Editorials

"Hospital in the home": a lot's in a name

Better definition in individual studies will enable meaningful synthesis of research

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To measure the effectiveness of innovations in health care, it is critically important to define the intervention studied. Unfortunately, this step is often lacking in health services research: definitions are often inadequate for reproducibility, and outcomes attributed to the intervention are consequently difficult to adjust for other variables. Meta-analysis can become messy.

Defining a health service clearly can be especially difficult when dealing with a service whose properties are in dispute or evolving. "Hospital in the home" (HITH) is an example of such a service. HITH is the delivery of acute hospital services to patients at home: without the HITH service, the patient would require usual hospital admission. It has been nearly 20 years since the concept first appeared in the pages of the Journal, and there has been enormous progress in that time.[1,2] There has also been confusing heterogeneity in the definition and program structure of HITH — despite robust argument around the globe, it is still not settled.[3] HITH has been considered as everything from high-technology acute hospital medicine through to outpatient therapy and post-discharge community care. Some who baulk at the financial, organisational and cultural investment required to establish a fully-fledged HITH service are still keen to leverage the HITH label to deliver an altogether different service.

However, in a meta-analysis of HITH in this issue of the Journal, Caplan and colleagues follow PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines and accept only randomised controlled trials for inclusion.[4] On re-examining this body of work, they concentrate on research where HITH care involves a substitution for part or all of the episode of care in hospital: substituting for at least 7 days in hospital or HITH care that replaces at least 25% of control admission duration. They hypothesise that by excluding research that does not meet this arbitrary standard, previously equivalent or negative meta-outcomes might change. Indeed, this is the case, and this is a welcome finding. While the goal of clinical equivalence should be enough, they show that HITH care reduces mortality and readmissions by about 20% and is more acceptable and more efficient.[4]

Some issues need to be considered in this analysis. Only four studies were excluded on the grounds of not meeting the 7-day or 25% criterion. None of these studies was designed to address this criterion. Many of the included studies are small and do not completely describe their interventions. Of those that do, many describe non-acute care or interventions that that we personally would no longer accept as HITH. Outcomes such as mortality and readmission are defined variably; in most cases, they refer to "post-discharge" outcomes only.

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Improving the impact of future HITH meta-analysis requires improving the standards of individual HITH studies. Rapid technology change, humble research resources, poor definitions, patient and hospital unwillingness to be randomly assigned to non-HITH arms, and the intricacies of negotiating HITH access have been mountainous barriers toward a rational scientific examination of HITH. It has been argued that the randomised trial design is impoverished because it tries to reduce complex health service intervention (like HITH) into reproducible bite-sized nuggets where the context of the surrounding health care delivery environment is adjusted away by trial design.[5] Hospital treatment is, and always has been, the outcome of a complex array of decisions regarding access, safety, technology, expertise, mercy, patient acceptance and reimbursement.

In another article in this issue, Sarode and colleagues offer a poignant and illustrative case report.[6] While they do not identify it, the intervention they describe meets our definition of HITH: they took intensive care technology and expertise home with a patient who would have otherwise remained in hospital. The hospital bore the responsibility and costs. Direct affiliated hospital medical care was provided, adapted to fit the context, and protocols that usually govern this situation were respected. The benefits and anxieties they describe are common to HITH. HITH offers a clinical and financial structure for delivering innovative care in this situation, and many similar clinical situations that occur in hospitals.

The principles of applying the care described by Sarode et al are very similar to the principles of applying care in other situations in which HITH is regularly involved, such as: treating patients with endocarditis or end-stage heart failure; caring for selected patients who present to the emergency department with pulmonary emboli; caring for older patients with aspiration pneumonia and hypernatraemia in residential care; administering intravenous antibiotics, antivirals and antifungals for community- and hospital-acquired (sensitive and multiresistant) infections; and giving blood or intravenous fluid. These interventions have all been described in interesting and innovative case reports and descriptive outcome studies, and many have fallen into routine high-quality HITH practice — generally before the availablility of, or in the absence of, the highest grades of evidence.

