Local hospitals: lessons for the NHS
Central Middlesex Hospital case study
Peter Davies with Dr John Riordan, Sir Graham Morgan and David Powell

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Preface

This is a detailed case study about Central Middlesex Hospital (CMH). We think the CMH example has useful lessons for managers seeking to develop new local models for relatively small district hospitals. There is innovative work being done around the country to create viable models of local hospitals in urban and rural areas.

The old model on which emergency care, inpatient and outpatient services at CMH were based, resulted in problems typical to many district general hospitals. These centred on a lack of communication, information sharing and integration, both within the hospital and between hospital services and the wider health system, causing delays in assessment, treatment and discharge.

This report outlines the history of reform at CMH. It highlights the current role of the Ambulatory Care and Diagnostic Centre (ACAD) and the Brent Emergency Care and Diagnostic Centre (BECaD) in the reorganisation of services, including the division between the management of patients who are acutely ill and those in the recovery phase, and the eventual aim to merge primary and secondary care for patients with chronic diseases.

It also describes the new model at CMH in full, including the two key principles that underlie its development, the six qualities it aims to embody and a full breakdown of its structure.

While it is acknowledged that parts of the CMH model are not fully functioning and much progress will be needed to deliver all its original objectives, the case of CMH does illustrate that it is possible to run a relatively small general hospital with a wide range of services that is both part of a wider network with other hospitals and that works closely with primary care.

The challenges of continuing to provide healthcare in the 21st century and beyond mean that the modes of delivery will continue to need to be adapted.
Central Middlesex Hospital (CMH) in west London has been developing a new model of care for the last 15 years. This is still a work in progress and a number of issues remain unresolved, but it represents a new way of defining the local hospital and the services it provides.

This report outlines the history and current position of the CMH model, and explores the lessons learned. Elements of the thinking behind the CMH model suggest interesting solutions for some of the issues facing relatively small general hospitals. Achieving the vision at CMH has not been easy and there is more to do, but the model has interesting approaches to offer in a number of areas. These are:

• providing acute general medicine 24/7 with access to emergency surgery from 8am to 8pm
• developing the role of secondary care in supporting long-term condition management in primary care
• urgent care
• medical and nurse staffing.

As the impetus to shift care from hospital to community gathers pace, the question of how to sustain services that need a hospital base will become more pressing. This model, and others like it, offer a set of solutions to the problem of maintaining local emergency services.

Central Middlesex Hospital (CMH)

CMH is part of North West London Hospitals NHS Trust and serves an ethnically and socially diverse population of between 220,000 and 250,000 in Brent, west London. The hospital has 243 beds and manages around 180 emergency admissions per week – 10,000 a year. It has a standard range of services, including an A&E department with 80,000 attendances a year. The hospital employs 1,350 staff. In the last 15 years CMH has shed more than 400 beds. Despite a reduced bed base, the overall level of activity has increased or has at least been sustained in key areas. See Appendix A on page 20 for some examples of recent activity and performance.

In 1999 the trust opened the Ambulatory Care and Diagnostic Centre (ACAD) on the CMH site. ACAD was the first NHS diagnostic and treatment centre, designed to separate elective care (care that is pre-arranged, for example, operations) from emergencies. The new CMH opened to its first patients in 2006 and was formally opened by His Royal Highness, the Prince of Wales, in February 2008.

‘Elements of the thinking behind the CMH model suggest interesting solutions for some of the issues facing relatively small general hospitals.’
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Problems with the old model

Typical of many district general hospitals, CMH found that the model on which its emergency care and inpatient and outpatient services were based hampered its effectiveness and efficiency. Its teams and departments were working independently from one another and there was the typical disconnect between services within the hospital and other parts of the health system.

Outpatient services were an example of this problem. Successful outpatient services need to be jointly organised and managed by primary care, the hospital and specialist teams, and so rely on excellent communication and information sharing. However, little investment had been made in communication or in systems to monitor and share information. Diagnostic support was poorly integrated with consultation, frustrating GPs’ attempts to manage care continuously. The result was delay in assessment and treatment. Intermediate care was inadequate, delaying the discharge of recovering patients whose rehabilitation no longer warranted acute inpatient facilities. This, in turn, led to cancelled operations and longer waiting times.

‘Successful outpatient services need to be jointly organised and managed by primary care, the hospital and specialist teams, and rely on excellent communication.’
Towards a solution

Today, CMH organises its services on a radically different model. Its ACAD has provided short-stay and day surgery for a full range of specialties since 1999. This is complemented by the BECaD, which opened in 2006. ACAD deals with the bulk of CMH’s elective work, and BECaD handles emergency, acute and chronic patients as well as major elective work. Housed in a new building with just over 200 beds, BECaD contains A&E, children’s services, an intensive therapy unit (ITU), three theatres and a range of specialist team bases.

