

# The Future of Hip Fracture Audit

## A Consensus Statement

### 1. SUMMARY

- Hip fracture is a common, serious and well-defined injury affecting mainly older people. As populations age globally, it has emerged both as an ideal tracer condition for the wider challenge of fragility fracture care, and an ideal subject for clinical audit.
- Over the past 25 years or so the evidence base for many aspects of hip fracture care has improved greatly, resulting in increasingly authoritative guidelines on care, more broadly accepted clinical standards for such care, and the rise of hip fracture audit.
- As a result, major advances in the scope and impact of hip fracture audit have now been achieved in various settings, but predominantly in already well-developed healthcare economies.
- Experience over decades now shows that most clinical teams and managers welcome the data a well-run audit, linked to a clinical guideline, can provide.
- Reliable, up-to-date local information on care and outcomes can motivate them, enabling them to improve care. As one early convert to audit put it 'How can you get better at it if you don't know how you're doing?'
- Over the same period transformational progress in information technology and web-based communication has offered ever faster and cheaper means of supporting large-scale hip fracture audit.
- Such progress has now made international collaboration – and even international web-based hip fracture audit – feasible.
- As projections for hip fracture numbers over the coming decades rise – most steeply in large and very large nations with healthcare economies ill-equipped to deal even with current care needs – the case for international collaboration on hip fracture audit initiatives has never been stronger.

- Clearly early progress is most likely in more developed healthcare economies with structures that permit or encourage clinically led quality improvement initiatives such as effective hip fracture audit.
- In ideal circumstances, service providers, care commissioning and funding arrangements may favour the development of national audits that can deliver both quality and cost-effectiveness on a large scale.
- But the challenge of improving hip fracture care is global. So, for humane and economic reasons, it must be faced – preferably sooner rather than later – by all nations and all healthcare systems.
- Whatever the context, means must be found to encourage the use of audit, and in ways compatible with current national and local realities.
- **This consensus statement was devised and has been widely supported by clinicians and others already active in hip fracture care and audit. It seeks to:**
  - **Raise awareness and knowledge of effective hip fracture audit as a contribution to meeting the global challenge of fragility fracture care**
  - **Build on the undoubted achievements in hip fracture care and audit over the last quarter-century**
  - **And to prepare for the greater challenges of the next**

## **2. BACKGROUND: HIP FRACTURE AND HIP FRACTURE CARE**

- Hip fracture is by far the most common serious fragility fracture. As such, its care is already a major challenge to all healthcare systems.
- In the year 2000, 1.6 million hip fractures occurred globally: a figure which is set to rise dramatically as the baby boomer generation ages in some populations; and in others – such as Brazil, China and India – where a first mass ageing cohort will dominate the demography of coming decades.
- Progress in hip fracture care may also serve to improve the care of patients with other fragility fractures, by raising awareness and in practical terms too.

- In-patient services staffed and organised to treat hip fracture patients well are likely to provide good care for the more numerous patients admitted with the various and generally less serious fragility fractures: a useful 'halo effect' of potential importance at local level.
- There is good evidence that quality and outcomes in hip fracture care differ widely within and between nations. The human and economic consequences of this disparity are serious, and increasingly a matter of national and international concern.
- Already – and most clearly in developed healthcare economies – there has been real progress in the improvement of care.
- This is based on a number of factors and developments over recent decades, including :
  - Increasing realism in the face of demographic change and fracture epidemiology – at all levels from the clinical to the political – as service pressures created by increasing numbers of older patients, both trauma and elective, rise.
  - A growing evidence-base for good hip fracture care: in terms of surgery, anaesthesia, peri-operative care and rehabilitation
  - Greater recognition of the value of collaborative care, with physicians – ideally geriatricians – working alongside surgeons and bringing better management of medical problems.
  - Increasing awareness that quality and cost-effectiveness are not in conflict: delay to surgery, avoidable or poorly managed medical problems and poor early rehabilitation all add to costs.
  - In other words 'Looking after hip fracture patients well is cheaper than looking after them badly'.