HITH research could be significantly advanced by establishing an international expert consensus statement to settle the definition of HITH. Reimbursement aids this goal. In Victoria, reimbursement itself has driven a sharper focus on the definition and inputs of HITH.[7]

The definition needs an agreed structure and process for HITH, not just a mission statement, as the platform on which clinical interventions can occur, be further developed or be studied. It should establish how the HITH service becomes a legal and clinical extension of the hospital. As a result, it must address medical care: specifically, whether a hospital-affiliated, formal, separate, clinical HITH unit constitutes the basis for HITH care.

Caplan et al's meta-analysis chips away a little further into the future form of hospitals and HITH, the way a sculptor chisels at a marble block to reveal important new aspects of the image that lies within.

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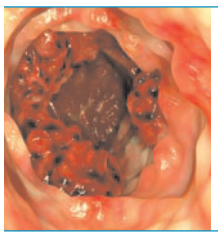

The Australasian Colorectal Cancer Family Registry

Reducing the impact of colorectal cancer

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Colorectal cancer (CRC) is one of the most common cancers in Australia, with a risk in people under the age of 75 years of one in 18 for men and one in 26 for women. Each year, about 15 000 Australians are diagnosed with CRC, and about 4000 die from it.[1] The 5-year survival from CRC is 62%, which is considerably worse than, for example, breast cancer, which has a 5-year survival of 88%.[2]

A genetic predisposition is suspected to underlie up to a third of all CRCs.[3] However, only 5% of CRCs are known to be caused by mutations in cancer predisposition genes.[4] Substantial advancement in understanding the aetiology, prevention and treatment of CRC, as well as reducing mortality, requires comprehensive personal, family and epidemiological data and biospecimens (DNA and tumour tissue) for large numbers of people across the full spectrum of risk. The Australasian Colorectal Cancer Family Registry (ACCFR) provides this resource.[5]

The ACCFR was established for collaborative research into the prevention and treatment of CRC and is our region's largest and best characterised family-based resource of data and biospecimens. It began in 1993 as the Victorian Cancer Family Study, funded by VicHealth. Since 1997, the ACCFR has been part of the Colon Cancer Family Registry (CCFR), an international consortium across Australia, New Zealand, the United States and Canada that is funded by the US National Institutes of Health. The CCFR is the largest family-based worldwide resource for studies of CRC and associated cancers, and the ACCFR comprises about a third of it. More than 11 500 people from 1800 families in Australia and New Zealand have been recruited to the ACCFR, through the Victorian Cancer Registry (960 case families), family cancer clinics in Brisbane, Sydney, Melbourne, Adelaide, Perth and Auckland (580 multiple-case families), or the Victorian electoral roll (270 control families). Maintenance of the ACCFR includes conducting follow-up surveys every 5 years to update data regarding personal and family cancer history, CRC screening (by faecal occult blood test or colonoscopy), colonoscopic polypectomy and other bowel surgeries.

The ACCFR acts as a research enabler, with access to data and biospecimens provided equitably to internal and external researchers. Gaining access requires submission of a proposal with a detailed research plan. Written informed consent is obtained from all study participants, with protocols approved by the relevant institutional human research ethics committee. To date, most studies have used data collected at baseline. As people recruited as cases through family cancer clinics have deliberately been oversampled for familial risk, the ACCFR differs from other cancer cohorts in novel ways. For example, unaffected family members have similar familial risk profiles to affected family members, and can be used as controls. People recruited as population controls and those recruited as CRC cases from the Victorian Cancer Registry, who are selected irrespective of CRC family history, are useful for identifying a range of risk factors for all CRCs, not only those that are inherited.

Genotype data in the ACCFR enable studies of the risk-modifying effects of genetic and non-genetic factors. They have been used for a range of gene-discovery research, including classic linkage studies, genome-wide association studies, and whole-exome and whole-genome studies using next-generation sequencing. Furthermore, participants with CRC at recruitment are prospectively followed up to provide information about potential risk factors for any subsequent cancers that arise. The ACCFR also facilitates novel behavioural and psychosocial research to understand participants' health care utilisation.