



Tayside
Diabetes
MCN



Tayside Diabetes Managed Clinical Network

Insulin Strategy



Updated May 2009

Tayside Diabetes Managed Clinical Network Insulin Strategy

Developed by a Short Life Insulin Strategy
Working Group

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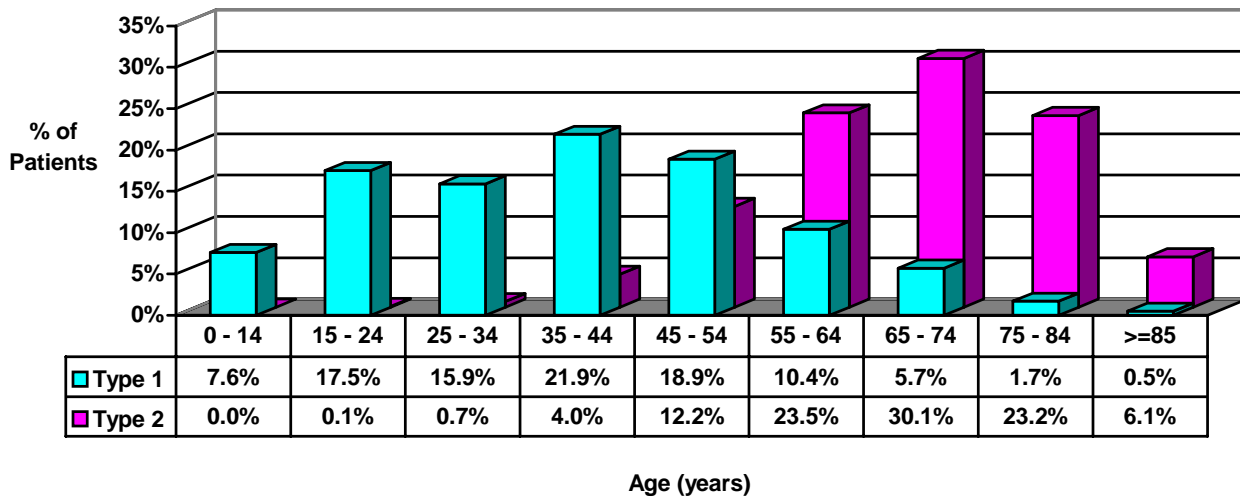
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Background Information

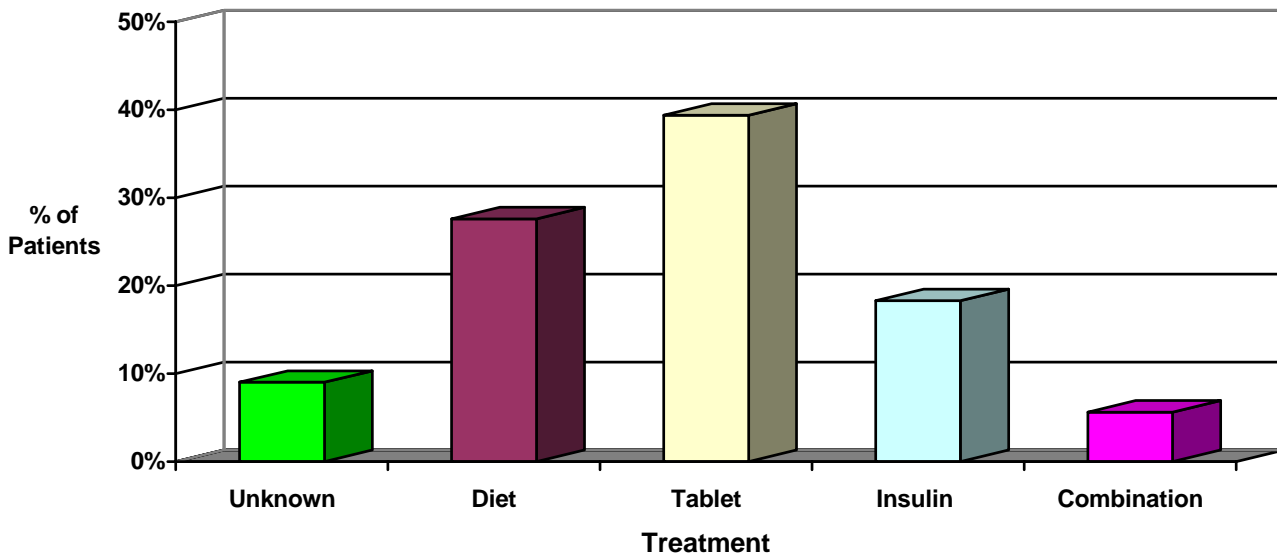
Prevalence of Diabetes in Tayside

Overall prevalence of diabetes in Tayside on 31/12/2008 was **4.3%** (n=17140). These figures are limited to patients with Type 1 or Type 2 diabetes

