

# EUROMEDITERRANEAN BIOMEDICAL JOURNAL

## ABSTRACT BOOKS

Special Issue

Con il patrocinio di:

XXXII CONGRESSO  
INTERREGIONALE  
**SICULO-CALABRO**

LE STRATEGIE PER LA RIPARTENZA  
DELLA SANITÀ PUBBLICA E  
PER LA SALVAGUARDIA DELLA SALUTE COLLETTIVA  
IN SICILIA ED IN CALABRIA: **UN NUOVO INIZIO?**

**ENNA**  
23 | 25 maggio  
**2024**

**ABSTRACT BOOK  
OF ORAL COMMUNICATIONS OF YOUNG PUBLIC  
HEALTH PROFESSIONALS ACCEPTED AT THE  
XXXII INTERREGIONAL CONGRESS OF THE SICILIAN AND  
CALABRIA REGIONAL SECTIONS (SICULO-CALABRO)  
OF THE ITALIAN SOCIETY OF HYGIENE, PREVENTIVE  
MEDICINE AND PUBLIC HEALTH (S.It.I.)**

**Enna (Italy) 23-25 May 2024**

### Active offer of influenza vaccination during hospitalization: a multicenter study in Sicily (Italy)

Alessandra Fallucca <sup>1</sup>, Davide Anzà <sup>2</sup>, Luigi Zagra <sup>1</sup>, Tania Vitello <sup>1</sup>, Alessia Pieri <sup>1</sup>, Claudio Costantino <sup>1</sup>, Cristina Genovese <sup>3</sup>, Miriam Gorgone <sup>3</sup>, Francesco Giordano <sup>3</sup>, Raffaele Squeri <sup>3</sup>, Alessandra Casuccio <sup>1</sup>, Francesco Vitale <sup>1</sup>, Franco Belbruno <sup>2</sup>, Vincenzo Restivo <sup>2,4</sup>

<sup>1</sup> *Università degli Studi di Palermo; Scuola di Specializzazione in Igiene e Medicina Preventiva; Dipartimento di Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza.*

<sup>2</sup> *Azienda Sanitaria Provinciale Enna; Dipartimento di Prevenzione.*

<sup>3</sup> *Università degli Studi di Messina; Scuola di Specializzazione in Igiene e Medicina Preventiva; Dipartimento di Igiene, Medicina Preventiva e Sanità Pubblica.*

<sup>4</sup> *Università Kore di Enna; Facoltà di Medicina e Chirurgia.*

Every cold season, the Italian health institutions strongly recommend influenza vaccination for categories at risk of complications, however influenza vaccination coverage is over and over far from the desirable target of 95%. After the pilot experience conducted in Palermo during the 2022-23 influenza season, the "Vaccinations in the ward" project was extended to other Sicilian centers in order to evaluate the impact of the vaccination offer strategy in a broader territorial reality and to analyze the determinants of influenza vaccine acceptance among at risk people. The project was conducted at the Umberto I Hospital in Enna and the University Hospitals of Messina and Palermo during the 2023-24 influenza season. A questionnaire was administered to the at risk hospitalized patients to investigate socio-demographic factors, behavioural habits, and clinical condition. Furthermore, influenza vaccination upon discharge was offered. Multivariable logistic regression was performed to identify the determinants of influenza vaccine acceptance. Overall, 374 patients with a median age of 65 years (IQR: 50-70) were

recruited, of whom 36% had been vaccinated for influenza during the 2022-23 season (n=136). The patients who accepted influenza vaccination in the ward were 57% (n=214). The determinants of vaccination adherence were: age (OR: 1.03; p=0.003); having quit smoking (OR: 2.68; p=0.017); having received advice on vaccination from general practitioner (OR: 4.9; p<0.001) and hospital healthcare workers (OR: 7.3; p<0.001). The offer of vaccination in the ward effectively increased influenza coverage among categories at risk of complications. Furthermore, the adoption of correct behavioural habits and the promotion of influenza vaccination by healthcare personnel have played a decisive role in the vaccine acceptance process. These findings could be useful for planning future influenza vaccination campaigns targeted to at risk people. The adoption of correct behavioural habits and the promotion of vaccination by healthcare personnel play a decisive role in the influenza vaccine acceptance process among at risk people.

####

### Exclusive Breastfeeding monitoring and promotion study among pregnant women in the Province of Palermo: study methods and preliminary results

Sabina Paolizzo <sup>1</sup>, Alessia Pieri <sup>1</sup>, Eliana Giambelluca <sup>2</sup>, Claudia Alba <sup>2</sup>, Selene Avona <sup>2</sup>, Annalisa Allegra <sup>2</sup>, Alessandra Sciortino <sup>2</sup>, Monica Bongiovanni <sup>2</sup>, Sofia Gattuso <sup>2</sup>, Giulia Cavasio <sup>3</sup>, Maria Giordano <sup>3</sup>, Valeria Farina <sup>3</sup>, Rosa Maria Rita Epifania <sup>3</sup>, Renato Venezia <sup>3</sup>, Antonio Simone Laganà <sup>3</sup>, Francesco Vitale <sup>1,2</sup>, Claudio Costantino <sup>1,2</sup>.

<sup>1</sup> *Hospital Unit of Clinical Epidemiology and Cancer Registry of Palermo, University Hospital of Palermo, Italy.*

<sup>2</sup> *Departments of Health Promotion, Maternal and Infant Care, Internal Medicine and Medical Specialties (PROMISE) "G. D'Alessandro", University of Palermo, Italy.*

<sup>3</sup> *Hospital Unit of Gynecology and Obstetrics, University Hospital of Palermo, Italy.*

Scientific evidences underline breastfeeding benefits for both mother and newborn. WHO and UNICEF recommend breastfeed-

ing within one hour after delivery, to be continued until six months, then proceeded with complementary food up until two years old. Since February 2024, a cross-sectional study has been conducted at the Hospital Unit of Gynecology and Obstetrics of the University Hospital of Palermo, Italy. An anonymous and self-administered questionnaire have been proposed to pregnant women between about 26-40 weeks during the outpatient clinics' birth path (High Risk Pregnancy, Prenatal Screening, Pre-Admission Visit, and during the birthing classes). The survey is composed of 26 items concerned socio-educational context, occupation, type of delivery, height/weight, smoke/alcohol, birthing classes enrollment, breastfeeding health literacy/intention and it is sent by a QR CODE with a numbered, assigned ID code. Following brief questionnaires are sent approximately 5 weeks after t0, 3 months, 6 months after delivery, in order to monitor exclusive breastfeeding practice after birth.

At the end of March, 64 pregnant women have been enrolled at t0. Overall, 48,4% of the sample aged between 30-39 years old, 62,5% is monitored by a private gynecologist, 57,8% of the sample referred that they never have been told about the breastfeeding benefits, and 68,8% never have attended birthing classes.

Results at t0 already show lower health literacy and limited breastfeeding education throughout the birth path, and inadequate birthing classes enrollment. These determinants seem to significantly decrease the empowerment and self-efficacy of pregnant women for exclusive breastfeeding. This study aims to enforce actions focused to support and protect breastfeeding in Sicily, according to the Prevention Regional Plan.

####

#### **AQUApLAST Project: Drinking Water or Mineral Water? Evaluation of Daily Microplastic Intake by Citizens**

Paola Rapisarda <sup>1,2</sup>, Oliveri Conti Gea <sup>1</sup>, Eloise Pulvirenti <sup>1,2</sup>, Giovanna Deiana<sup>3</sup>, Giuseppe Mancini <sup>4</sup>, Marianna Coniglio<sup>1</sup>, Giuseppe Castiglia <sup>3</sup>, Antonio Azara <sup>3</sup>, Margherita Ferrante <sup>1</sup>, Marco Dettori <sup>3</sup>

<sup>1</sup> Department of Medical, Surgical Sciences and Advanced Technologies "G.F. Ingrassia", University of Catania, Italy

<sup>2</sup> Ph.D. Program in Earth and Environmental Sciences, Department of Biological, Geological and Environmental Sciences, University of Catania, Catania, Italy

<sup>3</sup> Department of Biomedical Sciences, University of Sassari, Sassari, Italy

<sup>4</sup> Department of Electrical, Electronic and Computer Engineering (DIEEI), University of Catania, Catania, Italy

Microplastics (<10 µm, MP) and nanoplastics (<0.1 µm, NP) originate from the degradation of plastic waste. MPs have recently been included as emerging contaminants in the new EU Directive 2020/2184 on water intended for human consumption due to their ability to be absorbed at the tissue and cellular level and their proven toxicity. AQUApLAST (funded by PRIN PNRR) is among the first studies to analyze the presence of MPs and NPs in tap water and to conduct a risk assessment by calculating the Estimated Daily Intake (EDI) for the reference population for both Sardinian and Sicilian waters. Sampling was conducted at water treatment plants in Northern Sardinia (surface waters) and the province of Catania, Sicily (groundwater). The application of an innovative method (PCT/IB 2019/051.838, March 7, 2019) coupled with SEM-EDX detection allowed for the determination and estimation of the concentration of NPs and MPs < and > 10 µm. Additionally, the EDI was assessed for adults, pregnant women, and children. For MPs <10 µm, the EDI ranged from a minimum of 241,028 to a maximum of 527,250 p/Kg/body-weight/day for the consumption of drinking water (for adults, pregnant women, and children). For mineral water, the EDI ranged from a minimum of 1,531,524 to a maximum of 3,350,208 p/Kg/body-weight/day for adults, pregnant women, and children. The concentrations of MPs >10 µm were found to be negligible in both types of water. The initial results show that the major contribution of MPs comes from MPs <10 µm. Particularly in mineral water, the average diameter of MPs is <1 µm, indicating a different



origin (packaging) compared to the MPs in tap water. Children represent the most vulnerable segment of the population, especially considering the use of PET bottled mineral water during pregnancy and the modest weight of fetuses.

####

**Immunogenicity and antibodies persistence of diphtheria-tetanus-acellular pertussis vaccination in adolescent and adults: a systematic review of the literature showed different response to the available vaccines**

Linda Bartucciottto <sup>1</sup>, Giovanni Genovese <sup>1</sup>, Sabrina Sortino <sup>1</sup>, Carmelo Cantone <sup>1</sup>, Giuseppe La Spada <sup>1</sup>, Ilaria Saia <sup>1</sup>, Raffaele Squeri <sup>2</sup>, Cristina Genovese <sup>2</sup>

*1 Department of Biomedical and Dental Sciences and Morpho Functional Imaging, Postgraduate Medical School of Preventive Medicine and Hygiene, University of Messina, 98121 Messina, Italy.*

*2 Department of Biomedical and Dental Sciences and Morpho Functional Imaging, University of Messina, 98121 Messina, Italy.*

In industrialized countries, routine use of pertussis vaccines has shifted the burden of pertussis disease from children to infants, adolescents and adults, leading to the necessity of booster doses. We prepared the review following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) with the aim of a) describing the immunogenicity of the main available vaccines for adolescents and adults b) describing antibodies persistence after immunization with the main vaccines available in childhood and adults and, also, possible co-administration and c) identifying the gold standard for adolescent and adult immunizations. Of 6906 records identified, after removing duplicate records, 12 RCT were included (people aged 11-73): of these 7 studies had only 1 control group, 4 studies had 2 control group and 1 had 5 control group; moreover, of the 12 studies included only 2 regarding co-administration and all were about immu-

nogenicity. 9 out 12 studies had a Jadad score above 3 points and 10 out 12 meet the criteria of Cochrane Back Review Group Criteria List for Methodological Quality Assessment. We found a limited number of good-quality RCTs investigating our object. The five component vaccines, although containing a lower dosage of antigen, are found to be more effective than one components vaccines for prevention. Evidences support the use of 5- components vaccines for booster sessions in adolescence and adulthood.

####

**Bundle for the prevention of healthcare-associated infections related to healthcare practices: role of a multidisciplinary team.**

Stefania Di Mauro <sup>1</sup>, Andrea Conti <sup>2</sup>, Paolo Bordonaro <sup>1</sup>, Grazia Celestri <sup>1</sup>, Salvatore Madonia <sup>3</sup>

*<sup>1</sup> Medical Direction, Umberto I Hospital, Siracusa, Italy*

*<sup>2</sup> Medical Direction, Lentini Hospital, Siracusa, Italy*

*<sup>3</sup> Medical Direction, Local Health Unit of Siracusa, Siracusa, Italy*

Healthcare-associated infections (HAIs) represent a serious threat to public health in our country and worldwide.

To counteract this phenomenon, a working group was set-up in each Medical Direction of the Company's Hospitals, with the goal of implementing an HAI prevention plan.

A multidisciplinary team was created that meets monthly and includes: an infectious disease specialist, a hygienist, coordinating nurses for the prevention of HAIs and the health professions manager.

The new technical committee planned a series of interventions to prevent and control the spread of HAIs.

The team has:

- assessed the starting situation by cross-referencing the information obtained both from the Sicilian quality platform, where alerts for CRE infections are uploaded, and through the results of

environmental monitoring provided by the Public Health Laboratory;

- established an action plan - using the "Prevention of surgical site infections (SSI)" bundle, a contained set of evidence-based practices;
- involved the relevant staff in order to create the ideal safety conditions to encourage cultural change;
- scheduled an assessment of the compliance bundles, which must be carried out using special sheets and on a yearly basis.
- Finally, it provided an evaluation of the achieved results and sharing through information audits with the involved personnel.

HAIs are considered an indicator of the quality of care and represent a significant patient safety problem.

The following strategies were identified to support prevention activities:

- adherence to epidemiological surveillance programs to identify the impact of prevention interventions;
- sharing of homogeneous, representative, timely and adequate data;
- encourage health personnel to consistently participate in training programs.

####

### **Epidemiology of Legionellosis in Sicily: retrospective analysis and ARIMA predictive modeling (2018-2023)**

Giuseppe Vella <sup>1</sup>, Emanuele Amodio <sup>1</sup>, Alessandra Casuccio <sup>1</sup>, Maria Anna Coniglio <sup>2</sup>, Francesca Sala <sup>1</sup>, Mario Palermo <sup>3</sup>

*1 Dipartimento di Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro", Università degli studi di Palermo*

*2 Dipartimento di Scienze Mediche, Chirurgiche e Tecnologie Avanzate, Università di Catania*

*3 Dipartimento attività sanitarie e osservatorio epidemiologico, Assessorato Salute Regione Sicilia*

Legionellosis, caused by Legionella pneumophila, is often associated with contaminated water systems. In Sicily, the hot-humid climate favors bacterial prolifera-

tion, making surveillance and prevention crucial to public health. The objective of this study is to examine the prevalence of Legionella cases in Sicily, analyze trends and predict future tendencies. A retrospective analysis of Legionnaires' disease cases reported on the PREMAL system in the years 2018-2023 was performed, integrating them with cases detected on Hospital Discharge Cards (HDC). The data were analyzed by Autoregressive Integrated Moving Average (ARIMA) forecasting model built on the history of Legionellosis cases to predict the incidence of cases in the first quarter of 2024. There were 264 cases in Sicily during the reporting period with an increase of 41.3% from 2022 to 2023. Most were male (64%) and over 65 (58%). Catania (1.9) and Palermo (1.6) had higher rates per 100,000 inhabitants. Underreporting of cases compared to total hospitalizations was estimated at around 15%. Ninety-seven percent of hospitalized patients had a diagnosis of community pneumonia (3% with nosocomial etiology). The average length of hospitalization was 13 days and two patients died while hospitalized. The ARIMA model predicted an increase in the incidence of cases in 2024 with 12.95 cases in the first quarter, in line with the 15 observed cases reported in January-March 2024. The study provides a description of legionellosis cases in Sicily, highlighting the need to strengthen surveillance and prevention measures given the rising trend. In-depth epidemiological analyses complemented by time series analysis models can be a useful tool for trend interpretation and possible activation of provincial alert systems.

