



meersens
The guardian of your health

Solution for personalized monitoring of patients or the public to determine the impact of air quality on health. Recommendation of behavioral changes to improve well-being and health

CONFIDENTIAL

Exposome & air quality

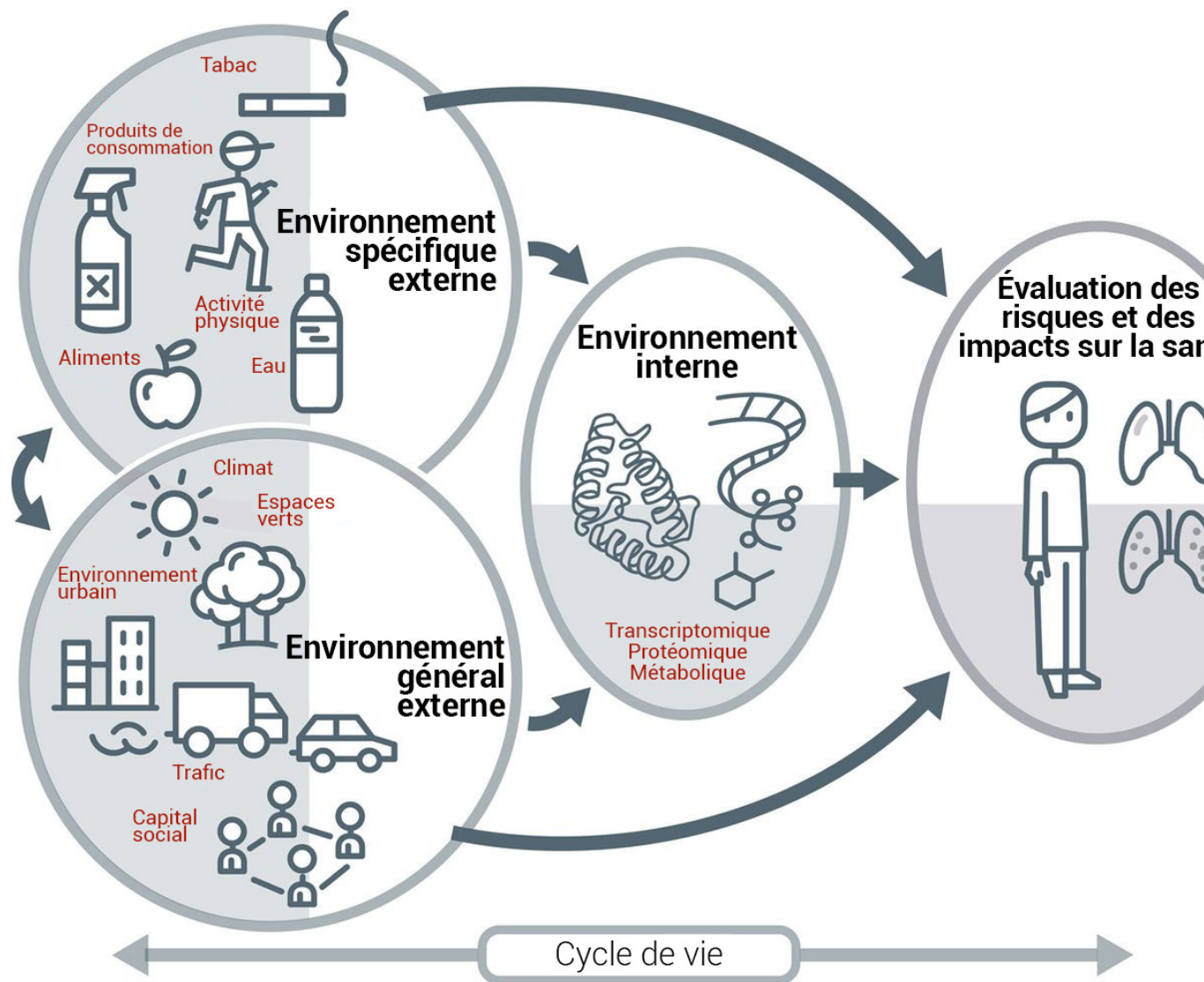


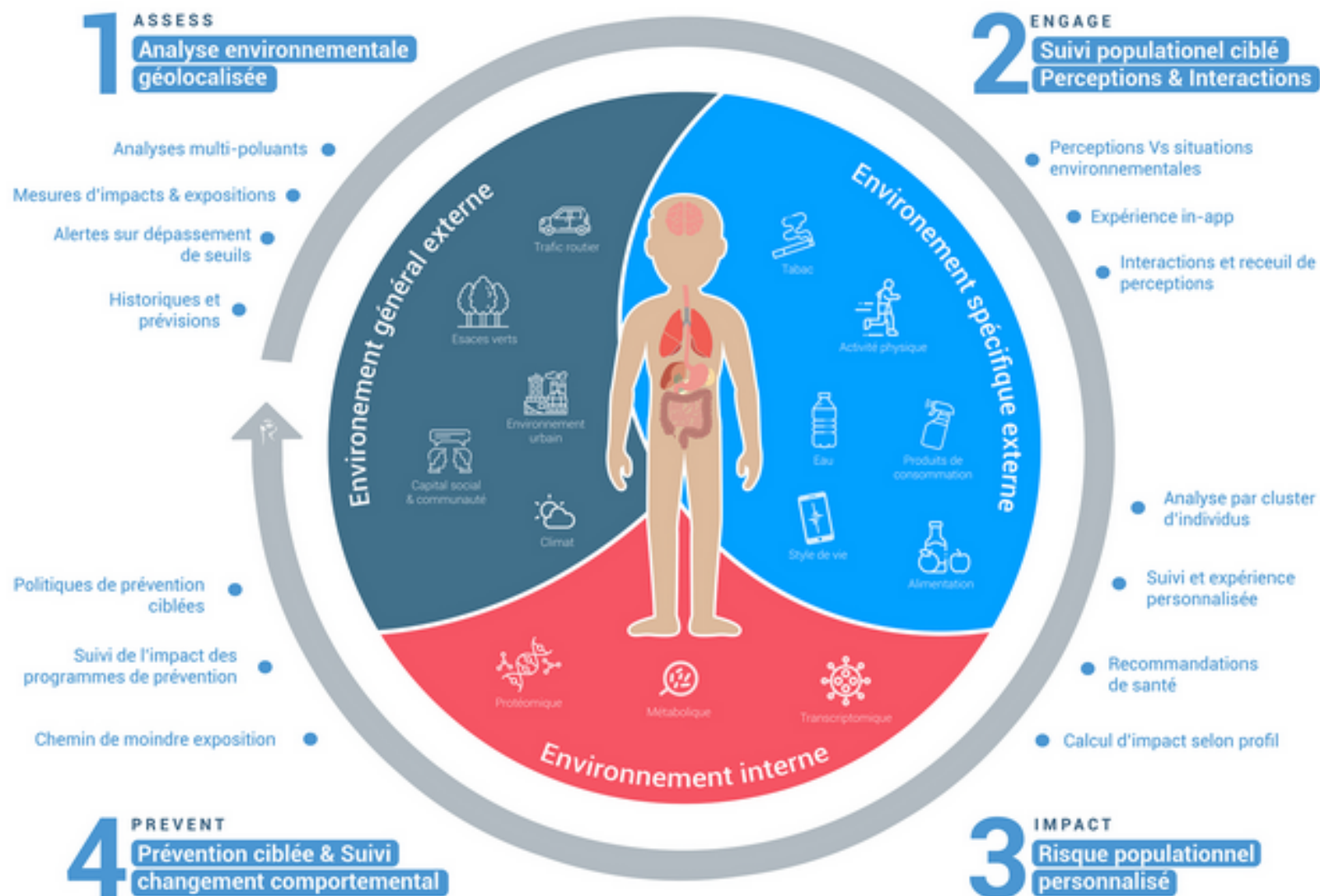
Exposome & air quality

15 M death
