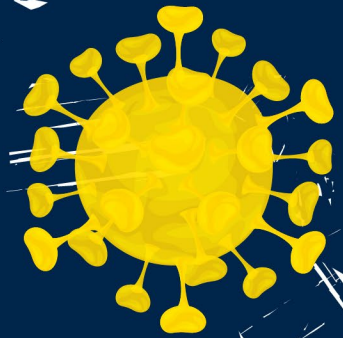
CROI ICAR AWARDS 2024

CROI Affiliated Event for
Italian Young Investigators



CHAIRS:
F. Kirchhoff
(Ulm, Germany, EU)
D. Margolis
(Chapel Hill, North Carolina, USA)

Denver, Colorado
March 4th, 2024
h 06.00 - 07.30 pm

CROI 31st CONFERENCE ON
Retroviruses and **Opportunistic Infections**
MARCH 3-6 2024 DENVER, COLORADO

ICAR 16th NATIONAL CONGRESS
Italian Conference on **AIDS** and **Antiviral Research**
JUNE 19-21 ROME, ITALY

CROI ICAR AWARDS 2024

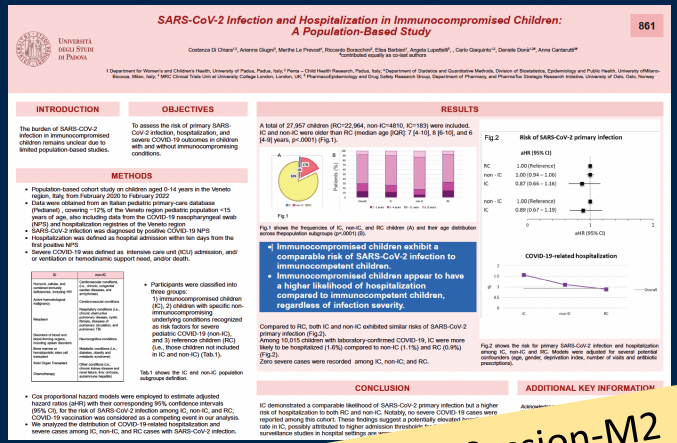
CROI Affiliated Event for Italian Young Investigators

CHAIRS: **F. Kirchhoff** (Ulm, Germany, EU), **D. Margolis** (Chapel Hill, North Carolina, USA)

SARS-CoV-2 Infection and Hospitalization in Immunocompromised Children: A Population-Based Study

Costanza Di Chiara, Giugni A., Le Prevost M., Boracchini R., Barbieri E., Lupattelli A., Giaquinto C., Donà D.#, Cantarutti A.

on behalf of the VERDI study team



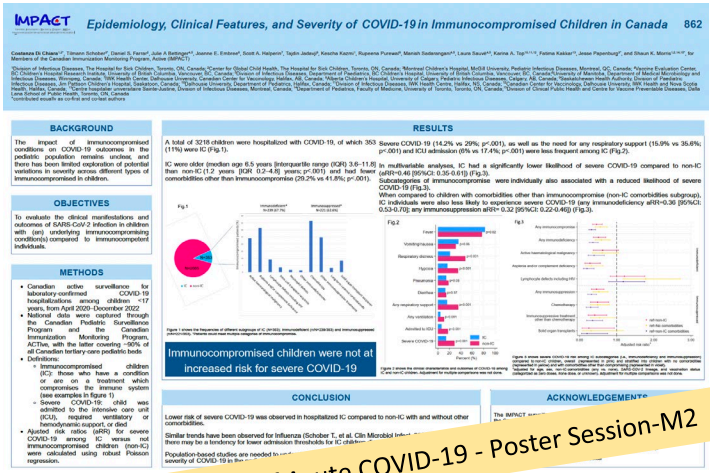
#861 - Poster Session-M2

Background

Conflicting evidence exists on COVID-19 incidence and severity in immunocompromised (IC) children

?

- What is the risk of SARS-CoV-2 infection in IC kids?
- Is IC status a risk factor for severe COVID-19 in kids?



#862 - Factors Affecting Outcome of Acute COVID-19 - Poster Session-M2

CROI ICAR AWARDS 2024
CROI Affiliated Event for Italian Young Investigators

Aparicio C, Preprint. medRxiv. (2024) T. Schober, BMJ Paediatr Open, (2022) D. S. Farrar, Lancet Reg Health Am 15, 100337 (2022).

Study objectives

To assess the incidence and severity of SARS-CoV-2 infection in immunocompromised children.