####

### **Epidemiological trend of Scabies in the Province of Messina: a descriptive analysis**

Chiara Nicolosi <sup>1</sup>, Antonio Laganà <sup>1</sup>, Ilaria Saia <sup>1</sup>, Giovanni Genovese <sup>1</sup>, Giuseppa Visalli <sup>1</sup>, Giuseppa D'Andrea <sup>2</sup>, Salvatore Sidoti <sup>2</sup>, Alessio Facciola <sup>1</sup>, Angela Di Pietro <sup>1</sup>

*1. Department of Biomedical, Dental and Morphological and Functional Imaging Sciences, University of Messina, Italy*

2. *Department of Prevention, Provincial Health Authority of Messina, Italy*

Scabies is a ubiquitous disease that classically affects those living in disadvantaged conditions. However, in the last decade, this pathology has become increasingly common in other population groups as well. The aim of this study was to evaluate the trend of this pathology in the Messina area also considering the impact of COVID-19 pandemic. We carried out a cross-sectional study examining all the scabies notifications made to the ASP 5 of Messina in the twenty-year period 2003-2022, then focusing on the cases notified in the three-year pandemic period 2020-2022 by carrying out telephone interviews with patients and asking them a series of questions to understand the possible modes of transmission. In the twenty-year period considered, 935 cases of scabies were notified (11.2% of all notified diseases), with a notable increase in the three-year pandemic period 2020-2022, in which 30.8% of all cases were notified. In the three-year pandemic period, students were the most affected group (24.1%), followed by pensioners (21.0%) and healthcare workers (13.2%). The mode of transmission was unknown in more than half (58.5%) of the reported cases. When known, the most reported modalities were those of family origin (10.7%), followed by circumstances related to the healthcare sector. 66.9% of all cases were part of an outbreak. The largest outbreaks occurred in healthcare facilities in 69.4% of cases, and most of them (88.9%) occurred in nursing homes. Our research confirms that scabies still represents a public health problem today and that some categories, including healthcare workers and institutionalized elderly people, may be particularly vulnerable. The COVID-19 pandemic has certainly led to a significant increase in notified cases, affecting, above all, the weakest and most exposed categories.

####

**Knowledge of Eating Disorders Among Young Female Practitioners and Former Practitioners of Artistic Gymnastics**

Patrizia Calella <sup>1</sup>, Concetta Paola Pelullo <sup>1</sup>, Mirella Di Dio <sup>1</sup>, Fabrizio Liguori <sup>2</sup>, Giorgio Liguori <sup>1</sup>, Giuliana Valerio <sup>1</sup>, Francesca Gallè <sup>1</sup>

<sup>1</sup>*Department of Medical, Movement and Wellbeing Sciences, University of Naples Parthenope, Naples, Italy.*

<sup>2</sup>*Department of Economics and Legal Studies, University of Naples "Parthenope", Naples, Italy.*

Eating disorders (EDs) are particularly prevalent in sports where performance is closely tied to body weight, such as artistic gymnastics (AG). Knowledge about EDs is crucial for the early identification of risk factors and potential warning signs. The aim of this pilot study was to evaluate the knowledge of EDs among young female practitioners and former practitioners of AG. This ongoing study involves the completion of an electronic questionnaire by young athletes recruited from AG schools in Naples. The questionnaire consists of an initial section with demographic information and a validated 20-question survey designed to assess knowledge related to signs, symptoms, myths, and complications of EDs. To date, 23 athletes aged 16 to 29 years (mean age 19.7±4.0) have been enrolled. 48% of the sample reported currently practicing AG, while the remaining 52% reported having practiced it in the past. The average score on ED knowledge for the entire sample was 14.4±2.3, with no significant differences between former and current practitioners (p=0.762). However, a positive correlation was found between ED knowledge and age (R=0.691, p<0.001), even within each group (gymnasts: R=0.680, p=0.021; former gymnasts: R=0.697, p=0.012). The questionnaires collected thus far indicate awareness of EDs among the examined sample. However, the association between knowledge and age highlights the im-

portance of raising awareness and educating AG practitioners about these disorders from adolescence.

####

### **Vaccination Coverage and the COVID-19 Pandemic: The Case of the Rotavirus Vaccine in the Abruzzo Region**

Eleonora Cimino <sup>1</sup>, Walter Di Cola <sup>1</sup>, Gianluigi Triggianese <sup>1</sup>, Patrizia Raparelli <sup>2</sup>, Mario Muselli <sup>1</sup>, Stefano Necozone <sup>1</sup>, Leila Fabiani <sup>1</sup>

<sup>1</sup> *Department of Clinical Medicine, Public Health, Life and Environmental Sciences - University of L'Aquila ;*

<sup>2</sup> *C. O. U. Hygiene, Epidemiology, and Public Health Service - ASL 1 Abruzzo*

The COVID-19 pandemic triggered significant changes in the global health sector, including a notable impact on pediatric vaccinations, particularly recommended ones. Rotavirus vaccination (RV) coverage was already insufficient before the pandemic. The purpose of this study was to evaluate how the pandemic influenced RV vaccination coverage in Local Health Unit (LHU) 1 operating in the Province of L'Aquila in the Abruzzo Region of Italy. This ecological study examines the trend of RV vaccination coverage rates in LHU-1 Avezano-Sulmona-L'Aquila in the Abruzzo Region from January 1, 2017, to December 31, 2022. The analysed data were extracted from the computerised vaccine register. During the pre-pandemic period (2017-2019), the average RV vaccination coverage was 49.9%. Specifically, coverage increased from 44.0% in 2018 to 56.2% in 2019. During the pandemic years (2020-2022), the average vaccination coverage rose to 56.7%, with a statistically significant increase ( $p < 0.0001$ ). Throughout the pandemic years, vaccination coverage consistently remained above 50%: 54.8% in 2020, 58.0% in 2021, and 57.3% in 2022. From 2017 to 2022, there was a progressive increase in RV vaccine administration among infants in LHU-1 Abruzzo. This result is likely linked to a heightened awareness of the importance of vaccina-

tion, gained through the COVID-19 experience. Although we are still far from the goals set by the Italian National Vaccination Prevention Plan 2017-2019 and 2023-2025, the trend and the consistent increase in coverage are encouraging. A concerted effort between the Department of Prevention and primary care pediatricians is crucial, and continuous monitoring of coverage trends allows for the evaluation of potential strategies to be implemented in the future.

####

### **Artificial Intelligence and Epidemiological Stochastic Model**

Ilario Lazzaro <sup>1</sup>, Giuseppe Romano <sup>2</sup>, Maria Vittoria Giofrè <sup>2</sup>, Maira Romagnino <sup>3</sup>

1. *Azienda Ospedaliero-Universitaria "R. Dulbecco" - Catanzaro*

2. *Azienda Sanitaria Provinciale di Catanzaro*

3. *Azienda Sanitaria Provinciale di Crotone*

The potential of artificial intelligence can bring great benefits to public health and integrate, in particular, epidemiology activities. In the context of health planning, there is the difficulty of accurately predicting the health needs of a population in a specific territory and therefore being able to guarantee the correct provision of health services. The project starts from the use of a series of health data, relating to five years, analyzed with business intelligence through the stochastic projection method. The historicization of the DRG production data of public and private structures, falling within the territory of the Province of Catanzaro, was used as a database for the application of the incidence calculation through an AI (Artificial Intelligence) simulation with the "Montecarlo" method. The software extracted, according to performance optimality factors, frequency distributions: a value for the variable a1 (cost factor) and a value for a2 (production factor). The two values, related to each other, produced the incidence value for that specific DRG. In this



way it was possible to calculate the number of hospitalization events divided by ordinary, day hospital and day surgery that can be hypothesized for 2024. Through the application of the method for 2024, a better use of resources was hypothesized with a cost containment of 8% on hospitalizations from private healthcare facilities and 4% from public hospitals. At the end of the year, a deviation in a range of  $\pm 10\%$  compared to the number of scheduled hospitalizations can be hypothesized to occur among the DRGs calculated with the AI simulation, together with cost containment. The main objective remains that of implementing, in relation to the essential hospital macro-level, correct planning of the DRGs to be “purchased” by public and privately managed hospitals to satisfy both the “demand” for health and the epidemiological trend.

####

### **Microplastics in Sewage Sludge: Impact and Need for Improvement of Treatment Processes**

Margherita Ferrante <sup>1</sup>, Gea Oliveri Conti <sup>1</sup>, Eloise Pulvirenti <sup>3</sup>, Giuseppe Mancini <sup>4</sup>, Antonella Luciano <sup>5</sup>, Desirée Giuffrida <sup>1</sup>, Paola Rapisarda <sup>3</sup>, Simona Giurdanella <sup>2</sup>

1. *Department of Laboratory of Environmental and Food Hygiene, Department of Medical, Surgical*

*Sciences and Advanced Technologies “GF Ingrassia”, University of Catania, Italy.*

2. *Doctor specialization in Preventive Medicine and Public Health, University of Catania, Italy.*

3. *PhD student, Doctorate in Earth and Environmental Sciences of Department of Biological, Geological and Environmental Sciences, University of Catania, Italy.*

4. *Department of Electrical electronic and computer engineering, University of Catania, Italy.*

5. *ENEA Italian National Agency for new Technologies Energy and Sustainable Economic Development, Rome, Italy.*

Micro- and nanoplastics (MPs/NPs) are a new form of global pollution with potential toxicological impact on ecosystems. Due to their small size and diverse chemical nature, MPs/NPs can easily infiltrate wastewater treatment processes (WWTPs). 95% of MPs are retained in the sludge, which is then used as fertilizer in agriculture. Sampling was carried out by collecting a total number of 42 sludge samples, from urban sewage treatment plants located in the south-eastern part of Sicily. MPs extraction is based on the use of a new patented method entitled “Method for the extraction and determination of MPs in organic and inorganic matrix samples”. The code of the submitted request for international patent extension in several countries of the world is PCT/IB2019/051,838 of 7 March 2019, coupled with the accepted Italian patent n. 102,018,000,003,337 of 7 March 2018. The patent combines the extraction system with determination by Scanning Microscopy (SEM) with an EDX detector. Samples were analysed by SEM/EDX at 200x magnification to identify particles with a diameter  $> 10 \mu\text{m}$  and at 1500x magnification to identify particles  $< 10 \mu\text{m}$ . Data from our study indicate that microplastic (MP) particles persist through various treatments within a wastewater treatment plant (WWTP) in sludge. In particular, an increase in particles smaller than  $10 \mu\text{m}$  is observed in dewatered samples. The results of our study suggest that various wastewater treatment plants (WWTPs) don't effectively eliminate microplastics (MPs). Sewage sludge could potentially be a significant source of MP pollution in agricultural soils.

####

### **Assessment of mental health and its impact in living and working environments**

Antonio Laganà <sup>1,2</sup>, Giuseppa Visalli <sup>1</sup>, Salvo Poidomani <sup>1</sup>, Giuseppe Pantò <sup>1</sup>, Alessio Facciola <sup>1</sup>, Angela Di Pietro <sup>1</sup>



1. *Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy.*

2 *Istituto Clinico Polispecialistico C.O.T., Messina, Italy.*

Mental health plays an essential role in the social well-being of the individual, influencing individual health overall. Mental discomfort, defined as difficulties in regulating emotions or behaviours, appears to be on the rise, particularly among young people. The aim of this study was to measure the condition of mental well-being in a population sample and evaluate the potential related factors. An online questionnaire was used for the survey, aimed at assessing several parameters (age, gender, level of education, nationality, sexual orientation, use of social networks and current psychological therapies). Participants were asked for a self-assessment of their own level of mental health and how this may interfere in their daily lives. The study sample consisted of 369 individuals (71.5% ♀ and 28.5% ♂) with a mean age of 30.92 years (SD ±10.92). A quote (18%) of the participants reported poor mental health, while 67.5% and 14.5% of the individuals declared good and excellent mental health status, respectively. The study revealed more marked mental distress in younger (P=0.008), women (P=0.006), and non-heterosexual people (P=0.04). Mental distress was correlated with physical and emotional distress (P<0.0001) and social pressures (P<0.0001). Moreover, the negative impact of social networks (P<0.0003) and the COVID-19 pandemic (P<0.0001) was observed. Subjects reporting suboptimal mental health stated that it affected daily activities (P<0.0001), physical health (P<0.0001), family living environment (P<0.04), and study/work environment (P<0.001). The protective factor par excellence was psychological therapy (P<0.0001). The results obtained highlight a significant state of mental discomfort among young individuals, with limits in

daily life. This emphasises the importance of a prevention approach to mental discomfort, with actions targeted at promoting psychological therapy and combating all forms of discrimination.

####

#### **Adherence to influenza vaccination in relation to the different phases of the SARS-CoV-2 pandemic, preliminary results of a 2020-2024 cohort study**

Francesco Monteverde, Maria Rosaria Deodato, Iole Camilla Iocca, Antonio Mantella, Caterina De Sarro, Claudia Pileggi

*School of Specialization in Hygiene and Preventive Medicine - Department of Health Sciences, "Magna Græcia" University of Catanzaro*

The main objective of the study was to evaluate adherence to influenza vaccination in relation to the different phases of the SARS-CoV-2 pandemic. The cohort study was conducted on a sample of healthy adults enrolled at the vaccination clinic of the "Magna Graecia" University of Catanzaro starting from the 2020-21 flu season. Study participants were recontacted over the following three flu seasons. Socio-demographic characteristics and clinical information were collected, along with those relating to compliance to the influenza vaccination, as well as the reasons for adherence or refusal. Preliminary results refer to a sample of 500 subjects aged between 20 and 82 years (mean 37.8 and DS ±12.9); 81.4% were healthcare workers and 61% of the subjects did not have chronic diseases. In the 2020-21 season, adherence to influenza vaccination was 88% it decreased significantly ( $\chi^2$  46.11;  $p$ <0.001) in the 2021-22 season to 70.6%. Also, in the following season we observed a significant reduction ( $\chi^2$  45.98;  $p$ <0.001) with an adherence of 50% in 2022-23 which remained almost identical in 2023-24 (53%). The progressive reduction in

adherence to flu vaccination has gone at the same rate with the SARS-CoV-2 vaccination which, in the 2023-24 season, saw only 22% of the eligible patients carrying out vaccination. The main motivation for choosing not to get vaccinated anymore was no longer feeling at risk, in 53.3% of cases for flu and 71.8% for Covid, respectively. The lack of a vaccine and the fear of an unknown virus led to flu vaccination in the first year of the pandemic, but the lack of risk perception and doubts about vaccines caused a decline in attention in the following years, which makes appropriate public health interventions indispensable.

