

# Pneumonie à *Mycoplasma pneumoniae* Approche clinique

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# Conflit d'intérêt

- Comité exécutif « ECRAN-PLASMA »
- Résultats MYCADO confidentiels (soumis pour publication)
- Comité exécutif LUNG SAFE, WIND et WEAN SAFE
- Prêt de matériel
  - Lowenstein
  - Fluxmed

# Plan

- 1 Avant 2023
- 2 MYCADO
- 3 ECRAN PLASMA

Avant 2023

MYCADO

ECRAN PLASMA



# Conferences and Reviews

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## Fulminant *Mycoplasma pneumoniae* Pneumonia

EDWARD D. CHAN, MD, *and* CAROLYN H. WELSH, MD, *Denver, Colorado*

The frequency of fulminant pneumonia due to *Mycoplasma pneumoniae* is relatively rare despite the high prevalence of *Mycoplasma* species infection in the general population. We recently encountered such a case and have reviewed the English-language literature on cases of *M pneumoniae* pneumonia that have resulted in respiratory failure or death. Due to host factors or on epidemiologic grounds, fulminant cases seem to be more common in young healthy adults, in males, and possibly in smokers among the 46 patients we found. An enhanced host cellular immune response may be responsible for the development of severe cases. A spectrum of small airways disease is characteristic, including cellular bronchiolitis and bronchiolitis obliterans with and without organizing pneumonia. Based largely on anecdotal experience, corticosteroid use may be salutary in patients with respiratory failure. For reasons that are not well known, the incidence of pulmonary thromboembolism is increased in fatal cases.

(Chan ED, Welsh CH: Fulminant *Mycoplasma pneumoniae* pneumonia. *West J Med* 1995; 162:133-142)

## Conferences and Reviews

### Fulminant *Mycoplasma pneumoniae* Pneumonia

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13 études

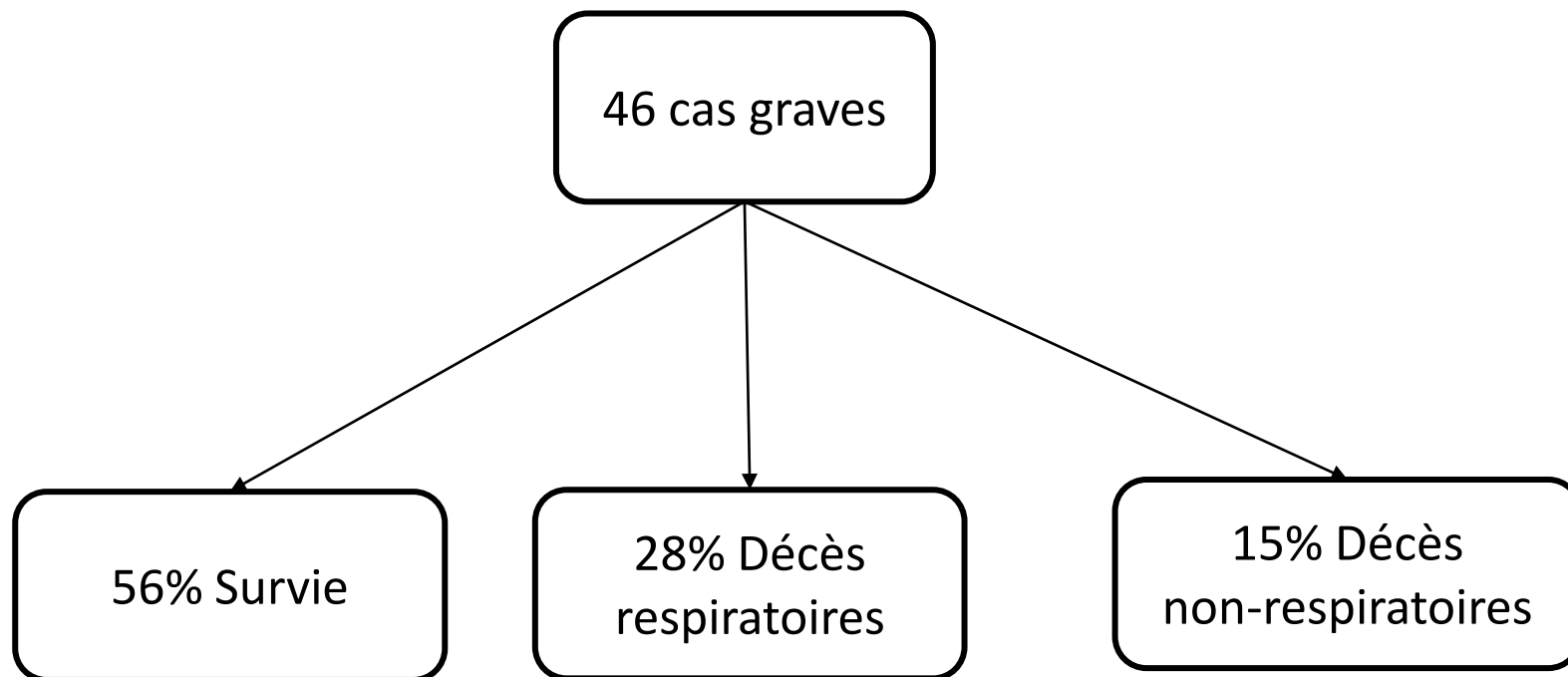


détresse respiratoire



1966 → 1991

- Fréquence: 0,7-18% des pneumopathies
- Mortalité: 3-5% (vs.12%)



Valade et al. *Ann. Intensive Care* (2018) 8:81  
<https://doi.org/10.1186/s13613-018-0429-z>

 Annals of Intensive Care

RESEARCH

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# Severe atypical pneumonia in critically ill patients: a retrospective multicenter study



