Diabetes Network News

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Dear Readers,

Welcome to the June Edition of Diabetes Network News. In this edition the health professionals from the Mid North report on the work they are doing. There is also a feature article from the South East and Eyre Peninsula outlining their models for paediatric care.

Recently we have received questions about assessing fitness to drive and who is required to sign off the medical form. Put simple, any person with diabetes who is on any oral hypoglycaemic agent or insulin and has a commercial licence will need a specialist or endocrinologist to sign the assessment to drive. Details about frequency and requirements for private vehicle drivers has been included in this issue.

Also included in this issue are the updated foot care factsheets. We have designed two to enable educators to better individualise their education based on the persons risk profile. In this issue you will find 2 fact sheets. Foot care for high risk feet and foot care for low risk feet. Any feedback is welcomed.

Jane Giles, Manager - Education

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Diabetes Outreach

Diabetes Outreach is a program of Country Health SA co-located with The Queen Elizabeth Hospital Diabetes Centre. The service provides continuing education and support programs for health care providers and assistance with service planning.

Diabetes Outreach

> Provides training and support for rural and remote health professionals.
> Contributes to local and regional networks.
> Promotes evidence based standards of care.
> Facilitates access to information about quality assurance and documentation.
> Facilitates access to information about population health needs.

We offer:

> Education resources for health professionals and people with diabetes.
> Education programs conducted in rural and remote areas
> Distance education programs.
> Peer support.

The vision of Diabetes Outreach is:

Better health for rural and remote South Australians by supporting health service providers towards best practice in diabetes care.

The Diabetes Outreach team is located at 8 Woodville Rd, Woodville SA 5001. Visit our website www.diabetesoutreach.org.au for access to and information about education programs and free resources for both people with diabetes and health professionals.

L-R: Cathy Gilbert, Dr. Pat Phillips, Jane Giles, Kate Visentin, Sharee Westlake

Mid North Health Cluster Network

Di Barrie, Orroroo Hospital

Liz Bishop, Booleroo Centre Hospital

Letitia Rattley, Peterborough Hospital (Relieving Diabetes Educator)

Emma Zanker, Jamestown Hospital

Genevieve Moore, Crystal Brook Hospital

Donna Pech, Laura Hospital

Riannon Bottrell, Port Pirie Regional Health Service

Robyn Paparella, Port Pirie Regional Health Service

The Mid North Diabetes Educators Network meets every three months. The network consists of diabetes educators from the Mid North Health cluster (Crystal Brook, Port Pirie, Laura, Booleroo Centre, Orroroo, Peterborough and Jamestown). Meeting venues alternate around the various hospital sites, and chairing and minute taking duties are shared between the members.

At each meeting we discuss local barriers and enablers to diabetes education in our region, and support each other in maintaining our practice and knowledge.

We endeavour to have a guest speaker at most meetings, and if Diabetes Outreach staff is unable to be present we try to organise a teleconference or video conference link.

It has been through these meetings that we have achieved some valuable resources which have aided our practice and some have been taken up in other areas.

1. Online competencies for staff education:

All diabetes educators in our cluster conduct health service staff training and mandatory diabetes and blood glucose monitoring competencies. It was recognised that having a pool of questions which we could each use would save a lot of reinventing the wheel, and eventually we had several sets of questions we could use.

We were keen to include the diabetes competencies into the Turrell On Line website to compliment the other mandatory competencies. At this stage we needed to get some professional support to further the project, and Jane Giles and Kate Visentin from Diabetes Outreach were asked to follow up and look at how to move the project to the next stage. The resource is now being used online across the state (refer to page 14 for full article).

2. Hypoglycaemia Management Flow Chart:

This project originated when we were able to access a metropolitan flow chart, but found that much of the information was inappropriate for small rural hospitals. In the process of adjusting the information to suit our units, the Rural and Remote Emergency Guidelines were released, and further adjustments were made to accommodate these. The latest version has been passed by the Clinical Managers, and is used in all of the smaller rural health services in the cluster.

3. 'Driving and Diabetes' Brochure:

The Diabetes Educators Network devised and produced a brochure in 2004 on the responsibilities of community members with diabetes and driving. This is an important issue in rural areas where many men drove trucks and heavy equipment as part of their employment. This brochure was due for review, and the group has asked Diabetes Outreach to do this on our behalf due to the intricacies of the legal implications.

Diabetes Educators: (Back Row) Riannon Bottrall (Port Pirie), Donna Pech (Laura), Emma Zanker (Jamestown), Genevieve Moore (Crystal Brook), (Front Row) Di Barrie (Orroroo), Liz Bishop (Booleroo Centre), Letitia Rattley (Peterborough)

Booleroo Centre and Orroroo Health Units

Liz Bishop, Diabetes Educator, Booleroo Centre Rural Health Team.

Di Barrie, Health Promotion Officer / Diabetes Educator, Orroroo Rural Health Team.

Di Barrie and I both work under the Diabetes Educator positions for the Rural Health Team. This is a Commonwealth Funded Regional Health Services Program based over the 4 sites of Booleroo, Orroroo, Jamestown, & Peterborough. Because of this we have the opportunity to work closely together with various programs around the region.

Some of these programs are:

> **Go 4 Green** is a food labeling system in IGA supermarkets. Between us we continue to monitor 4 stores for accuracy of the labels.

> We produce a **Quarterly Diabetes Newsletter** which is posted out to all of our clients with diabetes , and contains information on diabetes management. It has a local focus, and between Booleroo and Orroroo there are 210 newsletters being distributed each quarter. This is evaluated bi – annually and continues to be received very well by the community.

> We planned two days of **Diabetes Information Sessions** at the end of last year, with our key note guest speakers being Dr Pat Phillips and Jane Giles from Diabetes Outreach. Due to catastrophic weather conditions at the last minute, attendances were down but it was still a very successful and busy two days. We held 2 community sessions, 2 staff sessions at Booleroo and Peterborough and the Division of General Practitioners hosted a General Practitioner and Allied Health dinner meeting in Melrose to coincide with this.

> Last year we both ran the very successful **Be Active Wise Moves'** program, which is a 12 week women's health and wellbeing program in Booleroo and Orroroo. Some participants from both of the groups are still continuing to meet each week. We are both planning to run a further program this year.

Orroroo Area School Reception Students Healthy Eating Program 2009

> We continue to work closely with our local schools (5 in total) running **Healthy Eating Programs** with Reception – Year 7 levels. This is extended in Booleroo and Jamestown where Liz Bishop is involved with 'Flying Solo' for the year 11 – 12 classes.

> We have a great working relationship with the dietitians in Pt Pirie, collaborating with cooking classes, supermarket tours and community information sessions.

> Booleroo has a 'Special Interest Group' meeting once a month for various activities and group education. In the last couple years they have joined in with the Orroroo 'Buzz Group' (Special Interest Group) a couple times each year and pool resources to make better use of available guest speakers. This incentive has increased attendances of both groups and created some new friendships amongst the members.

> As part of the Rural Health Team, Liz is involved with a couple of other team members in setting up a **Community Garden** in Peterborough. This now has a very keen steering committee of local community members driving this venture and ground forces have started work.

> The **Orroroo Community Gym** is still attracting a large number of community members for circuits and exercise programs specifically for older community members with chronic diseases.

> Professional development has included the National ADEA Conference, weekend workshops and Refresher Days.

Booleroo Centre Wisemoves Group 2009

Some of the gentlemen enjoying their afternoon tea after a combined Booleroo / Orroroo group session.

Port Pirie Regional Health Service

Robyn Paparella, RN CDE Co-ordinator

The Diabetes Team at Pt Pirie Regional Health Services Inc. (CAHS division) consists of two Diabetes Nurse Educators, Robyn Paparella, Co-ordinator Diabetes Services and Riannon Bottrall.

The Diabetes Nurse Education Service comprises of individual consultations, home visits when necessary, group information sessions and hospital inpatient assessments and education. The diabetes educators also provide education / in-services to teachers and ancilliary staff as a refresher on managing the student with type 1 diabetes. These sessions have been carried out in the schools in Port Pirie as well as Napperby and Port Germein.

In-services and orientation for nursing staff are provided on a monthly basis and include the 'Dealing with Diabetes' package which is produced by Diabetes Outreach. Diabetes educators provide support and education as requested by Aged Care facilities for staff and residents, on all aspects of diabetes management.

The Diabetes Team will be visiting the new Tapari Health Clinic monthly to provide education. The focus will be on Primary Health Care, and the team consists of a diabetes educator, podiatrist, dietitian and an Aboriginal health worker.

