UK Pilot National Cataract Surgery Audit shows potential of electronic records

Real-time quality and outcomes tracking demonstrated in study of more than 55,000 eyes

Howard Larkin
in London

With detailed data on patient condition, treatments and outcomes for more than 55,000 operations performed at 12 hospitals between January 2001 and June 2006, the UK Cataract National Dataset Audit may be the most comprehensive cataract surgery study to date. But what really sets it apart is how these data were collected and what it could mean for cataract surgeons across the country - if not the world.

The data were gathered not by specially trained researchers, but through electronic patient records created during everyday clinical ophthalmic practice. These systems capture a level of detail that previously could be approached only by dedicating thousands of hours to study design and data collection. The study demonstrates that large-scale integrated record systems can track even very low incidence complications, and quickly spot outbreaks of infectious agents or other localised problems. This would make it invaluable for clinical studies and quality improvement.

It also shows the power of large-scale monitoring to find surgery centres and individual surgeons with apparently substandard performance. In this study, all identifying characteristics were removed from data submitted for analysis to protect confidentiality. But how such cases should be addressed in any ongoing monitoring effort raises complex questions. These range from what ethical responsibility authorities have to investigate possible quality problems, to the reliability of data collection, to how remedies could be structured to improve performance without discouraging honest reporting.

The study's lead authors believe that the potential benefits make electronic performance monitoring inevitable. "The Royal College of Ophthalmologists has defined a Cataract National Dataset (CND) that they would like to see all centres collect as a by-product of normal clinical care to provide local and national audit of cataract surgery, provide an evidence base to commission cataract services and allow surgeons data for annual appraisal and revalidation," said Robert L. Johnston, MB ChB FRCOphth, a consultant ophthalmologist specialising in vitreoretinal surgery at Cheltenham General Hospital.

The UK Cataract National Dataset Audit provides detailed insight into how cataract practice is evolving in the UK. For example, mean pre-operative visual acuity in both the operated and non-operated eye has improved steadily compared with large-scale studies conducted in 1997 and 2003. Details of the studies will shortly appear in peer-reviewed journals.

Such data is useful not only as a benchmark for surgeons evaluating patients, it allows purchasing policy makers to better evaluate the impact of spending on cataract surgery on overall disability cost and the quality of patients' lives. While such cost-benefit analysis often favours ophthalmic procedures, it does open the door to establishing inflexible standards for performing cataract surgery.

This study provided more detail on co-pathologies than most previous studies. Overall, around a third had co-pathology, with the top three being AMD, glaucoma, and diabetic retinopathy. As expected, patients with co-pathologies had significantly better visual outcomes than patients with co-pathologies. AMD patients had the poorest prognosis. Similarly, among the patients reporting an operative complication, fewer achieved 6/12 or better postoperatively.

The study also shows potential of electronic records to change postop outcomes much if pre-op visual acuity would not be expected to change. Better practise is evolving in the UK. For example, mean pre-operative visual acuity in both the operated and non-operated eye has improved steadily compared with large-scale studies conducted in 1997 and 2003. Details of the studies will shortly appear in peer-reviewed journals.

Visual outcomes were also better with the percentage of eyes achieving 6/12 or better postop increasing significantly between 1997 and 2006, according to James Benzimra, a house officer and researcher at Gloucestershire Eye Department, Cheltenham General Hospital. He speculated that the routine use of phaco (compared with 77 per cent in 1997) and a healthier population of eyes are the biggest factors driving postop improvement. Better pre-op visual acuity would not be expected to change postop outcomes much if cataracts were the only factor reducing vision, he said.

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reliable as they appear. Pre-operative and operative data were captured in almost 100 per cent of cases but post-surgery complications, even those as serious as endophthalmitis, are particularly prone to underreporting. Mr Johnston says. That's because much of the follow-up care in the NHS is provided by non-physician staff following protocols established by surgeons. Patients may or may not be referred back to the operating physician when problems arise. Even if they are, their follow-up data may not, at present, end up in the electronic record although it is hoped this will improve as the system is used more widely within hospitals.

“Aggressive enforcement based on audit results could also backfire, said Oliver Findl, MD, MBA, a consultant ophthalmologist specialising in cataract surgery at Moorfields Eye Hospital, London, UK, and an ESCRS board member. He notes that surgeons in centres that encourage accurate reporting and objective process reviews to improve care are more likely to accurately report poor outcomes and complications than centres that have less of a commitment to data-driven process improvement.

“The ones who are really serious about improving themselves are the ones who are most likely to accurately record what is going on.”

If the Royal College or the NHS were to adopt a punitive approach to auditing the result would likely be more underreporting. “If a centre or a surgeon lost their licence because of a poor audit performance, all the other centres would be immediately aware of it, and you wouldn't see any more poor results reported,” Dr Findl said.

Cost is the biggest obstacle

Yet even in the UK significant obstacles remain before similar electronic clinical systems can be implemented nationwide. For one thing, not all current electronic record systems collect the complete cataract national dataset. Of the approximately 36 UK hospital trusts that have electronic systems in place, 32 use Medisoft systems and 12 of these agreed to provide data in a usable format in time to meet the study deadline. Mr Johnston believes that once all systems are set up to reliably collect the entire dataset, integrating their data will be easy.

Cost is another huge problem. So far, the UK NHS has not allocated funds to support electronic record systems for ophthalmology, though they have funded electronic records in other specialties. Electronic records also represent an added cost for ophthalmology departments as long as they keep using paper records as the primary chart, Mr Johnston said. “I think a tipping point will come when departments abandon the paper notes completely, which will immediately generate massive cost savings. Electronic systems will then move from being a nice extra for audit, quality assurance, etc., to an essential tool. But the culture change, particularly for doctors, is slow.”

In addition, hospital centres will face significant costs to analyse data, examine local conditions and processes, and to design and implement process changes aimed at rectifying any issues uncovered by ongoing electronic audits, Dr Findl said. “Many centres would need external help for more-refined analysis, including external professional mediation to allow discussion to take place.”

Mr Johnston noted that Medisoft has shown that detailed audits can be created at the click of a button with an appropriately designed system, entirely as a by-product of routine clinical care.

Following up on monitoring data will be essential to improve care, said Dr Findl, who trained in Austria and has broad knowledge of health systems across Europe. “How effective such systems will be depends on how far the various national health authorities really are keen on improving things and setting standards, or whether they are just trying to create competition and turmoil to put downward pressure on costs. That is what it mostly will boil down to nowadays, I think.”

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