The new model depends on a high degree of service redesign and significant changes in working patterns. A clear division has been created between the management of patients who are acutely ill (in the acute assessment service) and those in the recovery phase (in the rehabilitation or ‘step-down’ service). In both areas, medical and surgical patients are treated together. BECaD’s eventual aim is to merge primary and secondary care into a single service for patients with chronic diseases. Detailed pathways for managing long-term conditions have been set up jointly with Brent Primary Care Trust (PCT). These enable the service to be integrated, with generalist and specialist doctors and nurses in primary care and specialist teams in the expert consulting centre (see page 12). Patients play a large part in determining their own care and have direct access to specialist nurses in the community who liaise directly with the hospital as needed.
CMH developed its new model ten years before ACAD opened. Its characteristic features of multi-skilling, creation of new roles, widespread adoption of protocols and reorganisation of services according to acuity, were all set in train while the hospital occupied its old building. During this time the number of beds was reduced by 200 and the concept was ‘sold’ to staff.

When CMH became a first-wave trust in 1991 it used its new freedoms to set up a patient-focused care pilot project in orthopaedics and urology, which proved a seminal moment in the evolution of the new model. The aim of the project was to locate in one place all the services a patient needed. Although the project was less successful than hoped, its most valuable outcome was the development of protocols and integrated care pathways, which were rolled out across the hospital. These exposed the proliferation of unnecessary handovers and spurred the development of multi-skilling, which was so self-evidently in the patient’s interest that staff overcame their initial reluctance. CMH introduced the first NHS nurse practitioners in A&E, who, where appropriate, carried out their own patient assessments, diagnoses and investigations without referring to a doctor.

From the mid-1990s it became apparent that the hospital did not need separate wards for different surgical specialties: 90 per cent of pre-, peri- and post-operative care was identical whatever the specialty. Surgical wards were divided into short-stay and those for cases with an expected length of stay of five days or more. Orthopaedics was given its own area, a measure that proved valuable when MRSA increased. With fewer wards, some ward sisters became generic surgical service managers and others became peripatetic nurse specialists. The latter have a specialist caseload across the service, carry out audit and train generic nurses with an emphasis on protocols.

The distinction between medical and surgical wards has blurred. The trend towards shorter lengths of stay has helped refine protocols through patient feedback. Carefully listening to patient feedback is vital to successful pain management, which is itself crucial to maintaining short lengths of stay.

CMH found that it was essential to close an old facility as soon as a new one opened, otherwise there was no incentive in the system to make the new arrangement work. While services were in the old building, it was important to anticipate, as far as possible, the geographical arrangements of the new model, even if this involved significant capital outlay. The opportunity to remodel processes and staff roles in advance was important for the new hospital to function well from the start.
The new model – hypotheses and principles

The development of the service model at CMH was based around the following two key principles.

1. A high-quality acute service can be provided or maintained at a local level (target catchment area of 200,000 to 250,000)
   This should have targeted support from a specialist network. However, this local acute service only makes sense if it is combined with local primary care and community services to form a single integrated whole. Specialist teams and primary care would, therefore, be working hand in hand as part of a combined service.

2. Local health services need to be restructured to create new cross-community teams with the freedom and appropriate incentives to deliver quality services
   This means the disbanding and restructuring of traditional departments such as A&E and specialty-based wards.

Piecing these local services together systematically is the most important task facing the health service, and should drive how specialist networks are put together, rather than the other way around. Very significant bed reductions can be achieved as a result of consolidation and improved efficiency.
The new model – objectives and characteristics

The new CMH model was intended to embody six specific qualities, outlined below.

1. Simple to operate
The old A&E department generated a wide range of tasks, from managing acute illness to organising discharge and follow-up care. It relied heavily on a senior presence and at night, when that was absent, patient pathways became interrupted and disjointed.

2. Intelligent and able to respond
Some hospital systems mechanically follow historical patterns of care instead of reacting intelligently to people’s needs. The old model fails to tie information together and respond accordingly, tending instead to move people in and out of hospital based on a pre-arranged timescale.

3. Certain and able to build on predictable patterns
Planning and treatment would benefit from having more certainty built in. As information is not tied together in outpatient systems, it is impossible to monitor ongoing conditions that are largely predictable.

4. Incentivised to stimulate the right kind of actions
The structure of services can work against the right outcomes. For example, in an inpatient unit, orthopaedic teams running a ward have no real incentive to discharge a patient because the bed is likely to be occupied by a patient from another team.

5. Rewarding for staff to work in
The link between staff and patient satisfaction is clear, making this an important principle.

6. Flexible and capable of responding to changes in demand
Many current systems are inflexible. For example, theatre recovery staff who have similar skills to staff in high dependency units (HDUs) find it difficult to cover for them because these units are structured differently.

The new model is characterised by the use of multi-disciplinary teams, a flexible workforce, a higher level of nursing function and greater use of non-clinical resources. It concentrates on introducing community-based programmes of care that provide certainty and continuity, and are better able to react to need. Where acute care is needed, the system should have the necessary capacity and incentives to pull patients through the hospital and back onto their original care plans.

