EMERGENCY MEDICINE

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2020 – 2021: Years like no other

Emergency Medicine in Ireland during the COVID-19 pandemic

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INTRODUCTION

On January 30, 2020, the World Health Organization (WHO) designated an outbreak of a novel coronavirus not seen before in humans to be a "Public Health Emergency of International Concern" (PHEIC); this was followed by the declaration of a pandemic on March 11, 2020. From the outset, the causative agent was thought to be viral, with most patients reporting fever or dyspnea[1]. Two years later, in March 2022, Ireland had endured five waves of the COVID-19 pandemic, with 1,326,946 cases and 6,571 deaths.

Due to decisive public health measures, Ireland successfully flattened the curve in the first wave of the pandemic. The second wave of coronavirus infections between August and November 2020 was characterised by a series of regional outbreaks and restrictions to certain workplace environments. The third wave of COVID-19 followed the relaxation of new restrictions implemented in December 2020 for the Christmas holiday period, and entailed a new surge of coronavirus cases and deaths, resulting in the reintroduction of a level 5 nationwide lockdown to contain the spread of the virus after the holiday break. This third wave also marked the initial stages of the implementation of the National COVID-19 Vaccination Strategy, with the first person receiving the COVID-19 vaccine on 29 December 2020 and the vaccine rollout commenced in nursing homes in the first week of January. The lockdown was gradually lifted from May 2021, but infections rose again in July due to the Delta variant. Despite Ireland's high vaccination rate, there was another surge in late 2021 due to the Omicron variant, with record-breaking numbers of cases being reported.

Each of these waves has placed a major strain on Ireland's healthcare service and the delivery of emergency care to the population. The emergency medicine approach to COVID-19 internationally focussed on identifying and isolating patients at risk for infection, informing hospital infection prevention teams and local public health authorities, and engaging infectious disease and other specialists early in care.

Hospital occupancy initially fell due to a combination of fewer "medically fit" patients remaining in hospital, acceptance of different admission and discharge thresholds, improvements in pathways within hospitals, and reductions in scheduled activity. This resulted in improved flow in acute hospitals during the early stages of pandemic.

1. Chavez, S., Long, B., Koyfman, A., Liang, S. (2020). Coronavirus Disease (COVID-19): A primer for emergency physicians, The American Journal of Emergency Medicine, 24 March 2020

FRONTLINE STORY

The Paediatric Perspective

The pandemic experience in a paediatric Emergency Department (ED) has been quite different to that of our adult colleagues but has required the same resilience, adaptability and strength.

While our colleagues in adult emergency departments became proficient in donning and doffing and discovering what in fact was an aerosol-generating procedure during the first wave, the staff of paediatric EDs were seeing reduced attendances and a much more benign disease spectrum. And while we stood in solidarity with our adult colleagues, there was a palpable sense of gratitude. We were not yet overwhelmed. Children were not getting too sick.

We restructured our department, developing a dedicated COVID-19 stream in the outpatients' department with a new waiting area and a separate injury pod for minor injuries. Inpatient teams worked hard to protect vulnerable children and those with complex care needs. Virtual appointments and regular telephone calls aimed to keep these children in the community and avoid acute hospital admission.

And still we waited. Children were not getting too sick.

We saw a surge in mental health presentations, a 54% increase on the previous year with many adolescents describing overthinking, anxiety, depression and a sense of utter hopelessness. Children with eating disorders became an almost daily attendance with many reporting that lockdown facilitated and exacerbated their restrictive eating and excessive exercise patterns. The nature of trauma presentations changed, with a lack of parental supervision (often attributed to working from home) resulting in more injuries.

And then, unfortunately, children started to get sick. A small number of children developed a significant systemic inflammatory response to COVID-19, now referred to as "PIMS TS" or paediatric multisystem inflammatory syndrome temporally associated with COVID 19. These children presented with high fevers and features of septic shock requiring ICU admission. The risk of myocardial involvement necessitated close cardiac monitoring. These children required treatment with Intravenous Immunoglobulin (IVIG), aspirin and high dose steroids. Staff were educated to remain vigilant for this rare but potentially life-threatening condition.

And then more children started to get sick. The return to school and surge in our usual seasonal respiratory viruses placed unprecedented demands on the department. Attendances surpassed all previous records; hospital beds and cots were fully occupied and children frequently remained on trolleys overnight. Worried parents struggled to get GP appointments.