####

### **Increased adherence to influenza vaccination among Palermo family paediatricians: a study on safety and compliance of qLAIV vaccination**

Claudia Francesco Balsamo <sup>1</sup>, Nicole Bonaccorso <sup>1,6</sup>, Carmela Lo Giudice <sup>3</sup>, Alessandro Carubia <sup>1</sup>, Luciano D'Azzo <sup>1</sup>, Santo Fruscione <sup>1</sup>, Martina Sciortino <sup>1</sup>, Tania Vitello <sup>1</sup>, Luigi Zagra <sup>1</sup>, Alessia Pieri <sup>2</sup>, Rosaria Rizzari <sup>3</sup>, Gregorio Serra <sup>1</sup>, Mario Palermo <sup>4</sup>, Maria Angela Randazzo <sup>5</sup>, Sara Palmeri <sup>5</sup>, Rosario Ascitutto <sup>5</sup>, Giovanni Corsello <sup>1</sup>, Giorgio Graziano <sup>1,2</sup>, Carmelo Massimo Maida <sup>1,2</sup>, Walter Mazzucco <sup>1,2</sup>, Fabio Tramuto <sup>1,2</sup>, Francesco Vitale <sup>1</sup>, Claudio Costantino <sup>1,2</sup>

1. *Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Excellence Specialties "G. D'Alessandro", University of Palermo, Palermo, Italy;*

2. *Hospital Unit of Clinical Epidemiology with Cancer Registry, University Hospital "Paolo Giaccone" of Palermo, Palermo, Italy*

3. *Italian Federation on Family Paediatricians, Sicilian Section, Palermo, Italy;*

4. *Regional Health Authority of Sicily, Palermo, Italy;*

5. *Prevention and Epidemiology Unit, Palermo Local Health Authority, Palermo, Italy;*

6. *PhD National Programme in One Health approaches to infectious diseases and life*

*science research, Department of Public Health Experimental and Forensics Medicine, University of Pavia, Pavia, Italy.*

Influenza is a serious threat to public health, especially for the management of severe cases and complications of the disease, which requires the implementation of control measures. Our study aimed to assess the acceptance and impact of qLAIV vaccination among a sample of family paediatricians of the ASP of Palermo. We examined vaccination coverage rates, comparing them with those observed in the Sicilian region, and actively monitored any adverse reactions and their severity. A two-phase observational study was conducted from September 2022 to June 2023. The first phase included an educational intervention and a pre-intervention questionnaire on a sample of paediatricians of the ASP of Palermo, regarding paediatric influenza vaccination. The second phase involved active surveillance on the safety and acceptance of qLAIV among the paediatric population served by participating physicians from October 2022 to April 2023. The coverage rate among the involved paediatric population was 13.2%, with an I.M./qLAIV ratio of 1/4.25. This adherence rate was significantly higher (p-value <0.001) than the average influenza coverage recorded in the Palermo ASP (6.7%) and in Sicily (5.9%). Adverse events in the qLAIV group were mild, with only 3.3% complaining mainly of mild fever. No serious adverse reactions were reported. The educational intervention significantly increased paediatric influenza vaccination rates among participants, improving coverage rates in the Palermo ASP. Minimal and non-serious adverse events confirmed the vaccine's safety. The education sessions kept paediatricians informed, enabling them to provide parents with comprehensive information for informed consent for vaccine administration.

####

### **Polypharmacy and medication adherence by elderly patients: preliminary results of a cross-sectional study**

Adele Sarcone <sup>1</sup>, Mariangela Cassadonte <sup>1</sup>, Alessandra De Pasquale <sup>1</sup>, Mohammad Zreiki <sup>1</sup>, Giampiero Loiero <sup>1</sup>, Giovanni Marasco <sup>1</sup>, Carmelo G.A. Nobile <sup>1,2</sup>

1. *School of Specialization in Hygiene and Preventive Medicine - Department of Health Sciences, "Magna Græcia" University of Catanzaro*

2. *Department of Pharmacy and Health Sciences and Nutrition, University of Calabria*

The progressive population ageing requires health policies for the management of patients who are often polypathologic and poly-treated, who are at highly risk of nonadherence to drug therapies.

The main objective of the study were to assess the polypharmacy adherence and by subjects older than 65 years and to identify factors that affect medication adherence. The cross-sectional study involves subjects older than 65 years recruited at the outpatient vaccine clinic of "Magna Graecia" University of Catanzaro. Participants provided socio-anagraphic and clinical information, with a focus on treatment-related information. The MORISKY Medication Adherence Scale (MMAS-8) was used to assess the level of therapeutic adherence. Instead, the patient's quality of life was assessed using the EuroQol-5D questionnaire (EQ-5D). Data were collected by a face to face questionnaire. Preliminary results are for a sample of 200 subjects with a mean age of 74.3 years (SD±7.25, range 66-103), 57.5% of whom were male, 86% retired, and 33.5% graduated. Eighty percent of the sample reported having at least one medical condition (65% cardiovascular diseases, 25% diabetes), 84.5% were taking at least one medication. Approximately 70% of included subjects were on polypharmacy, one-third of whom were found to be low adherents (32.2%); 19% of

these had at least three comorbidities, and 73% of adherents reported no side effects. Subjects' adherence to polypharmacy significantly increased with the higher educational level ( $\chi^2$  10.66;  $p < 0.001$ ), with better perception of health status ( $t = -3.57$ ;  $p = 0.0005$ ) and with a higher EQ5D score ( $t$ -test =  $-3.72$ ;  $p = 0.0003$ ). Preliminary results show a high prevalence of chronic patients who are poorly adherent to polypharmacies, so it is necessary to promote health policies to increase therapeutic compliance among this population.

####

### **Unhealthy behaviours and depression among residents in Hygiene and Preventive Medicine: an assessment according to the PHRASI protocol**

Giuseppa Minutolo <sup>1</sup>, Alessandro Catalini <sup>2</sup>, Nausicaa Berselli <sup>3</sup>, Lorenzo Stacchini <sup>4</sup>, Fabrizio Cedrone <sup>5</sup>, Vincenza Gianfredi <sup>6</sup>

1. *Food Hygiene, Nutritional Surveillance and Prevention, Department of Prevention, Provincial Healthcare Authority of Palermo, Palermo, Sicily, Italy*

2. *Food Hygiene and Nutrition, AST Macerata, Macerata, Marche, Italy*

3. *Public Hygiene Service, AUSL Modena, Modena, Emilia-Romagna, Italy*

4. *Department of Health Sciences, University of Florence, Florence, Tuscany, Italy.*

5. *Hospital Management, Local Health Authority of Pescara, Pescara, Abruzzo, Italy*

6 *Department of Biomedical Sciences for Health, University of Milan, Milan, Lombardy, Italy.*

Unhealthy behaviors (UBs) represent a series of customs and lifestyles that adversely impact health. Currently, few studies explore the role of UBs on residents' mental health. Therefore, the aim of this study is to assess the association between UBs and depression among residents in Hygiene and Preventive Medicine. In 2022, the Public Health Residents' Anonymous Survey in Italy (PHRASI) cross-sectional

study was performed. Through validated questionnaires, the following UBs were explored: alcohol abuse (AUDIT-C), eating disorders (SCOFF), sedentary behavior (IPAQ), and sleepless nights (ISI). Depressive symptoms were detected by PHQ-9, with a PHQ-9 score of  $\geq 5$  indicating mild to severe symptoms. The Chi-square test and Fisher's exact test, when appropriate, were used to detect the relationships between nominal variables. Univariate and multivariable logistic regression analyses were conducted to assess the association between depressive symptoms and the predictive variables. Of the 379 participants (median age 30 years, 57.8% women), 60.9% reported depressive symptoms. In the Chi-square test, economic difficulties were more frequent among subjects with depressive symptoms (64.1% vs 46.6%,  $p < 0.001$ ). UBs were more frequent among subjects with depression. In the multivariable analysis, depressive symptoms were associated with economic difficulties (aOR=2.15,  $p=0.004$ ), alcohol abuse (aOR=2.14,  $p=0.023$ ), eating disorders (aOR=3.62,  $p < 0.001$ ), and sleepless nights (aOR=7.97,  $p < 0.001$ ). The need to implement health promotion interventions in the workplace emerges from these results to guarantee trainees a better and more fruitful training path, a healthier workplace, and access to healthcare services for appropriate care.

####

#### **Adjuvanted RSV Vaccination in Healthy Sicilian population over 75 residents in Long Health care facilities and over 60 with comorbidities: a pilot Project in the main Local Health Authorities of Sicilian Region (Catania and Palermo)**

Salvatore Lanzalaco <sup>1</sup>, Claudia Alba <sup>1</sup>, Annalisa Allegra <sup>1</sup>, Selene Avona <sup>1</sup>, Andrea La Marca <sup>1</sup>, Giorgio Graziano <sup>1</sup>, Emanuele Amodio <sup>1</sup>, Alessia Pieri <sup>1</sup>, Serena Riolo <sup>1</sup>, Fabio Tramuto <sup>1</sup>, Carmelo M Maida <sup>1</sup>, Walter Mazzucco <sup>1</sup>, Francesco Vitale <sup>1</sup>, Claudio Costantino <sup>1</sup>, Mario Barbagallo <sup>1</sup>, Nicola Veronese <sup>1</sup>, Maria Angela Randazzo <sup>2</sup>, Sara Palmeri <sup>2</sup>, Rosario Ascitutto <sup>2</sup>, Mario Morello <sup>3</sup>, Gabriele Giorgianni <sup>3</sup>, Roberto Furnari <sup>3</sup>, Milena Nardi <sup>3</sup>, Eleonora Ricci <sup>3</sup>, Rosario

Vinci <sup>3</sup>, Roberto Garofalo <sup>4</sup>, Rosalinda Scalisi <sup>4</sup>, Elisena Geraci <sup>4</sup>, Mario Palermo <sup>5</sup>

<sup>1</sup> *Department of Health Promotion Sciences, Maternal and Infant Care, Internal Medicine and Excellence Specialties (PROMISE) "G. D'Alessandro" - University of Palermo*

<sup>2</sup> *SPEMP Unit - Department of Prevention - ASP Palermo*

<sup>3</sup> *SEMP Unit - Department of Prevention - ASP Catania*

<sup>4</sup> *Social Health Integration Unit - ASP Palermo*

<sup>5</sup> *Health Department of the Sicily Region - Service 4 DASOE*

The respiratory syncytial virus (RSV) is an RNA virus that presents as an influenza-like illness (ILI) but can also cause severe lower respiratory tract infections (LRTI) with an increase in hospitalizations and healthcare service accesses, particularly in individuals over the age of 65. The European Medicines Agency (EMA) has recently authorized an adjuvanted protein-based RSV vaccine with promising profiles of efficacy and safety and during 2023/2024 season in the US several million doses of this vaccine were administered to elderly general population. According to Sicilian Regional Immunization Schedule, from October 2024 RSV vaccination will target all healthy individuals in the cohort of 75 years old and those over 60 y.o. with at least one comorbidities. The Health Department of the Sicilian Region with the LHAs of Palermo and Catania acquired 2,000 doses of the adjuvanted protein-based RSV vaccine, in order to administer, in coordination with the Vaccination Center of the University Hospital of Palermo, 2,000 subjects over 75 residents in Long Term Care Facilities (LTCFs) or over 60 with comorbidities. The recruitment and vaccination of subjects will begin in June 2024 with a on three level strategy: 1. At the vaccination center of the UH of Palermo; 2. At the LTCFs of the LHAs of Palermo



and Catania; 3. In a group of patients belonging to a sample of general practitioners (GPs) of the LHAs of Palermo and Catania participating to the National RespiVirNet virological and epidemiological surveillance. During the following weeks, also with the support of healthcare professionals of the LTCFs, expected and unexpected post-vaccination adverse events at local and systemic levels will be evaluated. Finally, during the subsequent cold seasons (October 2024 –April 2025), subjects with ILI symptoms will be monitored through molecular nasopharyngeal swab for the diagnosis of respiratory vaccine-preventable diseases (RSV, Covid and Influenza), under the coordination of the Regional Reference Laboratory of the University Hospital of Palermo. The main objective of this work is to immunize, anticipating the Regional Sicilian Immunization Schedule, a particularly vulnerable population such as LTCFs patients, as well as a significant group of elderly population. We also expect, from data obtained, further confirmation of the safety and efficacy profiles of the adjuvanted protein-based RSV vaccine (compared to those already obtained in the authorization trials and in the 2023/2024 US vaccination campaign).

####

**Impact of universal Rotavirus Vaccination on new diagnoses of type 1 diabetes and celiac disease in children of different age groups in Sicilian Region: a retrospective study from 2008 to 2021**

Selene Avona <sup>1</sup>, Claudio Costantino <sup>1</sup>, Martina Sciortino <sup>1</sup>, Claudia Alba <sup>1</sup>, Annalisa Allegra <sup>1</sup>, Andrea La Marca <sup>1</sup>, Salvatore Lanzalaco <sup>1</sup>, Mario Palermo <sup>2</sup>, Nicole Bonaccorso <sup>1,3</sup>, Antonello Marras <sup>2</sup>, Sebastiano Pollina Addario <sup>2</sup>, Giovanni Fantaci <sup>2</sup>, Francesco Vitale <sup>1</sup>

*1. Department of Health Promotion, Maternal and Child Health, Internal Medicine*

*and Specialist Excellence "G. D'Alessandro," University of Palermo, Palermo*

*2. Department of Health Activities and Epidemiological Observatory, Regional Health Department, Sicilian Region*

*3. PhD National Programme in One Health approaches to infectious diseases and life science research, Department of Public Health, Experimental and Forensics Medicine, University of Pavia, Pavia, Italy*

Rotavirus (RV) infection is considered a potential trigger for autoimmune diseases, specifically type 1 diabetes mellitus (T1D) and celiac disease (CD), both of which are now universally regarded as related to autoimmune mechanisms. The Sicilian region introduced universal rotavirus vaccination in 2013 for all newborns. This study aims to evaluate the trend in the incidence of type 1 diabetes and celiac disease diagnoses in relation to vaccination coverage achieved in the general Sicilian population. A retrospective study was conducted evaluating hospital discharge records (SDO) related to new admissions, excluding repeated and past ones, with specific codes for primary (or secondary) diagnoses of T1D and CD, before (2008-2012) and after (2013-2021) the introduction of RV vaccination in the Sicilian Region, in different age groups: 0-59 months, 5-11 years, and 12-17 years. The average number of hospitalizations for the 0-59 months age group decreased from 63.2 between 2008 and 2012 to 44.55 from 2013 to 2021 (-29.5%); for the 5-11 years age group, it decreased from an average of 230.4 between 2008 and 2012 to 104.44 from 2013 to 2021 (-54.67%); for the 12-17 years age group, it decreased from an average of 231.2 to 68.22 between 2013 and 2021 (-70.49%). The lowest number of hospitalizations for T1D was recorded in 2020, corresponding to the highest vaccination coverage data observed during the study period (59.8%). Similarly, for celiac disease, the average number of hospitalizations decreased. For the 0-59 age group, it dropped from 217.6 between 2008 and

2012 to 41.44 between 2013 and 2021 (-80.9%); for the 5-11 age group, hospitalizations decreased from 242.2 between 2008 and 2012 to 41 between 2013 and 2021 (-83%); for the 12-17 age group, hospitalizations decreased from 146 between 2008 and 2012 to 18.33 between 2013 and 2021 (-87.44%). In both cases, the lowest number of hospitalizations for T1D and CD was recorded in 2020, corresponding to the highest vaccination coverage data observed during the study period (59.8%). The observed data contribute to demonstrating how RV vaccination has had a positive impact on the number of hospitalizations for type 1 diabetes and celiac disease. These results support evidence from studies conducted in various European and non-European countries, suggesting a beneficial association between primary prevention of RV pathology and these medical conditions. Certainly, this reduction has also been influenced by a change in the management of children with new diagnoses, who are often anticipated and managed on an outpatient basis. However, the implementation of RV vaccination represents a fundamental resource not only for reducing hospitalizations for gastroenteritis but also for preventing and reducing the onset of these medical conditions.