‘The new model is characterised by the use of multi-disciplinary teams, a flexible workforce, a higher level of nursing function and a greater use of non-clinical resources.’
The new model – structure

The services to be restructured, integrated and provided at the local level of CMH were:

- A&E
- emergency medicine
- mainstream emergency surgery
- HDU/ITU
- children’s services, including assessment beds
- rehabilitation and intermediate care
- primary and community care
- diagnostics
- routine elective surgery
- midwife-led care.

The teams in the local service were restructured. A&E work was divided into minor and major, and integrated with children’s services. The new structure is detailed below.

The urgent treatment centre (UTC)

The CMH vision was for a physically separate facility dealing with the 60 per cent of patients attending A&E with minor illnesses or injuries, and those needing but finding it difficult to access primary care, or those not registered with a GP. The centre would be staffed by GPs, A&E nurse practitioners and senior house officers (SHOs). The latter two would work interchangeably using protocols, with training and clinical governance provided by an A&E consultant. An on-site personal medical services (PMS) practice would register the 25 per cent of unregistered patients and provide some of the GPs. All staff would have access to the hospital’s diagnostic pathology and imaging services. There would be rapid access to the major assessment centre, expert consulting centre, paediatric assessment unit, mental health, social services, collaborative care team (CCT) and community pharmacy.

Evidence from King’s College Hospital, together with the experience of CMH, suggested that GPs would provide good-quality care with rapid throughput, while using diagnostics less and admitting fewer patients. Experience at the Wembley Minor Injuries Unit indicated that suitably trained nurse practitioners using protocols could deal with 95 per cent of patients with minor injuries or illness quickly and safely, achieving excellent patient satisfaction.

It was hoped by CMH that Brent PCT would manage the UTC with A&E support, and provide the base for the local GP out-of-hours service. Achieving this vision has proved difficult and the centre has mostly worked as a standard minors department. Initially, and again recently, there has been partial input from primary care, but it has not been possible to implement the original model. Problems have been largely related to financial pressures – deficits, Payment by Results (PbR) – and to organisational boundaries, although cultural issues also need to be resolved. If the Darzi model for local inner city hospitals is to succeed, it is clear that the current perverse organisational incentives will need to be overcome, although Brent PCT is intending to revitalise this vision through the development of the UTC.

The major assessment centre

The major assessment centre was designed to be closely related to the acute and critical care area and to diagnostic imaging. It deals with all major acute cases arriving either from the UTC or by ambulance after a GP urgent referral. The initial
concept blurred boundaries between A&E and acute medical assessment staff, while expanding the nurse practitioner role and abolishing multiple assessments.

The key role was to be the ‘conductor’ – a senior A&E or acute medical clinician (consultant or senior specialist registrar) providing overall cover from 8am to 10pm, seven days a week, and supervising the department’s overall functioning. This would require leadership, organisation and assessment skills. The conductor would quickly assess patients on arrival and direct them to the appropriate assessment stream.

During the day, most assessment would be undertaken by generic assessment teams headed by an A&E or admitting medical doctor, or by an A&E ‘majors nurse practitioner’ trained in assessment to SHO level and following protocols. In addition, an emergency gynaecology nurse practitioner would work in dedicated facilities, and separate arrangements would be made for mental health patients. From 10pm to 8am, all assessment and treatment would be done by a single night team of A&E and acute medical doctors led by a medical specialist registrar and supported by nurse practitioners, including a specialist emergency surgical nurse practitioner instead of a surgical SHO. This would make rotaS fully compliant with the European Working Time Directive (WTD).

All teams would have full 24-hour access to diagnostics including CT imaging. Expert clinical opinions would be available for general surgery, trauma and gynaecology.

After initial assessment, patients would be discharged within four hours or, if they needed assessment for less than 24 hours, would be admitted to a ten-bed acute clinical decision unit (ACDU). Patients needing acute care would transfer promptly to the acute/critical care area. A few patients – decreasing with triage by ambulance staff – would be transferred to specialist care centres.

Again, the full concept has not been implemented. The conductor role is currently carried out by A&E consultants and/or the senior A&E nurse because consultant physicians have been engaged with the role only to a limited degree, although they all perform a late afternoon and an early morning review of newly admitted patients. Performance is variable and depends on individual abilities and culture. It is hoped that increased co-operation between the respective colleges training emergency physicians will eventually overcome this problem.

The major nurse practitioner role has worked well and is as effective as an A&E SHO. However, with the recent increase in doctors in training, it has proved economic in the short term to replace major nurse practitioners with SHOs. The specialist nurse practitioners in gynaecology and general surgery and the combined night team have proved very successful.

Some evidence suggests that barriers are breaking down: for example, A&E nurses are making more referrals directly to the admitting medical team. The ACDU is generally perceived to work well and is a shared facility for up to 24-hour assessment used jointly by the A&E and admitting medical teams. Evidence also indicates a lower proportion of assessed patients are being admitted.

The paediatric assessment unit

Here the CMH concept has been fully realised and is working well. The unit provides dedicated facilities
for children in which 24/7 assessment is available from specialist doctors and nurses. It is situated close to A&E but has separate facilities including a waiting area. The unit deals with all children attending A&E apart from those needing major resuscitation facilities. All arrivals are triaged by a paediatric nurse and seen in a dedicated assessment area either by an A&E or paediatric SHO with paediatric specialist registrar and consultant supervision.

