

# Value Attributes of Nirsevimab Compared to Placebo and Palivizumab: A Multicriteria Decision Analysis for Respiratory Syncytial Virus Prevention in Spain



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## Mesa de Comunicaciones II: Economic Evaluation I

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# DISCLOSURES

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## Disclosures

NZ, AH, and FA are employed by Vivactis Weber, a research institution that has received funding for managing, coordinating, and executing this research project. JMF, AR, AOS, IM, JA, MGC, MGS, and ROLL have received advisory fees from Vivactis Weber for their involvement as experts in this research project. MCP has not received any form of support for her participation as expert in this research project. All authors have disclosed their conflicts of interest as stated, and this does not influence the objectivity or integrity of the research presented herewith.

# CONTRIBUTIONS

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Jorge Mestre-Ferrándiz<sup>1</sup>, Agustín Rivero<sup>2</sup>, Alejandro Orrico-Sánchez<sup>3</sup>, Álvaro Hidalgo<sup>4,5</sup>, Fernando Abdalla<sup>6</sup>, Isabel Martín<sup>7</sup>, Javier Álvarez<sup>8</sup>, Manuel García-Cenoz<sup>9</sup>, Maria del Carmen Pacheco<sup>10</sup>, María Garcés-Sánchez<sup>11</sup>, Néboa Zozaya<sup>6,12</sup>, Raúl Ortiz de Lejarazu Leonardo<sup>13</sup>

## Contributions

NZ and AH participated in the conception and design of the work. FA, NZ, AR, AOS, IM, JA, JMF, MG, MCP, MGS and ROLL have contributed to the acquisition of data. FA and NZ have analyzed and interpreted the data. FA has drafted the presentation, and NZ has substantively reviewed it. All authors have approved the presentation and have agreed both to be personally accountable for the author's contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

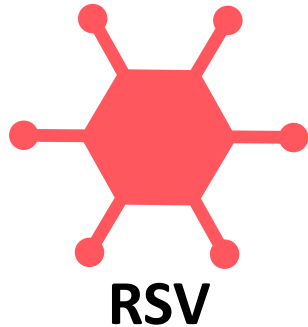


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**INTRODUCTION**

## Justification



RSV is a highly infectious disease with a significant burden, particularly affecting infants (mostly  $\leq 12$  m.o.) [1-5]



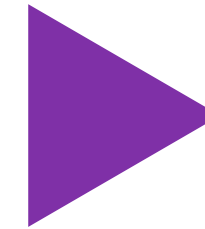
WHO advocates for a comprehensive prevention strategy due to previous unsuccessful attempts [6-10]



MCDA evaluates alternatives using multiple criteria, providing transparency and consistency. It is being increasingly used in health decision-making [11-15]



A specific evaluation framework is needed to assess preventive alternatives in RSV



### Why this study?

1. High RSV burden on neonates and infants
2. No effective treatment or prevention
3. New measure being launched. More to come
4. Needs: (i) specific framework for RSV; (ii) assessment of nirsevimab

## Objectives

1. To develop a **novel MCDA framework** for RSV preventive alternatives
2. To assess the **value of nirsevimab** vs. placebo as a systematic immunization approach to prevent RSV in neonates and infants during their first RSV season in Spain