Age distribution by diabetes type

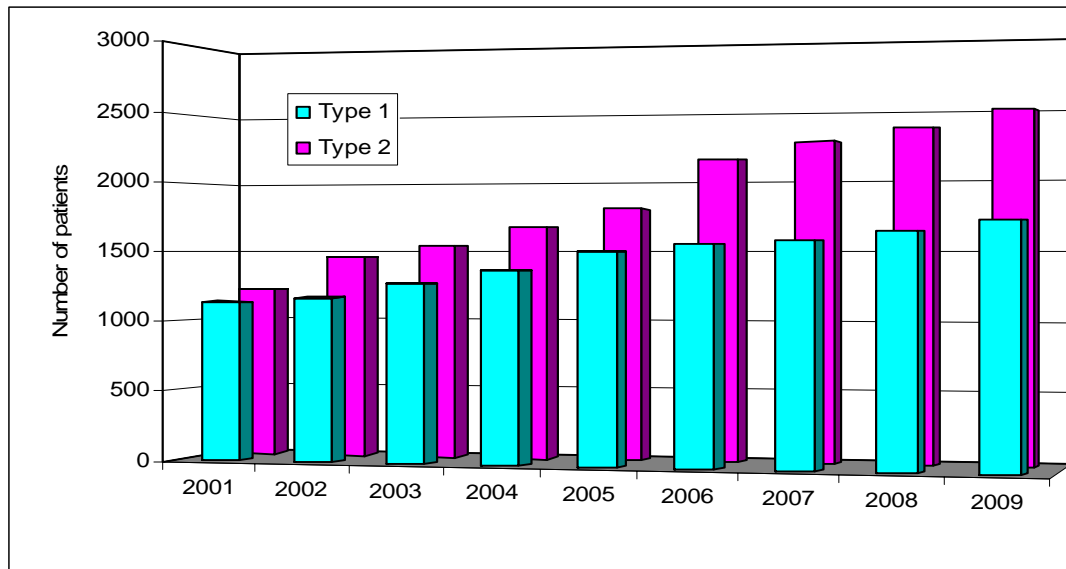


Breakdown of most recent treatments as a percentage of the total diabetes population



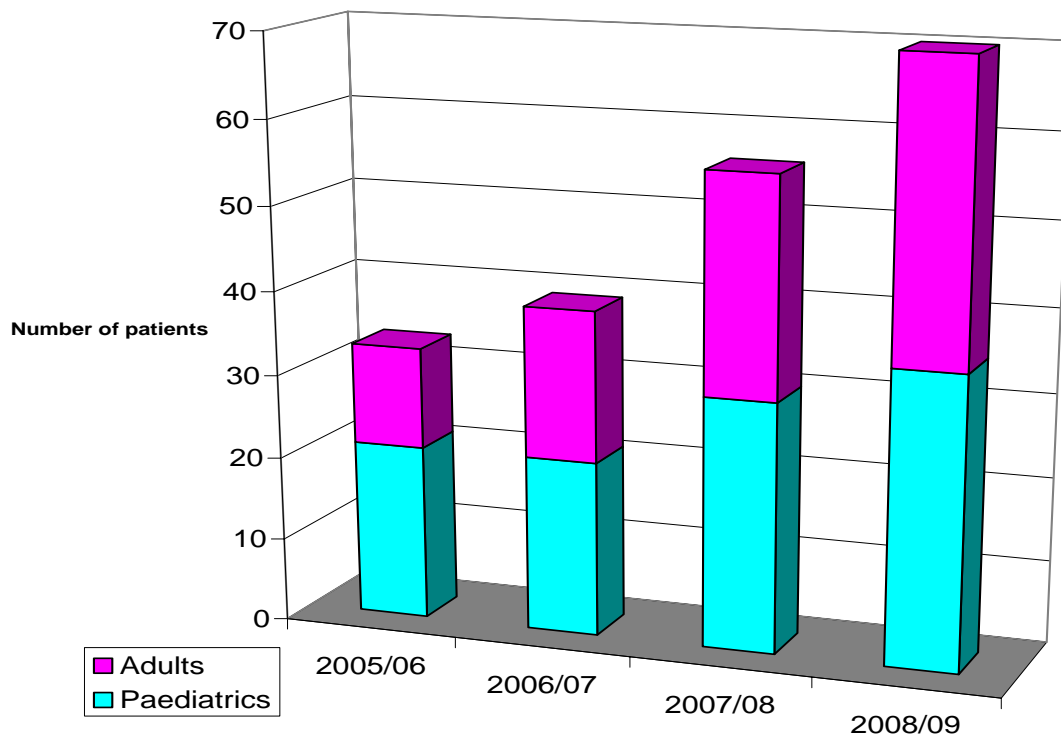
- 18.3% (n=3137) of all patients were treated with insulin alone.
- 9.8% (n=1519) of patients with Type 2 diabetes were treated with insulin alone
- 3.5% (n=58) of patients with Type 1 diabetes and 5.9% (n=910) of patients with Type 2 diabetes were treated with a combination of insulin and oral hypoglycaemic drugs.

