

Bone Health Improvement in Parkinson's - Phase 2 report

A national project by the Parkinson's Excellence Network

Background

There is an increased risk of both falls and osteoporosis in Parkinson's, each of which increase the chance of fractures. Proven treatments help to reduce fracture risks. Although women are at higher absolute risk of osteoporosis and fractures than men, almost as many hip fractures each year are sustained by men with Parkinson's as by women with Parkinson's.

Until 2019, only around half of people with Parkinson's had their bone health assessed (biannual UK Parkinson's audit), with no improvement in successive previous national audits. In 2020, a multidisciplinary team with input from national experts in bone health and Parkinson's designed a national project to improve its management. Phase 1 of the project was implemented to increase knowledge among Parkinson's healthcare professionals about how to assess bone health in Parkinson's, and to improve rates of assessing and treating bone health in specialist services (Elderly Care and Neurology). In Phase 1, a total of 1081 people with Parkinson's were assessed in 41 specialist centres. The 2022 National Audit showed a significant improvement in bone health assessment, to 60%, with particularly strong improvement in centres that took part in Phase 1 of the improvement project. The current report is for Phase 2 of the project, which aimed to spread the approach to more specialist services and increase the number of people with Parkinson's having their bone health assessed.

Methods

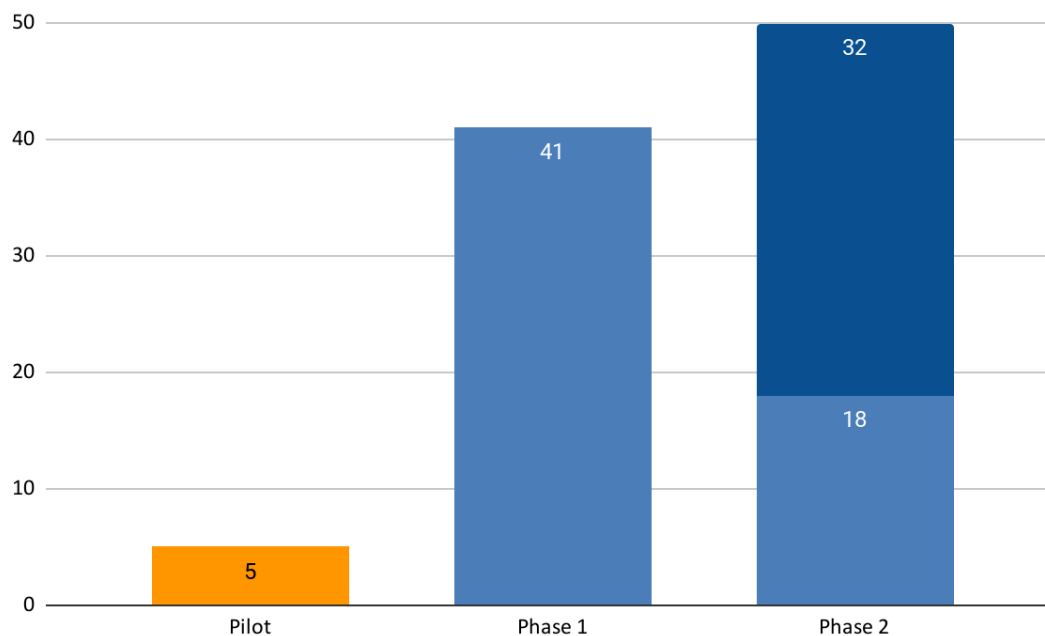
In 2023 we invited NHS Parkinson's services to join Phase 2 of our multi-centre UK-wide improvement initiative. They were given training on the approach and provided with supporting materials to document assessments performed, based on the established Bone Health in Parkinson's algorithm, and linked to national guidelines on investigation and management. Following feedback from Phase 1, additional information about assessing and treating people who were unable to have bone density (DEXA) scans was provided (eg.

because of the need to lie flat on the scanner). Summary data about cases assessed, and the process and outcome, were collected online.

Numbers of people assessed and main outcomes

A total of 1820 people with Parkinson's were assessed, in 50 services. Of these, 948 (52.1%) did not need a detailed assessment, as they had been assessed recently, were known very low risk (i.e. young, male, normal Body Mass Index (BMI) and zero additional risk factors beyond Parkinson's), or were already established on bone health treatment. Of the 50 centres participating in this phase of the project, 18 (36%) participated in the previous phase.

