Introduction:
The characterization of clinical and/or biological variables found in the emergency room predictive of a secondary admission in ICU would help to improve the identification of patients at risk of aggravation in order to avoid the associated consequences, such as, an increased mortality and increased hospital stay.

Methods:
This is a retrospective monocentric study of 3 years with patients admitted secondarily to a medical ICU within 48 hours of admission to the general wards from the emergency department in the Pitié-Salpêtrière hospital in Paris. Each case was matched to 2 controls. 62 different variables were collected in the emergency room.

Results:
319 patients, of whom 107 were cases and 212 controls were studied. Pneumonia is the diagnosis the most frequent in cases followed by sepsis (in 23 and 16%, respectively). 6 predictive factors of a secondary transfer in resuscitation are found: smoking status (p = 0.0205) if active smoker - OR 0.390 (IC 0.11-1.35), if old smoker - OR 5.64 (IC 1.47-21.62); the emergency consulting motif, (p = 0.001), if dyspnea - OR 20.39 (IC 4.03-103.19), if fever - OR 7.61 (IC 1.53-37.75); the MEDS score ≥ 7 (p = 0.037) - OR 0.31 (IC 0.10-0.93); the IGS2 score (p <0.0001) - OR 1.13 (IC 1.06-1.20); (P = 0.001), taking an advice to an ICU: if the answer is to continue the care in the ward - OR 8.13 (IC 2.41-27.38), if the response is to not resuscitation - OR 0.14 (CI 0.01-2.24); and demanding a blood gas (p <0.0001) - OR 7.60 (IC 2.78-20.77).

Conclusion:
The risk of being admitted secondarily to intensive care is higher if patients consult for dyspnea or fever, if they are old smokers, if they have a high IGS2 score, if an arterial blood gas is requested and if an ICU medical advice is taken. The MEDS score under 7 and being an active smoker seems to be protects for the unexpected transfer.