

*Evidence Based Practice
Guidelines for the Nutritional
Management of Type 2
Diabetes Mellitus for Adults*

March 2006

*Prepared by the Dietitians Association of Australia
New South Wales Branch Diabetes Interest Group*

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Foreword

The Dietitians Association of Australia (DAA) Evidence Based Practice Guidelines for the Nutritional Management of Type 2 Diabetes Mellitus for Adults (DAA Practice Guidelines) have been developed in line with the National Health and Medical Research (NHMRC) recommendations for developing clinical practice guidelines (1). The content has been directed by the results of research with Australian Dietitians (2) and an audit of existing practice guidelines from Queensland (3), New Zealand (4) and America (5). The research identified that the American Nutrition Practice Guidelines (US Practice Guidelines) met more of the NHMRC criteria than the other guidelines. They were evaluated in a randomised controlled trial and found to be both clinically (6) and cost effective (7) compared to usual dietetic practice.

The resulting content and recommendations of the DAA Practice Guidelines are based on the US Practice Guidelines due to their rigorous development process and also their transferability to the Australian setting. Alterations to the US Practice Guidelines have been referenced from the literature. The development process has included seven years (1999-2005) of extensive consultation to reach consensus amongst Australian dietitians.

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Executive Summary

Diabetes is the fastest growing disease both in Australia and internationally (8). It is estimated that just over one million Australians have diabetes and by 2010 1.7 million Australians will have diabetes (8). Type 2 diabetes mellitus (T2DM) represents 85-90% of people with diabetes and up to half the people with T2DM are unaware that they have the disease (8). Medical Nutrition Therapy (MNT) from an Accredited Practising Dietitian (APD) and increased physical activity are the first line of management for the disease. Whilst some dietitians and dietetic services have developed their own practice guidelines no nationally endorsed evidence based guidelines for dietetic practice previously existed.

After significant background research evaluating existing guidelines and extensive consultation with APDs working in the area, the decision was made to adapt the existing US Practice Guidelines (5) for the management of T2DM to Australian conditions. This is in accordance with the National Health and Medical Research Council (NHMRC) recommendation to adapt pre-existing guidelines where appropriate (1).

The purpose of these DAA Practice Guidelines is to provide a framework to assist the APD in the dietetic assessment, intervention (nutrition recommendation, education, and goal setting), and evaluation of outcomes for MNT for adults with T2DM. These guidelines for practice are meant as a general framework for providing MNT for adults with T2DM but do not specifically address the nutrition recommendations.

The clinical question this document addresses is:

“What is the process a dietitian should follow to achieve the optimal nutritional management of adults with type 2 diabetes mellitus?”

The evidence statements that address the clinical question are listed below.

Evidence Statement	Evidence Category
Dietetic assessment and intervention performed according to ADA practice guidelines is part of an MNT regime that provides optimal care to adults with type 2 diabetes.	Evidence level II (6)
MNT according to the ADA practice guidelines process can positively affect the medical outcomes in adults with type 2 diabetes mellitus.	Evidence level II (6)

Practice guideline care (5) recommends that patients with T2DM be referred to an APD within the first month after diagnosis. A series of two to three visits is recommended totalling approximately 2.5 hours. Following the implementation of practice guidelines, it is recommended that patients with type 2 diabetes have a visit three months after initial dietary intervention and receive ongoing MNT every 6 to 12 months. The practice guidelines also provide direction for patients who may require fewer visits and this is defined as basic care. Patients receiving basic care should have at least one visit for approximately 1 to 1.5 hours and be scheduled for a three month visit.

MNT should always progress towards agreed treatment goals and desired outcomes. Other treatment modalities utilised for managing diabetes and its complications (eg. antihypertensive drugs) also affect these goals and outcomes. Although it may be difficult to separate and quantify the effects of nutrition from other treatment modalities, nutrition-related outcomes in the following areas can be addressed: glycaemic, lipid, and blood pressure control; weight management; food/meal planning; and physical activity (5).

These practice guidelines will be disseminated amongst dietetic teaching institutions, DAA interest groups, and will be available on the DAA website for all DAA members to access and utilise. The committee's recommendation is that a randomised controlled trial of these guidelines in the Australian setting, using nationally accepted Australian treatment outcomes should be conducted to properly evaluate the guidelines on all levels. In addition, the committee recommends that MNT as described in these guidelines be compared with a standardised group nutrition intervention process.

The guidelines will be due for review in 2011.

SECTION 1: Introduction and Background

1.1 Background

Diabetes is the fastest growing disease both in Australia and internationally. Every eight minutes someone in Australia is diagnosed with diabetes. It is estimated that just over one million people have diabetes and by 2010 1.7 million people will have diabetes. Diabetes health care costs in Australia are estimated between \$1.2 – 2 billion per year and diabetes is the seventh leading cause of death (8).

T2DM represents 85-90% of people with diabetes and up to half the people with T2DM are unaware that they have the disease. The results of the AusDiab trial, Australia's first trial to determine the prevalence of T2DM, obesity and other cardiovascular risk factors, show that 1 in 4 Australians over the age of 25 have diabetes or a condition of impaired glucose metabolism (9). The high rates of T2DM and impaired glucose tolerance, with co-morbidities of obesity, dyslipidaemia and hypertension, contribute to the burden of cardiovascular disease and diabetes-related complications in Australia.

Medical Nutrition Therapy (MNT) from an Accredited Practising Dietitian (APD) and physical activity changes are the first line of management for T2DM. Dietary interventions have the potential to reduce the cost of health care related to diabetes and associated risk factors (7,10,11). Medications can be added if lifestyle modifications are not sufficient to manage blood glucose levels, dyslipidaemia and hypertension.

In Australia, evidence based guidelines have been developed for T2DM by the Diabetes Australia National Guidelines Development Consortium (9,12-16), in line with NHMRC recommendations (1). The current endorsed Guidelines are Primary Prevention, Case Detection and Diagnosis, Blood Pressure Control, Prevention and Detection of Macrovascular Disease, Diabetic Renal Disease and Diabetic Foot Disease. The main target with regards to professional practice is general practitioners, however the guidelines do address management outcomes related to dietary intervention and will add support to the DAA Practice Guidelines in Australia. Whilst some dietitians and dietetic services have developed their own practice guidelines no nationally endorsed evidence based guidelines for dietetic practice currently exist.

1.2 Purpose and Scope

1.2.1 Purpose

The clinical question this document addresses is:

“What is the process a dietitian should follow to achieve the optimal nutritional management of adults with type 2 diabetes mellitus?”

This document is not intended to address the nutrition recommendations for adults with T2DM. For a summary of the most recent Nutrition Recommendations from the American Diabetes Association (17) please see Appendix 1.

Clinical practice guidelines provide evidence-based recommendations to assist decision-making by both the practitioner and patient for health care management, in this case MNT for the management of T2DM in adults. The purpose of the DAA Practice Guidelines reported here is to provide a framework to assist the dietitian in the dietetic assessment, intervention (nutrition recommendations, education, goal setting), and evaluation of outcomes of MNT for adults with T2DM. This is intended to provide improved health outcomes by:

- Guiding the APD's decision making process based on outcomes of the intervention
- Increasing the consistency of dietetic practice to improve metabolic control for patients with T2DM
- Integrating MNT into total diabetes care (5,6).

1.2.2 Scope

These guidelines for practice are meant as a general framework for dietitians providing MNT to adults with T2DM. The circumstances of individuals vary, therefore use of these guidelines may not always be appropriate. For example, treatment may be different for patients who are severely ill, who may have co-morbidities, or have other compounding issues. The independent skill and judgement of the dietetic professional must always dictate treatment decisions.

The application of the guidelines to individuals from Indigenous or culturally and linguistically diverse (CALD) backgrounds has also been considered. It has been decided that the guidelines were potentially applicable without the need for a specific comment. It is felt that the professional judgement of the consulting dietitian would be applied to this area, as it would be to all individuals regardless of background.

In Australia more than 25% of dietitians who are members of Dietitians Association of Australia (DAA) spend a proportion of their time working in diabetes (2). Evidence exists suggesting that the implementation of Practice Guidelines improves health outcomes for people with diabetes (7,18), which is encouraging for the introduction of practice guidelines in Australia. It has also been reported that practice guidelines have the potential to improve health service planning and provision. This is important as there is some evidence suggesting that there are insufficient numbers of dietitians within Australia available for people with diabetes (19).

The DAA Practice Guidelines have been formulated as a framework for best practice but may not be able to be applied in all cases. It is acknowledged that many dietitians conduct group education as a strategy to provide education to people with T2DM (20, 21). This involves professional judgment as to which individuals are suitable candidates and assessment of the best use of local resources. There have been some studies that have shown group education can be as effective as individual education in improving glycaemic control (22-24). However, the studies have all had different designs with varying interventions and are not directly comparable (25). The need for further research in this area is clear. Group education does not always involve individual assessment and formulation of personal nutrition goals or individualised strategies to achieve those goals. For these reasons, group education has not been included in these best practice guidelines. The Cochrane Review found that further work is needed to develop Best Practice Guidelines for group education. (26)

Dietitians conducting group education programs are encouraged to read the literature to determine the most effective group education structure and program content. Although designed for use as the sole education process, these practice guidelines may be helpful as guide for those who wish to combine a group education component with some individual advice.

1.3 Consultation process

During the 1990s Australian dietitians and dietetic services had been developing Practice Guidelines independently. In 1999 all known diabetes practice guidelines were reviewed by Sallyanne Knights from the Illawarra Area Health Service. The guidelines reviewed were the Queensland Practice Guidelines -Type 2 Diabetes (3), the Princess Alexandra Type 2 Guidelines (27), the Royal North Shore Hospital Non-pregnant Type 2 Guidelines (28) and the Illawarra Area Health Service Guidelines for Type 1, 2 and Gestational Diabetes Mellitus (29). During this review many inconsistencies were found in content and recommendations.

June 1999, Initial workshop (NSW/ACT)

In June 1999, a workshop was organised with sixty dietitians from New South Wales and the Australian Capital Territory at the University of Wollongong facilitated by Sallyanne Knights and Professor Linda Tapsell. At this workshop the inconsistencies within the guidelines were confirmed. It was agreed that the inconsistency in practice recommendations could not encourage optimum metabolic outcomes for people with diabetes. Dietitians attending this workshop proposed and supported the development of national Practice Guidelines.

May 2000, National workshop

As a follow up to this and to gain national input, a workshop was held at the DAA National Conference (2000) that confirmed the commitment by Australian dietitians to develop national practice guidelines for dietitians to use in diabetes management. Dietitians requested that practice guidelines be developed in line with the NHMRC recommendations for developing clinical practice guidelines. This request was further discussed and confirmed at a meeting with dietitians at the Australian Diabetes Society/ Australian Diabetes Educators Association Annual Scientific Meeting (2000). As a result of these meetings research was undertaken by Sallyanne Knights to critique the American (5), Queensland (3) and New Zealand (4) practice guidelines against NHMRC criteria and to further explore dietetic practice in T2DM management through an ethnographic study of Australian diabetes dietitians (2).