And then even more children got sick. Fever, coryzal symptoms, cough, vomiting; all of our usual presentations were now "? Covid". Queues formed outside the hospital to register sick children. The waiting rooms were full making it well nigh impossible to comply with social distancing measures. Long delays to see medical staff unfortunately became the norm. Media campaigns were launched to inform and educate parents of anti-pyretic use and community COVID-19 testing. Vulnerable children with complex medical needs, malignancies, congenital cardiac diseases were now presenting with fevers and respiratory symptoms. Parents were frightened and in need of more reassurance than ever before.

And though we often felt close to it, we were not overwhelmed. Staff remained compassionate and kind. We retained our sense of gratitude. Children are getting sick but thankfully, not too sick. The pandemic experience in a paediatric emergency department has presented unprecedented challenges with respect to the sheer volume of patients but overall, the disease spectrum has remained mild with the majority of children discharged home.

The introduction of COVID-19 vaccination for children brings hope and some optimism for light at the end of the pandemic tunnel. As the very wise Peppa Pig tells us –"in the world there are two kinds of balloons. Up balloons and down balloons". Hopefully there's an up balloon on the way.

Dr Deirdre Philbin
Children's Health Ireland (CHI) at Crumlin

EMERGENCY DEPARTMENT PREPARATION

In preparation for a major pandemic, the physical layout of most Emergency Departments was extensively reconfigured to allow for the separation of patients into two streams: those more likely to have COVID-19 and those less likely. In many cases this involved changed or increased footprints. Many departments also introduced different rotas and significant new processes for how patients were cared for in the ED.

Many EDs annexed additional space which was available because of suspension of non-emergency activity (e.g. Out Patients Department). The ability to expand adjacent to the main ED was the preferred option, rather than displacing emergency work to a remote location. Having co-located areas made staff allocation easier and reduced the risk of cross contamination.

One of the major deficits identified early was the lack of isolation and negative pressure rooms in EDs (where aerosol-generating procedures could be carried out more safely). Some EDs had these retro-fitted as part of renovations commissioned.

FRONTLINE STORY

Emergency Department

Dr Conor Deasy
Consultant in
Emergency Medicine
Cork University Hospital

In early 2020 when the early descriptors and reports from China and Italy were publicised, our greatest fear was that patients attending Emergency Departments would contract the virus from each other, while being treated for an unrelated condition.

The ED had undergone physical transformation since the beginning of COVID-19 in March 2020. A collective effort from health service leadership locally and nationally, architects, engineers and builders, clinical and hospital administrative staff has seen the physical infrastructure in the ED transformed to protect people.

This has been done while continuing to treat over 230 patients per day; in effect fixing the jet engines while the aeroplane was still flying. We now have physical structures in the ED in CUH that ensure patients who may have COVID-19 are streamed to a safe area.

All patients attending EDs required sieving and streaming on arrival. To facilitate this many sites had to acquire extra space at the entrance to ED. Some erected tents or porta-cabins. As query-COVID-19 patient presentations decreased, some sites have used this space to facilitate physical distancing in the waiting area. Reduced waiting area capacity has proven challenging - areas that could accommodate 30 people now accommodate six. Even with family/visitor restrictions, patients were being asked to wait in their cars to be called for assessment.

CARE DELIVERY

High level Personal Protective Equipment (PPE) was very welcome in EDs to protect patients and staff although it did hamper fine skills and vision and hearing. The weather during April and May 2020 was unseasonably warm which combined with PPE made the working environment uncomfortable.

The greatest challenge was communication with the patients because of the inability to use facial expressions to communicate and offer comfort. Many older patients compensate for hearing loss by lip-reading and being unable to do this added to their distress.

Similarly, the loss of comfort measures such as physical touch increased distress in staff and patients. Ceilings of care were discussed with patients, particularly those in need of ventilator support in anticipation of ventilator demand outstripping capacity.

FRONTLINE STORY

Emergency Department

Siobhan Kenny
Advanced Nurse Practitioner
Mater Hospital, Dublin

During this crisis, I became acutely aware of just how scary coming to hospital is for some of our elderly population.

On a regular day, the nurse can be the only source of comfort for a patient, sharing a smile, a joke, or perhaps a kind look. These days however we are unrecognisable in our Personal Protective Equipment (PPE), often looking alien to our patients. These days I hold hands with my patients and talk openly about their fears. I call their family members more often than I normally would with any little updates that are available, as I can imagine how I would feel if it were my parents.

