Resúmenes 2025

JORNADA CIENTÍFICA CIBERESP

Zaragoza, 28 y 29 octubre

ciber | ESP CENTRO DE INVESTIGACIÓN BIOMÉDICA EN RED Epidemiología y Salud Pública

Libro de Resúmenes

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Presentación

¡Bienvenidas y bienvenidos!

Te damos la bienvenida a la Jornada Científica CIBERESP 2025, reunión anual de la comunidad científica de CIBERESP donde se presentan y discuten los avances en la investigación logrados.

En esta edición disfrutaremos de una conferencia impartida por Pilar Rico sobre ciencia abierta, y se presentará la nueva estructura científica del área tras culminarse la fusión de algunos programas científicos y la creación de una nueva acción estratégica transversal. También, contaremos con la participación de otras áreas CIBER, siendo las invitadas en esta reunión de 2025 las de Diabetes y Enfermedades Metabólicas Asociadas (CIBERDEM) y la de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN). Conoceremos los resultados de los proyectos intramurales de la convocatoria de 2023, así como la investigación que realiza el personal científico joven de CIBERESP a través de la presentación de pósteres. El personal joven también contará con una actividad interactiva dirigida a este colectivo. Y la acción estratégica transversal de Desigualdades sociales en la salud organizará una sesión participativa para todos los grupos CIBERESP. Disfrutaremos además de la presencia de personal de administración de CIBER que podrán resolver las dudas de los y las investigadores/as durante la jornada.

Expresamos nuestro agradecimiento a la organización de la reunión de este año: Pablo Alonso, María Grau, David Martínez, Maribel Pasarín, Enrique Calderón y Jordi Figuerola.

Os esperamos en Zaragoza.

Fernando Rodríguez Artalejo

Director Científico de CIBERESP

Programa

Martes, 28 de octubre de 2025		
10.00 – 11:30 h	**Registro**	
11:30 – 12:00 h	**Inauguración/Bienvenida** D. Pablo Alonso Coello. Presidente Comité Científico y Organizador de la Jornada CIBERESP D. Fernando Rodríguez. Director científico del área de Epidemiología y Salud Pública (CIBERESP) D.ª Marta Ortiz. Subdirectora General de Redes y Centros de Investigación Cooperativa del Instituto de Salud Carlos III	
12:00 – 13:00 h	**Conferencia inaugural: "Ciencia abierta: el conocimiento como bien público"** D.ª Pilar Rico. Jefa de la Unidad de Ciencia Abierta de la Fundación Española para la Ciencia y la Tecnología (FECYT) **Presenta: D.ª María Grau**	
13:00 – 13:30 h	**Presentación nueva estructura científica CIBERESP - parte 1** D.ª Mª José Sánchez. Coordinadora del programa de Epidemiología y control de enfermedades crónicas D. Pere Godoy y D. Juan Carlos Galán. Coordinadores del programa de Epidemiología, prevención y control de enfermedades transmisibles **Moderan: D. Enrique Calderón y D. Jordi Figuerola**	
13:30 – 14:30 h	**Comida**	
14:30 – 15:15 h	**Presentación nueva estructura científica CIBERESP - parte 2** D.ª Marieta Fernández y D. Marc Saez. Coordinadores del programa de Determinantes sociales, ambientales y laborales de la salud D.ª María Rubio. Coordinadora del programa de Investigación en servicios sanitarios y práctica clínica D.ª Maribel Pasarín. Coordinadora de la acción estratégica transversal de Desigualdades de la salud. **Moderan: D. Enrique Calderón y D. Jordi Figuerola**	
15:15 – 16:15 h	**Ampliando fronteras CIBER: hacia un futuro más colaborativo** D. Didac Mauricio. Director científico del área de Diabetes y Enfermedades Metabólicas Asociadas (CIBERDEM) D.ª Mª Rosa Aguilar. Subdirectora científica del área de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN) **Moderan: D. Pablo Alonso y D.ª Maribel Pasarín**	
16:15 – 17:15 h	**Descanso**	**Sesión interactiva con la Unidad Técnica de CIBER: Consultas con el Departamento de Administración y Financiero de CIBER (en paralelo con el descanso)** **D. Javier Viñaras. Responsable del Departamento de Financiero de CIBER** **D.ª Adriana Reatigui. Departamento de Compras de CIBER** **D. Víctor Sopeña. Departamento de Compras de CIBER**
17:15 – 17:45 h	**Informe de Gerencia** D.ª Margarita Blázquez. Gerente de CIBER	
17:45 – 18:45 h	**Sesión del Comité de Dirección** D. Fernando Rodríguez. Director científico del área de Epidemiología y Salud Pública (CIBERESP)	
18:45 h	**Fin primer día**	
19:00 – 20:00 h Presentación y actividades colaborativas para personal joven **Coordina: D. David Martínez**		

Miércoles, 29 de octubre de 2025	
08:00 – 09:30 h Reunión interna del Comité de Dirección	
09:30 – 10:45 h	**Resultados Proyectos intramurales 2023** - Development and validation of a metabolomic score for provegetarian diets and its relationship with metabolic pathways implicated in cancer. The OMIVECA study. D.ª María Esther Molina - Persistent COVID and job performance among healthcare workers: a qualitative approach. D.ª Mireia Utzet y D.ª Victoria Serra - Novel non-invasive test to early detect endometrial cancer based on genomic exploitation and microscopy imaging of urine samples. D.ª Laura Costas - Endometriosis and Pollution (ENDOPOL). D.ª Amaia Irizar - Microbiological and genomic investigation of hepatitis in children by metagenomic approach in case and control subjects. D.ª Ana Avellón **Modera: D. David Martínez**
10:45 – 11:30 h	**Presentaciones cortas de pósteres - *Flash poster* parte 1** - Enhancing Nursing Education: Simulation Laboratory Practices in Virtual Reality Obstetric Emergencies. D.ª Rocío Adriana Peinado - Mixtures of chemicals in pregnancy and their effects on cognitive and fine motor abilities in childhood. D.ª Pavla Brennan - Assessment of stigma in individuals living with chronic pain in Spain using the 8-item Stigma Scale for Chronic Illnesses (SSCI-8). D. Jaime Navarrete - 30-days post-discharge mortality following RSV-associated hospitalizations in older adults: insights from four Spanish regions (2023–2024). D.ª Arantxa Urchueguía - Cost-Utility of Direct Transport to Thrombectomy-Capable Centres vs. Local Stroke Centres for Suspected Large-Vessel Occlusion Stroke (RACECAT Randomised Clinical Trial). D.ª Mercè Soler - Clinical characteristics of influenza by type and subtype in primary care: a sentinel surveillance study in Catalonia (2008–2020). D.ª Núria Soldevila - Prevalence of HCV and HIV in People Who Inject Drugs: Transmission Determinants. D.ª Helena González **Moderan: D. Pablo Alonso y D.ª María Grau**
11:30 h	**Descanso**
12:05 – 12:40 h	**Presentaciones cortas de pósteres - *Flash poster* parte 2** - Mpox in people living with and without HIV, including people on PrEP, during a multistate outbreak in Spain in 2022. D.ª Diana Toledo - Genomic Surveillance in Catalonia Uncovers Ongoing TB Transmission in Vulnerable Urban Communities. D.ª Verónica Saludes - Comparison of self-reported questionnaires about physical activity and sleep with accelerometry data: DAFSA Project. D.ª Tania Fernández - Cancer in Young Adults in Spain: Site-Specific Incidence Trends from 1993 to 2018. D.ª Dafina Petrova - Early development and dynamics of nasopharyngeal microbiota in infants during the COVID-19 pandemic: A 2-year prospective cohort study. D. Aleix Lluansí **Moderan: D. Pablo Alonso y D.ª María Grau**
12:40 – 13:00 h	**Programa de Formación CIBERESP** **D.ª Mònica Guxens. Coordinadora de Formación**
13:00 – 13:40 h	**Acción estratégica transversal Desigualdades en salud (sesión participativa)** **Coordina: D.ª Maribel Pasarín**
13:40 – 14:00 h	**Clausura y fin**

Índice

RESÚMENES

ALEVINT Platform. All-in-one tool for dietary questionnaire data collection, analysis, and nutritional evaluation

Emma Ruiz-Moreno[1], Olivier Nuñez[1], Antonio Cobo[2], Javier González[1], Julia Fontán-Vela[1], Celia Talaván[1], Isabel Alonso-Ledesma[1], Adela Castelló[1], Virginia Lope[1], Nerea Fernandez de Larrea[1], Mario González[1], Pablo Fernández[1], Gema García-Sáez[2], José Tapia-Galisteo[2], José Manuel Iniesta[2], Cintia González[3], Rosa Corcoy[3], María Elena Hernando[2], Marina Pollán[1], Beatriz Pérez-Gómez[1]

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Background and Objective. The collection, processing, and transformation of dietary questionnaires is a laborious and time-consuming process. This work aims to provide the scientific community with an open-access, user-friendly, interactive tool for the standardized collection, transformation, and nutritional evaluation of large datasets of dietary data collected in epidemiological or clinical studies: ALEVINT (Spanish acronym for *ALimentation, EValuation, INvestigation and Translation*).

