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RESTRICTED USE	Rapid Acting Insulin Analogues - insulin lispro (Humalog®), aspart (Novorapid®)	1 of 2		
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BACKGROUND

As per the Canadian Diabetes Association (CDA), the rapid-acting insulin analogues (lispro and aspart) play an important role in diabetes management. While they do not offer significant advantages in disease outcomes such as weight gain, HgA1C, or mortality, they do offer a significant advantage vs. traditional short-acting insulin (Novolin N and Humulin R type insulins) in causing less hypoglycemia[1]. This decrease in hypoglycemia, when taking into account the frail population that makes up much of the long-term care (LTC) population, can be an even greater advantage given LTC's increased rates of falls, fractures, and other co-morbidities as compared to the general population.

PREAMBLE[2,3]

The synthetic rapid-acting insulin analogues offer quicker onset of action (~15 minutes), quicker peak times (~ 1 hour), and shorter duration of activity (~3-4 hour) vs. conventional regular acting insulins (onset ~1 hour, peak 2-3 hours, duration of ~ 8 hours). As such, they offer advantages of tighter blood glucose control around times of variable blood sugars, such as meal times and periods of physical stress or activity. For brittle diabetics (those prone to hypoglycemic episodes and fluctuating blood glucose levels), clients who require more stringent control of sugars, and those clients who are unable to attain control through more conventional regimens, the use of the rapid acting insulin analogues may be preferred.

DOSE

Doses for the rapid-acting insulin analogues must be individualized based upon the physiological need of the client. The preferred use of these products is using the **Basal-Bolus Insulin Therapy (BBIT)** system[4].

BBIT uses the pharmacology of different insulin analogs to replicate physiologic insulin profiles, aims to anticipate patients' insulin needs and prevent hyperglycemia from developing. BBIT was developed to improve the quality of care for diabetic patients during their hospital stay, with many clients taking their new regimens back into the community after a stay in acute care. BBIT is a mnemonic meant to remind clinicians of the essential steps involved in ordering insulin:

- **Basal** - Long acting insulin to reproduce endogenous insulin that is normally produced by the pancreas 24 hours per day in those without diabetes.
- **Bolus** - Short acting insulin to balance the carbohydrate intake with meals.
- **Insulin Correction** - Additional short acting insulin used to make small corrections and bring blood glucose back to target, if needed.
- **Try Again** - Ensure that blood glucose is monitored 4 times daily & that insulin doses are adjusted to meet CDA targets of 5-11 mmol/L

Note that this type of intensive diabetes management may not be appropriate for all clients (refer to Education document E-09: Diabetes Targets in LTC).

COVERAGE CRITERIA

1) Basal-Bolus Insulin Therapy (BBIT)

1) Resident must concurrently be using either once daily or BID dosing of intermediate-acting insulin (e.g. NPH) or a long-acting insulin analogue (e.g. glargine).
2) Dosing for rapid-acting analogues must be based upon blood glucose readings to correct abnormalities.

and

2) Consultation with Specialist

1) Consultation with a specialist physician (e.g. endocrinologist, internist, nephrologist, etc.) experienced in the care of diabetes is required for uses of rapid-acting insulin analogues *other* than defined in protocol 1.

All other uses will require submission under the NF-SA procedure.

REFERENCES

1. Canadian Diabetes Assocation 2008 Clinical Practice Guidelines. Sept 2008, 32(1), Accessed online at : http://www.diabetes.ca/files/cpg2008/cpg-2008.pdf
2. Jin, M., Regier, L. *Insulin Management: Evidence, Tips and Pearls.* RxFiles, August 2012. Accessed online at: http://www.rxfiles.ca/rxfiles/uploads/documents/members/CHT-Diabetes-Insulin-ManagmentTool.pdf
3. Regier L., Jensen. B. *Insulin Comparison Chart.* RxFiles, December 2012. Accessed online at: http://www.rxfiles.ca/rxfiles/uploads/documents/members/CHT-Diabetes-Insulin-ManagmentTool.pdf
4. Basal Bolus Insulin Therapy. http://www.bbit.ca/. Accessed Jan 4/2013.