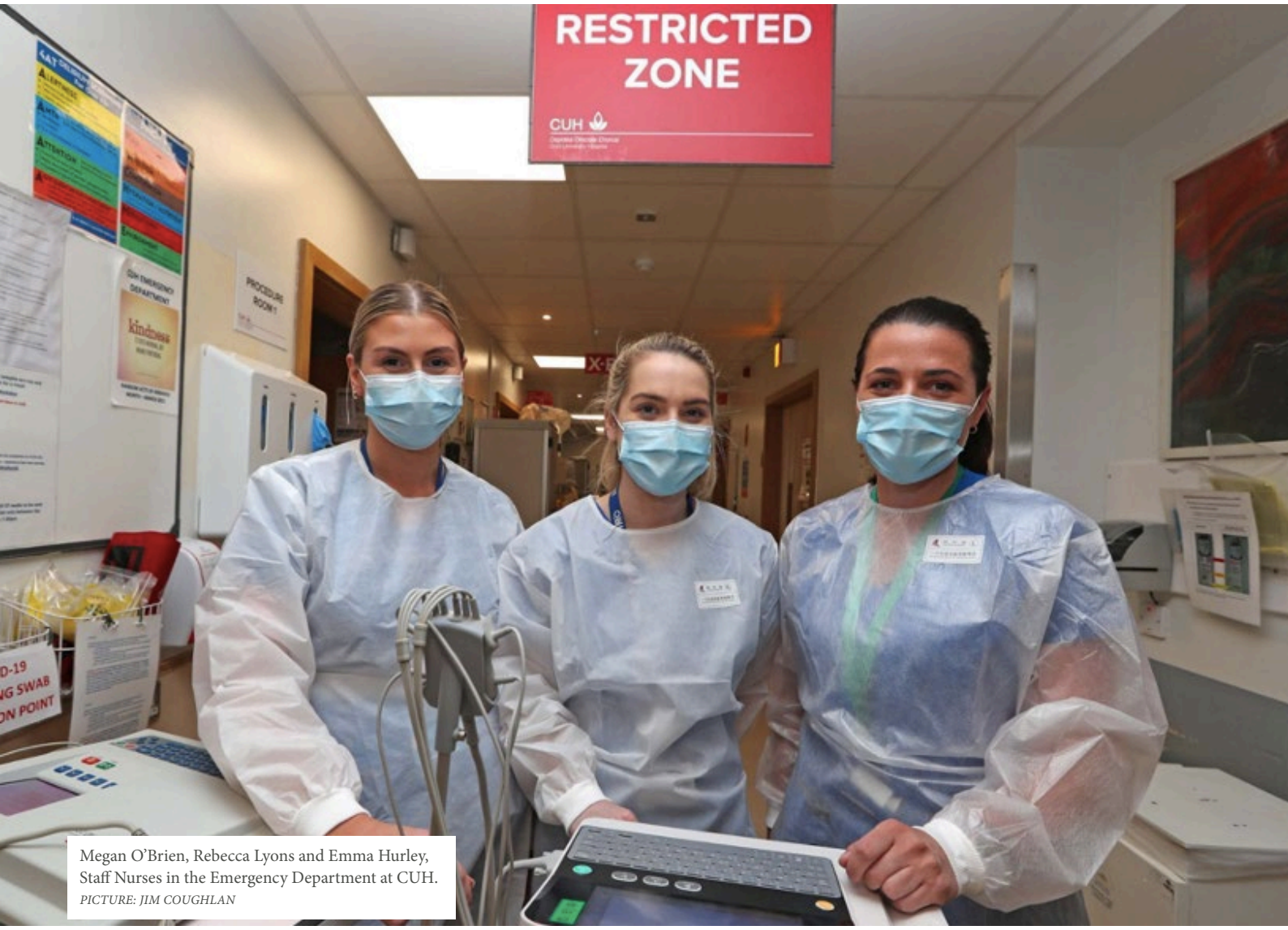
STAFFING AND TRAINING

Although many emergency staff have extensive training in preparation for major emergency events, few if any, had previous exposure or practice for prolonged or pandemic type situations.

Solutions to the physical health concerns of staff were addressed through the provision of extended breaks to ensure adequate time to “re-fuel and rehydrate”. Finding solutions to the psychological challenges of delivering emergency care in a pandemic was more challenging, as they affected each member of staff differently.