Methods. A web application (https://alevint.ciberisciii.es/alevint/) was developed on a CIBER-hosted R-Shiny server, based on parallel matrix computation and a microservice architecture with interoperable APIs.

Dietary intake data can be collected through: a) Excel files, b) REDCap surveys, c) a conversational ChatBot via Telegram (under validation), and d) the ANIMATE mobile app. The application supports various dietary questionnaire formats (Food Frequency Questionnaire [FFQ], 24-hour Recall, and Dietary Record) and includes an updated Food Composition Table with Spanish food items.

Results. The application processes 1,000 questionnaires with 100 items in under 15 seconds and generates exportable tables with daily energy and nutrient intake. Results are grouped by total diet, time of consumption, and food groups. It also calculates nutritional profiles and indicators of compliance with Recommended Daily Intakes. Additional outputs under development include graphical displays, dietary pattern analysis, nutritional quality indices, environmental impact, and economic cost.

Conclusions. This application provides a fast, user-friendly, and accurate tool for collecting and analyzing dietary data in large populations, supporting group comparisons and assessing their impact on health. Its use is expected to reduce time and costs for research centers in nutritional studies, promoting more standardized and reproducible data exchange.

Additional Outcomes

To date, the ALEVINT platform, through its initial data collection and processing functionalities, has supported the generation of research results in the following studies: Health-EpiGEICAM Study, BCDAS, DDM-Madrid, and PSYNIGED.

Appropriateness of requesting preoperative tests in elective surgeries of different complexity. Variability between hospitals

Iratxe Urreta Barallobre[1], Ignasi Bolibar Ribas[2], Antonio Sánchez Hidalgo[3], Eva Bassas Parga[4], Miren Arrieta Barnarás[5], Gaizka Gutierrez Sanchez[6], David Sánchez Cirera[7], Francisco José González Moraga[8], Iñigo Gorostiza Hormaetxe[9], Raúl de Frutos Parra[10], Susana Álvarez Gomez[11], Pablo Manuel Keenoy[12], Marta Roque Figuls[13], Carolina Requeijo[14], Javier Zamora Romero[15]

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Background. Numerous studies have questioned the usefulness of routine preoperative tests, and several guidelines have published recommendations aimed at reducing unnecessary preoperative testing.

Objectives. To analyse the appropriateness of the request for preoperative tests and requests and interhospital variability in criteria for requesting preoperative tests.

Methods. A Cross-sectional, retrospective and multicentre observational study was conducted in nine Spanish National Health System hospitals. Patients over 18 years of age undergoing elective surgical intervention during one week in June 2022 were included (n=1522).

Preoperative testing for cataract surgery, inguinal hernia, laparoscopic cholecystectomy, colon surgery, and primary knee replacement were evaluated. The main outcome measure was the appropriateness of the requested preoperative tests, according to the criteria of each hospital and according to the NICE guideline.

Results. Preoperative test request inappropriateness was 20.64% according to hospital protocols and 70.52% according to the NICE guidelines. Inappropriateness was mostly due to excessive requests and differed by hospital, surgery type, and ASA grade. Independent factors determining inappropriateness at the hospital-level were Spanish region, center complexity and availability of computerized preoperative request templates; at the patient-level were age, surgery risk and ASA grades. Protocol criteria for requesting preoperative tests varied notably between hospitals, and most protocols showed low agreement with NICE recommendations, especially in terms of over-requested preoperative tests.

Conclusions. Inappropriateness of preoperative test requests was high according to hospital protocols and especially high according to the NICE guidelines. Appropriateness was determined by patient characteristics, surgical risk, and institutional factors. Interhospital variability in inappropriateness was explained by differing criteria for preoperative test requests.

Assessment of stigma in individuals living with chronic pain in Spain using the 8-item Stigma Scale for Chronic Illnesses (SSCI-8)

Jaime Navarrete[1,2], Juan P. Sanabria-Mazo[1,2], Mayte Serrat[3], Juan R. Castaño-Asins[4], Jordi Alonso[2,5,6], Lance M. McCracken[2,7], Whitney Scott[8,9], Rubén Nieto[10], Juan V. Luciano[1,2,11]

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Background. Stigma is a commonly reported experience among individuals living with chronic pain. It may be due to the invisible nature of pain and lack of clear biomedical causes in most cases. It is a construct that needs to be carefully assessed to provide adequate pain management.

Objectives. This study examines the psychometric properties of the Spanish version of the Stigma Scale for Chronic Illnesses 8-item version (SSCI-8), in individuals living with chronic pain, focusing on dimensionality, factorial invariance, reliability (internal consistency and test-retest), and construct validity.

Methods. We used the official Spanish translation of the SSCI-8 provided by the Northwestern University. Eligible participants were Spanish adult individuals with longstanding chronic pain (≥ 3 months). An online survey link, encompassing self-report assessments related to sociodemographic data, chronic pain diagnosis, pain-related outcomes, depression and anxiety symptoms, psychological flexibility, pain-related injustice experiences (IEQ), and the Spanish SSCI-8 was posted and shared across patient associations. The final sample was composed of 530 individuals living with chronic pain (89.2% women; age range: 20 – 70 years old), primarily from Barcelona, Spain.

Results. Factor analysis showed that the Spanish version of the SSCI-8 is unifactorial with correlated residuals of items 4 and 6, as the original version. Internal consistency was adequate with Cronbach's α and McDonald's ω values of .88 and .87, respectively. The Intraclass Correlation Coefficient was .86, suggesting good test-retest reliability at 1 month. Pearson's correlations between the SSCI-8 and the other measures scores were significant and in the expected direction. Factorial invariance across age, gender, and pain type was supported. Finally, the SSCI-8 significantly explained additional variance of pain-related outcomes beyond the IEQ scores.

Conclusions. The Spanish version of the SSCI-8 appears psychometrically sound as a measure of stigma for use in individuals living with chronic pain.

Cancer in Young Adults in Spain: Site-Specific Incidence Trends from 1993 to 2018

Daniel Redondo-Sánchez[1,2,3], Dafina Petrova[1,2,3,4], Jàmnica Bigorra[5], Alberto Ameijide[5], Rafael Marcos-Gragera[1,6], Marcela Guevara[1,7], María Dolores Chirlaque[1,8], REDECAN Working Group[9], Jaume Galcerán[5], María-José Sánchez[1,2,3]

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Background. Recent studies suggest that the incidence of several types of cancer, particularly breast and digestive cancers, is increasing in adults under 50 years of age.
Objectives. To investigate the trends in cancer incidence in young adults in Spain for the period 1993-2018.
Methods. We analyzed all new incident cases in adults between 20-49 years old diagnosed in the period 1993-2018, using data from the 15 population-based cancer registries of the Spanish Network of Cancer Registries. For each combination of sex and anatomical site, we calculated truncated age-standardized rates per 100,000 persons using the European new standard population (TASR-E) and used joinpoint regression to analyze TASR-E trends and compute Annual Percent Change (APC).
Results. 153,599 new cases (58% in women) were diagnosed in young adults between 1993 and 2018. The most common sites were breast (N = 37,820 cases) and thyroid (N = 7,022) in women, and lung (N = 7,425) and testicular cancer (N = 5,306) in men. For all cancers (except non-melanoma skin cancer), TASR-E decreased in young men from 120.9 in 1993 to 94.3 in 2018 (APC = -1.4%; 95% CI: -1.5%; -1.2%) and increased in young women from 134.3 in 1993 to 166.9 in 2018 (APC = +0.7%; 95% CI: +0.5%; +0.9%). Breast cancer increased in young women, with an APC of +1.0%, whereas colon and rectum cancers remained stable in women (APC = 0.0% and +0.1%, respectively) and decreased slightly in men (APC = -0.7% and -0.4%, respectively).
Conclusions. Overall cancer incidence increased slightly in young women, and decreased in young men, with pronounced differences by anatomical site and age group. Although some increases are observed, data until 2018 do not reflect the worrying rising trends in breast and colorectal cancer observed in other developed countries.

