

Gruppo di Lavoro SItI “Salute e Ambiente”

RELAZIONE DELL’ATTIVITÀ SVOLTA NELL’ANNO 2019.

Nell’anno 2019 il gruppo di lavoro Salute e Ambiente (Board ristretto) è stato composto dai seguenti membri: Annalaura Carducci (coordinatrice), Margherita Ferrante, Antonio Azara, Osvalda De Giglio, Marco Vinceti. Alla fine del presente documento si riporta l’elenco dei soci che hanno partecipato alle diverse iniziative.

Il GdL si è riunito telematicamente quattro volte (19 Febbraio, 4 Marzo, 6 Luglio, 23 Settembre) ed il 16 Ottobre in occasione del 52° Congresso Nazionale SItI.

Di seguito è riportata l’attività del GdL condotta durante l’anno 2019.

PARTECIPAZIONE A GRUPPI DI LAVORO

Task Force Ambiente e Salute del Ministero della Salute: Partecipazione delle prof.sse Carducci e Ferrante, in rappresentanza della SItI. In particolare, le prof.sse hanno partecipato a quattro sottogruppi: formazione, sinergie e politiche (prof.ssa Ferrante) e comunicazione, armonizzazione delle linee guida per la valutazione di impatto ambientale (prof.ssa Carducci). I lavori dei sottogruppi sono stati completati.

Gruppo di lavoro WPHA-EH (World Public Health Association - Health and Environment): Partecipazione della prof. Carducci in rappresentanza della SItI.

EVENTI

Workshop: “Ruolo dell’igienista nella tutela della salute in relazione ai fattori ambientali di rischio” nell’ambito del 52° Congresso SItI, Perugia, 16-19 Ottobre 2019. Proposto dal GdL, si è tenuto il 16 ottobre alle 15.00, con le relazioni del prof. Azara e della dott.ssa De Giglio.

DIDATTICA

LVI Corso “Valutazione dell’impatto sull’ambiente e sulla salute: dalla teoria alla pratica”, Organizzato dal GdL Salute e Ambiente, si è tenuto ad Erice il 3 – 7 Novembre 2019. Il corso ha avuto lo scopo di fornire a specializzandi, dottorandi ed operatori le competenze che un igienista può avere la necessità di applicare nella pratica professionale sul territorio. Tra i temi affrontati durante il corso, sono state approfondite le complesse dinamiche del rapporto tra ambiente e salute, le modalità di studio attraverso l’epidemiologia e la tossicologia, le metodologie di valutazione di impatto sanitario e di valutazione integrata di impatto ambientale e sanitario, e la comunicazione del rischio. Sono, poi, stati organizzati due gruppi di lavoro: uno dedicato all’applicazione degli studi epidemiologici ai temi di salute e ambiente e l’altro inerente alla valutazione d’impatto sanitario (VIS) nella pratica professionale dell’igienista. In tale occasione è stato redatto un position paper su Ambiente e Salute da pubblicare ed eventualmente condividere con il gruppo di lavoro WFPHA-EH. Tale documento è allegato in calce al presente rapporto.

ATTIVITA’ EDITORIALI

Revisioni bibliografiche: sono state suggerite 4 tematiche di particolare interesse per i membri del GdL e per le quali sono già state raccolte le disponibilità dei membri del GdL allargato:

- a) Effetti e ricadute sanitarie degli interventi di prevenzione del rischio radon in ambienti confinati;
- b) Associazione tra pubertà precoce ed esposizione ad interferenti endocrini in età infantile;
- c) Studi sperimentali sull’assorbimento di nanoparticolato aerotrasportato attraverso le cellule olfattive;
- d) Effetti dei trattamenti dei liquami sui batteri antibiotico-resistenti e sui geni di resistenza.

In accordo con i rappresentati della Consulta degli specializzandi, almeno 2 specializzandi collaboreranno per ciascuna tematica. Per questi argomenti, sarà possibile la pubblicazione sui numeri monografici dell’International Journal of Public Health (IJERPH): “Public health Implications relating to microbiological pollution of water” (guest editor: Marco Verani); “Environmental Hygiene, water quality and human health” (guest editor: Osvalda De Giglio).

