



NSW Adult Subcutaneous Insulin Prescribing Chart User Guide

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Target audience:

The Adult subcutaneous insulin prescribing chart is to be used as a record of orders and administration of subcutaneous insulin. This chart applies to adult patients in acute care inpatient settings only

It is intended for use by all nursing, medical and pharmacy staff authorised to access and use medication charts.

Exceptions: Paediatrics patients are exempt from use of this chart. The chart does not apply to community settings.

1. Introduction

Insulin is widely considered a high risk medication by the Institute of Safe Medication Practices (ISMP), the Australian Safety and Quality Commission and the NSW Clinical Excellence Commission (CEC). The definition of a high risk medication does not mean that errors are more common, but when medications are given incorrectly the consequences are more devastating (ISMP).

Incorrect administration of insulin can cause significant harm to patients. In high amounts it can cause seizures, coma or death. If insufficient amounts are given, it can lead to hyperglycaemia and ketoacidosis.

The NSW Health Policy Directive PD2012_003 “*High-Risk Medicines Management*” requires all facilities to review medicines used within their facilities and to identify those that are high risk. Action must then be taken to address the risks associated with the prescribing, dispensing and administration of these medicines. These recommendations are made by the ISMP and the National Safety and Quality Health Service Standards developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC) and are supported by the CEC.

Literature shows that insulin use has frequently been reported in the list of top 10 high alert medicines worldwide¹⁻³. In 2010 the CEC identified nearly 3000 incidents related to insulin in the Incident Information Management System (IIMS) database, which reflects international trends. In response to these risks the Agency for Clinical Innovation (ACI) Endocrine Network commenced work developing a standardised adult subcutaneous insulin prescribing chart in 2010. This was developed based on a review of NSW and national charts and widespread clinical input from rural and regional clinicians.

The chart was successfully piloted at Ryde and Royal Prince Alfred Hospitals and endorsed by the ACI Endocrine Network following an evaluation. The chart was then circulated to the Local Health Districts (LHD), the Ministry for Health and the CEC for review and comment by relevant staff. This review was conducted in parallel to the State Forms consultation process.

Feedback was reviewed by the Endocrine Network *In-Hospital Diabetes Management working group*, and where appropriate, changes were incorporated into the revised chart.

Following this the chart and supporting documentation were finalised and endorsed for implementation by the ACI Endocrine Executive, the ACI Executive, the Medication Safety Expert Advisory Committee (MSEAC) and the State Forms Committee.

A training and education package, developed in consultation with the ACI Endocrine Network clinicians will be provided to medical, nursing and pharmacy staff to support implementation of the chart. This document is one of a range of education tools.

An evaluation of the chart will be conducted at key points throughout implementation.

1.1 Aim of chart

A large body of evidence indicates that when there is significant variation in patient care, outcomes and safety can be compromised. Variability in insulin chart design, practices and access to specialist resources, combined with a mobile workforce, can further impact on the quality of patient care and result in medication errors being made.

Despite the complexity of insulin prescription and glycaemia management, it is often left to be managed by junior staff. Standardisation of an adult subcutaneous insulin prescribing chart provides a common tool for consistent communication, documentation, interpretation and administration of insulin orders across NSW. It also facilitates a uniform approach to training and education, which is better for patient care.

In addition to standardisation, the chart links all the necessary information for glycaemic management in one document. The inclusion of daily blood glucose and ketone monitoring to the prescribing chart, provides a trend of clinical data at a glance, and enables staff to refer to recent readings more easily when prescribing and administering insulin doses. Doses supplied by telephone order, supplemental doses and once only orders are all recordable in this single document.

The chart provides best practice guidelines for glycaemic management to assist clinicians that may not have immediate access to these, or access to specialist services. The provision of guidelines at the bedside, linked to standardised monitoring and prescribing, are intended to minimise delays in management decisions and provide better management of subcutaneous insulin, minimise the risk of patient harm and provide safer patient care.

1.2 Purpose of document

The purpose of this document is to provide information to clinicians on how to use the adult subcutaneous insulin prescribing chart.

The document applies to adult patients in acute care inpatient settings. **It does not apply** to paediatric or community settings.

The chart does not replace charts used in specialist areas such as intensive care units.

The chart is designed to use recommended best practice guidelines for prescribing subcutaneous insulin and to provide guidelines on safe and appropriate use of supplemental insulin.