####

### **Reduction of febrile convulsions and rotavirus gastroenteritis in children between 0 and 59 months of age in Sicily as a result of universal vaccination: retrospective study from 2008 to 2021**

Martina Sciortino <sup>1</sup>, Claudio Costantino <sup>1</sup>, Nicole Bonaccorso <sup>1,2</sup>, Antonello Marras <sup>3</sup>, Sebastiano Pollina Addario<sup>3</sup>, Giovanna Fantaci<sup>3</sup>, Mario Palermo<sup>3</sup>, Francesco Vitale <sup>1</sup>

1. *Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Excellence Specialist Medicine, University of Palermo, Palermo, Italy.*

2. *PhD National Programme in One Health*

*approaches to infectious diseases and life science research, Department of Public Health, Experimental and Forensics Medicine, University of Pavia, Pavia, 27100, Italy.*

3. *Regional Epidemiological Observatory, Sicilian Health Department, Palermo, Italy.*

Rotavirus (RV) is the major cause of severe gastroenteritis in children under five years of age. Sicily introduced RV vaccination in 2013. This study evaluates trends of hospitalizations for Rotavirus gastroenteritis (RVGE) and febrile convulsions (CF) compared with vaccination coverage. We conducted a retrospective study evaluating hospitalizations for RVGE and CF before and after introduction of RV vaccination in children 0-59 months of age. The average of RVGE cases per year decreased (p-value <0.001) and passed from an average of 1006 cases between 2008 and 2012 down to 338 from 2013 to 2021(-66%); the lowest number of hospitalizations for RVGE was recorded in 2020 (98), when vaccination coverage was highest (59.8%). Similarly for CF, before introduction of vaccination, the average number of cases was 1511 which decreased after introduction of vaccination by 33%(1009), and the lowest number was recorded in 2021(517) when vaccination coverage was 59.5%. Our findings are in line with studies conducted in other countries that show substantial impact of vaccination and on health resources related to GERV and CF, demonstrating that RV vaccination remains the best preventive tool to reduce these events.

####

### **Diabetes and vaccine prevention: A pilot study on the empowerment of diabetic patients in charge of the Integrated Management Clinic (AGI) of the PTA of Comiso - Health District of Vittoria**

Alessandra Giarratana, Maria Rita Licalzi, Maria Grazia Dipasquale, Tiziana Bella,

Maria Iacono, Lucia Aprile, Antonia De Angelis, Donatella Incatasciato, Carmela La Terra

*Local Health Authority of Ragusa, Ragusa, Italy*

The prevalence of diabetes (5.9%) reaches 21% in those over 75 years of age. People affected by diabetes are characterized by an increased infectious risk (1:2 in 5th year) and mortality compared to the general population. From the National Vaccination Plan 2017-2021 this risk category was included in order to increase vaccination adherence in this population group. The aim of this study is to evaluate the empowerment of diabetic patients in charge of the AGI both in the prevention of diabetes complications and infectious risk. An observational pilot study was conducted from February to April 2024. An ad-hoc questionnaire was administered during the follow-up to evaluate HbA1c, vaccines history (anti-flu, anti-Covid19, anti-pneumococcal, anti-Zoster), Vaccine-Confidence-Index(VCI) adding "vaccines protect myself and others", EQ-5D-3L+VAS for quality of life(QoL). A total of 168 patients were recruited [55% M, average age: 71 (min 41; max 91), HbA1c 7.4% (max 11.8; min 5; mode 6.8)]. Overall, 64% received the flu vaccination, 16% anti-pneumococcal, 12.5% anti-Zoster, 92.3% anti-COVID until 202. The VCI was 70% indicating moderate confidence in vaccines. Specifically, 22 patients didn't answer the VaxRel question considering it unrelated; 60.7% agreed with "vaccines protect myself and others"; 18.6% didn't trust in vaccines. More than 60% declared physical/mental well-being for the 5Ds; most frequent EQ-VAS value was 70/100 (22%). Data showed a low vaccination coverage, especially for the anti-Zoster and anti-pneumococcal vaccine, which indicate a low propensity to vaccination, despite that the VCI was 70%. Otherwise, the QoL, compared to HbA1c values, gives an acceptable estimate of the empowerment of diabetic patients even if it can be improved. Therefore, it's essential to elaborate more suitable strategies involving different healthcare professionals (GPs, hygienists, diabetologists) to increase

diabetes' health literacy and vaccine confidence for patient-centred management.

####

### **Psychological Distress among Medical Students from the three Sicilian Universities of Palermo, Catania, and Messina: Results of the SMS-ME (Sicilian Medical Students' Mental Health) Project**

Nicole Bonaccorso <sup>1,2</sup>, Laura Ferraro <sup>3</sup>, Emanuele Amodio <sup>1</sup>, Dario Genovese <sup>1</sup>, Martina Sciortino <sup>1</sup>, Caterina La Cascia <sup>3</sup>, Erika Bongiorno <sup>3,5</sup>, Elisa Galatà <sup>3</sup>, Giorgia Iacono <sup>3</sup>, Ilaria Vella <sup>3</sup>, Alessandra Romano <sup>4</sup>, Damiano Guglielmino <sup>5</sup>, Carmela Mento <sup>4</sup>, Maria Rosaria Anna Muscatello <sup>4</sup>, Maria Salvina Signorelli <sup>5</sup>, Daniele La Barbera <sup>3</sup>, Francesco Vitale <sup>1</sup>, Claudio Costantino <sup>1</sup>

1. *Department of Health Promotion, Maternal and Infant Care, Internal Medicine, and Excellence Specialties (PROMISE), University of Palermo, Palermo, Italy.*

2. *PhD National Programme in One Health approaches to infectious diseases and life science research, Department of Public Health, Experimental and Forensics Medicine, University of Pavia, Pavia, Italy*

3. *Department of Biomedicine, Neuroscience and advanced Diagnostic, University of Palermo, Palermo, Italy.*

4. *Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy.*

5. *Department of Educational Science, University of Catania, Catania, Italy.*

Medical students are at high risk of developing mental disorders. This study aimed to estimate depression, anxiety, stress, and suicidal ideation in a sample of Sicilian medical students, and to ask what kind of support they desired from their universities. The students consented to complete a web-based cross-sectional survey. The protocol included a sociodemographic interview, the DASS-21 for assessing stress, anxiety, and depression, and a question about suicidal ideation. A multivariate regression (SPSS 28) was performed with symptoms as the outcome of key

predictors. A total of 1866 students were enrolled (RR: 26%). 33% scored from severe to extremely severe for stress (mean =  $11.2 \pm 4.7$ ), 53% for anxiety (mean =  $8.2 \pm 5.1$ ), and 40% for depression (mean =  $9.2 \pm 5.4$ ). Being female (Stress:  $B = 3.7$ ;  $p < 0.01$ ; Anxiety:  $B = 4.1$ ;  $p < 0.001$ ; Depression:  $B = 2.1$ ;  $p < 0.05$ ), perceiving a negative impact on studies (Stress:  $B = 2.7$ ;  $p = 0.001$ ; Anxiety:  $B = 2.5$ ;  $p = 0.001$ ; Depression:  $B = 4.9$ ;  $p < 0.001$ ), having used medications/supplements (Stress:  $B = 3.7$ ;  $p < 0.001$ ; Anxiety:  $B = 4.6$ ;  $p < 0.001$ ; Depression:  $B = 3.9$ ;  $p < 0.001$ ), and avoiding outdoor activities during the pandemic (Stress:  $B = 1.7$ ;  $p < 0.05$ ; Depression:  $B = 2.3$ ;  $p < 0.001$ ; Anxiety:  $B = 2.0$ ;  $p < 0.05$ ) predicted higher stress, anxiety, and depression scores. Adjusted residual scores for stress ( $F(5,1828) = 29.1$ ;  $p < 0.001$ ), anxiety ( $F(5,1828) = 27.3$ ;  $p < 0.001$ ), and depression ( $F(5,1828) = 58.8$ ;  $p < 0.001$ ) increasingly predicted suicidal thoughts and the desire for university psychological support. Our study suggests that compared to the general population (Bottesi et al., 2015), there is a high risk of stress, anxiety, depression, and suicidal thoughts among Sicilian medical students. These findings highlight the importance of providing a preventive approach to psychological distress in medical students.

####

#### **Anti-Meningococcal vaccination coverage rates in adolescents in Sicilian Region following Universal vaccination: A retrospective study**

Annalisa Allegra <sup>1</sup>, Arianna Conforto <sup>1</sup>, Claudia Alba <sup>1</sup>, Selene Avona <sup>1</sup>, Andrea La Marca <sup>1</sup>, Salvatore Lanzalaco <sup>1</sup>, Nicole Bonaccorso <sup>1</sup>, Mario Palermo <sup>2</sup>, Girolama Bosco <sup>3</sup>, Adriana Graceffa <sup>3</sup>, Benedetto Trobia <sup>4</sup>, Mario Morello <sup>5</sup>, Gabriele Giorgianni <sup>5</sup>, Franco Belbruno <sup>6</sup>, Salvatore Sidoti <sup>7</sup>, Massimo Varvarà <sup>7</sup>, Maria Angela Randazzo <sup>8</sup>, Sara Palmeri <sup>8</sup>, Rosario Ascitutto <sup>8</sup>, Sonia Cilia <sup>9</sup>, Carlo Di Stefano <sup>9</sup>, Lia Contrino <sup>10</sup>, Fabio Contarino <sup>10</sup>, Gaspare Canzoneri <sup>11</sup>, Francesco Di Gregorio <sup>11</sup>, Vincenzo Di Gaetano <sup>11</sup>, Francesco Vitale <sup>1</sup>, Claudio Costantino <sup>1</sup>

1. Department of Health Promotion, Maternal and Child Health, Internal Medicine and Specialist Medicine of Excellence "G. D'Alessandro", University of Palermo, Palermo
2. Department for Health Activities and Epidemiological Observatory, Regional Department of Health, Sicily Region
3. Department of Prevention, LHA Agrigento
4. Department of Prevention, LHA Caltanissetta
5. Department of Prevention, LHA Catania
6. Department of Prevention, LHA Enna
7. Department of Prevention, LHA Messina
8. Department of Prevention, LHA Palermo
9. Department of Prevention, LHA Ragusa
10. Department of Prevention, LHA Siracusa
11. Department of Prevention, LHA Trapani

In the world, the incidence of invasive meningococcal disease varies according to age. In Italy and Europe, it is higher in infants and young children, with a second peak among adolescents and young adults, where symptoms are generally recognized late, resulting in more frequent and severe physical and psychological outcomes. Vaccination is the most effective preventive measure available in the fight against invasive meningococcal disease. According to the current National Vaccination Prevention Plan 2023-2025, vaccination against meningococcus B is recommended from birth up to 24 months of age. For those aged 12 to 18 years, vaccination may be integrated based on the epidemiological situation of the individual Region or Autonomous Province. In Italy, a 4-component vaccine for children has been available since 2014. Additionally, since 2017, a second recombinant monocomponent vaccine (MenB-FHbp) has been available, authorized for use in individuals aged  $\geq 10$  years, with a recommended schedule of 2



or 3 doses based on epidemiological and clinical risk factors. Since 2018, the Sicily Region has been actively offering free Men B vaccination to adolescents (12 years old, birth cohort 2006), along with eight other Italian regions. These coverage data have never been made official as they were not reported to the Ministry, since such vaccination was not extended to all Italian regions in the National Vaccination Prevention Plan (PNPV). To obtain regional coverage data, a descriptive study was conducted evaluating the vaccination coverage data of the nine provinces of Sicily from 2018 to 2022. This study compared the averages of birth cohorts from 2006 to 2010. The analysis of average vaccination coverage for meningococcus B in 2022 reveals that the COVID-19 pandemic has indirectly caused a decrease in vaccination rates across all Sicilian provinces due to restricted supply and diminished demand. Specifically, the cohorts from 2009 (26.15) and 2010 (20.74) show a notable decline in average adherence to vaccination. Despite this, a review of regional averages from 2018 to 2022 indicates a gradual increase in Men B vaccination coverage among Sicilian adolescents: 2018 (7.09), 2019 (13.85), 2020 (19.69), 2021 (23.79), and 2022 (25.61). However, these figures remain significantly below the 75% target set by the National Vaccination Prevention Plan (PNPV). The availability of immunogenic and safe vaccines, administered cost-effectively (including co-administration with other adolescent vaccines such as HPV), is insufficient to achieve adequate regional coverage. Nonetheless, vaccination against Men B continues to be the most effective preventive measure to reduce the incidence of a highly unpredictable disease with high mortality and morbidity rates. The data underline the necessity for catch-up vaccination programs, especially for adolescents who

missed their vaccinations due to the COVID-19 pandemic. There is also a need to reorganize vaccination strategies for adolescents, starting with initiatives in schools.