PROGETTI DI RICERCA

“Progetto AmbSal sulla percezione del rischio ambientale”. Il progetto, iniziato nel 2017 con uno studio pilota, si propone di valutare l’importanza della Health Literacy (HL) e dei social come predittori di percezione del rischio, atteggiamenti pro-ambientali, fiducia e comportamenti. Gli studenti universitari appartenenti ai CdS scientifico-sanitari e umanistico-sociali di 15 Atenei partecipanti al progetto (Pisa, Catania, Chieti, Sassari, Messina, Bari, Modena, Brescia, Torino, Padova, Milano, Napoli, Lecce, Camerino, Firenze) sono stati intervistati attraverso la somministrazione di un questionario per indagare le fonti di informazione, la percezione del rischio, gli atteggiamenti ed i comportamenti nei confronti dell’inquinamento ambientale. Parallelamente, nello stesso periodo e nelle stesse aree geografiche, è stata condotta un’analisi degli eventi di inquinamento e/o allarmi sui quotidiani online e su Twitter. Complessivamente, sono stati intervistati 4778 studenti (65% donne) di età compresa tra 18 e 25 anni: il 44% è risultato con un basso livello di alfabetizzazione sanitaria funzionale, cioè non è riuscito a riconoscere almeno 9 su 12 parole (difficili) correlate alla salute.

La prima parte dei risultati del progetto è stata pubblicata nel lavoro dal titolo “***Environment and health: Risk perception and its determinants among Italian university students***” sulla rivista Science of the Total Environment (I.F.: 5.589). Tra gli elementi di particolare interesse, emerge come gli studenti con maggiore alfabetizzazione sanitaria abbiano una maggiore percezione del rischio ambientale ed una maggiore fiducia nelle istituzioni, sia come fonti di informazione sia come soggetti attivi per la protezione contro i rischi ambientali. Internet e i social network sono risultate le fonti di informazioni più frequentemente consultate (77.7%), ed il loro maggiore utilizzo si è dimostrato predittivo di una percezione del rischio più elevata, come dimostrato anche in relazione ad particolare picco di tweet a Modena. Dal punto di vista scientifico, questo studio è il primo che descrive la percezione del rischio ambientale per la salute in un così vasto campione degli studenti universitari italiani, e che considera, accanto a variabili più studiate (caratteristiche anagrafiche, area di residenza, fonti di informazione, ecc.) una misura di alfabetizzazione sanitaria funzionale e un’analisi dei giornali e social media. Questo approccio ha permesso di individuare la relazione tra percezione del rischio ambientale ed alfabetizzazione sanitaria anche in una popolazione di elevato livello culturale, come gli studenti universitari e di evidenziare un’associazione anche con il numero di tweet sul tema durante lo stesso periodo e città. Inoltre, questo studio è l’unico in questo ambito di ricerca che abbina l’analisi della percezione del rischio ambientale mediante questionario allo studio dell’alfabetizzazione sanitaria del campione ed ai messaggi sui social media (quotidiani online e Twitter). In letteratura, infatti, l’alfabetizzazione sanitaria e l’analisi dei social media non sono state finora molto considerate in questo tipo di studi.

I risultati ottenuti sono stati giudicati dall’Università di Pisa di particolare interesse scientifico e divulgati sul sito dell’Ateneo (<https://www.unipi.it/index.php/lista-comunicati-stampa/item/16903-indagine-sugli-studenti-universitaria-italiani-chi-ha-una-bassa-alfabetizzazione-sanitaria-funzionale-ha-una-minore-percezione-del-rischio-ambientale>)

E' in corso l'elaborazione dei dati raccolti sui comportamenti pro-ambientali.

Partecipazione a bandi per progetti Nazionali o Europei: Vari appartenenti al GdL hanno presentato Progetti PRIN o LIFE come coordinatori o responsabili di unità.

ELENCO DEI SOCI ATTIVI NELLE INIZIATIVE DEL GRUPPO (in ordine alfabetico): coloro che hanno partecipato alle riunioni telematiche, alla riunione di Perugia, o che hanno contribuito alle pubblicazioni.