Consultation regarding the suitability of the American Nutrition Practice Guidelines for adoption in Australia was undertaken at the DAA National Conference workshop in 2003 (Appendix 2). The workshop included an overview of the evidence base (2) and an update on current research in the area of diabetes management. Pre-workshop reading included the information from the NHMRC on how guidelines should be written. This was also discussed in the introductory session of the workshop. The NHMRC encourages groups writing practice guidelines to start with guidelines that already exist, and then adapt them to Australian conditions as appropriate. Keeping this in mind, the workshop facilitators posed two questions to the workshop participants:

- **Should Australia adopt the ANPG, with some modifications?**
- **Which areas do we need to do more work on in guideline development for Australian practice?**

Participants at the workshop agreed to adopt the US Practice Guidelines. Working in small groups, each group reviewed a section in the US Practice Guidelines and suggestions were made regarding appropriate adjustments. The tables of recommendations reviewed in the small groups were referral and assessment, initial nutrition intervention and outcomes of MNT. Adjustments were made to update the diabetes outcome measures, to better reflect dietetic practice in Australia and current research and perceived “Americanisms” were removed. Each group presented their work to the larger

group for further discussion and consensus. The descriptive text in the US Practice Guidelines was not discussed at the workshop, but has been reworded to reflect the agreed adaptations. For a summary of recommendations see Appendix 2.

October 2003, Initial draft guidelines completed

Following the conference workshop, DAA was approached with regards to financial assistance. Funding was secured by Sallyanne Knights to develop the draft guidelines. The first draft of the DAA Practice Guidelines was completed in October 2003. A committee was then formed (see Foreword) to continue the development process. The DAA NSW Diabetes Practice Guideline committee (Practice Guideline Committee) reported regularly to the DAA Practice Advisory Committee to keep them informed of the progress of the guidelines.

January 2004, DAA Members comment on draft

In January 2004 DAA members were invited to comment on the draft guidelines. This was done via the DAA website, the DAA newsletter, DAA weekly email and DAA branch diabetes interest groups. Comments received (Appendix 3: Table 1) were discussed during March and April 2004 committee meetings and adjustments were made (Appendix 3: Table 2) where appropriate. Decisions were made by either achieving consensus within the committee and/or by reviewing the relevant literature. At subsequent meetings other issues discussed by the committee members included the legal implications of practice, ie. patient privacy, communication with other team members of patient information and follow up of patients failing to attend. Advice was sought from within committee member's place of practice and by reviewing existing policies. These issues were then addressed in the guidelines.

May 2004, Presentation at National Conference

In May 2004 the committee Chairperson, Melissa Armstrong, presented at the DAA National Conference in Melbourne. An overview was provided on the need for guidelines, the process undertaken for development and steps required for completion, dissemination, implementation and evaluation of the guidelines. DAA members at the conference were invited to comment.

August 2004, Workshop held at Australian Diabetes Educators Association(ADEA)/Australian Diabetes Society (ADS) Annual Scientific meeting

In August 2004 a workshop for dietitians to pilot the draft guidelines was conducted at the ADEA/ADS Annual Scientific Meeting. Participants were divided into six groups (Appendix 4: Table 1). Each group had a member of the Diabetes Practice Guideline Committee as a facilitator. Each group was provided with 1 of 3 case studies highlighting various aspects of the guidelines. They were requested to apply the process outlined in the guidelines to their case study. Participant opinion was sought on content, format and use of the guidelines. However, comments were not limited to these aspects. Participants had opportunity to comment both during the workshop and were encouraged to send us any further comments or suggestions any time in the subsequent month. Comments received were discussed during September and October 2004 Practice Guideline Committee meetings and changes were made where appropriate (Appendix 4: Table 2). Decisions were arrived on either a consensus basis or by reviewing the relevant literature.

November 2004, Broader stakeholder consultation

Relevant key stakeholders (Appendix 5) were identified during the course of committee meetings i.e. ADEA, ADS, Royal Australian College of General Practitioners, Diabetes Australia in each state (representing consumers) and the National Centre for Diabetes Strategies. In November 2004 stakeholders were contacted by email and asked to comment on the guidelines. Non-respondents were re-contacted in January and February 2005 to encourage comment. The comments received (Appendix 6: Table 1) were discussed at the February 2005 committee meeting and changes were made where appropriate (Appendix 6: Table 2). Decisions were made by the Practice Guideline Committee based on a consensus or by reviewing the relevant literature.

During 2005 recommendations within the draft guidelines for outcomes and treatments were updated in accordance with currently endorsed NHMRC literature. After assessment of the document by DAA's Practice Advisory Committee using the AGREE tool (30), evidence statements were included and a complete reformat of the guidelines was undertaken.

1.4 Methods

The current document was formulated according to NHMRC guidelines for the development of clinical practice guidelines (1). The NHMRC directs groups developing clinical practice guidelines to review existing guidelines and adapt them to Australian conditions if appropriate. Sallyanne Knights conducted the background work for guidelines formulation during 2001 (2). This research involved evaluation of existing practice guidelines for the management of adults with T2DM, as well as research to describe current practice of dietitians working in the field and their views on current practice. The process and outcomes informing the development of the DAA Practice Guidelines are outlined below, followed by recommendations and the system for presentation of evidence.

1.4.1 Research – Evaluation of existing practice guidelines

The initial stage of the research compared and contrasted three sets of existing Dietetic Practice Guidelines for Diabetes from Queensland, New Zealand and America, for development processes and content. The NHMRC recommendations for clinical practice guideline development were used to critique the development processes (2). Table 1 outlines the development processes used for the guidelines compared to the process recommended by the NHMRC.

Table 1 - Audit of Guideline Development against NHMRC Standards

Criteria for Guideline Development Process		QLD	NZ	USA
1.	Panel	Not at all	Not at all	Not at all
2.	Scope	Yes	Yes	Yes
3.	Outcomes	Yes	Yes	Yes
4.	Evidence	Some	Some	Some
5.	Consultation	No	No	No
6.	Guidelines	Not all	Not all	Not all
7.	Revision	No	No	No
8.	Implementation	No	No	No
9.	Evaluation	No	No	Yes
10.	Research	No	No	No
11.	Legal Aspects	Yes	No	Yes

The US Practice Guidelines better matched the NHMRC recommendations and of the three, were the only ones appropriately evaluated. Following their development by a multi-disciplinary committee they were tested in a randomised controlled trial. The clinical trial demonstrated that MNT provided by dietitians resulted in significant improvement in medical and clinical outcomes of people with

T2DM in both the basic nutrition care and the practice guidelines care groups. More intensive care as defined by practice guidelines resulted in more therapy changes and was particularly effective for people with T2DM of longer duration (6). The cost effectiveness of practice guideline care was also evaluated in the trial and showed that when dietitians are actively involved in the decision making for diabetes interventions cost- effectiveness is enhanced (7).

Table 2 shows that the content of the three guidelines were similar, however there were some differences in recommendations.

Table 2 - Guideline Content

Assessment ^{1.}	Goals	Management	Outcome Assessment
Anthropometry Biochemical Diet History Clinical Psycho-social Physical activity Other	Anthropometric ^{2.} Metabolic Dietetic Physical activity Other	Dietetics ^{3.} Education Medications Physical activity Management plan & review ^{4.}	Dietetic ^{4.} Anthropometric ^{4.} Biochemistry ^{4.} Physical activity ^{4.}
^{1.} Similar in 3 guidelines	^{2.} Differences re: weight loss	^{3.} Difference in prescription	^{4.} Different in 3 guidelines

1.4.2 Ethnographic study of dietetic practice

This component of the research described current dietitians’ practice for the dietetic management of T2DM and their views on best practice. The description focussed on the dietary management of people with diabetes being treated by “diet only” in the outpatient setting. Ethnography was chosen as the preferred methodology for the dietitian interviews, as this style of research aims to describe what people do in their daily lives and is sensitive to the location and context in which the research is conducted. This approach was appropriate (2) since diabetes dietitians work in a number of locations e.g. hospitals, community health centres, diabetes centres and private practice.

Interviewees reported that they followed a standard process, the dietetic process, which involved assessment, education/intervention, goal setting and the monitoring of outcomes. Their descriptions were consistent with the guidelines reviewed and also the literature review on dietetic practice, however there were elements within their description that deviated from what could be referred to as evidence based practice (2). Half of the interviewees suggested that the development of national DAA Practice Guidelines should occur. Continuing professional development, research and quality assurance were also identified as contributing to best practice (2). A detailed overview of the results is located in the source document (2).

1.4.3 Recommendations from background research

The two stages of background research resulted in sixty-one recommendations related to practice, guideline content and development, professional development and research. The main recommendation was the adaptation of the US Practice Guidelines (5) for use in Australia. The US Practice Guidelines were tested under the most rigorous evaluation process using a randomised

controlled trial, Level II Evidence (see Section 1.4.4), and were also deemed transferable to the Australian setting (2).

It was also recommended that the development of DAA Practice Guidelines:

1. Be coordinated by a representative committee (membership similar to that recommended by the NHMRC)
2. Include recommendations from the Diabetes Australia National Guidelines Development Consortium (9, 12-16)
3. Incorporate dietitians' views on best practice (2)
4. Investigate the consumer position (2).

Further recommendations resulting from the research are located in the source document (2).

In summary, the recommendations resulting from the research were compiled from the literature, audit of Diabetes Practice Guidelines and interviewee responses. They were limited by information available at the time of formation and will require timely review. The recommendations and plan require consultation with DAA and APDs.

1.4.4 Grading of presented evidence

Whilst the NHMRC process for developing clinical practice guidelines provides a template for the development of Practice Guidelines, the application of the NHMRC criteria for grading research evidence (Table 3) promoting the randomised controlled trial (RCT) as the highest level of evidence is somewhat problematic in nutrition. However, the system acknowledges that different forms of research inform practice and assist practitioners, bearing in mind the need to differentiate between different sources of information and how information best supports clinical decision making. The system also defines the rules of review so there is a common approach and agreement to reviewing literature and developing guidelines (31).

Table 3 – NHMRC Levels of Evidence

I	Evidence obtained from a systematic review of all relevant RCTs.
II	Evidence obtained from at least one properly designed RCT.
III - 1	Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).
III - 2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case controls or interrupted time series with control.
III - 3	Evidence obtained from comparative studies with historical control two or more single arm studies or interrupted time series with a parallel control group.
IV	Evidence obtained from case series, either post test or pre test and post test.

The current document presents evidence as indicated in Table 3 above, however, the reader should bear in mind that dietary interventions have many different characteristics to pharmacotherapy trials on which RCTs are modelled (32). An example of this difference is the blinding of treatment allocation, as this is not achievable in an educational or nutritional intervention trial (31, 32). Other forms of evidence, such as those demonstrating that certain strategies work (31), often support nutrition practice better. Gaps in the formal nutrition research literature become evident when searching for RCTs. Often the findings of nutrition RCTs do not easily transform to the practice setting, due to contextual differences. The challenge for designing dietary interventions on the RCT model highlights the importance of research and practice continuing to inform each other (31).

As presented in Table 2, the recommendations for various outcomes within dietetic practice may vary in different contexts. Indeed, it has been recommended that the American Dietetic Association guidelines be adopted for the Australian setting (see Section 1.3). In order to achieve this, consultation with Australian APDs (see Section 1.3) identified areas of content that needed Australian data. Following this consultation, several high source documents were utilized to provide the management outcomes presented in these guidelines (Table 13) i.e. NHMRC National Evidence Based Guidelines for the Management of Type 2 Diabetes: Primary Prevention, Case Detection and Diagnosis (9); Lipid Control (12); Blood Pressure Control (13); Prevention and Detection of Macrovascular Disease (14); Renal Disease (15); National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Lipid Management Guidelines 2001 (33); NHMRC Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults (34); American Diabetes Association Standards of Medical Care in Diabetes (17) and the International Diabetes Federation Global Guidelines for Type 2 Diabetes (39).

