# National Guidance on Titration of Diabetes Medication by Diabetes Specialist Nurses

**Title:** National Guidance on Titration of Diabetes Medication by Diabetes Specialist Nurses

**Trust Ref No:** 1968-27755

**Main points the document covers:** This is a Guideline produced by the Royal College of Nursing (RCN) to support the adjustment of Insulin doses by Diabetes Nurses who do not hold a Non-Medical Prescribing Qualification

**Who is the document aimed at?** Diabetes Nurses: A key role for healthcare professionals working in the field of diabetes is to help people with diabetes on insulin therapy adjust their doses to optimise therapeutic responses in a safe and effective way.

**Author:** Royal College of Nursing 2012

## Approval process

**Who has been consulted in the development of this policy?** RCN National Diabetes Forum, National Diabetes Nurse consultant group, Diabetes Inpatient Nurses Group And Association of British Diabetologist

**Approved by (Committee/Director):** RCN

**Approval Date:** June 2012

**Initial Equality Impact Screening:** yes

**Full Equality Impact Assessment:** no

**Lead Director:** Steve Gregory Director of Nursing and Operations

**Category:** Clinical

**Sub Category:** Diabetes

**Review date:** September 2016

## Distribution

**Who the policy will be distributed to:** All Diabetes Specialist Nurses

**Method:** Via Trust Intranet and notification to service managers

## Document Links

**Required by CQC:** Outcomes 4, 9

**Other None:** None

## Amendments History

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National Guidance on Titration of Diabetes Medication by Diabetes Specialist Nurses.

These guidelines have been developed by a team of diabetes nurse consultants and diabetes specialist nurses in collaboration with the RCN Diabetes Forum, National Diabetes Nurse Consultant Group, Diabetes Inpatient Nurses Group and the Association of British Consultant Diabetologists

June 2012
Introduction
Medication titration is recognised as an integral part of diabetes care and self-management.
For the purposes of this guidance, titration is defined by the Oxford English Dictionary 2008 as’….measure or adjust (.….a drug dosage’). For clarification this indicates an increase or decrease in dose.
Non medical prescribing has perhaps highlighted some concerns around dose titration in diabetes. This document will clarify the need for expert nurses within diabetes, to dose titrate according to agreed competency based guidelines, which compliment Standard 13 of the NMC Standard for Medicines Management (2010).
A key role of the Diabetes Specialist Nurse (DSN) is to initiate, review and evaluate diabetes treatment regimes and advise patients, their carers and other care providers on adjusting therapy safely and effectively.
The recommendation is that the Diabetes Specialist Nurse (DSN) job description reflects all competencies required to fulfil the role that meets service requirements, and achievement of such through Personal Development Plans.
The expectation would be that the employing Trust will assume vicarious liability for DSN practice and competence within service need and this would be explicitly stated on the DSN’s job description.
The An Integrated Career and Competency Framework for Diabetes Nurses (2011) have an implicit support structure which clarifies the competence required for nurse functioning at different levels of expertises (appendix 1 and 2).

Titration Guidelines:
Insulin:
In 10-20% increments of individual dose to a maximum total daily dose of 1unit/kg/day (NHS Clinical Knowledge 2011a)
When blood glucose levels indicate a need to exceed the recommended maximum, advice from the prescriber should be sought, and a new maximum dose limit agreed. (Appendix 3)
Local guidance should be agreed and followed for the management of illness particularly in patients with type 1 diabetes (appendix 3)
Local guidance should be agreed for insulin initiation and dose adjustment in high dose steroid therapy and chemotherapy. (Appendix 4)

Oral Hypoglycaemic Agents and GLP-1:
Titrate in recognised dose adjustments to a maximum daily dose according to the BNF recommendation.
Recommendations for assessing competency are provided by the DSN Integrated Career and Competency Framework.
The DSN will have achieved competency to Level 4 or above of this framework, in the area of medication (5.7 Oral Therapies, 5.8 Injectable Therapies)
Competency is assured through clinical supervision by the Diabetes Consultant, and assessment against the competencies, for example through observed clinical practice, case discussions and feedback. Regular pharmaceutical updates on new and existing treatments should be undertaken, and where possible, treatment pathways should be used.
Competency review should be an integral component of the DSN annual performance review.
Appendix 1
Integrated Career and Competency Framework for diabetes nursing for injectable therapies

5.8. INJECTABLE THERAPIES

For the safe administration and use of insulin and GLP-1 receptor agonists you should be able to:

1. Unregistered practitioner
   - Describe the effect of insulin on blood glucose levels.
   - Be aware of local sharps disposal policy.
   - Show an understanding of the ongoing nature of the therapy.
   - Administer insulin competently where supported by local policy.
   - Report identified problems appropriately.