Insulin Usage from 2001 to 2009



Insulin figures via successive mid-year snapshots of the Tayside diabetes population. Note* the 2009 figures are up to 16/05/2009. Insulin use is determined by a "Treatment" flag that is imported into SCI-DC from various clinical systems and not by interrogation of prescriptions.

Insulin Pump Therapy 2005 to 2008



Principles and Aims of Insulin Therapy

Principles of Treatment

- Insulin injections are given to replace endogenous insulin in patients with absolute or relative deficiencies in insulin secretion.
- A balance must be maintained between the amount of carbohydrate consumed, insulin administered and exercise taken - all of which can affect the blood sugar.
- Self-monitoring of blood glucose levels and HbA1c measurements are advised to ensure treatment is effective and targets are met.

Aims of Insulin Treatment

- Abolish hyperglycaemic symptoms
- Maintain ideal body weight
- Optimise glucose control
- Avoid hypoglycaemia
- Maintain as near normal a blood glucose as is practical and safe for the individual
- Ensure normal growth and development in childhood and adolescence.

There has been a move in paediatric practice to the use of more intensive insulin regimens (multiple insulin injections or pump therapy) even in the very young child. This approach is adopted from time of diagnosis and often requires the child to have insulin injections while in school.

Insulin Therapy Initiation

All patients starting insulin should have the following:

- Review of dietary intake, with emphasis on regular and consistent carbohydrate intake.
- An individualised regime, which must take account of lifestyle factors such as shift work, holidays, exercise etc.
- Appropriate education on self-management of insulin administration
- Education on avoidance of hypoglycaemia
- Education on "sick day rules", including avoidance of diabetic ketoacidosis for people with Type 1 diabetes.

Paediatric Service	Adult Service
<p>Insulin initiation is managed by the Paediatric Specialist Diabetes Team.</p> <p>The majority of children will be well enough to start their treatment, including insulin injections, at home with close supervision and support from the diabetes nurse. Usually this is on the same day.</p>	<p>Insulin initiation is best managed as an outpatient at the Diabetes Clinic, with input from a Diabetes Specialist Nurse.</p> <p><u>Type 1 Diabetes</u> Patients are usually seen urgently after the diagnosis is made and insulin started, preferably as an out-patient, with input from one of the Diabetes Specialist Nurses.</p> <p><u>Type 2 Diabetes</u> The most common indication for insulin in these patients is worsening glycaemic control on oral agents. The decision to switch treatment to insulin can be difficult and the following factors should be taken into account:</p> <ul style="list-style-type: none"> – Age – Other health problems, e.g. complications such as visual loss – Social circumstances, e.g. patients holding HGV licence – Patient's attitude – Compliance with diet – Patient's weight – Pregnancy

Guidelines for insulin therapy are available within the Tayside Diabetes Handbook in the sections **Therapy: Treatment with Insulin** and **Paediatrics**.

Education

All patients starting insulin should have the following:

- Review of dietary intake, with emphasis on regular and consistent carbohydrate intake.
- An individualised regime, which must take account of lifestyle factors such as shift work, holidays, exercise etc.
- Appropriate education on self-management of insulin administration
- Education on avoidance of hypoglycaemia
- Education on "sick day rules", including avoidance of diabetic ketoacidosis for people with Type 1 diabetes.