Antonio Azara, Guglielmo Bonaccorsi, Martina Bortoletto, Giuseppina Caggiano, Annalaura Carducci (coordinatrice GdL), , Antonella De Donno, Osvalda De Giglio, Marco Dettori, Pamela Di Giovanni, Michele Di Paolantonio, Angela Di Pietro, Alessio Facciola, Maria Fiore, Ileana Federigi, Margherita Ferrante, Iolanda Grappasonni, Alberto Izzotti, Giovanni Libralato, Chiara Lorini, Maria Teresa Montagna, Liberata Keti Nicolosi, Grazia Paladino, Fabio Petrelli, Gaetano Privitera, Tiziana Schilirò, Stefania Scuri, Francesca Serio, Marina Tesauro, Marco Verani, Marco Vinceti, Federica Violi.

THE ERICE 56° CHARTER

Impact of the environment on the health: from theory to practice.

Carducci AL., Agodi A., Ancona C., Angelini P., Bagordo F., Barbone F., Birbaum L., Carreri V., Casuccio A., Conti A., Conversano M., De Donno A., De Giglio O., Desiante F., Di Pietro A., Dogliotti E., Donato F., Fara GM., Fiore M., Forastiere F., Giammanco G., Izzotti A., Montagna MT., Oliveri Conti G., Petronio MG., Sciacca S., Signorelli C., Testai E., Verani M., Vinceti M., Vitale F., Ferrante M. and the Attendees* to the 56th Erice Course “Evaluation of the impact on environment and health: from theory to practice”

Key words: Health Impact Assessment, Environmental Impact Assessment, epidemiological and toxicological study, exposure assessment, urban health, risk communication.

Parole chiave: valutazione di impatto sulla salute, valutazione di impatto sull'ambiente, studi epidemiologici e tossicologici, accertamento dell'esposizione, salute urbana, comunicazione del rischio.

*The Attendees of the Course and Contributors to the discussion and preparations of The Erice 56 Charter

Adani G., Berghella L., Calia C., Calzolari R., Canale A., Castiglione D., Conti A., Copat C., Cristaldi A., Cuffari G., Coronel Vargas G., De Vita E., De Nard F., Federigi I., Filippini T., Grasso A., Leonardi N. , Letzgus M., Lo Bianco G., Mazzucco W., Nicolosi I., Orlandi P., Paladino G., Pizzo S., Pousis C., Raffo M., Rivolta S., Scarpitta F., Trani G., Triggiano F., Tumbarello A., Vecchio V., Zuccarello P., Vassallo M.

The charter

The 56th course of the "International School of Epidemiology and Preventive Medicine G. D'Alessandro" titled "Evaluation of the impact on environment and health: from theory to practice", organized by the Working Group "Health and the Environment" of the Italian Society of Hygiene, held in Erice - Sicily from November 3th to November 7th 2019, has focused on the understanding of the complex dynamics of the relationship between the environment and health, and how to study it through epidemiology and toxicology. The course has also addressed to the methodologies of Health Impact Assessment (HIA) and Integrated Assessment of Environmental And Health Impact (IEIHIA), without forgetting the crucial role of risk communication.

Both Teachers and Attendees, at the end of the course, have unanimously agreed on upon the Erice 56 Charter, titled "Impact of the environment on the health: from theory to practice".

Introduction

According to the World Health Organization, some structural remedial measures could reduce overall mortality by almost 20%. It is therefore vitally important also in our country to deal with environmental and health issues. In the last 30 years central and local institutions have organized many training activities on Health and Environment. However, the operators of the National Health Service (NHS) and the National Environmental Protection System (NEPS) still suffer, particularly in some Regions, from the absence of an organic and shared training activities that may provide the necessary cognitive tools. Knowledge, languages and common practices in environmental health risk assessment are, to date, still lacking, with negative consequences on the services and activities of general public health professionals. The situation is further worsened by the lack of training also at university level, in both degree courses and post-graduated courses: the issue "Environment and Health" is absent or only marginally addressed at every level of university education.

The 2017 Inter-ministerial Conference on Environment and Health in Ostrava stimulated the Governments and Ministries of the Environment and Health of the European Region to collaborate more and work together, especially on the topic of training. In Italy The National Prevention Plan (2014-2018) has also included the theme "Environment and Health" inside its activities, so the collaboration between the NHS and the NEPS appears to be essential for integrated efficient and effective activities.

