The Hypoglycaemia Hotline: A pathway initiative implemented in Portsmouth

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Article points

1. A new pathway, based on a "Hypoglycaemia Hotline", has been implemented by the Portsmouth diabetes team as part of the Super Six diabetes project.
2. The "Hypoglycaemia Hotline", involves paramedics informing the specialist diabetes team of any 999 calls made that report hypoglycaemia, with appropriate follow-up then being carried out.
3. This is part of a three-pronged approach to addressing hypoglycaemia and associated admissions.

Key words

– Ambulance service
– Hypoglycaemia Hotline

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This article reports on a new pathway implemented by the Portsmouth diabetes team – through joint working with the local ambulance trust, local GP commissioners and the acute trust – as part of the Super Six diabetes project. A three-pronged approach was taken, with a key prong being the implementation of a "Hypoglycaemia Hotline". In this pathway, paramedics inform the specialist diabetes team of any 999 calls made that report hypoglycaemia, and appropriate and swift follow-up is then carried out. The authors' experiences are reported here.

Hypoglycaemia is now recognised to be a significant contributor to emergency admissions as well as having a major impact on clinical wellbeing, overall diabetes control and regimen concordance. Hypoglycaemia is the most common diabetes-related cause of paramedics being called out, and it is associated with increased morbidity and mortality (Brackenridge et al, 2006). Within the UK, the ambulance service manages around 90 000 call-outs per year for hypoglycaemia (Sampson et al, 2006). In 2009–10, ambulance call-outs cost the NHS £13 million based on a unit cost applied to the estimated number of cases of severe hypoglycaemia requiring emergency attendance (National Audit Office, 2012).

In November 2011, the "Super Six" model of care was introduced, integrating acute and community diabetes care across South East Hampshire (Kar, 2013). As part of this project, the diabetes team at the Diabetes and Endocrine Centre, Portsmouth Hospitals NHS Trust, had the opportunity to concentrate its specialist resources on specific areas, including inpatient diabetes. Analysis of admission data showed significant admissions to be of a recurrent nature, whether secondary to diabetic ketoacidosis or as a result of severe hypoglycaemia. There was also the need for the trust to meet Commissioning for Quality and Innovation (CQUIN) targets as regards overall acute admissions (NHS Institute for Innovation and Improvement, 2013), thus making this area one to target, to help reduce admissions.

Admissions as a result of diabetic ketoacidosis occur predominantly in young people with type 1 diabetes. The Portsmouth Hospitals NHS Trust aimed to tackle this by re-shaping and developing the adolescent diabetes team; admissions as a result of severe hypoglycaemia were tackled in a multi-pronged approach, as detailed below.

Identifying the areas to target

The analysis of admissions (unpublished data) revealed that a significant number were driven by inappropriate application of Quality of Framework (QOF) targets to, for instance, elderly and frail individuals. There also seemed to be a trend in which some individuals had recurrent admissions without receiving appropriate medication adjustment or advice, something which might have prevented it.

There also appeared to be two distinct categories of paramedic call-outs to people with diabetes experiencing hypoglycaemia: those for individuals who needed admitting to hospital; and those where the individual was treated by the paramedics and was able to remain at home. A striking finding was the lack of data transfer from the local

ambulance crew to primary care clinicians or hospital specialists in cases where individuals were treated for severe hypoglycaemia based on a 999 call but were not admitted, thus not giving either primary or secondary care the opportunity to review the person with diabetes accordingly. Consequently, any pathway development needed to ensure patient information was passed on and acted upon where necessary.

Overall objectives

The main objectives of the projects were:

- To target people who were admitted with hypoglycaemic episodes, ensuring that they were being discharged with appropriate advice and also trying to ensure that they did not have a repeat admission.
- To enable education levels in primary care to be raised, in order to enable hypoglycaemic episodes to be avoided where possible.
- To make sure that paramedics could safely flag all people with diabetes experiencing hypoglycaemia to the specialist team, who could then work with the individual, the community team and the GP surgery to prevent a recurrence if possible, with education being the cornerstone.
- To continue to improve on the existing relationships shared between all teams involved in diabetes care in the locality.

