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Fracture Liaison Services in Switzerland: current status and challenges

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Summary

Switzerland is one of the very high-risk countries for osteoporosis. The Fracture Liaison Service is the internationally endorsed model for secondary fracture prevention and for reducing mortality after a person has sustained a fragility fracture. In this article, we describe current Fracture Liaison Service coverage and structure in Switzerland and the challenges Fracture Liaison Services are facing. Good interdisciplinary cooperation, especially with general practitioners, is a key factor. Artificial intelligence (AI) for the detection of vertebral fractures, shared electronic medical records, digital platforms and telemedicine are emerging and evolving approaches to overcome the existing barriers to osteoporosis treatment.

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Introduction

Osteoporosis is common in older people, and Switzerland is one of the very high-risk countries [1, 2]. One year after a first episode of fragility fracture, the risk of a new fracture is multiplied by 2.7 [3] and even by 4 after a vertebral fracture [4], without differences between men and women [5]. This risk of a new major osteoporotic fracture (hip, spine [clinical], wrist or humerus) after a first major osteoporotic fracture is particularly high during the first 2 years (imminent risk) [3]. A recent systematic review and meta-analysis showed that half of re-fractures occurred in the first 2 years after a fragility fracture [6].

Osteoporotic fractures often result in reduced function, with associated pain, disability, loss of independence and reduced quality of life [7]. After a hip fracture, 1-year mortality ranges from 15% to 30% for community dwelling residents and from 40% to 55% for those on long-term care [8, 9]. Further, about half of hip fracture patients who survive to 1 year do not regain their prior functionality [8] nor does their health status return to pre-fracture levels [10]. Recent fragility fracture is thus a marker of very high fracture risk, degraded health and increased healthcare costs, and requires urgent assessment and treatment with anti-osteoporosis medications to reduce the risk of a further fracture [11].

Anti-osteoporotic treatments have clearly demonstrated their efficacy in reducing the risk of new fragility fractures [12]. Unfortunately, osteoporosis is still dismissed as a problem linked to ageing. Many individuals who might benefit from osteoporosis medication do not receive it, since its diagnosis, evaluation and treatment, including correction of vitamin D deficiency, are not undertaken after a fragility fracture [13]. Despite severe vitamin D deficiency, with most Swiss hip fracture patients having levels below 30 nmol/l, only 10% of them received vitamin D supplementation during their admission to acute care [14].

The underlying reasons for this huge osteoporosis treatment gap (83% in Switzerland) are diverse and include a mismatch between the perceived and actual severity of the condition and concerns regarding efficacy and adverse effects of the medication by both doctors and patients. Additionally, osteoporosis has historically received insufficient priority from both healthcare providers and policymakers [15]. Fracture prevention is inherently challenging because it requires immediate clinical action in response to a future, abstract risk rather than an existing injury. Musculoskeletal diseases have been shown to be a leading cause of disability worldwide by the

Global Burden of Disease initiative, because they are viewed as less important than, e.g. cancers and heart disease. Clearly, failure to treat osteoporosis at the time of the fracture is a missed opportunity for intervention. It is worth noting that orthopaedic surgeons are aware of a care gap for patients presenting with a fragility fracture, and the need for interdisciplinary management of these patients. Indeed, in two surveys most orthopaedic surgeons would prefer to establish a fracture liaison service rather than to pursue a protocol-based, non-individualised approach to address the osteoporosis care gap at their institutions [16].

Fracture Liaison Service

The Fracture Liaison Service represents the best secondary fracture-prevention care model for managing post-fracture osteoporosis and falls [7]. It was first described in Scotland by McLellan et al. and has become a widely recognised and successful approach to managing the bone health of patients who have suffered a fragility fracture [7, 17].