2. Competent nurse
   As 1. and:
   - Actively seek and participate in peer review of one’s own practice.
   - Demonstrate a basic knowledge of insulin and GLP-1 receptor agonists (e.g. drug type, action, side-effects) and administration devices used locally.
   - Demonstrate a high level of competency in the safe administration of insulin or GLP-1 receptor agonists.
   - Demonstrate and be able to teach the correct method of insulin or GLP-1 receptor agonist self-administration, including:
     - Correct choice of needle type and length for the individual.
     - Appropriate use of lifted skin fold, where necessary.
     - Site rotation.
     - Storage of insulin.
     - Single use of needles.
   - Examine injection sites at least annually for detection of lipohypertrophy.
   - Identify correct reporting system for injectable therapy errors.
   - Complete the “Safe use of insulin” e-learning module (NHS Diabetes, 2010).
   - Describe circumstances in which insulin use might be initiated or altered and make appropriate referral.
   - Report concerns related to blood glucose or HbA<sub>1c</sub> results in a timely and appropriate fashion.

3. Experienced or proficient nurse
   As 2. and:
   - Demonstrate a broad knowledge of different insulin types (i.e. action, use in regimens).
   - Demonstrate a broad knowledge of GLP-1 receptor agonists (e.g. drug type, action, side-effects).
   - Assess individual patient’s self-management and educational needs and meet these needs or make appropriate referral.
   - Support and encourage self-management wherever appropriate.
   - Initiate insulin or GLP-1 receptor agonist therapy where clinically appropriate.
   - Recognise when injection therapy needs to be adjusted.
   - Recognise the potential psychological impact of insulin or GLP-1 receptor agonist therapies and offer support to the person with diabetes or their carer.
   - Recognise signs of needle fear/needle phobia and offer strategies to help manage this.

4. Senior practitioner or expert nurse
   As 3. and:
   - Demonstrate expert knowledge of insulin and GLP-1 receptor agonist therapies and act as a resource for people with diabetes, their carer and HCPs.
   - Initiate insulin pump therapy where appropriate.
   - Where individually acceptable, deliver structured group education to people with diabetes, their carers and HCPs.
   - Empower and support a person with diabetes to achieve an individualised level of self-management and an agreed glycaemic target.
   - Maintain active knowledge of current practice and new developments.
   - Establish local guidelines or policies according to local needs.
   - Investigate all incidents and report to the relevant agencies, develop an action plan to prevent recurrence.
   - If a registered non-medical prescriber, prescribe medications, as required, within own competencies and scope of practice according to legislation and local guidelines.
   - Adjust insulin treatment according to age, diagnosis and individual circumstances as appropriate, following local policies or individual clinical management plans.
5.7. ORAL THERAPIES

For the safe administration and use of oral antihyperglycaemic medication you should be able to:

1. Unregistered practitioner
   - Describe the effect of common oral antihyperglycaemic agents on blood glucose levels.
   - Demonstrate an understanding of the ongoing nature of the therapy.
   - Report identified problems appropriately.
   - Recognise the signs of hypoglycaemia and administer glucose.

2. Competent nurse
   - As 1. and:
     - Actively seek and participate in peer review of one’s own practice.
     - Demonstrate knowledge of the types of oral antihyperglycaemic agents and how they work.
     - Demonstrate knowledge of therapeutic doses.
     - Demonstrate knowledge of the timing of doses.
     - Administer or supervise administration of prescribed medication and assess adherence.
     - Complete documentation accurately.
     - Describe common side-effects.
     - Demonstrate knowledge of oral combination therapies, individual management goals and supply issues.
     - Recognise that the progressive nature of type 2 diabetes may require changes in medication over time.

3. Experienced or proficient nurse
   - As 2. and:
     - Describe indications for the initiation of oral antihyperglycaemic agents.
     - Recognise when treatment needs to be adjusted.
     - Describe lifestyle factors that may influence prescribing patterns.
     - Demonstrate awareness of issues related to polypharmacy and drug interactions (e.g. steroids).
     - Demonstrate knowledge of national and local guidelines (e.g. NICE guidance or equivalent).
     - Demonstrate knowledge of treatment cost implications.
     - Evaluate treatment outcomes and make appropriate referrals.

4. Senior practitioner or expert nurse
   - As 3. and:
     - Facilitate and support structured evidence-based education relating to oral antihyperglycaemic agents for individuals or groups.
     - Demonstrate awareness of current research in new oral therapies.
     - Disseminate evidence-based information affecting practice.
     - Assess the competency of other HCPs.
     - If a registered non-medical prescriber, prescribe medications, as required, within own competencies and scope of practice.
     - Adjust oral treatment according to individual circumstances, following local policies or individual clinical management plans.
Appendix 3
Examples of Local Guidance for illness management (NHS Clinical Knowledge 2011b)

- If the blood glucose level is 10–15 mmol/L, increase each insulin dose by 10% of the total daily insulin dose (see the patient leaflet on Managing your diabetes during times of illness and infection (pdf) for further information) [Hancock, 2009]. If blood glucose is higher than 15 mmol/L, the insulin dose can be increased by 10–20% of the total daily dose.

