



Health Protection Agency

**INFECTION PREVENTION AND CONTROL GUIDELINES FOR
BLOOD GLUCOSE MONITORING IN CARE HOMES**

October 2009

Introduction

Routine diabetes care involves monitoring blood glucose levels by taking a sample of capillary blood with a fingerprick lancing device and testing it with a glucometer. Outbreaks of hepatitis B in care homes have been attributed to confusion between different types of lancing devices, the inappropriate and incorrect use of lancing devices, and to poor infection prevention and control practices (for example inadequate cleaning of glucometers, vials or surfaces and inadequate hand hygiene).^{1,2,3} Investigation of such incidents indicate that standard infection control precautions and recommendations regarding the correct type of lancing device may not have been followed. The Medicines and Healthcare products Regulatory Agency (MHRA) has issued guidelines which highlight the risks associated with the inappropriate use of lancing devices.^{4,5}

Information on general infection prevention and control in care homes is already available.^{6,7} The following is more detailed guidance on techniques to minimise cross infection associated with diabetes care. The guidance here is based on that published by the US Centers for Disease Control and Prevention.¹

Guidelines from the National Institute for Clinical Excellence on diagnosis and management of type 1 and type 2 Diabetes include recommendations on glucose monitoring.^{8,9} Unnecessarily frequent testing should be avoided as it can lead to raised anxiety and distress and will increase the risk of cross infection. Monitoring of glucose should be available:

- To those on insulin treatment
- To those on oral glucose lowering medications where hypoglycaemia is suspected
- To assess changes in glucose control resulting from medications and lifestyle changes
- To monitor changes during inter-current illness
- To ensure safety during activities such as driving.

For adults with type 1 diabetes the frequency of glucose monitoring should be agreed among the patient, their care team and their diabetes care team. Although self-monitoring is often offered as part of the management of adults with type 2 diabetes, where self-monitoring is not possible (for example for very frail elderly people or those with severe dementia) care homes should avoid regular monitoring except in the situations outlined above.

Diabetes care procedures and techniques

- **Check that you are using the correct type of lancing device to obtain the capillary blood sample.**

There are 2 types of lancing device available. These are:

- Disposable single-use devices where the lancet and firing mechanism are one unit; these are used **once only** and then the complete unit is discarded, and
- Reusable lancing devices where the firing mechanism is separate from the lancet and endcap. The integrated lancet and

endcap is discarded and replaced **after each use**; the firing mechanism can be used again.

Only some reusable lancing devices are safe to be used by care workers to take capillary samples from patients. Others are designed to be used for self-testing by the patient. It can be difficult to distinguish between the reusable lancing devices that can be used by care staff and those that cannot (those designed for patient's own use). This confusion has led to care workers using the wrong type of reusable device, and led to cross infection between patients.

The NHS Purchasing and Supply Agency provides information and guidance on purchasing appropriate lancing devices.¹⁰

It is the responsibility of the care home management to ensure that the correct lancing device is used, with regular review of policies, procedures and continuous training on testing patients with diabetes.

In any care home where there is a risk of confusion between devices (for instance where a patient who self tests brings their own reusable lancing device into the care home) the use of disposable single-use lancing devices (which are easy to distinguish from reusable devices) throughout the care home is considered the safest option.

- Assign multiple dose insulin vials to individual residents and label with the resident's name and date of birth.
- Prepare medications such as insulin in a centralised medication area.
- Do not carry supplies and medications in pockets.
- Dispose of used lancing devices or lancets at the point of use in an approved sharps container.
- Never reuse needles, syringes or lancets.
- Clean glucometers after each patient use.
- Manage spillages of blood according to national guidance.^{6,7}
- Support people with diabetes who wish to and are capable of self-administering their medicines to do so safely and with secure storage.^{11,12} Where insulin or non-insulin medication given by injection (e.g. incretin mimetics) is self administered, residents should be able to keep their medication pens securely in their own rooms (at room temperature). These pens should never be used by care staff.

Hand hygiene and gloves

- Wear well fitting disposable gloves that are acceptable to care workers and CE marked, during blood sampling, administration of insulin, and during any other procedure that involves potential exposure to blood or body fluids.
- Always change gloves between patient contacts.

- Change gloves that have touched potentially blood-contaminated objects or fingerstick wounds before touching clean surfaces.
- Remove and discard gloves in appropriate receptacles immediately after every procedure that involves potential exposure to blood or body fluids, including blood sampling.
- Perform hand hygiene (i.e. hand washing with liquid soap and water or use of an alcohol-based hand rub which may be used in addition to hand washing but should not be a substitute) before putting on gloves and wash hands with soap and water immediately after removal of gloves and before touching other medical supplies intended for use on other residents.

Medical management

- Review regularly the individual patient's schedule for blood glucose sampling and diabetic management to reduce the number of blood sampling procedures to the minimum necessary for appropriate medical management of diabetes and its complications.
- Ensure that adequate staffing levels are maintained to perform all scheduled diabetes care procedures, including blood glucose monitoring.
- Consider the diagnosis of acute viral hepatitis infection in residents who develop an illness that includes hepatic dysfunction or elevated aminotransaminase levels (AST, ALT).

