

The Super Six model of care: Five years on

Eveleigh J Nicholson, Michael H Cummings, Iain CP Cranston, Darryl R Meeking, Partha Kar

The model of care for diabetes has traditionally been delivered in a specialist setting due to the perceived requirements of a complex multi-system condition. However, in the modern climate, the financial and workforce demands faced by the NHS has shifted the focus of diabetes management to primary care and required primary, community and specialist care to find collaborative and innovative ways to meet the needs of people with diabetes. Five years ago, the “Super Six” model was established in Portsmouth Hospitals NHS Trust to streamline care across the Clinical Commissioning Groups in its catchment area with the aim to improve health outcomes of people with diabetes. This article reports on patient and practitioner satisfaction of the Super Six model and estimates the number of clinical events that have been avoided since its implementation.

In 2009, the local healthcare professionals and policy-makers of Portsmouth Hospitals NHS Trust identified that there were two main barriers to improving diabetes care in the area. There were inherent inefficiencies in the traditional healthcare model, with a lack of co-ordinated and communicated plans across healthcare providers, and, despite caring for people who had been discharged from the same hospital, there were variations in the quality of the service provided in primary care and in the community, and in systems for the two primary care trusts (PCTs). For example, South Hampshire PCT had 1.6 whole time equivalent community specialist nurses with support from a GP with a special interest, while Portsmouth PCT relied on traditional referral to acute hospitals without the presence of an intermediate or community diabetes team.

A consultation process began among key healthcare stakeholders (primary and secondary care clinicians, and commissioners) and patient focus groups were formed to discuss how to restructure the diabetes service and improve care. Shared aims were to provide diabetes care in the community, regardless of geography, and to streamline the care systems so that there was one system in place across the area, all while ensuring that quality of care was not compromised.

Using existing policy and best practice guidance, it was agreed that clinicians would work together to discharge 90% of people with diabetes who were currently receiving follow-up secondary care in “general/complex diabetes clinics” back into primary care. Key to the new, proposed model of care was an understanding that offering the best care did not necessarily mean all patients were to be seen in a specialist service based within a hospital. However, it was agreed that there were areas of diabetes care that needed to be under the auspices of the specialist setting. Following the definition of the services that the specialist care team would manage (*Box 1*), consultants and GPs undertook a joint review of all patients known to the specialist service and identified those who could be discharged to primary care and those who were more appropriately retained by the specialist care team within the Super Six clinics.

Subsequently, both a diabetologist and a specialist nurse attended practice meetings over a 12-month period to review individuals identified for potential discharge to primary care and to facilitate their transition. Practice teams did not ignore the fact that those being discharged might still have complex needs. Despite the variable expertise and resources available in primary care, it was felt that these needs could still be supported,

Citation: Nicholson EJ, Cummings MH, Cranston ICP et al (2016) The Super Six model of care: Five years on. *Diabetes & Primary Care* 18: 221–6

Article points

1. The Super Six model of care has been in place for over 5 years with the aim of improving diabetes care in the Portsmouth area by creating uniformity across primary care trusts and providing support for the majority of diabetes management to be in primary care.
2. Five years on, the authors have surveyed patient and practitioner satisfaction of the service provided, and calculated the estimated clinical events avoided as a result of the Super Six model.
3. Patient and practitioner satisfaction is high and there have been reductions in diabetes-related hospital admissions and vascular events as a result of the Super Six model.

Key words

- Diabetes care model
- Integration
- Level of care
- Specialist diabetes team

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Page points

1. The consultant team in the specialist unit had two main roles – that of medical “specialist” and “educator”.
2. To determine how effective the Super Six model has been in improving clinical outcomes for people with diabetes 5 years after implementation, outcome measures were set.
3. The outcome measures set were patient and primary care practitioner satisfaction; diabetes-related hospital admissions (diabetic ketoacidosis, hypoglycaemic events and hyperosmolar hyperglycaemic state); and long-term vascular events (myocardial infarction, cerebrovascular accident and amputations).

