Introduction:
We aim to describe the observed medical events during two Papal visits (in 2012 and 2017) in the Milan area and compare them with those predicted by the commonly used Arbon score [1]. Published values in the literature are in the range of 0.5-2 for patient-presentation-rate to medical services (PPR) and around 0.03 (0.01-0.55) for transfer-to-hospital-rate (TTHR) both per 1.000 participants. To the best of our knowledge, most of the existing scores have been applied to the events within 200,000 people. Furthermore, existing works are limited to a descriptive analysis of single events in different locations.

Methods:
This is a retrospective analysis of data collected during two events in the Milan Area: the papal visit in April 2017 was located in Monza, an outdoor vast location. A similar location was used for the papal visit in June 2012, the Bresso airport. The climate was mild (65%-69% humidity). Crowds was constituted mainly by families, mood was relaxed and alcohol was not available. It was estimated 400.000 participants in the 2017 and 450.000 in the 2012. Every medical event was recorded and PPR and TTHR calculated. Observed PPR and TTHR were compared with the expected calculated with Arbon regression model [1].

Results:
The table summarizes medical PPR and TTHR observed and expected for the two events. The PPR was very similar for both events. In 2017 the TTHR was less than a half of that observed on 2012, likely due to different organization of the Medical Center. For both events, Arbon model underestimated patients presentations by 45% and 22%.

Conclusion:
Current predictive models underestimate PPR in large mass religious events gathering 400.000 participants or more. Our data suggest that in these events a PPR of 0.6-0.8 can be expected and this estimate could be used to plan similar future events, while TTHR can vary widely.

References:
| Observed TTHR (per 1000 participants) | 0.138 | 0.05 |

*Medical PPR and TTHR observed and expected for the two events*