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- Providing comprehensive medication reviews.
- Forming part of the allied health team,
- Maintaining quality and safe use of medicines in aged care facilities.

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Diabetes awareness & use of Insulin

1st October 2024 | EzyNews

Diabetes is a prevalent condition among older adults, including those in aged care facilities. As the body ages, its ability to produce or use insulin effectively diminishes, leading to higher rates of Type 2 diabetes in the elderly.

The management of diabetes in aged care facilities is crucial for preventing complications, maintaining quality of life, and reducing hospital admissions.

According to the International Diabetes Federation, approximately 25% of residents in aged care settings are diabetic, highlighting the importance of comprehensive diabetes management in this population.

Diabetes Awareness programs provide essential education for both residents and caregivers, ensuring that everyone understands the importance of regular blood glucose monitoring, proper nutrition, and the safe use of medications, such as insulin.

In aged care settings, managing diabetes presents unique challenges. These include residents' limited mobility, cognitive decline, and the complexity of care. One key tool in managing diabetes in nursing homes is the use of **insulin pens**, which provide an effective and safer alternative to traditional syringes.

Shortage of Ryzodeg 70/30 FlexTouch insulin prefilled pens expected to continue until mid-next year

To help manage the shortage, pharmacists can give people living with diabetes Ryzodeg 70/30 Penfill cartridges instead of Ryzodeg 70/30 FlexTouch prefilled pens under certain conditions. Both products contain the same medicine, at the same strength, have the same storage requirements, and are administered by injection under the skin (subcutaneous injection). However, the device used to administer the medicine is different.

Key Considerations for Diabetes Management in Aged Care

1. **Individualized Care Plans:** Each resident's diabetes management plan should be personalized, taking into account their overall health status, cognitive ability, and risk factors for complications and protocol for Sick Day Management. ([Diabetes Management Action Plan](#))
2. **Monitoring Blood Glucose Levels:** Regular monitoring is essential. A routine daily BGL is guided by the particular insulin profile and resident's hypo risk, this may include daily checks for residents on oral diabetic therapy and ensuring levels remain within target ranges. Extra BGLs should be done if there is any change in treatment or diet/appetite, and according to sick day or hypo management guidelines. ([Monitoring Blood Glucose](#))
3. **Diet and Nutrition:** A balanced diet, tailored to each resident's specific needs, can help maintain healthy blood sugar levels and prevent hyperglycemia or hypoglycemia.

Use of Insulin in Aged Care Facilities

Insulin therapy is often necessary for residents whose diabetes cannot be controlled through oral medications or lifestyle adjustments alone. However, insulin management in older adults presents unique challenges, such as the risk of hypoglycemia and potential difficulties with self-administration due to cognitive decline or physical limitations.

Considerations for Insulin Use in Aged Care:

1. Type of Insulin:

- o Long-acting insulin is preferred for stable blood glucose control, particularly in older adults who may have inconsistent eating habits.
- o Rapid-acting insulin is used in some cases but requires close monitoring to prevent hypoglycemia, especially in those with erratic food intake.

2. Insulin Administration:

- o **Nursing Involvement:** Trained staff play a critical role in insulin administration, ensuring the correct dosage is given at the right time. In many facilities, nurses administer insulin via Insulin ampules or insulin pens.

Please take care in selecting the right insulin for your resident(s) and device in which it comes in.

Get to Know your Insulin is a guide for RNs, however nursing staff are encouraged to always follow the SIX rights of medication administration for every dose.

- o **Education:** Nurses and caregivers must be well-versed in diabetes management, including recognizing signs of hypoglycemia and hyperglycemia, understanding insulin therapy, and ensuring appropriate dosing based on blood glucose readings.

3. Monitoring for Side Effects:

- Hypoglycemia (low blood sugar) is a significant concern with insulin therapy in the elderly. Symptoms such as confusion, dizziness, sweating, and even falls may occur, often mistaken for other conditions like dementia. ([How to manage Hypoglycaemia in RACF](#))
- Hyperglycemia (high blood sugar) can occur due to missed insulin doses or dietary issues, leading to complications like diabetic ketoacidosis (DKA) if left untreated. ([How to manage Hyperglycaemia in RACF](#))

Challenges in Insulin Management for Older Adults

- **Cognitive Decline:** Many residents may have memory issues or dementia, making it difficult for them to manage their own diabetes care. Nursing staff play a vital role in ensuring insulin is administered properly and at the correct time.
- **Physical Impairments:** Arthritis, poor vision, or reduced dexterity can make self-administration of insulin difficult for residents, necessitating support from healthcare professionals.
- **Nutrition and Meal Timing:** Irregular eating habits and appetite changes common in older adults can complicate insulin dosing. Coordination between nursing staff and dietitians is essential for creating a diabetes-friendly meal plan.