Resilience in staffing numbers was a major concern as it impacted directly on the ability to establish sieving and streaming and to run parallel ED services (for COVID-positive and COVID-negative patients). The redeployment of nursing and support staff to the ED from other areas of the hospital was welcomed. Challenges in increasing medical staff numbers by redeploying doctors from specialties whose scheduled work had been suspended, varied across hospitals.

New shift patterns were introduced for some disciplines/groups of staff to make the teams more cohesive and to ensure adequate rest between shifts. There was daily staff training for new equipment, protocols and procedures in the ED as well as orientation of new staff. This increased requirement for training and unfortunately came at a time when some of the Clinical Skills Facilitators were redeployed from their education posts. International shortages of equipment and consumables meant that suppliers needed to change frequently which also increased the need for training.



Megan O'Brien, Rebecca Lyons and Emma Hurley, Staff Nurses in the Emergency Department at CUH.
PICTURE: JIM COUGHLAN

FRONTLINE STORY

Emergency Department

Siobhan Kenny
Advanced Nurse Practitioner
Mater Hospital, Dublin

I was redeployed back to the emergency department, as COVID-19 took hold. The first thing that struck me on returning to ED were the vital changes that had been made, practically overnight. New pathways for patients to prevent cross contamination, updated equipment, even adapted nursing and medical roles. I have always been inspired by the people who choose to work in emergency. They are a special breed of people. They are the type of people who in the face of huge adversity, roll up their sleeves and dive in to get the job done.

I am proud to be an emergency nurse. I am proud of the Mater hospital. They have moved mountains to enable us to provide the best possible care to our community and I am proud of all my colleagues, clinical and non-clinical.

THE AFTERMATH

As the intense period of preparation for the pandemic progressed, physical and mental fatigue amongst the staff became an issue. Now that the prevalence of COVID-19 is more stable the issues have changed. New challenges include: maintaining two pathways of care with the same level of staffing, the resumption of suspended services, reducing physical capacity and inpatient boarders returning to EDs.

INJURY UNITS

Initially attendances at Injury Units (IUs) were very low. The lower number of attendances facilitated the development of processes to ensure the safety of patients and staff, including a process for the patient who presents with an injury but also had COVID-19 symptoms. One IU reported that the number of older patients (≥80yrs) attending had increased, possibly an effect of loneliness and lack of assistance during cocooning.

FRONTLINE STORY

Injury Unit

Trisha McKeown
Advanced Nurse Practitioner
Nenagh General Hospital

These unprecedented times have challenged us to adapt and review how we deliver care to our patients. It is no longer "business as usual".

In response to the COVID-19 crisis, and in preparation for surge capacity management within the ED, the Registered Advanced Nurse Practictioner (RANP) team relocated from University Hospital, Limerick to the 3 Injury Units within the Emergency Care Network, supplementing the existing service.

The 6 RANPs and 1 candidate Advanced Nurse Practitioner developed a combined rota across the 3 units. Cross cover was provided as required thus ensuring an RANP service on all 3 sites 7days per week.

This has allowed the RANPs to continue to offer high quality safe effective care for this cohort of patients in an environment that instils confidence and encourages attendance for treatment. It has also allowed for effective streaming of injures from the ED to the Injury Units."