These groups arrived at their conclusions using the NHMRC review process. Evidence drawn from these documents will list the level of evidence as indicated from the source document.

1.5 Review Process

The guideline document will be reviewed in December 2011. Results of the evaluation process will impact on this review as will any review undertaken of the ANPG. The literature will be reviewed to determine if there is new research that may influence change to the document. Of particular interest may be the evidence for group intervention and the broader chronic disease self-management context.

1.6 Applicability

Providing full MNT to all adults with T2DM in Australia has obvious cost implications. However, the Americans were able to show (7) that MNT provided by dietitians was a cost effective intervention in people with T2DM. Unfortunately, unlike the USA (7), there are no Australian studies to demonstrate the cost effectiveness of following MNT in the Australian healthcare setting. Although the two health care systems are different, it is anticipated that implementation of MNT for adults with T2DM in Australia will similarly lower health care costs in the long term. Australian-based studies of the cost effectiveness of MNT are urgently required.

The guidelines development committee fully acknowledges that implementation of these guidelines may not be feasible in all nutrition care settings due to insufficient staffing levels, office space, etc. However all dietitians are encouraged to achieve MNT care as outlined in this document wherever possible and appropriate. The committee also acknowledges that the time frames here in may not suit every patient/dietitian. As always, professional judgement must dictate the most appropriate approach to the person with diabetes, ensuring that negotiation between the patient and the dietitian remains a priority. This is consistent with the central platform of this document.

1.7 Editorial Independence/Conflict of Interest

The preparation of these guidelines has not been sponsored by any commercial interest. The initial draft (October 2003) was prepared with funding provided by DAA. All subsequent work by the committee members has been provided on a voluntary basis. No actual or potential conflict of interest was declared by any members of the committee preparing these guidelines.

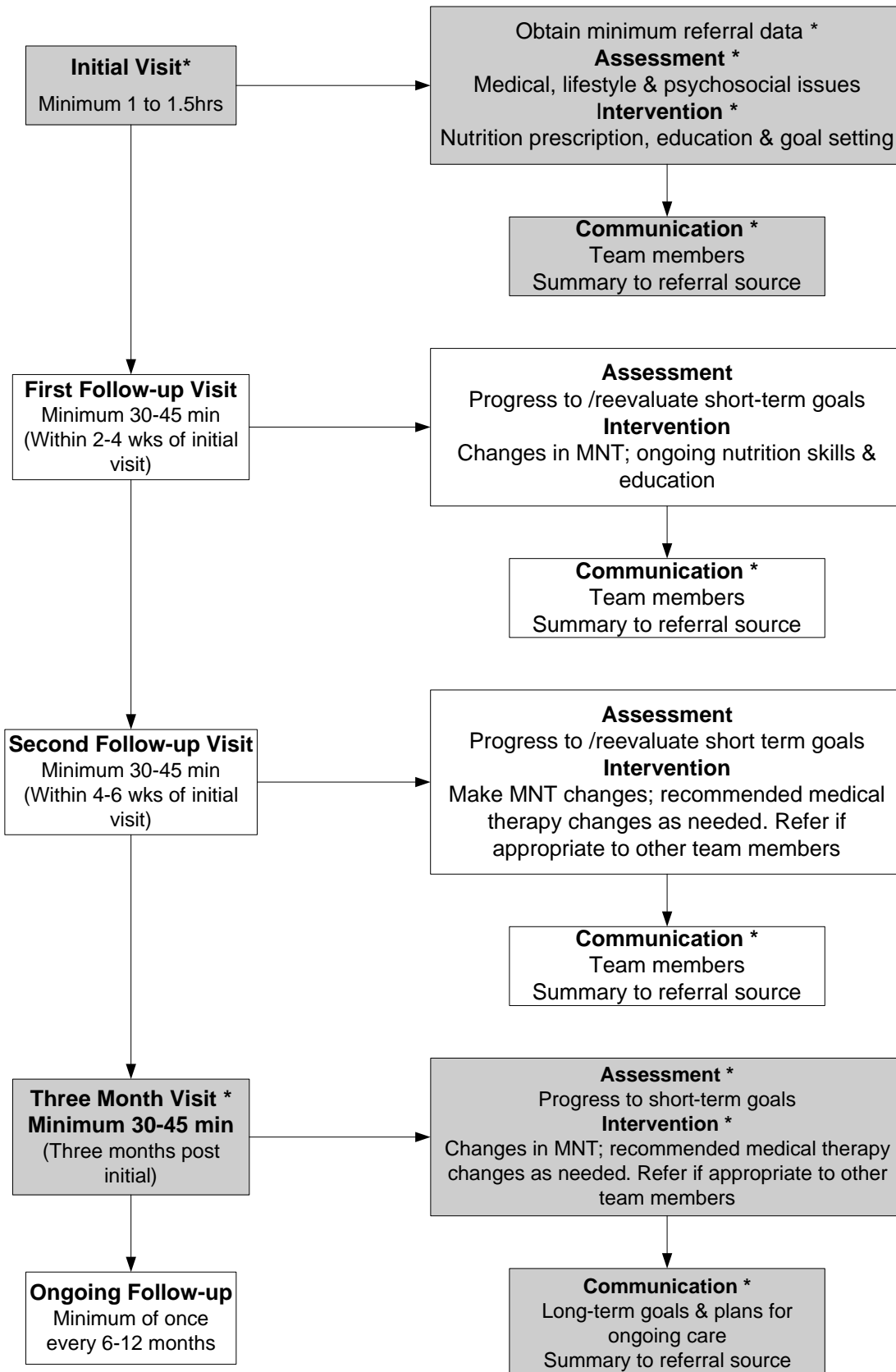
NSW Diabetes Practice Guidelines Committee Conflict of Interest Declarations

Committee Member	Support Provided	Sponsor
Melissa Armstrong	Nil	Nil
Alan Barclay	Nil	Nil
Sharyn Barry	Nil	Nil
Tania Bennett	Nil	Nil
Deborah Foote	Nil	Nil
Effie Houvardas	Nil	Nil
Judy Ingle	Nil	Nil
Sally-Anne Knights	Research support: initial Draft Diabetes Practice Guidelines Conference attendance	Dietitians Association of Australia Unilever
Kate Marsh	Nil	Nil
Melinda Morrison	Nil	Nil

1.8 Summary of Evidence-Based Practice

Figure 1 Nutrition Practice Guidelines for Type 2 Diabetes

* defined as basic care



SECTION 2: Diagnosis and Referral

2.1 Diagnostic criteria (9)

Measure plasma glucose as the screening test in people with risk factors. This should be performed by a laboratory (rather than with a blood glucose meter) and should preferably be done on a fasting sample. However a random measurement may be used.

The plasma glucose results should be interpreted as follows:

- Less than 5.5mmol/l – diabetes unlikely
- 7.0 mmol/l or more fasting or 11.1 mmol/l or more random – diabetes likely
- Between 5.5 and 6.9 mmol/l fasting or between 5.5 and 11.0mmol/l random, perform an oral glucose tolerance test
- The oral glucose tolerance test should be performed and interpreted according to the 1999 WHO criteria.

2.2 Referral criteria (5)

Once diagnosed with type 2 diabetes the practice guidelines for MNT provided by the dietitian may be utilised for individuals such as those:

- Adults who are well, free living and seeking care in the outpatient setting
- Treated with MNT, MNT and oral glucose-lowering agents, or MNT and insulin
- Newly diagnosed or previously diagnosed and possibly requiring initial or ongoing nutrition interventions
- Referred for MNT when a change in medical therapy (such as the addition of an oral agent or insulin) is made.

Table 4 outlines the responsibilities of the referring practitioner and dietitian related to MNT.
Table 5 outlines the minimum referral data required for the dietitian to provide MNT

Table 4 - Referring Practitioner / Dietitian Responsibilities for Nutrition Care (5)

<p>Referring practitioner responsibilities</p>	<p>Refer patient to dietitian for MNT. Provide referral data (Table 5). Communicate medical treatment goals for patient care to dietitian. Provide medical clearance for physical activity as appropriate. Based on outcomes of nutrition intervention, adjust medical therapy for diabetes control if needed. Reinforce nutrition self-management education.</p>
<p>Dietitian responsibilities</p>	<p>Obtain referral data and treatment goals. Obtain patient consent to allow communication with other relevant health professionals and/or community workers. Obtain and assess food, physical activity, self monitoring of blood glucose, psychosocial and economic issues. Advise patient to seek medical approval for changes in physical activity. Evaluate patient's knowledge, skill level, previous nutrition education and readiness to learn. Assist patient to identify diet and activity goals. Assist patient to determine and implement an appropriate nutrition plan. Provide education on food/meal planning and self-management using appropriate teaching tools. Evaluate the effectiveness of MNT on medical outcomes and adjust MNT as needed. Be confident in managing diabetes. Make recommendations to the referring practitioner based on the outcomes of the nutrition interventions. Communicate outcomes to all team members. Decide which patients will benefit from basic care and which patients require more frequent follow-up visits. Make recommendations for ongoing MNT and self-management education. Refer back to the General Practitioner or to other team members/community services as appropriate. Patients who fail to attend appointments should be contacted in accordance with workplace policy.</p>
<p>Self Referral</p>	<p>Acceptance of self referral may be possible dependent upon workplace policies. Patients should be informed prior to attendance of the minimum referral data (see Table 5) required for the initial consultation</p>

Table 5 - Minimum Referral Data (5)

History	Data Needed
Diabetes treatment regimen	MNT alone MNT and oral glucose-lowering agents (type, dose, timing) MNT and insulin or combination therapy (type, dose, timing)
Clinical data	Diagnosis Glycosylated haemoglobin (HbA1c) Fasting plasma glucose and/or oral glucose tolerance test Cholesterol and fractionations Blood pressure Microalbumin
Blood glucose goals	Target blood glucose levels Target glycosylated haemoglobin (HbA1c) Method and frequency of self blood glucose monitoring (SBGM) Plans for instruction and evaluation of SBGM
Medical history	Dyslipidaemia or cardiovascular disease; hypertension; renal disease; peripheral neuropathy; gastroparesis and other gastrointestinal diseases, eg. coeliac disease (include family history)
Other relevant history	Mental illness Literacy level/ numeracy level Requirement for interpreter
Medications	For example: Diabetes, hypertension and lipid lowering medications; GIT medications; others eg. antipsychotics, complementary medicines
Guidelines for physical activity	Medical clearance for physical activity Exercise limitations if any

SECTION 3: Dietetic Assessment and Intervention

Evidence Statement	Evidence Category
Dietetic assessment and intervention performed according to ADA practice guidelines is part of an MNT regime that provides optimal care to adults with type 2 diabetes.	Evidence level II (6)

3.1 Overview

Practice guideline care recommends that patients with T2DM be referred to a dietitian within the first month after diagnosis. A series of two to three visits is recommended totalling approximately 2.5 hours (5). Following the implementation of practice guidelines, it is recommended that patients with T2DM have a visit three months after initial dietary intervention and receive ongoing MNT every 6 to 12 months. Figure 1 is an overview of the scheduled visits and the activities that occur at each visit. The practice guidelines also provide direction for patients who may only require one visit and this is defined as basic care. Patients receiving basic care should have at least one visit for approximately 1 to 1.5 hours and be scheduled for a three month visit.