Box 1. The defined areas of specialist diabetes care in the Super Six model.

- Inpatient diabetes
- Antenatal diabetes
- Diabetic foot care
- Diabetic nephropathy (individuals on dialysis or with progressive decline of renal function)
- Insulin pumps
- Type 1 diabetes (individuals with poor control or young people)

drawing on the expertise of the specialists in their capacity as educators. This underlined the basic principle that the consultant team in the specialist unit had two main roles – that of medical “specialist” and “educator”. The “specialist” role involved leading the Super Six pathways within the acute trust, while the “educator” role was developed to support primary care managing those in the community. Support offered by the educator was guided by the needs of primary care and conducted in a combination of virtual and face-to-face communications. It was intentionally flexible and led by the requests of the practice (e.g. discussion around specific complex cases and insulin initiation). Practice visits were held at least every 6 months, which complemented the existing contacts by the community nurse specialists (see *Box 2*). In addition, with local Clinical Commissioning Group (CCG) approval, a free educational portfolio including the following topics was established, which has since been run on an annual basis. A Local Enhanced Service agreement is in place that recommends that the lead GP and nurse for each practice attend a minimum of 10 hours of education a year:

- Diabetes foot disease.
- Diabetes care for the housebound, or people in residential and rest home care.
- Diabetes pharmacology.
- Nine care processes for diabetes.
- Type 1 diabetes.
- IMIT-2D (Initiating and Managing Injectable Therapies).
- INIT-2D update.

Box 2. Options available during GP practice visits in the Super Six model.

- Virtual clinics (case-based discussions)
- Database reviews to discuss individuals with regard to achievement of Quality and Outcomes Framework target
- Reviews of audits completed by the GP practice on diabetes care
- Educational sessions on areas of diabetes management of the practice’s choice
- Patient reviews (in conjunction with GPs or practice nurses)

For more information on the development and implementation of the model, readers are referred to previous articles in this Journal (Kar, 2012; Kar et al, 2013) and Kar (2011). With agreements reached by all stakeholders, the Super Six model commenced in September 2010.

The catchment area of the Queen Alexandra Hospital in Cosham spans Portsmouth and South East Hampshire, presenting a diverse socioeconomic spectrum. Diabetes prevalence has continued to increase at pace – partly due to public health turmoil, especially obesity, and partly due to better detection. Across our three CCGs, diabetes prevalence had increased from 5.7% in 2010/11 to 6.9% in 2014/15, representing a 10 000-person increase (Public Health England, 2015).

Analysis of data

To determine how effective the Super Six model has been in improving clinical outcomes for people with diabetes 5 years after implementation, outcome measures were set: patient and primary care practitioner satisfaction; diabetes-related hospital admissions (diabetic ketoacidosis [DKA], hypoglycaemic events and hyperosmolar hyperglycaemic state [HSS]); and long-term vascular events (myocardial infarction, cerebrovascular accident [CVA] and amputations). No statistical hypothesis testing was conducted in this analysis.

The observed number of health events (hospital admissions and long-term vascular events) were recorded from 2010/11 to 2014/15. The baseline

Table 1. Estimated number of events avoided between 2010/11 and 2014/15 following the implementation of the Super Six model in 2010.

Outcome	Baseline number of events (baseline rate*)	Estimated number of events avoided			
	2010/11	2011/12	2012/13	2013/14	2014/15†
Number of people with diabetes	31 253	33 754	36 432	39 921	43 500
Diabetic ketoacidosis admissions	215 (0.69)	8	51	77	92 (29.5%)
Hypoglycaemic events admissions	118 (0.38)	15	44	69	67 (42%)
Hyperosmolar hyperglycaemic state admissions	6 (0.02)	-2	4	-1	2 (30%)
Myocardial infarction	221 (0.71)	29	58	53	65 (22%)
Cerebrovascular accident	189 (0.6)	-13	-1	47	59 (22%)
Amputations	134 (0.43)	38	37	28	73 (39%)

*Baseline rate is number of events per 100 people with diabetes in 2010/11.

