PART 1
Basics
1 Classification of diabetes

Key points

- Diabetes is either Type 1 or Type 2. No other terms for these major categories are permitted
- The formal diagnosis is not always obvious in acutely admitted patients (either newly diagnosed or not previously fully characterised)
- Apart from patients with DKA, you will not encounter Type 1 patients very often; this makes it especially important to identify them, as their management is completely different from that of most Type 2 patients
- Among the other specific types of diabetes (of which there are many, mostly rare), two concern the acute hospital practitioner:
  - Pancreatic
  - Drug-induced

PHENOTYPIC FEATURES OF CLASSICAL TYPE 1 AND TYPE 2 DIABETES

Increasing numbers of people with diabetes do not conform to the stereotypes (Figure 1.1). Autoimmune (Type 1) diabetes occurs in older adults and Type 2 diabetes in younger adults and increasingly, though still in very small numbers in the UK, in adolescents. Some mental flexibility is needed to accommodate these – but they are clinically important because of the hazards of unexpected insulin deficiency (ketosis and the need for insulin treatment). Some scenarios are shown in Box 1.1.

![Figure 1.1](image)

Key clinical features of classical (textbook) Type 1 and Type 2 diabetes.
There is a small proportion (around 5%) with unusual forms of diabetes (e.g. dominantly inherited monogenic forms, previously termed maturity-onset diabetes of the young (MODY); syndromic diabetes; pancreatic diabetes). Patients with pancreatic diabetes are usually insulin-requiring (and ketosis-prone), but technically not Type 1, as β-cell destruction is caused by non-autoimmune processes, e.g. alcohol, calcification.

**Terminology**

Table 1.1 shows the several obsolete terms for diabetes, but they still turn up depressingly often (as I write this, a cohort of trainees has taken to using IDDM and NIDDM, terms that were outdated about 14 years ago). ‘IDDM’ and ‘NIDDM’ roll off the tongue very easily (just like ‘BM’: see Chapter 4) but that’s no reason to use them.

This is NOT nitpicking. Withdrawing insulin (omission in the clinical context) in Type 1 diabetic patients may result in severe ketosis within 4 hours (e.g. plasma β-hydroxybutyrate around 3 mmol/L) in the absence of especially high blood glucose levels (e.g. 14–15 mmol/L).

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**Box 1.1 Clinical scenarios that can help in making a diagnosis**

- Someone on full insulin treatment alone (a regimen that covers night-time and meal times without non-insulin agents) is probably Type 1
- Exception: some patients with very long duration Type 2 diabetes (often thin, with pancreatic ‘exhaustion’) take only insulin
- Most Type 2 patients on full insulin usually take metformin as well (they may also take injectable GLP-1 analogues and a variety of oral agents; see Chapter 24)
- Someone on full insulin since childhood, adolescence, or early adulthood (up to 30–35) is Type 1. Most patients can remember accurately how long they have been taking insulin. Late-onset Type 1 diabetes can occur at any age (often in people with a strong personal or family history of associated autoimmune conditions)
- Northern Europe (especially UK and Scandinavia), Australia and New Zealand have the highest incidence of Type 1 diabetes
- A non-overweight white person of any age treated with insulin alone has Type 1 diabetes. Many people now survive without significant complications for 50 years or more (they will be in their 60s and 70s). They often need only tiny doses of insulin (e.g. <20 units/day) but are still insulin-requiring and ketosis-prone
- Thin people are likely to have Type 1 diabetes, but there are a lot of overweight Type 1 patients who have insulin-resistant features and may require high-dose insulin
Table 1.1 Alternative terms for Type 1 and Type 2 diabetes

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Type II</td>
<td>Use Arabic, not Roman numerals, National Diabetes Data Group (NDDG), 2003</td>
</tr>
<tr>
<td>Insulin-dependent IDDM</td>
<td>Non-insulin-dependent NIDDM</td>
<td>Declared obsolete, 2003 (NDDG)</td>
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<tr>
<td>Juvenile-onset</td>
<td>Adult onset, maturity-onset</td>
<td>Very obsolete, but more descriptive and precise than other terms</td>
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<tr>
<td>Ketosis-prone</td>
<td>Non-ketosis-prone</td>
<td>‘Ketosis-prone diabetes’ is coming back into use to describe patients who at onset are insulin-deficient; this group includes ‘Flatbush’ diabetes (Type 2), and fulminant diabetes (Type 1B). The full new classification (Aβ) requires measurements of markers of islet-cell autoimmunity (A) and β-cell function (β), neither of which are routinely available</td>
</tr>
</tbody>
</table>
| ‘Sugar diabetes’, ‘A touch of diabetes’, ‘Mild diabetes’ | • ‘Sugar diabetes’ is rarely used except by people and physicians of a certain age.  
• ‘A touch of diabetes’ is an elegant phrase, but has no quantitative basis.  
• ‘Mild diabetes’ was a clinically acceptable term for well-controlled Type 2 diabetes before Type 1 and Type 2 were distinguished. Generally deplored now, but some forms of Type 2 diabetes run a benign course with excellent long-term control on minimal or no medication |
| Diet-controlled diabetes | A precise term – when it’s true. ‘Diet-treated diabetes’ is a better starting point, pending assessment of CBGs and HbA1c. Most Type 2 patients require medication |