The glycaemic management guidelines are intended for use by clinicians to provide quality patient care. They do not take the place of local policies and are not intended, nor should they replace, individual clinical judgment. The guidelines on the chart may be particularly of use in areas where local policies do not exist or staff may not have immediate access to these, or to specialist services.

This document is to be used in addition to a range of tools to support training and implementation of the chart.

2. General Instructions

The following are general requirements for use of the subcutaneous insulin prescribing chart:

- All subcutaneous insulin prescriptions must be in accordance with the NSW Medicines, Poisons and Therapeutic Goods Regulation Act 2008, NSW Health Policy Directive Medication Handling in NSW Public Hospitals and the Australian Commission on Safety and Quality in Health Care (ACSQHC) Recommendations for Terminology, Abbreviations and Symbols used in the Prescribing and Administration of Medicines'
- All orders must be legibly written in ink
 - no matter how accurate or complete an order is, it may be misinterpreted if it cannot be read
 - water soluble ink (e.g. fountain pen) should not be used. Black ink is preferred
- All information, including drug names must be **printed**
- Only accepted abbreviations may be used in accordance with the ACSQHC
- A separate order is required for each medicine
- If an order is changed it must be re-ordered
 - The old order must be crossed out, signed and dated
 - No erasers or white out can be used. Orders must be rewritten if **any** changes are made, including changes to dose and/or frequency
- Orders must be reviewed regularly
- The chart allows for up to 7 days of medication to be ordered. After this, orders need to be rewritten on a new form

3 Page one including top section of page 3

3.1 Patient Identification and Demographics

Every prescribing chart must have a patient identification label affixed to the chart. This should be consistent with the requirement for the National Inpatient Medication Chart (NIMC) and include:

- Medical Record Number (MRN)
- Name (family and given)
- Gender
- Date of Birth (DOB)
- Medical Officer (MO)
- Address
- Location

The first prescriber must print the patient's name and check that the identification label is correct before it is applied to the chart. This will reduce the risk of the wrong identification label being placed on the chart, as that could lead to the wrong patient receiving insulin.

FAMILY NAME SMITH		MRN 123456
GIVEN NAME JOHN		<input checked="" type="checkbox"/> MALE <input type="checkbox"/> FEMALE
D.O.B. 01 / 10 / 1955	M.O. B. SURE VALID	
ADDRESS 55 HILLTOP DRIVE IDENTIFIERS PRESENT		
SYDNEY 2000		
LOCATION 4 WEST		
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE		
First Prescriber to Print Patient Name and Check Label Correct: Weight(kg): 99 Height(cm): 176		

A watermark has been printed on the "Patient Identification section" as a reminder that a prescription is not valid unless the patient's identifiers are present, that is:

- Either the current patient identification label; or;
- As a minimum, the patient's name, MRN, date of birth and gender written in legible ink

Medication orders cannot be administered if the prescriber does not document the patient identification. If patient identification is not complete the prescriber should be contacted urgently as insulin should not be withheld. If the original prescriber is not available the prescriber on call should be contacted.

3.2 Patient Weight and Height

The patients weight and height must be documented in the space provided as it is important clinical information that may be used to prescribe insulin doses.

3.3 Allergies and Adverse Drug Reactions (ADR)

Medical officers, nursing staff and pharmacists are required to complete the “Allergies and Adverse Drug Reactions (ADR)” details for all patients. Once the information has been documented, the person documenting the information must sign, print their name and date the entry.

If the patient is not aware of any previous ADR’s or these are unknown, then either the ‘Nil known’ box or the ‘Unknown’ box must be ticked and the person adding the information must document their initials in the designated area.

If an allergy or ADR exists then the following must be documented:

- Name of drug/substance
- Reaction details
- Sign, print, initial and date the entry

If any information is added to the ADR section after the initial interview, the person adding the information must document their initials in the designated area.

All ADR must also be recorded in the patients health care record

Attach ADR Sticker		
ALLERGIES & ADVERSE DRUG REACTIONS (ADR)		
<input type="checkbox"/> Nil known <input type="checkbox"/> Unknown (tick appropriate box or complete details below)		
Drug (or other)	Reaction/Date	Initials
Pencillin	Urticaria 1999	RD
Sign RD Print Ron Deal Date 7/7/2013		

Note: This is the minimum information that must be documented. It is also preferable to document how the reaction was managed (e.g. “withdraw & avoid offending agent”) and the source of the information (e.g. patient self-report, previous documentation in health care record etc.)