S. Valade<sup>1,2\*</sup>, L. Biard<sup>2,3</sup>, V. Lemiale<sup>1,2</sup>, L. Argaud<sup>4</sup>, F. Pène<sup>5</sup>, L. Papazian<sup>6</sup>, F. Bruneel<sup>7</sup>, A. Seguin<sup>8</sup>, A. Kouatchet<sup>9</sup>, J. Oziel<sup>10</sup>, S. Rouleau<sup>11</sup>, N. Bele<sup>12</sup>, K. Razazi<sup>13</sup>, O. Lesieur<sup>14</sup>, F. Boissier<sup>15</sup>, B. Megarbane<sup>16</sup>, N. Bigé<sup>17</sup>, N. Brulé<sup>18</sup>, A. S. Moreau<sup>19</sup>, A. Lautrette<sup>20</sup>, O. Peyrony<sup>21</sup>, P. Perez<sup>22</sup>, J. Mayaux<sup>23</sup> and E. Azoulay<sup>1,2</sup>

RESEARCH

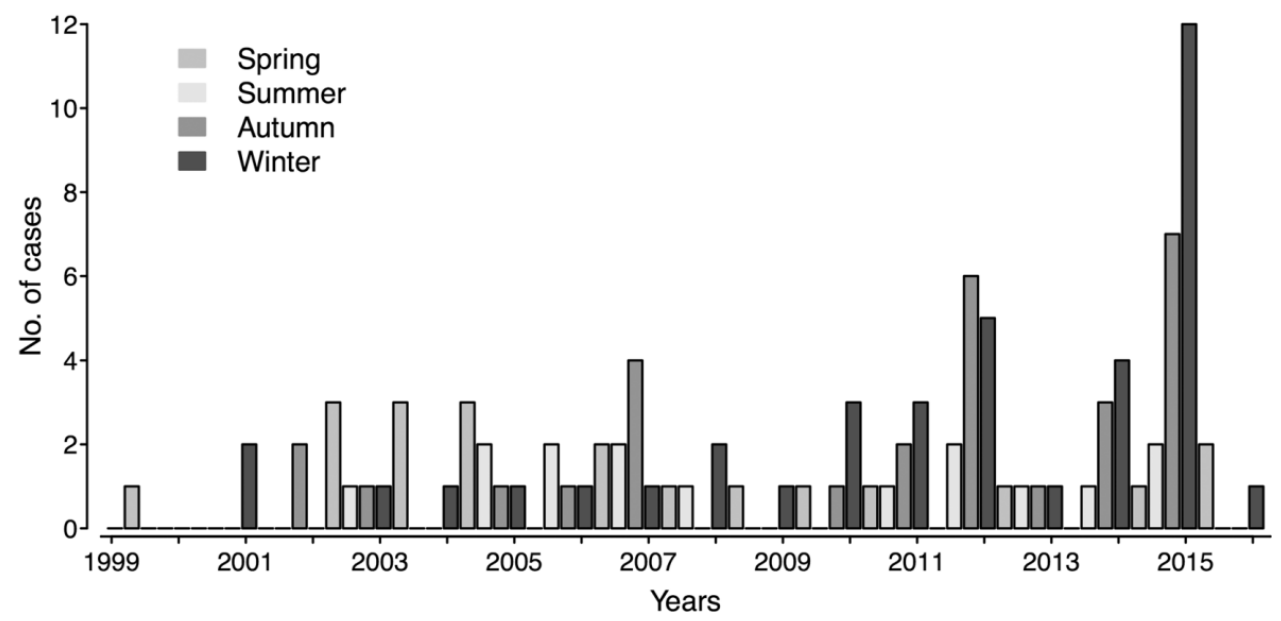
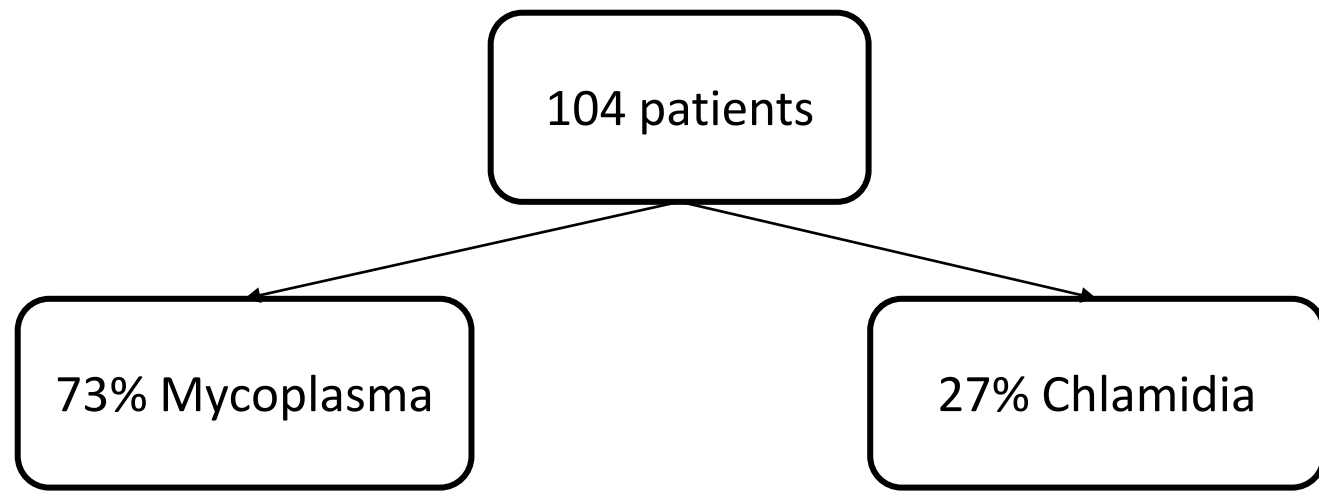
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Severe atypical pneumonia in critically ill patients: a retrospective multicenter study

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20 réanimations  
 Atypique  
 2000 → 2015








## RESEARCH

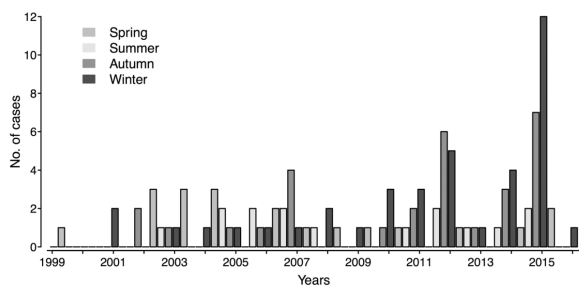
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## Severe atypical pneumonia in critically ill patients: a retrospective multicenter study