####

### **Effectiveness of a breastfeeding promotion intervention conducted among pregnant and postpartum women at the University Hospital of Palermo**

Claudia Alba <sup>1</sup>, Claudio Costantino <sup>1</sup>, Annalisa Allegra <sup>2</sup>, Selene Avona <sup>2</sup>, Monica Bongiovanni <sup>2</sup>, Sofia Gattuso <sup>2</sup>, Andrea La Marca <sup>2</sup>, Salvatore Lanzalaco <sup>2</sup>, Alessandra Sciortino <sup>2</sup>, Giorgio Graziano <sup>1</sup>, Francesco Vitale <sup>1</sup>, Sabina Paolizzo <sup>2</sup>, Alessia Pieri <sup>2</sup>, Eliana Giambelluca <sup>2</sup>, Giulia Cavasio <sup>3</sup>, Maria Giordano <sup>3</sup>, Valeria Farina <sup>3</sup>, Rosa Maria Rita Epifania <sup>3</sup>, Renato Venezia <sup>3</sup>, Antonio Simone Laganà <sup>3</sup>

1. *Clinical Epidemiology Unit with Cancer Registry of Palermo and Province, University Hospital "Paolo Giaccone", Palermo*

2. *School of Specialization in Hygiene and Preventive Medicine, Department of Health Promotion, Maternal and Child Health, Internal Medicine and Excellence Specialties "G. D'Alessandro" - (PROMISE), University of Palermo*

3. *Obstetrics and Gynecology Unit, University Hospital "Paolo Giaccone", Palermo*

Breast milk is the best food for a newborn, as it contains all the essential nutrients for their growth, promotes psychomotor and sensory development, and provides important protective factors against infectious and chronic diseases. Despite recommendations from UNICEF and WHO to exclusively breastfeed for the first six months of life, starting within the first hour after birth, and to continue breastfeeding for up to 2 years, few women achieve the recommended goals for duration and exclusivity. Starting from February 2024, a prospective observational study was conducted at the pre-hospitalization gynecologic clinic of the

University Hospital of Palermo, with the aim of evaluating the effectiveness of breastfeeding promotion interventions. Data were collected at time 0 through an anonymous self-administered questionnaire filled out by the mothers, containing general socio-demographic questions and questions related to basic knowledge and willingness to breastfeed. Subsequently, the prevalence of breastfeeding was monitored at 3 subsequent time points through an anonymous online questionnaire (with alphanumeric code provided to the woman at enrollment) self-administered via the web: at 4-5 weeks (T1), at three months (T2), and at six months (T3) postpartum. The questionnaires analyzed various socio-demographic factors and those related to any previous breastfeeding experience. Additionally, data were collected on the information received from healthcare providers during pregnancy (including during childbirth education classes), on knowledge, and on mothers' predisposition to exclusive breastfeeding. Preliminary results from the initial questionnaires administered at T0 (n=70) show that the age of the women ranged from 19 to 39 years, the majority were married or cohabiting, approximately 60% had a higher education degree (diploma, degree, doctorate), and only 38.6% were employed. Around half of the women had children, with the number ranging from 1 to 3, and 60.6% had breastfed their children. Regarding smoking habits, 9.7% were regular smokers, with 50% smoking up to 10 cigarettes per day, 25% smoking more than 10 cigarettes per day, and a small percentage using e-cigarettes, while 90.3% reported not being smokers. Most women were primarily followed by gynecologists, both in private and public settings, and in some cases by general practitioners and midwives. 54.3% were not informed about the benefits of breastfeeding during

pregnancy, but 62.1% sought information on the topic. There appears to be a discrepancy between the perception of the necessity of breastfeeding for the baby's health (94.4%) and the actual intention of mothers to exclusively breastfeed (69.7%). An important finding was the participation in childbirth education classes during pregnancy, with only 30.6% attending these classes, while 89.4% had never participated. These observed data could be useful for the design of future interventions aimed at promoting breastfeeding. The objectives should focus on increasing information about the benefits of breastfeeding and promoting antenatal education to encourage a higher percentage of women to choose exclusive breastfeeding.

####

#### **First semester of activity of the Reference Outpatient Clinic of the Palermo Province for Vaccinations in a Protected Environment at the University Hospital "Paolo Giaccone" of Palermo**

Serena Riolo <sup>1</sup>, Alessia Pieri <sup>1</sup>, Sabina Paolizzo <sup>1</sup>, Luca Miraglia <sup>1</sup>, Sara Palmeri <sup>3</sup>, Rosario Ascianto <sup>3</sup>, Maria Angela Randazzo <sup>3</sup>, Santi Maurizio Raineri <sup>4</sup>, Giorgio Graziano <sup>1,2</sup>, Walter Mazzucco <sup>1,2</sup>, Claudio Costantino <sup>1,2</sup>, Francesco Vitale <sup>1,2</sup>

1. *Clinical Epidemiology Unit with Cancer Registry of Palermo and Province, University Hospital "Paolo Giaccone" of Palermo*

2. *Department of Health Promotion, Maternal-Infant, Internal Medicine and Excellence Specialties "G. D'Alessandro", University of Palermo*

3. *Epidemiology and Prevention Service, Department of Prevention, ASP Palermo*

4. *Anesthesia and Intensive Care Unit, University Hospital "Paolo Giaccone" of Palermo*

Vaccination in a protected environment involves administering one of the vaccinations scheduled in the Vaccination Calendar within a healthcare setting capable of managing potential post-vaccination allergic reactions. This is indicated in cases of severe prior allergies to substances contained in or not contained in vaccines, reactions to previous vaccine doses, or for patients with specific conditions such as severe asthma, extreme preterm infants, and patients with severe heart disease. In June 2023, the University Hospital "Paolo Giaccone" and the Provincial Health Authority of Palermo signed an agreement to standardize the vaccination process for high-risk allergic individuals. Referrals are made by ASP vaccination clinics or primary care pediatricians. Subsequently, ASP and AOUP staff evaluate the clinical documentation for allergic diathesis and, if eligible, the individual is scheduled for a date when dedicated staff is present. Since the agreement was signed, 7 vaccinations were administered in a protected environment. The vaccinations performed were the following: hexavalent, conjugate pneumococcus, and subsequently meningococcus B due to a previous allergic reaction to a dose of meningococcus B; hexavalent and conjugate pneumococcus due to a previous allergic reaction to the same vaccines; 5 MMRV vaccinations due to recognized egg protein allergy through blood tests. All vaccinations did not result in any type of allergic reaction either during the short observation period or subsequently throughout the day. Severe allergic reactions to vaccines are rare. It is essential to implement protected vaccination clinics in every healthcare facility to ensure vaccination for high-risk allergic individuals, thereby increasing vaccination coverage in "hesitant" populations such as children with recognized allergic diathesis.

####

### **Communication in Public Health Education and Residency survey (CiPHERs): A Questionnaire on Health Communication Training for Italian Medical Residents in Hygiene and Preventive Medicine**

Walter Priano <sup>1</sup>, Camilla Lombardo <sup>2</sup>, Ilenia Proietti <sup>2</sup>, Nicole Bonaccorso <sup>1</sup>, Lorenza Nachira <sup>3</sup>, Giovanni Emanuele Ricciardi <sup>4</sup>, Camilla Lugli <sup>5</sup>, Dario Genovese<sup>1</sup>, on behalf of the "Consulta-ci: Communication in Public Health" Working Group of the Consulta dei Medici in Formazione Specialistica of the Italian Society of Hygiene, Preventive Medicine and Public Health (S.It.I.)

*1. Residency School in Hygiene and Preventive Medicine, University of Palermo, Department of Health Promotion, Maternal-Infant, Internal Medicine and Excellence Specialty G. D'Alessandro, University of Palermo*

*2. Residency School in Hygiene and Preventive Medicine, University of L'Aquila, Department of Clinical Medicine, Public Health, Life and Environmental Sciences, University of L'Aquila*

*3. Residency School in Hygiene and Preventive Medicine, Department of Life Sciences and Public Health, Catholic University of the Sacred Heart, Rome*

*4. Residency School in Hygiene and Preventive Medicine, Vita-Salute San Raffaele University, Milan; National Interest PhD Program in One Health Approaches to Infectious Diseases and Life Science Research, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

*5. Residency School in Hygiene and Preventive Medicine, Department of Biomedical, Metabolic and Neurosciences, University of Modena and Reggio Emilia, Modena*

Health Communication is defined by the CDC as "the study and use of communication strategies to inform and influence individual decisions that enhance health." The SARS-CoV-2 pandemic highlighted deficiencies in emergency communication skills among Public Health Specialists.

Therefore, the Working Group of the Consulta dei Medici in Formazione Specialistica "Consulta-ci: Communication in Public Health" of the S.It.I., developed a survey to evaluate the content and quality of training provided in Residency Schools. This cross-sectional observational study is based on the analysis of an evidence-based, anonymous online survey. The survey was built according to the educational objectives outlined into the Decree 68/2015 and includes sections investigating, through multiple-choice questions and Likert scales, the theoretical and practical training in Health Communication. The response rate was 9.5% (200 participants out of 2100 current residents). More than 70% of the sample recognized the following qualities of a good communicator: ability to select the target population, show empathy and respect towards the audience, recognize and debunk false information while disseminating evidence-based, clear, and accurate information. Half of the sample received specific training, delivered mainly through lectures (74%) by specialists in Hygiene and Preventive Medicine (52%). Topics primarily covered effective communication with the public (70%). Less emphasis was put on crisis management, digital communication/social media, and ethics (<25%). Only 50% of the sample acknowledged the role of a good communicator in promoting public participation and advocacy for better health policies. It is essential to train professionals capable of adequately responding to the challenges of Public Health by enhancing the curriculum with current topics, in alignment with the Core Competencies for Public Health Professionals.

####

**Perception of risk related to climate change among general population in Campania Region**

Concetta Paola Pelullo <sup>1</sup>, Patrizia Calella <sup>1</sup>, Valeria Di Onofrio <sup>2</sup>, Vincenza Sansone <sup>3</sup>, Giovanna Paduano <sup>3</sup>, Mario Postiglione <sup>3</sup>, Gaia D'Antonio <sup>3</sup>, Gaia Battista <sup>3</sup>, Francesca Gallè <sup>1</sup>

*1. Department of Medical, Human Movement and Well-being Sciences, University of Naples "Parthenope", Naples.*

*2. Department of Sciences and Technologies, University of Naples "Parthenope", Naples.*

*3. Department of Experimental Medicine, University of Campania "Luigi Vanvitelli", Naples.*

Climate change not only causes environmental problems, but also represents a significant threat to health. Therefore, it is interesting to conduct a study evaluating the perception of risk related to climate change among general population in Campania region. This study was conducted between February and March 2024, in a sample of adults from the Campania region. The information was collected by completing an anonymous questionnaire, divided into five sections: 1) socio-demographic characteristics; 2) risk perception; 3) behaviors; 4) sources of information and need for additional information on climate change. The preliminary results were related to a sample of 300 subjects, with an average age of 45 years (ranging from 28 to 70) and 74% were females. Regarding attitude, climate change risk perception is highly concerning for 50.8%. Furthermore, 36% believe that climate change will have negative effects on them and 70.4% believe that it will have negative effects on future generations. As regard behaviors on environmental issues, 78.3% turn off the lights at home when they are not in use, 71.8% ask others to turn off the water when it is not in use, 60% close the refrigerator door while deciding what to get out of it and 51.2% recycle waste at home. The logistic regression model highlighted that concern about climate change is associated with older age, and female gender. This preliminary results highlighted a low risk perception regarding climate change. Therefore, these



findings suggest the need to plan and design interventions on climate change and health.

####

**Promotion and administration of recommended vaccination for cancer Patients by Health Assistants in the Medical Oncology Department of the University Hospital of Palermo**

Luca Miraglia <sup>1</sup>, Alessia Pieri <sup>1</sup>, Sabina Paolizzo <sup>1</sup>, Serena Riolo <sup>1</sup>, Salvatore Culetta <sup>2</sup>, Chiara Meazza <sup>2</sup>, Luciano D'Azzo <sup>2</sup>, Francesco Balsamo <sup>2</sup>, Valeria Spinnato <sup>2</sup>, Giuseppe Dattolo <sup>3</sup>, Valerio Cristina <sup>3</sup>, Antonio Russo <sup>2,3</sup>, Giorgio Graziano <sup>1,2</sup>, Walter Mazzucco <sup>1,2</sup>, Claudio Costantino <sup>1,2</sup>, Francesco Vitale <sup>1,2</sup>

1. Hospital Unit of Clinical Epidemiology with Cancer Registry of Palermo and Province, University Hospital of Palermo
2. Department of Health Promotion, Maternal-Infant, Internal and Specialist Medicine of Excellence "G. D'Alessandro", University of Palermo
3. Hospital Unit Medical Oncology, University Hospital of Palermo

Cancer is the second leading cause of death after cardiovascular diseases, accounting for 29% of deaths. This causes significant distress in cancer patients. In 2020, there were 380,000 new diagnoses, a segment of the population that should be protected against vaccine-preventable diseases. According to two recent AIOM surveys conducted among cancer patients and oncologists, 20% of cancer patients have never discussed vaccinations with their oncologist; 56% are unaware of the risks of not being immunized, and 80% do not know that proper vaccination can help improve the outcomes of cancer therapies. An observational study was conducted to identify the propensity for vaccination in cancer patients, considering them as a vulnerable population. To prepare the question-

naire (operator-dependent), the HAPA model was applied, based on validated questions, using five skills to investigate the predisposition to change. The aim of the study was to explore the motivations driving patients to adhere to vaccination and to determine what interventions should be implemented to promote it. Of the 170 respondents, 47 (28%) are not willing to be vaccinated; 123 (72%) are potentially willing to get vaccinated, but only 21 (17%) declare to be sufficiently informed about the most recommended vaccinations for them. A positive estimate regarding vaccination intention was extracted from the sample. Based on the obtained results, it was decided to design a vaccination promotion intervention, organized by the Health Assistants of University Hospital of Palermo, for the target group of reference.

####

**Surgical Site Infections in Patients Undergoing Cardiac Surgery: Results of One Year of Active Surveillance in a Teaching Hospital in Calabria**

Emanuele Basile <sup>1</sup>, Francesca Licata <sup>1</sup>, Giuseppe Lorenzo Donato <sup>1</sup>, Simona De Rose <sup>1</sup>, Emma Antonia Citrino <sup>2</sup>, Aida Bianco <sup>2</sup>

- <sup>1</sup> Department of Health Sciences, "Magna Græcia" University of Catanzaro
- <sup>2</sup> Department of Medical and Surgical Sciences, "Magna Græcia" University of Catanzaro

The main objective of the present study was to investigate the incidence of surgical site infections (SSIs) in patients admitted to the Cardiothoracic Intensive Care Unit of the "R. Dulbecco" Teaching Hospital in Catanzaro during the year 2023. The surveillance system included all patients undergoing cardiac surgery. Data were collected prospectively on a specifically designed form using medical records, comprising charts, daily flow

sheets, laboratory and radiographic results, and through interviews with the staff. The surveillance continued with post-discharge telephone follow-ups to obtain information on the postoperative course and the possible onset of SSIs. The SNICH2 protocol from the Italian National Institute of Health (ISS) was used for the diagnosis of SSIs. During the study period, the surveillance included 188 patients, with an average age of 66.9 years. The ASA score was >3 in 76.7% of cases. The average duration of the surgery was 271.5 minutes. The most frequent categories of surgery were coronary artery bypass grafting with chest incision (CBGB) and open chest procedures involving valves and coronary septa (CARD). During the surveillance, 3 cases of superficial SSIs were detected: 2 in patients undergoing CBGB procedures, with an Infection Risk Index (IRI) of 0 and 2, respectively, and one in a patient undergoing a CARD procedure with an IRI of 2. The cumulative incidence (CI) was 1.5%, and the incidence rate (IDR) was 0.5% infections per 1000 days of hospitalization. The data collected show a CI of 16.6% for the CBGB category with an IRI of 2-3, and of 25% for the CARD procedures with an IRI of 2-3. The IR was 6.2% for the CBGB category with an IRI of 2-3, and 3.3% for the CARD procedures with an IRI of 2-3. The data collected show, for both the CBGB and CARD procedures, CI and IR values higher than the reference values. However, the comparison of infection risk indicators should be interpreted with caution, given the small sample size of the study.

