27 + 2. The Czech Republic SCOPE scores resulted in a 6th place regarding disease burden and 26th place in combined healthcare provision. The Czech Republic belongs to the group of eight high-burden low-provision countries. Low number of DXA units and fact that osteoporosis is not primarily managed in primary care were both identified as main causes of overall low-provision. Therefore, major professional societies together with major health care payers have prepared and launched the Czech National Population-based Program for Early Detection of Osteoporosis since April 2023.We present data from the first 20 months of the program.

Methods: National algorithm for DXA indication and monitoring has been proposed. DXA units 20 per million, 1–2 per district was set as target. GP´s and gynaecologists were allowed to perform DXA scans based on mandatory training and have got access to anti-osteoporosis medication. Patients at risk indicated for DXA assessment are women aged 60 and men aged 70 and over. Furthermore, postmenopausal women up to age 59 and men aged 65–69, if their FRAX exceeds the lower assessment threshold. Specific codes determining BMD T-score ranges are used.

Results: January 2023 were 118 DXA units in Czechia, in 42 of 76 districts (56%), in January 2025 were approved 216 DXA units (183% increase) in 73 districts (96%), 19.85 DXA units per million. Within the period from April 2023 to December 2024 DXA was carried out in 167 022 women (92%), 86% older 60 years and in 15 539 men (8%), 89.6% older 70 years. We identified 21.2% women and 11.7% men with T-score below − 2.5.

Conclusion: the program improved availability of diagnostic care and provide population data. The program is a powerful systematic tool for the diagnosis and treatment of osteoporosis in Czechia.

P1298

AN ARTIFICIAL INTELLIGENCE ALGORITHM TO IMPROVE DIAGNOSIS OF VERTEBRAL FRACTURES EMBEDDED IN FRACTURE LIAISON SERVICES CAN REDUCE FRACTURES AND REDUCE COSTS

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Objective: To estimate the patient benefit and economic impact of integrating an artificial intelligence (AI)-enabled vertebral fracture (VF) identification algorithm into optimally-run FLSs.

Materials and methods: The Nanox-AI HealthVCF algorithm was implemented into the radiology workstream of three UK NHS hospitals. The AI analysed existing CT scans and flagged those with potential moderate/severe fractures for local clinical confirmation. Patients with confirmed scans were referred to the local FLS for further assessment and management. Using a microsimulation model[1], the impact of the AI on patient outcomes and health and social care costs was estimated for 1,000 male and 1,000 female patients with confirmed VF over five years. We used observed FLS performance metrics before and after AI implementation from the FLS-Database of England and Wales and expert opinion from FLS leads to populate the model comparing results under pre-AI observed FLS to AI optimised-FLS settings.

Results: Subsequent hip, spine or other major osteoporotic fractures were 6.8% and 4.4% lower under the AI + optimised FLS setting for female and male simulated patients, leading to 44 and 59 quality-adjusted life years gained, respectively. Less subsequent fractures led to lower health and social care resource use: AI + optimised FLS would save 378 bed days per 1,000 female patients and 206 per 1,000 male patients, with reduced need for long-term institutional care after a fracture by 17 and 12 fewer years of long-term institutional care, respectively. FLS costs including medication would be higher under the AI + optimised FLS but these would be offset, partially for males and entirely for females, by savings in health and social care leading to extra costs of £62 per male patient and savings of £117 per female patient over the five years. The difference was driven by higher risk of hip after VF for women compared to men.

Conclusion: While VF are common and put patients at high imminent fracture risk, FLSs have struggled to identify this subgroup. Despite differences in age and higher mortality, adding AI to flag potential vertebral fractures can lead to substantial reductions in subsequent fractures and in health and social care costs. These findings support the widespread integration of AI into FLSs as both clinically and cost-effective.

References

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P1299

DISTINCT CLUSTERS OF CARERS WITH X-LINKED HYPOPHOSPHATAEMIA BASED ON THEIR QUALITY OF LIFE

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Objective: To investigate whether distinct clusters of people with X-linked hypophosphataemia (XLH) who are also carers of relatives with the same disease can be identified based on their quality of life.

Materials and methods: Patient-level data were obtained from the RUDY Study in the UK.

Study participants with XLH who self-declared being carers of relatives with XLH completed the Caregiver oncology quality of life questionnaire (CarGOQol), composed of 29 items grouped into 10 dimensions: Psychological well-being, Burden, Relationship with health care, Administration and finances, Coping, Physical well-being, Self-esteem, Leisure time, Social support, and Private life. Each item was assessed on a 5-point Likert Scale, with (unweighted) scores calculated for each domain and in total (min 0, max 100), and higher scores indicating better quality of life.

Dissimilarity matrix calculated using Gower's distance was used to identify quality of life clusters of people with XLH. Agglomerative and divisive clustering were explored and dendrograms used to visually assess results. Final decision on number of clusters was made based on the elbow and silhouette methods.

Results: Of 59 adult XLH participants in the dataset, 13 reported being caregivers of a relative with the disease. They were mostly women aged around 40, nearly half of British or Northern Irish ethnicity, from most regions of the UK, and less deprived than the general population. Nearly half of caregivers looked after an adult and the other half after child, with the great majority being caregivers for 1 or 2 people.

