

Elena Pariani CV

I have been working as an associate professor in hygiene and public health in the Department of Biomedical sciences for health of the University of Milan since 2016. Within this role, I coordinate the regional reference laboratory for influenza and acute respiratory infections surveillance as well as lecturing to medical and healthcare students at highly specialized graduate courses in my specific field of expertise.

Born July 13, 1978, I gained a degree in biological sciences in 2002 and a PhD in public health in 2006. I completed my scientific training through a work experience at the respiratory virus unit of the WHO National Influenza Centre - Public Health England in London.

My scientific activity is mainly oriented towards the molecular-epidemiology and prevention of viral infections, with a significant connotation of public health, aimed at the study of the epidemiological dynamics and strategies for prevention and control of infections that pose a risk to human health.

My main scientific research involves the virological surveillance of influenza and acute respiratory infections within the framework of the Italian network InluNet and I coordinate and organize the research activities of the regional reference laboratory. My laboratory work incorporates the development, validation and execution of molecular, serological and cell-based assays mostly aimed at the isolation and molecular characterization of circulating viruses. This provides the WHO European Region with important data for yearly influenza vaccine. In this setting, through molecular investigations and advanced phylogenetic analyses, the evolution of circulating viruses and the introduction of new viral variants in the population are monitored and drug-resistant or vaccine-escape strains are identified, thus contributing to increase the current knowledge on the epidemiological features of circulating respiratory viruses.

My team and I have developed and validated new diagnostic molecular assays that rapidly detect and identify new viral airborne agents that may pose a public health risk because of their epidemic potential and for which there are no countermeasures (such as potential pandemic influenza viruses of avian/swine origin, MERS-coronavirus, enterovirus D68). I have also applied advanced phylogenetic methods to study the molecular evolution of viruses, thus providing information on the origin and spread of epidemics and the appropriate measures for disease prevention and control.

I have long been interested in the immune mechanisms induced by viral vaccines and in vaccination strategies. As such, I led and was involved in studies evaluating the effects and the immunogenicity of influenza vaccines in high-risk populations for influenza-related complications. These include patients with underlying chronic diseases, immunocompromised individuals and pregnant women. Since 2015, I have been the regional referent of the European research project "FLU I-MOVE" for the evaluation of the effectiveness of influenza vaccines. In addition, from 2017 I am co-responsible for a research project aimed at creating a decision model (Evidence to decision framework) for the adoption/modification of vaccine offer to improve vaccination planning and organization.

My research activity is supported by several collaborations with national and international institutions such as the Istituto superiore di sanità (ISS), Direzione generale sanità (DGS) of Lombardy region, Centro Inter-universitario di ricerca sull'influenza e altre infezioni trasmissibili (CIRI-IT), IRCCS Policlinico San Matteo of Pavia, Istituto zooprofilattico sperimentale della Lombardia e dell'Emilia Romagna (IZSLER) of Parma, Amsterdam medical center (AMC) of the University of Amsterdam, Public health England (PHE) of London.

I have participated – also as principal investigator - in several peer reviewed competitive research projects funded by the University of Milan, MIUR (Ministero dell'Istruzione, Università e Ricerca), Istituto Superiore di Sanità (ISS), CCM (Centro nazionale per la prevenzione e il controllo delle malattie), Ministero della Salute, Direzione Generale Sanità - Regione Lombardia, and the Cariplo foundation.

My research (ORCID ID: 000-0001-5681-3455) has led to 47 in extenso publications in international scientific peer reviewed journals (Scopus h-index: 13; 517 citations) and 7 in national scientific journals, and my contribution to national and international congresses has brought about the publication of 81 abstracts.