Port Pirie is about to become a pilot site for the Mid North cluster in trialling ambulatory insulin stabilisation. The primary reason for the proposal is to avoid hospital admissions for insulin initiation and stabilisation. This will reflect best practice as per the Australian Diabetes Educators Association guidelines 'Ambulatory Insulin Stabilisation'. The GP can authorise a diabetes educator to make insulin adjustments in an outpatient community setting using an agreed protocol. The pilot program will also include group diabetes and dietary education in the morning followed by one to one appointments with a diabetes educator in the afternoon. Hospital in the home nurses may be required in some situations to support the person at home. GP's and practice nurses will be orientated to the program in terms of suitable clients for referral.

Diabetes services in Jamestown

Emma Zanker, Diabetes Nurse Educator

Jamestown is found east of Port Pirie and nestled between Laura and Peterborough.The health service in Jamestown comprises of a hospital, community health service and general practice services.

The Jamestown diabetes clinic runs weekly on a Wednesday. The clinic is busy and diverse and I have a variety of duties including staff accreditation and updates, one to one patient education and reviews, school education for teachers and support for students with type 1 diabetes. In the last year I have been involved with our local health promotion officer Megan Goehring. Our project has seen us delivering the School Nutritional Programme to both of our local primary schools. We have aimed at visiting one school per year. It is very enjoyable helping to deliver these programmes and be involved in primary health care.

I also work with our local general practitioners delivering the diabetes cycle of care to our 200 patients with diabetes that access the Jamestown Medical Centre.

Maintaining best practice in a isolated practice can be difficult. I find that networking with other diabetes educators in my region and the support that offers is invaluable. I always make an effort to attend network meetings sometimes with a baby in tow! This group has allowed me to be able to achieve standardised hypoglycaemia management in my local hospital. It has also helped me standardise forms and documentation such as clinic forms and assessment sheets which were provided by Diabetes Outreach. As a network group we have also been looking to have a uniform approach to the information that we give to our clients. Because of limited time that my clinic allows the support of the network meant we have achieved, as many hands (and minds!) have made the work load much easier. By meeting quarterly and sharing the responsibility for the meeting venues and duties the educators have kept this group going strong.

Country Network Report from Peterborough Hospital

Letitia Rattley, Registered Nurse (Diabetes Nurse)

Since November 09 I have been backfilling Kylie Kupke who is on maternity leave. Since taking on the role of diabetes educator at the Peterborough Hospital, I have conducted weekly diabetes clinics, provided education at two of the local schools on type 1 diabetes management in children and facilitated the process of hospital staff accreditation in the area of diabetes.

In November a community Diabetes Information Day was held at Peterborough. Some hospital staff from the region also attended the session. Dr Pat Phillips and Jane Giles came from Diabetes Outreach to conduct an information session about living with diabetes and management. We also had a podiatrist and a dietitian from Community Health in Port Pirie and information about healthy eating. The day was attended by about 20 people from the community (clients from Peterborough and Orroroo) and nursing staff (5 from Peterborough, 5 from Orroroo) and also a medical student from Adelaide.

Southern Flinders Health Crystal Brook Campus

Genevieve Moore, Diabetes Educator

Crystal Brook is located off Highway One approximately 200km north of Adelaide and 28km South of Pt Pirie. It has a population of approximately 1500 people.

Our health service, Southern Flinders Health, provides a range of health care services across 3 sites: Laura, Gladstone and Crystal Brook. I have been co-ordinating the Diabetes Clinic at Crystal Brook for the past 8 years and really enjoy the role of supporting people with the management of their diabetes. The Diabetes Clinic has grown over the years to meet the increasing community need as the incidence of diabetes rises. Currently a clinic is held each week.

At Southern Flinders Health, we have undertaken a number of quality improvements in relation to diabetes education. One recent improvement has been the updating of the paperwork associated with the admission of a new client to the clinic. We are now using the Diabetes Management Portfolio from Diabetes Outreach, Country Health SA (www.diabetesoutreach.org.au) . This change has resulted in a consistent approach across our health service and provided us with a more comprehensive assessment tool for a person newly diagnosed with diabetes.

Whilst the diabetes educator has always worked collaboratively with the local medical officers, this partnership was further strengthened in 2006. As diabetes educator I became involved with clients on a 'cycle of care' for the management of their diabetes. My role is to work closely with the medical officers to improve how we support clients with the management of their diabetes. We have developed a register and recall system for clients and I have access to the clients record to document the care. This has resulted in an improvement in the continuity of care.

There are now 110 clients who have commenced the cycle of care for the management of their diabetes. This means that they see a health professional every 3 months. These visits alternate between the medical officer and diabetes educator. Clients have HbA1c taken 6 monthly, lipids and microalbumin annually and have annual foot and eye checks. We have access locally to a podiatrist and dietitian at Crystal Brook and an ophthalmologist/optometrist at Pt Pirie. Bloods can either be done in the diabetes clinic or at the weekly blood clinic at the hospital. I organise for all these checks to be done before the clients scheduled diabetes review with the medical officer. This means the medical officers have all the latest results which they can then discuss with the client and make changes if needed. There are also a number of clients who have diabetes and visit the clinic on a regular basis but choose not to be involved with the cycle of care for their own reasons.

Feedback from the clients who manage their diabetes by using the cycle of care has been very positive. Clients are now more aware of when they are due to have bloods taken, what their results mean and overall are able to take more responsibility for their own health and wellbeing.

Podiatry and the Port Pirie Regional Health Diabetes Team

Laeticia Douglas, Podiatrist

The Podiatry team in Port Pirie currently consists of two full time podiatrists, Mirza Beslagic and Laeticia Douglas. Together we service clients in the Mid North region including Pt Broughton, Crystal Brook, Gladstone, Laura, Jamestown, Booleroo, Peterborough and Orroroo. We work closely with GPs, diabetes nurses, dietitians and Aboriginal health workers throughout this region.

We provide one on one diabetes foot assessments regularly for our clients with diabetes and then communicate these results to local GPs and refer to other services as needed. One of our primary focuses is clients who are at high risk of foot complications and we assess and treat diabetic foot and leg wounds, including manufacturing offloading insoles to accommodate foot deformities.

Each fortnight we join the diabetes nurses and dietitians to present 'Talking Diabetes' to members of the community with diabetes. This is the first contact we have with the newly diagnosed clients and works as a stepping stone towards a more detailed diabetic foot care education with the podiatrist.

At the moment podiatry, dietetics and the diabetes nurse educators are working on a 'Kidney Health' display for the Tapari Wellbeing Day, which is a huge community event that promotes health and wellbeing for the Aboriginal population.

L-R: Taina Pavri (DNE Assistant), Teash Douglas (Podiatrist), Mirza Beslagic (Podiatrist), Hannah Reichstein (Dietitian), Riannon Bottrall (DNE), Kylie McKay (Dietician), Louisa Li (Dietitian). Absent Robyn Paparella (DNE)

Foot Care

The practice guidelines below are from the Diabetes Outreach Diabetes Manual. The manual can be accessed for free at www.diabetesoutreach.org.au

Background

Foot complications are among the most serious and costly diabetes complication.[1] However, strategies which encompass prevention, patient and staff education, multidisciplinary treatment of foot ulcers and close monitoring can reduce the rate of amputations by 49-85%.[1]

The effects of diabetes and complications of diabetes commonly target the feet. Any person with diabetes, of whatever age, requires good foot care whether at home, in hospital or in a nursing home. The feet of a person with diabetes are at risk of damage due to a combination of small and large vessel disease, nerve damage and mechanical instabilities in the foot.

Diabetic foot ulcers usually occur as a result of two or more risk factors occurring together. In particular peripheral neuropathy plays a central role. Statistics show that anywhere from 19.6%[2] and 50%[1] of people have at risk feet. All health care providers can play a role in helping people assess their own level of risk and to understand their own self care practices.

Poor glycaemic control increases the risk of vascular disease, neuropathy and infection.[3] Hyperglycaemia may lower immune response, increase the risk of infection and delay healing.

Neuropathy

Peripheral neuropathy, with or without peripheral vascular disease is a major underlying risk factor in people with diabetes developing a foot ulcer.[3] Sensory loss associated with peripheral neuropathy becomes progressively more common with increasing duration of diabetes. Neuropathy leads to an insensitive foot. Neuropathy also sometimes leads to a deformed foot which then causes more pressure on different parts of the foot, resulting in thickened callus or corns and potential ulcers. If a person with neuropathy has a minor trauma such as blisters (from ill fitting shoes or walking barefoot on hot ground) this can be enough to start a chronic ulcer.[1] If the person cannot feel that they have an injury then they will continue to re-injure the area and will not identify the need to seek help.

