



Profiling emergency department presentations of 14–15-year-olds in modern Ireland

Therese Martin¹ · Aoife Corcoran¹ · Niofa Canty¹ · James Dillon¹ · Peter O'Reilly¹ · Gillian O'Donnell¹ · John Twomey¹ · Anne-Marie Murphy¹

Received: 1 December 2018 / Accepted: 4 March 2019 / Published online: 12 March 2019
© Royal Academy of Medicine in Ireland 2019

Abstract

Background Mid-adolescence, that twilight era when the human child transitions to adulthood, is an often overlooked developmental age yet harbours a subpopulation of patients with their own myriad of medical problems somewhat unique to their age group.

Aims Our study is aimed at reviewing the typical presentations to a paediatric emergency department of modern Irish teenagers in mid-adolescence, the profile of which has changed significantly over the past 10 years.

Methods Hospital electronic databases were used to conduct a retrospective review of the paediatric emergency department presentations of patients aged 14–15 years during the year of 2017. We collated data on the presenting complaint, background history, admission rate and medical specialities involved in each patient's care while in our Emergency Department.

Results A total of 1485 presentations were made, with 1363 being eligible for inclusion in this study. The results highlight the varied and challenging presentations (Table 1) and the high number of specialities required within emergency medicine to care for this unique population (Table 2).

Conclusion The results highlight the most common presentations of this subgroup of patients, with trauma, in keeping with recent international data, being the most common presentation. The noted high frequency in the number of mental health/intoxication/self-harm presentations among the Irish teenagers in our region is consistent with trends reported in world literature and serves to emphasise one of the main challenges facing those working in paediatrics in Ireland over the next 10 years.

Keywords Emergency medicine · Irish teenager · Mid-adolescence · Paediatric emergency department · Social media · Transition to adulthood

Introduction

Mid-adolescence, that twilight age between 14 and 16 years on the transition path to adulthood, harbours an often overlooked population, with their own myriad of medical problems specific to their age group [1, 2]. It is common for this population to have ongoing illnesses of childhood, but may present for medical review with problems, which have been classically associated with adulthood [3, 4].

As of 2015, it was recommended that patients who present to the paediatric emergency department (PED) aged 14–

16 years, form part of the paediatric population [5]. This was further elaborated, with it being agreed by both the New Children's Hospital group, HSE, and Irish Government, that all medical patients have their medical care overseen by a paediatrician until the eve of this milestone birthday [5], with the transition to adult services be complete by the eve of their 18th birthday [6]. In the dawn of social media, this forms a new, and often challenging, subpopulation of paediatric patients, those in that twilight zone between childhood and adulthood, our 14–15-year-olds.

While social media has, undeniably, had many positive benefits and opened doors for many people, both in terms of professional and social development, it has also had a significant negative impact on this cohort of patients. Recent research by the NSPCC highlighted this impact, both negative and positive, on this particular cohort of patients [7], with its negative impact (bullying, trolling, anxiety, depression) suggested being the highest in the 11–16-year-olds [6].

✉ Therese Martin
therese.martin@ucdconnect.ie

¹ Department of Paediatrics, University Hospital Limerick, Dooradoyle, Limerick, Ireland

Further work by the World Health Organization (WHO) emphasises this [8]. As per WHO, depression is the 3rd leading cause of illness and disease among adolescents, with unintentional injuries (including RTAs) being the leading cause of death in this cohort. Other causes of morbidity and mortality in this age group include alcohol and other drug use, early pregnancy and childbirth and violence.

In this new era of social media, we aim to explore, in this cohort of patients, the typical presentations in our PED based in the west of Ireland. We aim to highlight the most frequent subcategories of presentations, the most common presentations resulting in admission, and the specialties involved in their care. In doing so, we aim to highlight the wide number of specialties involved in the care of this subpopulation. The most common presentations will be compared with international data of PED presentations worldwide.

Method

Hospital electronic databases at our institution, University Hospital Limerick, were used to conduct a retrospective review of the various clinical presentations of teenagers aged 14–15 years, both male and female, in a PED during the 12-month calendar year of 2017.

We collated data on the presenting complaint, background history, admission rate, and medical and/or surgical specialties involved in each patient's care during their time in our Emergency Department.

The study was carried out in the Paediatric Emergency Department at University Hospital Limerick in early 2018.