At the end of 2017, the Ministry of Health set up an "Environment and Health task force", composed of representatives of the two Ministries concerned, experts on issues coming from all Italian regions and from the various national and regional institutions involved, in order to identify the most critical issues in the relevant sectors such as the public sector (NHS and NEPS), the General Practitioners (GPs) and the Paediatricians of free choice (PFC), in university training during the degree course and in post-graduate specialization, and to make proposals operating in the various sectors in environmental health. It was also formulated a proposal of training curriculum environment and health that can be modulated for different subjects, such as operators of the public system (NHS, EPS), GPs and PFC, Schools of Specialization (especially Hygiene and Public Health, but also Occupational Medicine, Toxicology, Cardiology, Pneumology), Schools of medicine, biology and other courses.

It cannot be ignored that on the theme Environment and Health there are numerous critical aspects in the attribution of competences between structures of the Regional Environmental Protection Agencies and the National Health Services. General training on these aspects is still insufficient

and heterogeneous, and evident inter-regional differences that require action programs and coordinated, coherent and non-sectoral training.

Moreover, it is absolutely fundamental that epidemiology and toxicology work together in risk assessment of environmental agents. Only epidemiological and toxicological data intersection would permit straightforward conclusions with regard to a causal relationship between environmental agents and health effects.

Aims

To correctly perform epidemiological studies in the themes of health and environment, we start from the environment and population available data and from the identification of the appropriate study design to be applied and then consider the confounders, the mediators and the effect modifier factors. We then consider all the confounding and modification factors, evaluating the results with more adequate methodological criteria, no longer related to statistical significance testing and p values (significant or not) and going beyond simple calculation of relative measures of effect (such as relative risks) to discuss the observed effect size.

In this context, the molecular epidemiology and the use of early indicators of environmental damage may allow a deeper understanding of the dynamics that regulate the impact of risk factors on the aetiology of diseases.

Today, we also have to take in account the complexity of the exposition (exposome) and the complexity of the metabolic, genetic and immune responses to it.

Among the various risk factors, there is no doubt that air pollution and its interrelations with climate change are among the most important and widely studied problems. In this perspective, it is of primary importance to apply the well known dose-response function of exposure to air pollution to evaluate the impact of different scenarios related to interventions and policies.

The transition from environmental and toxicological data to the estimation of the health impact of environmental origin requires the understanding of the entire path of pollutants, from sources of human contamination to exposure assessment.

Although the research in this field has produced a huge amount of data, the precise definition of risk determinants and the quantification of their impacts are still far from being complete. Often the methodologies themselves are questioned: this is the case of the use of statistical significance/null hypothesis testing in epidemiology, or the approach for the definition of dose response relations. The production of evidence through metanalyses is also affected by the uncertainty related to the different methods applied.

The segregation among disciplines, the separation of environmental and health protection institutes and the separate consideration of lifestyles and environmental risk factors has till now hampered a complete understanding of the complexity of the interactions between environmental and health.

Therefore, it is now the time that researchers and institutions multiply their efforts towards an integrated approach for the protection both of environment and health, following the “One Health” perspective and the principles of sustainable development.

With this perspective, the Istituto Superiore di Sanità (ISS, Rome - Italy) has published recent guidelines on HIA (GLHIA), to be applied in the context of DLgs 104/2017, implementing the directive 2014/52/EU. They must be disseminated to the public health professionals, through a training facing the methodologies of risk assessment and their integration. Even if the these

regulations limit the HIA to particular industrial plants (Crude oil refineries, gasification and liquefaction plants, thermal power plants and other combustion plants with a thermal power exceeding 300 MW), we propose that a HIA approach must be adopted in many different contexts and situations, and carried out by public health professionals. In fact a HIA must be included in the context of different procedures required by national and EU regulations: Environmental Impact Assessment (EIA), Integrated Environmental Authorization (IEA), Strategic Environmental Assessment (SEA) and Integrated Environmental and Health Assessment (IEHA)