### 3. AUDIT AND GUIDELINES

- **The growth of audit and guidelines**

- There has been a steady rise in the number of audits of, and guidelines for, hip fracture care since the launch of the Rikshoft audit in 1988, and that of an early and rigorous landmark guideline in the form of a UK Report *United They Stand: Coordinating Care for Elderly Patients with Hip Fracture* (HMSO, 1995)

#### **Audit**

- Substantial national hip fracture audits, essentially Rikshoft-derived, followed in Northern Europe.
- In 2008 two high-profile orthopaedic surgeons – Martyn Parker and K-G Thorngren – provided in adjoining editorials a useful overview of progress; and raised some serious questions about objectives, methodology, patient consent, use of data, impact on care, research output, and the problem of evaluation (*Acta Orth* 2008; 79(5): 577-582).
- National audits have now emerged or are emerging in Scandinavia, the UK, Ireland, Spain, and Australia & New Zealand.
- Though difficult to ascertain in any detail, a range of hospital- and regional-level audits – some also Rikshoft-derived; some independently developed; and, most recently, some using the FFN Minimum Common Dataset (see below) – has been established sporadically around the world.

#### **Guidelines**

- Here too, difficulties in comprehensive ascertainment arise; and it is hoped that the FFN membership may be able to assist.
- In Western Europe a recent review identified guidelines in Austria, Denmark, England, Germany, Holland, Italy, Norway, Spain and Sweden
- In addition, guidelines have just been published in Australia & New Zealand, and in the USA.

- **Audit and guidelines working together?**
  - Guidelines and audit in hip fracture care deliver two essential and separate functions.
  - A good evidence-based guideline identifies recommended good practice – i.e. shows what **ought to happen**. A robust national or regional audit shows **what is happening** – i.e. **the realities of care**.
  - It follows that, on its own, a guideline is simply aspirational and almost certainly ineffective: ‘The sound of one hand clapping’?
  
- **Can audit and guidelines succeed? – Yes, but only when they succeed together, by generating:**
  - credible and up-to-date data on case-mix, care processes and outcomes
  - reliable reporting on guideline compliance
  - and, most importantly, the potential for clinicians and managers to work together – on the basis of clear, current quantitative local data – to address service weaknesses, identify opportunities for improvement, and monitor the impact on care of clinical and service change
  
- **There are now many encouraging examples of how this works in practice; and hence some grounds for optimism – based on the lessons learned – as we seek to respond to the challenge of improving hip fracture care worldwide**

#### 4. IMPLEMENTING EFFECTIVE HIP FRACTURE AUDIT MORE WIDELY

- Much progress has already been achieved using the synergy of audit and guidelines as described above.
- In addition, the following factors have increased the scope and reduced the costs of audits far more extensive and complex than those of the 1980s and 1990s:
  - Successive IT advances have facilitated the collection, analysis and feedback of increasingly sophisticated audit data on a rapidly expanding scale and at remarkably little cost.
  - Web-based improvements in national and international data transfer, and in communication by email and Skype have vastly increased the potential for international teleconferencing (though, sadly, without solving the time-zone problem).

- As a result of such progress, best-practice audit can now combine patient-level data, continuous data collection and feedback, benchmarking against care standards, and inter-hospital comparison – which together can serve to drive up quality and reduce costs.
  - Sceptics might reasonably question the value of audits, which have costs of their own; and also because they are essentially self-reporting, yet complex in terms both of their development and their impact – and therefore difficult to evaluate externally.
  - One established audit – the UK National Hip Fracture Database ([www.nhfd.co.uk](http://www.nhfd.co.uk)) – has had the capacity to address both these issues: that of cost effectiveness, and that of objective evaluation of the impact of a hip fracture audit.
- That audit, launched in 2007, has now documented over a third of a million cases, produced regular annual reports which are available online, and has recently undergone an external evaluation of its impact.
- In terms of cost-effectiveness, NHFD reports include many hospital-based case studies showing, for example, substantial reductions in acute stay (the most cost-intensive phase of hip fracture care) and increasing proportions of patients returning directly home as a result of improved early rehabilitation.
  - At national-level, NHFD data has shown a modest reduction in acute stay and in acute plus post-acute stay. A formal health economic evaluation of the cost-effectiveness of the audit as a whole is now proposed.
  - More importantly, a recent external evaluation of the NHFD (*Medical Care*. 2015. 53; 686-691) using reliable non-audit national data from 4-year periods on either side of the audit's 2007 launch, has shown a statistically significant and substantial improvement in survival at 30, 90 and 365 days.
  - 30-day mortality fell in relative terms by 7.6% per year in the period 2007–2011, compared with just 1.8% per year over 2003-2007. Significant reductions in 90-day and 365-day mortality were also observed after 2007.
  - This suggests that improvements in early care – multi-factorial, but with increasing ortho-geriatrician involvement an important factor – have had a substantial short and medium-term effect in reducing the morbidity burden following hip fracture.
  - In other words, hip fracture audit has gone from collecting data to saving lives.

