Resource 6

How to start and expand Secondary Fracture Prevention Programs

The development of Secondary Fracture Prevention (SFP) Programs may occur in an incremental fashion, as has been the experience with some well-established programs. A staged approach can be taken to implementation, with hip fracture patients being targeted for secondary fracture prevention first, followed by fracture patients admitted to hospital with fractures other than hip fracture, and finally those patients managed purely in the outpatient setting. The objective of the Australian and New Zealand Bone and Mineral Society (ANZBMS) SFP Initiative is to establish a new standard of post-fracture osteoporosis care for all Australians who suffer fragility fractures. However, we recognize that the most rapid path which leads to implementation of ANZBMS’ recommended Type A (3i) model of SFP Program, which provides care for all fragility fracture sufferers, must be determined by local health care professionals and administrators. The purpose of this resource is to illustrate approaches that could be taken to achieve optimal service provision.

Figure 1. The scope of a SFP Program can be expanded as time and resources permit

Two approaches to implementation of SFP Programs will be considered:

- Stepwise increase in the scope of the SFP Program based on fracture types (e.g. starting with hip fractures and then incorporating other fracture types as in figure 1)
- Incremental increase in the intensity of the SFP Program (e.g. starting with a Type B (2i) model, subsequently increasing to a Type A (3i) model)

A practical point to note is that the overwhelming majority of non-vertebral fragility fractures result in the sufferer presenting to urgent care services. This creates the opportunity for established SFP Programs to respond to the first fracture to prevent the second and subsequent fractures. However, vertebral fractures often do not come to clinical attention, or when they do, are not recognised and acted upon in terms of osteoporosis assessment and treatment. This is important because vertebral fractures – including those that do not cause acute symptoms – are associated with a 2- to 5-fold increase in future fracture risk and a range of other adverse effects including physical deformity, height loss, chronic pain, reduced quality of life and increased morbidity and mortality.

Figure 1. The scope of a SFP Program can be expanded as time and resources permit
Innovative approaches to improve case-finding of vertebral fractures have been developed in Edmonton, Alberta in Canada. This intervention sought to improve quality of osteoporosis care for older patients who had vertebral fractures identified incidentally on chest radiographs, which were taken for clinical reasons other than osteoporosis. A subsequent formal cost-effectiveness analysis demonstrated that significant cost savings could be achieved with this pragmatic and inexpensive intervention.

Similar strategies to improve case-finding of vertebral fractures elsewhere in the world were summarised in a review on SFP Programs. These included analysis of digitalized chest radiographs in Taiwan, reformatting data from computed tomography (CT) examinations of the chest or abdomen in New Zealand and expert evaluation of magnetic resonance images (MRI) used for detection of breast cancer in Italy. A significant number of individuals undergo diagnostic imaging in hospitals for conditions other than osteoporosis. The 2010 Royal Australian College of General Practitioner’s clinical practice guidelines highlighted this opportunity for case-finding of high risk individuals:

‘A diagnostic assessment is also recommended in patients with coincidently found vertebral fractures.’

By putting robust systems in place, incidental discovery of previously unknown vertebral fractures provides an opportunity to identify a proportion of the ‘occult’ fracture population.

**Stepwise increase in the scope of a SFP Program based on fracture types**

Some of the most well-established SFP Programs took this approach during the early stages of their development. The Kaiser Permanente Health Bones Program – which now is arguably the most comprehensive fragility fracture prevention program in the world – is a case in point. The Kaiser program initially targeted two populations:

- Those that already had a hip fracture
- Those patients aged 70 years and over with any prior fragility fracture

Once the program had demonstrated that the care gaps for these groups were closed, the scope was expanded to all fragility fracture patients aged 50 years and over. Thereafter, a highly focused effort was undertaken to identify individuals who would break their hip as their first fragility fracture, in the absence of pre-emptive intervention.

It should be noted that the advent of the Australian and New Zealand Hip Fracture Registry initiative should bring a nationwide focus on secondary preventive care for hip fracture patients. In 2014, the Australian and New Zealand Guideline for Hip Fracture Care was published. At the time of writing, a trans-Tasman Hip Fracture Clinical Care Standard - derived from the guideline - is being developed collaboratively by the Australian Commission on Safety and Quality in Health Care and the Health Quality and Safety Commission New Zealand. The sixth of the seven draft clinical care standards relates to secondary fracture prevention:

- Before a patient with a hip fracture leaves hospital, they are offered a falls and bone health assessment, and a management plan based on this assessment to reduce the risk of another fracture.

Expansion of the scope of SFP Programs based on increasing the range of fracture patients included is illustrated in figure 2 overleaf.
Figure 2. Expansion of SFP Programs based on fracture type

Stepwise increase in the intensity of SFP Program

An alternative strategy for implementation could be based upon a phased expansion of the level of intensity of the intervention. Examples of the various SFP Program models of care, of differing intensity are described in detail in Resource 2. In summary, the main objectives of a SFP Program include:

- **Identification**: All men and women over 50 years of age who present with fragility fractures will be assessed for risk factors for osteoporosis and future fractures.
- **Investigation**: As per 2010 Royal Australian College of General Practitioner’s guidelines, BMD testing is recommended, in addition to exclusion or treatment of secondary osteoporosis.
- **Initiation**: Where appropriate, osteoporosis treatment will be initiated by the SFP Program.

These objectives are often referred to as the 3 “i’s”. The SFP Program will employ dedicated personnel, which can be a trainee physician, a nurse practitioner (NP) or a registered nurse (RN), to coordinate the fracture patient’s care. The trainee physician or NP can provide all 3 ‘i’s whereas the RN can only provide the first 2 (leaving the initiation of treatment to the primary care provider). Where the SFP coordinator(s) is not a trainee physician, he/she will work according to pre-agreed protocols within the particular institution, with input from a physician with expertise in osteoporosis.

Initially, a **Type B (2i) model** of SFP Program could be established with the intention to develop this program to undertake initiation of osteoporosis treatment and so become a **Type A (3i) model** in accordance with ANZBMS’ recommendation. A Type B model can be easily expanded to a Type A model within the same infrastructure. There may also be hybrid models that combine both NPs and RNs that may prove to be more cost-effective (the lower costing RNs could do the work for identification and investigation, leaving the higher costing NPs to deliver initiation).
References