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Editorial

Pathfinder: The benefits of using alternative care pathways for older adults who dial 999/112

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1. Introduction

Older people who attend the Emergency Department (ED) are at greater risk of experiencing adverse events, such as pressure ulcers [1], infection [2], adverse drug events [2], falls [1–3], functional decline [1–3], or delirium [4]. Previous research shows that people aged ≥65 years welcome alternative care pathways to the ED [5, 6].

Pathfinder is a collaboration between Beaumont Hospital Physiotherapy and Occupational Therapy (OT) Departments and the National Ambulance Service (NAS), offering alternative care pathways at home, at the time of an Emergency Medical Services (EMS) call. The Pathfinder model represents a new care model in Ireland where, traditionally, all patients are transported to the ED following an EMS call, unless they decline transport.

The team comprises a 'Rapid Response' element and, uniquely to pre-hospital emergency care, a 'Follow-up' component. The 'Rapid Response' consists of an Advanced Paramedic (AP) and either a Clinical Specialist /Senior OT or Clinical Specialist/Senior Physiotherapist. It operates from 8am-8pm Monday to Friday. This team is only activated for EMS calls, and responds to calls triaged as 'non-serious & non-life-threatening' using the Advanced Medical Priority Dispatch System (AMPDS), including non-traumatic back pain, falls, and people who are generally unwell. The team also accepts crew referrals from higher priority EMS calls that have been deemed appropriate for Pathfinder review by attending ambulance crew.

The 'Follow-Up' component comprises of both Physiotherapy and OT input. This team supports the person at home in the days following the initial EMS call, providing immediate case management, essential equipment and acute intensive rehabilitation.

Pathfinder has been in operation since May 2020 and has reduced the number of people aged ≥65 years being conveyed to Beaumont Hospital ED [7]. A previous publication by the team has found the model to be safe and effective with a reported non-transport rate of 64% and high level of patient and family satisfaction [7].

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The following case series highlights the contribution Pathfinder Physiotherapists are making in this innovative role in successfully supporting older adults to remain at home following an EMS call.

2. Case 1

The Pathfinder Team was dispatched to an EMS call coded 26Alpha05 (general weakness) for an 85 year old woman whose carer dialled 999 due to a generalised weakness, a new rash on her back coupled with a functional and cognitive decline over the previous two weeks. Her past medical history included dementia, orthostatic hypotension, recurrent falls, hypothyroidism, anaemia and right hemiarthroplasty.

Collateral from the carer indicated numerous falls in the preceding 2 weeks, including one in which she sustained an elbow laceration which her public health nurse (PHN) was dressing twice weekly. The lady was occasionally drowsy and could also be agitated at night. At her usual functional level she walked using her wheeled zimmer frame (WZF) and required supervision given her falls risk. Using the Rockwood Clinical Frailty Scale (CFS) she was classified as severely frail (CFS 7) [8]. She lived with her son and daughter-in-law in a ground floor apartment and had a home care package (HCP) of 3 calls daily augmented by private care. An adapted bathroom was in place as well as a hospital bed, and a wheelchair for outdoor use. She was dependent for domestic and personal activities of daily living (ADL's).

On Pathfinder assessment the lady's vital signs were within normal limits. She had an evident new rash on her lower back which the AP assessed and felt resembled shingles. On Physiotherapy assessment she required contact guard assistance from one person to walk with her WZF and assistance of one person to stand from her armchair and to get in/out of bed. Her range of motion appeared within normal limits in all four limbs. Significant carer stress was evident and the lady's son advised that family were giving consideration to nursing home placement.

Pathfinder spoke with the lady's GP who completed an immediate virtual consultation. He diagnosed shingles and prescribed anti-viral medication. Due to her recent functional decline there was also a concern about a potential underlying infection. At the request of the Pathfinder team, the GP ordered home bloods via the community intervention team. The PHN completed a routine visit while Pathfinder were on scene and agreed that further primary care input would be beneficial from community physiotherapy and primary care social work; referrals were subsequently sent. Information was provided to the family about a charity which supports people who care for family members with physical or cognitive disability. Pathfinder agreed the follow-up support plan over subsequent days to ensure the lady was recovering from this acute event. A written summary of our intervention and plan was left with the patient, and also sent to the GP.

Over the next week the Pathfinder senior physiotherapist completed four visits. The lady's blood results were returned to her GP and found to be unremarkable. A strength and balance exercise programme was commenced. The Pathfinder physiotherapist liaised with their community colleague who agreed to take over care the following week due to the acute nature of the lady's decline and high risk of imminent hospital admission. With daily home-based rehabilitation the lady progressed from using a wheelchair to mobilising consistently with assistance and her WZF.

The lady continued to have a disrupted sleep/wake cycle, causing particular stress for her family. She had not been assessed by a geriatrician in two years. The Pathfinder physiotherapist discussed her case with the Geriatrician whom she was previously known to and a routine appointment was organised. A plan was also in place for follow-up by the community physiotherapist, as well as ongoing PHN management of her elbow laceration and overall care coordination. This lady was discharged from Pathfinder eight days after the initial EMS response by which time her level of mobility and function had greatly improved.

In this case example, Pathfinder input, in collaboration with the primary care team, resulted in successful, acute management of both medical and functional decline in this lady's home, without needing to attend the ED. This lady had no re-presentation to the ED or further 999 calls in the next 30 days. Her son described the service as "*First class, a great midway between hospital and home. It is what people want. They (older people) deteriorate psychologically in hospital. Excellent*".