Funding: Subprogram VICA CIBERESP, SIEC, Proyecto A_PI01_2024 ibs.GRANADA

Clinical characteristics of influenza by type and subtype in primary care: a sentinel surveillance study in Catalonia (2008–2020)

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Background. Influenza remains a significant public health concern due to its seasonal prevalence and variable clinical presentation. Clinical differences between influenza types and subtypes have importance for community-based public health surveillance.

Objectives. To describe the clinical characteristics of influenza cases in primary care according to type and subtype.

Methods. We analyzed influenza cases detected by the sentinel network of primary care physicians in Catalonia during the 2008–09 to 2019–20 seasons. Information was collected on demographic variables, clinical symptoms, and influenza vaccination status. Adjusted odds ratios (aORs) were calculated using a multivariate logistic regression model to assess factors associated with influenza type and subtype.

Results. A total of 4,407 influenza-positive samples were obtained: 2,843 (64.5%) influenza A, 1,512 (34.3%) influenza B, 42 (0.9%) influenza C, 7 (0.2%) influenza A+B, and 3 (0.1%) influenza A+C. Of the influenza A-positive samples, 1,274 (51.6%) were H1N1, and 1,197 (48.4%) were H3N2. 19.3% of the samples were <5 years, 35.1% 5-14 years, 38.7% 15-59 years, and 6.9% were ≥60 years. Abrupt onset was more common for influenza A than for influenza B (aOR 1.32; 95% CI 1.15-1.50); odynophagia and dyspnea were less common (aOR 0.82; 95% CI 0.72-0.93 and aOR 0.71; 95%CI 0.62-0.82; respectively). Headaches were more common in influenza A(H1N1) than in influenza A(H3N2) (aOR 1.33; 95% CI 1.11-1.59), and malaise was less common (aOR 0.46; 95% CI 0.38-0.57). Patients with A(H1N1) were less vaccinated (aOR 0.67; 95% CI 0.48-0.95).

Conclusions. Clinical presentations varied by virus type. Influenza Abrupt onset and headache were more frequently present, while odynophagia and dyspnea were less common. Although most cases occurred in individuals aged 5–59 years, strengthening vaccination campaigns for children 6-59m and targeting population at higher risk for complications, would further diminish burden of influenza during seasonal activity.

Comparison of self-reported questionnaires of sleep with accelerometry data: DAFSA Project

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Background. A lack of sleep is related to physical problems (obesity and diabetes), mental disorders (anxiety and depression) and even increased mortality.
Self-reported questionnaires can be used to assess the impact of sleep, but technology allows devices such as smartwatches and accelerometers to be more accurate. Combining both methods could improve the comprehensive assessment of these factors.
Objectives. To compare self-reported sleep data with accelerometry records in the university community.
Methods. Longitudinal observational study. Snowball convenience sample of people over 18 years of age. Collection of sociodemographic information, PA, sleep and use of smartphone using self-reported questionnaires. Wrist accelerometry data were collected. To assess sleep, the Athens Insomnia Scale was used. A score equal to or greater than 6 on the questionnaire was considered indicative of insomnia. Descriptive analyses were carried out for the variables analysed and the association was assessed by Spearman correlation. Differences between sleep efficiency measured by accelerometry and the presence of insomnia were assessed using the Wilcoxon test.
Results. Seventy-two people (63.9% female) with a mean age of 27.4 years (SD 11.7 years) participated. According to the Athens questionnaire, 55.6% of the sample (n = 40) presented insomnia, with a mean score of 6.1 points (SD = 3.0). The mean sleep efficiency was 83.5% (SD = 8.9), with significantly lower efficiency observed in the insomnia group compared to the non-insomnia group (80.9 ± 10.2% vs. 87.0 ± 5.0%, p = 0.001). The Athens questionnaire score showed a moderate inverse correlation with sleep efficiency estimated by accelerometry (*rho* = –0.35)
Conclusions. Our results reveal that the Athens questionnaire is useful for identifying individuals with low sleep efficiency, however the correlation found with accelerometry is moderate to low, requiring a study with a larger sample size to obtain more reliable conclusions.

Comparison of self-reported questionnaires on physical activity with accelerometry data: DAFSA Project

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Background. A deficit of physical activity (PA) is related to several problems, such as obesity, diabetes or cancer and even increased mortality. To achieve these benefits, the WHO recommends engaging in at least 150 to 300 minutes of moderate-intensity aerobic physical activity, or 75 to 150 minutes of vigorous-intensity activity per week, or an equivalent combination of both.
Self-reported questionnaires can be used to assess the impact of PA, but technology allows devices such as smartwatches and accelerometers to be more accurate. Combining both methods could improve the comprehensive assessment of these factors.
Objectives. To compare self-reported PA data with accelerometry records in the university community.
Methods. Longitudinal observational study. Snowball convenience sample of people over 18 years of age. Collection of sociodemographic information, PA, sleep and use of smartphone using self-reported questionnaires. Wrist accelerometry data were collected. Self-reported PA was assessed using the International Physical Activity Questionnaire (IPAQ). The WHO recommendations on PA were considered, and participants were classified dichotomously based on whether they met these criteria. Descriptive analyses were carried out for the variables analysed and differences between the two groups, according to PA recorded by accelerometers, were analyzed using the Wilcoxon test. To evaluate the sensitivity and specificity of the IPAQ, the ROC curve was plotted.
Results. Seventy-two people (63.9% female) with a mean age of 27.4 years (SD 11.7 years) participated. The average daily duration of moderate-to-vigorous PA (MVPA) was 86.1 minutes (SD = 38.2). Participants who, according to the IPAQ, did not meet the WHO recommendations had a significantly lower mean of daily minutes of MVPA compared to those who did meet the criteria (69.3 minutes, SD = 37.2 vs. 96.7 minutes, SD = 35.2; $p < 0.01$). The area under the curve was 0.71 (IC95%: 0.59-0.83).
Conclusions. The IPAQ demonstrates moderate sensitivity in identifying individuals who meet the WHO recommendations; however, studies with larger sample sizes are needed.

Cost-effectiveness of community interventions to promote awareness, testing and treatment of hepatitis B and C in the migrant population in Catalonia

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Background. One of the challenges in viral hepatitis elimination is reaching populations with difficulties accessing the healthcare system. In Catalonia, 17.2% of the population has a foreign origin. Community-based interventions aimed at the diagnosis and treatment of viral hepatitis in migrants from high-prevalence countries have been recently piloted (HepBClink and MiCatC studies).

Objectives. To carry out a cost-effectiveness analysis of these community screening strategies and simplified linkage to care for hepatitis B virus (HBV) and hepatitis C virus (HCV) infection versus no intervention in migrant populations in Catalonia.

Methods. Two hybrid models were developed, one for HBV and another for HCV, with a community strategy decision tree that included screening, simplified access to care and treatment, and evaluation of the treatment response. A Markov model was applied to simulate the progression of the disease from the perspective of the National Health System. The parameters used were obtained from both the intervention and published literature. Several sensitivity analyses were performed with the parameters with the highest uncertainty.

Results. Among the 2,291 people screened, 74 cases of HBV infection and 21 cases of HCV infection were diagnosed, avoiding 79% and 62% of liver complications related to HBV and HCV, respectively. The community HCV screening strategy had an incremental cost of € 13,999 and 2.98 QALYs additional quality-adjusted life years (QALYs) per patient compared to no intervention, resulting an incremental cost–utility ratio of € 4,692/QALY gained. The HBV strategy was dominant. The most relevant parameter in the sensitivity analysis was the variation in the distribution of fibrosis stage among HCV-positive individuals.

Conclusions. The implementation of a community screening strategy, including increasing awareness of HBV and HCV infections, screening and treatment in migrant populations from countries with high prevalence rates, is cost-effective.

Cost-Utility of Direct Transport to Thrombectomy-Capable Centres vs. Local Stroke Centres for Suspected Large-Vessel Occlusion Stroke (RACECAT Randomised Clinical Trial)

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Background. Large-vessel occlusion (LVO) strokes represent 20–30% of ischemic strokes. Timely endovascular therapy (EVT) improves outcomes, but access varies by geography. The RACECAT trial compared two prehospital routing strategies for suspected LVO patients: direct transport to thrombectomy-capable centres (Mothership, MS) versus initial transfer to local stroke centres with possible subsequent transfer (Drip-and-Ship, DS).

