

## From “silos” to seamless healthcare: bringing hospitals and GPs back together again

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*Linda Mann, a Sydney GP, proposes ways of potentially enhancing patient care and reducing hospital stays, without increasing overall healthcare costs. Her suggested solutions include making it simpler for all healthcare practitioners involved in caring for the same patient to share (rather than not share) all patient information by applying the information technology of today (rather than tomorrow). Also, pooling some funding from state and federal sources could allow for further “seamless care” at areas of reasonable overlap between the current “silos” of hospital-based and community-based care. (MJA 2005; 182: 34-37)*

The type of scenario described in Box 1 is not uncommon. Contemporary healthcare cuts patient care into separate events by erecting barriers at the boundaries of what we have come to see as “hospital practice” and “general practice”. As a result, Mr A and his doctors face several barriers to optimal care:

- Patient information can be found in many places. Individual carers may not be aware of all the other places where patient information is held;
- Information about patients may not be shared within, let alone outside of, an institution;
- If a practitioner is not “within” an institution, the institution has no easy way of sharing care with the practitioner. It may be easier to duplicate not only clinical notes, but also tests and procedures, rather than look for information kept elsewhere;
- Institutions guard their healthcare resources and limit access to them. This is because they cannot afford to provide all the healthcare needs of all of their patients, irrespective of whether the care is delivered in the hospital or the community.

### Fragmentation of healthcare leads to poorer patient outcomes

The claim that patient care suffers because of the fragmentation of healthcare delivery is not new. In 1994, the US Primary Care Policy Fellowship observed:

“Three barriers to health care are shared by all vulnerable populations: inaccessibility of care, fragmentation of care, and cultural insensitivity on the part of care providers”.<sup>1</sup>

Patients can get different forms of treatment from institutional sources or community sources (each funded from a different arm of government) for the same condition, with the same outcome but different costs.<sup>2</sup> Fragmentation of care, which occurs even within institutions, is inefficient.<sup>3</sup> Care is often discontinuous,<sup>4</sup> with knowledge, culture and activity being housed in separate “silos”.<sup>5</sup>

Institutions guard their resources for good reasons: they must account for every dollar and relate the money spent to health activity and occasions of care of the patients within their boundaries. We are all required to “do more with less”. As a result, in order to benefit from resources provided by an institution, a patient must become a

### 1 Scenario: “How things are today”

Mr A, a 70-year-old Maltese migrant with limited English, has diabetes and vascular compromise of his right foot. He also has a longstanding but stable mental illness, managed by his Maltese-speaking psychiatrist, Dr B, and his general practitioner, Dr C. Mr A attends the combined diabetic, surgical and foot clinic at the nearest teaching hospital. The clinic sends its reports about Mr A to Dr C, who scans them into her paperless patient record, but she has no direct access to the results of Doppler imaging or pathology tests. Dr C continues standard diabetes monitoring between Mr A's clinic attendances, sending results to the clinic.

The various consultants at the hospital clinic decide that Mr A needs to have a below-knee amputation. Although Mr A tells Dr C of the planned surgery, the relevant letter does not arrive until three weeks after the operation. Only then does Dr C learn that Mr A was referred to a rehabilitation hospital.

Dr C does not get a discharge summary from the rehabilitation hospital, as it goes to the referring surgical registrar from the vascular team at the hospital.

Mr A spends 6 weeks in the rehabilitation hospital. The patient's family asks Dr C to intervene because Mr A is becoming depressed. Dr C contacts the rehabilitation registrar, who tells her about an impending psychiatric referral with an interpreter. The registrar is surprised to learn of the existing arrangements for Mr A's psychiatric care, as the referral from the hospital made no mention of this. As Mr A is still in the rehabilitation hospital, the decision to continue with the new, separate stream of psychiatric care stands.

#### Long-term effect of fragmented healthcare delivery

*Because of increasing allied health costs and lengths of stay when healthcare delivery for individual patients is fragmented, the wait for hospital beds for patients with vascular conditions doubles, within the space of a year, from 3 weeks to 6 weeks.*

patient of that institution — leading, inadvertently, to potential fragmentation of healthcare.