3. Case 2

An 86 year old gentleman was referred to Pathfinder by a Dublin Fire Brigade ambulance crew following a fall two nights previously (the initial EMS call had occurred outside of Pathfinder work-

ing hours). The fall occurred whilst walking from the toilet when the gentleman reported his legs became weak. He reported significantly worsening mobility and four other falls in the two months since his last discharge from hospital. No dizziness or lightheadedness was reported prior to the event. There was no evidence of head trauma or limb injury and he had full recollection of events. Using remote access to Beaumont Hospital's IT system, it was noted that he had an extensive past medical history including degenerative spinal disease, lower limb oedema, polymyalgia, syncope, HTN, A-fib, Type 2 Diabetes Mellitus and a hearing impairment. He had a recent drug induced delirium which had resolved once the culprit pain medication was stopped. He was well known to the specialist pain team and was due for Geriatric Day Hospital review in the coming weeks.

This gentleman lived in a 2-storey house with his wife. He walked with a walking stick although had been provided with a WZF after a period of rehabilitation earlier in the year. He had a stair-lift and reported difficulty getting out of low armchairs. His wife assisted him with daily personal care as there was no HCP in place. There was evidence of significant carer stress. He was classified as moderately frail (CFS 6) [8].

On AP assessment his vital signs were within normal range and there were no acute changes identified on his 12-lead ECG. He was uninjured. His power was within normal range in all limbs. There was evidence of sarcopenia with reduced muscle mass, and unintentional weight loss reported over the previous 6 months. His wife also reported it was becoming increasingly difficulty to get her husband to hospital appointments due to his declining mobility (two had been cancelled recently due to same). They were not known to any primary care services and their situation was approaching crisis point.

The Pathfinder physiotherapist assessed and advised him to use his WZF at all times. A second domestic WZF was issued for upstairs use. Falls prevention advice was discussed including removal or securing of rugs and other trip hazards as well as advice to use the urinal bottle to reduce the need to walk to the toilet overnight. A summary of initial Pathfinder input and advice was left with the patient, and sent to the GP.

The Pathfinder physiotherapist followed-up the next day and commenced a strength and balance exercise programme. He was assisted in de-cluttering his environment so as to further reduce trip hazards. The physiotherapist provided advice regarding the purchase of well-fitting shoes, as well as advice to consider purchasing a caddy for increased independence and stability when using his WZF. The physiotherapist liaised with his PHN who agreed to follow-up regarding assessment for an urgent HCP. Primary care team referrals were sent for physiotherapy, dietetics and OT for ongoing strength & balance rehab, nutritional review and seating review, respectively.

On subsequent Pathfinder OT follow-up two days later the gentleman reported he felt much steadier when using the WZF. A pressure-relieving cushion was provided, which made it easier for him to stand from his preferred armchair. Advice was offered relating to the purchase of a light-weight transit wheelchair for appointments, as his wife was unable to handle the heavier wheelchair which Pathfinder OT had trialled.

The Pathfinder physiotherapist completed one further follow-up visit four days later, at which point this gentleman had greatly improved. The PHN had submitted a HCP application for assistance with personal ADLs. There had been no further falls or near misses. The Pathfinder physiotherapist liaised with colleagues in the Geriatric Day Hospital to give a recent update in advance of his imminent appointment.

In this case Pathfinder expedited a falls prevention response to stabilise an emerging crisis situation, and avoid the need for emergency hospital admission. This gentleman had no admissions or ED presentations over the subsequent 30 days. Case management in conjunction with the PHN resulted in an urgent HCP application as well as minor home adaptations and provision of essential equipment. Pathfinder's close collaboration with the Dublin Fire Brigade allows us to provide this type of intervention to people who suffer falls outside of Pathfinder working hours. It is an example of how three organisations working together can provide the right treatment, to the right person, in the right place.

4. Discussion

Pathfinder has successfully supported people aged $\geq$65 years in the Beaumont Hospital catchment to receive treatment at home after an acute event, and avoid the adverse effects of unnecessary hospital presentation. Our previous research has shown that provision of immediate functional rehabilitation, via a multi-disciplinary follow-up team, has been

a key component of the success of Pathfinder [7]. This report is designed to help inform other healthcare teams nationally on the role and scope of the Physiotherapist within the Pathfinder model. These case studies serve as examples of how a physiotherapist, working alongside their multi-disciplinary colleagues as part of a pre-hospital, rapid response multi-disciplinary team, can safely support older adults to remain at home following a low-acuity 999/112 call. Providing a bridge between acute and community healthcare settings has resulted in positive patient outcomes and helped avoid unnecessary ED presentations.

A primary aim of the HSE and Sláintecare is to deliver enhanced care to older adults in a community setting [9]. Funding has now been allocated to spread the Pathfinder model to nine sites across Ireland [10]. Whilst this service is evolving, it is felt that the model can be replicated nationwide, with local adaptation; thereby reducing unnecessary ED presentations and allowing older people access to alternative care pathways from home, irrespective of their geographical location.

Acknowledgments

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Conflict of interest

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Ethical considerations

Ethical approval was waived by the Beaumont Hospital Research Ethics Committee as it is their policy that ethical approval is not required for a case series of this size.

Written consent was obtained from each service user for the purpose of this case series.

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