Quick diagnosis units: a potentially useful alternative to conventional hospitalisation

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ABSTRACT

- We describe a potentially cost-saving, efficient alternative to hospitalising patients for diagnostic purposes: quick diagnosis units (QDUs) managed by internal medicine specialists.
- QDUs facilitate early diagnosis for patients with potentially serious disease, and avoid hospitalisations, hospital-related morbidity and unnecessary health costs.
- To function well, QDUs require the patient's first visit to occur as soon as possible after referral; preferential patient access to diagnostic tests; and strict referral criteria (QDU patients must have symptoms suggestive of severe disease, but be well enough to attend several appointments for diagnostic tests).
- We describe the experience of two Spanish QDUs in which the most frequent diagnosis was malignant neoplasm.
- We conclude that QDUs are an effective alternative to conventional hospitalisation, reducing delays in diagnosing potentially severe disease, such as cancer. They reduce costs without lowering the quality of diagnostic practice or patient care, and free acute-care beds for patients in need of treatment.

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Health care costs, especially those derived from hospitalisation, are a major and increasing drain on the budgets of countries with predominantly public health systems. With demand for acute hospital care persistently exceeding supply, interest has grown in identifying and rectifying inappropriate uses of acute care facilities. We describe a potentially cost-saving, efficient alternative to hospitalising patients for diagnostic purposes: quick diagnosis units (QDUs).

In recent years, hospitals in countries with public health systems have adopted organisational changes to improve efficacy and the use of resources. Inappropriate hospitalisation is a significant problem for publicly funded acute care hospitals. Although results of surveys estimating the proportion of days devoted to inappropriate care in various hospital specialties vary widely, the prevailing belief is that, especially in the United Kingdom, inappropriate use exceeds 20% across various settings.[1,2] A Spanish study estimated that 16% of Spanish hospitalisations in 2000 were unnecessary.[3] Alternative models of care introduced to avoid unnecessary hospitalisation include 1-day hospitals (created primarily to provide medical procedures requiring less than 24 hours of hospitalisation);[4] short-stay observation units (areas often located adjacent to emergency departments that accommodate patients requiring brief periods of observation or therapy);[5] hospital-in-the-home (programs delivering a limited range of acute care services to selected patients in their homes);[6] outpatient major surgery programs (provision of surgical procedures with postoperative recovery periods short enough to permit same-day discharge);[7] and, more recently, QDUs[8-10] (outpatient assessment units for patients with suspected severe disease).

In 1996, the use and benefits of quick-and-early diagnosis units were first described for suspected cancer patients referred from primary health care centres (PHCs) to the Queen Elizabeth Hospital in Birmingham, UK.[10] Patients were evaluated by specialists according to the suspected diagnosis (eg, patients with haematuria or testicular masses were assessed by urologists; those with breast masses by gynaecologists). Rates of cancer detected varied from 3.8% in patients with rectorrhagia to 33% in those with prostate symptoms.

QDUs have been introduced in Spain in recent years. Unlike the unit in Birmingham, they are directed by internal medicine specialists or "internists" (similar to "hospitalists" in the United States). Patients with specific symptoms, such as breast or testicular masses, are referred to, and evaluated directly by, the appropriate medical specialist. To our knowledge, no reports of this health care innovation, other than those of the UK and Spanish QDUs, have been published.

The main objectives of internist-led QDUs are to facilitate early diagnostic studies in patients with potentially severe disease, especially cancer, and to avoid hospital-related morbidity, unnecessary health costs and hospitalisations (Box 1). Fulfilling these objectives requires compliance with the conditions shown in Box 2. QDU patients must be well enough to travel from home to attend several appointments for diagnostic tests: patients who cannot manage this should be hospitalised.

The publicly funded Spanish national health care system is open to all permanent residents, regardless of socioeconomic or geographical differences. It is highly decentralised, with 17 regional health services. Similar European systems include those in the UK, Italy, the Netherlands and Denmark. Canada also has a predominantly public health care system. In Spain, hospital internists are mainly involved in managing patients with chronic illness and multiple conditions, diagnosing diseases with complex symptoms, and providing consultations for surgical patients.

The first Spanish QDU was established in September 1996 in Granollers General Hospital, a 300-bed public hospital near Barcelona. The QDU is staffed by a specialist in internal medicine and a state-registered nurse, and shares administration with the

1 Objectives of a quick diagnosis unit

- To diagnose potentially severe diseases early
- To avoid unnecessary hospitalisation
- To avoid hospital morbidity
- To reduce health costs
- To improve patient satisfaction
- To allow patients and their families to continue occupational and personal life
- To reduce emergency department workload
- To free up hospital beds ◆

2 Requirements for correct functioning of a quick diagnosis unit (QDU)

- The patient's first visit to the QDU should take place as soon as possible after referral.
- QDU patients should have preferential access to complementary diagnostic tests.
- Referrals to QDUs should be restricted to patients with suspected severe disease.
- Patients must be well enough to attend the QDU as often as necessary for diagnostic tests.
- Patients and family must accept the QDU diagnostic model. ◆

outpatient department. It has a consulting room and a waiting room for patients and families.[9] In November 2005, a QDU was established at the Hospital Clinic of Barcelona, a public teaching hospital with 840 inpatient beds serving 540 000 people. Its staffing, premises, patient profiles, referrals and reasons for consultation, hospitalisation criteria and way of working are similar to those of the Granollers unit. The Granollers QDU attends to a maximum of 13 patients a day (four first visits), and the Barcelona QDU sees up to 15 patients a day (six first visits). The characteristics and activity of the two units are summarised in Box 3. An opinion poll of 200 Granollers QDU patients found that 95% were satisfied with the attention received and 80% would prefer the QDU to conventional hospital admission if further diagnostic tests were required.[9] A similar poll of 100 Barcelona QDU patients showed that 92% preferred the QDU-care model to conventional hospitalisation (unpublished data). The characteristics of the two QDUs are similar to those reported by another Spanish QDU.[8]

The most frequent diagnosis made in the Granollers and Barcelona units was malignant neoplasm, although most patients showed no clear signs or symptoms of cancer at the initial consultation,[9] suggesting that non-specific but suspicious symptoms warrant early investigation.