A five-bed observation bay provides an assessment space for children with symptoms such as wheezing or seizures. The inpatient area caters for children requiring longer or more intensive input. It is managed using dependency scoring, with a maximum dependency of 36 and a maximum score for each individual patient not exceeding six. Nursing staff are allocated here according to dependency criteria. Seriously ill patients or those requiring specialist care are transferred appropriately.

Staff work flexibly across all areas, and paediatric nurses and doctors provide 24/7 cover, medical rotas being partly supported by doctors working in community paediatrics. Medical staff numbers are currently:

- 4.5 consultants
- 7.6 middle-grade staff – 3.6 posts in the community
- eight junior doctors – two in the community.

There is a nurse up-skilling programme. All patients are reviewed daily at 8am and 8pm at a joint medical/nursing hand-over. Common drugs are dispensed in the unit by nurses before discharge. Community nurses are based in the unit and see inpatients prior to community transfer, as appropriate.

The outpatient area is situated in the unit and provides specialist clinics in asthma and allergy, epilepsy, rheumatology and sickle cell disease, as well as general clinics. The unit has an indoor and outdoor play area, an adolescent room with computer, pool table, TV and bean bags, and a parents’ sitting room.

Since the unit opened, staff morale has been high, recruitment has improved, patient throughput has increased and complaints have diminished.

### The acute floor

The acute floor comprises:

- an eight-bed coronary care unit (CCU), run by cardiologists with input from other physicians
- a 12-bed combined HDU/ITU (only nine beds are currently open)
- a 40-bed acute general ward (Roundwood Ward).

The combined HDU/ITU’s beds all have full monitoring facilities. The unit can cater for six Level 3 patients if necessary, the ventilator being moved to or from the patient’s bed as their category changes. It is essentially nurse-run with a single daytime designated SHO. A rota of consultant respiratory physicians and anaesthetists provides medical cover with help from duty medical specialist registrars as needed at night.

Roundwood Ward is adjacent and has four ten-bed areas each with two four-bed bays and two single rooms. Admission is governed by acuity, not specialty. However, acute surgical and orthopaedic patients tend to occupy one area supervised by a surgical nurse practitioner. Length of stay is typically between one and four days, with many patients being discharged to complete their treatment at home under the care of the collaborative care team (for example, chronic obstructive pulmonary disease (COPD) patients on nebulisers and oxygen, and pulmonary embolism being stabilised on
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anticoagulants). Patients requiring rehabilitation are usually transferred upstairs to the rehabilitation unit once their acute problem has been stabilised.

The original concept of managing this ward by a rota of consultant physicians on a weekly or half-weekly basis has not been implemented. So far, a significant proportion of clinicians have been unwilling to undertake this role. However, the ward is functioning well with the current clinical director performing the role and appropriate deputy cover in his absence. Actively managing throughput by means of a 3pm daily consultant discharge ward round for all the beds is key to the system working effectively. Again, with the development of the acute medicine speciality by the Royal College of Physicians (RCP), it is hoped that the original vision will eventually be realised.

The rehabilitation floor

Situated above the acute floor, the rehabilitation floor comprises Gladstone Ward, which has one 18-bed and three 24-bed units with a ratio of one single room to each four-bed bay. It accepts admissions from acute assessment, from the acute floor – including the ITU – or from home via the CCT when patients require more prolonged treatment and rehabilitation (for example, for complex or social problems).

Patients are admitted based on clinical complexity and rehabilitation needs, not on age. Physicians specialising in elderly care run the unit, but it takes younger adult patients where appropriate. These physicians take part in the general admissions rota and look after patients downstairs, many of whom go straight home; only those needing longer stay or rehabilitation transfer upstairs.

In line with the National Service Framework for older people, one ten-bed area is dedicated to the stroke unit, run by elderly-care and neuro-physiotherapy staff with consultant neurology input. These beds are linked to the intermediate care teams – the CCT (see page 13) on-site and intermediate care beds at Willesden Community Hospital. Predicted length of stay in these beds is seven to ten days, which compares well with neighbouring units.

Clinical care for stroke is based on a comprehensive assessment that results in a structured individual care plan. This involves all relevant clinical disciplines in providing active therapy to maximise independence and enable patients to continue living at home where possible. Staff pinpoint the moment when the patient no longer needs to be in the acute hospital and can return home with CCT support. Care involves multi-professional working using a single assessment framework and a shared clinical record for all professions, based on shared protocols as recommended by the RCP.

The clinical director has access to and clinically manages 60 intermediate care beds at Willesden Community Hospital for patients needing longer-term rehabilitation. He performs a similar management role for the rehabilitation floor as the director in Roundwood Ward, with a daily 3pm consultant discharge ward round. Patients’ average length of stay is ten to 12 days.

The traditional outpatient department has been replaced by programmes of care to support patients with ongoing diseases, which bridge primary and secondary care.