Best Practices for Insulin Use in Aged Care Settings

1. **Interdisciplinary Team Approach:** Collaboration between physicians, nurses, dietitians, and pharmacists ensures a holistic approach to diabetes care. A well-rounded team can help create individualized care plans and adjust insulin doses as needed.
2. **Education and Training:** Ongoing education for staff in nursing homes is vital to improve diabetes management and insulin administration, including refresher courses on recognizing and managing hypoglycemia.
Why not talk to our EzyMed team and plan a refresher course this month.
3. **Resident and Family Involvement:** Where possible, residents and their families should be involved in care decisions. Families should be educated about the signs of high and low blood sugar levels and the importance of adherence to therapy and well balanced diet particularly when taking out their loved ones for social outings.

Conclusion

Effective management of diabetes in aged care facilities is essential to maintaining residents' quality of life. Insulin use requires careful coordination between medical staff and caregivers to prevent complications. By adopting best practices and maintaining an interdisciplinary approach, aged care facilities can significantly improve diabetes outcomes for their residents.

Get to know your Diabetic Medication

Class name	How it works	Common Side effects	Additional information
Biguanides Metformin, Diabex Diaformin	<ul style="list-style-type: none"> Blocks glucose release from the liver Slows glucose release from the gut Improves insulin sensitivity. 	Nausea Diarrhoea Weight loss Metallic taste	<ul style="list-style-type: none"> 1st line therapy No risk of hypoglycaemia Increased risk of lactic acidosis in the elderly particularly due to renal decline.
Sulphonylureas Diamicon (MR) Glyade Amaryl Glimel	Stimulates the pancreas to release more insulin	Hypoglycaemia Weight gain	Long acting Sulphonylureas can work for >24hours in the elderly causing prolonged hypos.
DPP-4 Inhibitors Januvia Galvus Trajenta Onglyza Neaina	<ul style="list-style-type: none"> Blocks the action of DPP-4 enzyme Stimulates the release of insulin, Blocks the release of Glucose from liver 	<ul style="list-style-type: none"> Increases risk of common infections eg. URTI, UTI. Can exacerbate Musculoskeletal pain 	Has shown cardiovascular benefit in patient with history of heart failure.
SGLT2 Inhibitors Fanaia Jardiance Invokana	blocks glucose from being reabsorbed by the kidneys	Increased risk of Urinary tract infections and Yeast infections, particularly in females.	Promotes weight loss, Urine will have a sweet smell and show high glucose reading.
GLP-1 Agonists Byetta Victoza	<ul style="list-style-type: none"> Blocks glucose release from the liver, lows glucose release from the gut Stimulates release of insulin 	Nausea, Vomiting, Diarrhoea, Reflux, Weight loss	<ul style="list-style-type: none"> Only available in an Injectable form Byetta recently became PBS covered
Thiazolidinediones Avanda Actos	<ul style="list-style-type: none"> Improves the sensitivity of cells to insulin Decrease Glucose release from the liver. 	Weight gain Fluid retention	<ul style="list-style-type: none"> Not recommended in heart failure Cannot be used with insulin due to potential to increase weight gain
Alpha Glucosidase Inhibitors Glucobay	Slows down the digestion of carbohydrate from food	Flatulence (wind) Bloating Diarrhoea	Hypoglycaemia must be treated with a monosaccharide such as glucose. Avoid natural sugars as absorption is delayed
Insulin	Allows glucose to move from the bloodstream to the body cells	Hypoglycaemia Injection site reaction Weight gain	Can cause significant hypoglycaemia in the elderly

SGLT2 Inhibitor (sodium-glucose co-transporter 2), DPP4 Inhibitor (4 dipeptidyl peptidase-4), GLP-1 Agonist (5 glucagon-like peptide-1)