Objectives. To assess the cost-utility of MS versus DS models for suspected LVO stroke patients within 12 months of follow-up from a societal perspective.

Methods. A cost-utility analysis was conducted alongside the RACECAT multicentre cluster randomised clinical trial, which enrolled 629 patients between 2017–2019 in Catalonia. Utilities (EQ-5D-5L) and costs (healthcare, community, patient/family) were collected prospectively. Missing data were handled using multiple imputation. Incremental cost-utility ratios (ICUR) were calculated from both healthcare and societal perspectives.

Results. Among 629 patients (MS=316; DS=313), no significant differences were found in neurological outcomes or quality-adjusted life years (QALYs) at 12 months (DS: 0.41; MS: 0.38). Mean cost per patients during the first-year post-stroke was 27,107 for the MS and 29,711€ for the DS. Adjusted models showed that from a societal perspective, the MS strategy was €4,093 less costly but less effective than DS (ICURs of €117,330/QALY). Results were consistent across sensitivity analyses.

Conclusions. Of these two prehospital routing strategies for suspected LVO routing for suspected LVO stroke, the MS model was less costly but slightly less effective than the DS model. The findings suggest no clear superiority of one strategy; optimal routing may depend on regional infrastructure and transfer times. Further research is warranted to evaluate long-term cost-effectiveness and specific patient subgroups.

Development and validation of a metabolomic score for provegetarian diets and its relationship with metabolic pathways implicated in cancer. The OMIVECA study

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Background. The increasing adoption of plant-based diets (PBDs) highlights the need to understand their composition and health implications. However, PBDs remain insufficiently characterized using omics tools and validated dietary assessments.
Objectives. The OMIVECA study aims to characterize PBDs using validated dietary assessment tools and metabolomics.
Methods. Cross-sectional study including 760 participants (mostly university students; 73% women, and 21.2% vegan/vegetarians) with complete dietary data. A subset of 200 subjects provided urine and stool samples, along with three 24-hour recalls, for omics and dietary validation studies.
A 175-items food frequency questionnaire (FFQ) adapted from a validated tool, was developed. Foods were classified into 32 groups and intake was compared across dietary types (ANOVA test). Pro-vegetarian diet indices, the Mediterranean Diet score and the EAT-Lancet index were built and compared between the groups. Dietary patterns were characterized with principal component analysis (PCA), K-Means and hierarchical clustering. Levels of 36 flavonoids were quantified in urine and correlated (Spearman) with the estimated dietary intake derived from the PhenolExplorer database. The significance level was set at 5%.
Results. Non-omnivores consumed significantly more vegetables, mushrooms, and potatoes (>450 g/day; $p<0.001$) than omnivores. Dietary indexes were intercorrelated (rho ~0.6) and omnivores showed the lowest scores ($p<0.001$). PCA identified a vegan pattern (15.2% explained variance), a healthy vegetarian pattern (7.1% explained variance), and other two associated with unhealthy vegetarian and omnivorous diets (33% total explained variance). Clustering also revealed four distinct dietary profiles. Significant differences in flavonoid intake (flavonols and isoflavonoids) were observed between groups. A moderate correlation between dietary and urinary daidzein (rho=0.63) supports the FFQ validity.
Conclusions. So far, the FFQ demonstrates good validity for assessing PBDs. There are distinct dietary patterns within PBDs, beyond the restriction of animal foods, highlighting the complexity and diversity of PBDs. To further investigate these patterns and their role in cancer, metabolomic studies are currently in progress.

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Early development and dynamics of nasopharyngeal microbiota in infants during the COVID-19 pandemic: A 2-year prospective cohort study

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Background. COVID-19 pandemic lockdown significantly affected nasopharyngeal microbiota in children and adults, which plays a critical role in health and disease.
Objectives. This study explores the nasopharyngeal microbiota in infants born during the COVID-19 pandemic.
Methods. A cohort of 32 infants born at Hospital Sant Joan de Déu (Barcelona, Spain) between December 2019 and December 2020 was recruited. Epidemiological, clinical and microbiological variables were registered. Nasopharyngeal aspirates were collected at 3-6/12/24 months of age and sequenced (Illumina 16S rRNA; V3-V4 region). Alpha-/beta-diversity and differential abundance analyses were performed.
Results. At the initial follow-up visit (3-6 months), 10 infants (31.3%) were still breastfed, seven (21.9%) exhibited a rapid postnatal weight gain (RPWG; BMI z-score - birth weight z-score > 1.1), and 11 (34.4%) had a history of upper respiratory tract infection (URTI). By 12 months, breastfeeding decreased to one child (3.1%), URTI prevalence increased to 37.5%, and RPWG was observed in five children (12.5%). No child required hospitalization. Microbiota composition at 3-6 months differed from that at 12 months (p-value=0.040) and at 24 months (p-value=0.008), but not between 12 and 24 months. Intraindividual microbial dissimilarity between 12 and 18-24 months was lower than between 3–6 and 12 months (p-value=0.033), and between 3–6 and 18–24 months (p-value<0.001). Differential abundance analyses revealed increased abundance of Streptococcus pneumoniae at 24 months versus 12 months (FDR p-value<0.05), with no significant differences observed at earlier ages. We detected key factors associated with differential microbiota patterns (p-value<0.05), including URTI history, RPWG, pneumococcal carriage, recent vaccines, and antibiotic/corticosteroid intake. RPWG correlated with a higher Shannon index (p-value=0.011), increased abundance of *Dolosigranulum pigrum* and *Corynebacterium spp.,* and decreased abundance of *Moraxella catarrhalis* and *Haemophilus influenza* (FDR p-value<0.05).
Conclusions. These findings suggest an early stabilization of the nasopharyngeal microbiota by age 12 months and interconnections between microbiota dynamics and early postnatal weight gain.

Efficacy and safety of remote automatic monitoring in the follow-up of outpatients with heart failure: preliminary results of a Systematic Review

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Background. Heart failure (HF), the leading cause of hospitalization among individuals aged over 65, in advanced stages compromises the blood supply to the body thus limiting the patients' quality of life and increasing mortality. Remote Automatic Monitoring (RAM) could assist the patients at home and alert about signs and symptoms related with HF and prevent complications.

Objectives. To assess the efficacy and safety of RAM in adult outpatients with HF compared to usual care or a different strategy of RAM.

Methods. Systematic review of interventions with protocol registered at PROSPERO, CRD42024503882. We searched MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, ClinicalTrials.gov and the ICTRP portal (from inception up to February 2024), and checked the reference list from selected studies. We included randomized clinical trials (RCT) assessing RAM with alerts for HF outpatients. There were no language restrictions. Two reviewers independently screened and selected the studies and assessed the risk of bias. The main outcomes were reduction of hospitalization and all-cause mortality, individually or as a composite outcome. We calculated the Risk Ratio (RR) and 95% Confidence Interval (CI).

Results. From 2232 reports screened after excluding duplicates, we included 114 reports and 57 RCTs. In total 21845 participants were included (30% women), mean age 63 years. Eight RCT were assessing invasive RAM. Only four RCT were single blinded. Preliminary results are based in a moderate certainty of evidence, RAM compared with usual care or other interventions probably reduce slightly all-cause mortality (RR:0.91; CI95% 0.84 to 0.99, I^2=29%; 33RCT; 16323 participants), hospitalizations (RR:0.89; CI95% 0.84 to 0.94, I^2=58%; 32RCT; 10665 participants) and the composite outcome of both (RR:0.94; CI95% 0.89 to 0.99, I^2=47%; 17 RCT; 6704 participants).

Conclusions. Remote automatic monitoring administered in HF outpatients probably reduces slightly all-cause mortality and hospitalizations.