Fig 1: Number of services participating in each project phase



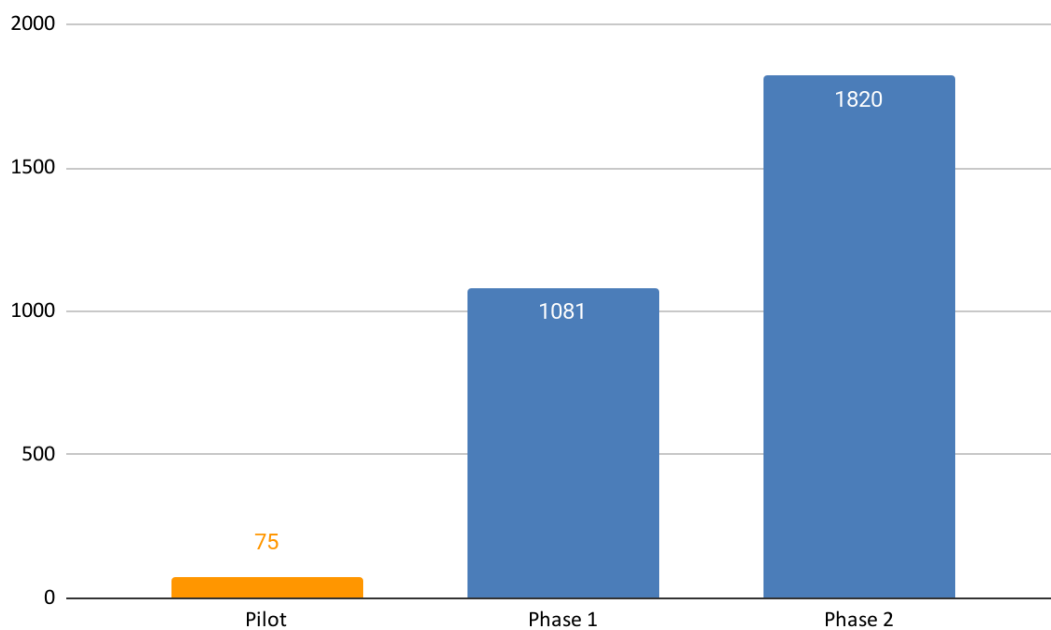
The 50 services who participated were from across the UK and were from the following specialties: 27 Elderly Care, 19 Neurology, and 4 Physiotherapy.

There were 872 people (47.9% of the 1820) who had their future risk of fracture scored by FRAX (or alternatively qFracture if expected survival was <10 years).

Bone density scans were requested for 351 people (19.3% of the 1820 assessed, and 40.3% of the 872 who had bone health scoring).

New bone health treatment was started for 208 people (14.5% of the 1820 assessed, and 23.9% of the 872 who had bone health scoring).

Fig 2: Number of patients assessed in each project phase



Results by centre

On average, each centre assessed 36 people with Parkinson's (range 7 to 92), and a bone health risk score was calculated for an average of 17 cases, range 2 to 56). Bone density scanning was requested in 7 people per centre on average, range 0 to 21). The number of people starting bone health preventive treatment, as a result of the assessment in this project, was 4 per centre on average (range 0 to 22). Bone health risk scoring was performed, and bone preventive treatment was started, in each of the 3 contributing specialties, Elderly Care, Neurology, and Physiotherapy.

Discussion

Substantially more people with Parkinson's were assessed in this phase of the project, and in more specialist centres, compared to the previous phase (Phase 2: 1820 people in 50 centres, compared to Phase 1: 1081 cases in 41 centres). This fulfilled the main aim of this phase of the project. It was encouraging to see continued involvement of both Elderly Care and Neurology, and particularly encouraging to have a Physiotherapy-led involvement in this phase.

The proportion of cases proceeding to bone health risk scoring (47.9%) was lower than in Phase 1 of the project (73.3%), which is expected because centres are assessing more and more patients as part of routine practice, so recent scoring was already available and did not need to be updated. However, proportions of cases having bone density scans (about one-fifth of all cases), and new specific bone health treatment being started (about in 1 in 10 of all cases assessed) were very similar between Phase 1 and Phase 2, indicating continued benefit for those centres that have participated in both Phases of the project.