The expert consulting centre

Traditionally, the worst-run part of any hospital is its general outpatient department, which often lacks ownership and is the source of many complaints. CMH decided to abolish its outpatient department,
The collaborative care team (CCT) – at the heart of the model

Good care is only ever delivered by teams. As in an orchestra, various members will play the prominent role at different times. Attempts to protect professional integrity can hinder teamwork, but teams are key to the CMH model and acknowledging each other’s professional expertise is important to successful teamwork.

The CCT underpins every part of BECaD and is fundamental to its success. Its origin lies in a decision to close one of four geriatric wards, shedding agency staff and replacing them with a ‘bridging team’ that took the patient home when medically fit and performed whatever duties were necessary until community services were able to take over – a development that echoed the principles of the patient-focused care project. The senior consultant geriatrician remained clinically accountable for the patient, who could be readmitted if necessary. The scheme was less hospital-at-home and more hospital outreach. It worked well and was expanded to include elective surgery patients. Then GPs asked if their patients could be included if they provided medical care.

The then community trust contributed staff too, and the team became integrated across local NHS organisations. However, until recently, the team was led by a staff member from the community trust’s successor body – the PCT – while accountability remained with CMH. This is important because the acute trust has the best incentive to get patients home as quickly as possible.

All CCT members have generic skills and draw on specialist nurse or physiotherapy help. They have the right to contact a senior clinician direct – not just from care of the elderly – and if they feel a patient needs to be admitted they can contact the relevant consultant and bypass A&E. Members have extensive networks in the community, facilitating smooth patient handovers. In effect, the team has set its own boundaries with the community, enabling it to rapidly implement changes in care patterns. They also work closely with specialist nurses in individual firms.

Patients are given the CCT’s phone number and are guaranteed to be able to speak to a team member, not an answering machine. The team’s 11 members provide the equivalent of two wards’ worth of clinical care for the cost equivalent of one ward.

replacing it with an expert consulting centre that deals with patients more quickly and directly, ensuring they are captured early and not lost in the system. The result has been another success story.

The expert consulting centre provides a base for the teams who contribute to acute care and play a major role in managing chronic disease. Consultants and their teams see outpatients in or adjacent to their office base, which is also adjacent to relevant diagnostics. The teams are grouped for complementarity:

- cardiac and respiratory
- diabetes, endocrinology and dietetics
- gastro-enterology, hepatic and general surgery
- rheumatology, orthopaedics and physiotherapy
- elderly care, neurology and dermatology
- clinical haematology, sickle cell, GUM and HIV services.
Cardiac, respiratory and endocrinology all have integrated hospital and community teams with specialist nurses who move across the boundaries. There are agreed integrated care pathways with community user groups for each. Linked specialists in endocrinology and cardiac care – consultants and general practitioners with a special interest (GPSIs) – work in primary care. While fixed clinics remain, there are also opportunities for clinical staff to perform one-off assessments outside clinic times. Relevant imaging and investigation – such as plain X-ray, cardiac echo, ECG and exercise testing – are all close to hand and expedite one-stop assessment. At least one consultant offers GPs email advice within 24 hours for clinical queries, via NHSnet.

The non-clinical team members have been integrated and are multi-skilled. For example, in each team clinic clerks, secretaries and healthcare assistants, as well as nurse specialists, are trained to answer phone queries, make appointments, run clinic reception – including finding notes and missing results – weigh patients, test urine on arrival and even take blood. This has improved staff ownership and morale, meaning clinics run more smoothly and patients’ queries are resolved rapidly.

With the advent of PbR difficulties have arisen for the centre’s interface between community and secondary care. Community staff are less inclined to seek help from a hospital consultant for fear of incurring costs. A&E staff are aware that avoiding an admission incurs the cost of community support and loses the acute trust income. Staff are looking for a local, collaborative solution to this problem, which is affecting primary and secondary care throughout England.

Elective surgery with sufficient risk to require close proximity to the acute and critical care centre, or with a length of stay of more than one day, is handled by BECaD, while all other elective surgery is processed by ACAD.

**The night team**

In common with most hospitals, CMH has developed a night team over the past three years to comply with the WTD, while observing financial constraints, improving the handover process and ensuring good quality care. The team and the handover procedures have become an established feature of how the hospital works. The new hospital’s layout, where all areas dealing with acutely ill patients are adjacent, has helped.

The team meets at 9pm in a quiet non-clinical area for about 30 minutes. The meeting is jointly chaired by the duty site manager (night matron), who leads on bed management and flexible assignment of key staff to areas of greatest need, and by the night medical registrar, who leads on assessing how patients’ individual clinical needs can best be met. Others include daytime medical staff, who hand over new admissions and patients still waiting in A&E, and night staff who will provide ongoing care.

The medical day team will have reviewed and made a management plan for all admissions up to 5pm or 6pm in a ward round with the duty consultant physician. Any unstable patients who might require overnight attention are noted for review before 11pm. At the end of the meeting everyone is clear on who does what and where.

