

# Accident and Emergency Presentations in Patients in their Last Year of Life

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Presentation of patients with incurable, terminal illness to the emergency department (ED) may prove distressing for patient and caregivers alike. The last year of life has been widely used as a proxy for patients with palliative needs. This retrospective study is the first local study to determine how many patients presenting to the ED are in their last year of life, and thus by association, what percentage of patients presenting to the emergency department would require palliative care. In Malta, 16.66% of patients presenting to the ED were in their last year of life, and despite this value being lower in comparison to overseas, it is still significant keeping in mind that locally palliative care caters only for oncology cases. There was no observed gender difference, and the mean age was of 77.6 years. Most patients presented more than one time to the ED more than once, and the largest cohort of patients presented 3 times to the ED in their last year of life. Community- based palliative care has been shown to reduce presentations to the emergency department and our focus must therefore shift towards strengthening this field.

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The World Health Organisation defines palliative care as ‘an approach that improves the quality of life of patients (adults and children) and their families who are facing problems associated with life-threatening illness’.<sup>2</sup> Presentation of patients with unmet palliative need to the Emergency Department (ED) may prove distressing for patient and caregivers alike. There are multiple reasons for presentation, which may be secondary to the condition requiring palliative care, as well as for unrelated complaints. Several studies have attempted to gain insight into the nature of these complaints, as well as categorise the emergency presentations into avoidable and unavoidable. Locally, this is the first study of emergency presentations by patients in their last year of life.

The aim of this study was to ascertain the percentage of patients, that are considered palliative upon presentation at the ED over a period of two months.

The objectives are twofold:

- Elicit demographic data
- Identify any correlation between patient demographic and frequency of presentation at the ED

## METHOD

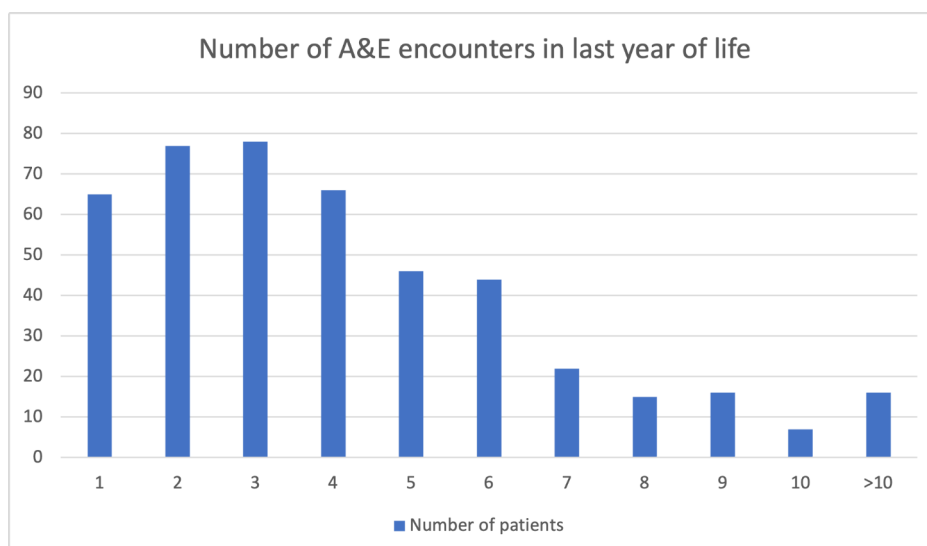
Ethical approval was obtained from the local regulatory body and data anonymised to comply with data protection regulations. Data was collected retrospectively by identifying patients who presented to the ED in Mater Dei Hospital, the only local hospital with an ED, during the months of January and July 2017. Data collected involved checking for patient survival to at least one year from date of emergency presentation, and in those who did not, patient demographics were tabulated as

follows: age, sex, number of presentations to the ED in the last year of life. The unpaired t-test was used to identify any statistically significant relation between the demographic variables. ANOVA was utilised to determine any link between age at death and the number of presentations to the ED in the last year of life. Exclusion criteria were as follows: mechanical trauma, paediatric age and patients who passed away at the Accident and Emergency Department.