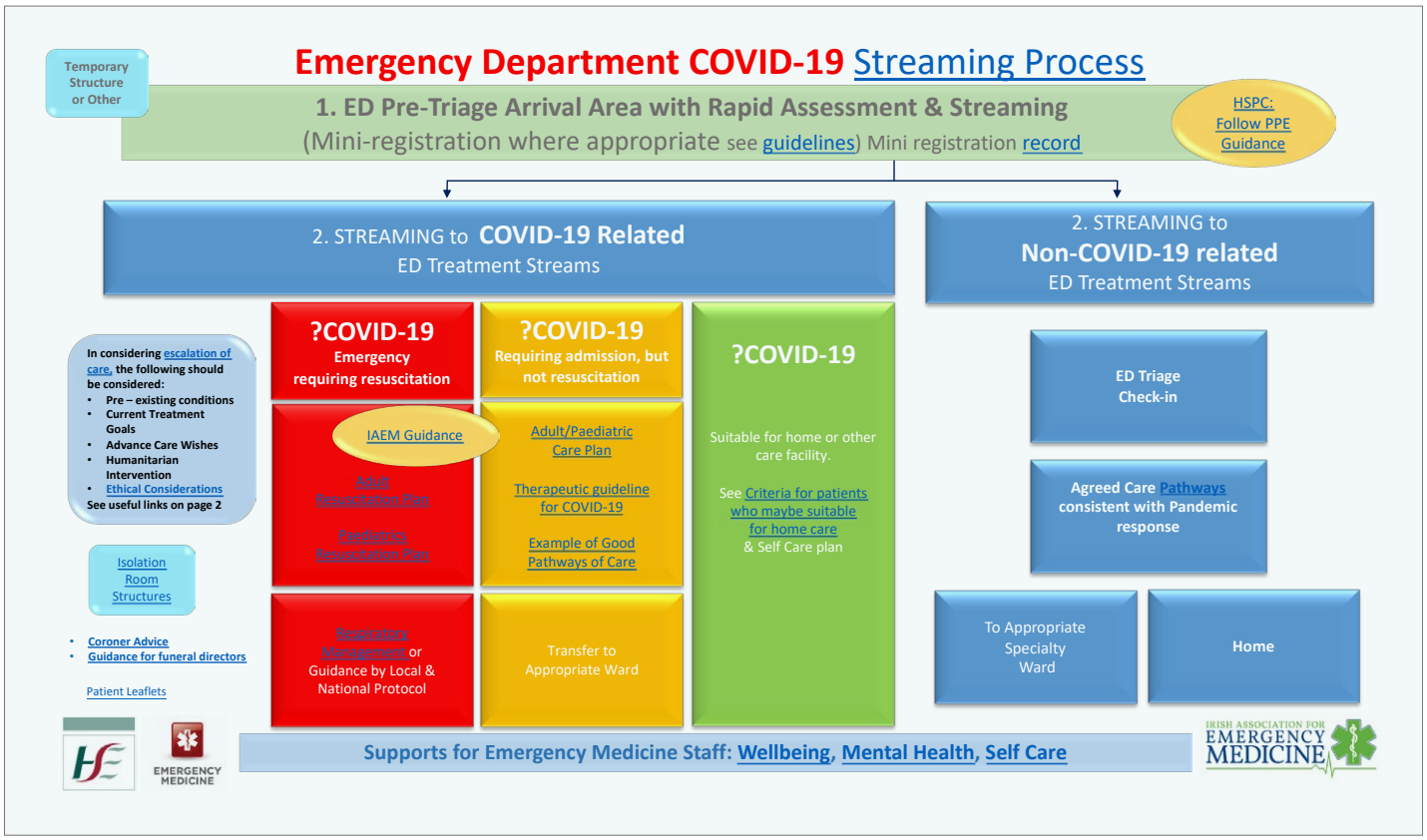
The University of Limerick Hospital Group (ULHG) extended the opening the IU in St Johns' Hospital to 7 days and redirected all patients with appropriate injuries presenting during daytime hours to an IU. The IU services within the ULHG were enhanced by the transfer of all the Registered Advanced Nurse Practitioners (RANP) (Emergency) to the IUs. This was a proactive move facilitating injury care closer to home. Attendances at IUs have now returned to pre-COVID-19 numbers.

GUIDANCE FROM THE EMERGENCY MEDICINE PROGRAMME

As the number of cases in Ireland started to increase in early 2020, urgent Emergency Medicine meetings took place between Dr. Vida Hamilton (National Clinical Advisor and Group Lead for Acute Operations) and Dr Gerry McCarthy (Clinical lead for Emergency Medicine Programme). As a result, the EMP developed a national guideline for Emergency Department streaming during the pandemic.

EMP convened a meeting on the 23rd March with a representative group of Emergency Medicine Consultants to design an ED COVID-19 Streaming Process;

The following streaming process with embedded linked guideline was designed and added to the Dr Steeven's Library (hse-ie.libguides.com/ld.php?content_id=32848274)



NURSING COLLABORATION NATIONALLY

In the early weeks of the pandemic the EMP Nursing Groups (ED Nurse Managers, Injury Unit Nurse Managers and Clinical Skills Facilitators) increased the frequency of tele / video conferencing. This approach was taken to gain standardisation, resolve issues and to identify issues that required escalation to a national forum. All the meetings are now being held monthly, with the frequency escalated as required.

PHYSIOTHERAPY SERVICES

The role of Advanced Physiotherapy Practice in Emergency also reconfigured and adapted to changes within emergency attendances.

Respiratory Physiotherapists regularly offered training in proning and the use of Continuous Positive Airway Pressure (CPAP) – respiratory apparatus to Emergency Staff.

