Daycare intervention in Helsinki district

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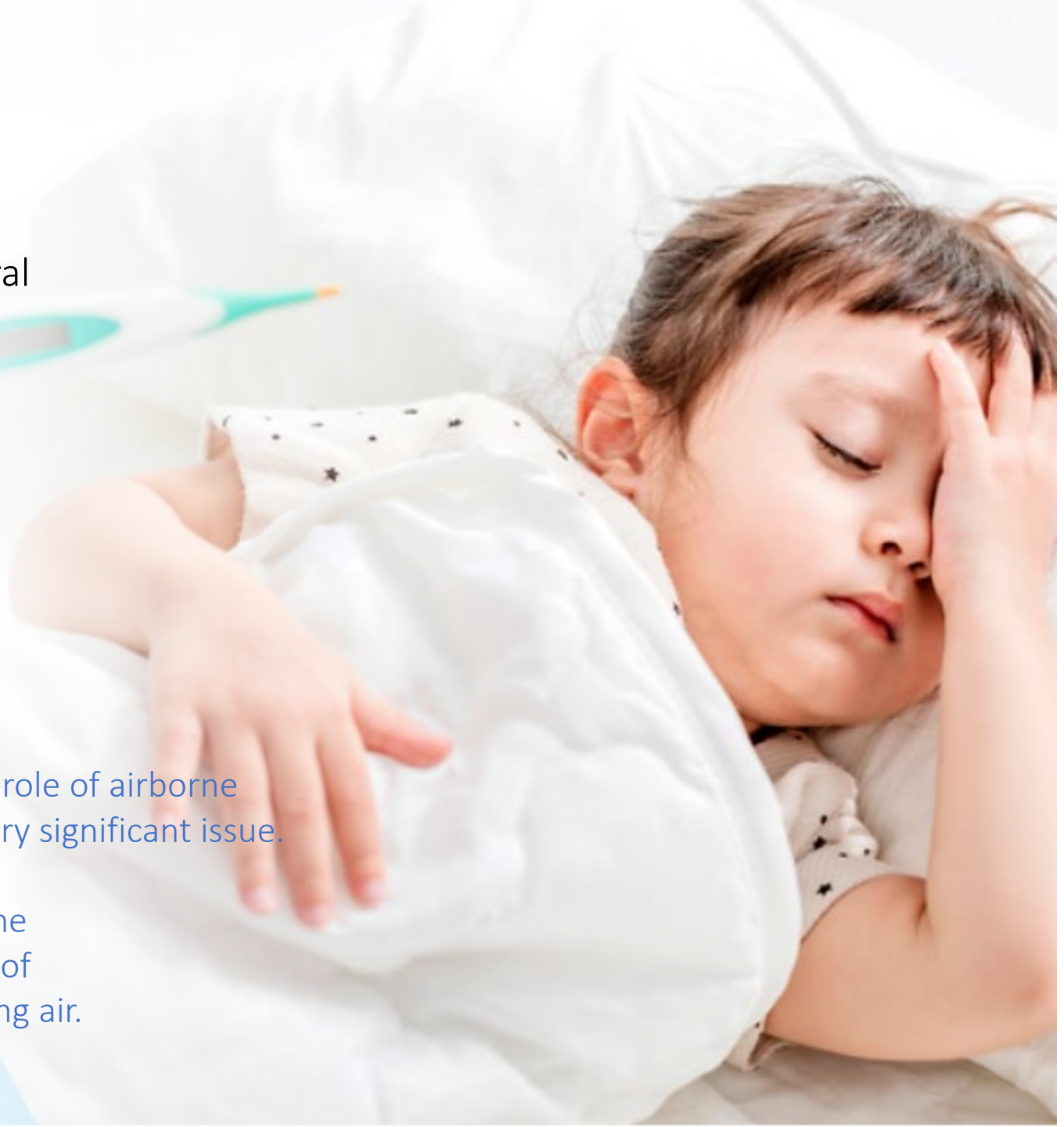
Background

- Children get an average of 10 to 13 viral infections a year.
- Viral infections last an average of 7 to 21 days
- The early childhood education personnel were approximately 21-29 days of absences from work in 2020
- This causes substantial financial costs both to the family and society

During the current Covid-19 pandemics the role of airborne transmission route of pathogens became very significant issue.

Attempts to minimize the amount of airborne infections will require substantial reduction of infective pathogen concentration in breathing air.



Hypothesis

Reducing the presence of pathogens in the air decreases the occurrence of upper respiratory infections.

Air purification also reduces the incidence of gastrointestinal illnesses.

This leads to a decrease in employee sickness and consequently fewer absences.

Parents’ absences from work due to their own or their child’s illness in the family also decrease.