*=> In addition, a comparison was made between nirsevimab and palivizumab*





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**METHODOLOGY**

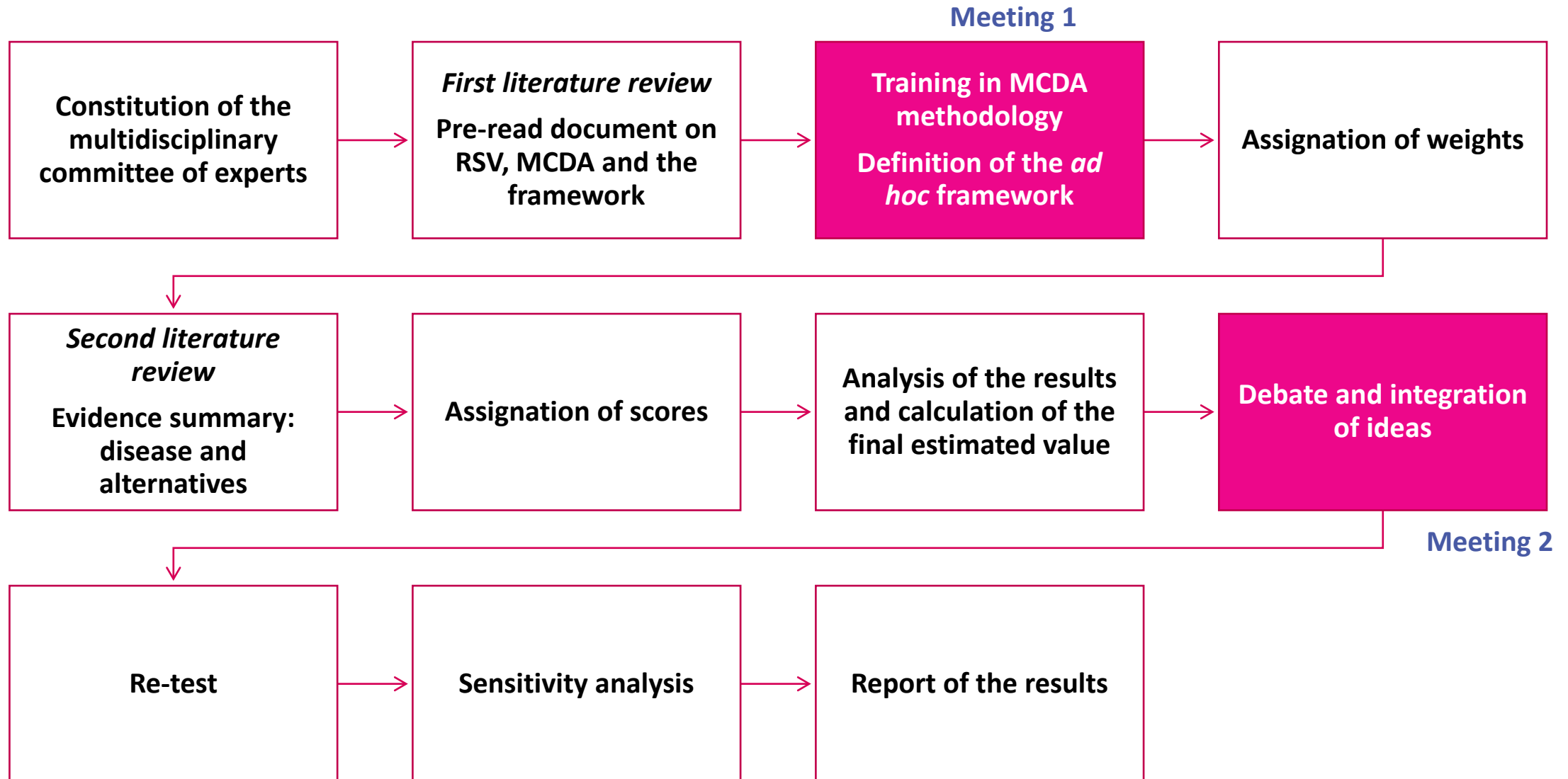
## Expert panel

Study developed by 9 experts with a varied background

Committee members chosen for geographic representation, perspectives, and expertise



## Study design



## Final framework: adapted Vaccinex [20]

<b>Domain 1: Severity of disease</b>		
1	Severity of symptoms	Absolute
2	Lethality risk	Absolute
3	Comorbidity risk	Absolute
<b>Domain 2: Burden of disease</b>		
4	Incidence of RSV cases	Absolute
5	Incidence on the outpatient setting	Absolute
6	Incidence on the inpatient setting	Absolute
7	Time of duration of acute symptoms	Absolute
<b>Domain 3: Prevention or Treatment Alternatives</b>		
8	Prevention alternatives	Absolute
9	Availability of treatment	Absolute
<b>Domain 4: Size of population</b>		
10	Population in which the prevention strategy would be indicated	Relative
<b>Domain 5: Efficacy</b>		
11	Efficacy of the preventive measure	Relative
<b>Domain 6: Population protection</b>		
12	Group immunity (collective protection)	Absolute
13	Transmissibility	Absolute