Two distinct clusters were identified using divisive clustering, with Cluster 1 grouping six carers and Cluster 2 seven. Cluster 1 participants reported higher mean scores than those in Cluster 2 (Fig. 1) in all but three domains (Relationship with health care, Self-esteem, and Social support) and in overall quality of life (68.0 vs. 43.2).

Conclusion: The study confirms a significant and variable impact of caring on the quality of life of people with XLH who look after relatives with the disease. Further work is needed to understand the determinants of carer burden and the need to personalise carer support in the XLH setting.

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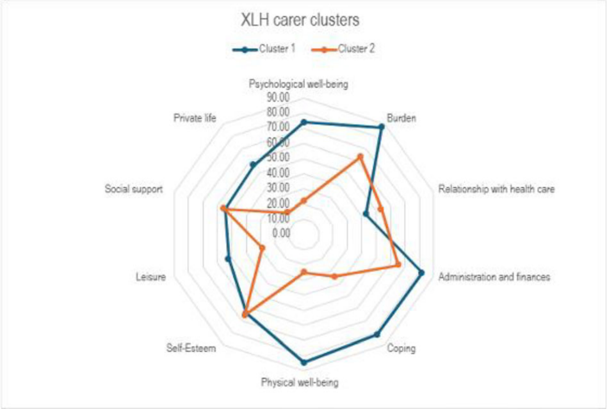

P1300
BRIDGING THE BONE HEALTH GAP: INSIGHTS FROM THE NSHF SPINE & BONE HEALTH TASK FORCE SURVEY

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Introduction: Bone health is a key determinant of spine surgery outcomes, influencing complication rates and recovery. Despite its importance, pre-operative bone health evaluation is often overlooked, and public awareness remains inconsistent. This study aimed to assess public knowledge and practices related to bone health using data from a diverse survey population.

Methods: A public cross-sectional survey gathered responses from 1,440 participants via a 10-question quiz on bone health. Results were assigned letter grades (A: 90–100%,B: 80–89%,C: 70–79%,D: 60–69%,F: < 60%). Responses were analyzed by age, gender, presence of spine conditions, and prior history of spine surgery. Key questions addressed pre-operative bone health evaluation, awareness of spinal conditions, and questions regarding desired bone health-related information. Descriptive statistics were used to summarize responses, and bivariate analyses were conducted using likelihood ratio chi-square test to assess for differences between variables; at $p < 0.05$.

Results: Overall, 56.6% of respondents achieved high quiz scores (A or B). Among younger respondents (21–34 years), 49.3% scored A or B, compared to 70.0% of older respondents (65 + years). Over 90% across all age groups correctly recognized that bones weaken with age, while awareness of osteoporosis medications and their safety increased with age. Female respondents outperformed males, with 61.8% achieving grades A or B compared to 48.7% of males. Statistically significant gender differences were observed in identifying broccoli as beneficial and caffeine as harmful for bone health. Among respondents diagnosed with a spine condition, 55.2% achieved grades A or B, and 52.4% reported having had a bone density test, compared to 31.7% of those without a spine condition. Interest in learning about bone health treatments was significantly higher among respondents with spine conditions (78.1%) than those without.

In respondents with a history of spine surgery, only 15.9% reported prior bone health evaluation, while 84.0% expressed interest in learning about treatment options. Most respondents (70.6%) indicated interest in improving or restoring bone health as well as interest in "why bone health matters to everyone" at 70%.

Conclusion: This survey highlights significant gaps in public bone health evaluation and awareness, especially in spine surgery contexts. Increased educational initiatives and standardized screening protocols are necessary to improve outcomes and promote spinal health.

P1301
NEW PATIENT AND HEALTH CARE PROFESSIONAL TOOLS TO CONNECT SPINE AND BONE HEALTH

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The National Spine Health Foundation (NSHF) is the pre-eminent patient and health care professional advocacy organization in spinal health care. It is the only non-profit organization dedicated to helping patients overcome debilitating spinal conditions and take back their lives through patient education, award-winning research, and patient advocacy. NSHF gives patients the tools they need to make informed decisions about their spine health and navigate their own treatment journeys with confidence.

NSHF serves a critical gap in spinal health by representing the voice for patients, in connection with premiere professional societies through the Coalition for Spine Health, and fueled in partnership with industry leaders through our Spine Health Leadership Council. Our stated mission is to improve spinal health through patient education, patient advocacy, and clinical outcomes research.

We achieve much of our mission through our digital outreach efforts including our award winning website, www.spinehealth.org. We steward a vibrant community through our Spinal Champion program where patients share their successful spine health journeys to give hope and help to others seeking real answers. These Spinal Champion stories are featured on our Get Back To It podcast. Our prestigious Medical & Scientific Board volunteer their expertise to contribute to our content primarily through our premiere video education offering, SpineTalks, and through our bi-annual Spine Health Journal.

NSHF has seized this opportunity to educate spine patients as well as help spine surgeons and professionals increase patient outcomes through providing tools and resources on the importance of bone health optimization in surgical patients through the following new platforms:

1. Bone Hub (https://www.spinehealth.bonehub): An educational site for both patients and professionals on the connection between spine