†(Percentage change in rate from baseline for 2014/15).

rate of each event was calculated for 2010/11 (the number of events per 100 people with diabetes). Using the baseline rate to calculate the projected number of events for each year if the Super Six Model was not introduced, the estimated number of events avoided was calculated by subtracting the observed from the projected events (Table 1; Figure 1).

Results and outcomes

Patient and practitioner satisfaction

Surveys on patient and practitioner satisfaction were completed in 2014/15. Approximately

150 patients completed the survey, and on a scale of 0–10 (0=poor; 10=excellent), the average satisfaction rating among patients was 9.5. Each practice completed one survey, which represented their collective opinion of the service. In total, 96.6% of practices scored between 8–10 on satisfaction in regards to the services available. On a scale of 0–3, (0=no; 3=yes), 100% of practices reported they would continue to use the services provided.

Diabetes-related hospital admissions

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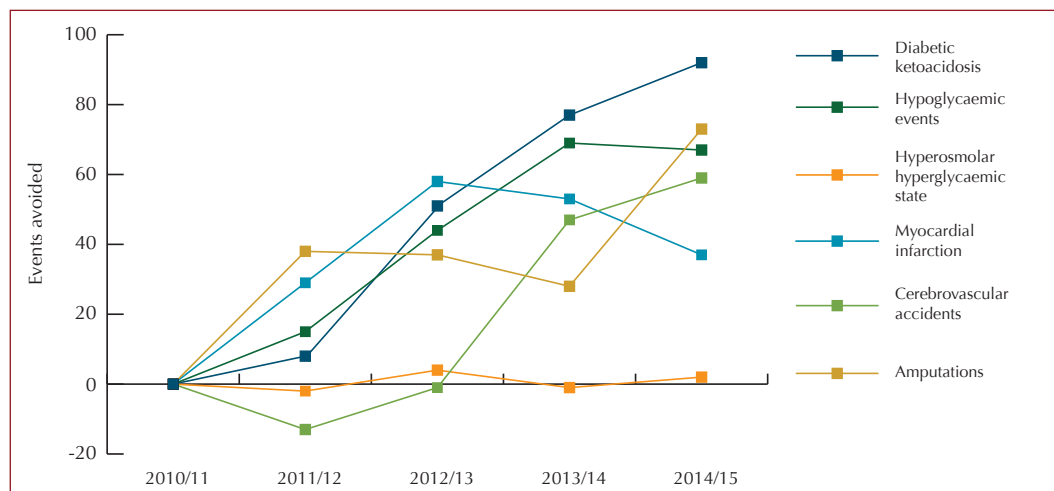


Figure 1. The estimated number of events avoided each year following the implementation of the Super Six model in 2010.

Page points

1. It is estimated that the Super Six model has reduced the rate of diabetes-related hospital admissions and macrovascular events from its implementation in 2010/11 to 2014/15.
2. The estimated cost savings associated with the introduction of the Super Six model are approximately £1.9 million.
3. The Super Six model has allowed the specialist team to deliver timely, high-quality care in areas where their expertise is better suited within acute trusts.

prevalence of diabetes, alongside a surge in hospital admissions from approximately 12 000 to 17 000 a year, analysis has demonstrated that over 5 years, there has been a 29.5% decrease in the rate of admissions from DKA, a 42% decrease in the rate of admissions from hypoglycaemic events and a 30% decrease in the rate of HHS admissions.

Vascular events

Comparing the projected event rate of 2014/15 with the observed rate for 2014/15, it is estimated that the Super Six model has reduced the rate of myocardial infarctions by 22%, the rate of CVAs by 22% and reduced the rate of major amputations by 39%.