####

#### **Quality of sleep after COVID-19 infection: a study in Southern Italy**

Giovanna Paduano <sup>1</sup>, Vincenza Sansone <sup>1</sup>, Silvia Angelillo <sup>2</sup>, Gabriella Di Giuseppe <sup>1</sup>,

Carmelo Giuseppe Angelo Nobile <sup>3</sup>

*1. Department of Experimental Medicine, University of Campania "Luigi Vanvitelli", Naples, Italy*

*2. Department of Health Sciences, University of Catanzaro "Magna Graecia", Catanzaro, Italy*

*3. Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, Arcavacata of Rende, Cosenza, Italy*

COVID-19 pandemic and related social restrictions have been a source of stress for the entire population in recent years. These measures have affected people's sleep quality, and physical and mental well-being. Therefore, it is interesting to evaluate sleep quality in COVID-19-infected individuals in a population in Southern Italy. A cross-sectional study was conducted between March 2022 and January 2023 by self-administration of an anonymous questionnaire developed on Google Forms. The questionnaire, divided into 3 sections, aimed to collect the following information: 1) socio-demographic and anamnestic characteristics; 2) sleep quality assessment; and 3) depression, anxiety and stress assessment. Preliminary data, covering 300 subjects who had COVID-19 infection, show that 74.7% are women with a mean age of 28 years. Regarding the sleep quality, measured using the Pittsburgh Sleep Quality Index (PSQI), almost all of the sample (94.7%) has poor sleep with a PSQI score  $\geq 5$  and a mean of 10.1. The PSQI score is found to be increased in those with severe or extremely severe depression and stress, and in those who lost a family member during the pandemic. Concerning the different components of sleep, 59.1% have used sleeping medications in the past 12 months. This behavior is more frequent in the older, in those employed, in those who have reported reduced social relationships during the pandemic, in those who had COVID-19 in the first wave, and those who lost a fami-

ly member during the pandemic. Preliminary results show that individuals with COVID-19 have poor sleep quality and suggest investigating whether such disorders persist after the pandemic to implement necessary public health interventions.

####

### **The evaluation of sleep quality in a sample of healthcare workers**

Vincenza Sansone <sup>1</sup>, Giovanna Paduano <sup>1</sup>, Angela Fioretti <sup>1</sup>, Sebastiano Strangio <sup>2</sup>, Francesca Franzè <sup>2</sup>, Silvia Angelillo <sup>2</sup>, Carmelo Giuseppe Angelo Nobile <sup>3</sup>, Gabriella Di Giuseppe <sup>1</sup>

1. *Department of Experimental Medicine, University of Campania "Luigi Vanvitelli", Naples, Italy*

2. *Department of Health Sciences, University of Catanzaro "Magna Græcia", Catanzaro*

3. *Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, Cosenza, Italy*

Sleep is a central mechanism for quality of life. Healthcare workers are employed in day and/or night shifts and often experience poor sleep quality and duration. This leads to several consequences, resulting in an increased risk of error and a decrease in the quality of work. This study aims to evaluate the sleep quality in a sample of healthcare workers in Southern Italy. From February to March 2024, a cross-sectional study was conducted through a self-administered anonymous questionnaire, using the Google Form. The questionnaire aimed to collect socio-demographic, anamnestic, and work-related information, and to evaluate sleep quality. Preliminary data, describing a sample of 225 healthcare workers, showed that 67.5% were women with an average age of 35.8 years (23-67). Exploring work-related information,

62.2% of participants worked night shifts, and, among them, 43.6% for more than 5 years, with a mean of 6.1 nights per month. Investigating lifestyles, 32.4% of respondents reported smoking, with an average of 12.6 cigarettes/day; 50.2% reported to do not do physical activity. Assessing sleep quality, measured using the Pittsburgh Sleep Quality Index (PSQI), 87.1% of respondents stated poor sleep quality with a PSQI score  $\geq 5$  and an average of 9.4 (1-21). The results of multivariate analysis showed that women and younger were more likely to have a higher PSQI score. In addition, 43.6% believed that work activities could impact their sleep quality, and more than half of the participants (53.8%) perceived the rest between shifts as not sufficient. Preliminary results show poor sleep quality among healthcare workers and suggest implementing public health interventions to improve their working conditions.

####

### **Vaccine open days for the general population of Palermo and its province: results of an experience conducted in cooperation with the Vaccination Center of the University Hospital "Paolo Giaccone" of Palermo and the Prevention department of the Palermo LHA**

Elena Zarccone <sup>1,2</sup>, Marcello Tocco <sup>1,2</sup>, Laura Pipitone <sup>1,2</sup>, Selene Avona <sup>1,2</sup>, Simona Artino Innaria <sup>1,2</sup>, Andrea Oddo <sup>1,2</sup>, Francesco Galletta <sup>1,2</sup>, Germana Canzoneri <sup>1,2</sup>, Giulio Trapani <sup>1,2</sup>, Tania Vitello <sup>1,2</sup>, Giuseppe Vella <sup>1,2</sup>, Eliana Giambelluca <sup>1,2</sup>, Alessia Pieri <sup>1,2</sup>, Luca Miraglia <sup>1,2</sup>, Serena Riolo <sup>1,2</sup>, Sabina Paolizzo <sup>1,2</sup>, Rosario Ascitutto <sup>3</sup>, Claudia Sannasardo <sup>3</sup>, Sara Palmeri <sup>3</sup>, Maria Angela Randazzo <sup>3</sup>, Giorgio Graziano <sup>1,2</sup>, Walter Mazzucco <sup>1,2</sup>, Alessandra Casuccio <sup>1,2</sup>, Francesco Vitale v Claudio Costantino <sup>1,2</sup>

1. Department of Health Promotion, Mater-

nal and Infant Care, Internal Medicine and Specialties (PROMISE) “G.D’Alessandro”, University of Palermo ,Palermo Italy;

2. Vaccination Center of the University Hospital “Paolo Giaccone” of Palermo, Italy

3. Department of Prevention, Prevention and Epidemiology Unit, Palermo Local Health Authority, Palermo, Italy

To increase vaccination coverage rates, it is necessary to offer an easily and fair accessibility to territorial vaccination centers for the general population. This could be reached through standard opening during afternoons and, on rotation, during pre-holidays or promoting open days to improve vaccination adherence among families with full-time workers and fragile and disadvantaged categories, as recommended in the new 2023-25 Sicily Region Immunization Calendar. In this perspective, two open days on 15 and 16 December 2023 have been organized at the vaccination center of the University Hospital “Paolo Giaccone” of Palermo and at the Trapezoidal Pier of the Palermo Port Authority. The two open days, in collaboration between the vaccination center of the University Hospital of Palermo and the prevention department of the Palermo local health authority (LHA) of Palermo, have the main objective to promote adherence to Covid-19 and Influenza seasonal vaccinations, making easier to access for general population. In the following days was conducted a cross-sectional survey through an anonymous questionnaire, carried out on Google Forms composed of 40 items about the assessment of the accessibility and the organization of the vaccination services in the Province of Palermo. Overall, 551 subjects participated to the open days and 714 vaccines have been administered (163 in co-administration, mainly flu and covid-19). Among vaccine administered, 515 were against Covid-19, 108 against influenza and 91 against other vaccine-preventable diseases. Of

the 146 respondents to the questionnaire, 50% knew about the vaccination open days and 47.2% of these reported that they aware thanks to social media, 26.4% aware thanks of information through newspapers/web sites, and the remaining 26.4% aware thanks to official websites (UH and Municipality of Palermo). The 96.4% of respondents considerably appreciated to have free access to the vaccination services during Open Days without a reservation. Open days are an important strategy for implementing vaccination coverage rates, especially during the autumn/winter season, when the maximum of protection is needed against seasonal vaccine-preventable respiratory diseases, like flu and covid, in limited time-range. Ours results showed a great advantage for the administration of the COVID-19 vaccine, which was hardly accessible to the general population this year in Sicily, due to an insufficient cooperation of General Medicine and Pharmacies.

####

### **Ventilator-Associated Pneumonia in Intensive Care Units: Results of a Five-Year Prospective Surveillance in a Teaching Hospital in Calabria**

Simona De Rose 1, Emma Antonia Citrino 2, Giuseppe Lorenzo Donato 1, Emanuele Basile 1, Francesca Licata 1, Aida Bianco 2

1. *Department of Health Sciences, "Magna Græcia" University of Catanzaro*

2. *Department of Medical and Surgical Sciences, "Magna Græcia" University of Catanzaro*

Ventilator-associated pneumonia (VAP) in patients undergoing mechanical ventilation (MV) is responsible for prolonged stay in the Intensive Care Unit (ICU). The objective of the study was to investigate the trend of VAP in the 2018-2022 period in patients admitted to the ICU of the "R.



Dulbecco" Teaching Hospital in Catanzaro, since active epidemiological surveillance is an effective preventive intervention. All patients who were admitted with a 3-day stay to the ICU were included. Data were collected prospectively on a specifically designed form using medical records, comprising charts, daily flow sheets, laboratory and radiographic results, and through interviews with the healthcare staff. The anamnestic and clinical characteristics of patients were investigated (e.g., intrinsic and extrinsic risk factors, length of stay and MV). The ECDC HAI-net ICU v2.2 protocol was used for the diagnosis of VAP and incidence calculation. Of the 743 patients included in the surveillance, 58 VAP were detected with a cumulative incidence of 10 per 100 patients in 2018, 7.9 in 2019, 7.7 in 2020, 5.2 in 2021, 8.1 in 2022 and an incidence rate of 23.2 per 1000 intubation days in 2018, 14.3 in 2019, 12.8 in 2020, 13.7 in 2021 and 17 in 2022. With regard to the pattern of antimicrobial-resistance, overall 63.8% of the isolates showed a multidrug resistance (MDR) profile, after a decreasing trend from 2018 (94.7%) to 2021 (33.3%), a growth of proportion of MDR isolates was recorded in 2022 (50%). The trend in VAP incidence and prevalence of MDR isolates may be associated with increased countermeasures and prevention measures during the SARS-CoV-2 pandemic. Since a significant proportion of these infections are considered preventable, reinforcement of the evidence-based preventive procedures and an antimicrobial stewardship strategy are needed to promote targeted preventive interventions and appropriate use of antibiotics in all care settings.

####

**Importance of afternoon openings for the improvement of the vaccination offer: an analysis conducted at the LHA**

## of Catania

Andrea Cutuli 1, Marco Palella 1, Andrea Scalmato 1, Enrica Maria Esposito 1, Vittorio Grieco 1, i Gabriele Giorgiann2, Rosario Vinci 2

1. *Residency training program in Hygiene and Preventive Medicine - University of Catania*

2. *UOC Public Health, Epidemiology and Preventive Medicine - Department of Prevention LHA of Catania*

Current vaccination coverage at regional level is lower than the national level. As stated in the Vaccination Calendar for Life of the Sicilian Region of Italy, it is essential to implement afternoon openings because they offer access to those who are unable to vaccinate during the morning hours for various reasons. Thus the importance to assess the impact on hexavalent and anti-HPV vaccinations. Data on vaccinations performed during 2023 was extracted from the vaccination registry of the Province of Catania. Then it was performed an analysis stratified by time of day and a comparison between the number of vaccinations administered and the time slots available during the opening hours. In 2023, vaccinations carried out during afternoon openings accounted for 24% of the total. The afternoon time slots were 26,532 while in the morning were 121,543, a ratio of 21.8%. The main ones were: anti-HPV vaccine (23%), anti-meningococcal ACWY (10.4%), MPRV (9.9%), and hexavalent (9%). A total of 1049 first doses of anti-HPV vaccine out of a total of 2120 (49.4%) were given in the afternoon, corresponding to 18.2% of all the first doses given in the afternoon. In the morning time slot, 7604 first doses of anti-HPV were given out of a total of 16395 (46.7%), corresponding to 9.1% of all the first doses given in the morning. With regard to the hexavalent vaccine, 299 (36.3%) first doses were given

out of a total of 823 in the afternoon, corresponding to 5.2% of all first doses given in the afternoon; while in the anti-morning time slot 8488 (33.9%) first doses were given out of a total of 24965, corresponding to 10.3% of all first doses given in the morning. The results show the importance of afternoon openings, especially for the offer to adolescents, particularly against HPV. Increasing the vaccination offer in the afternoon is important, but depends on available resources, internal organization and specific local regulations.

####

### **The economic impact of the COVID-19 pandemic on the Health Service for psychiatric disorders in Southern Italy**

Caterina Elisabetta Rizzo, Caterina Castellana, Giovanni Genovese, Raffaele Squeri, Cristina Genovese

*Department of Biomedical Sciences, Dentistry and Morphological and Functional Images, University of Messina*

Mental health around the world has been severely affected by the COVID-19 pandemic with a significant increase in anxiety disorders, depression and other psychiatric-related stress disorders due to risk factors such as social isolation, economic instability, and fear of contagion. Few studies currently assess how the pandemic affected the number of new psychiatric cases at the National Health Service (NHS). This study intends to evaluate the financial burden that the NHS bears from the prescription of psychiatric drugs in LHU of Messina. Pharmacological prescription (ATC class: N05) flows in Messina's LHU were assessed between January 2020 and December 2023 using the "Farmanalisi" program. Patients' sociodemographic information were categorized according

to their Defined Daily Dose (DDD), gross expenditure, and socio-health district. A preliminary statistical analysis was performed on 409,109 psychotropic prescriptions in total. Data indicates a growing trend in psychotropic prescriptions (+21% comparing 2020 with 2023). There has been a +0.5% increase in the age of the population being considered for these prescriptions (age in 2023:  $64.44 \pm 20.92$ ; age in 2020:  $63.83 \pm 19.50$ ) Females accounted for 60% of the prescriptions, despite a trend reversal in both genders: a +270% increase among males and a -1.75% decrease among females. During the pandemic years, the DDD also rose significantly (by about 141%). The discrepancy between our data and the nation's medical treatment and economic resource utilization—which still accounts for only 3.4% of healthcare spending, compared to 10% in high-income nations—is probably due to an increase in new disease cases. This emphasizes the need for more research to completely understand the long-term mental health implications of the epidemic, as well as the significance of focused treatments to promote mental health and reduce its detrimental psychological impacts.

####

### **MadoDIET: A Cross-Sectional Study on Adherence to the Mediterranean Diet in a Sample of Residents from the Madonie Region Compared to a Sample of Residents from the City of Palermo**

Andrea La Marca, Martina Sciortino, Selene Avona, Claudia Alba, Annalisa Allegra, Salvatore Lanzalaco, Claudia Migliazzo, Marzia Virga, Giorgio Graziano, Carmelo Massimo Maida, Fabio Tramuto, Walter Mazzucco, Francesco Vitale, Alessandra Casuccio, Claudio Costantino

*Department of Health Promotion, Maternal and Child Health, Internal and Specialist Medicine of Excellence "G. D'Alessandro," University of Palermo, Palermo, Italy*

MadoDIET project aimed at comparing lifestyle and dietary habits between residents of the City of Palermo and the Mountain Region of Madonie (in the Province of Palermo at 100km of distance), specifically to evaluate adherence to the Mediterranean Diet and understand the impact of different geographical areas on participants' dietary choices and lifestyle. Between August 2022 and April 2023, 552 residents from the Madonie Area and 563 from Palermo City were interviewed using a validated, anonymous, self-administered questionnaire. This questionnaire explored sociodemographic aspects, dietary habits, and lifestyle, as well as evaluated adherence to the Mediterranean Diet through a previously validated and standardized score used in other studies. A significant percentage of the sample is overweight/obese (40.8%), with a doubled obesity rate in the Madonie population (6%) compared to that of Palermo (3.5%). Additionally, the data show lower adherence to the Mediterranean Diet (62.7%) among residents of the Madonie compared to Palermo residents (72.8%). An analysis of dietary habits revealed significant differences between the two samples, with lower consumption of fruits, vegetables, and legumes in the Madonie compared to Palermo Area. Promoting greater adherence to the Mediterranean Diet and educating communities, including smaller and more isolated ones like the Madonie, about healthy food choices could help improve the general health of the population and prevent chronic diseases. Interventions in this regard could be particularly beneficial in areas like the Madonie, where there is lower adherence to the traditional Mediterranean diet,

linked to higher consumption of red meat, processed meats, and cheeses (although often locally sourced and of higher quality than those from large commercial distribution chains) and lower consumption of bluefish and fruits and vegetables.