<b>Domain 7: Safety</b>		
14	Serious adverse events	Relative
15	Mild adverse events	Relative
<b>Domain 8: Quality of evidence</b>		
16	Certainty about the efficacy of the preventive measure	Absolute
<b>Domain 9: Impact on quality of life</b>		
17	Impact on the population of children	Absolute
18	Impact on the population over 65 years of age	Absolute
19	Impact on caregivers	Absolute
<b>Domain 10: Acquisition cost</b>		
20	Monetary cost of the preventive measure	Relative
<b>Domain 11: Impact on other costs</b>		
21	Cost of the disease on the health system (excludes acquisition cost)	Relative
22	Productivity cost: absenteeism	Relative
23	Cost of the disease on the patient (out-of-pocket expenses)	Relative
<b>Domain 12: Social benefits</b>		
24	Impact on health inequity	Relative
25	Public health awareness (including antibiotic resistance)	Relative
26	Innovation stimulus	Absolute

*Absolute: criteria which to not compare the alternatives (scores range on a scale from 0 to 5).*

*Relative: criteria which to compare nirsevimab vs. placebo and vs. palivizumab (scales range from -5 to 5)*

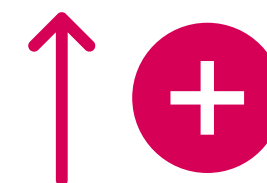
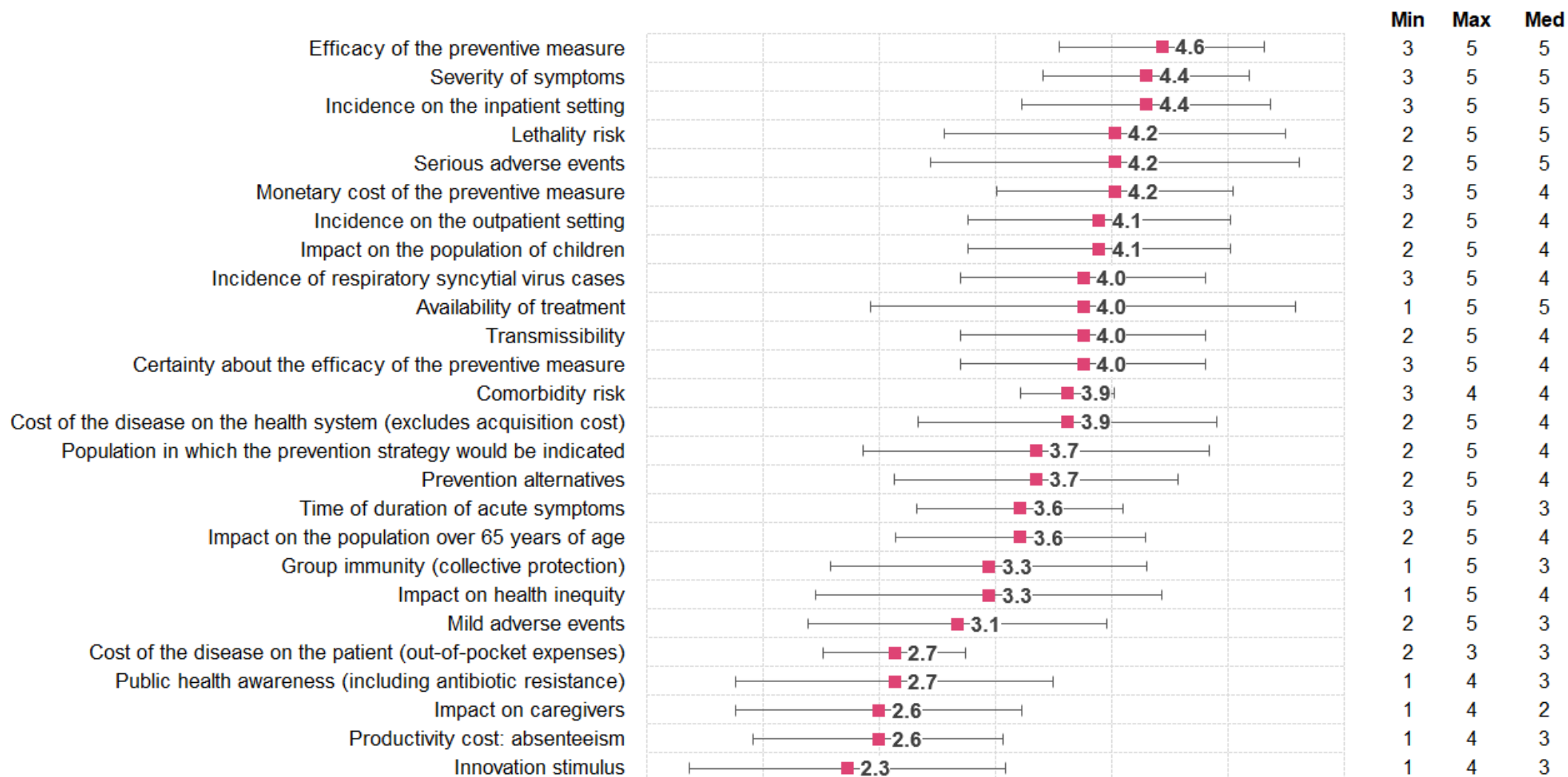