Diabetes



Know your insulin

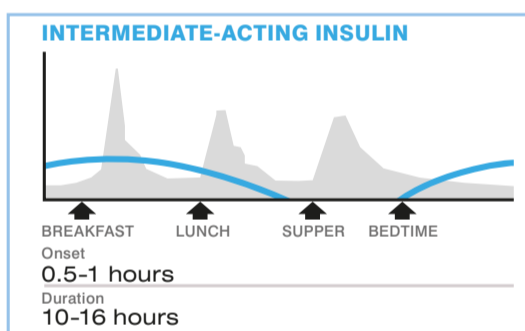
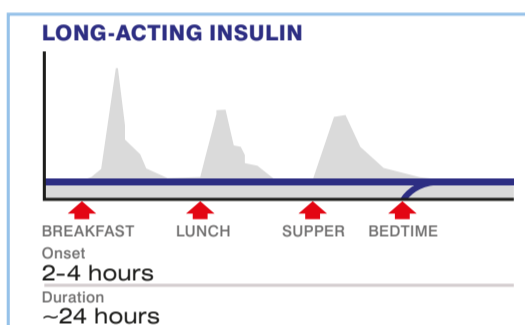
What is insulin?

Insulin is a hormone produced by beta cells in the pancreas. It works by:

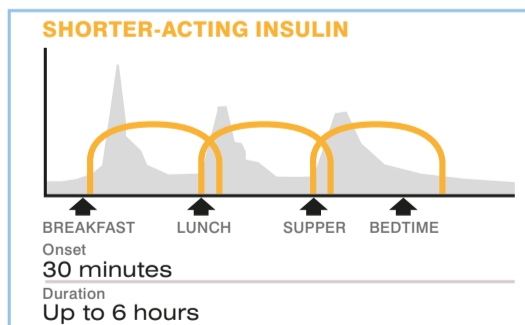
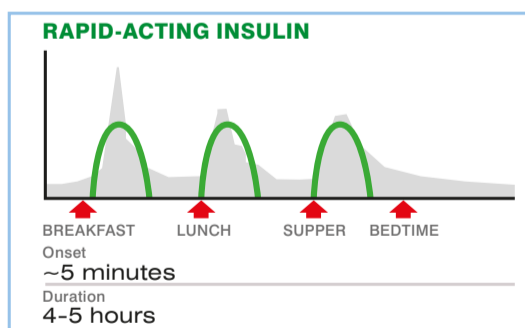
1. allowing glucose to move from the blood stream and into cells for energy: and
2. controlling the release of glucose from the liver.

Types of insulin

1. Basal insulin A background insulin, medium to long-acting, used to control fasting glucose levels (between meals).



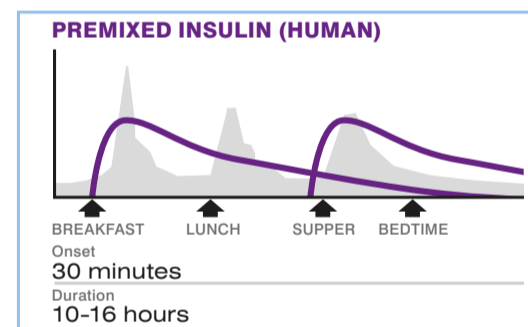
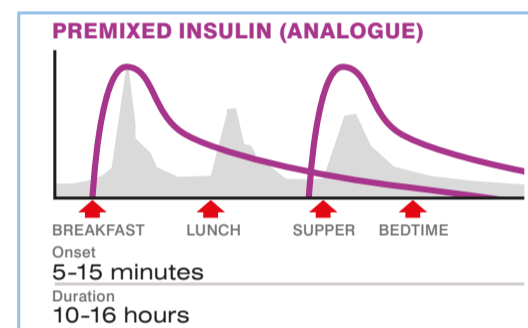
2. Bolus insulin An ultra-rapid, rapid or short-acting insulin given before meals or for correction of blood glucose levels. (Note: Rapid-acting insulins must be given at mealtime, no more than 15 minutes before a resident starts eating. Fiasp must be given during or immediately after the meal).



Who needs insulin?

For all people with type 1 diabetes injected insulin is essential and should never be stopped. Some people with type 2 diabetes will require insulin injections as their condition progresses.

3. Premix insulin A mix of 2 types of insulin (combining bolus and basal). Should be given at meal time no more than 15 minutes before a resident starts eating. Can be given twice a day at least 6-8 hours apart.



Next steps

Six Minute Intensive Training posters:
Insulin administration, Hyperglycaemia, Hypoglycaemia, Sick day management.