####

**Catch up activity (November 2023 / March 2024) in LHA of Catania for vaccination included in the Regional Immunization Schedule: outcomes of the intervention**

Scalmato Andrea 1, Cutuli Andrea 1, Palella Marco 1, Grieco Vittorio 1, Chillari Chiara 2, Torrisi Giulia 1, Giorgianni Gabriele 3, Morello Mario 3

1. *School of specialization in Hygiene and preventive Medicine of Catania University*
2. *School of specialization in Hygiene and preventive Medicine of Verona University*
3. *UOC Public Health, Epidemiology and Preventive Medicine, Prevention Department of Catania.*

The vaccination coverages in Catania for the compulsory vaccinations result to be of 82.1 % for babies of 24 months, (cohort 2021), and of 92.5 % for babies of 48 months (cohort 2019) for the equivalent vaccines, of 88% for babies of 24 months and of 97.4% for babies of 48 months for the MPRV vaccine. Catch up activity can be important in the recovery of lost health care. We have decided to analyse the reasons of the missed turn up for the vaccine appointment among booked people. We have called 263 people that haven't gone to the vaccination clinics between November 2023 and March 2024 in Catania city. A questionnaire has been administered for investigating the reasons that were registered on specific cards and was evaluated for every person, his vaccinal state rela-

tive to the compulsory vaccines through vaccination registry; in the end of the call we have proposed a new reservation. We have contacted 263 people; the reasons of the missed turn up were: a. "child 's disease" in 159/263(60.4%); b. "unavailability of the parent" in 49/263 (18.6%); c. "forgetfulness"41/263 (15.6%); d. "other"12/263 (4.6%); e. "parent' s disease "2/263(0.8%). Of this sample 151/263(0.8%) appears to be in order with the compulsory vaccinations; 235 people on 263 were booked for a following appointment (89.3%). Among the 28 that haven't been booked 13 don't result in rule, 143/235(60.8%) have gone to the appointment. Despite catch-up activity entails a not indifferent commitment of resources, this is an important instrument for recovering a slice of population that doesn't go to the different appointments in the clinics; this activity doesn't results sufficient because a slice of population remains, that despite the active call keeps on procrastinate the vaccination determining the phenomenon of Vaccine Hesitancy.

####

#### **Measles in the province of Catania: analysis from January to April 2024**

Giulia Torrisi 1, Enrica Maria Esposito 1, Chiara Chillari 2, Gabriele Giorgianni 3, Erika Barbagallo 3, Andrea Scalmato 1

1. *Residency training program in Hygiene and Preventive Medicine - University of Catania*

2. *Residency training program in Hygiene and Preventive Medicine - University of Verona*

3. *UOC Public Health, Epidemiology and Preventive Medicine - Prevention Department Asp 3 Catania*

Measles is a highly contagious infectious viral disease ( $R_0=18$ ). The Italian Na-

tional Plan for the eradication of Measles and Rubella (Pnemorc) 2019 - 2023 (draft) envisaged the elimination of endemic measles, nevertheless the ISS Measles-Rubella bulletin no. 71 (04/24), from 01/01/24 to 31/03/24 records a new epidemic that currently presents a first impact: 213 cases, median age 31 years, 48.8% of cases were hospitalized. Of the reported cases, 85% were laboratory confirmed and 88% were not vaccinated. The province of Catania was also affected by the epidemic, which is described below. The notifications received by the Territorial Epidemiology Unit were collected. The reported cases were analyzed by vaccination status, age group, symptoms, complications and hospital admissions. A total of 57 cases were reported during the period under review (1/1/24-9/4/24): 6 in January, 23 in February, 22 in March, 6 in April. The reports came from hospitals (32), PLS (19), GPs (2) and other physicians (4). The distribution per age group was: < 1 year (3), 1-4 yr (15), 5-14 yr (21), 15-39 yr (15), 40-64 yr(2), > 65 yr(1), while the median age was 7 years. With regard to vaccination status, 50 cases were unvaccinated (87.52%), 7 (12%) vaccinated with a single dose. There were 2 hospital clusters (9 and 8 cases). In addition, a case was reported in a pregnant woman (unvaccinated, age 20 yr), who had a preterm delivery (35th week) with infection of the newborn who presented respiratory distress. The average difference between symptom onset and reporting was 7 days. The data collected confirm that the epidemic primarily concerns unvaccinated individuals. The low median age is probably linked to the coverage in the first age groups. While confirming the validity of Law 119/2017 on mandatory vaccination, it is highlighted that it is necessary to improve coverage in children and young adults in order to decrease the quota of susceptibles.



####

**HPV vaccination in cohorts of women born before 1996: trend analysis**

Giulia Enrica Maria Esposito 1, Giulia Torrisi 1, Andrea Cutuli 1, Marco Palella 1, Gabriele Giorgianni 2, Roberto Furnari 2, Chiara Chillari 3

1. *School of Hygiene and Preventive Medicine-University of Catania*
2. *UOC Public Health, Epidemiology and Preventive Medicine LHA Catania*
3. *School of Hygiene and Preventive Medicine-University of Verona*

From 2008 the HPV vaccine has been freely offered to women in Sicily born from 1996 onward. The current 2023 regional calendar allows for free vaccination to extend to women born before 1996 with risk factors (CIN2+/HPV DNA+ lesions or higher and/or immunodepressed). The LHA of Catania at 31/12/2023, cohort 2009 records coverage for the 1st dose of 39%. The ISS data record (at 31/12/2022) for the same cohort a national coverage of 69% vs Sicily 45.8%. In Catania, adherence to vaccination by women who are not actively offered it has increased in recent years. The UOC Epidemiology considered it useful to start the analysis in the latter adherence band to better understand the determinants. Data was extracted from the Vaccine Registry concerning first doses in women in 2021/23. The overall figure was then compared with that of the cohorts prior to 96. The distribution of 14,050 first doses are as follows: 5028 (2021), 4678(2022), 4344(2023). The percentage shares of doses administered in women born before 96 are 1130 (22.5%) in 2021, 1557 (33.3%) in 2022 and 1555 (35.8%) in 2023. Compared to the reported coverage in girls targeted by the active offer, there is an increasing trend of adhesion in women born pre

1996, which suggests adhesion for secondary prevention. This trend deserves further investigation by a sample study analysing reasons for adherence (presence of lesions, medical advice, etc.) through phone questionnaire. The data observed could also be linked to indications contained in the Shared Guidelines for the Prevention of Cervical Cancer of 21.07.2020 (ISS).

####

**Evaluation of knowledge and attitude about vaccinations in pregnancy and increase in vaccination coverage rates against pertussis, influenza and Covid-19, following a formative intervention during childbirth classes in the province of Palermo**

Laura Pipitone 1, Elena Zarccone 1, Marcello Tocco 1, Arianna Conforto 1, Sofia Gattuso 1, Selene Avona 1, Claudia Alba 1, Annalisa Allegra 1, Antonio Simone Laganà 2, Valeria Farina 2, Maria Giordano 2, Giulia Cavasio 2, Salvatore Gueli Alletti 3, Piero Causa 3, Nicole Bonaccorso 1,4, Martina Sciortino 1, Serena Riolo 1, Alessia Pieri 1, Sabina Paolizzo 1, Giorgio Graziano 1, Walter Mazzucco 1, Francesco Vitale 1, Claudio Costantino 1

1. *Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Excellence Specialties "G. D'Alessandro", University of Palermo, Palermo*
2. *Unit of Obstetrics and Gynecology, "University Hospital of Palermo, Palermo*
3. *Department of Obstetrics and Gynecology, Ospedale Buccheri La Ferla - Fatebenefratelli*
4. *PhD National Programme in One Health approaches to infectious diseases and life science research, Department of Public Health, Experimental and Forensics Medicine, University of Pavia*

Vaccination counselling in childbirth classes is essential to promote "maternal immunization" against pertussis, influenza and COVID-19. It is also important to promote the "cocoon strategy" by vaccinating family members in close contact with the infant less than 8 months of age and to provide information about the child's first vaccinations during the first 18 months of life. From November 2023 to March 2024, an equipe of medical doctors from the University of Palermo conducted a cross-sectional survey with an anonymous Google Form questionnaire to investigate knowledge, attitudes and practices of immunization in pregnant women attending antenatal courses in two hospitals in the Province of Palermo. After completing the questionnaire, an educational intervention on maternal immunization (against pertussis, influenza and COVID), cocoon strategy and vaccination of newborns during first year of life. After thirty days from intervention, women were contacted again by phone/email to assess whether they complied with the vaccinations requested. 96 women were enrolled, of whom 78.1%, 70% and 78.1% respectively were aware that influenza, COVID-19 and pertussis vaccinations are strongly recommended during pregnancy. Among mothers re-contacted after one month who provided feedback, we found an adherence to influenza vaccination of 30% (with a post-intervention increase of 15%), COVID-19 vaccination of 10% (post-intervention increase: 3%) and pertussis vaccination of 65% (post-intervention increase: 47%). The results showed low COVID-19 coverage among pregnant women, in line with the national average vaccination rates, but excellent results for pertussis and influenza vaccinations, better than regional and national coverage rates. Vaccination counselling on "maternal immunization", "cocooning strategy" and neonatal im-

munization should be standardized during the childbirth classes at Regional Level in order to improve knowledge, attitudes and adherence to vaccination among pregnant women.

####

#### **MASK survey: Motivation to Adhesion to Screening of colorectal Cancer in the Health District of Carini (Palermo)**

Patrizia Ferro 1, Alessandra Fallucca 1, Davide Graci 1, Luca Mazzeo 1, Angela Giusti 2, Stefania Spila Alegiani 3, Walter Pollina Addario<sup>4</sup>, Lucia Li Sacchi 4, Luigi Mario Valenza 5, Cristina Mauceri 6, Renato Scillieri 6, Vincenzo Restivo 7, Alessandra Casuccio 1 and MASK group

**MASK group:** Salvatore Scodotto, Antonello Marras, Antonietta Di Nola, Alessia Di Prima, Stefania Dore, Bruno Cosenza, Ylenia Maria Dinaro, Pierfranco Mirabile, Rocco Cesare Parisi, Marilena Spadafora, Antonietta Torrisi, Antonella Ippolito, Francesca Zambri, Alberto Perra

1. *Section of Hygiene, Department Promise, University of Palermo*
2. *Higher Institute of Health, National Centre for Disease Prevention and The Promotion of Health, Rome*
3. *Higher Institute of Health, National Centre for Research and Pre-Clinical and Clinical Drug Evaluation, Rome*
4. *Sicilian Region, Ministry of Health, 5. Department of Health Activities and Epidemiological Observatory, Palermo*
5. *Unit Screening Management Centre, Local Health Authority, Palermo*
6. *Unit Screening Management Centre, Provincial Health Authority, Catania*
7. *University of Enna 'Kore'*

In Italy, colorectal cancer is the third neoplasia in men and the second in women. Although colorectal screening reduces mortality, national uptake is low, with a

large gradient in North-South. As part of the project "Strengthening the support network for the monitoring and evaluation activities of the Regional Prevention Plan" (PROSPECT 2), a study was carried out with the aim to analysing the determinants of adherence to the Faecal Immunochemical Test (FIT). A telephone interview was conducted with 87 subjects from the District of Carini (January-June 2023), using a questionnaire based on the Health Action Process Approach (HAPA) cognitive model. Differences between the participating and non-participating groups for quantitative variables were assessed by the Student's test and the Wilcoxon-Mann-Whitney test; for qualitative variables, Chi2 test. Multivariable logistic regression was performed to evaluate factors associated with taking the test at least once in your life and in the past 2 years. The collected data were analysed using Stata MP14.2 software. Overall, 51% of those people interviewed have taken the FIT at least once in their life and 35% in the last 2 years. Positive trend of association with adherence at least once in life: reception of the invitation letter (adj-OR=3.74; p=0.057) and advice from the family doctor (adj-OR=3.58; p=0.061). The letter also influenced successfully acceptance in the last 2 years, significantly (adj-OR:15.24; p≤0.01). Subjects with a high HAPA self-efficacy score adhered to more over the lifetime (adj-OR=4.53; p=0.026) and in the last 2 years (adj-OR=9.60; p=0.027). The following study provides the regional ASPs with purpose to support the design of patient-oriented activities and services aimed at encouraging greater adherence to colorectal screening.

####

**Biological risk: systematic review of the literature relating to needle-stick and sharp injuries in hospital environments**

Tania Vitello, Luigi Zagra, Rosario Piro, Luciano D'Azzo, Alessandro Carubia, Angelo Fertitta, Miriam Belluzzo, Francesco Balsamo, Francesco Vitale, Giorgio Graziano, Walter Mazzucco, Claudio Costantino

*Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Excellence Specialties "G. D'Alessandro", University of Palermo, Palermo*

In hospital environments, healthcare workers are continuously and inevitably exposed to biological risks. This type of risk typically derives from accidental needlestick injuries, cuts and mucocutaneous contact with biological fluids or materials. A research was conducted on one of the main databases of scientific literature: PubMed. A total of 16 articles were chosen after a careful reading of the titles, abstracts and entire articles. The articles analyzed aim to investigate the impact that this case study has on the selected population, describing characteristics of the clinical practices adopted. Furthermore, healthcare workers who did not have adequate training on infection prevention were 3.36 times more likely to be exposed to BBF than those who had adequate training. This study found that the risk of INS due to invasive treatments and nursing procedures was significantly associated with factors such as student gender, age, night shift frequency, injection frequency, lack of safety training, knowledge of safety management policies, and lack of use of PPE. To reduce injuries, prevention efforts should focus on safety equipment, the work environment, and increased training on prevention and procedures. Training should begin with undergraduate nursing students to apply what they have learned in classroom and clinical training.

####

**Monitoring of SARS-CoV-2 and antimicrobial resistance genes in wastewater samples from Sicily, Italy**

Maria Clara La Rosa, Martina Barchitta, Elisabetta Campisi, Giorgia Cappuccio, Giuliana Favara, Erminia Di Liberto, Claudia Ojeda Granados, Claudia La Mastra, Roberta Magnano San Lio, Maria Scandura, Andrea Maugeri, Antonella Agodi

*Dipartimento di Scienze Mediche Chirurgiche e Tecnologie Avanzate "GF Ingrassia", Università degli Studi di Catania, 95123, Catania, Italia*

Wastewater-Based Epidemiology is a valuable tool to monitor the spread of pathogens, such as SARS-CoV-2, in the population and to detect epidemic outbreaks at an early stage. Additionally, it utilizes wastewater as a dynamic source for investigating antibiotic resistance genes (ARGs) and studying the prevalence of resistance in bacterial strains associated with infections. The aim of these analyses was to examine the spread of SARS-CoV-2 in the population and investigate whether there is a correlation with the presence of ARGs in samples of urban wastewater. Between February 2022 and March 2023, pre-treatment wastewater samples were collected from three plants: Pantano D'Arce, Siracusa, and Giarre. After a concentration and nucleic acid extraction step, a monthly composite extract was prepared, and real-time PCR was performed to detect the presence of SARS-CoV-2 and assess the relative abundance of the blaSHV, blaOXA, blaNDM, blaVIM, blaTEM, blaCTX-M, blaERMA, and blaERMB genes. The 16S rRNA gene was used to normalize the relative abundances of ARGs. In all 42 composite samples analyzed, the presence of SARS-CoV-2 was detected, while the ARGs consistently identified were blaERMB, blaOXA,

blaTEM, and blaCTX-M, with variations in their relative abundances. A negative correlation was found between the concentration of SARS-CoV-2 and the CT value of the 16S rRNA ( $r=-0.506$ ,  $p=0.001$ ). Specifically, this relationship was significant for the ERMB ( $r=-0.345$ ,  $p=0.025$ ), OXA ( $r=-0.356$ ,  $p=0.021$ ), TEM ( $r=-0.350$ ,  $p=0.023$ ), CTXM-2 ( $r=-0.464$ ,  $p=0.002$ ), and CTXM-4 ( $r=-0.424$ ,  $p=0.005$ ) genes. These preliminary results suggest a higher abundance of ARGs with increasing concentration of SARS-CoV-2 in the analyzed wastewater. However, further analysis are needed to elucidate the mechanisms underlying this relationship.