each year (world)
ENVIRONMENT



900 000 premature death
Europe each year
AIR QUALITY





Technological development: Qualify environmental impact on health



Norms and standards

Pollutants value



Association with
WHO standards



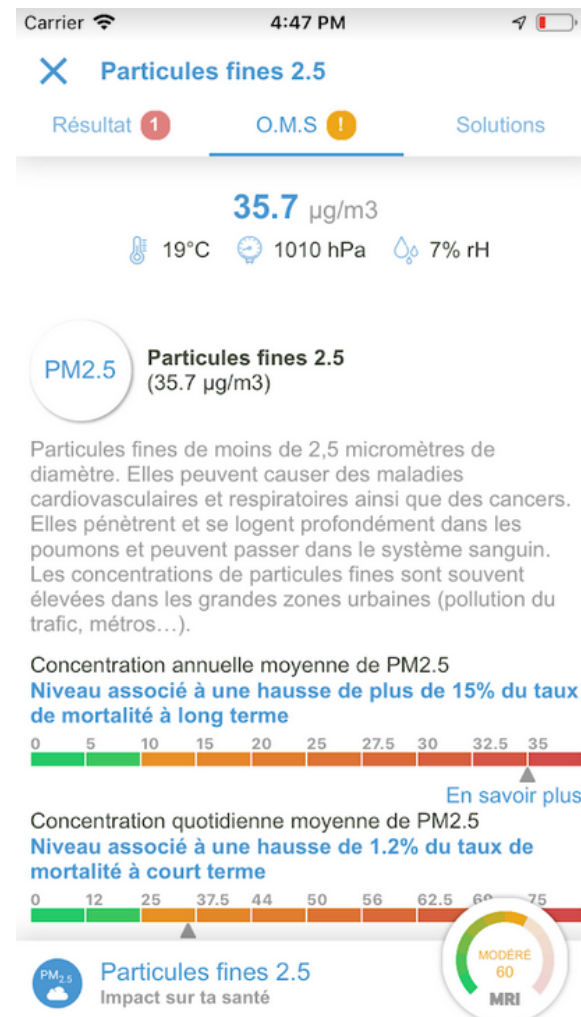
Conversion in MRI
(0-100)



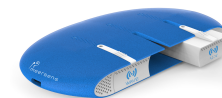
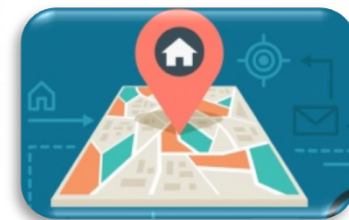