Read:

- Diabetes management in aged care: a practical handbook – chapter 11: Insulin

Initial development of this resource was supported by Primary Health Tasmania under the Australian Government Primary Health Network Program.

Diabetes Management Action Plan

Resident Name- _____
 DOB - _____
 Room - _____

Resident is on

Insulin only (IDDM)

Insulin + Oral hypoglycaemics

Non-Insulin Hypoglycaemics

Blood Glucose Level (BGL) Monitoring:

Daily (✓)		Weekly (✓)		Monthly	Random (PRN)
Once a day		Once a Week			
Twice a day		Twice a week			
3 or times a day		3 or times a week			

BGL Range: Lower limit: _____ Upper limit: _____

Frequency of HbA1c to be set at - MONTHLY 3 MONTHLY 6 MONTHLY

✓ Notify the Medical Practitioner If the resident's BGL falls outside the range

HYPOglycemia (BGL < 6mmol/L)

If resident is conscious and able to swallow:

- 180 mls soft drink (not diet),
- 150mls fruit juice,
- 3 teaspoons honey or jam,
- texture modified sweetened yoghurt or puree fruit

Follow up in 15-20 minutes with a snack

- 1 slice of bread,
- 1 piece of fruit,
- 1 sml tub of yoghurt, or
- 100ml/100mgs TM thickened milk, puree fruit or mashed potato

If unable to swallow RN to administer **Glucagon** as per NIM or PRN order.

Transfer to hospital

If interventions are ineffective (BGL not increased after 2 treatments)

HYPERglycemia (BGL > 15mmol/L)

Review for possible causative factors:

- Infection/illness
- Not enough, or missed insulin or other diabetes medicines
- Greater than usual food intake (carbohydrates)
- Medications used to treat other illnesses, for example steroids and antipsychotics
- Emotional stress or pain

- Take observations
- Assess for ketoacidosis

Report to GP immediately if:

- Consumer is unable to eat or drink
- Consumer becomes drowsy
- BGLs remain above 15mmol/L for more than 24 hours despite treatment
- ketones are present

- ✓ Reassess BGL after 2 hours following each interventions
- ✓ Document all interventions within the Consumer's nursing notes and handover summary.

Medical Practitioner Name & Signature _____

Date of review _____ (to be reviewed annually or more frequent)

Diabetes Management – Sick Day Action Plan

Resident Name –
 DOB –
 Room –

Resident is on

- Insulin only (IDDM)
- Insulin + Oral hypoglycaemics
- Non-Insulin Hypoglycaemics

If a resident is sick their blood glucose levels (BGLs) may increase or decrease. All diabetic residents with diabetes should have a sick day plan.



- there is a notable change: feeling weak, drowsy, anxious, irritable, tired, sleepy
- there are signs of fever or infection (chest, urinary, skin)
- diarrhoea or vomiting
- changes in appetite (hungry, thirsty or loss of appetite or poor intake of food)
- new or increased pain.

- Do a BGL (*is BGL high or low as per resident's diabetes care plan?*)
- Note clinical signs such as:
 - increase/decrease in temperature, change in breathing rate (laboured, increased)
 - increased heart rate, sweaty
 - signs of dehydration e.g. skin turgor, hypotension, dry mouth, low urine output
- Maintain normal diabetic medication regime – insulin or oral (use PRN Insulin if needed)
- Notify GP (see REPORT, below).

- BGL every 2-4 hours
- Ketones every 4 hours, more frequently if positive & report to GP (Blood ketone >0.6mmol/L or urine dip stick indicates ketones)
- Vital signs every 4 hours (more frequent if out of target)
- Commence fluid balance chart and document food intake (last food intake).

- *If a resident's BGL is above 15 mmol/L*
 - ¼ to ½ cup of fluid every hour (eg. water, broth, sugar-free jelly)
 - food intake as usual.
- *If a resident's BGL is below 15 mmol/L:*
 - include sugar-containing fluids hourly
 - aim for 15 grams carbohydrate/hour (eg. small jelly, one icy pole, 100 mL sports drink, gastrolyte).

- Report to GP immediately if:*
- resident is unable to eat or drink
 - resident becomes drowsy
 - BGLs remain above 15mmol/L for more than 24 hours despite treatment
 - ketones are present.

Medical Practitioner Name & Signature _____

Date of review _____