Results

A total of 1485 presentations were made, with 1363 being eligible for inclusion in this study. Data in relation to 122 patient presentations was incompletely recorded and therefore, these 122 presentations were excluded from the study.

The results highlight the varied and challenging presentations of this age group (Table 1).

Our results show an almost equal male: female ratio, with over 14 subgroups highlighted in terms of main presenting complaints. In keeping with international research, non-intentional injuries, or trauma, were our most common presenting complaint subgroup. This was followed by gastrointestinal and surgical/gynaecological-presenting complaints. These presenting complaints were delineated in further detail (Table 2). Based on these initial presenting complaints, we further analysed these results based on gender, age and rate of admission. Our research shows that the rate of admission for this subpopulation ranged from 10 to 60%, based on the subgroup. The average rate of admission was 23%.

Discussion

The vast array of presentations to our Paediatric Emergency Department serves to highlight the myriad of conditions, both adult- and paediatric-based, affecting this subpopulation.

The results show the widespread involvement of all medical and surgical specialties that are required to provide care for this population. As can be seen (Table 2), trauma is the most common category in terms of presenting complaint. Interestingly, however, this category has the lowest rate of admissions. Furthermore, with further analysis of results, there

Table 1 Analysis of presenting complaint by system, with relevant breakdown by age and gender. Figures expressed as total numbers and centile (%)

Presenting complaint	Total no	Gender, male	Gender, female	Age, 14	Age, 15
Trauma	608	377	231	291	317
Skin	19	8	11	7	12
Toxicology	43	15	28	21	22
Gastrointestinal	180	52	128	87	93
Renal/urology	22	10	12	8	14
Surgical/gynaecological	108	62	46	53	55
Neurological	85	40	45	32	53
Psychiatric, psychological	51	20	31	22	29
Respiratory	57	28	29	30	27
Ophthalmology	25	14	11	17	8
Endocrine	7	3	4	5	2
ENT	52	18	33	30	22
Immunology	6	5	1	2	4
Cardiology	101	52	49	46	55
Total	1363	704	659	650	713

Table 2 Further analysis of the most common and most serious presenting complaints within each system, with analysis of relevant admission rates, which are expressed as total number and centile (%)

	Total number	Admitted, yes (total)	Admitted, no (total)	% Admitted
Trauma				
Limb injury (fracture/STI)	408	43	365	10.5
Laceration/wound	43			
Back injury	31			
Head injury	101			
Cast problems	2			
Eye injury/corneal abrasion	15			
Nasal trauma	8			
Skin				
Burns	6	3	25	10.7
Cellulitis	6			
Abscess	6			
Rash (e.g. viral exanthem)	10			
Toxicology				
Intentional overdose	21	19	20	48.7
Intoxication	18			
Gastrointestinal				
Abdominal pain	110	41	115	26.2
Vomiting/diarrhoea	44			
Constipation	2			
Renal/urology				
UTI/pyelonephritis	12	6	16	27
Urinary retention	2			
Paraphimosis	4			
Epididymitis	4			
Surgical/gynaecological				
Appendicitis	64	60	28	68
Mesenteric adenitis	20			
Ovarian	4			
Testicular	14			
Post-op complication	6			
Neurological				
Seizure	29	30	55	35.3
Headache	53			
Infection	3			
Psychiatric/psychological				
Suicidal ideation	11	15	36	29.4
DSH	18			
Mood disorder	10			
Anxiety	4			
Acute psychosis	2			
Section 12	6			
Respiratory				
Acute exacerbation of asthma	21	17	38	30.9
LRTI	10			
PTX	1			
URTI	23			
Ophthalmology				

Table 2 (continued)

	Total number	Admitted, yes (total)	Admitted, no (total)	% Admitted
Periorbital cellulitis	5	8	17	32
Uveitis	2			
Foreign body	9			
Eye pain/vision difficulty	9			
Endocrine				
DKA	3	6	1	85.7
Hyperglycaemia	4			
ENT				
Tonsillitis/quinsy	42	25	27	48
Post-op complication	2			
Foreign body	8			
Immunology				
Allergy	3	3	3	50
Anaphylaxis	3			
Cardiology				
Chest pain	42	23	78	22.7
Palpitations	5			
Syncope	53			
SVT	1			

STI, soft tissue injury; *MSK*, musculoskeletal; *DSH*, deliberate self-harm; *UTI*, urinary tract infection; *PTX*, pneumothorax; *LRTI*, lower respiratory tract infection; *URTI*, upper respiratory tract infection

was seen to be a slightly higher rate of presentations in 15-year-olds versus 14-year-olds in this category (Table 1), with a male predominance. This common presentation subcategory is keeping with international literature, which suggests that injury/trauma is among the most common presentations in adolescence and young adults.