Signs and symptoms of peripheral neuropathy:[4]

- abnormal, decreased or increased sensitivity
- loss of deep tendon reflexes
- loss of vibratory, cutaneous pressure, temperature, or position sense
- heavy callus formation over pressure points
- trophic ulcers
- foot drop
- changes in shape of foot:
  - muscle atrophy
  - changes in bone and joint.

NHMRC guidelines recommend that 'people with type [2] diabetes who have peripheral neuropathy should be identified because they are at risk of foot ulceration and amputation'.[3]

Peripheral vascular disease

The presence of peripheral vascular disease (PVD) becomes progressively more common with the duration of diabetes.[5] PVD is degenerative and hyperglycaemia, smoking, hypertension and hyperlipidaemia are all risk factors.[6] PVD in conjunction with minor trauma may result in a painful, purely ischaemic foot ulcer.[1] However if the person also has neuropathy then symptoms may be absent. Peripheral vascular disease is associated with a 2 - 4 fold increased risk of amputation.[3] People with diabetes should be assessed regularly for peripheral vascular disease.[3]

Signs and symptoms of peripheral vascular disease

- intermittent claudication (pedal pulses usually absent)
- rest pain
- nocturnal pain
- shiny appearance of skin
- bluish discolouration of skin
- skin cool to touch
- loss of hair on feet and toes
- failure of a wound to respond to appropriate treatment
- delayed venous filling after elevation
- gangrene.

Foot deformity

Foot deformities such as bunions, hammer or claw toes, callus and Charcot foot are major contributors to increasing foot pressures. Callus develops in response to shear stresses and usually occur close to a bony prominence. Callus contributes to increases in foot pressures by acting as a foreign body and predisposes to the formation of ulcers beneath these lesions.[3] Limited joint mobility and bony deformities or callus in the presence of neuropathy increases the risk of ulceration.[3] Similarly deformity from previous amputation also increases the risk of ulceration (3-fold increase).

NHMRC guidelines suggest that people with diabetes need regular assessment to detect foot deformities.[3]

Foot risk assessment and management

There are five key elements that underpin foot management.[1]

- Regular inspection and examination of the feet by health care providers.
- Identification of the foot at risk.
- Education of the person, family and health care providers.
- Appropriate foot wear.
- Treatment of non-ulcerative pathology.

Regular inspection and examination

It is important to realise that absence of symptoms does not mean that a persons feet are healthy; a person may have neuropathy, PVD, or even an ulcer and not be aware of it.[1] Every person with diabetes should have their feet, shoes and socks examined at least every 6 months.[7]

All health care providers should be involved in ensuring that the person with diabetes has regular inspection and examination of both feet. This involves assessing the person in a standing and sitting / lying position with their shoes on initially and then without their shoes. Shoes and socks should be also be inspected. It is through regular checks and reinforcement of appropriate and relevant self care practices that the person with diabetes will have a solid understanding of the importance of foot care. A key aspect of education is to teach those with at risk feet the importance of self care. The responsibility of the individual with diabetes or of their carer cannot be emphasised strongly enough. Daily inspections of at risk feet and footwear should be conducted at home, with particular attention paid to the identification of any problems and early management of these.

Identification of the foot at risk

It is only through a thorough and systematic history and assessment that the health professional can determine the level of risk for the individual. This level of risk then needs to be communicated to the person. An action plan relevant to the level of risk should be put in place. Determining the level of risk will guide subsequent management including the type of referrals, frequency of follow up appointments and types of footwear.

Identifying the foot at risk can be based on the National Association of Diabetes Centres (NADC) 2004 'Basic Foot Screening Checklist'. The checklist is broken up into 7 sections which will be discussed in more detail below.[6]

Note: The NHMRC guidelines 'Diabetes foot problems' adopts the following definitions to describe risk categories for diabetes foot problems:

> 'at risk' people – neuropathy or peripheral vascular disease or foot deformity

> 'high risk' people – foot deformity with neuropathy or peripheral vascular disease or previous ulcer or previous amputation.[3]

Section 1

Ask the person if they have experienced previous foot problems, symptoms of neuropathy or intermittent claudication. Ask about previous foot ulcer or amputation because this will immediately put the person in an at risk category for another ulcer.[3]

Neuropathic symptoms can include numbness, tingling, creeping ants, shooting pains, burning and deep bone ache. Symptoms may be worse at night, may be present at diagnosis, may worsen with unstable blood glucose and may not accompany reduced sensation.

Intermittent claudication symptoms can include 'angina' of the legs, ischaemic muscle pain with exercise. Pain often develops after walking a certain distance or length of time.

Note: less than half of people with diabetes and PVD experience intermittent claudication.[3] Presence of palpable pedal pulses is usually a good predictor of adequate peripheral circulation.[3]

Section 2

Look at both feet to identify active problems including PVD and neuropathy.

Active problem and signs and symptoms

Infection

> look for redness, warmth, discharge, swelling, pain

> usually accompanied by elevated blood glucose levels

> may spread rapidly - signs visible across the foot or up the leg

> signs may be masked by ischaemia or neuropathy

Ulceration

> non-healing wounds may occur anywhere on the foot

> persistent pressure results in tissue breakdown and may be painless

> look particularly at pressure areas e.g. tops of toes, tips of toes, ball of the foot, around the heels

> ulcers are often present underneath callus and corns or between the toes

Corns and callus

> must be regarded as pre-ulcerative, especially in the neuropathic foot

> appear as areas of hard, yellow, thickened skin

> occur at pressure points

> early treatment and pressure relief prevents ulceration

Skin breaks

> possible portal for bacteria and therefore infection

> check between toes and around heels

> treat skin which is excessively dry or moist

Nail disorders

> thickness

> discoloration

> infection

> check general condition

> provision for basic nail care may be necessary

Deformity

> deformed foot is more susceptible to pressure

> corns and calluses are more evident in the irregularly shaped foot

> special attention to shoe fit is required

Mechanical factors are those related to structural changes, the shape of the foot and the type of footwear. Small muscle wasting, secondary to neuropathy may develop in the feet leading to an abnormal posture of the foot. It may be difficult to find a comfortable, well-fitting shoe.

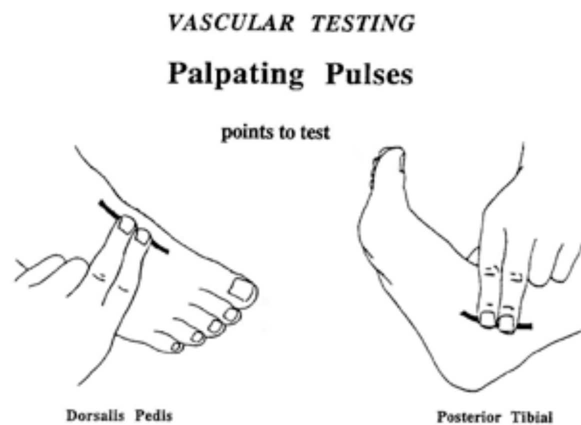
Assessment of mechanical factors includes observation of gait and shoe wear pattern. Gait problems may indicate special footwear is necessary. Conditions include hammer toes, clawfoot, bunions, calluses, partially amputated feet, Charcot feet and other deformities.

Section 3

Check foot pulses

Indicates arterial blood supply to the feet and *healing potential* of wounds.

Check for both pulses. See diagram below



Section 4

Test both feet for neuropathy

The NHMRC footcare guidelines recommend that all people with diabetes be routinely assessed with a 10g monofilament to detect loss of protective foot sensation.[3] The 10g monofilament is clinically reliable and best practice. However, if this is not available cottonwool can be used in the same way (note this method is not gold standard). These tests measure nerve supply to the feet and the persons ability to detect injury to the feet. They are testing for loss of protective sensation.

There is limited data to support which sites should be tested using the monofilament. The NHMRC guidelines suggest that testing at two sites (over the first and fifth metatarsal heads) is sufficient to identify loss of protective sensation.[3]

Section 5

Assess footwear

Ensure footwear is of appropriate size, shape and width to accommodate the foot. Avoid vinyl uppers as these can trap moisture. Poorly fitting shoes can cause blisters and corns which may ulcerate, especially in the person with sensory loss.[6]

Section 6

Assess education need

As part of the foot assessment it is important to ascertain what the person understands about the effects of diabetes on foot health. Asking the person do they know why and how diabetes can affect their feet and what the associated self care practices are. Are their feet adequately cared for.