E3 Daycare research in Helsinki

Survey in all daycare centers in Helsinki - overall morbidity age group 3-5 years

Survey research

Daycare A /1. year

Daycare B/1.year

Daycare C/2.year

Daycare D/2.year

1. Year

Air purification using different technologies is being implemented in two daycare centers

2. Year

Air purification will be switched to two other daycare center

Indoor air quality measurement campaigns

One campaign 2 weeks, 2 times per year

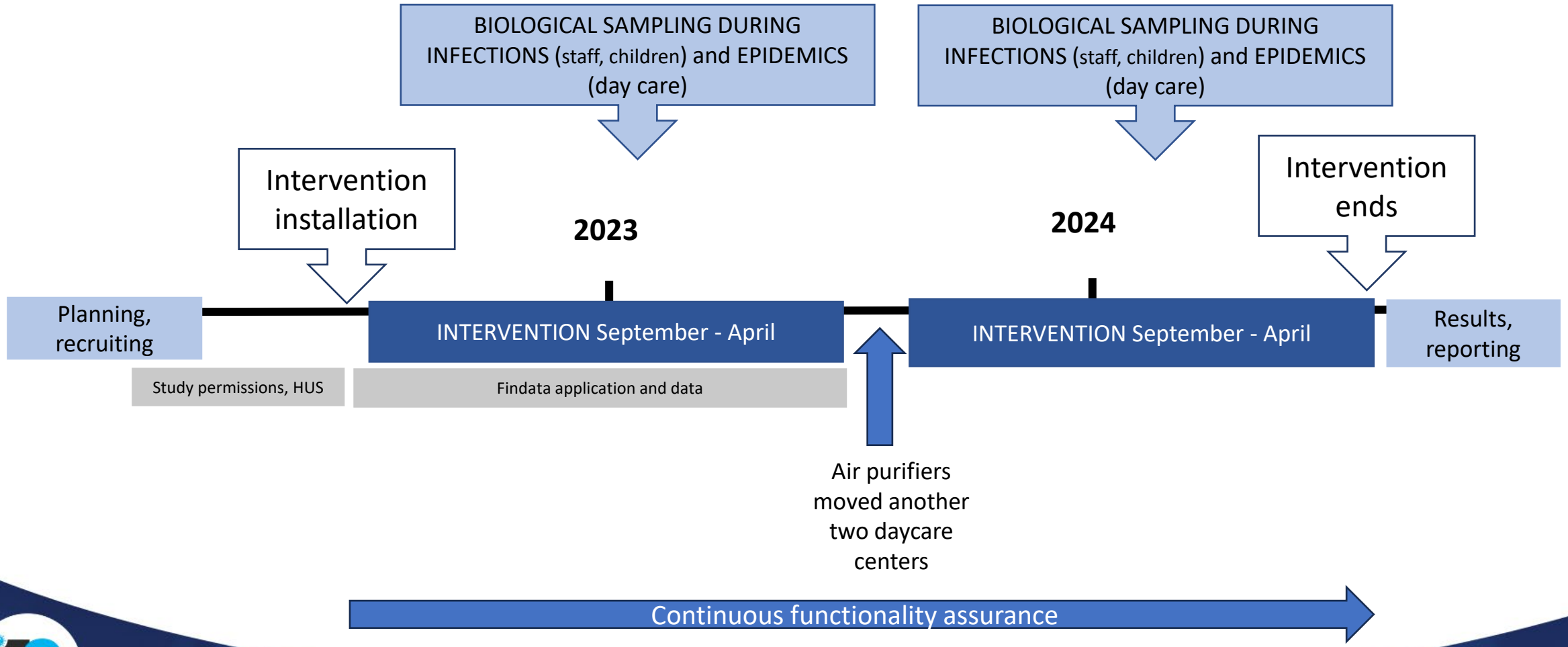
Continuous research on morbidity

Surveys, biological samples

Reseach objectives

- The main purpose of the study was to determine **whether air purification can reduce the incidence of upper respiratory infections and gastrointestinal illnesses** in children and adults.
- **The measurement of pathogens and aerosol concentrations**, along with biological samples, refined the research design and allowed for a better assessment of its strengths and weaknesses.
- The study was focused on **air purification and the measurement of indoor air conditions** to find direct and indirect indicators for identifying airborne pathogens.

Timeline


BIOLOGICAL SAMPLING DURING INFECTIONS (staff, children) and EPIDEMICS (day care)
BIOLOGICAL SAMPLING DURING INFECTIONS (staff, children) and EPIDEMICS (day care)
Intervention installation
Intervention ends
2023
2024
Planning, recruiting
INTERVENTION September - April
INTERVENTION September - April
Results, reporting
Study permissions, HUS
Findata application and data
Air purifiers moved another two daycare centers
Continuous functionality assurance

Research organisation

The research was led by Ville Vartiainen from Helsinki University Hospital and Piia Sormunen from Tampere University.

Several leading companies participated in the collaboration, providing diagnostics, ventilation, and sensor technology. The research institutions involved were Helsingin yliopistollinen sairaala (HUS), Tampereen yliopisto, Tampereen ammattikorkeakoulu, Ilmatieteen laitos, Työterveyslaitos, Terveyden ja hyvinvoinnin laitos, VTT and Helsingin yliopisto.

The daycare research included the following companies:

Granlund, Air0, Halton Group, Lifa Air, Alme Solutions, Inspector SEC (ISEC), Airlyse, Filterpak and Roche Diagnostics.

The companies participating in the research provided technology and services free of charge to enable the research.

THANK YOU!

We would like to extend our warmest thanks to all the companies that participated in the research. Your generous support and the technology and services you provided made this important research possible.

Without your contribution, we would not have been able to achieve these significant results that promote the health and well-being of both children and adults. Thank you for your cooperation and commitment to our shared goal.