We evaluated the risk of:

- SARS-CoV-2 primary infection
- COVID-19-related hospitalization
- Severe COVID-19 outcomes

in children with or without an immunocompromising status

Study design and methods

Study design and Data Sources

- Population-based cohort study
- Real-world data from electronic medical registries in Italy and Norway
- Children aged 0-18 years
- Data collected from February 2020 to February 2022

Study design and methods

Definitions

- Severe COVID-19: ICU admission, and/or ventilation or hemodynamic support need, and/or death

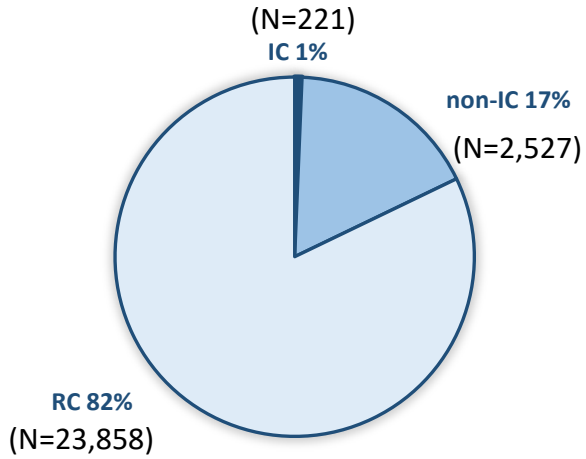
- Participants were classified into three groups:
  - IC: Immunocompromised children (see table)
  - non-IC: Children with specific non-immunocompromising underlying conditions recognized as risk factors for severe pediatric COVID-19 (e.g., diabetes, obesity, etc)
  - RC: Reference children (i.e., neither IC nor non-IC)

IC	non-IC
Humoral, cellular, and combined immunity deficiencies, including HIV	Cardiovascular conditions, (i.e., chronic, congenital cardiac diseases, and arrhythmias)
Active haematological malignancy	Cerebrovascular conditions
Neoplasm	Respiratory conditions (i.e., chronic obstructive pulmonary disease, cystic fibrosis, diseases of pulmonary circulation, and pulmonary TB)
Disorders of blood and blood-forming organs, including spleen disorders	Neurocognitive conditions
Bone marrow or hematopoietic stem cell transplant	Metabolic conditions (i.e., diabetes, obesity and metabolic syndrome)
Solid Organ Transplant	Other conditions (i.e., chronic kidney disease and renal failure, liver cirrhosis, autoimmune hepatitis)
Chemotherapy	