Section 7

Assess self care capacity

The last part of the assessment is an opportunity to assess whether the person is capable of the level of care that is required for their level of foot risk.

Summary of assessment of feet

The summary of assessment provided by the National Association of Diabetes Centres will help approach the assessment in a logical and systematic way.[6]

Task	History	Examination
Detect peripheral neuropathy	Ask about symptoms of peripheral neuropathy	10 gram monofilament
Detect peripheral vascular disease	Ask about symptoms of peripheral vascular disease	Check dorsalis pedis and posterior tibial pulses
Previous foot ulcer	Ask about previous foot ulcers	Look for signs of scarring, contractures of muscles
Major foot abnormality	Ask about previous injury	Examine foot for significant callus, foot deformities
Detect active foot problems		Examine for foot ulcers, infection, corns, maceration, fissuring, anhydrosis, nail problems

At the end of the assessment it is important to document whether or not the foot is at risk. Using the NADC Action Plan[6] can be a useful tool for documenting your findings and plan. The person is deemed to be at risk if they have any history of ulceration or amputation, neuropathy, PVD, foot deformity or any other abnormality that was identified during the assessment.

If the foot is deemed to be 'at risk' then further referrals will need to be arranged. The type and urgency of the referral will depend on the problem identified for example;

Refer to the podiatrist for further assessment if the person has:

- reduced circulation – poor colour, cooler to touch, reduced or absent pulses (if foot is cold, pallor and pulses are absent consult a general practitioner or medical officer)
- nerve damage – numb feet, reduced sensation
- abnormal nails – thickened, ingrown
- abnormal foot structure, bunions, hammer toes
- evidence of trauma – calluses, past ulcers.

Further referral to a vascular surgeon may also be necessary for circulatory problems.

Ulceration or significant infection requires URGENT referral to a multidisciplinary team (see section Multidisciplinary foot care team and /or high risk foot clinics).

Education

Education is best presented in several sessions using a mixture of methods. The person with diabetes needs to learn how to recognise potential foot problems and be aware of the steps they need to take when a problem occurs. Education should be structured in such a way that it is appropriate for their individual level of risk. For example we don't need to tell all people with diabetes that they can never walk barefoot. This advice needs to be reserved for the person who really is at risk ie those with a neuropathic foot. If we tell people to do something when they don't need to, they may be less likely to take it seriously when it really is important for them to never walk barefoot. Furthermore it is unfair to expect people to have an increased burden of self care tasks that are not relevant to their needs.

General foot care principles

Foot care involves daily washing, drying and regular inspecting of the feet (daily for those deemed at risk). People who are unable to do so should be helped to find the best way to perform this. Health care providers and carers can supervise this practice initially and regularly check that the person performs foot care daily. The person may need help to organise a low, safe seat, plastic bowl, mirror and a mild soap.

Health care providers should assist as appropriate for those who are not able to manage themselves.

Daily treatment (self care or nursing care)

- Dry skin- Massage a water-based moisturiser such as Sorbolene cream into all areas of the feet. Wipe off stickiness.
- Moist skin - Commonly found inter-digitally, especially when toe joints are stiffened. Refresh toe creases with methylated spirits or Povidone-iodine solution on a cotton bud. It may be necessary to use a tinea solution.
- Minor skin damage - Treated by using the recommended first aid routine below.

First aid for minor skin injuries (small cuts, abrasions etc)

1. Gently wash and dry the foot.
2. Apply antiseptic – eg Povidone-iodine or chlorhexidine solution.
3. Apply a clean non-stick dressing and secure with tape-bandage.
4. Protect with additional padding or bandage if needed.
5. After the daily shower re-dress the foot until healed.

Notify the doctor if there is any deterioration, signs of infection or delay in healing within 24 hours or immediately if any pus.

Trimming toe nails

Toe nails which are `normal' in size and shape (absence of thick-gryophotic, crumbly-mycotic, ingrown +/- infection) may be cut by any competent person.[8]

Wash the feet, ensure a seat in a good light and provide a pair of clean, stainless steel nail clippers. Each person must have their own clippers or clippers need to be cleaned and sterilised between cuttings.

Trim nails following the natural curve of the toe, being sure not to cut too short. Never cut down the sides of the nail. If there are sharp edges, file with nail file or emery board.

The 'at risk' foot: recommended care:[1]

- daily inspection of feet, including areas between the toes (if not possible then arrangements will need to be made for someone else to be able to do it)
- regular washing of feet with careful drying, especially between the toes (water temperature always below 37 degrees)
- do not use a heater or a hot water to warm up feet
- avoid walking barefoot when walking indoors or outdoors
- avoid wearing shoes without socks
- daily inspection and palpitation of the inside of the shoes
- do not wear tight shoes or shoes with rough edges and uneven seams
- do not use moisturising creams between the toes
- change socks daily
- wear stockings inside out or seamless
- do not wear tight or knee high socks
- care in cutting nails (see diagram)
- always have corns and calluses removed by a podiatrist
- notify healthcare provider at once if blister, cut, scratch or sore has developed (action plan)
- ensure regular examinations by podiatrist and other health professionals.

Providing individualised education using an Action Plan

Someone with diabetes and normal sensation, circulation and structure needs the same foot care and footwear as someone without diabetes.[5] However all people with diabetes need to be well informed about the potential for future problems and the importance of early diagnosis ie the need for 6 monthly foot checks by their GP, diabetes educator or podiatrist.

For those people who have one or more risk factors it is recommended that they have an up to date action plan developed as part of the education process. The action plan can be used as a tool to link their risk status with self care practices (see Table 1).

EG – Scenario: 55 year old man with neuropathy but who has good blood supply and no visual impairment or musculoskeletal problems. See table right.

Potential problems	Cause	Action
Cut or abrasion	skin break	Make sure shoes are worn at all times to protect your feet from damage. Check the inside of your shoe for rough areas or objects before you put them on. Make sure shoes fit well. Keep feet away from excess heat eg heaters, hot water bottles, wheat bags, check temperature with hand before putting feet in bath. If damage occurs: Simple first aid: wash and dry the area and apply mild antiseptic (eg betadine): cover with a sterile dressing. If not healing in 24 hours , worsens, becomes inflamed or discharges – see doctor straight away.
Pressure areas eg redness, blisters	excess pressure	Check feet daily to see if there area any signs of pressure or other damage. Break shoes in slowly. See podiatrist for footwear advice.
Nails Moist areas between the toes		Cut nails following curve of toe, not too short, and file edges. Moisturise the feet but not between the toes. See doctor if signs of tinea infection.
Inflammation eg Redness, warmth or swelling	infection	See doctor straight away.

Appropriate footwear

Inappropriate foot wear is a major cause of ulceration.[1,3] People who do not have altered sensation or deformities can select off-the-shelf footwear. For people with neuropathy and/or PVD extra care is needed when selecting shoes. Shoes should not be too tight or too loose eg allow 1-2cm longer than the foot.[1] Shoes should be selected at the end of the day to allow for any swelling and any new shoe needs to be broken in very slowly eg half an hour only on the first day and then increase time over next few days, checking for signs of pressure.

If there are signs of abnormal loading of the foot eg callus, corns, ulceration then the person will probably need special foot wear including insoles and orthoses. Consult a podiatrist.

Treatment of non-ulcerative pathology

In an at risk person it is imperative that callus, nail and skin pathology are treated regularly by a podiatrist. Deformities should be managed using orthoses and sometimes surgery.[1]

Tinea is a fungal infection which often targets the feet;9

- symptoms: itching and stinging, reddening, scaly rash, cracking, splitting and peeling, blisters
- treatment: antifungal creams, seek medical or podiatry advice if person has at risk feet
- reducing the risk: dry feet thoroughly particularly between the toes, expose the feet to as much as air as possible, wear cotton socks, wear thongs to swimming pools and communal showers, clean socks each day, expose shoes in sunshine.

Callus and corns are signs of pressure and the mainstay of treatment is to reduce the pressure to prevent recurrence.

Corns and calluses should never be cut or removed with commercial remedies which may ulcerate the skin. Refer to podiatrist.

Foot ulcer management

People presenting with foot ulcers must be managed in relation to the extent of ulceration and results of investigations. Foot ulcers present a special problem and require intensive medical, nursing and podiatry assessment and management. Pressure is often the key issue in ulcer development, and ulcers will not heal unless pressure on the area is reduced or eliminated. If the ulcer is on a weight bearing or a frictional area of the foot, podiatry advice should be sought, as wound management alone is unlikely to allow the area to heal or remain healed.[2] Ulcer care stresses the need for adequate circulation, early antibiotics if clinically indicated, and removal of debris and pressure.