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 20 réanimations  
 Atypique  
 2000 → 2015

**N (%) or median [IQR]*****Mycoplasma pneumoniae* (N = 76)**

## Demographics

Age	54 [41–69]
Female gender	26 (34%)

## Comorbidities

Chronic respiratory disease	22 (29%)
Current smoker	20 (38%)
Immunosuppression	17 (22%)
HIV infection	2 (3%)
Hematological malignancy	9 (12%)
Cancer	4 (5%)
Hypertension	24 (32%)

## Reason for ICU admission

Acute respiratory distress	70 (92%)
Cardiovascular failure	2 (3%)
Neurological disorders	2 (3%)
Other	2 (3%)

## RESEARCH

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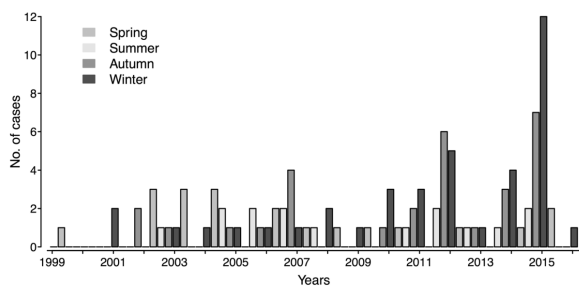
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 20 réanimations

 Atypique

 2000 → 2015

**N (%) or median [IQR]*****Mycoplasma pneumoniae* (N = 76)**

## Clinical respiratory findings

Respiratory rate	33 [27–38]
Signs of respiratory failure	33 (49%)
Rhonchi	9 (15%)
Crackles	36 (47%)
Signs of consolidation	5 (9%)
Decreased vesicular breath sounds	10 (17%)

## Clinical presentation

Time since symptom onset (days)	6 [4–9]
Fever	58 (83%)
Shock	6 (8%)
Neurological symptoms	19 (25%)
Gastrointestinal symptoms	1 (1%)

## Extra-pulmonary signs

≥ 1 extra-pulmonary symptom	27 (36%)
Arthritis	1 (1%)
Myocarditis	4 (5%)

RESEARCH

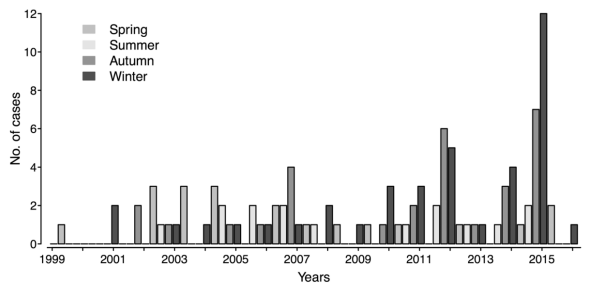
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## Severe atypical pneumonia in critically ill patients: a retrospective multicenter study

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20 réanimations  
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N (%) or median [IQR]

*Mycoplasma pneumoniae* (N = 76)

Treatments in the ICU

Mechanical ventilation	50 (66%)
Duration of ventilation	12.5 [8–22.5]
Vasopressors	26 (34%)
Renal replacement therapy	7 (9%)

Outcomes




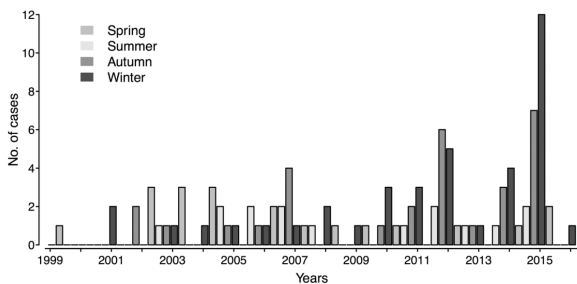
Death in the ICU	6 (8%)
Length of ICU stay (days)	
Discharged alive	15 [8–27]
ICU death	37 [26–47]

## RESEARCH

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## Severe atypical pneumonia in critically ill patients: a retrospective multicenter study

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 20 réanimations  
 Atypique  
 2000 → 2015



N (%) or median (IQR)	Total (N = 152)	<i>Mycoplasma pneumoniae</i> (N = 76)	<i>Streptococcus pneumoniae</i> (N = 76)	p value
Demographics				
Age	55 [43–69]	54 [41–69]	57 [44–73]	0.058
Female gender	51 (34%)	26 (34%)	25 (33%)	1
Comorbidities				
Chronic respiratory disease	36 (24%)	22 (29%)	14 (18%)	0.18
Current smoker	49 (41%)	20 (38%)	29 (43%)	
Immunosuppression	44 (29%)	17 (22%)	27 (36%)	0.11
HIV infection	14 (9%)	2 (3%)	12 (16%)	0.009
Hematological malignancy	18 (12%)	9 (12%)	9 (12%)	1
Cancer	12 (8%)	4 (5%)	8 (11%)	0.37
Hypertension	50 (33%)	24 (32%)	26 (34%)	0.86
Reason for ICU admission				
Acute respiratory distress	140 (92%)	70 (92%)	70 (92%)	0.59
Shock	6 (4%)	2 (3%)	4 (5%)	
Neurological symptoms	4 (3%)	2 (3%)	2 (3%)	
Other	2 (1%)	2 (3%)	0	
Clinical respiratory findings				
Respiratory rate	31 [26–38]	33 [27–38]	30 [26–36]	0.43
Signs of respiratory distress	67 (47%)	33 (49%)	34 (45%)	0.74
Rhonchi	21 (16%)	9 (15%)	12 (16%)	1
Crackles	79 (59%)	36 (61%)	44 (59%)	1
Signs of consolidation	27 (21%)	5 (9%)	22 (30%)	0.008
Decreased vesicular breath sounds	38 (28%)	10 (17%)	28 (38%)	0.007