The following criteria can be used to identify patients who may do well with basic care:

- Near target blood glucose goals (5)
- Good diabetes knowledge base (5)
- Good nutrition and physical activity habits so that changes in lifestyle may not significantly alter their blood glucose control (5)
- Blood pressure and lipid profile within the acceptable range (12,13) - refer to Table 13
- Self-motivated (5)

MNT should always progress towards agreed treatment goals and desired outcomes (Table 13).

3.2 Initial visit

For both practice guidelines and basic nutrition care, an initial visit is scheduled for a minimum of an hour. The visit, which is patient-driven and goal-directed, includes assessment and intervention. The dietitian and patient work together to develop diabetes management goals (for up to six months and longer) e.g. blood glucose and lipid levels, food/meal planning, weight, and physical activity (5). Importantly, the dietitian seeks to assess and gain the patient's commitment to the diabetes management plan. Using the initial referral data (Table 5) and goals, an appropriate educational intervention and nutrition plan is negotiated and implemented. Short-term (4 to 6 weeks) behavioural goals, i.e. for food/eating and physical activity that will lead to the successful accomplishment of long-term goals are mutually identified. Tables 6 and 7 outline initial nutrition assessment and intervention (5).

A primary responsibility of the dietitian is to determine the nutrition plan. The nutrition plan identifies the energy values, macronutrient composition, number of meals and snacks, and timing of meals for an individual with diabetes based on the American Diabetes Association nutrition recommendations (35). Nutrient composition and distribution are based on the patient's health profile, lifestyle, treatment modalities, weight, short- and long-term goals, and desired outcomes. Determining a nutrition recommendation provides the direction and focus for the educational interventions and for the selection of educational materials, including meal plans (5).

“The dietitian is also responsible for selecting appropriate educational materials and interventions, as well as for providing self-management education. There are a number of meal-planning approaches

and educational tools that can be used successfully. The educational tools selected should be easy for the patient to understand and use” (5;p1004).

If necessary, referrals for psychosocial and economic assistance should be made. Advise the patient that any proposed changes in physical activity should be discussed with their referring doctor. If the patient has no medical limitations, the dietitian may provide guidelines for physical activity as per the American Diabetes Association Physical Activity/Exercise and Type 2 Diabetes (36) guidelines and/or refer the patient to an exercise physiologist or physiotherapist for an exercise prescription (5). The importance of increased physical activity should be emphasised and encouragement and support to become more physically active provided (5).

Short-term behavioural goals should be restated and plans made for continuing education. Dietitians should decide which patients need only the initial visit (basic care) and do not need immediate follow-up visits. For practice guideline care, a follow-up visit should be scheduled to expand interventions and monitor the individual’s progress in self-management of diabetes. For patients receiving basic care, after the initial visit ongoing self-management assessment and education is recommended at 3 months.

Table 6 - Initial Nutrition Assessment (5) ^ Refer to minimum referral data (Table 5) ^Note: this is not in order of importance.

	Assessments
Clinical data	<p>Obtain height and weight without shoes and in light clothing.</p> <p>Determine an achievable body weight.</p> <p>Measure waist circumference.</p> <p>Estimate daily energy needs.</p> <p>Assess minimum referral data (Table 5), especially medications (type, amount, and timing), glucose, glycosylated haemoglobin (HbA1c), and other laboratory data.</p> <p>Note any visual impairment.</p>
Nutrition history	<p>Determine usual food intake, pattern of intake and timing of meals.</p> <p>Evaluate for energy intake, macronutrient composition (types and amounts), nutrient distribution, other nutritional concerns, frequency and timing of meals.</p> <p>Obtain weight history, recent weight changes, and weight goals.</p> <p>Estimate energy intake (kJ) required for weight goal.</p> <p>Assess appetite, eating, or digestion problems.</p> <p>Determine frequency of and choices in restaurant meals and takeaway foods.</p> <p>Assess alcohol intake.</p> <p>Determine use of vitamin/mineral or nutritional supplements.</p> <p>Assess food intolerances/allergies.</p> <p>Assess dentition</p>
Physical activity history	<p>Determine activity types and frequency.</p> <p>Estimate level and intensity of physical activity.</p> <p>Determine limitations that hinder or prevent physical activity.</p> <p>Assess willingness and ability to become more active.</p>
Psychosocial & economic issues	<p>Assess living situation, cooking facilities, finances, educational background, employment.</p> <p>Assess eating behaviours.</p> <p>Assess cultural issues, ethnic or religious beliefs.</p> <p>Assess attitude towards diabetes.</p> <p>Assess level of family and social support, family history of diabetes.</p> <p>Determine if there are other important issues.</p>
Blood glucose (BG) monitoring	<p>Assess knowledge of target BG ranges.</p> <p>Assess BG testing method and frequency of testing. Refer as appropriate to the general practitioner, endocrinologist or diabetes educator.</p> <p>Ensure patient is registered with the NDSS if performing SBGM.</p> <p>Assess BG records for frequency of hyperglycaemia and hypoglycaemia and number of target range BG values.</p>
Knowledge, skill level, attitudes & motivation	<p>Assess literacy level.</p> <p>Assess diabetes nutrition knowledge level (Table 14).</p> <p>Assess basic knowledge level.</p> <p>Assess attitudes toward nutrition and health, and readiness to learn.</p>

Table 7 - Initial Nutrition Intervention (5)

	Interventions
Long-term goals	<p>Negotiate patient and health care team long-term management goals: target BG levels and HbA1C, weight, lipids, microalbumin, blood pressure, and others as appropriate.</p> <p>Emphasize healthy lifestyle.</p> <p>Explain importance of a reduction in risk factors related to long-term complications</p>
Nutrition recommendation	Determine nutrition recommendation based on: nutrition history, treatment modality, psychosocial background, treatment goals, and concurrent medical conditions and any requirement for reduced total energy intake.
Food/ meal planning skills	<p>Discuss basic nutrition and diabetes nutrition guidelines: what, when and how much to eat (Table 14).</p> <p>If treated with insulin or oral agents, emphasise importance of eating meals and/or snacks consistently, synchronised with medication action.</p> <p>Discuss recognition, treatment and prevention of hypoglycaemia (if appropriate).</p> <p>Depending on interest or readiness, discuss: simple definition of carbohydrate, protein, fat, and examples; guidelines, such as improving the P:M:S ratio; using less added sugar and salt; how to make changes by referring to label reading and eating out guidelines.</p>
Educational tools	<p>Select appropriate meal-planning approach and educational materials.</p> <p>Use audiovisual materials (eg, handouts, videos, flip charts, food models, measuring cups and spoons).</p>
Blood glucose (BG) monitoring	<p>Encourage blood glucose monitoring.</p> <p>Assess self monitoring of blood glucose and refer to the medical practitioner or diabetes educator as necessary.</p> <p>Review target BG goals.</p>
Physical activity	Discuss physical activity recommendations (36).
Short-term goal setting	<p>Address eating, physical activity, and blood monitoring behaviours.</p> <p>Identify and summarise short-term (1-2 wk) behavioural goals that are specific and achievable.</p> <p>Focus on changing only one or two specific behaviours at a time.</p>
Follow-up	<p>Provide record-keeping forms (food, physical activity, self monitoring of blood glucose) to be completed prior to next visit.</p> <p>Determine follow-up plans: 2-4 wk.</p>

3.3 First follow-up visit

The first follow-up visit should be scheduled 2 to 4 weeks after the initial visit for a minimum of 30 to 45 minutes. At this visit, progress toward short-term behavioural goals is assessed. Based on this assessment, recommendations are made regarding additional changes in food/meal planning and physical activity to improve diabetes control. If the stated goals and the behavioural objectives for initial level education have been met, the need for additional information and a second follow-up visit can be decided mutually with the patient and the dietitian. If the goals and behavioural objectives have not been met, a second follow-up visit should be scheduled (5). Tables 8 and 9 outline the first follow-up visit assessment and intervention.

Table 8 - First Follow-Up Visit Assessment (5)

	Assessments
Follow-up data	<p>Obtain weight without shoes and in light clothing.</p> <p>Obtain waist circumference measure.</p> <p>Assess compliance with and changes in medication, i.e. dose of oral agent or dose/frequency of insulin.</p> <p>Review records of self-monitoring of blood glucose including frequency of testing, times of testing, and results.</p> <p>Assess changes in physical activity habits. Review food records completed since initial visit or complete a diet history.</p>
Blood glucose (BG) monitoring	<p>Assess BG pattern and the number of BG results within the target range.</p> <p>Assess if BG monitoring goals are being met and willingness and ability to do additional self blood glucose monitoring if needed.</p> <p>Assess occurrence, causes, and patterns of hypoglycaemia.</p>
Nutrition progress	<p>Assess understanding of initial nutrition information and food/meal plan.</p> <p>Determine if meals and/ or snacks are eaten on a regular basis.</p> <p>Assess if food choices & amounts are appropriate.</p> <p>Assess further improvements that can be made in the quality of the diet.</p>
Short-term goals	<p>Assess achievement of short-term behavioural goals. Determine willingness and ability to make further changes.</p>

Table 9 - First Follow-Up Visit Intervention (5)

	Interventions
Food/meal planning	Adjust MNT as needed. Recommend changes in food and physical activity that can improve outcomes, i.e. meal spacing; food choices, amounts, timing; physical activity frequency, duration, type, timing.
Education	Review and reinforce self-management skills and survival level information. Provide new and expanded information about nutrition topics (Table 14) as appropriate.
Goal setting	Review and reinforce long-term diabetes management goals. Reset short-term behavioural goals based upon assessment.
Follow up	If goals have been met, recommend ongoing nutrition care at 3 months post initial MNT intervention. Recommend second follow-up visit within 6 weeks if: goals have not been met; changes in therapy are made; patient has difficulty making lifestyle changes; patient requires additional support and encouragement; weight loss is the primary focus; further education is needed. Plan to review HbA1c at 3-month follow up visit.

3.4 Second follow-up visit

The practice guidelines recommend a second follow-up visit in 4 to 6 weeks after the initial visit for a minimum of 30 to 45 minutes. At this visit, evaluation of clinical and medical outcomes and assessment of progress toward stated goals are completed (Table 10). It is reasonable by this time to see results from MNT on glycaemia, lipids and weight (5). Generally, MNT for dyslipidaemia and hypertension is continued for 4 to 6 months before changes in therapy are recommended (12, 35). If the current management plan (i.e. MNT alone, MNT and oral agents, or MNT and insulin) is not achieving the desired glycaemic outcomes, it is the responsibility of the dietitian to assess what has been accomplished with nutrition changes, what changes the patient can continue, or what additional changes the patient is able and is willing to make. If, in the dietitian’s judgment, additional patient food and physical activity changes cannot be made to achieve glycaemic control, the endocrinologist and/or general practitioner should be notified that changes may be necessary in medical management, i.e. oral agents or insulin may need to be added or adjusted (5) (Table 11).

Both the dietitian and the patient have the option of scheduling additional follow-up visits or the dietitian may make recommendations for ongoing care (5). A follow up visit at three months post initial MNT intervention is recommended for review of HbA1C, blood pressure and blood lipids. Table 14 lists essential educational topics for nutrition self-management.