Principles of ulcer treatment[1]

1. Relief of pressure and protection of the ulcer eg mechanical off loading.
2. Restoration of skin perfusion eg surgery, cardiovascular risk factor reduction.
3. Treatment of infection eg debridement and antibiotics.
4. Metabolic control and treatment of co morbidity eg BGLs less than 8.0mmol/L, treat oedema and malnutrition.
5. Local wound care eg wound debridement and control of exudate.
6. Education of patient and relatives eg self care, how to recognise and report (worsening) signs and symptoms of infection such as fever, changes in wound or hyperglycaemia.
7. Determining the cause and preventing recurrence.

Foot care in specialist areas

Foot care in the operating theatre

Protect bony protuberances such as ankle bones, heels and `bunions' with cushioning materials if the operation requires a body position which will cause prolonged pressure to the 'at risk' areas. Use lambskin boots, protectors, foam, air pillows, etc. Inform the theatre nurse of the need for pressure relieving devices during the operation and prior to theatre.

Keep feet warm. A cold foot will automatically close down peripheral circulation. An ischaemic area, under pressure, may precipitate skin breakdown and subsequent ulcer. Use cotton or wool socks and sockettes to increase warmth.

Foot care in intensive care / high dependency / recovery

The focus of attention will be on `vital signs' but there are numerous examples of people with diabetes who recover from a heart attack or stroke, only to spend months immobilised with a non-healing foot ulcer. Sensible foot care will avert this risk.

Use cushioning materials, attend pressure areas two hourly with immobilised, paralysed or unconscious patients, keep the feet warm with socks, wash and thoroughly dry interdigital areas and treat macerated skin.

Lengthy bed rest often associated with hospital admissions requires careful assessment and daily observation of feet. Avoid pressure being exerted on toes and heels.

Multidisciplinary foot care team and high risk foot clinics

It has been shown that the number of amputations can be decreased by the use of a multidisciplinary foot care team.[3] The full team can be built up slowly by introducing the various disciplines at difference times. This team needs to work across primary and secondary health services.[1] The team commonly includes a physician, podiatrist, specialist nurse, orthotists and surgeon.[3] If this expertise can not be found locally a virtual clinic can be set up using technology such as digital photos, telephone and videoconferencing. Strong local networks are also important so that staff can keep up to date and resources can be used appropriately.

Summary

It must be stressed that optimal care of the feet of a person with diabetes involves a multidisciplinary team approach. Communication within the team is vital.

Education of the person in the care of their own feet is of prime importance. Assistance from family or friends is essential where the person has difficulty seeing or reaching the feet. The older person may require assistance.

Encourage the person to carry out **self care** as stated in the foot care section on the previous page.

Regular checks are recommended by GP or diabetes educator and / or podiatrist depending on the person's risk factors. Other health professionals should also be trained in foot risk assessment such as Aboriginal health workers, community nurses, and nurses working in general practice.

The need for keeping blood glucose as close to normal as possible needs to be reinforced to the person.

Smoking, high alcohol intake, excess weight should be reduced as part of **prevention**.

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Introducing Sandy Wilson

Jane Giles, Diabetes Outreach

Sandy Wilson a Ngarrindjeri woman was born at Raukkan (previously known as Point McLeay) where she spent her younger years. Raukkan is situated on Lake Alexandrina in South Australia. During her working life Sandy has been employed in a range of professions. 'I have had a lot of different jobs' for example 'packing biscuits at Arnott's' and 'putting wires on these little cells and stuff' while working for Phillips. An interesting diversion was some time spent in media and radio where she worked at getting Aboriginal people involved in community radio. Her work with TAFE and the education system developed skills and experience as an Aboriginal education worker. Outside of work Sandy has a family of 3 sons, a daughter and 4 grandchildren. She has a love of music and sings in a choir. Sandy now lives and works in Murray Bridge 'I'm back in Ngarrindjeri country'. [Raukkan is home].

More recently Sandy worked as a Project Officer-Diabetes at Muna Paiendi Aboriginal Primary Care Service at Elizabeth Vale. Prior to that Sandy commenced employment in health as an Aboriginal health worker at Meningie District Memorial Hospital and Health Service and had an opportunity through the Aboriginal Health Council to do the diabetes educator training. She remembers saying to the course co-ordinator 'is this real, it's not Mickey Mouse?' The Health Council made it possible to do the course by providing the funding to cover course fees. Sandy felt a significant benefit of doing the course was that 'it gave me the information and that was important to me because I could then share this with the community.' Getting into diabetes was an important step for Sandy. She describes how the death of her brothers and sisters from heart disease and diabetes complications triggered her need to find out more. At that time Sandy had all but one of her siblings with diabetes. 'The thing for me is with health or particularly with chronic conditions e.g. diabetes it's that family members are dying because of not knowing, not realising. That with support these conditions can be prevented or delayed and the disease slowed from progressing, that they have some quality of life'.

Currently Sandy is the Aboriginal Healthy Living Coordinator with Country Health SA and based at the Aboriginal Care Unit at Murray Bridge. She is responsible for the development, implementation and evaluation of Regional Aboriginal Healthy Living Programs across Adelaide Hills, Mallee Coorong, Southern Fluerieu and Kangaroo Island areas of South Australia. The program takes a holistic view of health by working with the Aboriginal community and Aboriginal health workers and through consultation with the Aboriginal Advisory Committee. Her role involves assessment of clients referred and then facilitating access for them to various programs eg diabetes education, dietitian, cooking. The completion of the Diabetes Education Post Graduate Certificate has enabled Sandy to support people with diabetes to understand what the doctor and diabetes educator is encouraging the person to do. It's a support role with diabetes education knowledge behind it.

There are a number of programs that come under Sandy's umbrella. These include a kid's café program with schools, a women's cooking nutrition program, SA Dental Service Oral Health Assessments program, singing program, and the Living Improvements for Everone [LIFE] program and a Chronic Disease Self Management culturally appropriate program for Aboriginal and Torres Strait Islander people based on the Stanford Model.

A clinical service is soon to be offered using point of care A1c and microalbuminuria. This service is accredited by the Quality Assurance in Aboriginal Medical Services (QAAMS) program. Sandy gets a great deal of satisfaction in working with people with diabetes. She is keen to ensure people understand fully what is happening and what their choices are.

'Challenges' says Sandy 'are there every day such as; finding appropriate services for people with diabetes who are not on a health care or pension card such as accessing dental services.' Other challenges include building a service that respects Aboriginal people. 'Aboriginal people want to be treated with respect and a smile when they come into the service'. Another challenge is encouraging Aboriginal people to take more responsibility for their health such as managing medications. Affordability is an issue here and people need a system for managing how they purchase and pay for medications. We can help to get them started, but in the end people need to set up their own system. Sandy would like to see more role modelling, 'that we start with ourselves first as leaders.'

'I always believe that there is a place for us that we are meant to do something in life that we are here for a purpose. I believe I've found mine in this role as Aboriginal Healthy Living Coordinator working with/for Aboriginal people around early intervention and in particular Aboriginal people with diabetes and chronic disease, that's my passion.'

Sandy Wilson and Jane Giles

Developing online diabetes competencies for Country South Australia

Northern Diabetes Educators Network and Diabetes Outreach

In March 2009 the Northern Diabetes Educators Network approached Diabetes Outreach with the idea of developing online diabetes competencies that could be accessed by generalist nurses as part of their annual competency update. Whilst most of the diabetes educators from the Mid North area were doing annual competencies with their staff this was a laborious task. It was also difficult to access staff working on night duty and on weekends. Similarly some hospitals in South Australia also have a manual system in place so that staff can be accredited each year in blood glucose monitoring and general diabetes information. The Adelaide metropolitan hospitals all use a similar hard copy competency form which includes a practical and a theory section. The extent to which these are used on an annual basis is unknown. In addition the level of consistency between hard copy competency formats is also unknown. The Mid Northern Diabetes Educators Network and Diabetes Outreach were keen to further develop consistency of the content and process so that the blood glucose monitoring competencies and general diabetes update could be done on line. These competencies should be done yearly with other compulsory updates. Having online competencies means that all staff can have access to them regardless of what shift they work on. It also reduces the time a diabetes educator needs to be involved.

In South Australia one of the most widely used system for online competencies is Turrell Multimedia. Mike Turrell has formulated a system that enables nurses to undertake annual theory assessments for mandatory topics like Basic Life Support, Drug Calculations, Manual handling etc. The on-line nurse education system that has now been running for five years is called "Competencies On-Line" and has been expanded over the last few years to incorporate other topics such as Pressure Ulcer Risk Management, Infection Control, and Diabetes. The system marks all assessments automatically and results are easily extracted to help services demonstrate that staff have an understanding of these topics and an understanding of best practice.