Enhancing Nursing Education: Simulation Laboratory Practices in Virtual Reality Obstetric Emergencies

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Background. The World Health Organization (WHO) highlights the importance of simulation in clinical teaching and patient safety; at the same time, virtual reality is presented as an innovative methodology in nursing training and is being widely incorporated into training. An instrument has not been identified that allows us to know the assessment of the students who use these resources.
Objectives. Validate the Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP) in Spain and assess its effectiveness in evaluating students' obstetric emergency simulations, knowledge, skills, and attitudes using virtual reality glasses.
Methods. Cross-sectional observational study of 120 nursing students carried out at the University of Jaén during the 2023-2024 academic year. After facing an immersive experience of postpartum haemorrhage using virtual reality glasses, sociodemographic and academic data were collected, and the SES-SLP questionnaire and the Gameful Experience in Gamification (GAMEX) scale were administered. An Exploratory Factor Analysis (EFA) was carried out with convergence and criterion validity. Internal Consistency (IC) was evaluated using Cronbach's α. The convergence validation of the SES-SLP was analyzed through the GAMEX scale using the Pearson correlation coefficient. Temporal reliability was studied through a test-retest using the Intraclass Correlation Coefficient (ICC).
Results. The AFE identified two components, Factor 1 "Developing" and Factor 2 "Challenging", which explained 56.79% of the variability, the first covering 45.82% and the second 10.97%. A statistically significant and positive correlation was observed between the SES-SLP and GAMEX scales both globally and in almost all their dimensions ($p<0.001$) except the “Absence of negative effect” dimension. Cronbach's α was 0.909, indicating high internal consistency. Temporal reliability, evaluated with test-retest using the Fleiss criteria, obtained a result of 0.898 (95% CI=0.801-0.948), demonstrating excellent or almost perfect agreement.
Conclusions. Given its good psychometric characteristics, the SES-SLP scale is a valid and reliable tool to be used in simulation laboratories for university nursing training.

Genomic Surveillance in Catalonia Uncovers Ongoing TB Transmission in Vulnerable Urban Communities

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Background. Tuberculosis (TB) remains the leading cause of death from infectious disease globally. In 2022, Catalonia launched the TB-SEQ strategy, applying whole-genome sequencing (WGS) to all culture-positive TB cases for population-based genomic epidemiology. Socially vulnerable populations are disproportionately affected by TB in low-incidence settings like Spain, complicating outbreak detection and contact tracing.

Objective. To characterize and monitor a transmission cluster, initially detected by WGS through the TBSEQ strategy, using classical and genomic epidemiology.

Methods. All TB-positive cultures in Catalonia were centralized at Hospital Germans Trias i Pujol for Illumina sequencing. Genomes were analyzed with TB-Profiler for lineage and drug resistance typing, and with MTBseq for SNP-based genomic clustering. Clusters were defined as ≥2 cases within 0–5 SNPs and a monophyletic origin. Median Joining Networks (MJNs) were used to infer transmission pathways. A task force was established, under the auspices of the Tuberculosis Prevention and Control Service, to discuss the most relevant clusters and design targeted control activities.

Results. Cluster A31-5-L4 was first detected in July 2023, comprising three cases. By January 2025, the cluster had expanded to 13 cases across multiple municipalities, and seven nationalities. Epidemiological links included squatter communities in a Barcelona apartment and a squatted industrial warehouse in Badalona. MJN analysis revealed five central cases with two diverging transmission chains. Continued surveillance identified four additional cases in 2024, increasing the cluster size to 18 patients from nine countries (including two Spanish nationals) diagnosed between 2021 and 2024. The cases involved did not show genotypic resistance to first- and second-line drugs, and 14 of the 18 cases were cured after receiving treatment.

Conclusions. WGS enabled early detection and monitoring of an active TB cluster, highlighting zones of transmission and informing targeted interventions. The TB-SEQ strategy offers crucial insights into TB transmission dynamics, particularly within vulnerable populations, supporting more effective control efforts.

Hepatitis A in Spain: Evolution of hospitalization in the period 2000-2021

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Background. Hepatitis A is an acute disease of the liver caused by the hepatitis A virus. The presence of sexually transmitted infections before or during the disease course has been reported.

Objectives . We investigated the evolution of hepatitis A hospitalizations and in-hospital deaths during 2000-2021 in Spain according to demographic characteristics, presence of other sexually transmitted infections, and vaccination strategy (universal or risk-group vaccination).

Methods. Using data from the Spanish National Health System's Minimum Basic Data Set, we calculated age-standardized cumulative hospitalization incidence and 95% confidence interval (CI), factors associated with hospital stay, and hospitalization deaths. Adjusted OR (aOR) values were calculated using a multivariate logistic regression model.

Results. The Spanish cumulative hospitalization incidence for hepatitis A over the 22-year period was 8.84 per 1,000,000 globally and 12.54 and 5.26 per 1,000,000 for men and women, respectively (RR=2.38; 95% CI: 2.28-2.50). Factors associated with hospitalization >7 days were age groups 40-59 (aOR 1.58; 95% CI: 1.37-1.82), ≥60 years (aOR 5.09; 95% CI: 4.01-6.47), cirrhosis (aOR 6.11; 95% CI: 2.59-14.43), and presence of HIV and HBV (aOR 1.65; 95% CI: 1.15-2.38 and 2.01; 95% CI: 1.03-3.63, respectively). In-hospital deaths were associated with age ≥60 years (aOR 35.23; 95% CI: 11.12-111.58), hospitalization >7 days (aOR 4.37; 95% CI: 1.80-10.58), cirrhosis (aOR 8.84; 95% CI: 2.37-32.99), and HCV infection (aOR 8.66; 95% CI: 1.57-47.87). The cumulative hospitalization incidence was lower in regions implementing universal vaccination (RR 0.79; 95% CI: 0.75-0.84).

Conclusions. Results of studies based on characteristics of hospitalized hepatitis A cases taking into account the existing prevention policies can be useful to have a better knowledge about its evolving epidemiology and to improve the prevention and control of the disease.

Methodological and reporting quality of Clinical Practice Guidelines for prenatal care on nutritional counselling in high-income countries: A systematic review

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Background. Clinical practice guidelines (CPGs) for pregnancy management should provide nutritional recommendations based on evidence-based medicine.

Objective. To assess the methodological and reporting quality of CPGs for prenatal care from high-income countries (HIC) on nutritional counselling.

Methods. Following PROSPERO registration (CRD42023397756), we searched PubMed, Scopus, Web of Science, and Google Scholar for the last decade. We included clinical practice guidelines (CPGs) from high-income countries (HICs) on prenatal care with nutritional counselling, without language restrictions. Data extraction and quality assessment were performed in duplicate, with discrepancies resolved by a third reviewer. Methodological and reporting quality were assessed using the AGREE II tool (score range: 22–161) and the RIGHT tool (score range: 0–35), respectively.

Results. A total of 2,177 citations were screened, resulting in 18 CPGs recommendations on nutritional counselling (published 2014-2024), primarily from Europe (n=11, 61.1%). High-quality CPGs were 6 (33.4%) using AGREE II (Spain, Australia, UK-NICE, U.S.A.-ACOG, WHO, and Denmark) and 4 (22.2%) using RIGHT (Spain, Australia, UK-NICE, and WHO). The AGREE II and RIGHT observed score ranges were 51.5-145 and 7.5-28, respectively. Mean scores for institutional CPGs were higher than those for professional societies (AGREE 107.4±26.8 vs. 86.2±26.1, p=0.0218; RIGHT 19.1±6.2 vs. 14.1±6.1, p=0.0201). A positive correlation was observed between AGREE II and RIGHT scores (r=0.94).

Conclusions. The methodological and reporting quality of CPGs for prenatal care with nutritional counselling, from HIC, varied with institutional CPGs scoring significantly better than those from professional societies. These findings underscore the need for standardized development and reporting of CPGs to ensure clear, actionable, and evidence-based nutritional advice.

Mixtures of chemicals in pregnancy and their effects on cognitive and fine motor abilities in childhood

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Background. Many pregnant women are exposed to chemical toxicans that can harm the developing brain of the child.

Objectives. This study aims to assess the effects of a mixture of 29 chemicals in pregnancy (organochlorine compounds, per – and polyfluoroalkyl substances, phenols, and phthalates) on cognitive abilities (working memory, attentional function, visuomotor attention, cognitive flexibility, verbal and non-verbal intelligence, information processing speed, risky decision making) and fine motor function in childhood.

Methods. Data from over 2000 mothers and their children that take part in the INfancia y Medio Ambiente in Spain were analyzed. Quantile-based g-computation estimated joint effects of chemical mixtures on the outcomes, adjusting for confounders and using inverse probability weights to mitigate selection bias.

Results. The overall mixture of chemicals was linked to lower visuomotor attention (+ 0.2 min., 95 % CI 0.0 to 0.4 for the second; + 0.4 min., 95 % CI 0.0 to 0.8 for the third; and + 0.7 min., 95 % CI 0.0 to 1.3 for the fourth quartile, relative to the first quartile). Counterintuitively, the overall mixture of chemicals was related to higher verbal intelligence (+ 1.5 points, 95 % CI 0.1 to 3.0 for the second; + 3.0 points, 95 % CI 0.1 to 6.0 for the third; and + 4.6 points, 95 % CI 0.2 to 9.0 for the fourth quartile, relative to the first quartile). However, neither of these associations survived multiple testing correction.