Results – cohorts' characteristics

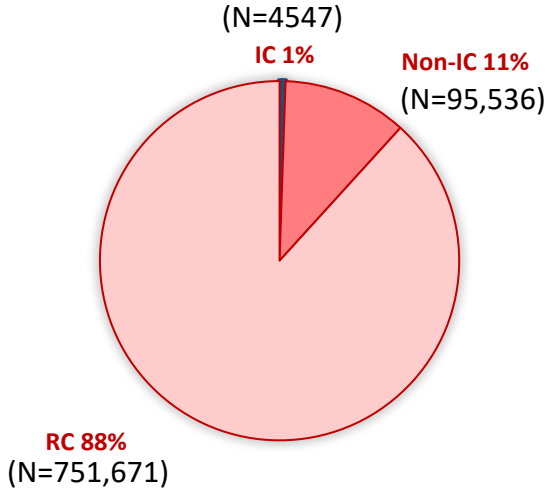
Italy

N=26,606



Norway

N=851,536

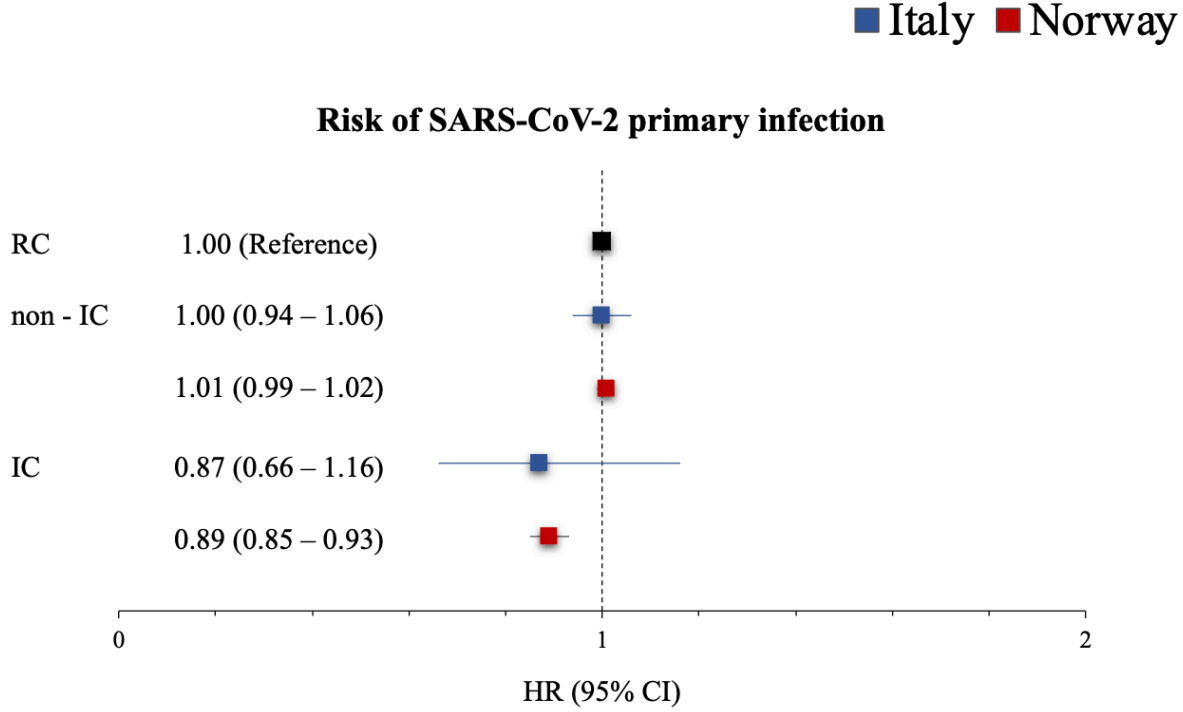


CROI ICAR AWARDS 2024
CROI Affiliated Event for Italian Young Investigators

Italy Norway

Results – Risk of SARS-CoV-2 infection

IC children showed **comparable or lower risk of SARS-CoV-2 infection** to immunocompetent children

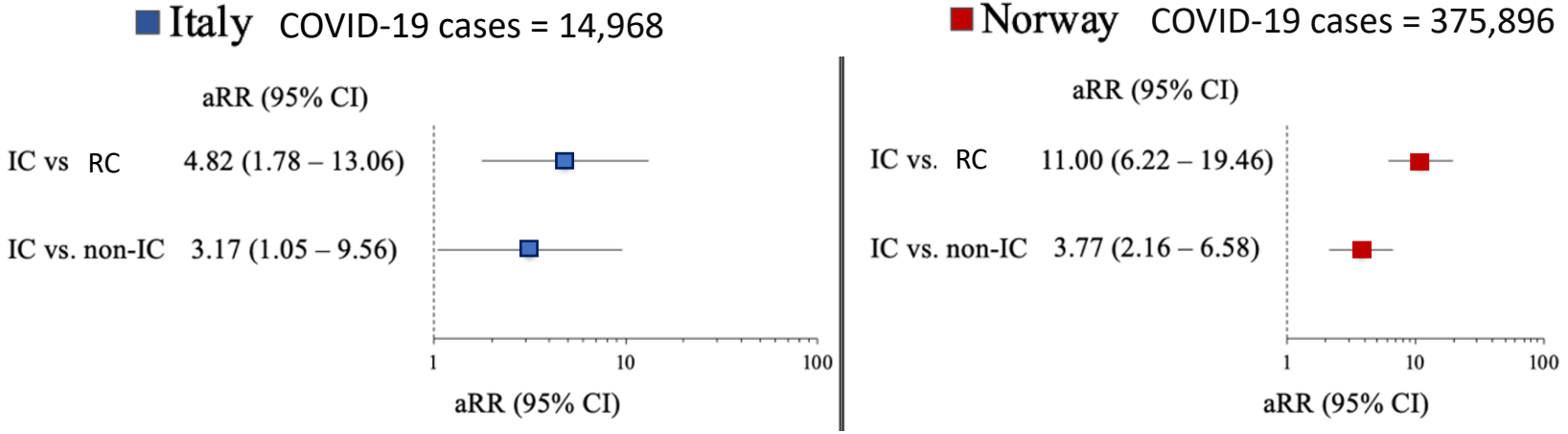


Models were adjusted for several potential confounders (age, gender, deprivation index, number of visits and antibiotic prescriptions). COVID-19 vaccination was considered as a competing event in our analysis.

CROI ICAR AWARDS 2024
CROI Affiliated Event for Italian Young Investigators

Results – Risk of hospitalization

IC children had a **4-11-fold higher risk of hospitalization** compared to immunocompetent children without other risk factors, regardless of infection severity



Zero and five cases developed severe COVID-19 in Italy and Norway, respectively.

Conclusions

- Data from Italy and Norway are in general comparable
- IC children showed a comparable / lower risk of SARS-CoV-2 primary infection but a higher risk of hospitalization compared to both non-IC and RC
- Notably, severe COVID-19 cases were very rare in both datasets
- Lower risk of infection IC may be related to a reduced exposure (e.g. higher isolation measures) and/or higher vaccine acceptance
- Higher hospitalization rate in IC may be due to lower admission thresholds
- The higher risk of hospitalization in IC did not translate into higher rate of COVID-19 severity.

Acknowledgments

This work is part of the VERDI project (grant no. 101045989), which is funded by the European Union.

Thank you!

costanza.dichiara@unipd.it

@C_DiChiara_MD

costanza-dichiara