When Diabetes Outreach approached Turrell Multimedia on behalf of the Northern Diabetes Educators Network there was already one diabetes topic available called 'Diabetes basic'. This topic is aimed at carers in aged care. After discussions with Mike Turrell it was decided that two more topics would be developed which would complement the existing 'Diabetes basic'.

The Northern Diabetes Educators Network provided Diabetes Outreach with their question bank. Diabetes Outreach incorporated these together with their own bank of questions. In consultation with the Country Diabetes Network and the Northern Diabetes Educators Network two question banks "Blood glucose monitoring" and "Diabetes in depth" were developed.

In 2009 Liz Bishop and Di Barrie, Diabetes Educators from Booleroo Centre and Orroroo trialled the newly developed competencies in a paper format and evaluated the staff's results and opinions on the new format.

The Booleroo Centre staff (49 in total including registered nurses and enrolled nurses, enrolled nurses and carers) found some of the questions unclear. However they stated that the range of questions was quite comprehensive, and a good overview of diabetes and its management.

The Orroroo staff (29 registered nurses and enrolled nurses) likewise thought that some of the questions seemed to be obscure but being an open book test, they stated that they had learned much from the research to answer the questions. On the whole it gave us a good indication for further amendment and staff education needs.

How have the online competencies been received?

The online competencies went live in January 2010. According to Turrell Multimedia the modules are being well received and well used with 418 completing the Diabetes In depth tests and 739 completing the Blood Glucose Monitoring tests to date (March 20th 2010).

Online Competency Totals Collated

Metropolitan services	
Eastern Mental Health	3
Glenside	7
Noarlunga Health Services	203
Northern Mental Health	120
The Queen Elizabeth hospital	8
St Margaret's	12
Western Mental health	9
St Margaret's	12
Country Health services	
Bordertown Memorial Hospital	2
Burra	31
Clare	43
Crystal Brook District	8
Cummins	2
Hawker	9
Jamestown	3
Karoonda Hospital	1
Keith and District Hospital	6
Kingston Soldiers Memorial	2
Leigh Creek	32
Mount Gambier and Districts	7
Naracoorte Health Service Inc	10
Northern Yorke Peninsula HS	33
Orroroo	2
Penola War Memorial Hospital	10
Peterborough Soldiers	7
Pinnaroo SM Hospital	2
Port Broughton District	4
Quorn Health Services Inc	23
Snowtown	8
South Coast District Hospital	69
Tumby Bay	37
Yorketown	26

To access online competencies through Turrell Multimedia services there is a yearly subscription fee which is paid by the health service. All enquiries can be directed to Michael Turrell - email: mturr@onwebfast.com, phone: (08) 8358 0067, website www.onwebfast.com

Review of the Type 2 Diabetes Mellitus Guidelines series developed by the Rural Health Education Foundation

Kate Visentin RN CDE

This 4 part series is available as a package that includes a learning guide with activities and a summary of each of the DVDs. To obtain a copy of the 4 part series go to www.rhef.com.au. Although you can listen to the webcast on line we highly recommend that you obtain a hard copy of the entire series because the learning guide is invaluable. There are many activities that can be carried out after you watch each DVD. These activities can form parzt of your professional portfolio.

The guidelines can be downloaded at www.diabetesaustralia.com.au/For-Health-Professionals/Diabetes-National-Guidelines/

Primary prevention, case detection and diagnosis

This program looks at two evidence based guidelines

- Primary prevention of type 2 diabetes
- Case detection and diagnosis of type 2 diabetes

One of the main points raised in this program relates to the importance of preventing or delaying type 2 diabetes in high risk populations. It is important to realise that people with pre-diabetes are at an equal risk of cardio-vascular disease as someone with overt diabetes. Working with people to lose 5 to 10% of body weight can have a dramatic effect on risk. However, for some people who are unable to lose weight even maintaining current weight is helpful. Exercise is an extremely important part of any prevention and the second case study in the program describes the 'Beat It' program which has been developed by Diabetes NSW. The program has been very successful and its aim was to train fitness trainers in gyms so that they can work in a targeted way with people who have diabetes or are at risk of type 2 diabetes.

In terms of screening and case detection the main points raised in the discussion related to the AUSDRISK tool which should be used for people over 40 years of age or from 18 years of age if Aboriginal or Torres Strait Islander background. The important point raised here was that if the risk score is greater than 15 then a fasting glucose should be measured. Regardless of the glucose result the person requires intervention so as to reduce their cardiovascular risks as well as reducing the risk for diabetes in the future.

Blood glucose control, patient education in type 2 diabetes

This program looks at two of the evidence based guidelines

- Blood glucose control in type 2 diabetes
- Patient education in type 2 diabetes

We know that good control of blood glucose reduces complications from diabetes. The new guidelines states that HbA1c should be measured at least twice a year in people with type 2 diabetes which is stable and more often if unstable (previous guidelines have stated at least annually). Go to the guidelines to see the algorithm for management or you can refer to the Diabetes Outreach Diabetes manual medications section for a summary www.diabetesoutreach.org.au .

On page 19 of the learner guide there is a case study that looks at patient education. Activities 12 through to 19 are very relevant for diabetes educators.

Diabetic retinopathy and chronic kidney disease

This program looks at two evidence based guidelines

- Guidelines for the management of diabetes retinopathy
- Guidelines for diagnosis and management of of chronic disease in type 2 diabetes

The devastating impact that diabetic retinopathy and chronic kidney disease can have for a person with type 2 diabetes are illustrated in the two case studies shown in this series. The blood pressure management is just as important as blood glucose in both prevention of retinopathy and kidney disease. Diabetes is now the leading cause for people needing haemodialysis and chronic kidney disease predicts heart attacks and strokes. Retinopathy and nephropathy go hand in hand. Once creatinine levels rise then retinopathy becomes aggressive (macular oedema). Diabetic retinopathy can be reversible if caught in the early stages. The program gives an excellent overview of the main points form these two important guidelines.

Diabetes and Indigenous Australians

Diabetes is very common – up to 50, 60, even 70% in some Aboriginal populations depending on their age. Using case studies this program gives important practice points for health professionals and health care workers who are working with Indigenous communities. The use of a 'Self Management' folder has really helped one health professional when she works with various Indigenous communities. The program successfully takes the viewer on a journey whereby they can reflect on their own work practices and to ascertain what current programs they have in place for their local Indigenous communities. What else could be done and how? An interesting and informative program for any health care provider who is looking to improve the services they provide for Indigenous Australians.

Diabetes Outreach resources

Diabetes Outreach has updated a number of its fact sheets on the web. You can go to www.diabetesoutreach.org.au/consumer to download a new version.

- High blood pressure
- Eye care
- Smoking
- Oral health
- Gestational diabetes – A simple test
- Kidneys
- What is diabetes
- Footcare

In addition the hard copy booklet 'Menopause – to HRT or not to HRT' is now available on line at www.diabetesoutreach.org.au/consumer.

International Society for Paediatric and Adolescent Diabetes (ISPAD) Clinical Practice Consensus Guidelines 2009

The care of children and adolescents with diabetes is a specialised area. The 2009 ISPAD Clinical Practice Consensus Guidelines are a valuable resource for health professionals. There are 18 chapters in total and each of them can be downloaded free of charge from www.ispad.org/FileCenter.html?CategoryID=5.

Chapter 1: Definition, epidemiology, diagnosis and classification
Chapter 2: Presentation and phases of diabetes
Chapter 3: Type 2 diabetes
Chapter 4: Monogenic diabetes
Chapter 4b: Management of cystic fibrosis-related diabetes
Chapter 5: Diabetes education
Chapter 6: The delivery of ambulatory diabetes care
Chapter 7: Assessment and monitoring of glycemic control
Chapter 8: Insulin treatment
Chapter 9: Nutritional management
Chapter 10: Diabetic ketoacidosis
Chapter 11: Hypoglycemia
Chapter 12: Sick day management
Chapter 13: Exercise
Chapter 14: Management of children with diabetes requiring surgery or fasting
Chapter 15: Psychological issues
Chapter 16: Adolescence
Chapter 17: Microvascular and macrovascular complications
Chapter 18: Other complications and associated conditions

Models of care for children and adolescents with type 1 diabetes In country SA.