Implementation

For implementing a solution, the decision was taken to build on the Super Six diabetes model, which already ensured that a consultant and diabetes specialist nurse (DSN) were visiting each GP surgery locally twice a year. This local community care model thus gave the potential for consultants and DSNs to approach each GP practice and specifically target the area of hypoglycaemia.

A key aspect of the solution was establishing a new pathway, built around the idea of a "Hypoglycaemia Hotline, which was introduced in January 2013. This involves the paramedics letting the secondary care diabetes team know via telephone of any 999 calls made in which hypoglycaemia is reported. For individuals not admitted to hospital, the DSN team then contacts the person highlighted by the paramedic service within 24 hours of the emergency phone call to check on his or her well-being. If any adjustments to the individual's medication regimen are required, this is then communicated to his or her GP, as well as to the community team if necessary (a flowchart for the pathway is provided in *Figure 1* and supplementary details are presented in *Box 1*).

Box 1. The Hypoglycaemia Hotline: supplementary details on the process.

- Handover information from the paramedic staff to the secondary care diabetes team includes:
  - Demographics
  - Blood glucose data
  - Treatment required
  - If admission was required or not
- Paramedics make this call while the person with diabetes is present; this allows for consent to be given at the time of the call
- Within 24 hours (except at weekends), a telephone response is given to the person with diabetes from the diabetes specialist nurse (DSN); each day from Monday to Friday, a DSN is responsible for answering these calls
- If the individual remains at home, the DSN will discuss possible causes of the hypoglycaemic episode and any treatment change or education required (with the GP notified as appropriate)
- Driving regulations are discussed and a letter is sent out discussing hypoglycaemic episodes and driving risks, including instructions for informing the Driver and Vehicle Licensing Agency
- If the individual is already a patient in secondary care, a follow-up appointment may be required and made when appropriate; if further input is required and the individual is not in secondary care, a letter is written to the primary care and community teams
- If there has been an additional 999 call-out for the individual in the preceding 3 months relating to a hypo, a letter is always sent to highlight the issue to the GP

Page points

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3. If any adjustments to the individual's medication regimen are required, this is then communicated to his or her GP, as well as to the community team if necessary.

