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Orthopaedic Injury Surveillance in India: The Need for a National Registry

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Abstract

India has an enormous and ever-growing burden of orthopaedic injuries, due to road traffic accidents, occupational hazards, and falls—many of which are preventable with the right systems in place. Current estimates suggest over 150,000 deaths and upwards of 3 million non-fatal injuries annually from road-related incidents alone. And that's not even touching injuries from construction, sports, or rural manual labour. Despite this, India lacks a coherent national strategy to record or analyse orthopaedic trauma. What's available is fragmented, soiled data that rarely gets shared beyond institutional walls.

Compare this to countries like the United Kingdom and Australia—where registries like TARN and AOANJRR have changed the way trauma and orthopaedic care are delivered, with evidence-based decisions, better outcomes, and resource optimisation becoming the norm [2,3]. India, in contrast, continues to treat injuries without context, without cumulative insight.

This article strongly argues that it's high time India developed a dedicated national orthopaedic injury registry. One that isn't just digital or centralised, but useful—feeding back into the system, empowering doctors and policymakers alike. With the right start, such a registry could transform the landscape of orthopaedic trauma care in the country, making it smarter, faster, and ultimately, more humane.

Keywords: orthopaedic injuries

Introduction:

It's not hard to spot the signs—orthopaedic wards in India are often filled beyond capacity, managing a diverse set of trauma cases every day. From auto-rickshaw collisions to agricultural injuries, the variation is massive, but our grasp on the patterns is weak. What's surprising isn't just the volume of orthopaedic injuries but how little we actually understand them at a national scale.

In many hospitals, especially those in smaller towns, records are kept on paper. Others might have digital systems, but they often don't talk to each other. What this means in practice is that we're losing visibility over who's getting hurt, how, and what the outcomes really are. Without this picture, it's hard to argue that we're truly planning orthopaedic care; we're reacting to it.

Meanwhile, countries like the United Kingdom and Australia have moved ahead with trauma registries that aren't just administrative tools—they've helped shape clinical practice, policy, and even the choice of surgical implants [2,3]. These are not distant examples. They're blueprints that can be tailored to our context. India has more than enough patient volume and clinical talent to run a robust orthopaedic injury registry; what's missing is national coordination and the will to get started.

This article makes a case for why India can't afford to keep working without a shared orthopaedic data system. It explores the current gaps, learns from global experiences, and outlines how a practical, phased approach can bring a national registry within reach.Despite ongoing advances in health infrastructure, there remains a critical absence of a national strategy to track musculoskeletal trauma systematically. While local data exist in silos—some hospital records are kept manually, others on isolated digital systems—there's no unifying database to capture the true scale or diversity of orthopaedic injuries. This limits our capacity for national-level insight, planning, and resource allocation [5].

Countries such as the United Kingdom and Australia, by contrast, have demonstrated the power of trauma registries. The UK's Trauma Audit and Research Network (TARN) informs service development and trauma policy [2], while Australia's AOANJRR has improved joint replacement outcomes through data-led implant selection [3]. India, given its population and injury load, has even more to gain from such a system.

This article explores the current landscape of orthopaedic data collection in India, presents global models for inspiration, and puts forward a strong case for a government-supported national registry to transform how we respond to trauma and plan for the future.

The Current Landscape:

Ask anyone working in trauma orthopaedics in India, and they'll likely agree: we know there's a pattern to the injuries we see, but we just don't have the numbers to prove it. That's because our data, what little of it exists, is scattered. Hospitals tend to track their own caseloads—some digitally, many still on paper—but there's no common framework tying these records together [5].

It's not that good initiatives don't exist. In places like Jaipur or some trauma units in Kerala, registries have been trialled with decent success [6]. But they've mostly remained local in scope. Without the kind of central coordination or government backing that could tie them together, these efforts—however well-intentioned—end up working in isolation. They can be useful within their own setups, but they're not yet the kind of tools that can shape nationwide policy or standard clinical practice.
In smaller towns and in district hospitals, things are often patchy. Records may be scribbled into ledgers or entered inconsistently, and a structured injury classification is not followed. The reality is, that staff are overburdened, and expecting them to consistently document every detail—especially without proper training or tools—is simply unrealistic in many of these settings. Worse still, even well-equipped centres rarely communicate or compare notes with others. So, while one hospital might notice a surge in femur fractures among young adults, that insight never leaves its walls.
The result? A broken chain of knowledge. We're working hard but without visibility—on injury trends, treatment outcomes, or what's working versus what isn't. Until that changes, national-level decision-making will continue to rely on fragmented anecdotes rather than consolidated evidence.

Why an Orthopaedic Injury Registry Matters:

Let's break it down—why exactly do we need a national orthopaedic injury registry? For starters, we're flying blind without it. Right now, we don't really know what kinds of fractures are most common across the country, or in which age groups, or what tends to cause them. Sure, we have our guesses based on day-to-day experience. But when it comes to designing policies or prevention strategies, educated guesses just don't cut it [5].
Take, for instance, wrist fractures in older women. If we had solid data showing a rise in low-energy falls leading to distal radius fractures, that could trigger real-world action: community fall prevention drives, bone health screening camps, and tailored awareness campaigns. That's what good data does—it points us where to act.
It also helps with resource planning. Say a region is reporting high numbers of femoral shaft fractures from highway accidents—then it makes sense to bolster trauma services there. More operating theatres, better emergency response, maybe even road safety interventions. Without a registry, this kind of resource targeting becomes hit-or-miss.
There's also the matter of benchmarking. If one hospital is getting excellent outcomes for tibial plateau fractures while another sees a higher complication rate, a national dataset could help both sides learn and improve. That kind of healthy comparison isn't possible today [5].
And what about research? India sees some of the world's highest orthopaedic volumes, but most studies still come from single centres. A registry would open the door to multicentre research and longitudinal studies that could inform both surgical practice and device safety [5].