The night team comprises:

- before midnight – one medical registrar with two SHOs and one pre-registration house officer (PRHO)
- after midnight – one medical registrar with one medical SHO
• A&E department – one A&E middle grade with one to two SHOs
• surgery – one resident surgical officer covering all surgical patients, including orthopaedics and urology, with a surgical nurse practitioner
• one anaesthetic registrar to cover all 200 adult inpatient beds and patients staying overnight in ACAD.

The 8.30am handover meeting is chaired by the previous day’s medical consultant. In addition to night team members, each specialty sends a representative. All patients admitted in the previous 24 hours are reviewed and management plans agreed, including appropriate handovers to the specialties. This specialty triage is a key feature that ensures patients receive specialist care as early in their admission as possible. Early management by expert teams should produce shorter lengths of stay than management by generalists. The meeting has a short teaching component and the provision of refreshments encourages attendance.

The major elective surgical centre

This is a major area of change throughout the NHS. As emergency surgery transfers to larger acute hospitals and specialist centres it will be important to create a robust network that ensures patients have prompt access to the most appropriate skills wherever they are located. In some cases that may mean getting the surgeon to the patient rather than vice-versa.

CMH deals with low-risk major elective surgery that requires more input than a treatment centre can offer, but not significant intensive care. The service includes outpatient and initial assessment; pre-assessment and decision to operate; and theatre facilities and post-operative surgical beds. In addition, the service can access beds and facilities in the acute and critical care centre and the rehabilitation service.

Services are ring-fenced by specialty so that general surgery, gynaecology and orthopaedics have their own share of 24 allocated beds and theatre sessions that cannot be used for emergency work. The theatres provide for 60 hours of operating a week, 14 hours a day. The model was compiled using average procedure times. Daily elective work is scheduled over a five-day week, 46 weeks a year. Orthopaedic and general surgery cases use 60 per cent of the daily elective workload, and use two dedicated theatres, available eight hours a day. Emergency work has been allocated across 365 days.

Gynaecology, urology and other elective work is booked into a third theatre, also operating a standard eight-hour day. Daily elective work is topped up to meet 75 per cent of all other emergency work. This third theatre reverts to a generic specialty theatre for emergency out-of-hours surgery. Recently, emergency surgery has been confined to between 8am and 8pm, and patients who need out-of-hours surgery are transferred to Northwick Park Hospital.

Cases are scheduled into the elective service to match theatre and bed availability and maximise efficiency. All cases are allocated an expected time in theatre and length of stay at pre-assessment before being allocated slots. Discharge planning is carried out with the CCT at the pre-assessment stage.

A scheduler – a senior nurse or general manager – is attached to each clinical team and is responsible for booking beds and theatre time for each case based on expected length of stay and time in theatre. They are also responsible for communicating with primary care.
Summary of the Central Middlesex Hospital model

**BECaD**

- complete separation of minors
- majors become acute assessment with joint A&E/acute medicine working.
- UTC

**Acute inpatients all on a single floor**

- generic service with admission based on acuity, not specialty
- HDU/ITU integrated with same staff (ventilator to patient, not patient to ventilator)
- predominantly nurse-provided service in HDU/ITU
- admittance/discharge from same bed facilitated
- run by acute medicine (plus anaesthetists in ITU)
- specialist opinions as a priority within 12 to 24 hours of admission
- vigorous bed management by nominated consultant physician
- CCT and nurse specialists available for early discharge.

**Paediatric integrated unit**

- all children needing A&E services wait and are seen in the unit
- acute ambulatory assessment service
- short-stay inpatients
- 24/7 paediatric medical and nursing staffing for all areas
- integration with community staff
- flexible use of staff.

**Rehabilitation floor**

- admission based on need
- seven to ten days’ rehabilitation
- strong links to community intermediate care
- elderly care-led, but not age-based
- stroke unit.

**Expert consulting centre**

- no generic outpatients
- base for individual or linked teams
- base for community specialists
- multi-skilled reception
- use of clinical pathways
- co-located diagnostics for one-stop visits
- quick opinions for acute services.

**Collaborative care team**

- nurse-led with strong nursing and physiotherapy staffing
- hospital outreach with community staff input
- responsibility for patients in community accepted by hospital consultant
- generic team with specialist inputs
- deals with acute medicine, elective surgery and social care bridging
- accepts prevention-of-admission referrals from A&E and GPs
- protocols form the basis of care
- direct line for readmission.
**Night team**
- led by ‘night matron’
- lean medical staffing
- surgical nurse practitioner instead of SHO
- covers whole unit
- 12-hourly handover.

**ACAD**

ACAD has dedicated outpatient units for specialties that involve significant short-stay elective surgical work, and which do not provide a specialist emergency service in the hospital:
- urology – 24/7 A&E covered by general surgery/A&E and medicine
- gynaecology – A&E covered by nurse specialist
- audiology and ENT
- ophthalmology
- breast surgery.
The services at CMH have been housed in a new hospital designed to support the structures detailed in this report. The impact of the model is seen in the reduction of 20 per cent of the bed capacity with the opening of BECaD, associated with an improvement in throughput and performance. However, parts of the model are not fully functioning and there is a long way to go to deliver all the objectives originally laid out.

