



Department of Health,
P.O. Box 5013,
Wellington.

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CLINICAL SERVICES LETTER No. 198

**To Medical and Dental Practitioners
(Copy to Proprietors of Retail Pharmacies)**

U100 INSULIN

With the introduction of U100 insulin (100 units per ml), insulin-using diabetics will need to start changing to this new strength from 1 March 1981.

Confusion over different insulin strengths and varying scales and sizes of syringes has been a major cause of dosage errors. With all diabetics using the one strength of insulin (U100) and standard scale syringes, the chances of error will be greatly reduced. There is also the advantage that as the same number of units becomes available in a smaller volume of fluid, there is less discomfort from the injection.

The change also brings New Zealand into line with other English speaking countries—Australia, Canada, and the United States have already made this change and the United Kingdom is considering making the change.

The New Insulins

All insulins, other than protamine zinc insulin, will be available in the new strength by 1 March 1981.

Old Insulins

It is not expected that new stocks of U40 and U80 will be distributed beyond March 1981 although this is at the discretion of the manufacturers. Payment on the Drug Tariff for these strengths will cease as from 1 August 1981. Payment will not be made for any strength of protamine zinc insulin from 1 August 1981.

It is therefore recommended that all diabetics should be encouraged to make the change as soon as possible after 1 March 1981.

U100 Syringes

Plastic U100 syringes of 0.5 ml and 1 ml capacity will be available on the market. Most hospital boards will also make these available to diabetics at near cost price. For the first 12 months the Sherwood-Brunswick plastic syringe will be supplied through the hospital tender system; this is a low dead space syringe with a fixed needle. Other brands available on the market with detachable needles will have different amounts of dead space.

1 ml Top, 1 ml Mexican, and Brazilian Becton Dickinson and 0.35 ml Becton Dickinson glass U100 syringes will be available on the Drug Tariff

under the same conditions as previously. Payment will also be made for Becton Dickinson non-disposable needles.

Payment will not be made for U40 or U80 glass syringes from 1 August 1981.

Dead Space

Dead space is the term used to describe the space contained in the nozzle of the syringe and in the hub and shaft of the needle.

Changing the order of drawing up two different insulins may produce a dramatic change in the duration of effect of the insulin mixture. In the case of a person who takes 12 units of short acting insulin and 18 units of intermediate insulin, should the syringe contain 6 units of dead space the following situation can occur. If the short acting insulin is drawn up first the dead space will be filled with 6 units of short acting insulin before the 12 units is measured into the syringe, and then, 18 units of intermediate acting insulin will be drawn up. The resulting mixture is in a proportion of 1:1. If, on the other hand, the intermediate acting insulin is drawn up first the resultant mixture is in a 2:1 proportion. Such a change is avoided by always drawing up the insulins in the same order.

A change to one of the low dead space types of syringe which will now become available may produce significant effects for persons using insulin mixtures. This is of most significance in the case of diabetics on small doses of insulin.

All insulin users should be cautioned not to change the order of mixing insulin and not to change their type or brand of syringe and needle without consulting their doctor or pharmacist. Any practitioners in doubt about the effect of such changes should consult with a diabetic specialist or clinic.

Old Syringes

The Diabetic Association of New Zealand has undertaken to collect all available old glass syringes and supply them to developing countries. Pharmacists have agreed to receive old glass syringes on behalf of the Diabetic Association.

Disposal of Used Syringes

To avoid availability of used syringes for drug abusers, we recommend that opportunity be taken to also remind patients about the disposal of plastic syringes. Destruction of the syringe itself might present difficulty, but it can be bent. The needle is readily rendered useless by bending and breaking the shaft. This should all then be wrapped carefully in plenty of newspaper.

Publicity

Self-adhesive green warning labels will have been supplied to pharmacists in the January edition of the *New Zealand Pharmacy*. These are for pharmacists to attach to all U40 and U80 insulins supplied from approximately mid January 1981. The wording on this label will be:

"The strength of this insulin will change to 100 units per ml (U100) from 1 March 1981. New U100 syringes will be needed. Ask your doctor or pharmacist."

Further orange adhesive labels will be supplied directly to pharmacists in late February for attachment to U100 insulin and will read:

“Caution

Use only with U100 syringe.”

Further general publicity in journals, magazines, press, radio, and television will be provided.

Publicity is only provided in the English language and practitioners should take particular care to explain the situation carefully to non-English speaking patients.

Advice to Patients

Practitioners are requested to advise all insulin-using diabetics to make the change to the new strength as soon as reasonably possible after 1 March 1981. It must be emphasised to all patients that the dose in units remains the same and only the volume injected will change. Only a U100 syringe should be used with U100 insulin.

Travel

U100 insulin will be readily available in Australia, Canada, and the United States. Patients travelling to any other countries would need to take adequate supplies of U100 with them.

Pamphlets

Three pamphlets for each doctor and 24 pamphlets for each pharmacist are enclosed with this Clinical Services Letter. We hope you display these pamphlets in a prominent position. Pharmacists should also be providing a copy to each insulin-using diabetic patient. More copies of the pamphlet can be obtained from your district health office.



(J. S. Phillips)
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