Barbie Sawyer MN(NP) CDE, Helen McNicol RN CDE and Kate Visentin RN CDE

Introduction

Type 1 diabetes is one of the most common diseases of childhood and adolescence. Data for the period 2000-2006 show the incidence of type 1 diabetes is increasing in Australia at almost 3% per year.[1] Type 1 diabetes in children and adolescents is a serious, life-long disease that causes a major health, social and economic burden for individuals with the disease, their families and the community.[2]

Background

Data obtained from the National Diabetes Service Scheme (NDSS) register (accessed in October 2008) shows that at that time there were a total of 773 children (aged 0-18 years) with type 1 diabetes registered with the scheme and living in South Australia (SA).[3] Of these

> 191 (24%) were living in rural and remote SA, and
> 29 (18%) were using insulin pump therapy.

This data highlights that significant numbers of children and adolescents with type 1 diabetes live in rural and remote areas. Given that both type 1 diabetes and children or adolescent health are specialty areas in their own right, it is important that adequate care, education and support is provided.

Current guidelines recommend that children and adolescents should have access to care by a multidisciplinary team trained in childhood and adolescent diabetes.[4] In rural and remote areas access is more difficult because specialist services are predominantly metropolitan based.

Many children, adolescents and their families access primary care through local health services and general practice clinics. Health professionals working in these local services need to provide safe, timely and appropriate education, care and support. In many situations, education and care can be successfully provided by a local health team with access to resources, support and advice from a tertiary centre diabetes team.[4] At present there are limited opportunities for rural health professionals to become well informed, competent and confident to provide such education and care.

Paediatric models for country SA

In 2009 Kate Visentin CDE from Diabetes Outreach and Marianne Lambert CDE from Women's and Children's hospital (WCH) provided an education and support program for health professionals in rural south Australia who are in a position to provide service to children and adolescents with type 1 diabetes and their families.

Two health services were found to be offering a designated paediatric service which included diabetes education from a credentialled diabetes educator, South East Regional Community health Service and Pt Lincoln Health service. In this article we will outline these two models of care and offer recommendations for building on current services.

Pt Lincoln

There are 13 children under the age of 18 years in the Eyre Peninsula region. Four of these children are on insulin pumps. The Credentialled Diabetes Educator (CDE) from Pt Lincoln maintains a database and tracks children in the region.

Pt Lincoln has access to a visiting Paediatric Endocrinologist who provides 6 monthly clinics. There are two diabetes educators involved in the paediatric clinic (one of which is credentialled). At present the local dietitian does not have a role in paediatrics and so if dietetic review is required children travel to Adelaide. The region has two visiting adult endocrinologists that are able to see children who have turned 18 years of age. There are no locally accessible psychology services available. In addition there are 5 diabetes educators who are employed to service the smaller towns in the Eyre Peninsula and they currently have a supportive and facilitation role in paediatric diabetes.

Diabetes paediatric clinic

The Pt Lincoln Paediatric Diabetes Clinic has been modelled on the Women's and Children's Hospital Service. The educator works alongside the visiting paediatric endocrinologist at the 6 monthly visit. All children who are booked to see the paediatric endocrinologist are first seen by the diabetes educator who initially carries out a HbA1c using the DCA 2000 machine, weighs the child and measures blood pressure. This helps to initiate discussion with the family about any problems that have arisen since the last visit, which can then be discussed with the paediatric endocrinologist. The educator checks that school care plans are completed and are in the school, Centrelink carer payment documentation is up to date and that for those over 16 years all legally required documentation for drivers licence has been completed.

Continuous glucose monitoring systems (CGMS) are also available if required and these provide a 24 hour profile of the child's blood glucose levels. Usually the CGMS is used for children who are having difficulties maintaining steady BGLs or if they have changed insulin since the last visit.

At the 6 monthly visits a shared lunch with families is held to facilitate opportunities for networking. Families come from all over the Eyre Peninsula and some are travelling between 1 and 3 hours to attend their appointment. It is important for families to meet others who are in the same situation. An education session is provided during the shared lunch on a topic that is determined at the last visit. The March education session was an insulin pump update and a carbohydrate counting refresher.

A CDE provides education and support at 3 monthly intervals for most families. A HbA1c is performed with the DCA 2000 and if any problems are highlighted, the diabetes educator will email readings and results to the endocrinologist for advice about adjustment to treatment.

Pathway for clinical care, education and support

1. Children in the Eyre Peninsula are offered 6 monthly appointments with the visiting paediatric endocrinologist.
2. Of the 13 children on the database, four are currently attending a review at the Womens and Children's Hospital diabetes clinic in between their 6 monthly visit. This is due to either a new diagnosis or a HbA1c above 8%.
3. The other 7 children see the CDE between the paediatric endocrinologist's 6 month appointment. At this visit the HbA1c is checked using the DCA 2000 machine. If blood glucose levels are out of target then the CDE contacts the paediatric endocrinologist regarding adjustment to treatment.
4. When a child is approaching transition to adult services the team instigates a discussion between the paediatric endocrinologist, CDE and the family as to the most suitable option.

Feedback from key stakeholder meeting

A stakeholder meeting was held in Pt Lincoln. Seven diabetes educators from the Eyre Peninsula attended the meeting. It was recognised that there were some gaps in the current model of service delivery.

At the stakeholder meeting it was highlighted that access for rural and remote families to educational updates and support was limited. Local health professionals would like more opportunities to access educational opportunities in metropolitan Adelaide and felt that this could be achieved through videoconferencing in some instances.

Although the diabetes educator in Pt Lincoln has the opportunity to work along side the paediatric endocrinologist it was identified that the other educators in smaller towns were sometimes out of the communication loop. It was agreed that the CDE in Pt Lincoln could provide more regular information for those diabetes educators who were involved in the care at the local level.

Recommendations

- Continue to work with children and families to address perceived gaps in accessing information sessions that are held in Adelaide.
- Where appropriate improve communication pathways to local diabetes educators working in the Eyre Peninsula.
- Continue to provide an opportunity for families to have lunch together and meet other families who are in a similar situation.
- Continue to advocate for a paediatric endocrinologist to visit every 3 months instead of every 6 months.
- Investigate whether specialised dietetic and counselling services could be offered in Pt Lincoln.

Mt Gambier

The South East Regional Community Health Service (SERCHS) provides the majority of diabetes services across 8 sites in the South East region. Mount Gambier and Districts Health Service is a General Hospital and supports other hospitals located in Naracoorte, Bordertown, Millicent, Kingston and Penola under a hub and spoke model. According to locally held databases there are 25 children with type 1 diabetes under the age of 18 years in the South East region. Four of these children are on insulin pumps. The CDE based at SERCHS in Mt Gambier maintains a database and tracks all children in the region.

Currently a visiting paediatric endocrinologist provides 6 monthly clinics. There are two diabetes educators involved in the paediatric clinic, including the credentialled diabetes educator who is also a Nurse Practitioner Candidate in Diabetes Education (NPCD). There are two dietitians who are both directly involved in the paediatric clinics. There are

no adult endocrinologists or paediatric psychology services currently available in the south east.

Diabetes paediatric clinic

The Paediatric Diabetes Service based in Mt Gambier has been modelled on the Women's and Children's Hospital service. All children who are booked to see the paediatric endocrinologist are first seen by the diabetes educator who initially carries out a HbA1c using the DCA Vantage machine, weighs the child and measures blood pressure.

The NPCD or diabetes educator have well established rapport with most families, and general discussion regarding the family, diabetes and how they are managing ensues, issues arising from this discussion are then considered during the consultation with the paediatric endocrinologist. Continuous subcutaneous insulin pumps are downloaded and reports printed. The NPCD discusses management of the insulin pump with the family, the report is reviewed by the paediatric endocrinologist and adjustments to pump settings are made by the child or family with the assistance of the NPCD as required. The diabetes educator and NPCD assist with preparing school care plans, and act as a resource for school education when teacher, class or school changes occur.

Continuous glucose monitoring is available and can be implemented by the NPCD or diabetes educator at both SERCHS Mount Gambier and Naracoorte at the paediatric endocrinologist's request, and provides valuable information into the 24 hour profile of blood glucose levels.

The NPCD offers additional follow-up appointments to families of children experiencing difficulty with diabetes management, the NPCD collaborates with the paediatric endocrinologist regarding insulin dose adjustments.

Proposed changes to current services from May 2010

Some changes have occurred to the service over the last 12 months. These changes were due to increased capacity of diabetes educators following the success of gaining a funded nurse practitioner candidate position at South East Regional Community Health Service. This position has provided for an increased full time equivalent of 1 diabetes educator. This has enabled us to expand our service and include more services for children with type 1 diabetes.