A Fracture Liaison Service consists of an interdisciplinary team (orthogeriatricians, rheumatologists, endocrinologists, other physicians and clinical nurse specialists), whose objective is the secondary prevention of fractures. As outlined in figure 1, fracture care starts right after the fracture event. The Fracture Liaison Service is led by a coordinator whose role is essential to ensuring continuity of patient management from the time of a fragility fracture until the transition to the primary care provider [17, 18]. The essential elements of the best practice framework of a Fracture Liaison Service are built on 13 points (https://www.capturethefracture.org/best-practice-framework), from identifying and assessing the patient, carrying out examinations, and initiating and maintaining treatment over the long term [19]. The International Osteoporosis Foundation's (IOF) Capture the Fracture® campaign, in collaboration with the Fragility Fracture Network (FFN) and the US Bone Health & Osteoporosis Foundation (BHOF) (formerly the National Osteoporosis Foundation [NOF]), has also developed 11 patient-level key performance indicators to guide Fracture Liaison Service quality improvement [20].

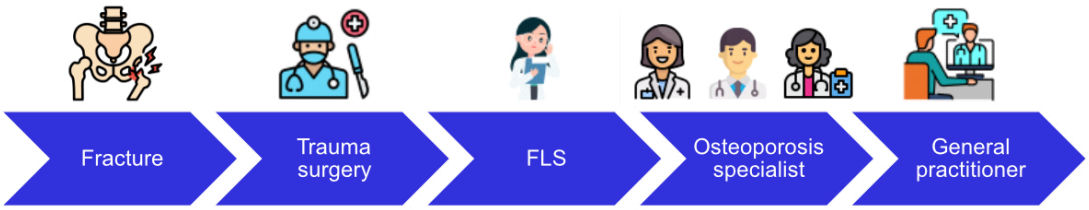


Figure 1: Fracture Liaison Service process.

Compared with patients receiving usual care, Fracture Liaison Service programmes improved outcomes of osteoporosis-related fractures in systematic reviews and meta-analyses, with significant increases in testing, initiation of anti-osteoporotic medication and adherence to treatment, and relative reductions in re-fracture incidence by 30% [21, 22]; and, importantly, with a favourable cost-effectiveness ratio [23]. Furthermore, patients who were treated with anti-osteoporotic drugs after the implementation of the Fracture Liaison Service protocol had a lower all-cause 1-year (up to 25%) and 2-year (13%) mortality compared with patients managed before its implementation [24, 25].

Aubry-Rozier et al. found that among patients presenting with an acute low-trauma fracture in a Swiss academic public healthcare centre, osteoporosis diagnosis and treatment were more frequent when they were managed by the Fracture Liaison Service vs their general practitioner (GP) [26]. The Geneva Fracture Liaison Service also demonstrated that early patient management after a newly detected radiological vertebral fracture during hospitalisation in patients aged over 60 was more efficacious than delayed outpatient management following discharge [27]. This explains why the secondary prevention of fractures with the establishment of Fracture Liaison Services is considered a standard of care, and Fracture Liaison Services have been developed

worldwide [19]. Since its launch in 2013, the IOF Capture the Fracture® programme (https://www.capturethefracture.org) has welcomed a growing number of Fracture Liaison Services all over the world.

Methodological heterogeneity and the risk of confirmation and reporting bias are acknowledged limitations of the current Fracture Liaison Service evidence base. Nevertheless, the well-documented elevated risk of subsequent fractures – combined with the recognised treatment gap in post-fracture care – makes structured, Fracture Liaison Service-based intervention a clinical necessity for improving outcomes in this high-risk population. Table 1 provides an overview of the effects of Fracture Liaison Services on re-fracture incidences and mortality [21, 22, 25, 28-35].

Table 1: Effects of Fracture Liaison Services on re-fractures and mortality.