Communication between an institution and other people or organisations is sometimes distorted, leading to errors such as prescription critical incidents. For example, hand-written medical instructions can be misinterpreted, with 12 units of insulin being misread as 120 units if the prescriber uses the abbreviation “u” instead of writing out the word “unit”.<sup>6</sup>

Different funding sources for curative care (usually institution-based) and chronic care (usually community-based) create tension in the provision of medical care and in decisions about how that care should be funded.<sup>7</sup> I believe general practitioners (GPs) are willing

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to provide whole-patient care, but are frustrated by barriers dictated by the “origin” of funding. In New South Wales, for example, interpreters are available in person for a patient attending a hospital clinic after a sexual assault, but not for a patient attending a GP or a sexually transmitted diseases clinic. In my own experience, patients who have been seen and diagnosed with a fracture in a general practice had to be seen by junior staff at a central Sydney teaching hospital before they could gain access to the hospital fracture clinic, because the clinic did not accept GP referral.

I fully acknowledge that while some patients are well served economically and socially with care provided outside an institution, achieving the same clinical outcomes,<sup>2</sup> certain forms of care can only occur inside institutions. We know that many conditions (eg, breast cancer, acute stroke and diabetes in pregnancy) respond better to care provided by a dedicated team.<sup>8</sup>

However, medical advances do allow care for some conditions to be appropriately resited from one side of the institution/community barrier to the other. For example, Doppler diagnosis of thromboembolism and the availability of new anticoagulants have allowed some patients to be diagnosed and treated in the community without requiring hospital admission, and community-acquired pneumonia is now most usually diagnosed, assessed clinically and treated out of hospital, facilitated by the use of small, portable oximeters. However, once care occurs outside an institution, patients with such conditions lose their access to institutional services such as specialised physiotherapy (eg, of the hand), social work and occupational therapy.

### How can we change this scenario for the better?

I think we could reduce this fragmentation of healthcare by improving communication and sharing resources within the health-care system. It would involve the patient, rather than interventions or healthcare practitioners, becoming the centre of care; however, it would not involve increased overall funding but rather a funding readjustment. And yes — even shorter hospital stays would result.

### Make it simpler to share (rather than not share) information

The late Dr John Paterson, former Secretary of the Victorian Department of Health and Community Services, dreamed of a unified medical record and patient-centred medical economics. Paterson envisioned three important principles for streamlining the healthcare system:<sup>9</sup>

- Develop a longitudinal patient record for each patient. At each contact, the provider would add new data to a centralised patient record and get paid for the service. Thus, a cumulative record would build up for each patient.
- Gradually roll funds into one budget pool.
- Cap pooled funds as a whole and then regulate entitlements at the patient end, rather than at the source of funding.

Along similar lines, the concept of teams that deliver “seamless care”, overcoming gaps in information sharing and making the duplication of tests or medical effort unnecessary, has arisen. Genuine seamless care<sup>10</sup> depends on a host of characteristics, including the culture of the “actors”,<sup>7</sup> their previous investment in knowledge management processes<sup>11</sup> that encourage movement (rather than hoarding) of knowledge, and the promise of access to new funding sources.

If we could change the emphasis from “craft”-centred teams (eg, with a melanoma social worker and an orthopaedic physiotherapist

and so on) to a patient-centred team (made up of an in-hospital specialist, a GP, a pharmacist, and a physiotherapist — either within or outside the institution), we may find workable new combinations of teams that benefit the patient by crossing current boundaries. Current examples of this are the “smart card” trial for patients with heart disease in Brisbane Waters<sup>12</sup> (where hospital discharge records provide core information that is accessible on-line by GPs and other health providers), and trials of information sharing in central Sydney.<sup>13</sup> In Sydney, use of an existing web platform (Ozdocsonline) allows patients, carers and institutional outreach nurses and GPs to develop interactive management for patients with heart failure.