An estimate of effectiveness suggests that the new treatments introduced to patients, in this Phase of the project alone, would be expected to prevent around 5-6 vertebral fractures and 2-3 non-vertebral fractures (including the prevention of 1-2 hip fractures). Overall, the treatment across all phases of the project would be expected to prevent around 9 vertebral fractures and 4 non-vertebral fractures (including the prevention of 2-3 hip fractures).

Future plans – Phase 3

The supporting materials developed for the current Phase of the project will now be made public through the Parkinson's UK website (<https://www.parkinsons.org.uk/professionals/resources/better-bone-health-resources>) so they are available to all services. These include guide notes linking the bone health in Parkinson's assessment algorithm, the national osteoporosis management guidelines, and a single-page easy-flow format for use in assessing individual patients.

More data about the numbers of fractures, use of bone density scans, and prescription of bone health prevention treatments in people with Parkinson's will be obtained from analysis of the Clinical Practice Research Datalink (CPRD), which has NHS records for 18 million people. Having this data will help to build a compelling case for continued improvements, and making optimum bone health management in Parkinson's a routine part of patient care. If we can achieve this, the number of fractures prevented would be about 50 times greater than we have already achieved in Phases 1 and 2 of the project.

We will also continue to audit practice through the UK Parkinson's Audit, which will next run in 2025.

Acknowledgments

This project was successful because of the ongoing high level of engagement by the clinical community for which we are extremely grateful. The project was developed with extensive input from an expert multidisciplinary team including medical, specialist nursing, therapists, and people with Parkinson's. Particular thanks to Dr Veronica Lyell who gave invaluable expert advice on the topic which helped shape the project. This project would not have been possible without the financial and staff support kindly provided by Parkinson's UK. We are also grateful for helpful comments from Jill Griffin, Clinical Engagement Lead, Royal Osteoporosis Society.

Appendix: Phase 2 participating services

Elderly Care services:

Addenbrooke's and Brookfields Hospitals
Birmingham Heartlands Hospital
Bronllys Hospital
Darent Valley Hospital
Glasgow Royal Infirmary / Lightburn Hospitals
Gloucestershire Royal Hospital
Guildford Frailty Movement Disorder clinic
Inverclyde Royal Hospital, Larkfield Unit
Ipswich Hospital
Llandudno General Hospital/Eryri/YPS/Alltwn
Lurgan Hospital
Luton and Dunstable Hospital
Musgrove Park Hospital
Norfolk & Norwich University Hospital
North Tees University Hospital
Northumbria Parkinson's Disease Service
Poole Hospital & Royal Bournemouth Hospital
Queen Victoria Hospital, East Grinstead
Rotherham General Hospital
St James University Hospital
Stobhill Hospital
University Hospital Wishaw
University Hospitals Bristol and Weston
Vale of Leven Hospital
Wythenshawe Hospital, Day Hospital

Neurology services:

Aberdeen Royal Infirmary
Central and North West London NHS Foundation Trust - Community Neuro Service
Cornwall Partnership NHS Foundation Trust - Parkinson's Neurology Service
Coventry & Warwickshire Partnership Trust - Community service
Derriford Hospital
Gorseinon Hospital, Parkinson's Unit
Hounslow - Community Parkinson Neurology Clinic
Ipswich Hospital
Northwick Park Hospital
Peterborough Parkinson's Clinic (Botolph / HLC)
Princess Royal Hospital
St Helier Hospital
Southend University Hospital
Tameside and Glossop Integrated Care NHS Foundation Trust - Community Neuro Rehab
Team
University Hospital Coventry

Watford General Hospital

West Suffolk Foundation Trust / Suffolk Community Healthcare - community service

Wiltshire Health and Care - Integrated Community Neuro Service

Worcestershire Acute NHS Trust - Alexandra Hospital & two more hospital sites

Physiotherapy services:

Astley Ainslie Hospital

Kirkley Mill Health Centre

Newcastle upon Tyne NHS Foundation Trust - Community Response and Rehabilitation
Team

Queen Margaret Hospital, Whitefield Assessment & Rehabilitation Centre

University College London Hospital - outpatient service