Reference (year)	Study design	Inclusion criteria	Re-fractures (95% CI)	Mortality (95% CI)
Kim et al. (2025) [28]	Meta-analysis	Patients ≥20 years with femur fracture	RR 0.54 (0.50–0.59), follow-up >1 year	RR 0.83 (0.67–1.03), n.s.
Danazumi et al. (2024) [29]	Meta-analysis	Community-dwelling older adults ≥50 years with index fragility fracture	RR 0.26 (0.13–0.52) at 1 yearRR 0.68 (0.55–0.83) at 2 years	-
Li et al. (2021) [22]	Meta-analysis	Patients with a fracture and Fracture Liaison Service care	OR 0.70 (0.52–0.93), p = 0.01OR 0.57 (0.34–0.94), p = 0.03 in studies >2 years	OR 0.65 (0.44–0.95), p = 0.03 in pre-post Fracture Liaison Service comparisons
Wu et al. (2018) [21]	Meta-analysis	Patients ≥50 years with osteoporosis-related fractures	ARR -0.05 (-0.08–-0.03) NNT 20, follow-up 6–72 months	ARR -0.03 (-0.05–-0.01), NNT 33
González-Quevedo et al. (2025) [30]	Prospective cohort	Patients ≥60 years with hip fracture	HR 0.26 (0.08–0.91) at 1 year	HR 0.77 (0.60–0.99), p = 0.045 at 1 year
Andreasen et al. (2025) [31]	Prospective cohort	Patients ≥50 years with a low-energy fracture	Women: HR 0.87 (0.83–0.92)Men: HR 0.90 (0.81–0.99)	Women: HR 0.82 (0.79–0.86)Men: HR 0.85 (0.81–0.89)
van Geel et al. (2018) [32]	Prospective cohort	Patients ≥50 years with a low trauma fracture	HR 0.60 (0.49–0.73)	HR 0.79 (0.64–0.97)
Yoel et al. (2025) [33]	Retrospective cohort	Patients ≥65 years with an osteoporotic hip fracture	HR 0.52 (0.37–0.74) for subsequent hip fracture	HR 0.71 (0.54–0.92)
Silva et al. (2024) [34]	Retrospective cohort	Patients ≥50 years with a low-energy fracture	HR 0.39 (0.16–0.92)	HR 0.78 (0.43–1.41), n.s.
Lu et al. (2023) [35]	Retrospective cohort	Patients ≥50 years with an osteoporotic fracture	HR 0.48 (0.31–0.74)	HR 0.64 (0.47–0.87)
Vranken et al. (2022) [25]	Retrospective cohort	Patients 50–90 years with an osteoporotic fracture	HR 0.67 (0.52–0.87) in first 360 days after fracture	HR 0.84 (0.73–0.96)

Abbreviations: ARR: absolute risk reduction; CI: confidence interval; HR: hazard ratio; NNT: number needed to treat; n.s.: not statistically significant; OR: odds ratio; RR: relative risk.

A person-centred model of care to address the individual's priorities and needs [36, 37], and a Fracture Liaison Service in which the coordinator initiates diagnosis and treatment plans are the most effective in initiating diagnostic and treatment plans for fragility fracture patients [38]. One of the main barriers to widespread implementation of Fracture Liaison Services is the lack of funding for dedicated Fracture Liaison Service personnel to identify patients and follow up on treatment [39].

Fracture Liaison Services in Switzerland

Switzerland has been a pioneer in establishing Fracture Liaison Services, starting in the early 2000s. Historically, the first Fracture Liaison Service was established in Geneva [18]. The IOF launched the Capture the Fracture® programme in 2012 to facilitate the implementation of Fracture Liaison Services [40]. The Swiss Association against Osteoporosis (SVGO) strongly supports Fracture Liaison Services and has established a national "Swiss Fracture Liaison Service" initiative to implement Fracture Liaison Service centres.