- Recognising some of the earlier developments noted above, a session on hip fracture audit at the Fragility Fracture Network (FFN) 1st Global Congress in Berlin in 2012 supported the idea of an initiative within the FFN to explore the possibility of an international approach to hip fracture audit.
- Over 2013 an international group drawn mainly from representatives of established and emerging audits worked to draw up a proposed FFN Minimum Common Dataset (MCD): concise, covering key elements of casemix, care and outcomes; and drawn from, and therefore compatible with, existing largely Rikshoft-derived datasets already in use.
- Further work carried out over 2014/2015 towards the development of a FFN Hip Fracture Audit Database piloted a web-based international audit using the FFN MCD, with five initially participating trauma units in Barcelona, Spain; Celje, Slovenia; Msida, Malta; and Lubeck and Stuttgart, Germany.
- This pilot phase audit provided central support to these units and demonstrated the essential feasibility of web-based international audit, and – in aggregated data – a useful reduction in time to surgery was observed. A report on this work is available at [http://fragilityfracturenetwork.org/files/ffn-hfad\\_pilot\\_phase\\_2nd\\_report.pdf](http://fragilityfracturenetwork.org/files/ffn-hfad_pilot_phase_2nd_report.pdf)
- In addition, early work in the pilot phase included the use of data from three established Rikshoft-based audits in Europe and the essentially compatible but simpler data fields of the MCD to produce robust international comparisons on key elements of case-mix, care and outcomes – work to be repeated as the pilot phase completes its second year.
- **The basic feasibility of web-based international hip fracture audit appears now to have been established**

## 5. SUPPORTING THE WIDER IMPLEMENTATION OF GOOD PRACTICE IN HIP FRACTURE AUDIT: SOME ISSUES

### 📄 General

- While all nations face the challenge of improving hip fracture care, their healthcare economies vary greatly in organisation, capacity, resourcing and accessibility – with obvious consequences for how that challenge can be addressed.
- Progress so far appears to indicate that the emergence of a national hip fracture audit is facilitated by unitary, single-payer, readily accessible and advanced healthcare systems – in global terms clearly a minority.
- However, in hip fracture epidemiology terms, the greatest challenges arise in large and very large developing nations facing first-cohort mass ageing; and where needs already far outstrip care provision by healthcare variably characterised by problems of capacity, resourcing and accessibility.
- Lesser problems arise in nations large and small – e.g. the USA, and many in Europe – where healthcare is advanced but fragmented, and where mature but still ageing populations mean continuing rises in case numbers.
- **But the challenge of improving hip fracture care is global, and – for humane and economic reasons – it must be faced by all nations and all healthcare economies. Whatever the context, means must be found to encourage the use of audit in ways compatible with current national and local realities.**
- Relevant initiatives may range from single hospital ventures; regional linkups; international comparative audits at hospital level (e.g. Tian M, Osteoporosis Int. 2015); the use of international comparison of emerging data via the use of the FFN Minimum Common Dataset (see above); and the growth of patient and carer-led pressure groups that is likely to follow the predicted expansion of a middle class in both China and India.
- **Clearly there are few easy or immediate options. But, given the scale and now the urgency of the challenge, the emerging opportunities to build on progress thus far must be recognised; and the evidence accumulating on the potential of hip fracture in improving care must be widely made known: something this consensus document seeks to achieve.**



📄 **Some lessons learned: factors favouring setting up and implementing a major audit**