## RESEARCH

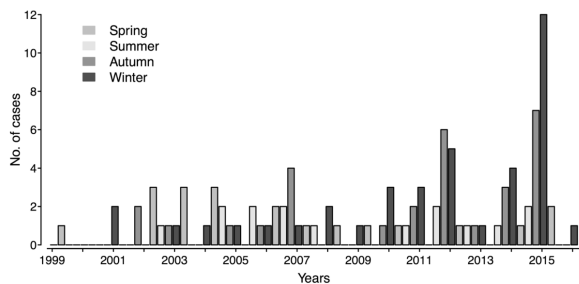
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## Severe atypical pneumonia in critically ill patients: a retrospective multicenter study

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20 réanimations  
Atypique  
2000 → 2015



N (%) or median (IQR)	Total (N = 152)	<i>Mycoplasma pneumoniae</i> (N = 76)	<i>Streptococcus pneumoniae</i> (N = 76)	p value
Clinical presentation				
Time since symptom onset (days)	4 [2–7]	6 [4–9]	3 [2–7]	0.008
Fever	112 (77%)	58 (83%)	54 (71%)	0.12
Shock	30 (20%)	6 (8%)	24 (32%)	0.0004
Neurological symptoms	21 (14%)	1 (1%)	20 (26%)	< 0.0001
Gastrointestinal symptoms	16 (11%)	1 (1%)	15 (20%)	0.0003
Extra-pulmonary signs				
≥ 1 extra-pulmonary sign	66 (43%)	27 (36%)	39 (51%)	0.071
Arthritis	1 (1%)	1 (1%)	0	1
Myocarditis	4 (3%)	4 (5%)	0	0.12
Treatments in the ICU				
Mechanical ventilation	88 (58%)	50 (66%)	38 (50%)	0.049
Duration of ventilation (days)				
Discharged alive	11 [7–19]	13 [8–23]	9 [6–16]	
ICU death	11 [3–18]	18 [17–34]	5 [2–15]	
Vasopressors	60 (39%)	26 (34%)	34 (45%)	0.26
Renal replacement therapy	17 (11%)	7 (9%)	10 (13%)	0.49
SAPS II	36 [24–47]	32 [22–41]	42 [30–55]	0.0005
Outcomes				
ICU stay length (days)				
Discharged alive	9 [5–19]	15 [8–27]	5 [3–10]	
ICU death	13 [4–27]	37 [26–47]	5 [3–14]	
28-day mortality	23 (15%)	6 (8%)	17 (22%)	0.013

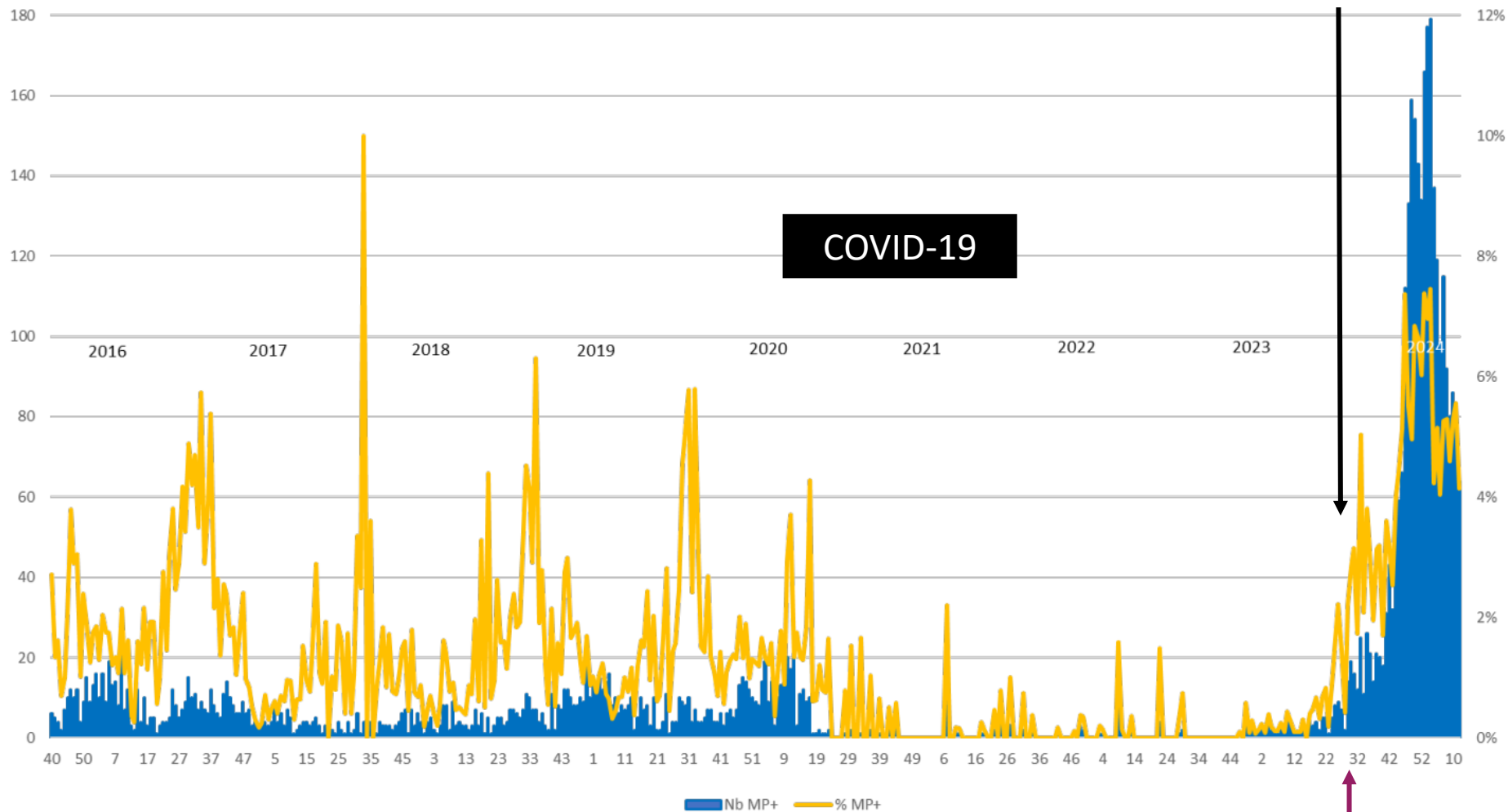
# Plan

- 1 Avant 2023
- 2 MYCADO
- 3 ECRAN PLASMA

Avant 2023

MYCADO

ECRAN PLASMA



Source : CNR virus des infections respiratoires

Septembre 2023

Avant 2023

MYCADO

ECRAN PLASMA



Données confidentielles  
Accepté Lancet ID

- Cohorte observationnelle
- Patients >15 ans
- Infection documentée à *Mycoplasma Chlamidiae*
- Hospitalisés
- Septembre 2023 à février 2024