Over the last five years, there has been a sharp increase in the number of Fracture Liaison Services, particularly in central and eastern Switzerland. Figure 2 shows the map with the IOF-certified Fracture Liaison Services in Switzerland. Although 22 successful Fracture Liaison Services existed in Switzerland in 2025, their maintenance is threatened by the lack of support from policymakers and healthcare providers. In 2021, the initiative "For strong nursing care (nursing initiative)" was accepted, and since then the Federal Constitution has been modified to increase nurses' pro-

fessional development including the training of advanced practice nurses (APN) (https://www.bag.admin.ch/bag/fr/home/berufe-im-gesundheitswesen/gesundheitsberufe-der-tertiaerstufe/vi-pflegeinitiative/berufliche-entwicklung-foerdern.html). A Fracture Liaison Service with an APN as coordinator and responsibility for a type A Fracture Liaison Service has been implemented in Lausanne University Hospital (CHUV) since January 2024, allowing for a doubling of the number of patients identified and assessed. This model could be widely spread in Switzerland with the implementation of the "Nursing initiative" in the next few years, if secondary fracture prevention becomes an objective of the development of health policies. In April 2025, we conducted a survey among the IOF-certified Fracture Liaison Service centres; 18 of 19 centres returned the questionnaires. In half of the cases (9/18 Fracture Liaison Services), leadership lies with rheumatologists, followed by surgeons (orthopaedic and trauma) and endocrinologists (4/18 each), geriatricians (3/18) and internists (2/18). Co-leadership was reported by 4 of the Services. Osteoporosis treatment is administered by various specialists across settings, with 90% by GPs and >50% by rheumatologists. The majority of osteoporosis follow-up is carried out by both GPs and specialists. Most Fracture Liaison Services are financed by the hospitals or the respective departments that operate the Fracture Liaison Services. None of the Fracture Liaison Service centres receive specific funding or a grant.

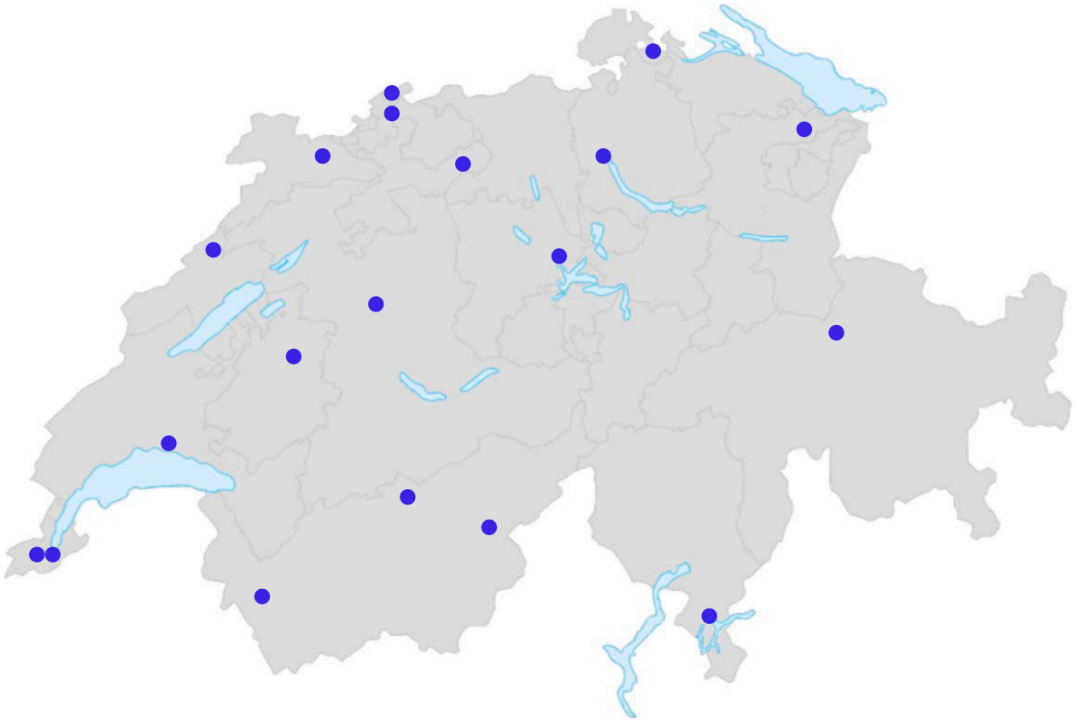


Figure 2: Map of Fracture Liaison Services in Switzerland as of April 2025.