Table 10 - Second Follow-Up Visit Assessment

	Assessments
Follow-up data	Evaluate anthropometry and new or updated laboratory data. Other assessments are the same as at the first follow-up visit (Table 8).
Blood glucose monitoring Nutrition Progress Short-term goals	These assessments are the same as at the first follow-up visit (Table 8).

Table 11 - Second Follow-Up Visit Intervention

	Interventions
Therapy changes	Recommend possible need for changes in medical therapy if: <ul style="list-style-type: none"> ▪ BG levels have not reached target range. ▪ Blood lipids have not shown a downward trend ▪ Patient has a weight loss (if appropriate) with no improvement in BG levels. ▪ Patient is not willing or able to make additional food and physical activity changes. ▪ Patient is doing well with food plan and physical activity and further nutrition intervention is unlikely to result in improved medical outcomes.
Education	Follow guidelines in Table 9.
Goal setting	Follow guidelines in Table 9.
Follow-up	If goals have been met, recommend ongoing follow-up at 3 months post initial MNT intervention. Plan to review HbA1c at 3-month follow up visit. Recommend additional follow-up if blood pressure and lipid reduction was recommended and has not been achieved, oral agents or insulin have been added to therapy, follow-up is needed for weight loss, or further education is needed.

3.5 Three month follow-up visit

A visit three months post initial consult with the dietitian is recommended to review the effect of dietary management on anthropometric and metabolic outcomes. The visit is a minimum of 45 to 60 minutes. The content of this visit should be the same as the second follow up visit. Referral back to the endocrinologist or general practitioner for consideration of alterations to medical therapy or to other support services should be arranged as required. Follow up visits should be arranged as required by the individual patient and ongoing self-management education is recommended at 6-month to 1-year intervals. Specific metabolic outcomes to be reviewed are HbA1c, lipids and blood pressure (refer to Table 13).

Table 12 - Three Month Follow-up Visit

Data Review	<p>Evaluate against desired outcomes:</p> <ul style="list-style-type: none"> ▪ Glycaemic control ▪ Lipid control ▪ Blood pressure ▪ Anthropometry <p>Behavioural changes:</p> <ul style="list-style-type: none"> ▪ Meal plan ▪ Physical activity
Therapy changes	<p>Goals for desired outcomes not achieved (Table 13).</p> <p>Patient is not willing or able to make additional food and physical activity changes.</p> <p>Patient is doing well with food plan and physical activity and further nutrition intervention is unlikely to result in improved medical outcomes.</p>
Education	Follow guidelines in Table 9.
Goal setting	Follow guidelines in Table 9.
Follow-up	<p>If goals have been met, recommend ongoing follow-up within 6-12 months</p> <p>Recommend additional follow-up if blood pressure and lipid reduction was recommended and has not occurred, oral agents or insulin have been added to therapy, follow-up is needed for weight loss, or further education is needed</p>

SECTION 4: Implementation and Management

4.1 Management goals

Evidence Statement	Evidence Category
MNT according to the ADA practice guidelines process can positively effect the medical outcomes in adults with type 2 diabetes	Evidence level II (6)

There are a number of desirable outcomes from MNT. Other treatment modalities utilised for managing diabetes and its complications (eg. antihypertensive drugs) affect these parameters as well. Although it may be difficult to separate and quantify the effects of nutrition from other treatment modalities, nutrition-related outcomes in the following areas can be addressed: glycaemic, lipid, and blood pressure control; weight management; food/meal planning; and physical activity (5). Table 13 outlines treatment goals and desired outcomes after the initial nutrition intervention and for ongoing MNT (12,13,17,33,34,36-38,39). It should be noted that these goals might be amended on an individual basis. The RCT (6) that tested the ANPG concluded that “MNT provided by dietitians resulted in significant improvements in medical and clinical outcomes”.

Table 13 has been adjusted from the original ANPG (see Appendix 8) to reflect nationally recognised Australian standards. In some cases the goals are different to those found in the ANPGs. The glycaemic control and anthropometric values are not clinically significantly different. The cholesterol and blood pressure aims are tighter in our document, however because the desired outcomes of MNT are to maintain a reduction, not necessarily reach target, this should not impact on the effectiveness of MNT.

Table 13 - Desired Outcomes of Medical Nutrition Therapy for Type 2 Diabetes

Indices	Goal	Desired Outcome After MNT	Desired Outcomes of Ongoing MNT	Evidence Category
Glycaemic Control				
Fasting (39) ¹	< 6.0 mmol/l	Progress towards goal	Goal maintained	Consensus
Postprandial (39) ¹	Consult team	Progress towards goal	Goal maintained	Consensus
HbA1c (17,39) ^{1,2}	Consult team	Downward trend (-10%) towards target at 3 months	Goal maintained	Consensus
Lipid Control				
Cholesterol (33)	Lowered level < 4.0 mmol/l	10-20% reduction at 3 months	Maintain decrease ²	Consensus
LDL (12)	Lowered level < 2.5 mmol/l	10-20% reduction at 3 months	Maintain decrease ²	Evidence Level II
HDL (12)	> 1.0 mmol/l	Upward trend at 3 month	Maintain increase	Consensus
TG (33)	< 2.0 mmol/l	Downward trend at 3 months	Maintain lowered level ²	Consensus
Blood Pressure Control (13)				
	130/80 mmHg ³ 125/75 mmHg ⁴	Goal achieved in 3 months ⁵	Maintain decrease in blood pressure	Evidence Level II
Anthropometry				
Weight (34)	5-10% reduction (if appropriate)	Progress towards goal	Maintain or continue with weight loss (if appropriate)	Evidence Level III-2
Waist Circumference (34)	Male < 102cm Female < 88cm	Downward trend in 3 months	Maintain decrease or continued reduction	Evidence Level II
Behavioural Change				
Meal Plan	Dietary intake meets nutrition recommendations	Demonstrated changes in the type and amount of food consumed at follow up visit	Changes maintained-continues to make changes as appropriate	Consensus
Physical Activity (36)	Meet ADA Physical Activity guidelines	Increase in physical activity at follow up visit	Maintain increased level of physical activity	Evidence Level III-1

Notes:

1. International Diabetes Federation:

- Advise people with diabetes that maintaining a DCCT-aligned HbA1c below 6.5 % should minimize their risk of developing complications.
- Provide lifestyle and education support, and titrate therapies, to enable people with diabetes to achieve a DCCT-aligned HbA1c below 6.5 % (where feasible and desired), or lower if easily attained.
- Advise those in whom target HbA1c levels cannot be reached that any improvement is beneficial.
- Sometimes raise targets for people on insulin or sulfonylurea therapy in whom attainment of tighter targets may increase the risk of hypoglycaemic episodes, which may present particular problems for people with other physical or mental impairment.
- Equivalent target levels for capillary plasma glucose levels are <6.0 mmol/l (<110 mg/dl) before meals, and <8.0 mmol/l (<145 mg/dl) 1-2 h after meals. (39)

2. American Diabetes Association:

The HbA1c goal for patients in general is <7%; the HbA1c goal for the individual patient is a HbA1c as close to normal (<6%) as possible without significant hypoglycaemia (17).

3. People with type 2 diabetes who have LDL cholesterol >2.5 mmol/l and/or have triglycerides of >2.0 mmol/l after 3 months intervention to modify diet and improve diabetes control, should be considered for lipid modifying therapy (12).
4. Blood pressure target of 130/80 mmHg is for people with uncomplicated diabetes (13).
5. Blood pressure target of 125/75 mmHg is for people with proteinuria of >1g/day (13).
6. Potentially modifiable lifestyle factors such as obesity, physical inactivity and excessive dietary sodium and/or alcohol intake should be addressed in all hypertensive people with type 2 diabetes and in people with mild hypertension (140-150/90-100 mmHg) before commencing antihypertensive therapy (13).

An excerpt on lipid control from the NHMRC National Evidence Based Guidelines (14) can be found in Appendix 7.

4.2 Topics for Education

Education is an integral component of MNT, however each individual's needs are different. Table 14 details education topics that should be covered during consultations depending on each individual's assessment.

Table 14 - Essential Patient Education Topics for Nutrition Self-Management of Diabetes (5)

Level of Education	Education Topics
Basic skills needed by all person with diabetes	Basic food/meal plan guidelines. Weight management. Lipid management ¹ . Physical activity guidelines. Plan for continuing care
Key education for ongoing nutrition self-management. Select topics based on patient's lifestyle, level of nutrition knowledge, and experience in planning, purchasing, and preparing food and meals	Sources of carbohydrate, protein, fat. Sources of vitamins, minerals and fibre. Energy balance. Modifying fat intake (decrease SFA increase UFA & use of plant sterols). Modifying carbohydrate: type (glycaemic index & fibre), amount & distribution. Blood pressure and sodium ² Signs, symptoms, treatment, and prevention of hypoglycaemia if on oral agent or insulin. Nutritional management during short-term illness. Label reading. Eating out, restaurant, cafeteria, and fast food choices. Use of sugar containing foods. Diet foods and sweeteners. Snack choices. Alcohol guidelines. Using BG monitoring for problem solving and identification of BG patterns. Adjusting meal times. Adjusting food for physical activity. Behaviour modification techniques. Recipes, menu ideas, cookbooks. Birthdays, special occasions, holidays. Travel, schedule changes. Vitamin, mineral, other nutritional supplements. Working rotating shifts (if needed).

1. "MNT should be given to all people with Type 2 diabetes and dyslipidaemia. The diet should be low in saturated fat, moderate in complex carbohydrate (preferably low in glycaemic index and high fibre) and moderate in mono-unsaturated fat. Weight reduction should be a goal in the overweight." (34)
2. "Lifestyle modifications including weight reduction, increase in physical activity, reduction of excessive sodium intake and alcohol intake have been shown to reduce blood pressure in hypertensive people with Type 2 Diabetes – Evidence Level II" (35)

4.3 Documentation

The success of the diabetes intervention relies on good communication between the medical practitioner (endocrinologist and/or general practitioner) and the dietitian (as well as other health care team members). Depending on the dietitian's professional judgement, two-way verbal communication may be preferred, however this should always be followed by written documentation to ensure that patients do not receive conflicting information. Good communication also facilitates support from the medical practitioner and other team members for the patient in regard to nutrition and physical activity recommendations and shows support from the dietitian for the patient's medical goals. Following each visit, the dietitian provides documentation to the medical practitioner or other referral sources (5) (Table 15).

The dietitian's procedures for the collection, documentation and communication of patient personal and health care information are required to meet the principles of federal and state/territory privacy legislation, for example, the Commonwealth of Australia Privacy Act (40) and the NSW Health Privacy Manual (41).

Table 15 - Written Communication to Referral Source (5)

	Areas to be addressed
Documentation	Short- and long-term goals. Nutrition plan. Food/meal plan. Educational topics covered. Patient acceptance and understanding. Anticipated compliance. Successful behavioural changes. Additional needed skills or information. Additional recommendations. Plans for ongoing care. Inform the referring practitioner(s) when there have been no changes to the MNT.

SECTION 5: Dissemination, Implementation and Evaluation of Guidelines

5.1 Dissemination and implementation

Preliminary dissemination of the guidelines was commenced during the consultation phase and by the presentations to DAA members at conferences.

The DAA endorsed guidelines are available on the DAA website and will be submitted for publication in *Nutrition & Dietetics*.

Diabetes Interest Groups will be encouraged to support dissemination and implementation of the guidelines.

5.2 Evaluation plan

The DAA Practice Guidelines were modelled on US Practice Guidelines. These guidelines were evaluated and proven to be effective in the USA. It is recommended that the DAA Practice Guidelines be evaluated in the Australian population.

