

How to set up and run a nurse led diabetes clinic in a resource poor country: Focus on South Sudan

Liz Whittingstall

St Mary's Hospital, Isle of Wight, UK

Correspondence to: Liz Whittingstall liz.whittingstall@iow.nhs.uk

Introduction

Although this paper draws on the author's experience of a NLDC in the UK, the generic ideas in the process of developing a NLDC in a developing country are similar. The author has not been to South Sudan but has had discussions with Dr Hakim whose knowledge of South Sudan has helped to inform the writing of this paper.

Background

Diabetes Mellitus (DM) affects approximately 415 million people worldwide and by 2040 it is estimated that over 642 million people will have DM [1]. In the UK there are approximately 3.5 million people who have DM and it is suggested that a further 500,000 people have DM but are unaware of it [2], giving an estimated prevalence of approximately 6.2%. Obesity is a major risk factor for developing DM and in 2015 a quarter of adults (aged over 16 years of age) in England were classed as obese (BMI >30kg/m²). In South Sudan the DM estimated prevalence is approximately 10%, and 7.5% are classed as obese [3]. This spiraling level of obesity is therefore likely to increase the prevalence of people developing type 2 DM even further.

DM is a long term condition which can have a huge impact on health and, if not controlled, increases the risk of complications. These include cerebrovascular accident, myocardial infarction, nephropathy, diabetic retinopathy, lower limb amputations and dementia [4]. People with DM, between the ages of 20 and 79 years, account for 14.5% of all global deaths [5].

Developing diabetes specific clinics can help people to manage their condition and reduce the risks of developing complications. A nurse led diabetes clinic (NLDC) can be a cost effective and efficient way to improve patient outcomes [6].

How to establish a NLDC

Initially a business case needs to be developed to fund the service. Then the following are needed:

- Suitable building.
- Utilities such as water and electricity.
- A record system to document care (ideally computerised). This is vital especially if a different nurse is going to see the patient in the future.

- Suitable insurance if not provided by the healthcare provider.

Approximately three rooms with a waiting room, and toilets and hand washing facilities are needed – if several nurses are running the clinic more rooms are needed so that each has a private consultation room. The service would need to be advertised so that patients and healthcare professionals are aware that it is available.

Workforce

Ideally this should include an administrator who can arrange appointments and liaise with the hospital in relation to results and records, etc.

A healthcare assistant can help to prepare the patient, and allow the nurse to have more consultation time by:

- Measuring blood pressure (BP), heart rate, heights and weights (for calculating body mass index).
- taking bloods, and
- Using urinalysis machines and a blood glucose meter.

Qualified nurses with further training in DM are essential so they can offer the support and jointly develop management plans. They need to understand the differences between type 1 and type 2 diabetes and know how to care for people in certain circumstances such as pregnancy. Many specialist nurses in the UK prescribe treatment for diabetes, BP, lipids, etc. so these can be started quickly. If this is not feasible it may be possible to run the NLDC at the same time as a doctor's clinic so that the doctor can prescribe immediately. This can save the need for another appointment and prevents delays in starting treatment. It is important to have reasonable time slots so that nurses can offer an in-depth service and sufficient education so that there is a maximum level of self-management. This helps to prevent admissions for diabetes emergencies such as Diabetic Ketoacidosis (DKA) and reduces the risk of complications.

Equipment needed in the clinic

One of the main components of diabetes care is the general assessment of health and the screening for complications, so it is imperative to have the equipment to do this. It is important to assess BP, lipids, smoking status and glycaemic control and not just "sugar". Control

of these factors helps to prevent complications especially cardiovascular disease (CVD). The equipment required is:

- Scales and height measure to measure weight and height so that body mass index can be calculated.
- Sphygmomanometer and stethoscope to assess good BP control for the prevention of CVD and nephropathy. Heart rate should be assessed.
- Urinalysis equipment, including urine pots for the patients, to test for: glucose, ketones and urinary tract infections (UTI). This aids the initial diagnosis of diabetes; assessment of UTI indicates how well the diabetes is being controlled. Urinalysis equipment is also necessary to test for Microalbuminuria and so to assess the possible development of nephropathy.
- A blood glucose meter to measure blood glucose. This is only helpful in the short term to identify blood glucose level at the time of the test – for example to identify hypoglycaemia. Ideally blood glucose meters should be available to people with diabetes, especially if they are on insulin or a sulphonylurea. This allows them to self-manage their DM by being able to adjust medication and lifestyle factors. However, these may not be available. Even if they are, the strips and lancets may not be, or may be very expensive as with insulin which can be marked up from suppliers [7].
- Sharps boxes for the safe disposal of sharps equipment.
- Insulin fridges for the safe storage of insulin if feasible.

