

Selezione pubblica, per esami, per il reclutamento a tempo indeterminato di n. 1 unità di personale appartenente all'Area dei Funzionari, settore scientifico-tecnologico, per le esigenze del Dipartimento di Ricerca Traslazionale e delle Nuove Tecnologie in Medicina e Chirurgia, prioritariamente riservato alle categorie di cui al d.lgs. n. 66/2010, indetta con d.d n. 842 del 30 ottobre 2024.

## PROVA ORALE N.1

- 1) Sorveglianza epidemiologica integrata delle malattie virali respiratorie acute
- 2) Emoagglutinazione (HI), emolisi radiale singola (SRH) e microneutralizzazione (MN): significato ed applicazioni pratiche

### Lo Statuto:

- 3) Il Rettore: funzioni

### Informatica:

- 4) Excel: illustrare i vari tipi di grafici e a che tipo di dati si applicano meglio

### Inglese:

Acute respiratory tract infections are a leading cause of primary care visits in young children. By age 2 years, most children have had at least one RSV infection. Although the fraction of acute respiratory tract infections attributable to respiratory syncytial virus (RSV) in primary care is currently unknown, community-based observational data suggest that RSV has a prominent role. A birth cohort study in Europe (RESCEU) found that approximately 1 in 7 (14.1% [95% CI 12.3-16.0]) healthy term-born infants have medically attended RSV-associated acute respiratory tract infection in the first year of life, and 1 in 56 (1.8% [1.6-2.1]) is admitted to hospital due to RSV infection. Reported incidence rates of RSV in primary care for children younger than 5 years range widely across studies, from 0.8 to 330 (median 109) per 1000 population annually. RSV infection can manifest as a variety of clinical syndromes, including upper and lower respiratory tract infections, such as bronchiolitis and pneumonia. Although most childhood RSV infections do not require hospital admission, the burden of RSV in primary care is poorly studied, and its true extent might not be fully recognised due to the absence of routine RSV testing in this setting (Hak SF, et al. Lancet Respir Med, 2025)

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## PROVA ORALE N. 2

- 1) Whole genome sequencing e analisi dei dati di genomica attraverso alberi filogenetici
- 2) Studi caso-controllo e studio di coorte

### Lo Statuto:

- 3) Il Consiglio di dipartimento: funzioni

### Informatica:

- 4) Quali sono le principali differenze tra Word ed Excel?

### Inglese:

As of 2022 and 2023, respectively, the first long-acting monoclonal antibody (nirsevimab) and maternal RSV vaccine (RSVpreF) were market-approved in Europe. Both immunisation strategies offer passive protection against RSV during the first months of life. Globally, countries are considering or in the process of implementing these strategies in their national immunisation programmes. Additionally, several vaccine candidates targeting children beyond infancy (>12 months of age) are currently in clinical development. To establish the optimal RSV immunisation strategies in terms of impact and cost-effectiveness, it is key to capture the full burden of RSV disease. Previous studies have mainly been done within the community or in hospital settings. To our knowledge, only two prospective cohort studies have specifically examined the burden of RSV infections among children recruited through primary care. However, these studies were either small or focused on bronchiolitis as a case definition. Thus, primary care data on the burden of childhood RSV infections in terms of symptoms, illness duration, health-care resource utilisation, and parental work absence are scarce. Therefore, with the RSV ComNet study, we aimed to identify these clinical and societal burden outcomes among laboratory-confirmed RSV infections in children younger than 5 years presenting with acute respiratory tract infection symptoms in primary care in five European countries, prior to the implementation of novel RSV immunisation strategies. ((Hak SF, et al. Lancet Respir Med, 2025)

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## PROVA ORALE N.3

- 1) Individuazione di marcatori per la definizione di correlati di protezione per i virus respiratori
- 2) Parametri di valutazione delle amplificazioni in realtime-PCR

### Lo Statuto:

- 3) Il Consiglio del corso di studio

### Informatica:

- 4) Che cosa si può fare con PowerPoint?

### Inglese:

Respiratory syncytial virus (RSV) causes a substantial burden of disease in infants worldwide with an estimated annual mortality of 101 400 in children younger than 5 years. Although more than 97% of RSV-attributable deaths occur in low-income and middle-income countries, the health-care burden of RSV infection in high-income countries is considerable, with an estimated annual hospitalisation rate of three per 1000 children younger than 5 years in the USA. Passive immunisation against RSV with palivizumab is available for high-risk groups, including premature infants and children with congenital heart disease or bronchopulmonary dysplasia. Because the majority of children hospitalised with RSV have no pre-existing conditions, a high morbidity is seen in infants younger than 6 months despite the availability of palivizumab. Various maternal vaccine and passive immunisation trials, which aim to protect all infants in the first months of life, are currently in phase 3 or submitted for regulatory approval. Expectations are that within 1-3 years one or several of these products will be approved by regulatory authorities and governments will have to decide whether these newly available prevention strategies should be implemented into their national immunisation schedule. Accurate information about RSV health-care burden in healthy infants is essential for decision makers to evaluate the health and economic benefit of these new prevention strategies (JG Wildenbeest et al. Lancet Respir Med, 2023)

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## PROVA ORALE N.4

1. Epidemiologia sperimentale e conduzione di trial clinici randomizzati
2. Analisi univariata e multivariata per l'aggiustamento del confondimento

### Lo Statuto:

3. Gli organi di governo dell'Università

### Informatica:

4. Indicare a cosa serve il backup dei dati

### Inglese:

Most large studies that aimed to determine RSV-associated hospitalisation rates in young children included children with comorbidities, were country-specific, and partly based on estimates instead of actual numbers. Birth cohort studies estimate disease incidence more accurately, but previous prospective birth cohorts in healthy infants were relatively small (158-1143 participants) and done in one centre or country, restricting generalisability. To our knowledge, the largest prospective birth cohort determining RSV burden was a South African, single-centre study that reported 54 RSV-associated hospitalisations in 1143 children (17% with comorbidity) in the first 2 years of life. To prepare for the introduction of RSV immunisation, the Respiratory Syncytial virus Consortium in Europe ([RESCEU](#)) international consortium was funded by the EU Commission to obtain accurate data on the incidence and long-term consequences of RSV infection in healthy term infants. The RESCEU birth cohort study is the largest multicentre prospective birth cohort that evaluated the incidence of RSV-associated hospitalisations and medically attended acute respiratory infections. It was designed to provide a precise and up-to-date estimate of the total RSV incidence and health-care burden in Europe. Almost 10 000 participants were enrolled in five European countries and 97% were successfully followed up during the first year of life. (JG Wildenbeest et al. Lancet Respir Med, 2023).