Physicians at the Granollers and Barcelona QDUs have preferential arrangements with specialists (eg, surgeons, oncologists, endoscopists and radiologists) to hasten diagnostic studies and gain access to all hospital diagnostic infrastructure (eg, radiology, operating rooms and pathology laboratories). The chief task of QDU physicians is to reach a rapid diagnosis by analysing patients' symptoms and signs, aided by the results of diagnostic tests (eg, endoscopies, computed tomography scans), which are mainly performed and reported on by other hospital specialists. In both QDUs, the head physician, nurses and specialists performing diagnostic tests are permanent staff members with fixed salaries, unlike hospital staff in countries where salaries are based on the number of patients evaluated and interventions performed.

QDUs are cost-effective. In a study of the Granollers QDU, the mean cost per patient was found to be up to eight times cheaper than conventional hospitalisation,[9] and hospitalisation for diagnostic tests was avoided in 45% of its patients, representing the yearly freeing of seven internal medicine beds per day (according to the mean hospital stay for internal medicine patients during the study period).[9] However, the creation of QDUs does not necessarily imply the contraction of existing services. Rather than a net reduction in costs, QDUs allow for more efficient use of existing resources. QDUs can increase the number of patients treated and complement available services; not all patients diagnosed with a serious illness are necessarily hospitalised.

These results suggest that QDUs are an effective alternative to conventional hospitalisation, reducing delays in diagnosing potentially severe diseases, such as cancer, and therefore decreasing the anxiety and uncertainty of patients and families. The reduced costs do not affect the quality of care or the diagnostic tools used. Patients seem to be highly satisfied with QDU care, as they can continue living at home and avoid the potentially unpleasant experience of hospitalisation. Hospital-associated morbidity is avoided. Pressure on emergency departments and overall hospitalisations are reduced, freeing beds for other patients. Although cooperation of other medical specialists in ensuring prompt diagnostic tests is important, an effective QDU depends on the motivation, diligence and clinical experience of the internal medicine specialist in charge of the unit.

There is debate about whether QDUs should be headed by internists or should be created for different specialties. Our experience suggests that the internist-led QDU is the better option, because most QDU patients have non-specific symptoms with significant comorbidities, and because internists, versatile by training and experience, may be better equipped to diagnose under these circumstances. In countries where primary health care centres (PHCs) are well resourced and have close relationships with specialists and rapid access to complex diagnostic tests (eg, computed tomography, magnetic resonance imaging, positron emission tomography), family physicians could also run QDUs.

The QDU model has some limitations. Using QDU resources for diagnosing mild disorders may delay diagnosis of severe disease. Therefore, referral criteria should be clearly agreed upon to avoid overburdening the system. Likewise, QDU physicians may prescribe too many diagnostic tests, searching for severe disease that the patient is unlikely to have, especially if the provisional diagnosis on referral to the QDU is incorrect. This can be minimised by implementing standardised QDU diagnostic guidelines. The mean waiting time for the first visit could be reduced

3 Characteristics and activity of two quick diagnosis units (QDUs) in Spain

	Granollers QDU[9]	Barcelona QDU
Period	1997–2001	2006–2007
Number of visits	2748	1258
Origin of referral		
Primary care	44%	38%
Emergency department	48%	57%
Outpatient department	8%	5%
Mean delay before first visit	4.6 days	3 days
Mean time to diagnosis	6.5 days	7 days
Reason for consultation		
Constitutional symptoms	12%	11%
Anaemia	8%	12%
Gastrointestinal symptoms	15%	5%
Febrile syndrome	5%	5%
Swollen glands	5%	4%
Hospitalisations avoided	45%	37%
Diagnosis of neoplasia	22%	24%

considerably if PHCs were allowed to make appointments directly with the QDU. This could be achieved by QDU staff improving email or fax links with PHCs or by reserving a block of QDU time exclusively for PHC patients.

QDUs appear to have a high user satisfaction rating and can help to overcome the shortage of hospital beds in local and tertiary hospitals and reduce health costs. The QDU model could be useful in countries such as the UK, Italy, Canada and countries in Latin America, where PHC overcrowding, long waiting lists and suboptimal coordination between primary care and hospital care have meant that patients with suspected severe disease, including those in good health, are hospitalised for diagnostic tests, aggravating overcrowding and increasing costs. In 2001, it was reported that 28% of hospital admissions in a public British hospital were inappropriate, the commonest reason being the potential for diagnostic tests or treatment to be performed as outpatient procedures.[2] However, in countries with mainly private health care systems, such as Japan, QDUs created to reduce health costs or free hospital beds might not make as much sense.

QDUs are a viable, cost-saving alternative to hospitalisation of patients for diagnostic tests. In particular, they benefit patients with suspected severe disease, such as cancer, who are sufficiently well to attend a range of appointments.

Competing interests

None identified.

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