Risk comparison
between pollutants



Global air quality
MRI calculation



Databases, modeling, assimilation and measurements

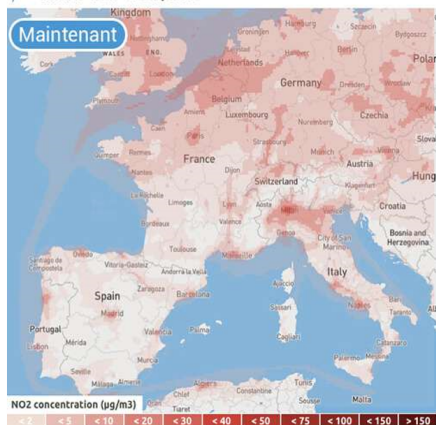


Databases

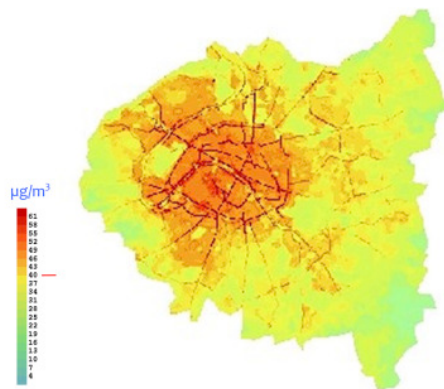
Europe daily average NO₂ concentration
- 31st, 2019



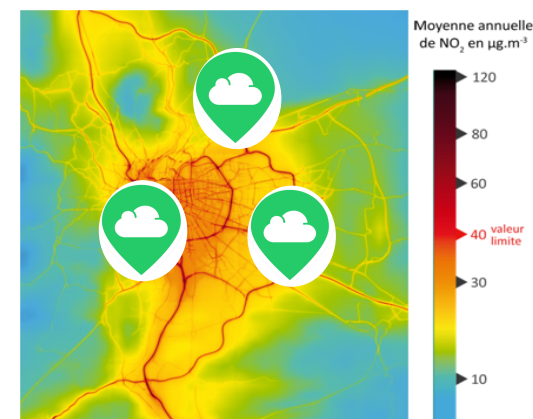
Western Europe daily average NO₂ concentration
March 18th - 29th, 2020