Conclusions. Our study does not provide strong evidence that prenatal exposure to a mixture of organochlorine compounds, per – and polyfluoroalkyl substances, phenols, and phthalates affects cognitive abilities or fine motor function in childhood.

Mpox in people living with and without HIV, including people on PrEP, during a multistate outbreak in Spain in 2022

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Background. In 2022, Europe became the epicenter of the first mpox outbreak outside Africa, with Spain reporting the highest cumulative incidence worldwide.

Objectives. The aim of this study was to analyse the epidemiological, clinical, and disease progression characteristics of mpox in persons living with HIV (PLWH), HIV-negative persons, and in users and non-users of pre-exposure prophylaxis (PrEP) in Spain.

Methods. We conducted a cross-sectional epidemiological multicentre study based on data reported from June 2022 to January 2023. We compared the epidemiological, clinical, and disease progression characteristics for a Spanish mpox outbreak, considering PLWH, HIV-negative persons, and users and non-users of PrEP. Adjusted OR and the corresponding 95% CI were calculated by multivariate logistic regression analysis.

Results. Analyses were conducted on men aged ≥18 years (N=1158): 35.3% were PLWH, and 42.7% of the HIV-negative persons were PrEP users. Having sex only with men (aOR= 10.92; 95%CI:3.76-31.69), chemsex (aOR= 2.02; 95%CI:1.38-2.97), another type of immunosuppression (aOR= 2.57; 95%CI:1.07-6.21) and non-anogenital and non-oral exanthems (aOR= 1.64; 95%CI:1.23-2.19) were more frequent in PLWH than in HIV-negative cases. Compared to PrEP users, PLWH were more likely to have lower education levels (aOR= 23.21; 95%CI:2.87-187.52), fever (aOR= 1.42; 95%CI:0.98-2.06), non-anogenital and non-oral exanthems (aOR= 2.40; 95%CI:1.67-3.45), and other types of immunosuppression (aOR= 9.32; 95%CI:1.16–75.16). Having sex only with men (aOR= 17.88; 95%CI:3.94-81.19), in leisure settings (aOR= 2.07; 95%CI:1.24-3.46), chemsex (aOR= 2.17; 95%CI:1.16-4.12) and a concurrent STI (aOR= 2.25; 95%CI:1.31-3.85) were more common in PrEP users than non-PrEP users.

Conclusions. PLWH did not experience more severe mpox than HIV-negative persons. Epidemiological and clinical differences were observed between PLWH and PrEP users. PrEP users showed more risk factors related to sexual activity and concurrent sexually transmitted infections than non-PrEP users. These findings underscore the need for tailored prevention and clinical approaches.

Neutralization of the B3 and D8 genotypes of the measles virus

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Background. The global circulation of measles virus (MeV) genotypes has decreased to B3 and D8. The frequency of cases in properly vaccinated individuals is increasing in elimination settings. Hypotheses have been proposed to explain it, including possible antigenic drift, which could allow certain immune escape from the neutralizing antibodies induced by the vaccine.

Objectives. The aim of this study was to evaluate the neutralization of B3 and D8 genotypes of the MeV by vaccine-induced antibodies.

Methods. A total of 18 MeV isolates were used (B3 = 11; D8 = 7). Neutralizing capacity was assessed using microneutralization assays in Vero/hSLAM cells. Serum samples from 15 vaccinated individuals and 23 naturally infected subjects, were tested against each viral isolate. The neutralizing antibody titers were determined as the highest serum dilution that prevented the cytopathic effect and were standardized to mIU/mL using the 3rd WHO International Standard for Anti-Measles (NIBSC code: 97/648). Statistical analysis included normality testing (Kolmogorov–Smirnov test) and non-parametric comparisons (Mann–Whitney U test), performed using SPSS software. The complete genome of the MeV isolates was obtained by massive parallel sequencing (MPS). Protein sequences were obtained by reverse translation. Subsequent analysis was performed using a Python script (v3.12.3.).

Results. A greater neutralization capacity of antibodies induced by natural infection than by vaccination was observed for MeV of both genotypes ($p < 0.001$). MeV of genotype B3 were less neutralized than those of genotype D8 by both types of antibodies ($p < 0.001$). Analysis of the F and H proteins revealed several mutations.

Conclusions. The results suggest that genotype B3 of MeV may have a biological advantage. This may be due to the presence of mutations in the neutralization epitopes. The biological characterization of these mutant proteins will be evaluated in the future to confirm this hypothesis.

Pediatric vaccination failures in the era of pneumococcal conjugate vaccination in Catalonia (Spain)

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Background. 13-valent pneumococcal conjugate vaccine (PCV13) was included in the vaccination schedule for prevention invasive pneumococcal disease (IPD) in July 2016, with high vaccination coverage (92.5–95.5%). Before 2016, vaccination coverage was intermediate (50.0–73.0%). Recently, PCV15 and PCV20 replaced PCV13 in children and adults, respectively.

Objectives. To analyze PCV13 vaccination failures (VF) in children <18 years during 2018-2023 and compare them with those registered in 2012-2016.

Methods. A prospective study was conducted between 2018-2023 in children <18 years with IPD treated in three pediatric hospitals representing 35.6% of Catalan pediatric population. IPD was defined as isolation or PCR detection of *S. pneumoniae* at normally sterile site.

Vaccine protection period (VPP) was defined as the median difference in months between diagnosis of IPD and the last PCV13 dose.

Categorical variables were compared using Pearson's chi-square test or Fisher's exact test. Odds ratios (OR) and 95% CIs were calculated to estimate association of variables with VF.

Results. During 2018-2023, 237 IPD cases were reported in PCV13 vaccinated patients; 179 (75.5%) were ≥12 months- ≤17 years, of whom 88 (49.2%) were VF, being serotype 3 the most common (74/88; 84.1%).

VF was associated with complicated pneumonia (OR: 2.74; 1.03-7.33) and PCR diagnosis (OR: 2.78; 1.11-6.93). Comparing 2012–2016 with 2018–2023, differences in VPP in children 24–35 months (11 vs. 18 months; p=0.009) and 36–47 months (24.5 vs. 28.5 months; p=0.039) were observed. In 2012–2016 there were more IPD cases with 2+0 (23.5% vs. 1.4%; p=0.003) and 3+1 (64.7% vs. 5.5%; p< 0.001) regimens than in 2018–2023.

Conclusions. PCV13 vaccination offers good protection against IPD, although a high rate of serotype 3 VF was detected. VPP was longer in 2018-2023 than 2012-2016. Vaccination status of IPD cases should be monitored in the era of different valences PCVs.

Postnatal maternal bonding and children's cognitive development at 5 years of age in the INMA Project

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Background: Bonding is the emotional connection a mother feels toward her infant and can play a role in child development. Strong maternal bonding has been linked to improved memory, language, motor, and executive outcomes.

Objectives: Examine the association between maternal bonding at one year and neurodevelopment at five years in the INMA Project.

Methods: The participants were 1,007 children from the Asturias, Gipuzkoa and Sabadell cohorts of the INMA Project (start: 2003-2006). Maternal bonding was assessed with the Maternal Postnatal Attachment Scale (MPAS) (age=1) (scales: Bond Quality (BQ), Absence of Hostility (AH), and Pleasure-Interaction (PI)). Neurodevelopment was evaluated with the McCarthy Scales of Children's Abilities (MSCA) (age=5) (scales: verbal, perceptive-performance, numerical, memory, motor, executive functions, and posterior cortex). Descriptive, bivariate, and multivariate analyses were performed. The latter were conducted using inverse probability weighted linear models with false discovery rate (FDR) correction and adjustment for sociodemographic, family, and clinical variables.

Results: The Me(DT) for BQ, AH and PI were 40(3), 20(3) and 22(2), respectively. Cohort differences were found in AH (p=0.001) and PI (p=0.026), with higher scores in Gipuzkoa and Asturias. MSCA scores were around Me(DT) of 100(15). In the bivariate analysis, weak correlations were observed (>|0.2|), being significant and positive between AH and verbal, numerical, memory, executive functions and posterior cortex scales; and significant and negative between PI and perceptive-performance and numerical development. The multivariate trends were similar after incorporating the covariates. After adjusting the p-values with the FDR test, borderline significance was shown for all AH associations, and for that between PI and numerical development (p-value=0.082).