Avant 2023

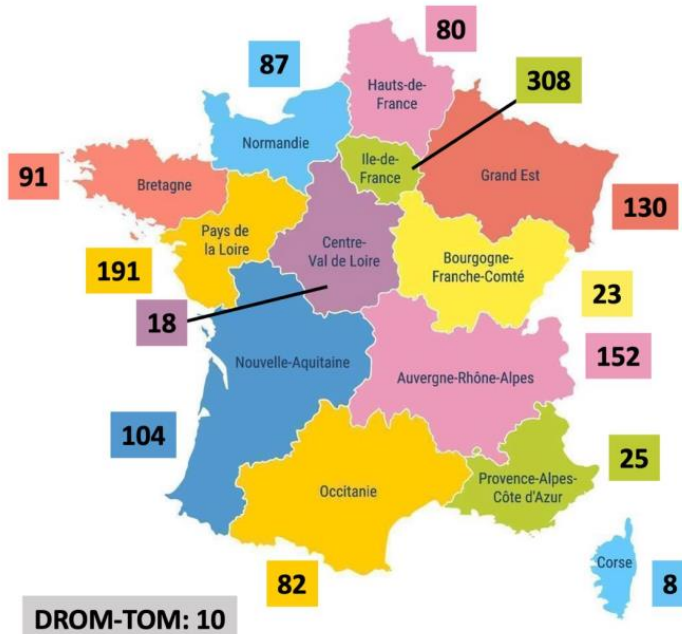
MYCADO

ECRAN PLASMA



Données confidentielles  
Accepté Lancet ID

74 centres participants,  
ayant inclus de 1 à 55 patients



Positive *M. pneumoniae* PCR or serology  
(positive IgM, or positive IgG after a first  
test with negative IgG)  
N=4339

Minor patients  
(<15 years and 3 months)  
N=2215

Adult patients (≥15 years and 3 months)  
N=2124

Hospitalisation <24 hours  
N=433

Hospitalisation ≥24 hours  
N=1691

Inaccessible data or inability  
to obtain patient consent  
N=382

1309 patients included for analysis

Avant 2023

MYCADO

ECRAN PLASMA



Données confidentielles  
Accepté Lancet ID

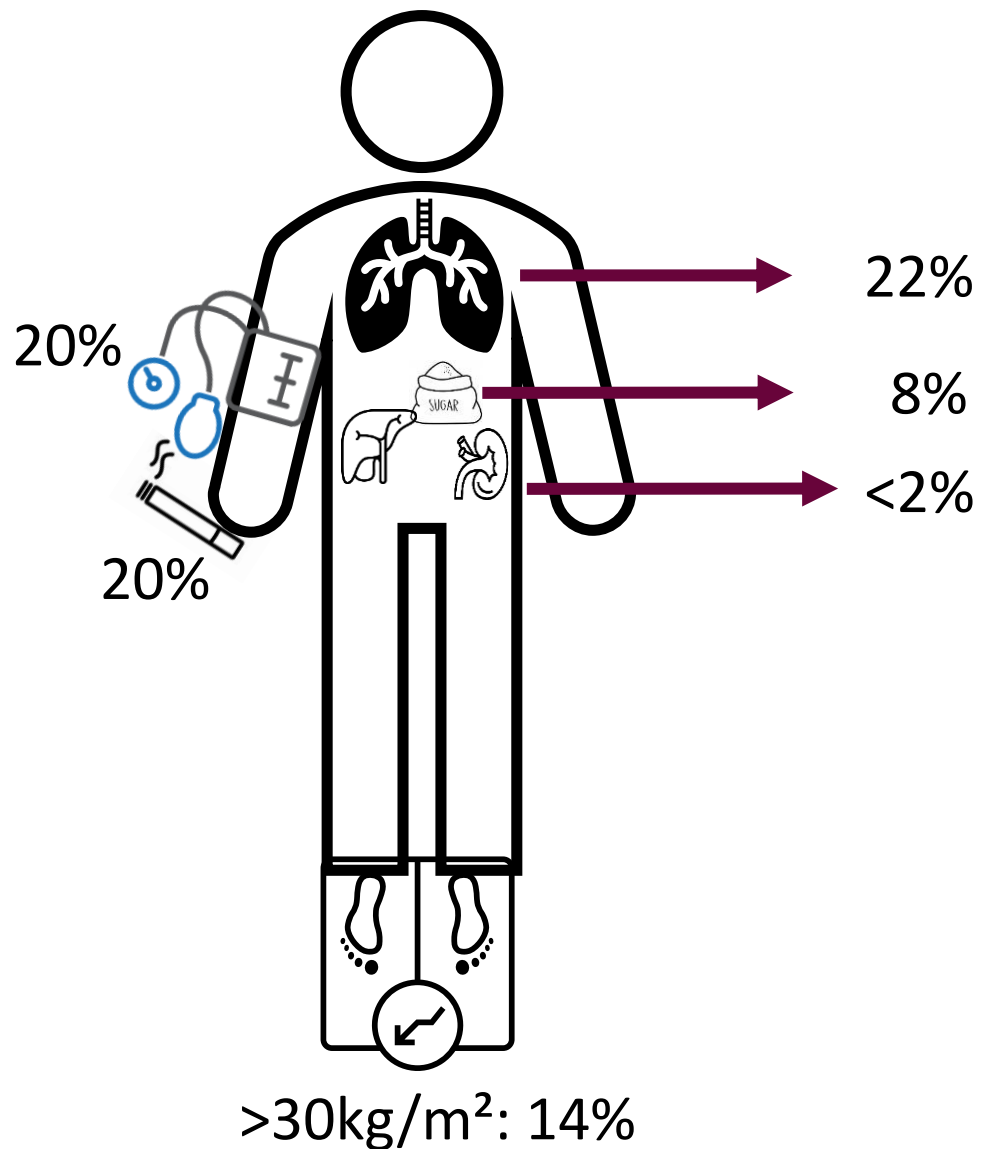


43 (31-63)