Health economics

To calculate the potential health care cost saving of the Super Six model to the NHS in terms of hospital admissions and vascular events, the average cost of an event was multiplied by the estimated number of events avoided for 2014/15. Based on this calculation, it is estimated that in events avoided in 2014/15, £82 800 was saved by treating fewer DKA admissions, £25 551 has been saved treating fewer hypoglycaemic events, £686 789 was saved treating fewer myocardial infarctions, £246 292 was saved treating fewer CVAs, and £887 886 was saved from avoided amputations equating to a total of approximately £1.9 million (*Table 2*). The cost saving for HHS was not calculated due to the small number of avoided events.

Inpatient and outpatient parameters

The National Diabetes Inpatient Audit (NaDIA) reports that for our area, there was a sustained increase in visits by the specialist diabetes team to inpatients with diabetes (from 32.9% to 60.27%), and an increase in those reviewed by the multi-disciplinary foot team within 24 hours of admission with a diabetic foot complaint (NHS Digital, 2014). These figures were above the NaDIA median for those years.

Auditing outcomes from the local multi-disciplinary foot clinics (MDFCs) has shown an increase in individuals seen in the MDFCs pre-amputation from 13% to 44% (Meeking et al, 2015). We have also reduced the “did not attend” rates of young people with type 1 diabetes from 40–50% to 10–15%.

Other benefits

The Super Six model has allowed the specialist team to deliver timely, high-quality care in areas where their expertise is better suited within acute trusts, such as concentrating on supporting individuals who fall into the Super Six remit and providing a 7-day diabetes service. There have been improvements to the care of young people with type 1 diabetes, with sessions on alcohol and drugs delivered in university campuses. In addition, “patient engagement events” have been held (attended by the local team and commissioners), to allow young people with diabetes to meet and engage both with their medical team and with peers.

Innovations to improve inpatient foot care are being developed, including an ongoing joint vascular and diabetes inpatient audit investigating the development of diabetic foot disease and the possibilities for earlier intervention. An inpatient podiatrist has also been recently appointed.

The “Hypoglycaemia Hotline” continues to be in service and has been a major contributing factor in reducing admissions secondary to hypoglycaemic events. When people with diabetes require paramedic assistance for hypoglycaemia, the diabetes specialist team is informed by the paramedic, allowing direct follow-up by the specialist team (by telephone initially) within one working day (Buchanan et al, 2014).

Table 2. Estimated cost savings for 2014/15 as a result of the Super Six model.

Event	Cost of event (£)	Estimated events saved in 2014/15	Total costs saved in 2014/15 (£)
Diabetic ketoacidosis admissions	900	92	82 800
Hypoglycaemic event admissions	380	67	25 551
Myocardial infarction	10 631	65	685 789
Cardiovascular accidents	4 170	59	246 292
Amputations	12 245	73	887 886
Total			1 929 318

We are also currently piloting diabetes clinics at peripheral renal dialysis sites to further reach vulnerable patient groups. Liaison with allied specialities has also led to opportunities for collaborative research projects, such as the use of blood glucose monitoring and data collection in people on dialysis.

Learning points

The last 5 years have been a continued learning experience for all the healthcare professionals delivering diabetes care in our area. Redesigning a service is not without challenges, but we continue to learn how to improve and make change. Change, especially in regard to outcome measures, takes time. Change starts with an idea and requires planning and development, which need to be factored in during contract negotiations with commissioners. In a chronic condition, it is feasible and useful to set targets that are achievable with good care.

Discharge from an outpatient clinic is a key marker analysed during commissioning, and it is used to gauge performance. In a new system, such as the Super Six model, it is imperative that discharge to primary care is executed in a staggered manner and implemented with adequate educational support for primary care.