Interestingly, our findings show the increased numbers of paediatric patients presenting with clinical scenarios more commonly observed in adult populations and in addition, a high input, in terms of patient care, in the paediatric emergency department from various specialities including orthopaedics, psychiatry, ophthalmology, urology, gynaecology and ENT surgery, historically more relevant in the practice of adult emergency medicine. Examples of common presentations in this cohort, which would be less common in younger paediatric subpopulations and more common to adult populations, include (but are not limited to) intoxication, DSH, chest pain and intentional overdose.

In keeping with international literature on the subject [4, 9, 10], our results show a high frequency of psychiatric presentations in this subpopulation of Irish teenagers (5th most common presentation). It is worth noting that our psychiatry colleagues also assessed many patients presenting with intoxication/toxicology. These findings also highlight the varied psychiatric presentations that patients of this subpopulation commonly present with including among others intoxication, DSH/suicidal ideation and intentional overdose. This high

frequency of presentations will, most likely, have a significant impact on us as paediatricians, in the coming years. As recently highlighted, the incidence of psychiatric presentations is rising nationally in all age groups [11], not just in this cohort of patients. Unfortunately, this new demand has not yet been met with increasing number of psychiatrists nationwide.

Finally, our study showcases some of the greatest challenges in paediatric medicine that we, as paediatricians, can expect going forward. Our results highlight the need for a multidimensional team input for care of these patients, with input from a wide number of both medical and surgical specialities.

References

1. Olfson M, Druss BG, Marcus SC (2015) Trends in mental health care among children and adolescents. *N Engl J Med* 372:2029–2038
2. Patwardhan S, Midgley P, Beattie T (2016) G239(P) Characteristics and presentations of adolescents attending the emergency department in 2014. *Arch Dis Child* 101:A131
3. Jin M, An Q, Wang L (2017) Chronic conditions in adolescents. *Exp Ther Med* 14(1):478–482
4. Viner RM, Coffey C, Mathers C, Bloem P, Costello A, Santelli J, Patton GC (2011) 50-year mortality trends in children and young people: a study of 50 low-income, middle-income, and high-income countries. *Lancet* 377(9772):1162–1174
5. Health Service Executive and Royal College of Physicians of Ireland (2016) A national model of care for paediatric healthcare

- services in Ireland; Chapter 24: paediatric emergency medicine; Available at: <https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatric-emergency-medicine.pdf> (Accessed: 21st September 2018)
6. National Paediatric Hospital Development Board (2016) Annual Report 2015. Available at: <http://www.newchildrenshospital.ie/wp-content/uploads/2016/12/NPHDB-Annual-Report-2015-Final-ID-18822.pdf> (Accessed 21st July 2018)
 7. Lilley C, Ball R, Vernon H (2014) The experiences of 11–16 year olds on social networking sites. National Society for the Prevention of Cruelty to Children, London Available at: <https://library.nspcc.org.uk/HeritageScripts/Hapi.dll/search2?searchTerm0=9781908055125> (Accessed: 15th June 2018)
 8. World Health Organization (2018) Adolescents: health risks and solutions. World Health Organisation Available at: <http://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions> (Accessed: 15th June 2018)
 9. Jenkins B, Katz I (2015) Adolescents' and young adults' use of emergency departments. Sax Institute, Sydney Available at: <http://apo.org.au/system/files/65229/apo-nid65229-16346.pdf> (Accessed: 10th September 2018)
 10. Noori O, Batra S, Shetty A, Steinbeck K (2017) Adolescent presentations to an adult hospital emergency department. *Emerg Med Australas* 29(5):539–544
 11. Health Service Executive (2016) National Clinical Programme for the assessment and management of patients presenting to the emergency department following self-harm. Health Services Executive, Dublin Available at: <https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/national-clinical-programme-for-the-assessment-and-management-of-patients-presenting-to-emergency-departments-following-self-harm.pdf> (Accessed: 21st July 2018)

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.