Conclusions: The absence of hostility is positively associated with multiple areas of cognitive development. However, a high desire for interaction may be related to lower numerical development. Positive parenting programmes may improve cognitive development.

Prenatal nutrition with (wall)nuts and fish, omega-3 fatty acids and cognitive trajectories from 4 to 15 years of age

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Background. Understanding the role of maternal diet in early brain development is critical, as pregnancy represents a period of significant vulnerability and growth for the developing brain.
Objectives. This study aims to assess the association between maternal nuts, total seafood, and large fatty fish consumption during pregnancy and offspring neuropsychological function ≤15 y, considering the potential mediation of omega-3 fatty acids.
Methods. This study was part of The Spanish Childhood and Environment birth cohort, following 1737 mother-child pairs from pregnancy to age 15. Maternal diet was evaluated using a semiquantitative food frequency questionnaire, whereas children's neuropsychological function was measured through standardized computer-based tests. Attention (hit reaction time and its variability, HRT and HRT-SE) was measured with the Conners' Kiddie Continuous Performance Test and the Attention Network Test. Working memory (detectability in 2-back, d2', and 3-back tasks, d3') was evaluated using the N-back task. Fluid intelligence was assessed with Raven's Progressive Matrices and the Test of Primary Mental Abilities. Linear mixed-effects regression models assessed the association of nuts, seafood and large fatty fish with neuropsychological outcomes, whereas generalized structural equation modeling was used for mediation analyses.
Results. Higher maternal nut consumption was significantly linked to improved attention [HRT-SE β = -0.05, 95% confidence interval (CI): -0.09, -0.00] and working memory (d2' β = 0.05, 95% CI:

0.00, 0.09, and d3' β = 0.06, 95% CI: 0.02, 0.11) in offspring. Greater consumption of large fatty fish was associated with better attention (HRT-SE β = -0.06, 95% CI: -0.10, -0.02; and HRT β = -0.04, 95% CI: -0.08, -0.00), and fluid intelligence (β = 0.08, 95% CI: 0.02, 0.13). Omega-3 fatty acids mediated 8%-14% of these effects on attention.

Conclusions. Maternal diet at pregnancy and omega-3 intake may support long-term cognitive development in children and adolescents.

Prevalence of acquired resistance to antiretrovirals in children and adolescents living with HIV under clinical follow-up at the Roosevelt Hospital in Guatemala

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Background. Insufficient HIV drug resistance (HIVDR) monitoring in Central America has resulted in widespread circulation of HIV-strains with drug resistance mutations (DRM), compromising antiretroviral therapy (ART).

Objectives. This study aimed to assess the first HIVDR data and DRM patterns in the only HIV-infected pediatric population with resistance information in Guatemala.

Methods. All HIV-1 infected children and adolescents tested for HIVDR between 2013 and 2021 at Roosevelt Hospital (Guatemala) were retrospectively selected. Their first HIV-1 protease and/or partial retrotranscriptase sequence, when available, was recovered to detect acquired DRMs to three antiretroviral families and predict resistance to 20 antiretrovirals using the Stanford HIVdb Algorithmv9.5. We compared results with previously recorded DRM data from clinical files. The HIV infecting variant was characterized by phylogeny in those with available sequence.

Results. Ninety-nine children/adolescents were selected, most perinatally infected (93%) and without neonatal prophylaxis (92.3%). The 66 with available sequences harbored HIV-1 subtype B. At first DRM genotyping, all had detectable viral loads (>40cp/ml), 58.6% experienced virological failure (>1,000cp/ml) despite prior antiretroviral exposure (100% to NRTI, 77.8% to NNRTI, 32.3% to PI and 4% to INSTI). Most (77.9%) experienced delayed HIV diagnostic. Half received ART within the first month post-diagnosis. Seventy-nine (81.4%) harbored viruses with DRM: 61 (61.6%) to NRTIs, 70 (70.7%) to NNRTIs and 6 (6%) to PIs (major DRMs). Half (52.5%) presented dual resistance (NRTI+NNRTI) and 5.3% triple (NRTI+NNRTI+PI). The most frequent DRM to NRTIs were M184V/I/M (47.5%), to NNRTI K103N/R (48.5%), and to PIs M46I/L/V (5.3%). Most (88.4%) carried PI-susceptible viruses.

Conclusions. This study updates HIVDR and HIV-1 variant data in Guatemala, offering the first resistance insights for HIV-infected children and adolescents, showing than PI and INSTI-based regimens may enhance HIV management in this vulnerable pediatric group. Periodic HIVDR monitoring is crucial to control the HIV epidemic in Guatemala.

Prevalence of HCV and HIV in People Who Inject Drugs: Transmission Determinants

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Background. People who inject drugs (PWID) are at high risk for infection by blood-borne viruses such as HCV and HIV. Monitoring their prevalence and associated factors is essential to guide prevention and treatment strategies.

Objectives. To estimate the prevalence of HIV and HCV antibodies (Ab) and HCV RNA among PWID, and to identify gender-specific determinants of transmission.

Methods. Cross-sectional study of PWID ≤6 months ago (N=533) attending harm reduction services in Catalonia, conducted between October 2024 and January 2025. Dried blood spot (DBS) samples were collected for HIV and HCV serology testing. A subsample of 287 participants DBS were also tested for HCV RNA. Data on sociodemographics, drug use, and structural vulnerability were analysed. Prevalence estimates were age-adjusted and stratified by gender (cis-men, cis-women and non-binary).

Results. Seroprevalence of HCV and HIV were 57.0% and 35.2%, respectively. Active HCV infection was found in 18.8% of cases. Although not statistically significant, HIV prevalence was higher among cis-women (42.1%) and non-binary individuals (62.5%) compared to cis-men (33.4%). Similarly, cis-women showed a higher prevalence of active HCV infection than cis-men (also non-significant). 10.4% reported syringe sharing ≤6 months ago, whilst 32% reported sharing injection equipment. HCV Ab prevalence was higher among individuals from Eastern Europe and those injecting for over five years, whereas HIV prevalence was higher among homeless men. HCV seroprevalence was higher in women and non-binary individuals who shared injection equipment, while HIV prevalence was higher in men who did so. HIV and HCV seroprevalence was higher in those who had been incarcerated.

Conclusions. High prevalences of HIV and HCV among PWID in Catalonia calls for gender-responsive harm reduction and healthcare strategies. Tailored interventions must address individual behaviours, and especially social and structural vulnerabilities to effectively reduce transmission and improve their health outcomes.

30-days post-discharge mortality following RSV-associated hospitalizations in older adults: insights from four Spanish regions (2023–2024)

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Background. Growing evidence shows that respiratory syncytial virus (RSV) poses a major health burden among older adults. However, limited data exists on the complications and mortality following an RSV-related hospitalization.

Objectives. To investigate mortality during an RSV-associated hospitalisation and within 30-days post-discharge in adults ≥65 years across four Spanish regions during the 2023/24 RSV season.

Methods. A retrospective observational study based on medical records reviews of patients aged ≥65 years hospitalized for at least 24 hours due to RSV and/or with a laboratory-confirmed RSV infection by RT-PCR between October 27, 2023, and May 3, 2024. The study included data from Catalonia, Navarre, Seville and Valencia with a total population of adults' ≥65 years covered of approximately 2 million. Depending on the region, either all RSV hospitalizations were included or a target sample size of 138–150 patients was set. A descriptive analysis of the case fatality rate overall and by age group was conducted. Mortality was defined as deaths occurring during hospitalization or within 30-days post-discharge, directly or indirectly related to RSV.

Results. A total of 552 RSV hospitalizations were included, ranging from 113 in Navarre to 139 in Catalonia with a median age of 81 (IQR 74, 88). Case fatality rates ranged from 10% to 12%, with differences in the mortality setting (in-hospital vs. post-discharge) observed across regions (Table 1). The highest rates were consistently observed in patients ≥85 years.

Conclusions. RSV case-fatality rates were similar across all regions, with an average of 12% of the hospitalizations resulting in death. The case-fatality setting and age group variations could reflect differences in the data sources available per region, as well as clinical practice differences in palliative care.

Table 1. Case fatality rates in individuals aged 65 years or older hospitalized due to respiratory syncytial virus or with a laboratory-confirmed infection.