Modeling



Data assimilation



Pollution and health profile



Value conversion
on Meersens scale

Air quality
impact on health
calculation

Personalized
risk
calculation



Pollution and health profile

psychiatric and
psychotropic diseases
22,5 billions euros

Cardio-
neurovascular
diseases
15,8 billions euros

Environmental cost of respiratory
diseases

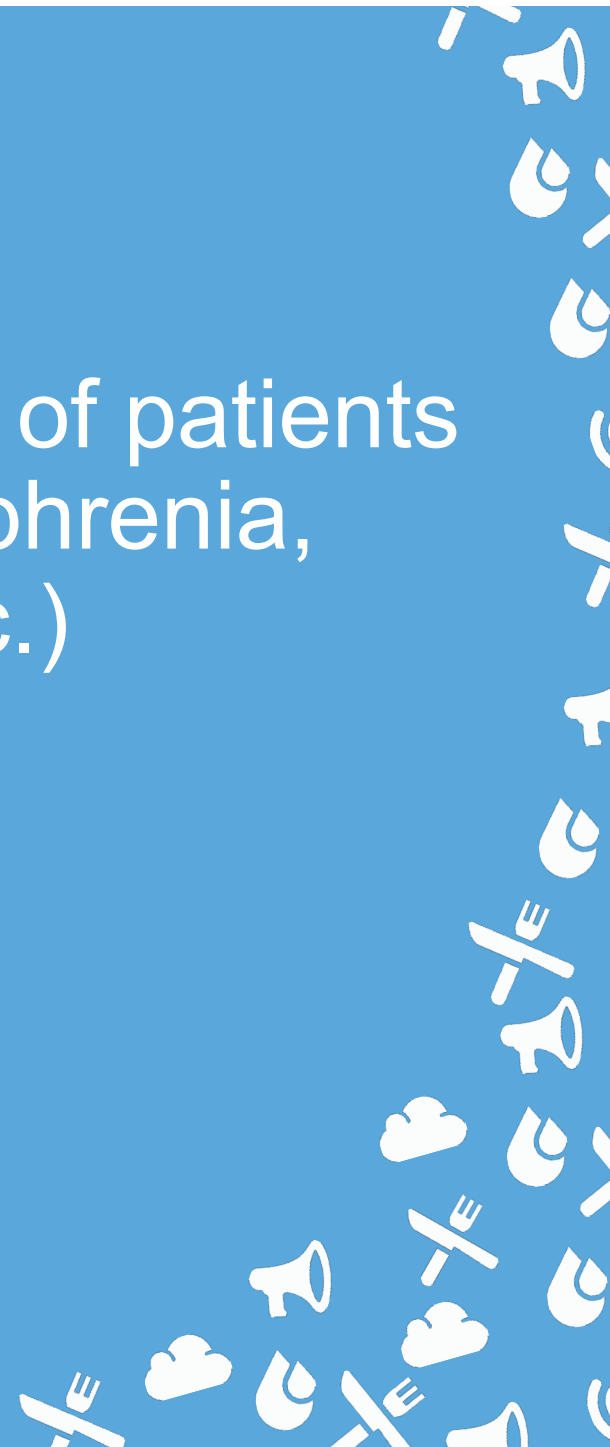
1,8 billions euros

Cancers
16,8 billions euros

Diabetes
8,1 billions euros

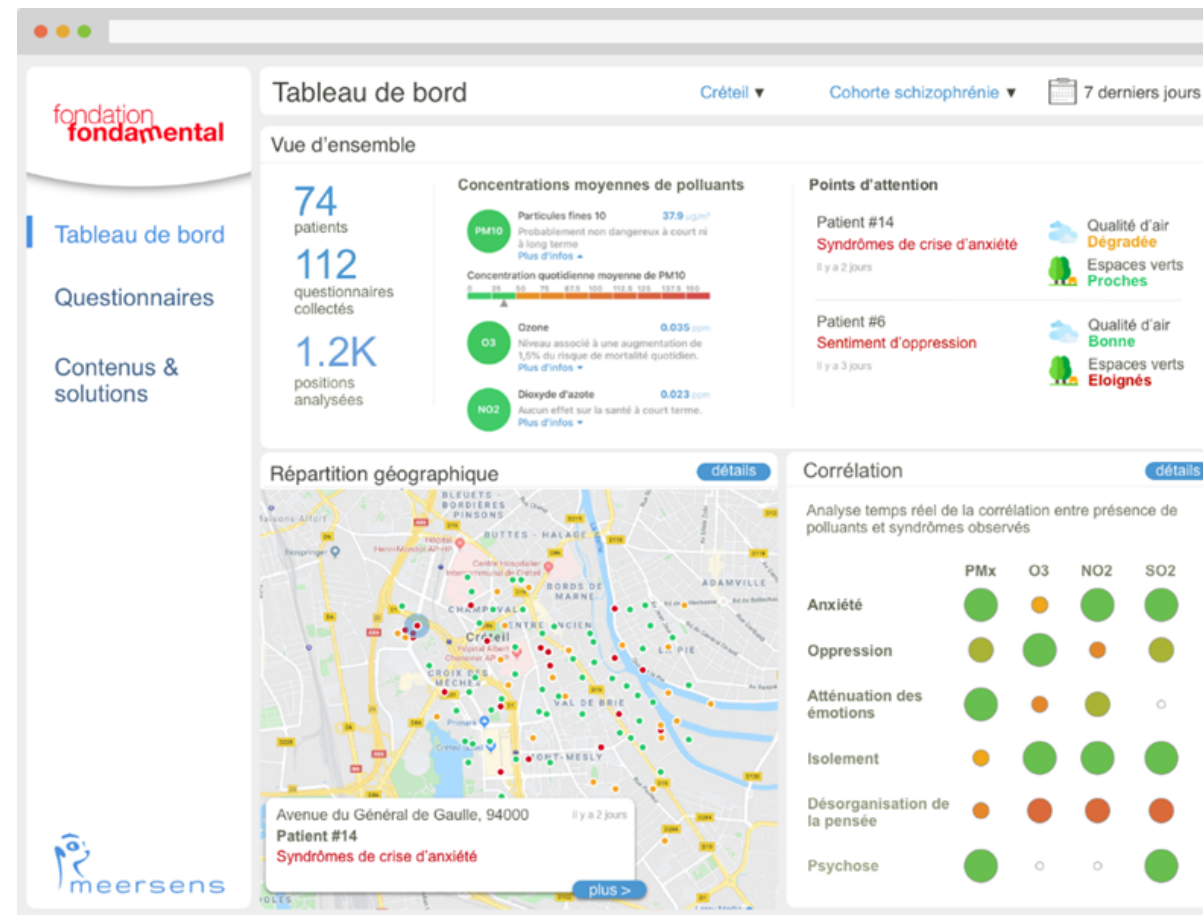
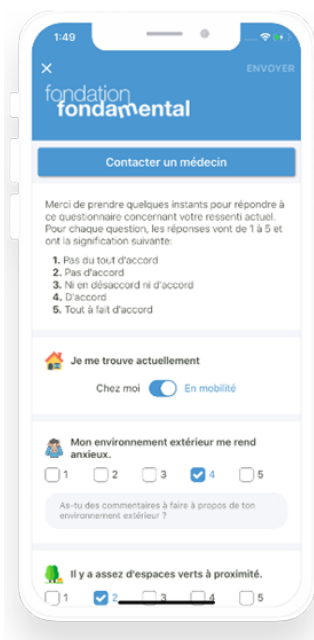
Total cost of healthcare linked to chronic diseases
94,5 billions euros

Personalized follow-up studies of patients
and panels (COPD, schizophrenia,
bipolarity, asthma, etc.)