Coordinated care trials are under way to assess whether such “seamless care” is cost-effective and whether it delivers equivalent health outcomes.<sup>14,15</sup> (The results from the second round of these trials, which began in 2001, are awaited.) The trials involve service providers working in public, private, and non-government organisations; community and institutional healthcare settings; community support services (such as Home and Community Care); and residential aged care. The trials “will be supported by improved data systems between participating services, and more flexible funding arrangements to enable movement of funds between services as required by an individual’s care plan”.<sup>14,15</sup>

### Use information technology to enhance communication

Existing hospital and state area sector intranets, currently protected by firewalls, could be changed to Internet-based systems using PKI (public key infrastructure) or some other secure entrance to the platform. This would permit off-site, secure access to notes, results, messaging and communication. Such access systems are already being introduced in the United Kingdom.<sup>16</sup>

Health workers on home visits could use handheld devices to download patient information from a central source, allowing each and every team member caring for a patient to have access to all available information.

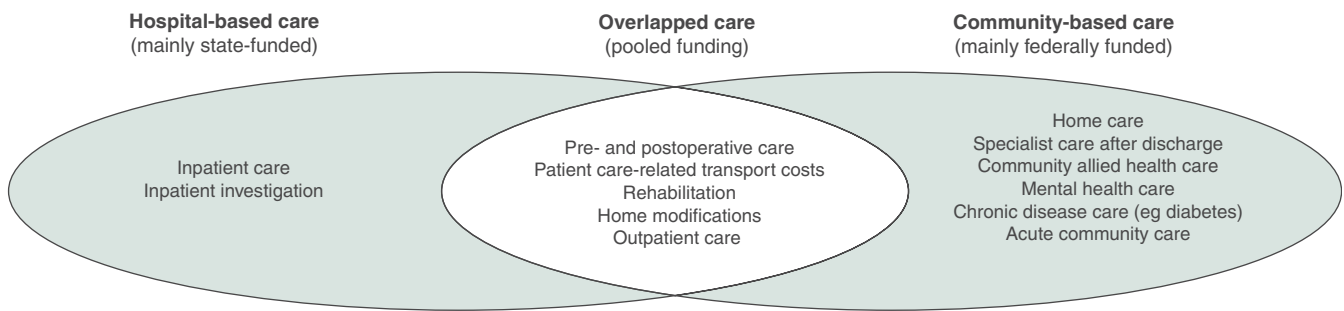
Information Technology Online grants, from the Commonwealth Department of Communication, Information Technology and the Arts, were given in 2004 to support three separate trials of various methods of caring for patients whose conditions require treatment in the community, then in hospital, then back in the community.<sup>13</sup> Subsets of such a process are being rolled out via HealthConnect<sup>17</sup> in Tasmania and South Australia.

### Overlap healthcare boundaries to allow for “seamless care”

Overlapping the line where primary care begins and institutional care stops could be achieved without insult to any medical craft — specialists are, and can remain, the designated “bed-holders” and technologists,<sup>18</sup> while medical generalists<sup>3</sup> (often GPs, but also geriatricians and, especially in rural areas, physicians and surgeons) maintain patient health before and after intervention, and “stream” patients for specialist care. However, patients receiving primary care from medical generalists should be included in the definition of those entitled to access services from state-funded hospitals. This intersection should be made a common ground, not a boundary to be fought over.

Patients who are receiving a state-funded phase of healthcare should be guaranteed access to federally funded care, if needed — for example, via their GPs or federally granted allied healthcare. Patients would then have better-targeted services, allowing specialists to do more for patients at their level, while liberating funds to provide resources in the community. Specialists’ and GPs’ legal and

## 2 A suggested patient-centred model of healthcare delivery and funding



### 3 Scenario: “How things could be today”

Mr A (the patient with diabetes and a mental illness, described in Box 1) sees his general practitioner, Dr C, regularly. On each visit, using a smart card,<sup>12</sup> Dr C accesses a database of hospital-derived results via the Internet. Dr C adds to the Internet-based history she maintains for Mr A. She receives email notification of Mr A's attendance at the diabetes clinic, and sends email notification to his hospital team leader when he is seen at her surgery, so that the team leader can access her information and, if desired, add it to the hospital notes.