Musculoskeletal Physiotherapists provided face-to-face and virtual services for those presenting as well as offering an admission avoidance and expedited review of those attending Emergency Departments with mobility issues deemed safe for discharge with Physiotherapy intervention.

MEDICAL COLLABORATION

Dr. Emily O'Conor, President of IAEM at the time, initiated videoconferences of Consultants in Emergency Medicine around the country and established a WhatsApp group, ensuring rapid sharing of ideas and issues and agility in rapid response to changing circumstances.

FRONTLINE STORY

The Pharmacists Perspective

In my work as an ED Pharmacist, I have become even more aware of the vulnerability of patients who through the pandemic, restrictions and clinical situations find themselves alone in the ED. I had to find new ways to obtain medication information, including more collateral information via telephone and even some patient consultations through telephone. The division of ED services and staff (e.g. COVID-19 and non-COVID-19 pathways) meant I had to change how I saw patients and likely slowed down my work.

Working in the pandemic as an ED Pharmacist, the pandemic greatly impacted the availability of medication, colliding with the expected issues that Brexit was due to cause. There have been many drug shortages over the past two years, leading to panic procurement, formulary amendments and expensive parallel imports. Medications commonly used in ED such as anti-microbials and anti-seizure medications have been affected.

On reflection, I found it exhausting and nerve-wracking assessing and re-assessing my personal risk for COVID-19 transmission each day. I also missed the social interaction with colleagues and the odd coffee and cake celebration which would usually boost morale and mood in work.

On the other side of the coin, the main positive things I have witnessed have been the resilience and extraordinary flexibility of staff. All staff have adapted to new practices in the face of uncertain situations. ED staff in all professions and at all levels should be commended for their efforts and dedication in the most ESSENTIAL of essential workplaces throughout the pandemic.

Another positive and novel observation was some of the collaboration and integration that occurred within the hospital, between hospitals and between hospital and primary care. Examples include the speedy establishment of clinical committees, the distribution of COVID-19 treatment pathways, online clinical education and training and in particular the rapid evidence-based medicine reviews and recommendations on evolving potential covid treatments. The Pharmacy Department finally got to launch an electronic medication ordering system which had been attempted unsuccessfully for years previously. Primary care also allowed hospital pharmacists access to patient medication files from primary care reimbursement schemes to help with medication reconciliation at transfers of care.

Joanne Gaskin
Senior Pharmacist
Emergency Department
OLOL

CLINICAL OUTCOMES

Attendances at Emergency Departments fell during the early part of the pandemic in early to mid-2020. Possible reasons for this include changes in disease patterns or behaviour, patients being treated by alternative pathways, or anxiety over presenting to hospitals. However, some seriously ill patients (e.g. with symptoms of stroke or MI) delayed presentation to the ED. Other patients appeared reluctant to declare symptoms to avoid being assigned to the COVID-19 pathway.

Total attendances for 2021 were, however, very similar to pre-pandemic levels and associated issues of crowding and also returned to pre-pandemic levels.

Attendances in the first part of 2022 are greater than at any other time and some of the busiest EDs have recorded attendance increases of up to 35%.

ATTENDANCES

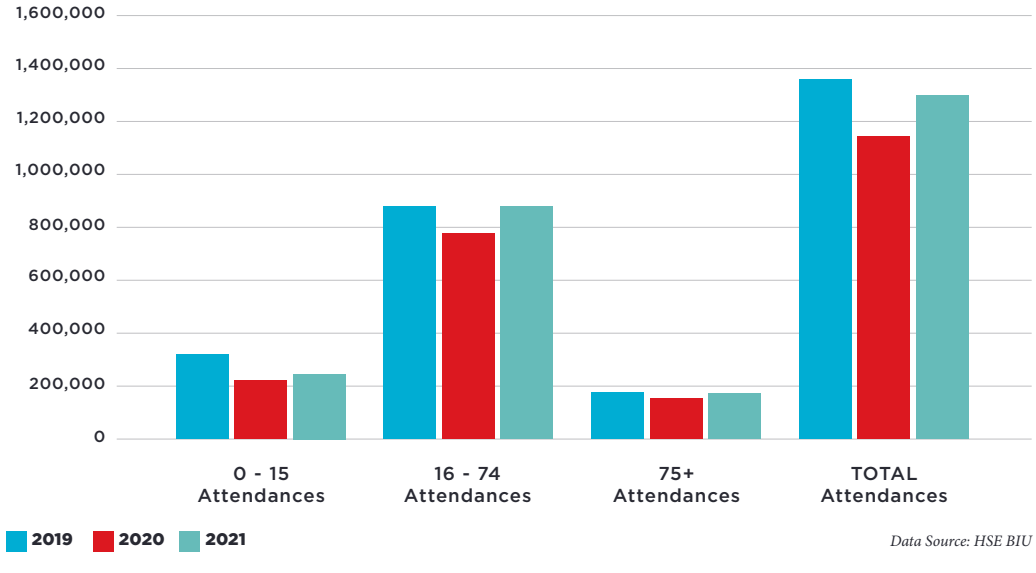
	0 - 15	16 - 74	75 +	TOTAL
2019	314,763	875,254	173,208	1,363,225
2020	210,693	783,539	155,609	1,149,841
2021	242,937	879,412	172,187	1,294,536