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**RESULTS**

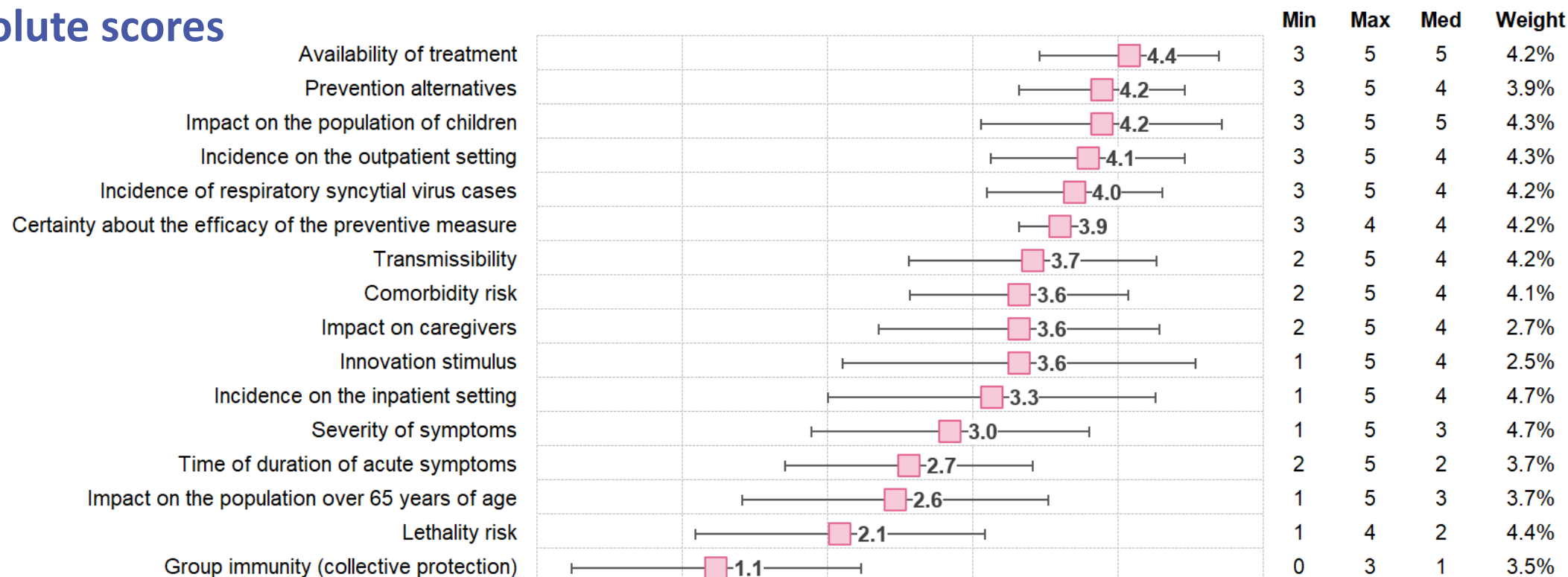
## Weights



Relative importance of each criterion when evaluating any preventive measure in RSV.