The hospital clinic consultants decide that Mr A needs to have a below-knee amputation.

When alerted by email of Mr A's latest hospital assessment, Dr C learns of the decision to amputate. She undertakes preoperative testing as per the hospital protocol (detailed on its website), and sends all results directly to the hospital — downloaded from the private pathology company. This care is funded through the federal government (via Medicare).

When Mr A is admitted for his operation, the “health bunyas” system commences as part of discharge planning. Money previously dedicated to late postoperative care by nurses, occupational therapists and physiotherapists in the hospital is now pooled in a health bunyas fund. (Pharmaceutical Benefits Scheme funding of Mr A's usual medications is also pooled into this fund during his hospital stay.)

The area discharge planner adds up the bunyas that Mr A's condition attracts, consults her list of community bodies that take part in the bunya system, and advises them of Mr A's hospital admission. As he progresses through his stay, she writes up the plan. Dr C warns Dr B, Mr A's psychiatrist, of his admission and makes an early appointment for him to be seen after discharge.

Mr A goes home on the early discharge program to have care at home. Money from community health services, local government and Medicare is added to his bunya pool. He is attended by hospital-in-the-home nurses, who record their visits on hand-held devices and download their data daily to the Internet-based patient record, which is also accessible to Mr A's specialist and GP members of Mr A's team.

Community resources are costed at community rates. Bunyas buy home-visit physiotherapy, a prosthesis, community transport to the day hospital rehabilitation gym and to Dr B, dressings, medications, social worker support for accessing benefits, regular specialist follow-up consultations in the hospital outpatient department or the specialist's rooms, and postoperative home-based medical care from Dr C. Dr C works together with Mr A's specialist via the Internet and phone to manage Mr A's progress.

#### Long-term effect of integrated healthcare delivery

*Because of cost sharing, care in the community and use of private allied health workers, the wait for vascular beds falls, within the space of a year, from three weeks to one week.*

fiscal responsibilities should be re-delineated, as is already done in shared-care programs. Doctor and patient satisfaction, costs and clinical outcomes should all be audited to assess whether the desired outcomes are being achieved.

#### Pool some funds and then apply the “health bunyas” concept

State departments of health have suggested pooling of funds<sup>19</sup> to allow healthcare activity to follow patients regardless of where they receive care. Fund pooling has been advocated internationally to support intersectoral service supply.<sup>11</sup>

Although not a health economist, I have found myself wondering whether one effective way of using pooled funds would be to apply the concept of “health bunyas”. A bunya is a unit of goods or work used in a “local energy transfer system”, such as the one currently being used in Maleny, Queensland.<sup>20</sup> In that town, an individual's work or goods are exchanged in local units or tokens (called “bunyas” — after the local pine tree) which can be traded for needed goods or services organised via a directory listing of what is wanted and what is available. In the healthcare setting, an item of care, or the complications of that item of care, could be valued in health bunyas, which would then be redeemable in either the state or federal arena. The money value of health bunyas in this system could be set at levels already calculated for medical care activity — for example, the Medicare rebate for the medical component of care, or the private insurance rebate for items of allied healthcare in the community.

A similar system proposed for community-oriented “shopfront” projects<sup>21</sup> already blurs the boundaries between state and federal funding. One such project is the NSW Community Options Project, providing case management services for individuals who need services across the state/federal divide not provided by home and community care services.

“Silo”-type boundaries would be re-formed to allow for “seamless care”, and might look something like those presented in Box 2. Using the alternative healthcare model I have outlined in this article, Mr A's care could follow a very different and, I believe, more desirable path (Box 3).

#### Competing interests

I am a director of Ozdocsonline, which provides a secure Internet-based communication tool for doctors and their patients. Ozdocsonline is currently involved in a cross-sectoral, federally funded trial of complex care. My involvement provided current knowledge without influence.

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