####

**In Ward vaccination at the University Hospital of Palermo with vaccination against seasonal respiratory viruses (Influenza and COVID)**

Luigi Zagra, Tania Vitello, Alessandro Carubia, Francesco Balsamo, Luciano D'Azzo, Alessia Pieri, Sabina Paolizzo, Francesco Vitale, Giorgio Graziano, Walter Mazzucco, Claudio Costantino

*1. Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Medical Specialties (PROMISE) "G. D'Alessandro", University of Palermo, Palermo, Italy*

People with underlying medical conditions, especially the elderly, are at greater risk of severe complications (severe respiratory infections and acute respiratory distress syndromes) from both seasonal main respiratory viruses: influenza and Covid-19. During the 2023-2024 season for influenza and COVID-19 vaccination that in accordance to the recommendation of the Sicilian Health Department started in mid October and end at the end of February, and in ward active



offer of these two vaccinations to patients admitted at the UH of Palermo was organized. Up to the second week of January 2024, 120 patients were recruited, of whom 64 were men and 56 were women with a median age of 62 and 66 years, respectively. The patients who accepted the influenza vaccination were 25, those already vaccinated at the time of the proposal were 34 and the unvaccinated who refused the vaccination were 61. The response rate to influenza vaccination increase from 28.3% to 49.1% with a significant increase. At the same time regarding the anti-covid vaccine, the coverage rates among the patients hospitalized increase from 21.3% to 27.5%. 6 of the vaccinated patients accepted co-administration. Data show that offering in-ward vaccination in the wards is an effective strategy to increase coverage among the most susceptible population. Furthermore, the correct perception of the benefits of vaccination and the advice of healthcare personnel play an important role in the process of vaccine acceptance. Despite the small sample, the results obtained from this study could be useful for planning future vaccination campaigns and defining optimal ways of offering vaccination to frail people.

####

**Pre-post intervention analysis of sexually transmitted diseases knowledge, attitudes and willingness towards anti-HPV vaccination in secondary schools of the Province of Agrigento**

Alessandro Carubia 1, Elena Zarcone 1, Francesco Balsamo 1, Luciano D'Azzo 1, Angelo Fertitta 1, Tania Vitello 1, Luigi Zagra 1, Laura Pipitone 1, Marcello Tocco 1, Maria Grazia Amato 3, Girolama Bosco 2, Adriana Graceffa 2, Vittorio Spoto 2, Francesco Vitale 1, Giorgio Graziano 1, Walter Mazzucco 1, Claudio Costantino 1

1. *Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Medical Specialties (PROMISE) "G. D'Alessandro", University of Palermo, Palermo, Italy*

2. *Prevention and Epidemiology Unit, Agrigento Local Health Authority, Agrigento, Italy*

3. *Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STEBICEF), University of Palermo, Palermo, Italy*

HPV is one of the most common causes of Sexually Transmitted Diseases (STD) worldwide. Interventions implemented to reduce cases of infection and HPV-related diseases are primary prevention (vaccination) and secondary prevention (Pap test, HPV-DNA test). The aim of the study is to assess attitudes and knowledge about HPV-related diseases and HPV vaccination with specific regard to the perceptions of adolescents aged 11-15 attending first grade secondary schools in the province of Agrigento. First grade secondary schools available to organize a training meeting were involved. Parents of the students were sent an information sheet and an informed consent form to be signed in order to take part in the training and data collection. A cross-sectional survey was conducted using two questionnaires, created on Google Forms, administered before and after the educational seminar. A total of 826 students answered to the pre-post intervention questionnaires, of whom 52.8% were female. 53.3% reported having received information on sexual education topics at school. Multivariate analysis showed that female students [adjOR 1.74; CI95%: 1.17-2.60], students who had heard about STDs at school [adjOR 1.64; CI95%: 1.09-2.47], and students informed about the impact of HPV-related diseases [adjOR 1.35; CI95%: 1.02-1.87] showed a significant

increase in post-intervention vaccination willingness; conversely, students in a stable relationship [adjOR 0.56; CI95%: 0.36-0.88] showed a decrease in vaccination willingness. Overall, the final outcome of this study highlights how increased knowledge of HPV and related pathologies, mainly derived from school education, may improve adolescents' attitude in HPV vaccination. However, it also seems appropriate to intervene on individuals in stable relationships who mistakenly believe they are safe from HPV infection because they don't have multiple partners or any obvious risk factors for contracting STDs.

####

#### **Use of antibiotics in the first thousand days and maternal-infant outcomes: results from the MAMI-MED cohort**

Giuliana Favara 1, Martina Barchitta 1, Andrea Maugeri 1, Roberta Magnano San Lio 1, Elisabetta Campisi 1, Erminia Di Liberto 1, Claudia Ojeda Granados 1, Claudia La Mastra 1, Maria Clara La Rosa 1, Fabiola Galvani 2, Elisa Pappalardo 2, Carla Ettore 2, Giuseppe Ettore 2, Antonella Agodi 1

*1 Dipartimento di Scienze Mediche Chirurgiche e Tecnologie Avanzate "GF Ingrassia", Università degli Studi di Catania, Catania, Italia*

*2 Unità di Ostetricia e Ginecologia, Azienda di Rilievo Nazionale e di Alta Specializzazione (ARNAS) Garibaldi Nesima, Catania, Italia*

The use of antibiotics in the first thousand days may contribute to the risk of numerous adverse maternal-infant health outcomes. This analysis aims to evaluate the relationship between antibiotic consumption in mothers and adverse neonatal outcomes, such as admission to the neonatal intensive care unit (NICU).

Data from pregnant women recruited for the "MAMI-MED" study at ARNAS Garibaldi Nesima in Catania were used. Antibiotic exposure and maternal-infant health outcomes were collected through follow-up questionnaires administered at birth, one year, and two years postpartum. On a total of 1,492 women (average age: 31 years), 20.4% reported taking at least one antibiotic during pregnancy. The average age was significantly higher among women who used antibiotics during pregnancy compared to those who did not ( $p=0.008$ ). Of the 304 women who took antibiotics during pregnancy, 45.5% took an antibiotic in the third trimester, 41.4% in the second trimester, and 13.1% within the first trimester. Additionally, 47.1% of the women reported taking at least one antibiotic at the time of delivery or postpartum. Out of 904 children, 63% took at least one antibiotic between birth and their first year of age. A higher proportion of newborns admitted to the NICU was observed among women who took antibiotics during the second trimester of pregnancy compared to those who took them in the other two trimesters ( $p=0.013$ ). Further studies are needed to understand the determinants of maternal antibiotic exposure, including socio-demographic factors and lifestyle choices, and to develop tailored public health strategies.

####

#### **Food safety: The importance of microbiological control of food administered to hospitalized subjects**

Erika Scattareggia 1, Alessandro Morabito 1, Francesco Loddo 1, Maria Eufemia Giofrè 2, Pasqualina Laganà 1

*1 Department of Biomedical Science and Morphological and Functional Images, University of Messina, Italy.*

*2 Multispecialty Clinical Institute, Trauma Orthopedic Care, Messina, Italy.*

Food Safety is particularly important in the field of hospital catering, in relation to the precarious health conditions of hospitalized subjects. Failure to comply with the simplest hygiene rules can lead to health complications and prolong the period of hospitalization, with important repercussions on the economic system of the National Health Service. Given the importance of diet in the hospitalization process, it is a priority of the hospital catering service to ensure the distribution of nutritionally balanced, good quality and hygienically safe food, in compliance with food safety and food security requirements. With a view to food safety and the quality of the meals administered to patients admitted to the Hospital of the "G. Martino" Polyclinic in Messina, the Final Test Reports relating to the food samples analyzed in the three-year period 2021-2023 by the Food Laboratory of the Hospital Hygiene Unit were examined. In the three-year period examined, a total of 230 foods were analyzed, of which 80 were raw and 150 cooked. Once taken, the samples were immediately transported to the laboratory, inside insulated containers, and subjected to microbiological analysis. In particular, all those parameters required by current regulations were searched. In none of the samples analyzed was there any discrepancy such as to jeopardize the health of the patients. Although no situations of "non-compliance" have been found, the importance of the requirements of healthiness and genuineness of food is reiterated, even more so if administered to hospitalized subjects, particularly compromised from an immune point of view.

####

### **National Surveillance of Consumption of HydroAlcoholic Solution (CSIA) for Hand Hygiene: preliminary results from Sicily Region referring to the year 2023**

Elisabetta Campisi, Martina Barchitta, Andrea Maugeri, Erminia Di Liberto, Giulia Branciforte, Manuela Erika Cavallaro, Giuliana Favara, Claudia Ojeda Granados, Claudia La Mastra, Maria Clara La Rosa, Roberta Magnano San Lio, Antonella Agodi

*Department of Medical and Surgical Sciences and Advanced Technologies "GF Ingrassia," University of Catania, 95123, Catania, Italy*

Robust scientific evidence shows that appropriate hand hygiene is a key component among strategies for prevention and control of Healthcare Associated Infections (HAIs) and antimicrobial resistance (AMR). As part of the project "Sostegno alla Sorveglianza delle infezioni correlate all'assistenza anche a supporto del PNCAR", National Surveillance of Consumption of HydroAlcoholic Solution (CSIA) for Hand Hygiene was carried out in March 2024, referring to the year 2023. Data collection was conducted through a Web application (CSIA-ISS) realized by the Istituto Superiore di Sanità (ISS). These data have been transmitted by the regional coordinator to ISS and will be analyzed for regional and national reports. Of the total of 72 participating Sicilian healthcare facilities, 43 were public. The overall median consumption of hydroalcoholic solution, including inpatient and non-inpatient areas, was 30.4 L/1,000 GDO. Considering only the inpatient areas, the reported median consumption was 16.5 L/1,000 GDO. Specifically, the median consumption reported in medical area was 14.1 L/1,000 GDO and in surgical area 15.7 L/1,000 GDO. The highest CSIA were found in the specific inpatient area

"intensive care" (31.5 L/1,000 GDO), followed by "emergency" area (19.6 L/1,000 GDO), and the lowest CSIAs were found in "orthopedic" area (12.3 L/1,000 GDO) followed by "other" inpatient areas (12.5 L/1,000 GDO). Overall, the median consumption of hydroalcoholic solution reported for inpatient areas was below the standard indicated by the World Health Organization (WHO), which states a minimum consumption of 20 L/1,000 GDO. However, the CSIAs reported for "intensive care" area was above the WHO standard.

####

### **Knowledge on Folic Acid Supplementation during Pregnancy: Preliminary Results of a Cross-sectional Study Among Pregnant Women in the Calabria Region**

Giuseppe Lorenzo Donato 1, Simona De Rose 1, Emanuele Basile 1, Emma Antonia Citrino 2, Francesca Licata 1

1. *Department of Health Sciences, University of "Magna Græcia" of Catanzaro*
2. *Department of Medical and Surgical Sciences, University of "Magna Græcia" of Catanzaro*

Maternal dietary patterns are associated with the risk of developing heart and neural tube defects (NTDs) in newborns. The NTDs are a heterogeneous group of congenital malformations and the most common are anencephaly and spina bifida. Knowledge regarding folic acid (FA) supplementation can vary significantly among pregnant women (PW). The objective of this study was to explore the knowledge among PW who take FA. Taking FA during pregnancy is crucial to minimizing the risk of NTDs in the developing fetus. The study consisted in administering an anonymous self-administered questionnaire to a randomly selected sample of PW attending the

selected facilities in Calabria Region on randomly selected days. The questionnaire was designed to collect sociodemographic and anamnestic data, as well as to explore knowledge related to FA supplementation in pregnancy and the need for further information. The inclusion criteria were: being pregnant, aged  $\geq 18$  years and proficient in Italian. Preliminary results referred to 213 PW, with a mean age of 32.3 years ( $\pm 4.85$  SD). One fifth (19.1%) of the sample had at least one chronic disease, 43.2% had a university degree and 69.9% were employed. A total of 63.4% were aware that taking FA during pregnancy may be effective to prevent the development of NTDs. The logistic regression model indicated that the probability of knowing the reason for taking FA during pregnancy increased by 8% with each additional year of age. About 73.7% of PW correctly identified that FA was a B-group vitamin, with this knowledge being significantly higher among those with a university degree. Less than half of the sample (49.8%) correctly answered both questions. Approximately 7 out of 10 PW (73.7%) expressed a need for more information on the topic. The results highlight the need to increase knowledge about FA supplementation among PW to improve maternal-fetal health. Therefore, public health efforts should consider systematic approaches to promote informative counselling sessions, even before conception.

####

### **The Body Mass Index: past, present and future of an index perhaps in need of renewal**

Giuseppe La Spada 1, Cristina Genovese 2, Linda Bartucciotto 1, Irene Faranda 1, Raffaele Squeri 2



1. *Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Hygiene and Preventive Medicine Post-Graduate School, Messina, Italy*

2. *Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy*

To date, in the literature, the assessment on body mass status is predominantly relied on the calculation of the Body Mass Index (BMI). BMI has the advantage of being easy to measure, its formula being weight in kilograms divided by height in meters squared. This measurement, however, proves to be flawed: the main contention that is made is that it does not take into account the breakdown of body masses, not accurately capturing the athleticism or sedentary nature of the individual. A literature search was conducted in the search engines PubMed, Scopus, Google Scholar. The search took place between November 2023 and April 2024. More than 30 studies were selected in order to create an overview of the past of the BMI, the reasons why it has become the gold standard for assessing states of underweight/overweight/obesity, but most importantly about the present and future of this index. Other possible alternatives were evaluated, including the Fat Free Mass Index (FFMI), the Weight-Adjusted Waist Index (WWI) and smartphone's AI-augmented body scan. The Body Mass Index undoubtedly has the merits of being able to be calculated instantaneously without the need for equipment or data that are difficult to collect, but its use should be limited to an initial assessment, calling for its juxtaposition with other indices and data that better frame the patient, the breakdown of his or her body masses, and the etiology of underweight/overweight conditions. Alternative indices have received feedback in the

literature on specific uses, such as cardiometabolic risk assessment, but their calculation is not as quick and simple as for BMI.