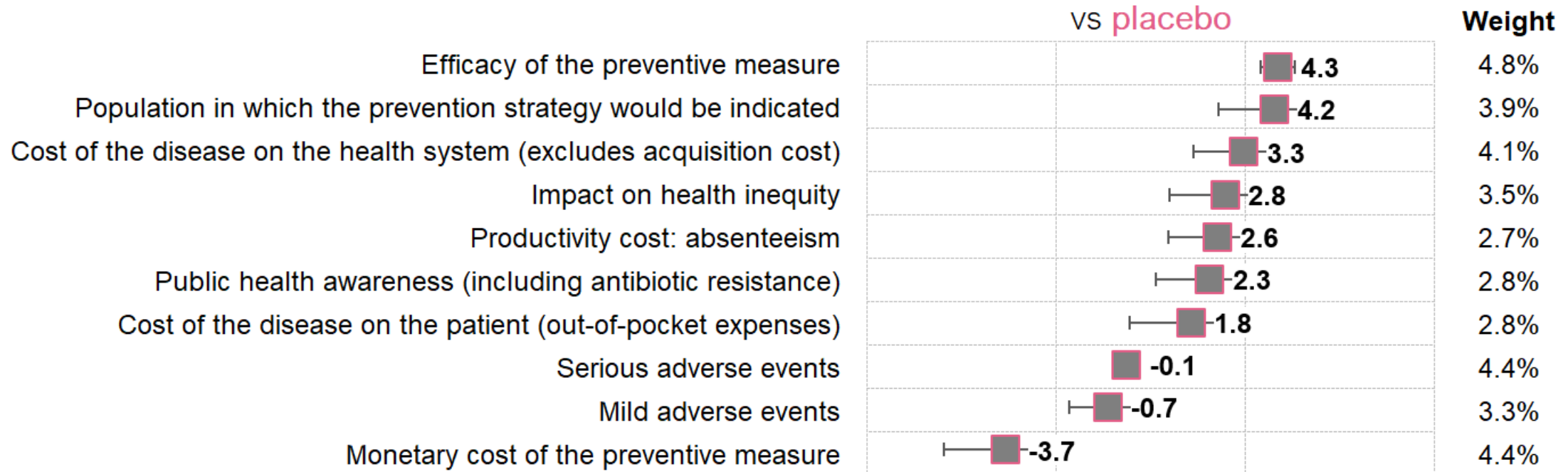


## Absolute scores



- RSV is a disease with **no effective alternative** treatment and with a prevention alternative which is very limited
- Children infected by RSV are at **high risk of developing comorbidities** in the short, medium, and long term
- The **incidence** of RSV is **very high**
- This translates into a very **high burden** of disease, unnecessary consumption of antibiotics and healthcare resources, as reflected by its **outpatient and inpatient incidence**
- It is a highly transmissible pathology, with a **high impact on the population of children**, specially in the most vulnerable below 12 months of age