Because the primary mission of public health professionals is the health protection and promotion, they are involved in every step of risk management, including the risk communication that has a crucial role in collective and individual choices and is determinant for the effectiveness of interventions. Public health professionals have generally a technical profile and background (as medical doctors, biologist, chemists, physics), which in their university training did not include communication studies. On the other hand, when they face environmental problems, they should be prepared to understand communication dynamics and to produce adequate communication plans and messages. Actually a gap can be observed between technicians and public in the context of a general mistrust: technicians think people cannot understand the complexity and the public think that science is not neutral but related to private interests. So a key role is entrusted to participation: all efforts are to be conducted to strengthen the relationships among the different stakeholders. The regulations concerning HIA require public information and involvement that need the knowledge of specific methodologies and approaches, including the understanding of risk perception and its determinants.

In the scenarios and applications of the HIA the study of local experiences permit to go into the specific problems that the actual normative lack poses. The hygienic-sanitary risk linked to the discharge of wastewater on soil: SCA.RE.S. Project face for example the supply destined for human consumption often draws from groundwater, especially in regions poor in water bodies. This phenomenon causes a pauperization of groundwater bodies at a disadvantage of water quality, often subject to marine intrusion, or conditioned by the hydrogeological characteristics of the territory, by anthropic, agricultural and industrial activities.

Among the polluting factors, an important role is represented by wastewater discharges, which are not always compliant with the current legislation. Although the purification processes of these waters have the task of containing the spread of pathogenic microorganisms with known and emerging chemical contaminants, today cases of contamination due to the use of raw or inadequately purified wastewater are still reported.

Urban Health is a fundamental condition that permits to drastically reduce the major risks related to public health highlights the role of the urban planning strategies for the management of Diseases Prevention and Health Promotion activities (The Erice 50 Charter). It is important to promote urban requalification interventions that guide citizens towards healthy behaviours finding the appropriate indicators, as the reduction of soil consumption, to avoid the urban sprawl phenomenon, the dissemination of new construction sites in separated areas, by non-urbanized areas from other densely built environments.

The synergism between environmental and health institutions, for the protection and promotion of health, thus underlining the SNPA and NHS role and actions in HIA.

Key points

- A specific training programme for public health professionals on the environmental health, and risk assessment and management are urgent.

- It is also crucial the promotion of research in Environmental Health (EH) not only on environmental risk factors, but also on the integration of different disciplinary approaches in one unique view.
- The concepts of “One Health”, “Global health” and Sustainable development should be the inspiration principles of the environmental risk analysis.
- It is determinant to promote urban requalification interventions that address citizens towards healthy behaviours, to detect urban health indicators as reduction of soil consumption, and to avoid the urban sprawl phenomenon, the dissemination of new construction sites in separated areas, by non-urbanized areas, from other densely built environments.
- It is therefore necessary to evaluate the impact of environmental factors on health by promoting and integrating epidemiological studies with toxicological and monitoring studies.
- The risk assessment and management should be also supported by the evaluation of efficacy of public health interventions:
 - a) The exposure assessment remains the Achille’s heel of risk assessment. It is time to incorporate in EH studies new technologies to measure external and internal exposure by the approach of the exposome;
 - b) Integrated measures of population health such as environmental burden of disease (EBD) require adequate data to credibly estimate exposure to the risk factor. Such data do not currently exist for most EH risk factors;
 - c) The evaluation of the effectiveness of public health interventions is also crucial. Such evaluations must take into consideration relevant confounders and effect modifiers present at the individual and community level, particularly the social determinants of health.
- Emerging themes as the multiple exposures and the biomolecular pathways and indicators should be deeper understood and largely applied
- The communication should be an integral part of HIA and carefully planned and evaluated within the risk assessment and management.
- The risk perception should be studied as a determinant of environmental health risks and taken in consideration in every communication action.
- Integrated HIA must be essential in any environmental impact assessment (EIA, ESE, IEA, UEA) applying the latest Integrated Environmental Health Impact Assessment (IEHIA) principles.
- Where data systems are in place, risk assessment combined with health surveillance may often be the most efficient, informative response to the exposure event.
- The application of the HIA in all environmental impact applications is now required in light of the development of the legislation and the jurisprudence. To give more tools and greater clarity to all stakeholders (GLHIA), an adequate regulation is urgent.