## RESULTS

2713 patients presented to the Accident and Emergency department in the months of January and June 2017. The number of deaths within one year from Accident and Emergency presentation was of 452 (16.66% of sampled population). Of these, 226 deaths occurred within one year for patients who had presented to the Accident and Emergency Department in January and 226 in those who had attended in July 2017. With regards to deceased patients’ demographics, the male: female ratio was of 1.14:1 (241 males and 211 females) and age range was 23 to 107 years, with a mean age of 77.6 years. There was no statistically significant difference between both sexes in relation to the number of presentations to the Accident and Emergency Department ( $p=0.44$ , 95% confidence interval). However, we did observe a significantly larger number of re-presentations to the Accident and Emergency Department in patients who had presented in the month of January ( $p=0.029$ , 95% confidence interval).

The number of Accident and Emergency encounters within the last year of life is displayed in [Figure 1](#). The largest cohort of patients had 3 presentations to the ED in their last year of life (78 patients), followed closely by 2 presentations (77 patients). 16 patients



**Figure 1** Number of Accident and Emergency encounters in last year of life

**Table 1** Average Number of Visits to Accident and Emergency Department per age group

Age Range	No. of Patients	Average No. of Visits
20-40	8	6.125
41-60	33	5.487
61-80	196	4.448
81-100	215	3.651

had over ten presentations to the Accident and Emergency Department in the last year of life. We also observed that younger patients in their last year of life are more likely to visit the ED, as the average number of visits decreases with increasing age. This observation reached statistical significance ( $p < 0.0001$ ) and is displayed in **Table 1**.

## DISCUSSION

This study shows that 16.66% of patients presenting to the ED are in the last year of life, and that patients in their last year of life are likely to make use of emergency services more than once. The average number of visits decreases with increasing age. There was no difference in number of patients in their last year of life presenting to the ED between Winter (January) and Summer months (July).

Locally, this was the first study of its nature and highlights the need for better understanding of emergency presentations amongst patients with incurable, terminal illness. Malta has one ED to cater for the whole country so this can be considered a national study which covers the entire population. In 2017, there was a total of 141,758 presentations to the Maltese ED (3). Extrapolating the above calculation to the whole year, this percentage translates to 23,532 patients presenting to the ED in 2017 who had palliative care requirements. Similar studies conducted on an international level reveal overall higher percentages of one year mortality following hospital admission.

The incident cohort study by Moore et al was the most alike to ours in terms of study outcomes, with the additional outcome of identifying patient factors contributing to higher mortality risk. Based in Scotland, it included patients admitted to 22 hospitals within two weeks in March 2015, and 22.4% passed away within one year of hospital admission (not solely emergency admission as in our study). Malignancy (33.8%), cardiovascular disease (22.5%)

and respiratory disease (17.9%) accounted for slightly less than 75% of all deaths.<sup>1</sup> One possible explanation for the discrepancy in mortality rates would be that due to the Maltese ED service being easily accessible and free of charge, Maltese patients might present earlier than in Scotland.

Further insight is provided by the 2012 NHS National End of Life Care Intelligence Network report, which reveals that around 78% of people will be admitted to hospital at least once in their last year of life. In contrast to our results, it also states that on average, people who have emergency admissions in the last year of life have two or less admissions.<sup>4</sup> With these statistics and chronic conditions in mind, one attempts to identify the root cause for repeated emergency presentations. In their study of elderly patients (over 70 years) presenting to the ED, the authors comment that while unexpected return presentations to the ED within one month were often not preventable, healthcare professionals must still attempt to anticipate factors that may prompt return to Accident and Emergency, disease progression and potential unmet needs.<sup>5</sup>

The 'Better End of Life' 2022 report notes that emergency department attendance is relatively low and stable for most of the final year of life, but rises in the final three months of life, with out-of-hours visits increasing more than in-hours visits, especially in the last month of life.<sup>6</sup> Our study did not assess the timing of the Accident and Emergency visits, or whether the visits occurred out-of-hours.