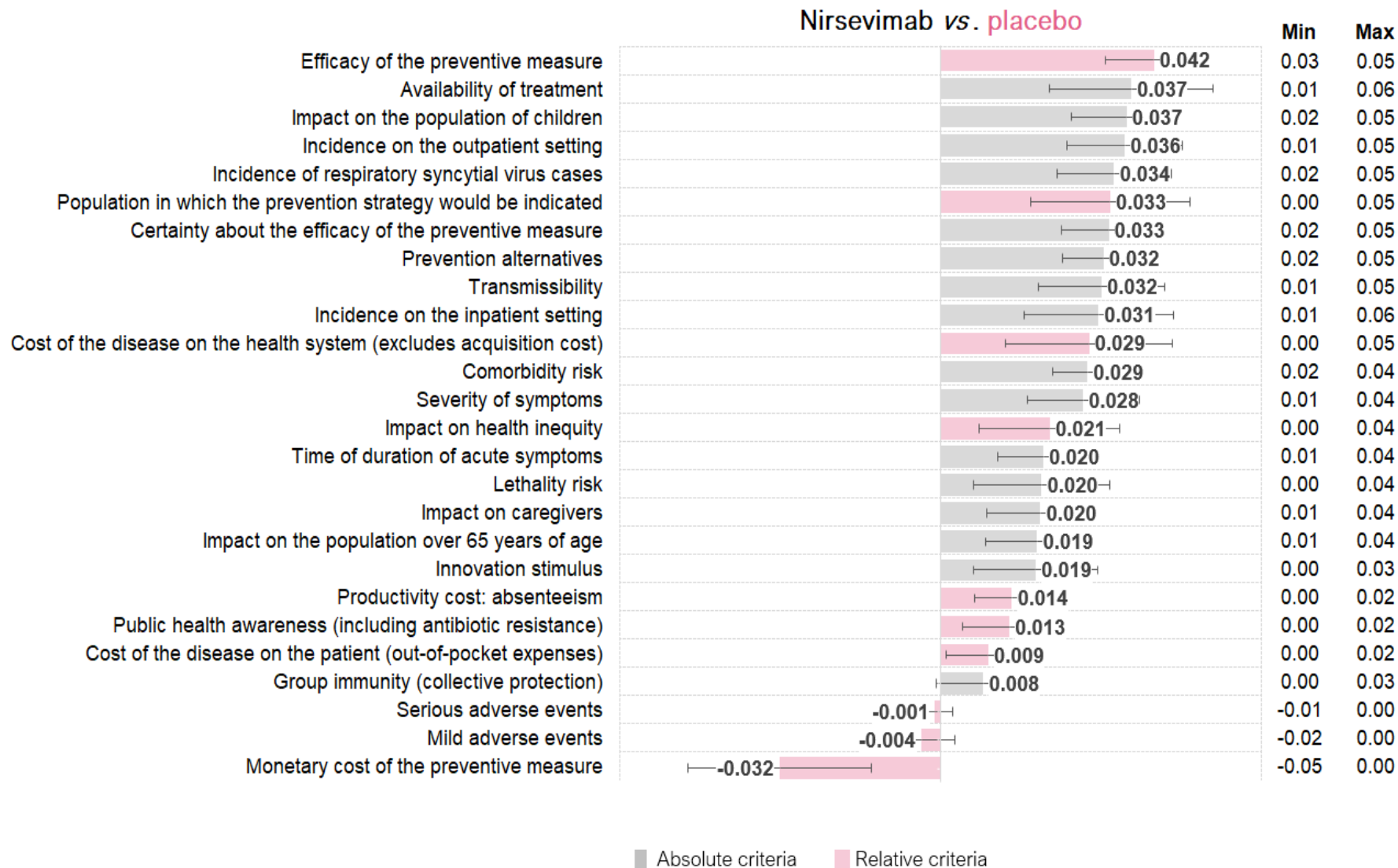
## Relative scores: nirsevimab vs. placebo (no intervention)



Nirsevimab was considered by the MCE as a preventive measure with:

- Clinical benefits: much **more effective than placebo**, remarkably **robust safety profile**, and indicated for neonates and infants during their first RSV season
- Economic benefits: **savings** in other health system costs, such as hospitalizations, outpatient consultations, or emergency room care.
- Social benefits: using nirsevimab would increase public health awareness and **reduce health inequity**

## Final estimated value: nirsevimab vs. placebo



### Final value: $0.56 \pm 0.11$

This value is higher when compared to several other MCDA focused on the value of innovative drugs [21-27].

Criteria with the highest contribution to the final estimated value were:

- Efficacy of the preventive measure (7.5% of total value)
- Availability of treatment (6.7%)
- Impact on the population of children (6.5%)
- Incidence on the outpatient setting (6.5%)
- Incidence of RSV cases (6.1%)



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**DISCUSSION**

## Discussion



### Implications

- Preventive measures have unique characteristics
- Broader criteria needed for evaluation
- Previous studies on vaccine evaluation are not comparable
- Nirsevimab found valuable in preventing RSV



### Strengths

- First MCDA with *ad hoc* framework for assessing preventive measures in RSV
- Clear explanation of MCDA methodology
- Retest conducted for result consistency
- Thorough review of available information



### Limitations

- Experts may not represent all opinions
- Subjectivity exists in MCDA process
- Cognitive complexity with 26 criteria
- Comprehensive narrative review conducted instead of systematic
- Evidence matrix based on publicly available information

