for Research on Cancer **1 hour**
- Health and Human Rights, Health as a Human Right; Themes: Obligations for Healthcare Systems; Availability, Accessibility, Acceptability and Quality; Examples of right to health litigation **1 hour**
- Specific tools and procedures; Public health emergencies of international concern (PHEIC), including past events: H1N1 influenza, Ebola (2014 and 2019); Additional public health measures; Implementation and compliance; Dispute settlement **2 hours**
- Access to Medicines; Legal background of pharmaceutical research and development; Current model of patent protection: international law and intellectual property; International trade law; Link to human rights; Intellectual property and pandemics **1 hour**
- The present and future of public international Law on pandemic response; Overview of legal issues related to COVID-19; the open questions **1 hour**

EXERCISES – 14 HOURS

Prof. Villarreal

11 hours

Webinar Introduction and discussion of assignment **3 hours**

Assignment Preparation for discussion of assignment **6 hours**

Webinar Final results of assignment **2 hours**

Prof. Nannini

3 hours



Assignment Homework e.g. Quiz multiple choice (feedback via email) **1 hour**
Webinar Q&A and discussion **2 hours**

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C2.8 "Global health diplomacy, governance and policies"

Eduardo Missoni, Adjunct Professor, Università Bocconi, Milan, Italy

Bettina Borisch, Professor, Institute of Global Health, University of Geneva, Geneva, Switzerland

Hours & Format

24hours

10h of video lectures and 14h of exercises.

Main Objective

The purpose of the course is to introduce students to the global health system, its main actors, policies and governance.

Learning aims

At the end of the course students should be familiar with the global health architecture, dynamics and governance, as well as with the main challenges of global health diplomacy and its impact at national level.

Expected skills gained

Critical analysis of the global context, processes and powers and their interactions.

PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Missoni

5 hours

- The evolution of public health strategies in the context of global development policies **2 hours**
- Global health actors: the UN and WHO **1 hour**
- Global health actors: Non-State Actors (corporations, civil society and Global Philanthropy) **1 hour**
- Global health actors: Transnational Hybrids (Global Public-Private partnerships) and multistakeholderism **1 hour**

Prof. Borisch

5 hours

- Governance-global and national: the FCTC, *pandemic treaty*, the case of Switzerland, tobacco policies **3 hours**
- Governance-global and national: the case of Australia, tobacco policies **2 hours**



EXERCISES – 14 HOURS

Prof. Missoni

7 hours

- **Webinar** Introduction to course **1 hour**
- **Individual assignment** Readings **4 hours**
- **Webinar** Feedback on individual assignment and debate Global governance and health **2 hours**

Prof. Borisch

7 hours

- **Assignment** (2h homework) followed by webinar (1h)
Global health governance: cases from Latin America: Uruguay and Panama **3 hours**
- **Flipping Classroom modality:** assignment (3h homework) followed by webinar/Discussion (1h)
Global health governance: obesity epidemic **4 hours**

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Readings to complement video lectures and for individual assignment

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- Chapter 4 – The right to health and the evolution of public health strategies in the context of global development policies, pp.44-73
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C2.9 "Advocacy and communication for global health promotion"

Francesco Rio, Global Health Consultant, Geneva, Switzerland

Bettina Borisch, Professor, Institute of Global Health, University of Geneva, Geneva, Switzerland

Hours & Format

24 hours

10h of video lectures and 14h of exercises.

Main Objective

To understand the broad concept of communication and advocacy in order to promote/reinforce change in public health policy, programme or health legislation in the global context.

Learning aims

The over-arching intention of the course is to generate knowledge, comprehension, analysis, and “thinking through” on advocacy and communication for global health promotion; understand the main ways of health promotion.

Expected skills gained

The capacity of conceiving, speaking and acting to promote global health principles on personal and/or institutional behalf.

PRE-RECORDED VIDEO LECTURES – 10 HOURS

Prof. Rio

5 hours

- What is global health advocacy? Definitions, concepts and principles **1 hour**
- Media representation **1 hour**
- Utilizing determinants of health and disease to analytically thinking global health issues **1 hour**
- To be effective and changing **1 hour**
- Global Health Communication **1 hour**



Prof. Borisch

5 hours

- Leadership in global health promotion **2 hours**
- Advocacy in health promotion **1 hour**
- Case of front of package labelling **1 hour**
- The case of Iodine **1 hour**

EXERCISES – 14 HOURS

Prof. Rio

7 hours

- **Webinar** Introduction **1 hour**
- **Assignment** Homework **5 hours**
- **Webinar** Final discussion and Q&A **1 hour**

Prof. Borisch

7 hours

- **Webinar** Introduction **1 hour**
- **Assignment** Homework **5 hours**
- **Webinar** Final discussion and Q&A **1 hour**

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