The Practice Guidelines Committee recommends that expressions of interest be sought from interested parties to undertake the evaluation as a randomised controlled trial as a PhD project. The guideline development committee would be prepared to act in an advisory capacity. It is envisaged as part of this project that dissemination and implementation of the guidelines will be evaluated.

SECTION 6: Recommendations for Research

The committee's recommendation is that a randomised controlled trial of these guidelines should be conducted in the Australian setting, using nationally accepted Australian treatment outcomes should be conducted. In addition, the committee recommends that MNT as described in these guidelines be compared with a standardised group nutrition intervention process.

List of Abbreviations

ADA	American Diabetes Association An American non-profit health organisation providing diabetes research, information and advocacy.
ADEA	Australian Diabetes Educators Association The national professional organisation of diabetes educators in Australia.
ADS	Australian Diabetes Society A member based professional society for research, medical practice and education in diabetes mellitus.
APD	Accredited Practising Dietitian Qualified dietitians who commit to a program of continuing professional development and to the DAA Code of Professional Conduct and Ethics.
BG	Blood glucose The level of glucose in the blood stream, measured in mmol/l.
CPG	Clinical Practice Guidelines.
DAA	Dietitians Association of Australia The national professional association of dietitians in Australia.
DAA Practice Guidelines	Dietitians Association of Australia Evidence Based Practice Guidelines for the Nutritional Management of Type 2 Diabetes Mellitus for Adults
FBG	Fasting blood glucose Blood glucose measurement after an 8-12 hour fast, measured in mmol/L.
HbA1c	Glycosylated haemoglobin A measure of the percentage of haemoglobin which is glycosylated. It reflects the average blood glucose over the preceding 2-3 months.
HDL	High Density Lipoprotein A protein that transports plasma cholesterol.
LDL	Low Density Lipoprotein A protein that transports plasma cholesterol.
MNT	Medical Nutrition Therapy The process of nutrition assessment, intervention and follow-up conducted by a qualified dietitian.
NDSS	National Diabetes Services Scheme An Australian Government funded scheme administered by DA that enables people who register with the scheme to access a range of Australian Government-approved products including syringes, needles for special injection pens and blood and urine test strips at subsidised prices.
NHMRC	National Health & Medical Research Council Australia's leading expert body promoting the development and maintenance of public and individual health standards.
RCT	Randomised Controlled Trial Subjects are randomly allocated to groups either for the intervention/treatment being studied or control/placebo (using a random mechanism, such as coin toss, random number table, or computer-generated random numbers) and the outcomes compared.
SBGM	Self blood glucose monitoring Self-testing of blood glucose level using a blood glucose meter.
SFA	Saturated Fatty Acids Fatty acids in which all of the carbon atoms are joined by single valence bonds. Diets high in saturated fat are associated with increased risk of cardiovascular disease.
TG	Triglyceride

	A compound consisting of a three fatty acids and glycerol. The storage form of fat in the body and principle lipid in the blood.
T2DM	Type 2 diabetes mellitus Type 2 diabetes mellitus is characterised by high blood glucose levels, the key cause of which is insulin resistance rather than insulin deficiency.
UFA	Unsaturated fatty acids A fatty acid in which some of the carbon atoms are joined by double or triple valence bonds. Includes polyunsaturated (PUFA) and monounsaturated fatty acids (MUFA).
USA	United States of America
US Practice Guidelines	American Nutrition Practice Guidelines The American diabetes guidelines published in the Journal of the American Dietetic Association in 1995.

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41. NSW Health Privacy Manual, Circular No 2004/34 <http://internal.health.nsw.gov.au/fcsd/rmc/cib/circulars/2004/cir2004-34.pdf>

Appendix 1

Summary: American Diabetes Association Standards of Medical Care in Diabetes – 2006 (17)
Medical Nutrition Therapy – Recommendations

Recommendations

- People with diabetes should receive individualized MNT as needed to achieve treatment goals, preferably provided by a registered dietitian familiar with the components of diabetes MNT. (B)
- Both the amount (grams) of carbohydrate as well as the type of carbohydrate in a food influence blood glucose level. Monitoring total grams of carbohydrate, whether by use of exchanges or carbohydrate counting, remains a key strategy in achieving glycemic control. (A)
- The use of the glycemic index/glycemic load may provide an additional benefit over that observed when total carbohydrate is considered alone. (B)
- Low-carbohydrate diets (restricting total carbohydrate to 130 g/day) are not recommended in the management of diabetes. (E)
- To reduce the risk of nephropathy, protein intake should be limited to the recommended dietary allowance (RDA) (0.8 g/kg) in those with any degree of CKD. (B)
- Saturated fat intake should be 7% of total calories. (A)
- Intake of trans fat should be minimized. (E)
- Weight loss is recommended for all overweight (BMI 25.0 –29.9 kg/m²) or obese (BMI 30.0 kg/m²) adults who have, or are at risk for developing, type 2 diabetes. (E)
- The primary approach for achieving weight loss is therapeutic lifestyle change, which includes a reduction in energy intake and an increase in physical activity. A moderate decrease in caloric balance (500 –1,000 kcal/day) will result in a slow but progressive weight loss (1–2 lb/week). For most patients, weight loss diets should supply at least 1,000 –1,200 kcal/day for women and 1,200 –1,600 kcal/day for men. (E)
- Initial physical activity recommendations should be modest and based on the patient’s willingness and ability, gradually increasing the duration and frequency to 30–45 min of moderate aerobic activity, 3–5 days/week (goal at least 150 min/week). Greater activity levels of at least 1 h/day of moderate (walking) or 30 min/day of vigorous (jogging) activity may be needed to achieve successful long-term weight loss. (E)
- Drug therapy for obesity and surgery to induce weight loss may be appropriate in selected patients. (E)
- Non-nutritive sweeteners are safe when consumed within the acceptable daily intake levels established by the Food and Drug Administration (FDA). (A)
- If adults with diabetes choose to use alcohol, daily intake should be limited to a moderate amount (one drink per day or less for adult women and two drinks per day or less for adult men); one drink is defined as 12 oz beer, 5 oz wine, or 1.5 oz distilled spirits. (A)
- Routine supplementation with antioxidants, such as vitamins E and C and beta -carotene, is not advised because of lack of evidence of efficacy and concern related to long-term safety. (A)
- Benefit from chromium supplementation in people with diabetes or obesity has not been conclusively demonstrated and, therefore, cannot be recommended. (E)

Table 1 Definition of Evidence Categories: American Dietetic Association vs NHMRC

Evidence Category - Level	NHMRC equivalent
A - High	Level I
B - Medium	Level II/III-1/III-2
C - Low	Level III-3
E - Opinion	Level 4

Appendix 2

Table 1: List of Participants DAA National Conference DPG Workshop 2003

Surname	First Name	Email
Armstrong	Melissa	m.armstrong@garvan.org.au
Barclay	Alan	alan@diabetesnsw.com.au
Brodribb	Jennifer	jennifer_brodribb@health.qld.gov.au
Cobcroft	Megan	Megan.Cobcroft@unilever.com.au
Cochrane	Lisa	lcochrane@dav.org.au
Elliot	Helen	helene@daq.org.au
Holliday	Jenny	jholliday1@optusnet.com.au
Houvardas	Effie	ehouvardas@aol.com
Jones	Paul	Dietitian_Warwick@health.qld.gov.au
Kempe	Alison	Alison_Kempe@health.qld.gov.au
Knights	Sallyanne	dpisk@bigpond.net.au
Leon	Tracey	tracey.leon@kdgp.com.au
Morrison	Melinda	MelindaM@diabetesnsw.com.au
Shirlow	Megan	megan.shirlow@act.gov.au
Shrapnel	Bill	shrapnelnc@bigpond.com
Tapsell	Linda	linda_tapsell@uow.edu.au
Waddingham	Suzie	suzie.waddingham@dhhs.tas.gov.au
Watterson	Cheryl	cheryl.watterson@hnehealth.nsw.gov.au
Young	Rosemary	rosemary_young@health.qld.gov.au

Comments: DAA Conference Workshop (May 2003) Participants

With regards to outcome measures consensus was reached to adopt existing targets within Australia for glycaemic control, lipid control, blood pressure and anthropometry. Outcomes for behavioural change were reached through consensus at the workshop. The follow up visit schedule was also altered to better reflect timeframes to evaluate progress with outcome measures; first follow up 2-4 weeks and the second follow up visit at 4-6 weeks. A three-month visit was included to allow for review of lipids and HbA1c, as this is the agreed time post dietary intervention to review management and any indications for medication. A three-month visit was also recommended in ANPG clinical trial, as glycaemic control was found to deteriorate between three and six months. It was suggested that one of the follow up visits be moved to three months or an additional follow up at three months be included.

Changes to the US Practice Guidelines recommendations that were related to dietetic practice in Australia included:

- Refinement of the scope of the guidelines to well free-living adults seeking care in the outpatient setting (consensus)
- Broadening referral sources to other practitioners and “self referral” (consensus)
- Removal of pre-initial visit as this raised medicolegal risk to the diabetes care team when considering their professional obligations to non attendees (consensus)
- Reference to the Australian National Physical Activity Guidelines (consensus)
- Broadening of the social history requested in the referral data and reviewed at assessment (consensus)
- Better reflect the role of the Australian dietitian in self-monitoring of blood glucose and medication education. In America diabetes dietitians become certified to undertake a broader diabetes educator

role, where as in Australia blood glucose monitoring and medications is usually the role of the diabetes educator (registered nurse), general practitioner or endocrinologist (consensus)

- Gaining consent from patients to communicate dietary intervention with other health practitioners (consensus)

Updated information related to nutrition interventions included:

- Increase in focus on the nutritional quality of the total diet
- Increase in focus on weight management and energy intake
- Change of focus to P:M:S ratio rather than dietary fat
- Inclusion of glycaemic index and fibre with reference to carbohydrate type

Americanisms that were substituted with Australian terminology or deleted, through consensus, included:

- American units of measure were substituted
- “NIDDM” and “Type II Diabetes” were replaced with “type 2 Diabetes”
- Exercise was replaced with physical activity
- Glycated haemoglobin was replaced with HbA1c
- Reference to exchanges were deleted
- Physician was substituted with medical practitioner or general practitioner or endocrinologist

The group decided to retain “medical nutrition therapy” (MNT) even though this term is not currently used in Australia. The group believed that MNT appropriately described the dietitian’s role in the diabetes team and promoted the importance of the dietitian’s contribution to the achievement of improved outcomes for people with diabetes.

Issues that generated the most discussion at the workshop (2003) included treatment targets, frequency and duration of patient contact and group education versus individual assessment. Consensus was not reached on the inclusion of group education in the practice guidelines, as group education had not been evaluated in the American guidelines. Consensus was reached on the other modifications to the ANPG and it was agreed that the draft guidelines would be produced for wider consultation with DAA members. It was also proposed and accepted that the American Diabetes Association Evidence-based Nutrition Principles and Recommendations (35) be adopted.

Appendix 3

Consultation with DAA Members by posting of draft guidelines on DAA website and contact with state diabetes interest groups.