- If the blood glucose level is between 12–18 mmol/L and ketones are negative or present in small amounts, add 4 extra units to the doses if the doses are up to 20 units or 8 extra units for doses greater than 20 units (see the patient leaflet on Type 1 diabetes and coping with illness (pdf) for further information) [Leicestershire Diabetes, 2010]. If the blood glucose level is more than 18 mmol/L and ketones are present in moderate or large amounts, add half of the usual dose to the usual insulin doses. If the blood glucose level is more than 20 mmol/L and ketones are present in moderate or large amounts, double the usual dose of insulin.

- If the blood glucose level is 13–20 mmol/L, add an extra 2–4 units of short-acting insulin (or the normal insulin if this is the only insulin available), increasing to an extra 4–6 units if the blood glucose level is more than 20 mmol/L (see the patient leaflet on Sick day rules (pdf) for further information) [NHS Royal Liverpool and Broadgreen University Hospitals, 2007]. In contrast, some recommend taking an extra 2 extra units of insulin with each injection if the blood glucose level is 13–22 mmol/L (increasing to 4 extra units if the blood glucose level is greater than 22 mmol/L) (see the DiabeteSuffolk Sick day rules web page for further information) [Wijenaike, 2005].

- If the blood glucose level is 15–22 mmol/L, increase the next insulin dose by an extra 4 units before meals and bedtime (double this to an extra 8 units if the total daily insulin dose is more than 50 units), increasing to an extra 6 units if blood glucose is 22 mmol/L or more (or an extra 12 units if the total daily insulin dose is more than 50 units) (see Guidelines for the management of the initiation of insulin in adults (pdf) for further information) [Worcester Acute Hospitals Trust, 2008].
Appendix 4

Who is the prescriber?

For the purposes of this document the prescriber is the medical or non-medical prescriber who prescribed the initial insulin treatment or will particularly in the case of inpatients be prescribing the insulin dose recommended by the diabetes specialist nurse. In some instances the diabetes specialist nurses knowledge of diabetes appropriate insulin dose adjustments may exceed that of the prescriber. In circumstances were the inpatient DSN is making a dose adjustment recommendation outside the 10-20% recommendation this should be discussed directly with the prescriber and reasons for recommendation explained and documented.

Steroid treatment and Insulin

Locally agreed guidance to be developed

Chemotherapy and Insulin

Locally agreed guidance to be developed
Appendix 5

Interpretation of national guidance

The role of the NMC is to produce standards of practice to be adhered to by nurses. The interpretation of these standards is the responsibility national and local organizations and the individual nurse. This guidance has interpreted on a national level the NMC standard in relation to dose titration with specific reference to insulin and GLP1 dose adjustment and titration of oral hypoglycaemic agents.

The role of the National Prescribing Centre (now part of NICE) is to support the NHS and those working for it to improve quality, safety and value for money in the use of medicines for the benefit of patients and the public. The NPC’s definition of prescribing is “To authorize in writing the supply of a medicine (usually but not necessarily a prescription-only medicine) for a named patient” p32 NPC (2009). They also state that “A PGD does not give a legal framework for healthcare professionals to adjust a dose of medicine already in a patients possession. Healthcare professionals may use written protocols to advise patients to adjust the dose of their medication if that is what is required to maintain optimum treatment (e.g. a diabetes nurse specialist advising a patient to alter insulin dose following a blood glucose check)”.p16 NPC (2009)

If the principles outlines in this document are not consider sufficient to cover the complexities of the diabetes specialist nurses roles in relation to treatment adjustments then it would be appropriate for the non-medical prescribing qualification to be undertaken.

Appendix 6

Support statements

On behalf of ABCD I can confirm that we are happy with the document.
Dr Patrick Sharp, MD FRCP
General Secretary ABCD
December 2011

On behalf of the RCN Diabetes Forum I can confirm that the principles outlined in this document in particular the reference to clinical competencies of DSN undertaken medication dose titration are endorsed by the RCN Diabetes Nurse forum
Margaret Bannister
Vice Chair RCN Diabetes Nursing Forum
December 2011
References

NHS Clinical Knowledge (2011a) Insulin therapy in type 2 diabetes

NHS Clinical Knowledge (2011b) insulin therapy in type 1 diabetes
http://www.cks.nhs.uk/insulin_therapy_in_type_1_diabetes/management/scenario_managing_during_a_period_of_illness/managing_insulin_therapy/additional_information Accessed 18.11.11

Nursing and Midwifery Council (2010) Standards for Medicine Management

National prescribing Centre (2009) Patient Group Directives