Air pollution & psychiatric illnesses study

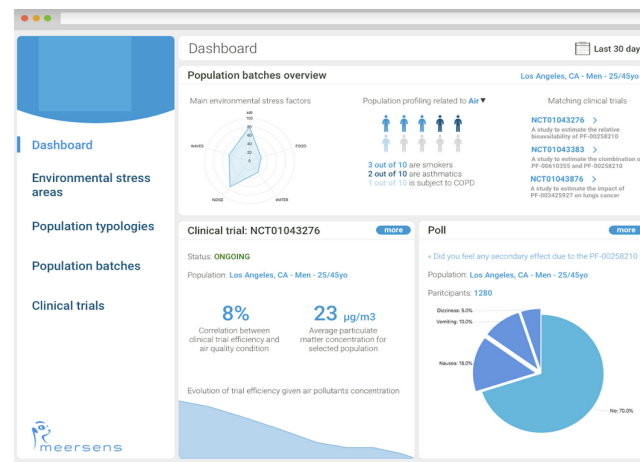
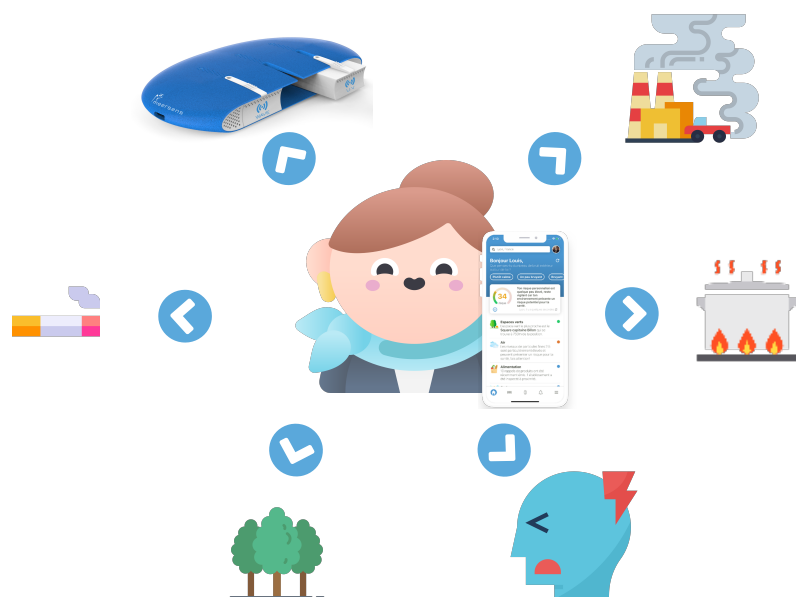
34.6% of mental illnesses prevented if city life changed