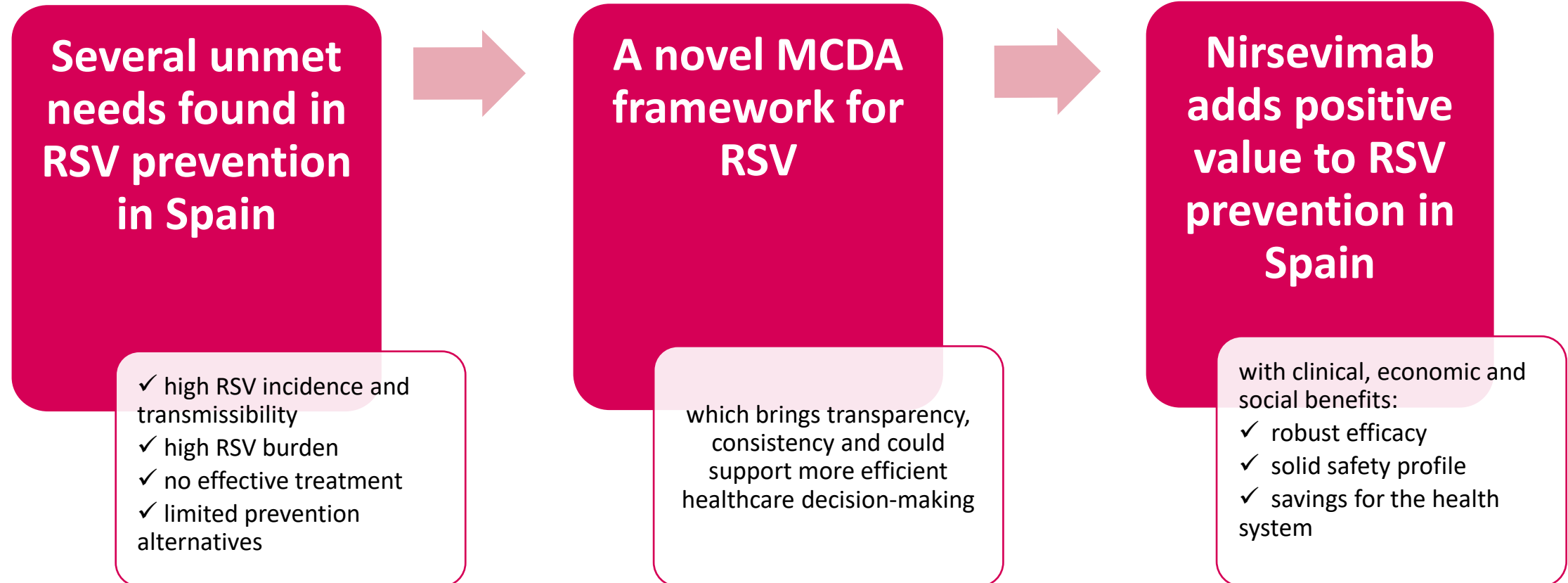


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**CONCLUSIONS**

## Key messages



## Cataluña, al igual que Galicia, vacunará a los bebés contra la bronquiolitis

• Barcelona, 17 mar (EFE).- Cataluña tiene previsto inocular a los bebés el nuevo tratamiento contra el virus respiratorio sincitial (VRS), causante de la bronquiolitis, al igual que Galicia, que lo anunció también el pasado miércoles.

AGENCIAS

17/03/2023 17:25

SALUD VACUNAS

## España estudia recomendaciones sobre el fármaco que inmunizará contra el virus sincitial

• Madrid, 9 may (EFE).- La Comisión de Salud Pública ha celebrado este martes una reunión técnica sobre el fármaco nirsevimab, el primer y de momento único medicamento que inmunizará a recién nacidos y lactantes frente al virus respiratorio sincitial (VRS), causante de la bronquiolitis, en la que apunta a seguir estudiando sus recomendaciones de uso.

AGENCIAS

09/05/2023 20:35

SALUD VACUNAS

## La Comisión de Precios propone financiar el fármaco contra el virus sincitial en bebés

La Comisión Interministerial de Precios de los Medicamentos (CIPM) ha propuesto la financiación parcial o total de nirsevimab, el primer y de momento único medicamento que inmunizará a recién nacidos y lactantes frente al virus respiratorio sincitial (VRS), causante de la bronquiolitis.

12 may 2023 - 16:05



CALENDARIO DE VACUNACIÓN

## El calendario de vacunación infantil incorpora nirsevimab, la nueva arma contra la bronquiolitis

- Los pediatras recomiendan la inclusión de un anticuerpo monoclonal en el calendario de inmunización

Vigo  
18 de enero del 2023.  
17:12



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## Mesa de Comunicaciones II: Economic Evaluation I

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