Other studies on the same topic attempted to split emergency presentations of patients with advanced cancer under palliative care into avoidable and unavoidable, and the results highlight that most visits are unavoidable, despite being under the palliative care team. The unavoidable presentations were mostly due to pain as well as for referrals requiring admission following an outpatient review. On the other hand, avoidable admissions made up almost 25% of presentations and were related to complaints such as constipation. In conclusion, the authors argue that avoidable presentation rate would decrease with improved communication between palliative appointments.<sup>7</sup> As previously explained, our study does not go into the merits of individual cases but seeks to measure palliative need in the population, by using emergency admissions in the last year of life as a surrogate.

In a small study of 30 patients, further avoidable presentations are identified; these made up at least half of the emergency presentations by patients under the specialist palliative care register. In the

authors' words, a 'comprehensive, coordinated specialist palliative care approach across community and acute services' would prevent such avoidable presentations.<sup>8</sup> Having said this, several obstacles may be encountered when attempting to construct a streamlined approach as mentioned above. In a study based at an Accident and Emergency Department, emergency doctors named lack of access to medical records as well as lack of continuous availability of the palliative care team as the two main barriers to offering optimal palliative care services at the department. The Accident and Emergency physicians also voiced their concern that ward-based doctors and emergency-based doctors may use different criteria with respect to palliative care consultations.<sup>9</sup>

On a similar note, a critical review of patients with palliative care needs who present to the ED note that there is a lack of data in this respect and emphasised that palliative care is defined differently across healthcare systems.<sup>10</sup> These factors may therefore present another barrier to palliative care patients and physicians alike. Separate studies taking place in Australia agree that eliciting models of emergency and inpatient use for different disease courses is the first step in planning appropriate services for individuals with conditions where mortality is expected.<sup>11</sup>

Besides communication and coordination within the specialist palliative care system, Wright et al point out that timing of initiation of community-based care is also a vital factor in reducing emergency presentations, as when started before the last six months of life, it was associated with a lower mean rate of unplanned hospitalizations in the last 6 months of life.<sup>12</sup> Timely referral to community-based palliative care is also supported by McNamara et al who identified a higher number of emergency presentations in patients who had been referred later to community-based palliative care.<sup>13</sup>

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## LIMITATIONS

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The study period was over two separate months and it is thus not fully reflective of Emergency Department presentations over the rest of the year. Patient's past medical history and reason for presentation to Accident and Emergency were not recorded. The outcome of the Accident and Emergency visit (discharged or hospital admission) was not recorded.

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## CONCLUSION

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In 2017, there was a total of 141, 758 presentations to the Maltese ED. In the span of two separate months, we calculated that 16.6% of patients are in their last year of life when presenting to the ED. Extrapolating this calculation to the whole year, this percentage translates to 23,532 patients presenting to the ED in 2017 who had palliative care requirements. Furthermore, when compared to international statistics, one may see that patients in their last year of life present more often to the Accident and Emergency Department locally. The latter raises the question whether there might be an unmet palliative care need in Malta. Moving forward, we must further attempt to identify patterns of ED presentations for various chronic diseases and develop the appropriate referral criteria, both of which will aid liaison between the ED and the palliative care team. A larger-scale study, possibly even using a time frame in the post-COVID period, would be ideal to identify changes in presentations since 2017, as well as attempt to pinpoint patterns of presentations as described earlier. In summary, keeping in mind the physical and psychological implications related to chronic disease burden, it is essential for doctors across different departments to anticipate patients' and relatives' needs from the palliative care team and thus to refer early to community based palliative care.

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