In short, it's not about collecting data for the sake of it. It's about what that data could enable—better care, smarter policies, and more targeted use of our already stretched resources.

Challenges to Implementation:

No doubt about it—setting up a national registry in India is going to take some doing. First off, there's the issue of money. Building the digital backbone needed to run such a system isn't cheap. While big schemes like Ayushman Bharat and the NDHM give us something to build on [7], pulling everything together—hardware, software, manpower—is going to need serious investment and long-term planning.

Then comes the matter of standardising how injuries are recorded. Not every orthopaedic surgeon uses the same classification system, and many are either unfamiliar with tools like OTA coding or pressed for time to enter details meticulously [8]. It's not about unwillingness—it's just that in a high-volume setting, inputting detailed codes for every patient isn't always practical. That's why the entire process should be simple and built into existing hospital systems, not should not be a burden.

Importantly, let's not ignore data privacy. With the recent rollout of the Digital Personal Data Protection Act (DPDP), hospitals and government agencies should be extra cautious in storing and sharing the patient's data. Without clear legal safeguards and transparency, people may be reluctant to have their data included.

Ultimately, the critical issue at hand is teamwork and collaboration. The public and private healthcare systems in India often operate independently. Encouraging both sectors to share data may require not only incentives but also the establishment of trust. Orthopaedic societies and academic institutions can serve a vital function by acting as intermediaries, setting standards, and illustrating that the system is advantageous for all, rather than just a select few large centres.

Learning from Global Experiences:

India need not start from scratch regarding injury registries, as many countries have already shown the way. Their experiences provide a valuable basement for us. The table below illustrates how various nations developed their trauma and orthopaedic registries, detailing their successes and the significance of these insights for India.

Country	Registry Name	Focus Area	Key Strengths	Relevance to India
United Kingdom	Trauma Audit and Research Network (TARN)	General Trauma	National coverage, standardised trauma scoring, policy influence	Can model structure and phased implementation
Australia	AOANJRR	Joint Replacement	Implant tracking, clinical feedback, registry-driven improvement	Useful for procedure-specific registry design
United States	National Trauma Data Bank (NTDB)	Multi-specialty Trauma	Large-scale data, research-enabling, hospital comparisons	Demonstrates scale and data utility
Sweden	Swedish Fracture Register	Fracture-specific outcomes	Clinician-led, simple interface, real-time reporting	Shows feasibility of surgeon-led initiatives

Table 1: A summary across the globe

These systems didn't come together overnight. Their strength came from starting small, having committed clinical leaders, and being backed—sooner or later—by strong institutional or government support. What's encouraging is that many of them began in situations not entirely unlike ours.

Take the UK's TARN and Australia's AOANJRR, for example. They both began modestly—with limited hospital participation and a narrower clinical focus—and then grew, step by step. TARN now captures data from over 90% of trauma centres in the UK, and AOANJRR has become integral in deciding implant policies based on real-world data [2,3].

In both countries, what started as voluntary efforts gradually transformed into mainstream, near-universal systems—thanks to smart policy integration and clear evidence of clinical value. India can absolutely follow a similar path. We don't need to go national on day one. Start with a few respected institutions—AIIMS Delhi, PGIMER Chandigarh, CMC Vellore—demonstrate the benefits, and then scale in phases.

And it's not just about big government systems. Sweden's Fracture Register is a great example of a clinician-led model that succeeded with minimal red tape because it made life easier for surgeons, not harder [9]. That's a reminder: if we design India's registry with the people who'll use it in mind—and get professional bodies like the Indian Orthopaedic Association (IOA) behind it—it's much more likely to last and make a difference.

Recommendations:

Establish a pilot registry for orthopaedic injuries in partnership with leading trauma centres such as AIIMS Delhi, CMC Vellore, and PGIMER Chandigarh. Utilize existing national health digital platforms for data integration, including the Ayushman Bharat Digital Mission. Require all reporting hospitals to adopt standard injury classification using OTA or ICD coding systems. Implement legal protections for patient data security in accordance with the Digital Personal Data Protection Act. Promote participation through government initiatives, academic funding, or incorporation into national quality benchmarking frameworks. Foster collaboration between public and private sectors under the guidance of professional orthopaedic organizations.

Conclusion:

India stands at a pivotal moment. The incidence of orthopaedic trauma is on the rise, rather than declining. In the absence of real-time, standardized data, initiatives aimed at enhancing trauma care and outcomes will continue to be disjointed and ineffective. The creation of a national orthopaedic injury registry is not merely a clinical necessity; it is a crucial policy requirement. This registry presents an opportunity to connect frontline care with systemic planning, linking orthopaedic operating rooms with health ministries. To advance, we must initiate pilot programs in leading trauma centres, integrate registry initiatives with digital health platforms, ensure legal safeguards for patient information, and establish incentives for participation from both public and private sectors. Orthopaedic societies, policymakers, and healthcare organizations must unite under a common vision. The sooner we take action, the better prepared we will be—not only to gather data but to convert that data into actionable insights that can save limbs, livelihoods, and lives

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