The Mount Gambier and District Health Service has recently employed 2 paediatricians and following a stakeholder meeting in November 2009, it was decided that it is was now appropriate for the management of medically stable, newly diagnosed children with type 1 diabetes to be undertaken at a local level. This will include stabilisation of blood glucose, diabetes education, care and support in collaboration with the Women's and Children Hospital. All follow up appointments could be offered in Mt Gambier with the paediatrician working collaboratively with the visiting paediatric endocrinologist who would continue to visit 6 monthly.

This is a large undertaking for our diabetes education service, and an important part of the process will be ongoing education of staff in the paediatric unit at the Mount Gambier and District Health Service. The paediatric nursing staff will offer basic diabetes management information to families of children who may present after hours or at week-ends, in a similar manner to nursing staff at the Women's and Children's Hospital in Adelaide. We will use resources from the Women's and Children's Hospital, and the NPCD and diabetes educator will be responsible for education of the family in all aspects of management for a child with type 1 diabetes. The local paediatricians will also utilise resources and protocols from the Women's and Children's Hospital, this will assist with continuity of care and ensure the use of evidence based resources.

The stakeholder meeting also proposed the introduction of further multidisciplinary diabetes clinics to families of children with diabetes at South East Regional Community Health Service in collaboration with the paediatricians from the Mount Gambier and District Health Service. This clinic would be supported by the Women's and Children's hospital paediatric endocrinologist via teleconference as required. SERCHS dietitians, podiatrists and social workers would also be involved. We are proposing to offer this clinic monthly, and the first clinic will commence in June 2010.

The current biannual paediatric endocrinologist diabetes clinic is in high demand due to the large number of children with type 1 diabetes and other endocrine disorders, some children had not been able to have 6 monthly access to the local Paediatric Endocrine clinic, it was therefore determined at the stakeholder meeting to undertake to offer more appointments by involving the local paediatricians in the 6 monthly Paediatric Endocrine clinics. The paediatric endocrinologist and the paediatrician will both see children with diabetes on the clinic day, with the paediatric endocrinologist able to offer advice for complex issues. The first clinic using this new model will be run in May 2010.

Pathway for clinical care, education and support

1. At diagnosis medically stable children will be managed at the Mount Gambier and District Health Service with the diabetes education undertaken by the NPCD and diabetes educator from South East Regional Community Health Service.
2. Monthly reviews as necessary, by the paediatricians at the local paediatric diabetes clinic and 6 monthly reviews by the visiting paediatric endocrinologist at paediatric endocrine clinic at South East Regional Community Health Services in Mt Gambier. The children and adolescents are also seen by the NPCD , the diabetes educator and dietitian at these clinics.
3. Transition to adult services is problematic because there is no visiting adult endocrinologist, health professionals will continue to lobby for a visiting adult endocrinologist for the region.

Recommendations

- Lobby for access to an adult endocrinologist at a local level or via videoconferencing.
- Due to increasing demand on services, and increasing numbers of inpatients with diabetes a diabetes educator working within Mount Gambier and District Health Service on part time basis would be a preferred option.
- Provide ongoing diabetes in-service sessions for the paediatric ward staff and other hospital staff.

Conclusion

Mt Gambier and Pt Lincoln have been identified in the Country Health Plan 2008[5] as Country General Hospitals. The expectation of a Country General Hospital is that they will have increased capacity so that they can deliver a higher complexity of services thus reducing the burden for patients who are currently travelling to Adelaide for specialised services. In line with this plan Pt Lincoln and Mt Gambier are offering high level multidisciplinary diabetes clinics whereby the child and their family can access a credentialled diabetes educator and a dietitian (Mt Gambier only) at the same time that they are seeing the paediatric endocrinologist. These highly specialised clinics have been designed to mirror what is being offered in metropolitan diabetes services. By offering these types of services locally families have the opportunity to receive care that is relevant to their local context and significantly reduces the financial and social burden of travelling to Adelaide 4 times a year. However, despite the advances made in Pt Lincoln and Mt Gambier current services are struggling to keep up with demand and in particular diabetes medical specialist visits are inadequate. Further human resources are needed to expand and further develop these extremely valuable paediatric diabetes services in country South Australia.

References

1· Australian Institute of Health and Welfare (2008) *Incidence of type 1 diabetes in Australia 2000-2006*. Australian Government, Canberra Cat. no. CVD 42.

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3. Rempel, S. (2008) *NDSS Report: Number and location of children with type 1 diabetes aged 0-18 years who are living in South Australia.* 30 October J. Giles, Sydney.

4. Australasian Paediatric Endocrine Group (2005) *Clinical practice guidelines: Type 1 diabetes in children and adolescents.* Department of Health and Ageing, Canberra.

5. SA Health (2008) *Strategy for planning country health services in SA;* November, Government of South Australia, Adelaide.

Diabetes and driving assessment

Jane Giles RN CDE

Q: How can I best advise country people with diabetes about driving notification and whether the GP or specialist needs to sign the assess fitness to drive assessment?

A: Some people with diabetes will need to notify the Driver Licensing Authority (DLA) and will require a Certificate of Medical Fitness to Drive.[1] How often this certificate needs to be completed and by who depends on the type of diabetes treatment, level of complications and type of vehicle being driven.

There are two different certificates, one for light vehicles, eg. private car and one for heavy vehicles, eg. truck.[2] Copy of the National Fitness to Drive Guidelines can be found on the AustRoads website. The AustRoads website also has useful information specifically for health professionals.

It is important to understand the difference between private vehicles and commercial vehicles. A private vehicle is defined as a car, light rigid vehicle or motorcycle (unless carrying public passengers, eg. taxi or dangerous goods). A commercial vehicle is classified as a heavy vehicle, public passenger vehicle or bulk dangerous goods vehicle. A good explanation of these categories can be found on page 6 of the guidelines and I encourage you to print this page so people with diabetes can identify their vehicles.

1. If diabetes is diet controlled only.

1.1 The person can drive a private vehicle or a commercial vehicle without licence restriction and without notification to the DLA. Their diabetes needs to be reviewed regularly by their treating doctor/GP.

2. If non insulin requiring type 2 diabetes and drives a commercial vehicle.

2.1 For commercial licence – if on oral hypoglycaemic agents they need to notify DLA, a conditional licence may be granted, subject to annual review by a specialist or endocrinologist.

3. If non insulin requiring type 2 diabetes and drives a private vehicle.

3.1 Not at risk of hypoglycaemia.

3.1.1 For private vehicle the person can drive without licence restriction and without notification to the DLA. They are subject to five yearly review providing they have no complications.

3.2 If at risk of hypoglycaemia or has complications that may affect driving.

3.2.1 For private vehicle, notify DLA, a conditional licence may be granted subject to periodic review by treating doctor/GP.

4. If insulin treated, type 1 or type 2.

4.1 For private vehicle – notify DLA, a conditional licence may be granted subject to at least two yearly review by treating doctor/GP.

4.2 For commercial vehicle – notify DLA, a conditional licence may be granted subject to annual review by specialist or endocrinologist.

[1] Transport SA information on fitness to drive http://www.dtei.sa.gov.au/roadsafety/safe_road_users/fitness_to_drive

[2] National fitness to drive guidelines http://www.austroads.com.au/aftd/index.html

Diabetes Outreach

Video conferencing program

The topics and dates for the video conferencing series in 2010 will be:

Date	Topic	Presenter
14th July	Stratifying foot education based on risk	Sara Jones
11th August	Type 1 diabetes and exercise	Dr Ian Chapman
8th September	Food for thought	Marc Campbell
13th October	DAFNE in a rural setting	Barbie Sawyer and Di Vine
10th November	Meeting the needs of adolescence with diabetes	Diana Sonnack

Go to www.diabetesoutreach.org to download a registration form.

Regional Education Series

Whyalla and Port Augusta (9th – 11th June)
Mt Gambier (30th Sept – 1st Oct)

Contact Jane Giles for more information at jane.giles@health.sa.gov.au

Conferences and Workshops

29th Diabetes Refresher Day: Paediatrics and Pregnancy in Practice

Presented by the Women's and Children's Hospital

Presentations include:

> Research – vascular health in children and adolescents with type 1 diabetes
> Medications in pregnancy
> Type 1 diabetes in pregnancy
> Teen issues
> Managing illness in children and adolescents
> Children with type 2
> Dietary management
> Living with a child with diabetes – a family's perspective

When: Friday December 10, 2010 at the Education Development Centre

Where: Milner street, Hindmarsh

Program and registration forms available in July

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