- Clinical leadership – preferably collaborative and interdisciplinary
  - Building on success elsewhere – as described above
  - Building alliances – with management, and across professions, national societies, patient groups etc
  - Generating evidence of difference – and in due course progress in care – to ensure continuing support and growth
  - Making a case for funding – ‘Better care is cheaper’
  - Keeping the audit simple, continuous and user-friendly
  - Ideally building a common agenda – with government and the professions – working on better and cheaper care, and better patient and carer satisfaction
- **Follow up – important but not easy**
    - Most established hip fracture audits have focused on acute care and early outcomes, in particular in-hospital mortality and acute length of stay.
    - However, where possible, some have achieved very high follow-up rates at 30, 60 and 120 days or more: covering surgical complications, mobility, place of residence, and compliance with secondary prevention medication – thus generating valuable information on survival, care and progress.
    - From the point of view of patients and their carers, the return home of patients admitted from home within 30 days is hugely important – and can be determined only by rigorous follow-up.
    - Though challenging to ascertain, such data is of great importance in establishing medium-term outcomes, and may also produce valuable cost information (since beyond c. 7-10 days overall length of stay downstream becomes the dominant factor in the total cost of care.
    - Social care costs – also important but even more elusive – are only rarely available
    - Where key elements of patient characteristics – e.g. those of the Rikshoft-derived FFN Minimum Common Dataset – are routinely collected, casemix-adjusted outcomes (such as mortality and return home) in the short and medium-term have proved of great value in ensuring fairness in – e.g. – inter-hospital comparisons.
    - So far, patient well-being has been poorly documented, but the use of the EQ5D (*Bone Joint Res.* 2014. 3:69–75) is now established as a useful patient related outcome measure which could be more widely adopted.

- **The economic argument – good care is cheaper than bad**

- Good quality hip fracture care resulting from successful audit implementation greatly reduces suffering, and happily – as noted above – can reduce costs too.
- It does so by coordinating care, minimising delays, preventing or dealing promptly with complications and facilitating early rehabilitation – hence reducing length of stay.
- Such cost-effectiveness gain, where it can be established, is appreciated by service providers, managers and finance officers. In political terms – e.g. at regional and Health Department level – it strengthens the argument for audit that is well organised and effective.
- Whatever the healthcare system within which hip fracture care is delivered, such care must be paid for, and it therefore follows that agencies who pay for or commission hip fracture care should welcome effective hip fracture audit.
- By demonstrating reliable evidence on quality of care and outcomes audit offers the best possible means to ensure value for money.
- It has already proved mutually beneficial to patients (via quality of care and outcomes), payers (via efficacy and cost-effectiveness) and for the audit itself (via data completeness and demonstrable compliance with standards) in the UK as a result of the Best Practice Tariff initiative ([www.nhfd.co.uk](http://www.nhfd.co.uk)).

- **Making use of what is known – and learning from each other**

- From the above it should be clear that such progress as has been made in hip fracture audit and its effectiveness since the launch of the still-influential Rikshoft initiative in Sweden in 1988 has depended upon generous and free exchanges of information, methodology and know-how, first across Europe and now worldwide.
- It is therefore vital that over the next few decades – as worldwide hip fracture incidence continues to rise, and rise most sharply in the largest nations – such contacts and exchanges should not only continue but expand.
- The record so far is encouraging, and the potential for future work – encompassing perhaps routine international comparisons, collaborative international audit-based research projects, national and international meetings designed to promote and sustain good audit practice – could succeed in creating what would be in effect a global quality improvement initiative for hip fracture care.

- Of course contexts differ, and will also change substantially over the next 25 years, but with a common purpose of the improvement of care, and a common language – via comparable core datasets already pioneered in the form of the FFN MCD – there are strong arguments for both continuing efforts and cautious optimism.

## **6. A ROLE FOR THE FRAGILITY FRACTURE NETWORK?**

- The FFN – an international non-profit network organization based in Switzerland – brings together a broad international membership of activists. Its aims include:
  - Creating a global network of national alliances of fragility fracture of activists
  - Disseminating globally the best multidisciplinary practice in preventing and managing fragility fractures
  - Promoting research aimed at better treatments
  - Generating political priority for fragility fracture care in all countries
- ☐ Following a recent strategic review, the FFN will, over the next five years, facilitate national or regional multidisciplinary alliances which lead to consensus guidelines, quality standards and systematic performance measurement. The statement is clearly entirely compatible with this remit.
- ☐ The FFN membership includes the leaders of the many currently active and emerging hip fracture audits, and many others with relevant expertise.
- ☐ Accordingly, the FFN is well placed to facilitate the early production and dissemination of a clear, expert and broadly-based consensus statement on the future of hip fracture audit: one which now goes to the FFN Board for approval.

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**August 2015**