	Catalonia	Navarre	Seville	Valencia	Total
N	139	113	162	135	549
Age (median (IQR))	84 (76, 89)	81 (74, 88)	81 (73, 87)	80 (74, 87)	81 (74,88)
Case-fatality rates	14 (10%)	14 (12%)	20 (12%)	15 (11%)	63 (11%)
In-hospital	8 (5.8%)	13 (12%)	17 (10%)	9 (6.7%)	47 (8.6%)
within 30-days post-discharge	6 (4.3 %)	1 (0.9%)	3 (1.9%)	6 (4.4%)	16 (2.9%)

Unravelling GII.17[P17] Norovirus transmission clusters in two consecutive outbreaks in a Spanish hospital: a retrospective whole-genome analysis with implications for infection prevention and control

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Background. Norovirus (NoV) outbreaks in healthcare settings have high attack rates and are difficult to control, complicating infection prevention and control (IPC) efforts. Identifying infection sources and transmission chains is crucial but often limited by traditional epidemiological approaches.

Objectives. We used metagenomic Next-generation Sequencing (mNGS), to investigate two consecutive NoV outbreaks (February and May 2024) in a Spanish hospital.

Methods. NoV-positive stool samples among 54 symptomatic patients in Geriatrics and Oncohematology were identified by fluorescence immunoassay (FIA), genotyping RT-PCR, and LiquidArray®. mNGS was performed on 26 NoV-positive samples. Transmission clusters were investigated using single nucleotide variant (SNV) analysis, Bayesian phylodynamics, and maximum-likelihood phylogeny. Genomic data was integrated with epidemiological information.

Results. FIA and RT-PCR detected 29.5% and 85.7% of cases compared to LiquidArray®. NoV-positive patients in Oncohematology were not detected by FIA. All cases were due to the globally emerging GII.17[P17] genotype. Phylogenetic analysis identified three distinct transmission clusters (≥17 SNVs), two in Outbreak-1 (Geriatrics and Oncohematology), and one in Outbreak-2 (Geriatrics). Transmission trees showed sustained spread in both outbreaks, with 0-3 unobserved intermediate cases, likely representing healthcare workers (HCWs) not routinely tested. Often, patients with identical NoV sequences lacked epidemiological links, suggesting indirect or fomite transmission. One patient shed virus up to 16 days post-symptoms.

Conclusions. FIA showed low sensitivity highlighting the need of confirmatory molecular testing for accurate outbreak management. mNGS confirmed two separate introductions during Outbreak-1 that were simultaneously circulating in two wards, a link previously missed by epidemiological investigations. It also identified a separate introduction for Outbreak-2, underscoring the effectiveness of IPC measures. Extended shedding and fomite transmission likely sustained spread. Tailored IPC protocols for HCWs are essential, as testing symptomatic staff could clarify transmission links. These findings emphasize the utility of genomic data to investigate transmission links and guide IPC strategies in healthcare settings.

Walking promotion in healthy pregnancy and perinatal outcomes: A multivariable analysis comparing active and sedentary mothers

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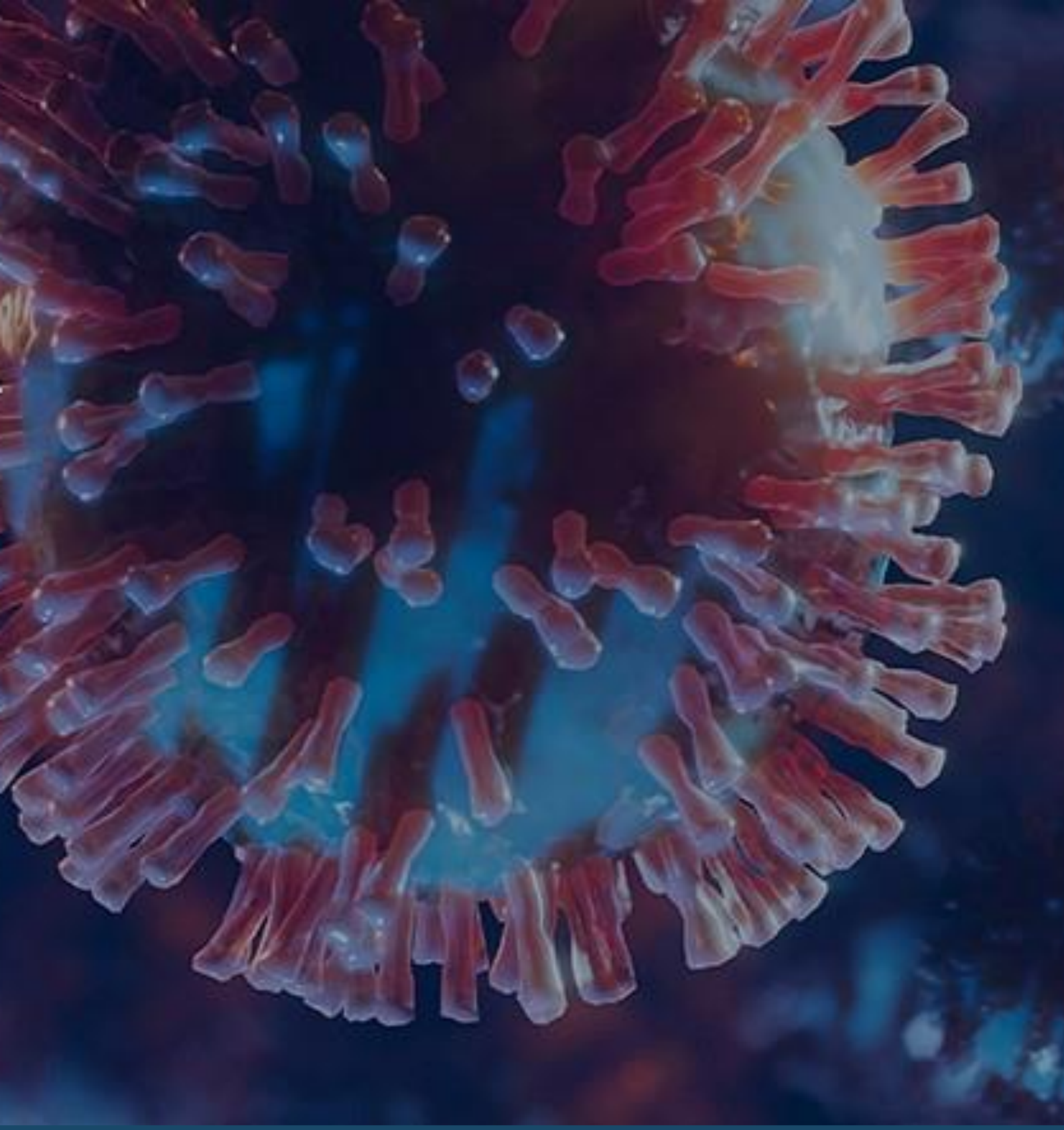
Background. Physical activity (PA) during pregnancy has been shown to reduce medical risks, but the question remains whether it is helpful in promoting better obstetric and perinatal outcomes at birth.

Objectives. We explored the relationship between walking activity in the third trimester of pregnancy, measured through pedometers step count, and mother and neonatal outcomes.

Methods. This was a secondary analysis of the Walking_Preg Project (WPP), a randomized clinical trial (NCT03735381). Participants were healthy, low-risk pregnant women aged 18–39 years who were not previously physically active. Data, including pedometer step counts and medical records, were collected at key pregnancy stages. In the third trimester, the WPP cohort was classified as physically active (≥7,500 steps/day) or sedentary (<7,500 steps/day) based on Tudor-Locke and Bassett's index. Multivariable analyses assessed obstetric and neonatal outcomes between groups, adjusting for age, pre-gestational BMI, GWG category, social class, smoking, second-trimester walking, and third-trimester insomnia, using odds ratios (OR) and 95% confidence intervals (CI)."

Results. There were no statistically significant differences ($p > 0.05$) for obstetric variables (gestational week at delivery, labor induction, elective caesarean delivery, spontaneous vaginal delivery, instrumental delivery, emergency caesarean delivery) or neonatal variables (neonatal weight, Apgar score at 1 minute and at 5 minutes) when comparing physically active pregnant women in the third trimester with those who were sedentary. No association was found between walking ≥7,500 steps/day in the third trimester and labor induction (aOR=0.27, 95% CI 0.52-1.47), emergency caesarean delivery (aOR=1.10, 95% CI 0.46-2.61) or neonatal weight (adjusted ß= 97.55, 95% CI -64.03-259.14).

Conclusions. In healthy pregnant women, walking activity during the third trimester did not alter obstetric or neonatal outcomes. Therefore, it is in accordance with the World Health Organization's recommended physical activity for healthy pregnant women.



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