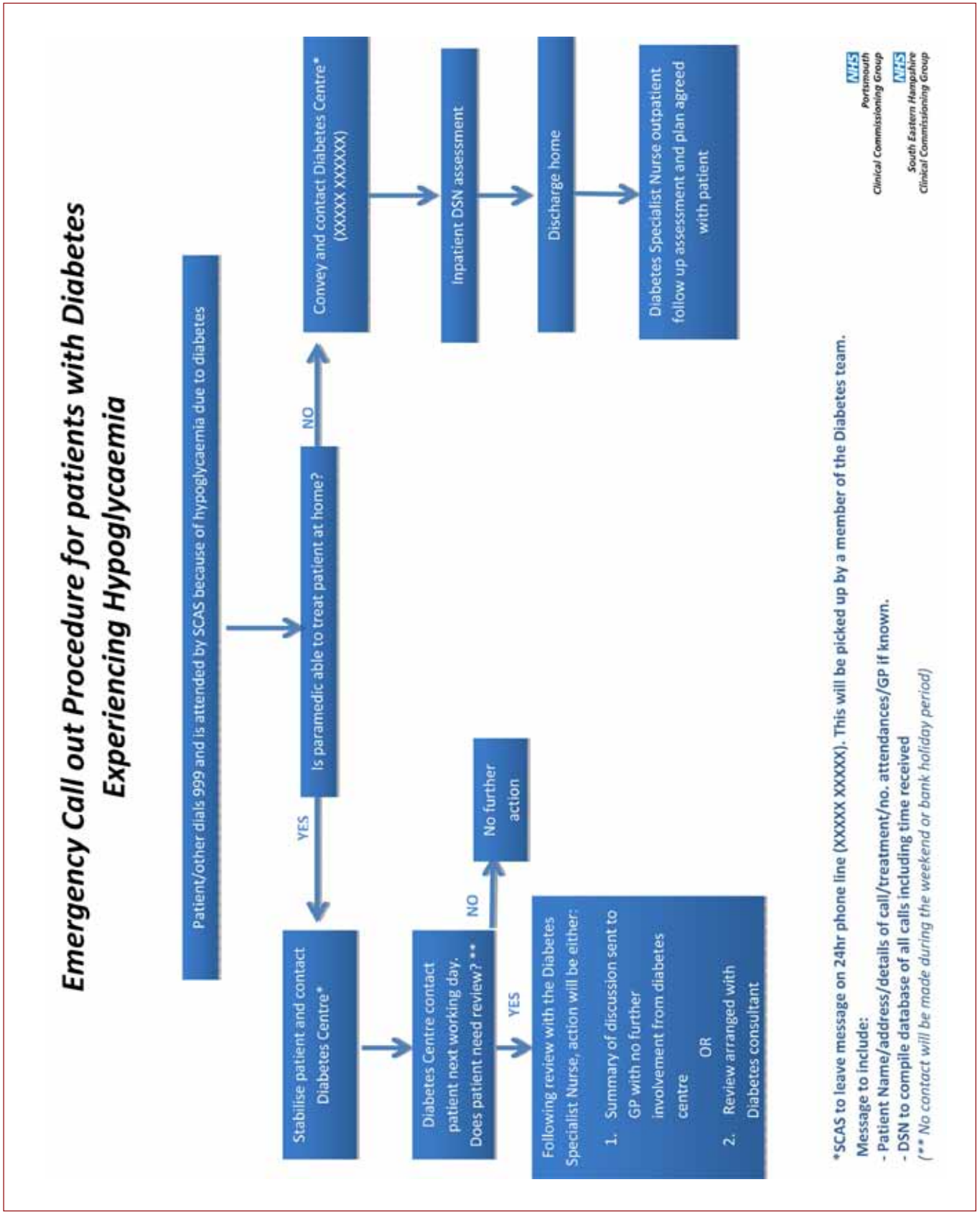

Figure 1. Flowchart of the Hypoglycaemia Hotline pathway implemented with South Central Ambulance Services (SCAS; reproduced with permission).

The pathway was developed in joint working with the local ambulance trust (South Central Ambulance Services), local GP commissioners (in South East Hampshire and Portsmouth Clinical Commissioning Group) and the acute trust (Portsmouth Hospitals NHS Trust).

Besides the new pathway, educational sessions were also set up, directed at residential and nursing homes to highlight the importance of diabetes control and relevance of hypoglycaemic events for emergency admission.

Education has also been directed at each individual GP surgery, using the Super Six model. The education highlights medications, such as sulphonylureas, that can be reviewed, and has enabled discussions to take place on, among other things: the impact of renal failure on blood glucose levels; the appropriate use of insulin (e.g. exploring analogue insulin and nocturnal hypoglycaemic episodes); and the relevance of QOF targets (especially for elderly and frail people).

Finally, the inpatient diabetes team now gives supplementary advice to any patients admitted with hypoglycaemia before discharge from hospital.

The three-pronged approach is summarised in *Box 2*.

Box 2. The three-pronged approach put in place at Portsmouth Hospitals NHS Trust of which the new pathway is one part.

- Pathway for paramedics to highlight all patients having hypoglycaemic episodes
- Education directed at:
  - Each individual GP surgery, using the Super Six model
  - Residential and nursing homes, using local education portfolios
- Inpatient diabetes team to give specific advice on any patients admitted with hypoglycaemia before discharge from hospital

Data and feedback

Data on this new initiative were collected between January and September 2013 (the project continues). These are presented in *Box 3*. The admission rates due to severe hypoglycaemia have been measured since November 2010 in preliminary analyses, and a marked drop in admissions secondary to hypoglycaemic events has been noted since the Super Six model of care was launched, in conjunction with the other initiatives such as the one described in this article.