Table 1: List of contributors

Key to contributors	Contact details provided by contributor
Alison Kempe	Cairns Diabetes Centre CAIRNS QLD
Kay Silvester	Border Division of General Practice WODONGA VIC
Tennille Davis	Macarthur Diabetes Service ROSEMEADOW NSW
Queensland Branch of Diabetes Interest Group Helen Elliot Wendy Foley Julie Matheson Maria Packard	
Wendy Foley	QUEENSLAND
Ann Mole	SOUTH AUSTRALIA
Amanda Morgan	Diabetes and Endocrinology Royal Perth Hospital PERTH WA
Jose Cabello	Fairfield Hospital NSW
Roslyn Smith	Liverpool Health Service LIVERPOOL NSW
Anne Myers	Walton Diabetes Centre Walton Hospital LIVERPOOL UK
Jean Reid	Camden Hospital Macarthur Health Service NSW
Richard Grzegorzulka	Ballina Community Health NSW
Wendy Swan	Goulburn Valley Health NSW

Table 2: DAA Members' Comments

Comments	Comment/Action
Duration of consultations... Too long	Noted Duration evidence based No change made
Frequency of consultations – too frequent	Noted Evidence based No change made
Application to sub groups: elderly, young	Noted Insert paragraph to clarify
Basic care criteria, require clarification/expand	Accepted Clarified
Group Education not incorporated/limited dietitians employed	Noted Not evidence based

to provide individual consults	Insert paragraph to clarify
Self-referral. Clarification	Accepted Clarified
Change Order of information contained within tables	Noted Contents of tables not in order of priority No change made
Medical history – expand	Accepted Expanded
Microalbumin included in assessment not in intervention	Noted Health status indicator Interventions are based on health status No change made
Outcome measures: weight – Replace “3kg in 6 weeks”	Noted Review evidence
Outcome measures: Reduction energy add “if needed/where appropriate”	Accepted Added “if appropriate”
Outcome measures: outcomes – are quantitative not qualitative	Noted Difficult to validate in clinical setting No change made
Outcome measures – waist circumference	Noted Already stated No change made
Outcome measures: Lipids – change to current recommendations	Accepted Replace with current recommendations
Goal/Outcome measure: fasting BGL – change	Accepted in part No change goal Modified outcome
Outcome measures: too specific	Noted Accepted in part Changed in part
Physical activity recommendations – change recommendations	Noted Await finalisation document to insert current recommendations
Assessment: include assessment eating disorders	Accepted Assess eating behaviours inserted
Assessment: add takeaways	Accepted added
Discussion topics: food plan skills – expand	Noted Already stated No change
Discussion topics: Psycho-social expand to mention family context	Noted Dietetic skill assumed No change made
Discussion topics: discuss medication	Noted Already stated No change made
Education Topics: add “free foods”	Accepted Inserted “Sources of vitamins,

	minerals and fibre”
Vocabulary replace “portions” with “amounts”	Accepted replaced
Vocabulary: Exercise “scientist” – replace	Accepted Changed to exercise “Physiologist”
Vocabulary replace: “prescription”	Accepted Replaced with “recommendation”
Clarification of facts “introduction medication” Paragraph 2 sentence 2 - add “or a significant resistance to insulin action”	Noted No change made
Management as team – including educators, GPs	Noted Already stated No change made
Inclusion of dietitian skills required	Noted Outside scope of this document No change made
Inclusion of how to provide “effective education”	Noted Outside scope of this document No change made
Inclusion of nutrition recommendations	Noted Outside scope of this document Reference to US Nutrition recommendations No change made
Appreciation	Noted

Appendix 4

2004 ADEA/ADS Scientific Meeting Workshop

Table 1: List of Participants

Key to participants	Contact details provided by Participant
Group 1	
Amanda Morgan	Royal Perth Hospital DC, WA
Lynda Jackson	Blacktown DEC, NSW
Barbara Belavic	Hunter Area Diabetes Service, NSW
Helen Elliott	Diabetes Australia Queensland
Elizabeth Hunt	
Georgina Ho	Hospital Authority Hong Kong
Judy Ingle (Facilitator)	St George Hospital DC, NSW
Group 2	
Debbie Schofield	Diabetes Australia, WA
Ulrich Wahl	Hunter Area Health Service, NSW
Anna Waldron	IDI, VIC
Alison Kempe	Cairns DC, QLD
Ros Smith	Liverpool DC, NSW
Jennifer Browne	Victorian Aboriginal HS
Rosemary King	Concord Hospital DC, NSW
Alan Barclay (Facilitator)	Diabetes Australia, NSW
Group 3	
Debbie Chen	Cardinia-Casey CHS, VIC
Renee Kennedy	Westmead Hospital, NSW
Cheryl Watterson	John Hunter Hospital, NSW
Claire Garrity	St Vincent's Hospital, NSW
Elaine Davis	Mt Alvernia Mercy Hospital, VIC
Helen Devit	Ryde Hospital, NSW
Tania Bennet (Facilitator)	Royal North Shore Hospital DEC, NSW
Group 4	
Dianne Harvey	Diabetes And Specialist Centre, VIC
Kathryn Cirone	Diabetes Australia, VIC
Katrina Poder	Illawarra Diabetes Service, NSW
Rosemary Young	Mackay CHS, QLD
Magdalen Ramsay	Hunter Diabetes Service, NSW
Naseem Malouf	Prince of Wales Hospital, NSW
Olivia Zabat	Bankstown-Lidcombe Hospital DC, NSW
Susan Hart (Facilitator)	Royal North Shore DEC, NSW
Group 5	
Rachel McKeown	Dubbo Community Health, NSW
Clair Stevens	Diabetes Australia NSW
Susanna Polan	Sir Charles Gairdner Hospital, WA
Kathryn Collins	Alfred Hospital, VIC
Kaye Foster Powell	SWAH Diabetes Service, NSW
Sharyn Barry (Facilitator)	Manly Hospital, NSW

Group 6	
Wendy Braddock	Wollongong Diabetes Centre, NSW
Ingrid Hickman	Princess Alexandra Hospital, QLD
Liz Delbridge	Uni of Melbourne Dept of Medicine, VIC
Maree Glynn	ACT Diabetes Centre
Dr Rachel Stoney	Alfred Hospital, VIC
Melba Mensch	Hunter Area Diabetes Service, NSW
Joanne Turner	Diabetes Australia NSW
Prof Linda Tapsell	University of Wollongong, NSW
Kate Marsh (Facilitator)	Private Practice, NSW

Table 2: ADEA/ADS Workshop Participants' Comments

Comments	Comment/Action
Desired outcomes: Weight loss 3kg low in 6 weeks Too specific – suggest loss 5-10% or toward goal or appropriate weight changes	Noted Review evidence
Intervention: Long term goals – refer to Diabetes Educator	Noted Assessment allows appropriate intervention Referral to Educator already stated No change made
Intervention: Add specific goals	Noted Already included as “short-term goal settings” No change made
Intervention: Long term goals. Mention involvement of patient in process “Negotiate”	Accepted Negotiate inserted
Intervention: Nutrition recommendation – “determine” add and prioritise with patient	Noted Already stated in Food/Meal planning skills No change made
Change order of information contained within tables	Noted Not in order of importance No change made
Intervention: Follow up – Replace “determine” with “negotiate”	Noted Assumed No change made
Addition – standard referral form	Accepted Added to appendix
Assessment: Knowledge, skill level... Replace readiness “to learn” with “change”	Noted No change made
Ask permission to conduct measurements Height, weight...	Noted Dietetic skill assumed No change made
Duration consult/amount of information in one session – too long, too much	Noted Evidence based No change made

Initial appointment: repeat fasting plasma glucose to confirm diagnosis	Noted Assumed by diagnosis No change made
Initial appointment: provide client with list of additional information to be obtained from GP, including HbA1c, microalbumin, GP's plans/goals and method/frequency of SBGM	Noted Dietitian/patient to determine need No change made
Duration, timing and number of appointments need to be flexible	Noted Evidence based framework No change made
Privacy issues: obtain consent from patient to access relevant information from other health care providers	Noted Already stated No change made
Emphasise need to address psycho-social issues	Noted Already stated, dietetic skill assumed
Addition of checklist and tools to go with guidelines	Accepted Added to appendix
Effect of omega-3 fats not mentioned	Noted Addressed in separate nutrition recommendations document No change made
Inconsistent terminology used through document eg HbA1c	Accepted Uniformity checked and adjusted
Concerned the document was not suited to special group eg: elderly	Accepted Included paragraph at start of document
Development of Assessment form	Noted Outside scope of committee No change made
Re-name minimum referral date	Noted Not applicable No change made
Time consuming reading through document – Add data collection form	Accepted in part Checklist added to appendix Changed in part
Assessment: Include previous nutrition education	Noted Assumed in assessment knowledge level No change made
Assessment physical activity – ask intensity	Accepted Added intensity
Fail to attend – make clearer	Noted Address at local level No change made
Terminology – Medical nutrition therapy	Noted Terminology used in research supporting guidelines No change made
Goals – fasting and post prandial BGL – whether achievable within 4 – 6 weeks	Accepted Replace with “Progress toward goals”

Table 6 – add “compliance to medication”	Accepted Added
Title Insert “Adults with”	Accepted Inserted
Need to document educational tools and learning model used with patient/client	Noted Place provided to note this in Appendix 2 – Tools for Practice
Table 9: ‘recommend changes in medical therapy’ – need to say refer to medical practitioner for this	Noted Already stated as communication No change made
Add ‘communication’ (eg back to referral source) to end of each table (tables 5,7,9)	Noted Already stated in document No change made
Table 10 – under follow up, there is recommendation of what to do if goals are met but need to add what to do if goals are not met	Noted Additional visits recommended if goals not achieved No change made
Guidelines don’t deal with psychological issues that person with diabetes might have	Noted Psychosocial issues referred to in table 4 – Initial Nutrition Assessment No change made

Appendix 5

Key Stakeholders

Table 1: List of Key Stakeholders

Australian Diabetes Educators Association	Shirley Cornelius (President)
Australian Diabetes Society	Dr Jeff Flack (President)
Diabetes Australia	National Office Mr Brian Conway (Executive Director)
National Centre for Diabetes Strategies	Prof Stephen Colaguri
RACGP	Royal College of General Practitioners Melbourne

Appendix 6

Contributions from Key Stakeholders

Table 1: List of Contributors

Key to Contributors	Contact
Diabetes Australia Western Australia	Liz Kerrigan, CEO
Diabetes Australia Victoria	Lisa Cochrane, Dietitian Kathryn Cirone, Dietitian
Healthy Living Northern Territory	Sally Noble
Lyn Brown (ACT)	
Diabetes Australia Queensland	Hillary Rice, Dietitian Helen Elliot, Dietitian
Diabetes South Australia (Focus group of adults with type 2 diabetes)	Jen Cousins
Diabetes Australia ACT	Fiona James, President
Australian Diabetes Society	Dr Jeff Flack, President
Diabetes Australia NSW	Diana Russell Dr Lillian Jackson

Table 2: Stakeholder Comments

Comments	Comment/Action
Insert cognitive behavioural strategies for those not meeting goals	Noted Outside scope of document References included
Physical activity guidelines. Why ADA used instead of National Physical Activity Guidelines for Australians	Noted Diabetes specific No change made
Develop and add written resources for dietitians and patients	Noted Some outside scope of document Tools of practice added References included
Cite references through document	Noted Stated in background document and US guidelines referenced No change made
Educators (not dietitian) role to discuss home blood glucose monitoring	Noted Assessment allows to make appropriate intervention Already stated referral to educator No change made
Clarification sentence “MNT should be given to all people...and dyslipidaemia”	Accepted Clarified
Goals: Waist circumference include reference range	Noted Goals vs reference range No change made
Meal planning survival skills – remove	Accepted