Data source: BIU data

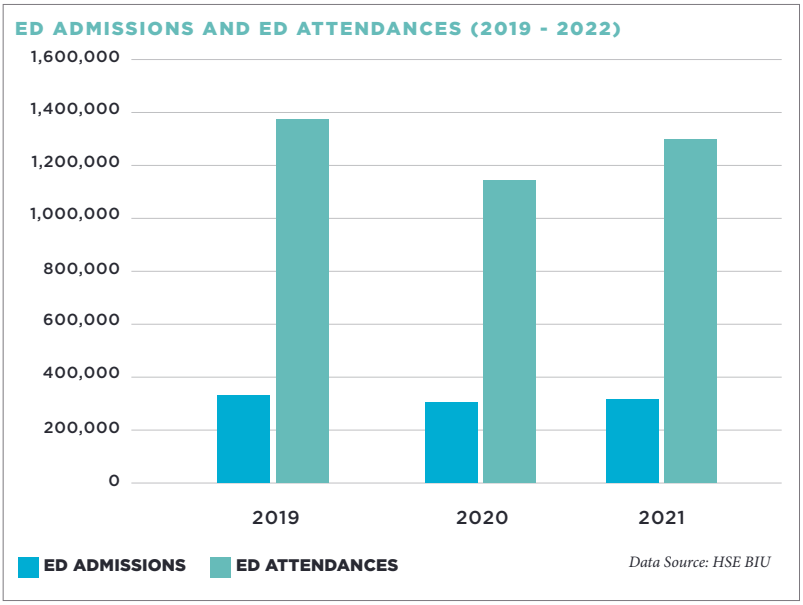
In 2020, patient flow improved considerably as there was space to see patients and beds available on the wards. In the ED, there was improved privacy for patients as there were no patients on trolleys in corridors and very few visitors. Increased cleaning regimes meant the indications for some emergency investigations were closely scrutinised as the equipment (CT Scan, USS, MRI) would be unavailable for a period thereafter to facilitate "deep clean". As the turn-around time for COVID-19 testing improved the test result was sometimes required prior to the test being performed.

GPs rapidly adapted to using video/teleconference facilities for consultations which inevitably led to some referrals to the ED that would probably not have happened after face-to-face consultations. Referring patients back to community services was challenging as capacity to see patients was reduced and routine procedures were curtailed or stopped.