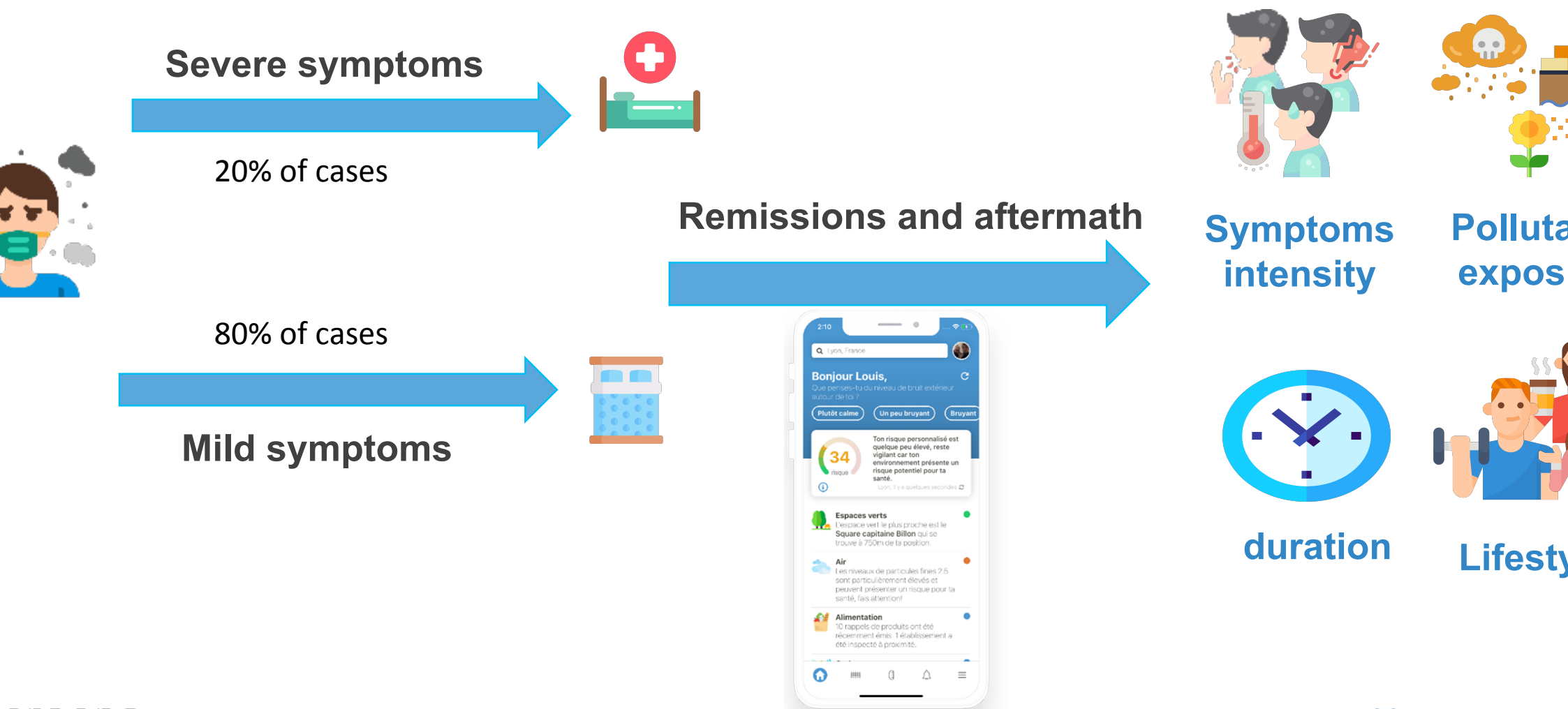
SaaS for doctors

Air pollution & COPD

Make the link between environmental exposure and COPD



Air pollution & remission from the aftermath of Covid-19 disease



Prevention and decision support tools



Path of least personalized exposure



- Path limiting health risks linked to presence of environmental pollutants
- Large number of pollutants taken into account as well as time factor
- Consideration of personal profile
- Dijkstra algorithm and weighting factors for each arc
- Advise an itinerary (on foot, bicycle, car) limiting risks according to health profile and travel time

Behavior change tracking

Study of 150 children: measuring short-term impact of behavior change

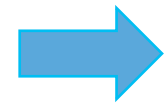
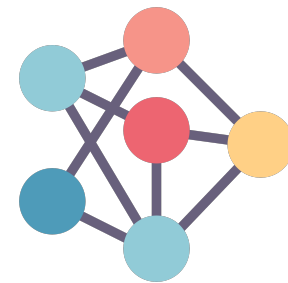
Need an indicator to quantify changes in behavior

Path of least exposure is an indicator to quantify the increase or decrease in exposure to environmental pollutants



- **NOx exposure reduction**
- **PM exposure reduction**
- **Pollens exposure reduction**

X

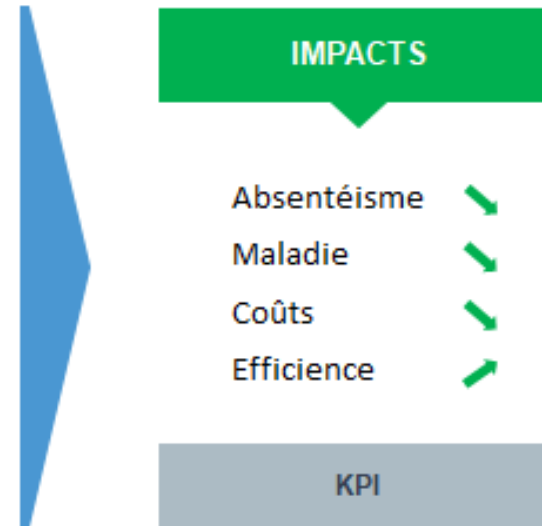


Health
impact of
change

Conclusion



Tools to act



References



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