What is striking about the CMH model is that it shows it is possible to run a relatively small general hospital, offering a wide range of emergency and other services, where it is part of a wider network with other hospitals and where it is working closely with primary care. The fact that the hospital is part of a larger trust seems to be an important factor in providing the specialist back up.

The model at CMH has not been without challenges. In common with other models of this kind it has been difficult to get the birthing unit to operate economically – not helped by the hospital’s location some way from population centres in an industrial estate. Before the advent of choice, and even since, the innovative ACAD unit has had some difficulty getting referrals from beyond the traditional catchment area – this seems to be a problem for other elective centres that were designed to take from an expanded catchment area.

A number of other lessons can be drawn from this model that are important for policy-makers and for others considering this model locally. One lesson is the need to involve local GPs in the development of pathways to a much greater extent than was possible initially.

A model based on reducing admissions and outpatient use does not fit the current design of PbR as it will tend to reduce income and ensure that the case load is on average more expensive than that in the typical hospital. Both these features have a negative impact on the economic viability of the model. The NHS Next Stage Review proposals to develop integrated care organisations and new approaches to PbR may offer solutions to this problem.

A radical redesign of the clinical pathways requires a differently configured estate. Whilst many fewer beds are required, new buildings are more heavily engineered and give more space to a number of functions than those buildings built by the Poor Law Guardians or hospital planners in the 1960s and 1970s. Replacing very old, heavily written-down assets with new ones will tend to significantly increase capital charges even with a very substantial reduction in the overall size of the estate. The financing route (PFI in this case) may not have affected the overall cost of the procurement but it means that the health economy is now locked into a 30-year contract. The NHS Confederation and Foundation Trust Network (FTN) are developing policy proposals to deal with the difficult question of making capital investment affordable.

The question of whether emergency surgery is viable in the medium term has not been resolved. Some areas such as orthopaedics, where some emergency cases can be treated as scheduled, can be sustained without a 24-hour surgical rota. However, the relatively small number of
emergency surgical admissions for a hospital of this size (given that trauma, vascular and other major cases are routed elsewhere) is not so large as to be make or break for the model. Furthermore, work by the Royal College of Physicians now makes it clear that with appropriate support – such as is available within the North West London Hospitals NHS Trust – it is possible to run a general acute medical service without on-site surgery as long as an opinion is available rapidly when required.

The scale of the task in this type of clinical redesign cannot be underestimated and the difficulty of integrating this model into a wider trust and ensuring the spread of good practice and real integration is also considerable.

It is appropriate that CMH has been so innovative in reducing its reliance on beds. One of the most influential articles of the post war period, ‘The dangers of going to bed’, attacked the use of extended bed rest and pointed out the dangers of long stays in hospital. It was written by a consultant at the hospital.

Perhaps the new model at CMH will make less impact than this paradigm shift, but creating local hospitals that work is very important and there is more to do to create viable models of local hospitals in urban and rural areas.

The NHS Confederation would like to hear from clinicians and managers examining this area who would like to share expertise and ideas. The CMH model may only work in an urban context and we are particularly interested in hearing from members looking at rural areas.

For further information on the issues covered in this report, contact Nigel Edwards, Policy Director, at nigel.edwards@nhsconfed.org
Appendix A

Evaluation of the Working Time Directive (WTD)/BECaD Project at Central Middlesex Hospital, North West London Hospitals NHS Trust: key messages from the evaluation (May 2003–February 2007)

Summary of the BECaD evaluation

Between May 2003 and February 2007, an evaluation was conducted of the impact of the change programme at CMH in a number of key areas. The evaluation mainly focused on the acute emergency model and the changes made in relation to the European WTD which represented a key phase of BECaD implementation. The study was funded by the Department of Health and included a number of researchers, academics and professors from local universities, enhancing independence.

The study compared findings between ‘before’ and ‘after’ key changes in relation to:

- change management and staff perceptions
- patient experience and journey
- hospital performance in key areas.

Particular focus was placed on the night-team (as a case example of multi-disciplinary working) and nurse practitioners, especially gynaecological and surgical nurse practitioners (SNPs). The findings particularly relate to activity around the development of the major assessment centre and the acute floor.

Methods included patient journey mapping and interviews, staff interviews, observation of clinical practice (for example, handovers, A&E, ward activity), and statistical analysis of hospital activity. Overall, 133 patients and 162 staff participated at some stage. Not all aspects of the model or clinical areas could be included and, as in all research, the evaluation has its limitations.

Key findings

Some of the main findings are summarised below:

Change obstacles

As found in any hospital change programme of this scale, some lessons learnt and obstacles to change were identified, particularly in the early stages of the evaluation. Obstacles included organisational, cultural and national factors and pressures.

Positive outcomes

The evaluation revealed that after time, and intense work from ‘change leaders’ and a growing sense of ‘community drive’, a number of key positive outcomes transpired:

- **Staff perceptions**: staff interviews revealed that the new hospital environment appeared to significantly improve staff confidence and ‘professionalism’. While some ‘teething problems’ were observed, and a few staff were negative, most were very positive about the new environment (for example, care processes, equipment, space, cleanliness).