ED ATTENDANCES BROKEN DOWN BY AGE

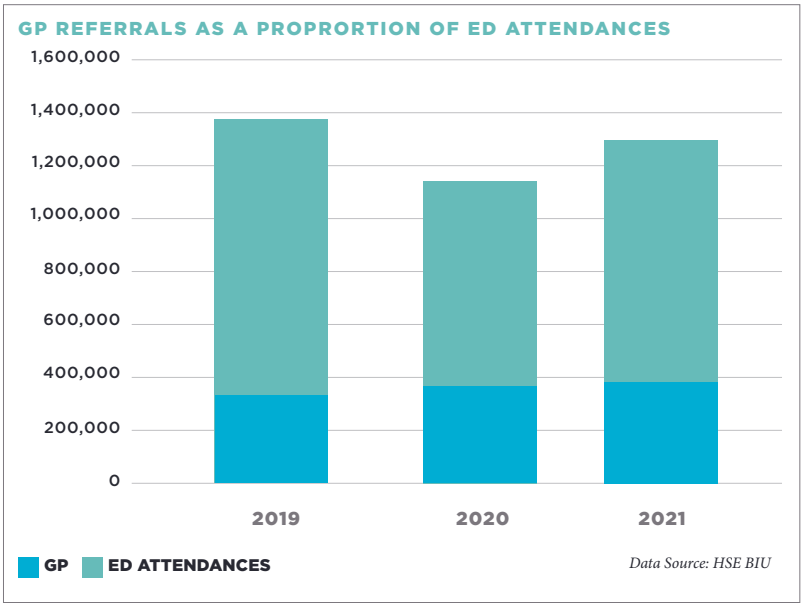


Data Source: HSE BIU



	ED ADMISSIONS	ED ATTENDANCES
2019	35,2015	1,363,225
2020	31,5336	1,149,841
2021	33,2871	1,294,536

Data source: BIU data



LESSONS LEARNED

The ABSENCE OF INPATIENT BOARDERS on the corridors of the ED was a very welcome change. Nursing staff could focus on delivering emergency care. ED staff did not need to search to find a clinical space to examine a patient. The in-patient teams/services were not congregating in the ED as patients were transferred to wards in a timely manner (within 6 hours) which made the environment safer for all for as long as it lasted.

The presence of SENIOR CLINICAL DECISIONS MAKERS at the front-door reduced waiting time and led to improved patient experiences and outcomes but many departments were only able to do this by working beyond usual shift times and suspension of leave. This highlights the need for increased senior clinical decision makers in EDs. Inpatient team involvement at the front door also increased, with improved access to face-to-face specialist opinions and radiology.

ADDITIONAL CAPACITY for acute hospitals was accessed through the HSEs arrangement with the private healthcare sector. A study entitled "The impact of COVID-19 on an Emergency Department (ED): Unlocking the Factors influencing Decision to Attend the ED in a Repeated Measure Cross-sectional Study[2]" concluded that sustainable system-wide solutions were required to tackle ED crowding. The importance of addressing capacity and flow in the wider hospital and within community services were illustrated in this study.

INCREASED PHYSICAL FOOTPRINT was necessary for social distancing and for adequate clinical space. This worked best when it was relatively close to the main ED.

ADEQUATE STAFFING WITH APPROPRIATE SKILL MIX is necessary for pathways to be successfully executed. Although there is a need to increase staffing levels, redeploying key staff such as Clinical Skills Facilitators and Advanced Nurse Practitioners is detrimental to the overall running of the ED, impacting training and patient processing.

PROTOCOLS AND GUIDANCE NEED TO BE CLEAR AND SIMPLE: the Health Protection Surveillance Centre guidance on the level of PPE required along with donning and doffing procedures were readily available, with training occurring locally. There were concerns in the early days of the pandemic about the ability to keep pace with new versions of the protocols.

2. The Impact of COVID-19 on an Irish Emergency Department (ED): Unlocking the Factors influencing Decision to Attend the ED in a Repeated Measure, Cross-sectional Study. Cummins NM, Garavan C, Devlin, C, Barry LA, Corey G, Cummins F, Ryan D, McCarthy G and Galvin R. Emergency Medicine Journal (2021) Under Peer Review

CONCLUSION

COVID-19 brought significant disruption to the way medical care is delivered across all areas of clinical practice, some good, some bad. In an effort to explore new ways of working in Emergency Medicine and reduce the need for congregation of patients awaiting unscheduled care, innovations were developed in the areas of ED outreach services and patient redirection/streaming through a navigation hub. Work is ongoing to develop a pre-registration app to further increase redirection and streaming options of lower acuity patients who intend to present to the ED.

As we move from a pandemic to an endemic state, delivery of care must adapt to ensure this – and similar transmissible diseases – can be managed safely within our Emergency Departments.

The Royal College of Emergency Medicine recommends that Emergency Departments return to their original core purpose: the rapid assessment and emergency stabilisation of seriously ill and injured patients. Using EDs as a pressure release valve for the wider system is no longer appropriate and in a pandemic situation puts patient's health at risk.

The improved flow in acute hospitals during the pandemic illustrated that delayed transfers of care and the resulting exit block is not an insoluble problem, and can be fixed where there is a communal effort. Patient flow improved, and many Emergency Departments were less crowded as result of all of these changes. Sustaining this flow will need leadership and active support at national, regional and local level, together with changes in behaviour from the public.

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Royal College of Surgeons in Ireland
123 St Stephen's Green, Dublin 2, D02 YN77, Ireland. **www.rcsi.com**