Training and monitoring

- Provide access to an appropriate occupational health service to ensure protection of staff against hepatitis B in line with national recommendations.¹³
- Establish responsibility for monitoring of infection prevention and control activities.
- Investigate and report to your local Health Protection Unit, any suspected case that may represent a newly acquired blood borne infection.
- Have staff demonstrate knowledge of standard infection prevention and control guidelines and proficiency in application of these guidelines during procedures that involve possible blood or body fluid exposures.
- Provide staff members who perform blood sampling procedures with infection prevention and control training that includes practical demonstration of aseptic techniques and instruction regarding reporting exposures or breaches of safe practice. Annual retraining for all staff members who perform procedures that may involve exposure to blood or body fluids is recommended.
- Assess compliance with infection prevention and control recommendations for glucose monitoring (such as hand hygiene and

glove changes between patients) by periodically observing personnel and tracking use of supplies.

- Provide infection prevention and control policy including information regarding blood borne viruses and the management of needle stick/inoculation injury.
- Ensure all staff receive regular updates regarding needle stick injury and safe disposal of sharps.

Further information

If further information is required please contact your local Diabetes Nurse Specialist or your local Health Protection Unit (www.hpa.org.uk).

References

1. CDC. Transmission of Hepatitis B Virus Among Persons Undergoing Blood Glucose Monitoring in Long-Term-Care Facilities - Mississippi, North Carolina, and Los Angeles County, California, 2003-2004. MMWR 2005;54(09):220-223. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5409a2.htm> [accessed 26/10/09]
2. Duffell E. Outbreak of acute hepatitis B in a South Manchester nursing home. HPA North West Quarterly Health Protection Bulletin, Oct-Dec 2005 http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947389162 [accessed 26/10/09]
3. Götz HM, Schutten M, Borsboom GJ, Hendriks B, van Doornum G, de Zwart O. A cluster of hepatitis B infections associated with incorrect use of a capillary blood sampling device in a nursing home in the Netherlands, 2007. Euro Surveill 2008;13(27):pii=18918. <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18918> [accessed 26/10/09]
4. Medicines and Healthcare products Regulatory Agency. Medical Device Alert. MDA/2008/046 - Lancing devices (used in pharmacy settings) – all brands. 1 July 2008 <http://www.mhra.gov.uk/Publications/Safetywarnings/MedicalDeviceAlerts/CO N020531> [accessed 26/10/09]
5. Medicines and Healthcare products Regulatory Agency. Medical Device Alert. MDA/2006/066 - Lancing devices used in nursing homes and care homes. 6 December 2006 <http://www.mhra.gov.uk/PrintPreview/PublicationSP/CON2025400> [accessed 26/10/09]
6. Health Protection Agency. Introduction to Infection Control in Care Homes. DVD. 2009. <http://www.hpa.org.uk/carehomesdvd> [accessed 26/10/09]

7. Department of Health. Infection control guidance for care homes. 01 June 2006

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4136381

[accessed 26/10/09]

8. National Institute for Clinical Excellence. Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults. Clinical guideline 15. July 2004.

<http://www.nice.org.uk/nicemedia/pdf/CG015NICEguideline.pdf>

[accessed 26/10/2009]

9. National Institute for Clinical Excellence. Type 2 diabetes: national clinical guideline for management in primary and secondary care (update). Clinical guideline 66. May 2008.

<http://www.nice.org.uk/nicemedia/pdf/CG66NICEGuideline.pdf>

[accessed 26/10/09]

10. NHS Purchasing and Supply Agency. Buyer's guide. Lancing Systems. CEP 07025. November 2007

<http://www.pasa.nhs.uk/PASAWeb/NHSprocurement/CEP/CEPproducts/CEP+catalogue.htm>

[accessed 26/10/09]

11. Commission for Social Care Inspection. Professional Advice: The administration of medicines in care homes. 2007

http://www.cqc.org.uk/guidanceforprofessionals/socialcare/careproviders/guidance.cfm?widCall1=customWidgets.content_view_1&cit_id=2596

[accessed 26/10/09]

12. Royal Pharmaceutical Society of Great Britain. The Handling of Medicines in Social Care. 2007

<http://www.rpsgb.org.uk/pdfs/handlingmedsocialcare.pdf>

[accessed 26/10/09]

13. Department of Health. Immunisation against Infectious Disease, Chapter 1 Hepatitis B. 2007

http://www.dh.gov.uk/en/PublicHealth/Healthprotection/Immunisation/Greenbook/DH_4097254

[accessed 26/10/09]

Prepared by:

Kate Brierley, Consultant Nurse and Catherine Quigley, Consultant Regional Epidemiologist, on behalf of Health Protection Agency (HPA) Local & Regional Services Hepatitis Leads Group (Sue Bennett, Erika Duffell, Dean Ironmonger, Chris Lucas, Ken Mutton, Autilia Newton, Grainne Nixon, Mary Ramsay, Torbjorn Sundkvist, James Sedgwick, Peter Sheridan, Harsh Duggal).

Endorsed by: HPA Hepatitis Programme Board and HPA Healthcare Associated Infections Programme Board.

We thank the following for their helpful comments:

Jennie Wilson, Nurse Consultant/Programme Leader and Peter Hoffman, Clinical Scientist, Department of Healthcare Associated Infection & Antimicrobial Resistance, HPA Centre for Infections, The Medicines and Healthcare products Regulatory Agency, Diabetes UK.

© Health Protection Agency
October 2009