Our particular achievements, with regard to the Super Six model, have relied on the strong relationships that have been built across primary and secondary care. We've found the over-arching lesson has been that all clinicians involved need to show respect for each other's area of expertise. No individual can work in isolation; we all need to work together to deliver good-quality care. The relationship between all stakeholders will determine the success of the change process and everyone, including patients, should be involved. Without patients and primary care clinicians on board, the likelihood of achieving and maintaining a successful change becomes very difficult (Goulder and Kar, 2013).

We also learnt that case-holding within intermediate care risks these tiers being overburdened by high patient numbers, thereby preventing the specialist team from providing education and support for primary care practitioners. The Super Six model, in

contrast, avoids providing an intermediate tier and works as a support structure across primary and specialist care. The principle of ensuring the patient is seen at the right time, in the right place, by the right person is the cornerstone of the model.

On reflection, it is clear to see that the basis for success has been in redefining the role of the consultant to that of a specialist who is also capable as an educator to provide a support framework for primary care. Success has also hinged on specialists bravely embracing the concept of not having a face-to-face consultation with each patient, but supporting the concept of care being delivered, for the most part, in the community setting by non-specialists skilled in routine diabetes care who recognise when specialist involvement is required.

One of the key successes has been having the same specialist team involved in both the acute and community teams. We have reached a point where the consultant team has become the bridge across the three different providers of care in our area, providing a seamless link for the community and primary care teams to work across. This has avoided both the creation of silos and conflict between different providers. It has also given the opportunity for the acute nursing team to concentrate on delivering optimal care in the Super Six areas, while the community nursing team has concentrated on education and support for primary care.

Summary

The Super Six model of care has been recognised in The King's Fund document "Specialists in out-of-hospital settings 2015" (Robertson et al, 2014) and by Diabetes UK (2014) as an example of integration of diabetes care with the community, along with examples in Gateshead and Leicester. *Box 3* includes some of the other achievements and awards in recognition of the Super Six model.

In an era where technology and new therapeutics steal the headlines, it is easy to forget the importance of the fundamentals of diabetes care – good communication and good education. The restructuring of our services, while not always perfect or easy, has led to

Page points

1. The reported achievements of the Super Six model have relied on the strong relationships that have been built across primary and secondary care.
2. On reflection, the basis for success in Portsmouth has been in redefining the role of the consultant to that of a specialist who is also capable as an educator to provide a support framework for primary care.
3. In an era where technology and new therapeutics steal the headlines, it is easy to forget the importance of the fundamentals of diabetes care – good communication and good education.

Box 3. Awards in recognition of the Super Six model of diabetes care.

- Shortlisted for the *British Medical Journal* Awards 2015 (Clinical Leadership Team of the Year)
- Highly commended for the HSJ Awards 2014 in acute sector innovation
- Runner up for the *Guardian* Healthcare Innovations Awards 2013
- Shortlisted for the *Nursing Times* Award 2013 (Young Person Services)
- Winner of Care Integration Awards 2012
- Quality in Care Award 2012: Best Network Initiative
- Quality in Care Award 2012: Best Innovative Commissioning Initiative
- Quality in Care Award 2011: NHS Diabetes Team of the Year (silver award)
- Winner of the Healthcare and Social Awards 2010

improvements in patient and practitioner satisfaction, HbA_{1c} (Tier and Hall, 2015) and long-term complications. This has been achieved without major uplift in resources and has resulted in cost savings, both in real-time by reducing follow-up appointments and hospital bed days, and long-term by optimising the health of our community.

When reading about our re-development, this evolution of care should not be considered diabetes-specific. The process of prioritising specific areas of care of a chronic condition for specialist review and empowering primary care to lead its management across the community for the majority of patients could be applied to any condition where patient contact could be feasibly set in primary care.

We are indebted to our colleagues across the spectrum of healthcare providers for the support they have offered during this process, and while we continue to evolve, we hope to act as an example to others demonstrating that change for the best is possible if all are willing to work towards the shared goal. ■

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