Multidisciplinary treatment

Fracture Liaison Services are operated by various disciplines in Switzerland. Six different disciplines take the lead, and 13 disciplines are involved in osteoporosis care. This is in line with results of SCOPE 2021, which showed that osteoporosis care is led by various specialties in Switzerland [2]. The large number of specialists involved reflects the multidisciplinary nature of the Fracture Liaison Service model. On the one hand, this is a strength because it brings together different areas of expertise; on the other hand, it poses several challenges, such as involving all key players, including patients and GPs [41]. Good interdisciplinary communication and cooperation – especially with GPs – are essential to the success of Fracture Liaison Services.

High treatment gap in Switzerland

Data from the SCOPE 2021 project showed a significant treatment gap of 83% in Switzerland, indicating that only 17% of women and men at high risk of fracture receive osteoporosis treatment and that this gap increased by approximately 25% from 2010 to 2019 [2], despite ongoing efforts to address it. This apparent paradox may be partly explained by improved identification of at-risk patients – and the gap widens as timely initiation of appropriate treatment lags behind diagnosis. There are several reasons for the high treatment gap, as Fracture Liaison Services face the following challenges:

1. Identification of fragility fractures by Fracture Liaison Service nurses is time-consuming and dependent on their presence: a digital solution with automatic initiation of the Fracture Liaison Service process appears to be the most efficient method, but is not yet a reality [40].
2. Multimorbid geriatric patients, lack of an electronic patient record accessible to both patients and healthcare providers: Older fracture patients often do not remember having received osteoporosis treatment in the past – they may have problems keeping track of the multidisciplinary care they are receiving [41].
3. Lack of clarity on which specialty manages these patients and low implementation of Fracture Liaison Service recommendations by GPs [41].
4. False beliefs and concerns of patients regarding anti-osteoporosis medications. Insufficient awareness of osteoporosis guidelines and a lack of knowledge about the effectiveness of osteoporosis treatments among healthcare professionals [41].

Outlook

Despite these challenges, there are also several positive developments. Our survey showed that the number of Fracture Liaison Services in Switzerland is on the rise, and an increasing number of institutions with Fracture Liaison Service centres are obtaining IOF certification. Further, the Fracture Fragility Network Switzerland (https://www.ffnch.ch) was established in 2024 and one of its central pillars is to promote secondary prevention.

The future direction of Fracture Liaison Services is focused on overcoming existing barriers, such as inconsistent availability of Fracture Liaison Service staff and workflow challenges, to achieve universal coverage and maximum effectiveness. A recent observational study from Sweden showed that integration of artificial intelligence (AI)-based vertebral fracture screening in non-skeletal CT with systematic Fracture Liaison Service follow-up is feasible and effective in routine clinical practice [42]. Furthermore, AI used for vertebral facture diagnosis was found to be highly accurate with an AUROC of 0.92 in a recent meta-analysis [43].

Digital tools such as shared electronic medical records and digital platforms are being developed to streamline patient identification, track follow-up and ensure seamless information transfer between hospital departments and general practitioners. A retrospective observational study of a digitally enhanced Fracture Liaison Service showed significantly lowered all-cause and fall-related mortality, as well as fewer re-fractures and higher treatment rates [35]. Follow-up visits via telemedicine are effective, offering a way to improve adherence and reach patients who may have difficulty attending in-person appointments [44].

A broad alliance of patients, the various osteoporosis specialists, GPs and other healthcare professionals involved in osteoporosis treatment, like physical therapists, dietitians, etc as well as medical associations, healthcare organisations, and an increasing awareness in public health authorities is needed to establish the framework conditions for comprehensive osteoporosis treatment and for the financing of Fracture Liaison Service programmes.

Notes

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Use of AI: The authors declare that no generative artificial intelligence (AI) tools or AI-assisted technologies were used in the drafting, writing or creation of this manuscript.

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Potential competing interests

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