45%

Immunodépression: <10%



Avant 2023

MYCADO

ECRAN PLASMA



**Données confidentielles**  
**Accepté Lancet ID**

- Pré-admission
  - Toux: 84%
  - Fièvre: 78%
  - Dyspnée: 72%
  - Asthénie: 42%
  - Arthro-myalgies: 19%



**Données confidentielles**  
**Accepté Lancet ID**

- Pré-admission

- Toux: 84%
- Fièvre: 78%
- Dyspnée: 72%
- Asthénie: 42%
- Arthro-myalgies: 19%

- Admission

- SpO<sub>2</sub><95%: 73%
- Tachycardie:50%
- FR>22: 42%
- Fièvre>38°: 45%



Données confidentielles  
Accepté Lancet ID

## • Pré-admission

- Toux: 84%
- Fièvre: 78%
- Dyspnée: 72%
- Asthénie: 42%
- Arthro-myalgies: 19%

## • Admission

- SpO<sub>2</sub><95%: 73%
- Tachycardie: 50%
- FR>22: 42%
- Fièvre>38°: 45%

## • Biologie

- Hyperleucocytose>7 G/L: 62%
- Lymphopénie<1,5 G/L: 65%
- CK>1,5N: 40%
- ALAT>1,5N: 24%
- CRP: 131 (69-201)
- PCT: 0,17 (0,09-0,47)

Données confidentielles  
Accepté Lancet ID

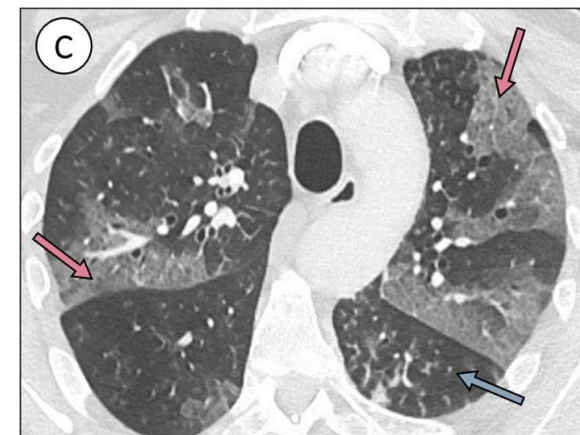
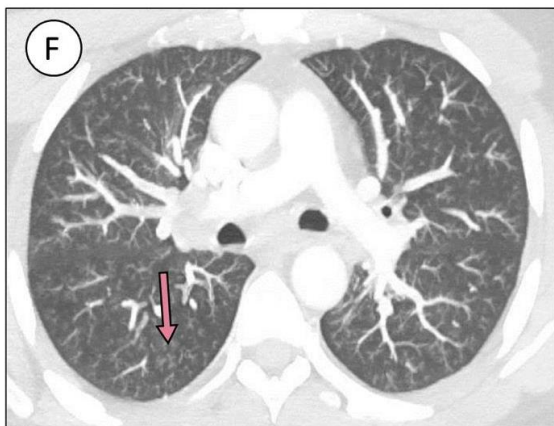
TDM dans 69% des cas