Assessment needed

Equipment to take blood, analyse and report the results must be available for the consultation between nurse and patient. The following tests should be included (table 1).

Other blood tests should also be considered periodically. For example, Vitamin B12 and serum folate levels in people who have been on Metformin, and screening for other autoimmune conditions for people with type 1 diabetes such as coeliac screen and pernicious anaemia.

Assessment of complications should also take place by a qualified person [8] including a minimum assessment of eyes by checking visual acuity with a Snellen chart at twenty feet distance. Ideally eye drops should be administered to dilate the pupils so that the back of the eyes can be examined with an ophthalmoscope to screen for retinopathy.

The lower limbs should be examined and the feet checked with a 10g monofilament to assess the nerve

Table 1. Tests for DM assessment

HbA1c (glycosylated haemoglobin)	To assess the overall diabetes control
U&E (urea & electrolytes)	To review kidney function -needed to review complications and possible side effects of medication and any adjustments needed.
LFT (liver function tests)	To assess any effects of medications or to identify other problems such as other conditions or the effect of alcohol use.
TFT (thyroid function tests)	To routinely check for autoimmune thyroid conditions especially in people with type 1 diabetes as they will be more prone to developing other autoimmune conditions.
Lipids	To assess the cholesterol levels and breakdown of the cholesterol such as Total cholesterol, LDL, Triglycerides, HDL and non HDL levels. This is so that the lipids can be treated if they are high and so help reduce the risk of CVD
FBC (full blood count)	To screen for any conditions such as anaemias and how these will affect the HbA1c results and also possible complications as the cause such as nephropathy.

endings for neuropathy. The pulses should be checked to assess the circulation including checking the dorsal is pedis and posterior tibial pedal pulses if the nurse has been trained.

The findings, treatment and information given must be documented so that they can continue to be reviewed, to assess what treatment has worked and what information has been delivered. This will give anyone seeing the patient at follow up, the knowledge of what has already been delivered or tried. The results of the consultation and care planning will dictate how frequently the person should be followed up. For instance in the author’s area of practice, someone with well controlled type 2 DM, may be followed up every 6 months. However a pregnant woman is followed up twice a month. An average follow up for an individual who is not pregnant can be between 3-6 months.

The results can also be used for audit especially if there are any results available prior to setting up the service. This can assess the effectiveness of the service and patient satisfaction. Even if the data collected only covers prevention of DKA or hypoglycaemia, it can show the effectiveness of the service. However a word of caution. If the data are not being collected currently then initially

it will appear that there is an increase in complications or problems when in actual fact there is no increase but just an improvement in documentation and recording.

Equipment for the management of diabetes

The equipment needed includes

- Blood glucose meters for patients' home monitoring if available.
- Insulin administration equipment such as insulin syringes.
- Possibly a small stock of insulin so that this can be started when the person is first seen. However this may not be feasible if the insulin cannot be securely stored in insulin fridges. It may be possible for the clinic to establish links with the International Diabetes Federation who can help to supply insulin and essential equipment to children with DM.
- Hypoglycaemic treatments in case an individual has a hypoglycaemic episode.

Education materials

Education is an essential element of diabetes management and is needed at every step.

Areas which should be covered over time should include:

- What diabetes is.
- Healthy eating including carbohydrate counting if appropriate.
- Attaining and maintaining a healthy weight.
- Exercise.
- Access to medication and equipment.
- Sharps disposal.
- Timing of medication and how they work.
- How insulin works and what would happen if it was stopped.
- Injections, including sites, technique, dose adjustments.
- Prevention and management of hypoglycaemia.
- Sick day rules and prevention of DKA.
- Pregnancy.
- Smoking cessation.
- Alcohol consumption and keeping safe when drinking alcohol.
- Living with diabetes.
- Complications.

The education could be delivered verbally on a one-to-one basis or as a group education session. However, it is usually helpful to give leaflets or supportive material so that the person can refer to it later. Depending on the person's ability and resources, information can be in pictorial or written form; it could be as hard copy or electronic, especially via mobile phones and applications which are now available. It could be in the form of a care plan. –see examples at www.diabetes.org.uk.

Referral

As with any practitioner the nurse should be aware of her/his limitations and so be able to refer to a specialist or other services as needed. This could include:

- Consultant.
- Dietician.
- Podiatrist.
- Eye specialist.
- Smoking cessation service.
- Education sessions.
- Psychologist.
- Other services e.g. maternity.

Conclusion

This article suggests what is needed to set up a NLDC. The list is not exhaustive and requirements may change over time. However it has tried to include everything which ideally is needed, and thus may be something of a "gold standard"; only elements may be feasible. South Sudan and other low-resource areas need to assess what can realistically be achieved.

References

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