“Survival”	“Survival” removed
Documentation: “Anticipated compliance” – subjective	Noted No change made
Communication: Clarify verbal communication with doctor not always possible	Noted Already stated No change made
Group education not incorporated/limited dietitians employed to provide individual consults	Noted Not evidence based Insert paragraph to clarify
Target group doesn’t include clinical setting	Noted No change made
Referral – maybe other than practitioner eg. Family	Noted Already stated No change made
Replace “mental illness” with “depression state” as may offend	Noted Medical terminology Dietitian’s document not viewed by patient No change made
Change order of table contents	Noted Not in order or priority No change made
Three month follow-up emphasise part of basic care	
Medical Model used instead of empowering patient – eg – “identify patients goals”	Accepted Inserted “Assist patient to”
Patient measured against goals – highlight positive change	Noted Guidelines outcome based Assumed dietitian skill
Not accessible to consumers (people with Diabetes)	Noted Dietitian’s document No change made
Limited Target Group	Noted Target group identified No change made
Emphasise relationship and communication with other health professionals	Noted Already stated No change made
Time Frames – short period between consults	Noted Evidence based Stated framework – adapt to individual No change made
Process too complex	Noted Dietitians reference No change made
Number of consults - Social and economic implications	Noted Stated evidence based framework - adapt to individual No change made
Inform patient of other services eg – Diabetes	Noted

Australia	Already stated referrals where appropriate No change made
Negotiate decisions with patient	Noted Already stated No change made
Vocabulary: Replace “dictate” with “inform”	Noted No change made
Several changes recommended to formatting	Noted Accepted in part
Reference to NSW Health Privacy Manual – Nationalise	Accepted Change made
Identify stakeholders on page 2	Noted Identified in document No change made
Correct spelling “utilized”, “glycosalated”, “HbA1C”, “emphasize”, “synchronized”, “summarize”	Accepted Corrected
“three month period” add “2-“	Accepted Added
Goals – correction units	Accepted Corrected
Update guidelines referenced – now NHMRC endorsed	Accepted Updated
Goals – change blood pressure 130/85 to 130/80	Accepted Changed
Second follow up – “changes are” replace maybe	Accepted Replaced
Three month follow-up – “alteration to medical therapy” add “consideration of”	Accepted Added
Add physical activity to treatment types	Noted Included as intervention No change
Laboratory data: blood pressure not lab value	Accepted Changed to clinical data
Add HbA1c after Glycosylated haemoglobin	Accepted Added
Medical history – add Family History	Accepted Added
Medications: add complementary medicines	Accepted Added
Rewording of document	Accepted in part Changed in part
Add food ‘likes, dislikes’	Noted Assumed No change made
Assess Fluid intake	Noted Assumed No change made
Assess hydration status	Noted

	Subjective No change made
Comment re flexibility of meals/snacks with pump	Noted No change made
“Encourage...” add regular complication checks	Noted No change made
Decisions to be made with patient	Noted Already stated No change made
Add several comments re how to assess, provide information	Noted Outside scope of document No change made

Appendix 7

Table 1 - Lipid Control: Excerpt from National Evidence Based Guidelines

Lipids

Issue	
What are the effects of diet and exercise on lipids in people with Type 2 diabetes?	
Recommendation	
<ul style="list-style-type: none"> • Specific dietary advice should be given to all people with Type 2 diabetes and elevated lipids which emphasises weight reduction in the overweight 	
Evidence Statements	
<ul style="list-style-type: none"> • Weight loss can improve lipid levels in people with Type 2 diabetes 	Evidence level I
<ul style="list-style-type: none"> • The composition of the diet influences lipid levels in people with Type 2 diabetes <ul style="list-style-type: none"> ▪ High carbohydrate (55-65%) low fibre diets increase triglycerides in the short term but not in the longer term ▪ Low glycaemic index diets may produce small improvements in lipid levels ▪ Replacing some complex carbohydrate (up to 20% total energy) with sucrose or fructose does not have an adverse effect on lipids ▪ Replacing some complex carbohydrate (10-20% of total energy) in high carbohydrate (50-60%) diets with mono-unsaturated fatty acids (MUFA) lowers plasma triglycerides in the short-term ▪ Longer term have failed to show consistent differences in lipid levels when some complex carbohydrate in high carbohydrate (50-60%) diets is replaced with mono-unsaturated fatty acids (MUFA) ▪ Diets high in polyunsaturated fatty acids (PUFA) and MUFA have similar effects on lipid levels ▪ Fish oil supplementation can reduce triglycerides but increases LDL cholesterol ▪ Increasing fish intake may improve lipid profiles although data are limited ▪ There are few data on the effects of changes in dietary protein content on lipid levels in people with Type 2 diabetes ▪ Increasing the fibre content of the diet can lower total and LDL cholesterol but has little effect on triglyceride and HDL cholesterol levels ▪ Plant sterol enriched margarine have modest effect on lipid levels ▪ There is no direct evidence that alcohol alters the lipid profile in people with Type 2 diabetes ▪ Anti-oxidant therapy may reduce susceptibility of LDL particles to oxidation but cardiovascular outcomes are not improved • Exercise programs may have a modest but variable effect on lipid levels in people with Type 2 diabetes 	<ul style="list-style-type: none"> Evidence level II Evidence level II Evidence level II Evidence level I Evidence level II Evidence level II Evidence level I Evidence level II Evidence level II Evidence level II Evidence level II Evidence level II Evidence level II Evidence level III-2 Evidence level II Evidence level III-2

Source: National Evidence Based Guidelines for the Management of Type 2 Diabetes Mellitus: Lipid Control Endorsed by the NHMRC December 2004) <http://www.nhmrc.gov.au/publications/cphome.htm>

Appendix 8

Table 1: American Nutrition Practice Guidelines – Desired Outcomes of Medical Nutrition Therapy (5)

Desired outcomes of medical nutrition therapy (MNT) for patients with non–insulin-dependent diabetes mellitus

Index	Goal	Desired outcomes 4 to 6 wk after initial MNT	Desired outcomes of ongoing MNT
Glycemic control (6,7)			
Fasting/preprandial glucose (<6.6 mmol/L is normal) ^a	4.4 to 6.7 mmol/L is acceptable (improvement should be attempted if >7.8 mmol/L)	Downward trend (~10%) or at target goal; if not, recommend nutrition or medical therapy changes	Maintenance of target goals
Postprandial (2-h) plasma glucose (<7.8 mmol/L is normal)	5.6 to 10.0 mmol/L is acceptable (improvement should be attempted if >11.1 mmol/L)		
Glycated hemoglobin (HbA _{1c}) (<6.0% is normal) ^b	6.0% to 7.5% acceptable	Downward trend (~10%) or at target goal	Maintenance of target goals
Lipids (12,13)^c			
Cholesterol	<5.2 mmol/L	If cholesterol is elevated, a 6% to 12% decrease	If outside the target range after 4 to 6 months of MNT, physician is notified
Low-density lipoprotein cholesterol	<3.4 mmol/L		
High-density lipoprotein cholesterol	>0.9 mmol/L in men; >1.2 mmol/L in women		
Triglycerides	<2.27 mmol/L		
Blood pressure (14,15)	<130/85 mmHg		If no response to lifestyle changes, physician is notified
Weight change (8)	Maintain reasonable weight ^d : short-term weight loss of 0.2 to 0.5 kg (½ to 1 lb)/wk; long-term weight loss of 2.5 to 9 kg (5 to 20 lb)	Weight loss of 1.5 to 3 kg (3 to 6 lb)	Weight loss of 4.5 to 9 kg (10 to 20 lb)
Food/meal planning (8)	Meals and snacks eaten on a regular basis Appropriate food choices and amounts according to the food/meal plan If energy intake exceeds needs, intake reduced by ~250 to 500 kcal/d	Positive changes in food selection, amounts, frequency, and timing of meals	Implementation and maintenance of positive changes
Exercise (16,17)	If no medical limitations, physical activity for 10 to 15 min or more, minimum of 3 to 4 times a week	Physical activity level gradually increased or continued	Maintenance of exercise program

^aTo convert mmol/L glucose to mg/dL, multiply mmol/L by 18.0. To convert mg/dL glucose to mmol/L, multiply mg/dL by 0.0555. Glucose of 6.0 mmol/L = 108 mg/dL.

^bHemoglobin A_{1c} is referenced to a nondiabetic range of 4.0% to 6.0% (7).

^cTo convert mmol/L cholesterol to mg/dL, multiply mmol/L by 38.7. To convert mg/dL cholesterol to mmol/L, multiply mg/dL by 0.026. Cholesterol of 5.00 mmol/L = 193 mg/dL.

^dReasonable body weight is defined as that level of weight the patient and the health care provider acknowledge as achievable and maintainable both short- and long-term. This contrasts with desirable body weight, which is an ideal body weight for a person based on height and frame size (8).

Appendix 9

Tools for Practice - Sample Referral Form

Date:

Dear Dietitian,

Re: Name:

Address:

DOB:

Reason For Referral _____
Diabetes Dx: Type 1 _____ Type 2 _____ GDM _____ Month/Year Dx _____
Height (cm) _____ Weight (kg) _____ BMI (kg/m²) _____
Most Recent HbA1c/Blood glucose values (include dates) _____
Results of OGTT (if appropriate) _____
Past Medical Hx: Hypertension _____ Dyslipidaemia _____ Nephropathy _____
Neuropathy _____ Other _____
Relevant Laboratory Data _____
Current Medications: Insulin _____
Oral Hypoglycaemic medications _____
Other medications _____
Any restrictions regarding exercise? _____
Relevant psychosocial issues _____
Medical clearance for exercise (please sign) _____

Yours sincerely,

(Doctor's Signature)

Appendix 10

Tools for Practice

Type 2 Diabetes Practice Guidelines Checklist

INITIAL VISIT – DATE: _____

Assessment		Completed	Not Completed	Comments
	Clinical Data			
	Nutrition Hx			
	Physical Activity Hx			
	Psychosocia			
	SBGM			
	Knowledge/skills, etc			

Intervention		Completed	Not Completed	Comments
	Long term goals			
	Nutrition Recommendations			
	Food planning, etc			
	Education material			
	SBGM			
	Physical Activity			
	Short term goals			
	Follow up			

Communication – letter sent: _____

1ST FOLLOW UP VISIT – DATE: _____

Assessment		Completed	Not Completed	Comments
	Follow up data			
	SBGM			
	Nutrition progress			
	Goal setting			

Intervention		Completed	Not Completed	Comments
	Food/meal planning			
	Education			
	Goal setting			
	Follow up			

Communication – letter sent: _____

2ND FOLLOW UP VISIT – DATE: _____

Assessment		Completed	Not Completed	Comments
	Follow up data			
	SBGM			
	Nutrition progress			
	Goal setting			

Intervention		Completed	Not Completed	Comments
	Food/meal planning			
	Education			
	Goal setting			
	Follow up			

Communication – letter sent: _____

3 MONTH VISIT – DATE: _____

Assessment		Completed	Not Completed	Comments
	Follow up data			
	SBGM			
	Nutrition progress			
	Goal setting			

Intervention		Completed	Not Completed	Comments
	Food/meal planning			
	Education			
	Goal setting			
	Follow up			

Communication – letter sent: _____