Bilatéral: 71%

Micronodules bronchiolaires  
65%

Condensations alvéolaires  
64%

Verre dépoli  
32%



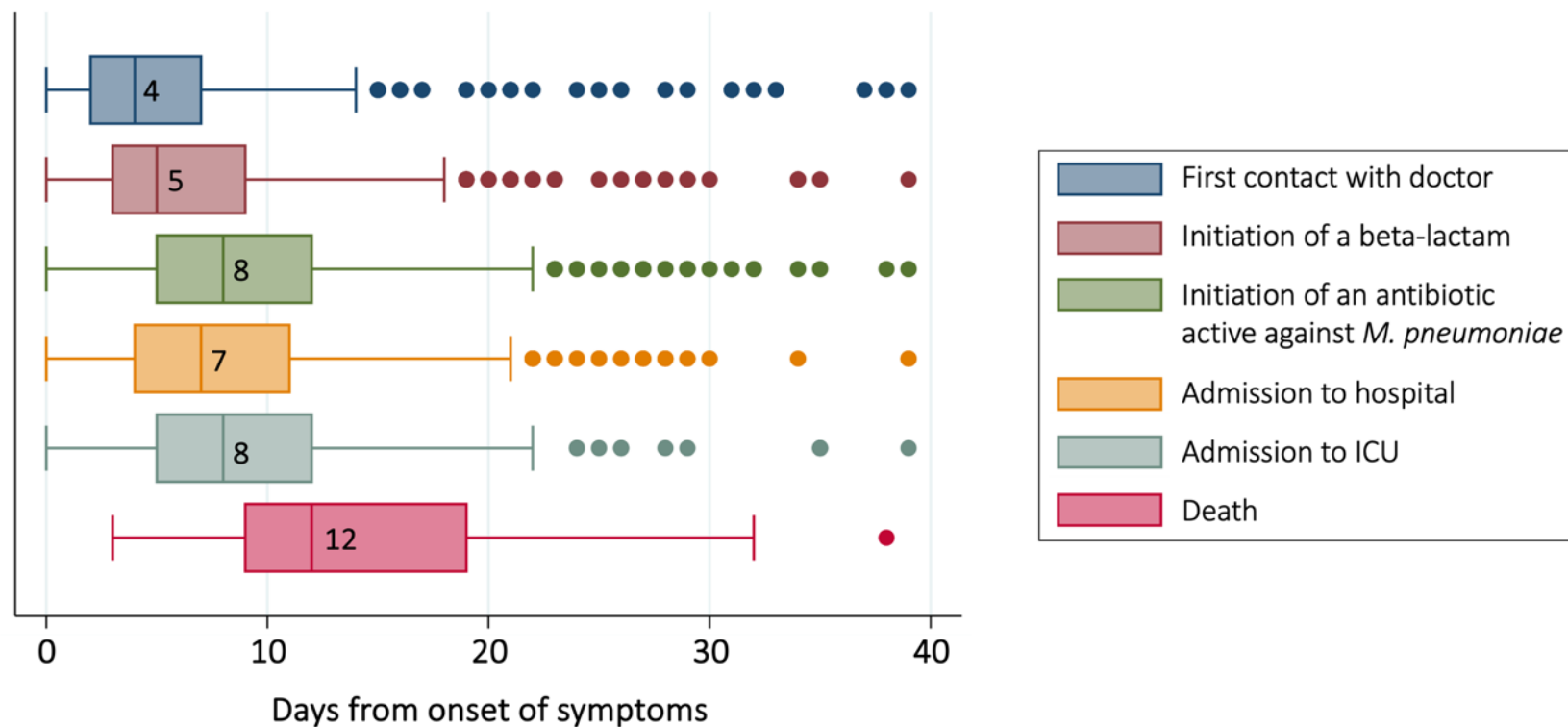
Avant 2023

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Données confidentielles  
Accepté Lancet ID



Avant 2023

MYCADO

ECRAN PLASMA



Données confidentielles  
Accepté Lancet ID

Inclus

1309

Sévérité

415 (32%)  
Réa

894 (68%)  
Non réa

Décédés

- 66 ans (IQR 48-76)
- Femmes: 40%
- 71% lié au *MP*





**Données confidentielles**  
**Accepté Lancet ID**

## Support ventilatoire

- Oxygène: 81% pour 5 (2-17) jours

## Réanimation

- OHD: 49%
- VNI: 21%
- Ventilation invasive: 15%
  - 9 (5-15) jours
- Vasopresseurs: 7%
- Dialyse: 1%



**Données confidentielles**  
**Accepté Lancet ID**

## Facteurs associés aux formes sévères

- HTA
- Obésité
- Insuffisance respiratoire chronique
- Atteinte bilatérale
- Atteinte extra-pulmonaire
- Absence d'antibiothérapie efficace pré-hospitalière

## Facteurs associés décès

- Age
- Immunodépression

# Plan

- 1 Avant 2023
- 2 MYCADO
- 3 ECRAN PLASMA

ECRAN PLASMA

Étude des **Caractéristiques de Réanimation** du myco**PLASMe** Aigu

- Observationnelle rétrospective multicentrique
- Inclusion
  - Sujet >16 ans
  - Admis en réanimation ou USI
  - Pneumopathie à Mycoplasme (ou Chlamidiae)

Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

**Données  
confidentielles**

- Versant « sévère » de MYCADO
  - Support ventilatoire
  - Supports d'organe
  - Gaz du sang
  - Suivi des sur-infections

 REDCap®

ASSISTANCE  
PUBLIQUE  HÔPITAUX  
DE PARIS  
Entrepôt de Données de Santé

Avant 2023

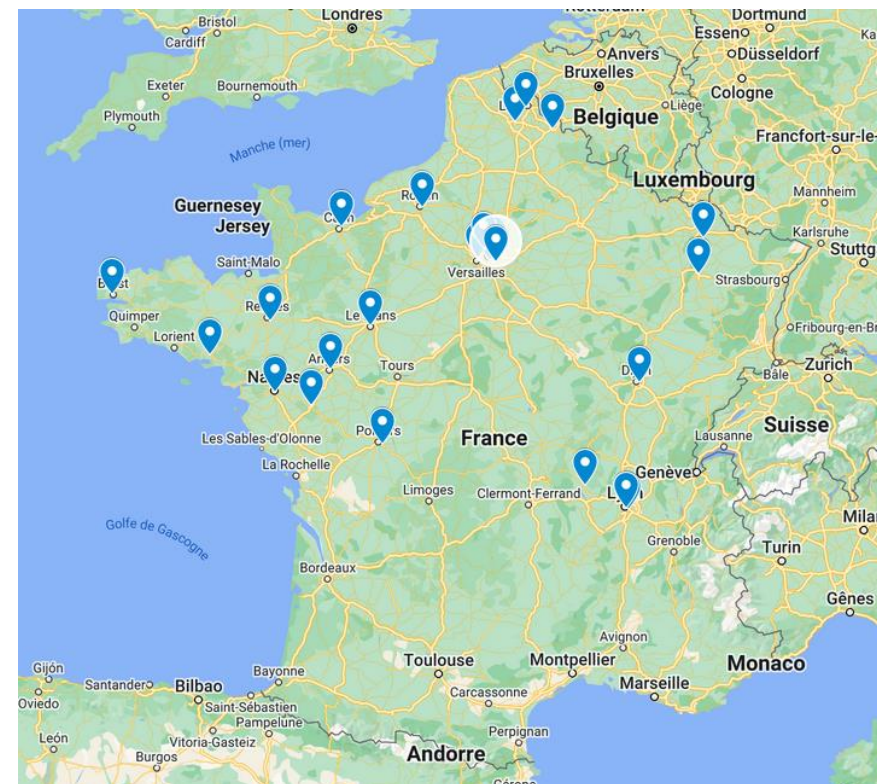
MYCADO

ECRAN PLASMA

ECRAN PLASMA

Données  
confidentielles

- Versant « sévère » de MYCADO
  - Support ventilatoire
  - Supports d'organe
  - Gaz du sang
  - Suivi des sur-infections



Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

**Données  
confidentielles**

- Résultats préliminaires (13 centres):
  - A. Paré, Avicenne, Bicêtre, Cochin, HEGP, H. Mondor, L. Mourier, Pitié EOLE, Tenon
  - Le Mans
  - Lille
  - Nantes
  - Roanne

Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

Données  
confidentielles

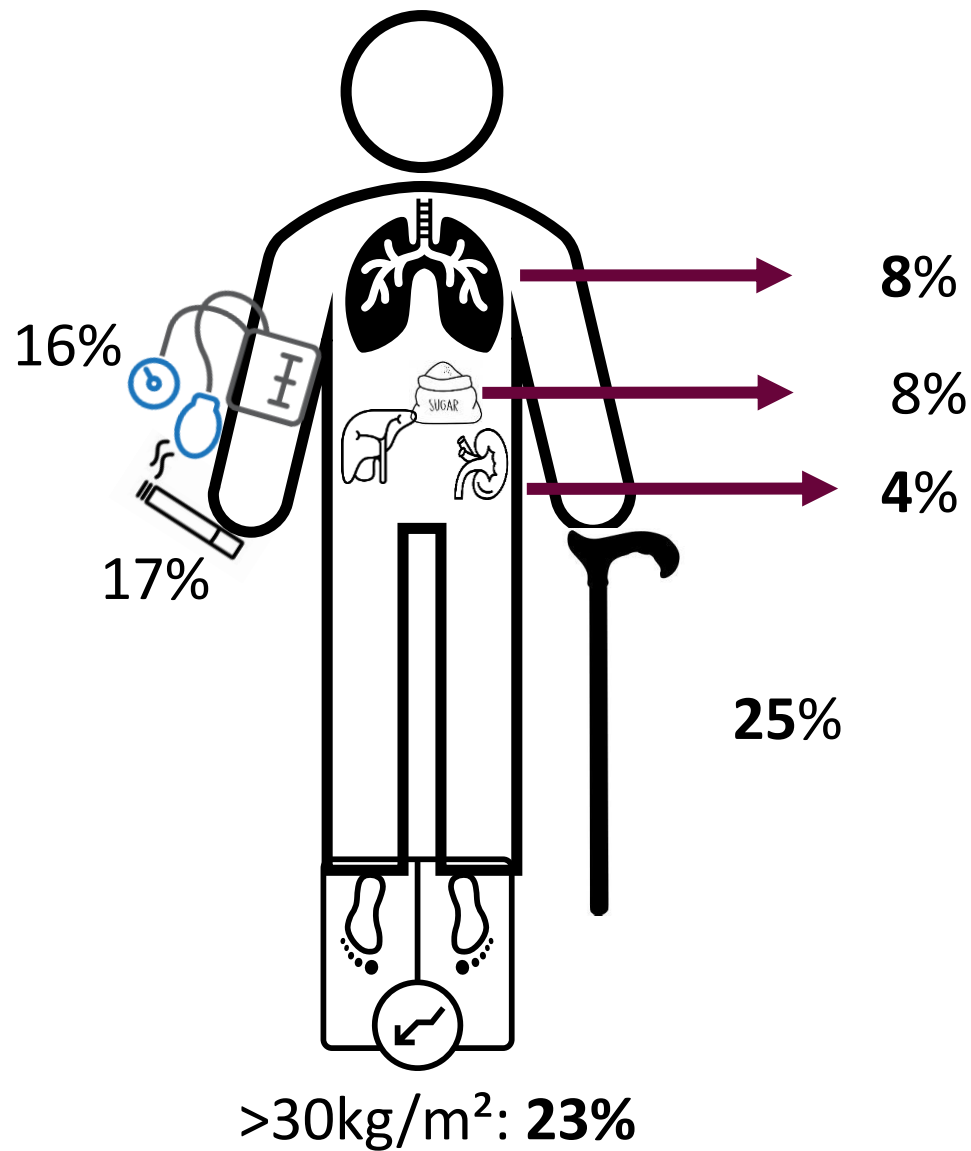


45 (27-61)



45%

Immunodépression: **14%**





Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

**Données  
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- Pré-admission
  - Toux: 77%
  - Fièvre: 76%
  - Dyspnée: 71%
  - Asthénie: 42%
  - Arthro-myalgies: 18%

ECRAN PLASMA

**Données  
confidentielles**

- Pré-admission

- Toux: 77%
- Fièvre: 76%
- Dyspnée: 71%
- Asthénie: 42%
- Arthro-myalgies: 18%

- Admission

- O2: 45%
  - 6 (4-9)L/min
- OHD: 36%
  - FiO2: 60 (50-70)%
- VNI: 2%
- Intubation: 13%

ECRAN PLASMA

**Données  
confidentielles**

- Pré-admission

- Toux: 77%
- Fièvre: 76%
- Dyspnée: 71%
- Asthénie: 42%
- Arthro-myalgies: 18%

- Admission

- O2: 45%
  - 6 (4-9)L/min
- OHD: 36%
  - FiO2: 60 (50-70)%
- VNI: 2%
- Intubation: 13%

- Admission

- SOFA: 3 (2-4)
- Catécholamines: 13%
- Co-infection: 23%
  - Bactérienne: 55%
  - Virale: 45%

Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

Données  
confidentielles



Recours

32%

45%

5%

15%

1%

Durée

3 (2-5)

3 (2-5)

8 (4-13)

16 jours

Avant 2023

MYCADO

ECRAN PLASMA

ECRAN PLASMA

Données  
confidentielles

## Atteintes extra respiratoire



Peau: 6%



Hémato: 6%

ECRAN PLASMA

Données  
confidentielles

### Atteintes extra respiratoire



Peau: 6%



Hémato: 6%

### Pronostic



2 décès (2%)



Réa: 5 (3-9)

Hôpital: 9 (7-14)

1 Avant 2023

**Rare**  
Hospitalisation  
Réanimation  
Sur-représentation des cas graves

2 MYCADO

**Données originales**  
Réactivité  
Exhaustivité (>1300)  
Photographie fiable de l'épidémie

3 ECRAN PLASMA

**DV**  
Retard...  
15% de ventilation invasive  
Mortalité faible

**Merci de votre attention**

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