- **Multi-disciplinary working and patient journeys**: more efficient care pathways were observed for acute patients in certain areas where a multi-disciplinary team approach was used to ‘optimum’ effect and the A&E nurse ‘conductor’ able to refer appropriately (for example, where diagnosis was easier). One key example was gynaecological patients who were managed via the gynaecological direct referral (GDR) pathway. In such positive cases, the number of stages of the acute journey was reduced from six (traditional A&E pathway) to four – i.e. reduction in need for repeated clinical assessments. In these cases, patient perception appeared to be transformed:
  - “So many doctors ask the same questions again and again... I get so peeved off!”
  - “I didn’t have to repeat myself at all and the doctor knew exactly what I’d already told the ambulance crew”

Gynaecological patient after key changes.
The night-team was established in August 2004 and, after a number of hurdles, eventually appeared able to address the impact of the WTD. There were many positive examples of different teams working well together, particularly when focused on a patient’s care plan. Areas for further improvement were required, however, in terms of all teams being willing and able to participate in the multi-disciplinary team approach.

- **Nurse practitioners (NPs):** evidence suggests NPs were able to provide adequate cover for junior doctors, provided they were well trained and supported. Mapping revealed that the journey for patients assessed by NPs (n =13 patients), compared to junior doctors (n = 92), remained relatively unchanged. Patients assessed by SNPs expressed satisfaction in interviews and were unaware of whether they saw a doctor or nurse. Staff at all levels were very positive about working with the NPs and NPs themselves appeared to have high morale and confidence in terms of their newly developing roles. Median (inter-quartile range) A&E completion times (hours:mins) for surgical patients were comparable between SNPs at night (2:34; IQ: 1.39, 3.36; n = 537) and junior doctors during the day (2:26; IQ: 1.25, 3.31; n = 1580).

- **Hospital performance:** a number of areas that may have potentially been affected by the WTD were focused on. The research team used the standard Commissioning Data Set (CDS) provided by the Trust to analyse these outcomes, using statistical methods:
  - **A&E throughput** rose from around 5,500 at baseline (June 2003) to 6,200 in February 2007 (with interim variability).
  - **A&E completion times** remained relatively steady at around 2.20 (hours:mins), with less variability over days of the week, suggesting better management of demand.
  - **Inpatient throughput** remained relatively steady.
  - **Length of stay** was reduced in both acute care and emergency surgery, the reduction being statistically significant, for example:
    - **Acute care:** mean (standard deviation) LoS for the mid-year period was reduced from 10.9 (17) to 7.7 (11.5) days, with a change of 3.2 (confidence interval: 2.3 to 4.1; p = 0.0001). Median acute LoS reduced from six to four days (this is another assessment of the ‘average’ where ‘outliers’ have less impact). Please note: these figures include ‘longer-staying care of the elderly’ acute patients and therefore should not be used to compare with national targets etc. Acute LoS began to reduce significantly after key WTD/BECaD-related changes, including the night team, development of the acute floor and increase in referrals to the CCT. These changes took place over several months from August 2004.
    - **Emergency surgery:** mean (SD) LoS reduced from 5.5 (8.9) to 3.5 (6.9) days, a reduction by 2 (confidence interval: 1.6 to 2.8; p = 0.0001).
    - **Aggregated management data:** suggested total emergency readmissions remained steady at around 8-10 per cent.
Glossary

**ACAD** – Ambulatory Care and Diagnostic Centre

**ACDU** – acute clinical decision unit

**BECaD** – Brent Emergency Care and Diagnostic Centre

**CCT** – collaborative care team

**CCU** – coronary care unit

**CMH** – Central Middlesex Hospital

**GPSIs** – general practitioners with a special interest

**HDU** – high dependency unit

**Multi-skilling** – training the workforce to be proficient at a wide range of tasks

**PMS** – personal medical services

**PRHO** – pre-registration house officer

**RCGP** – the Royal College of General Practitioners

**RCP** – the Royal College of Physicians

**Scheduler** – a senior nurse or general manager

**SDO** – the Service Delivery and Organisation Programme of the National Institute for Health Research; commissions research related to the organisation and delivery of health services

**SHO** – senior house officer

**Up-skilling** – teaching (an employee) additional skills

**UTC** – urgent treatment centre

**WTD** – Working Time Directive
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Further information

Our NHS, our future: NHS next stage review – interim report:
www.dh.gov.uk (Gateway ref 8857)

Ideas from Darzi: polyclinics
www.nhsconfed.org/publications
References


It reminds doctors about the importance of early mobilisation:

“Teach us to live that we may dread
Unnecessary time in bed
Get people up and we may save
Our patients from an early grave.”


This report outlines the history and current position of the model that has emerged at Central Middlesex Hospital (CMH). It examines the problems caused by the organisation of services in the old CMH model and the reforms that have taken place. It describes the new model in full, including the key principles behind its development, the qualities it aims to embody and its structure.