An education checklist is available within the Tayside Diabetes Handbook in Section **Diagnosis and Advice: Patient Education and Advice**.

Paediatric Service	Adult Service
<p>Initial and ongoing education is undertaken by all members of the Paediatric Diabetes Team at each clinic visit and at other opportunities.</p> <p>All families are given written educational material including "now that your child has diabetes" handbook.</p>	<p>Initial education for patients with Type 1 Diabetes starting on insulin is provided on a one to one basis by the Diabetes Specialist Nurses within the clinic visits.</p> <p>Group education sessions are run for the commencement of insulin for people with Type 2 Diabetes and to provide an update and revision of education to patients and their relatives/carers. A standardised workbook has been developed to support this education.</p> <p>Tayside Insulin Management Programme (TIM) provides intensive structured group education for people with Type 1 Diabetes to enable them to develop the knowledge and skills to self manage. The aims of the programme are to: -</p> <ul style="list-style-type: none"> ➤ Enable people with Type 1 diabetes to learn the principles of matching their insulin dose to the amount of carbohydrate (CHO) eaten. ➤ Provide accurate information to enable people to self-manage their diabetes. ➤ Provide an environment where people can ask questions and learn from each other.

Ongoing Management

Paediatric Service	Adult Service
<p>Ongoing management is led by the Paediatric Specialist Diabetes Team. Clinic attendance is frequent initially but is aimed at becoming 3 to 4 monthly. The children have their height, weight and HbA1c monitoring at each visit.</p> <p>Patients and families are issued with telephone contact numbers, including the DiabNet emergency helpline, if they have any worries or concerns between clinic appointments. Contact can also be made during illness, poor control and for general advice.</p>	<p>Ongoing management is led by the Specialist Diabetes Team. Clinic attendance is frequent initially but ultimately is 6 to 12 monthly. Patients have their weight, blood pressure, HbA1c, creatinine, microalbumin, urinalysis, visual acuity, retinal photography and foot care monitored at each visit as well as receiving dietetic advice if required. Other medical conditions are considered and managed.</p> <p>Contact telephone numbers are given out if required. Contact can also be made during illness, poor control and for general advice.</p>

Guidance on insulin regimes and dose adjustment is available within the Tayside Diabetes Handbook in Sections **Therapy: Treatment with Insulin** and **Adjustment of Insulin** and **Paediatrics**

Guidance on blood glucose meters is available within the Tayside Diabetes Handbook in Section **Therapy: Blood Glucose Meter Policy**.

Continuous Insulin Pump Therapy

The National Institute for Health and Clinical Excellence (NICE) recommended insulin pump therapy as one option for people with Type 1 diabetes provided that:

- multiple-dose insulin therapy (including using insulin glargine when it's appropriate) has failed, and
- they are willing and able to use insulin pump therapy effectively.

A local protocol has been developed based on the NICE guidance and is available within the Tayside Diabetes Handbook in Section **Therapy: Insulin Pump Protocol**.

Paediatric Service	Adult Service
<ul style="list-style-type: none">• Children are considered for pump therapy in line with the local protocol (appendix D).• Education about intensive diabetes management using multiple daily injections is given prior to pump therapy and is delivered by the Paediatric Diabetes Team.• Pump therapy is commenced in small groups of 3-4 children and their families. This is delivered by the Paediatric Diabetes Team with support from the pump manufacturer.• Ongoing support and education in pump use is delivered by the Paediatric Diabetes Team within the diabetes Clinics.	<ul style="list-style-type: none">• Patients are assessed and reviewed for their suitability for a pump in the pump clinic (where available) or peripheral clinics by their Consultant and Diabetes Specialist Nurse in line with local protocol.• All patients require to have undertaken the TIM programme (or equivalent) before starting on pump therapy.• An insulin pump workbook and educator guide has been developed to support the education of patients starting on insulin pump therapy.• Patients will be given initial instruction about the pump from the manufacturer supplying the pump.• Dietary support and review of patients starting pumps will be provided by the dietician with a remit for pumps.• Specialist Diabetes nursing support is provided to patients on pumps after they have been started.

Inhaled Insulin

With the announcement that Pfizer have withdraw from inhaled insulin production, this treatment option will no longer be available at this time. Clinicians will discuss with patients currently on inhaled insulin alternative treatment options.

Tayside Diabetes Handbook

All the guidelines, protocols or documents referred to in this strategy can be found within the Tayside Diabetes Handbook at the following address:

www.diabetes-healthnet.ac.uk