Feedback on the Hypoglycaemia Hotline from people with diabetes has been positive. In particular, the education and reassurance provided to them through this service has led to high satisfaction. People with diabetes now feel more confident in managing their hypoglycaemia, having spoken to a specialist. Feedback from paramedic staff has been similarly positive, and South Central

Box 3. Data from the use of the pathway.

- Over the 9-month period between January and September 2013, there were 130 people for whom hypoglycaemia was noted by the paramedics during a call-out but who were not admitted to hospital (during the same period there were 84 people admitted with a primary diagnosis code of hypoglycaemia)

- Among the 130 individuals identified, a call was made by the diabetes specialist nurse (DSN) team with 100% of them within 1 working day (no individuals verbally declined consent for this call)
- The mean time spent with each individual on the telephone during the call was 8 minutes
- The outcomes of the calls were as follows:
  - Advice given for monitoring for hypoglycaemia at times of high risk – 28%
  - Advice given on managing hypoglycaemic episodes – 30%
  - Medication change required – 20%
  - Letter sent to individual's GP – 38%
  - Required outpatient appointment in secondary care – 9%
  - Visit required by DSN in the community – 6%

- Approximately one-quarter of the 130 individuals were already receiving care within the secondary care service

- Among the 130 individuals, 14 had called paramedics out on more than one occasion (10.8%)
- Six (42.9%) of these 14 individuals were still driving – since May, all people encountered in the pathway who drive have been sent a driving and hypoglycaemia leaflet as well as a letter

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Ambulance Service has noticed a reduction in paramedic calls for hypoglycaemia.

Discussion

The project was not undertaken in isolation, but was one which developed following the overlap from the different projects already being undertaken by the Portsmouth diabetes team. Work in the inpatient setting illustrated the issues within the acute trust while community-based working helped to highlight the issues within primary care. A combined view revealed the poor nature of information flow between paramedics and primary care.

It should be acknowledged that there are examples from other parts of the country where a part of the overall project that we have embarked on has already been employed, such as having a pathway for paramedic contact to the specialist team (in Hull and Leicester). However, we have used a three-pronged approach to tackle a broad range of areas with the intention not only to make sure that people with diabetes who do experience hypoglycaemic episodes receive the best care possible, but also to ensure that there is an overarching primary aim of preventing such episodes, as far as possible.

We are not aware of any models of this nature for which significant improvements in outcomes have been shown, but our preliminary data, encouragingly, are suggesting that a wide-ranging approach might well be able to deliver these. Due acknowledgement is paid to the centres that have helped us to embark on this project.

We feel that our general success is attributable, in large part, to a simple initiative that has put the well-being of the person with diabetes into sharp focus, applying clinical reasoning rather than blind pursuance of guidelines and targets above all. The pre-existing strong working relationship between local clinicians and commissioners, which have been instrumental in the development of the Super Six model, have undoubtedly helped in designing, developing and implementing this new pathway. A strong overall will to help in the process of patient care has also been noticeable and has emphasised the importance of having relationships between primary and specialist care that are unimpeded by artificial boundaries that could result in a hindrance of the well-being of people with diabetes.

This pathway has also resulted in four trusts (namely, Portsmouth Hospitals NHS Trust, Southern Health NHS Foundation Trust, Solent NHS Trust and South Central Ambulance Service NHS Foundation Trust), along with 79 GP surgeries, working together to a single goal.

Concluding remarks

As a diabetes centre, we are fortunate to have such an eclectic mixture of professionals and managers within the same system who have come together for the betterment of patient pathways. We feel such pathway improvements can be replicated in other areas but that this hinges, most significantly, on relations between commissioners and providers, along with the willingness to work across multiple providers. ■

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Awards for the Hypoglycaemia Hotline

- Runners-up: The Guardian Healthcare Innovation Awards 2013 (innovation in hospital admissions)
- Shortlisted: HSJ Awards 2013 (acute sector category)
- Shortlisted: Quality in Care Awards 2013 – Diabetes (best admissions avoidance initiative)