Affix an ADR alert sticker to the front of the prescribing chart in the space provided, if alert stickers are available in your facility.

3.4 Alert section

The prescriber should document whom to notify if the patient meets certain criteria such as Blood Glucose Level (BGL) or ketone levels that are out of range.

If there are no alerts, then the ‘Nil’ box must be ticked and the prescriber adding the information must document their initials in the designated area.

If the alert is changed then the prescriber must cross the entry out, sign, date it and enter the new alert. Details should also be entered in the patient’s medical records.

The alert section should be completed for each new chart.

ALERTS	
<input type="checkbox"/> Nil	
Notify doctor	<u>Johns or Dr So</u> if; <u>vomiting or unable to eat</u>
OR	
BGL less than	<u>4.5</u> mmol/L OR BGL greater than _____ mmol/L
OR	
Blood ketones greater than	_____ mmol/L
OR	
Urine ketones	_____
Prescriber Signature:	<u>B. SURE</u> Print Name: <u>B. SURE</u>

3.5 Reason for nurse not administering insulin

When it is not possible to administer the prescribed subcutaneous insulin, the reason for not administering must be documented by entering the appropriate code and circling it on the administration record. By circling the code it will not accidentally be misread as someone's initials.

Reason for nurse not administering insulin Codes MUST be circled	Type of Insulin	Frequency	Contact
Absent (A)	NOVORAPID	TDS	X1034
Fasting (F)	Signature <i>[Signature]</i>	Pharmacy	
Refused-notify Dr (R)	Prescriber (Print name) Hal Apenyo		
Vomiting-notify Dr (V)	Date 7/7/13		
On Leave (L)			
Not Available - obtain supply or contact doctor and generate incident report (N)			
Withheld-Enter reason in clinical record (W)			
Self Administering (S)			

or specify time	Pre B/Fast	Pre Lunch	Pre Dinner	Bed Time
Dose	20 Units	10 Units	24 Units	Units
Prescriber (sign)	HA	HA	HJ	
Nurse	W	AB CD	AB CD	
Time given	0745	1210	1735	

If the patient refuses the insulin dose, then the prescriber must be notified.

If the insulin is withheld, the reason must be documented in the patient's health care record.

If the insulin is not available on the ward, it is the nurse's responsibility to notify the pharmacy and/or to obtain a supply of that insulin, or to contact the prescriber to advise that the insulin is not available. Alerting the prescriber will enable an alternative insulin to be prescribed.

3.6 Guidelines for insulin prescription and administration

Daily review of BGLs and prescription of insulin requirements is recommended best practice for in-hospital patients. A patient's insulin requirements can vary during hospitalisation and may change as they recover and mobilise, returning to normal activities.

Whilst daily prescribing and titration of insulin is best practice, insulin may be prescribed in advance if the patient's glycaemic management and insulin requirements are stable.

Insulin requirements may need to be modified in pregnancy, peri-operatively and for those that are on modified diets. High BGLs during pregnancy are harmful to both the mother and fetus and the treatment target range is tighter. Other situations such as fasting prior to surgery / procedures/ radiological investigations or a modified diet including bowel preparation will generally require adjustment to the usual insulin regimen. Altered insulin requirements may also apply in other patient groups such as those that are very frail or underweight.

The word "units" has been pre-printed in the prescribing sections of the chart and should not be rewritten or abbreviated. Write the value of the units only e.g. 4, 6 or 10. Do not re- write the word units. This is to minimise the risk of prescription error.

Any orders that are to be discontinued or re-written are to be documented as per NSW Health Policy Directive Medication Handling in NSW Public Hospitals.

Orders must be discontinued by the prescriber drawing two oblique lines in the administration column on the day the drug is discontinued. This must be signed and dated. A single oblique line must also be drawn through the insulin name.

		Type of Insulin	Frequency		
		NOVORAPID	TDS		
		Signature Prescriber (Print (or)e)	Contact		
		Hal Apenyo	x1034		
		Date	Pharmacy		
		7/7/13			
or		Pre B/Fast	Pre Lunch	Pre Dinner	Bed Time
specify time					
Date	Dose	20	10	24	
	Prescriber (sign)	HA	HA	HA	
	Nurse	GW	AB CD	AB CD	
	Time given	0745	1210	1735	
Date	Dose				
	Prescriber (sign)				
	Nurse				
	Time given				
Date	Dose				
	Prescriber (sign)				
	Nurse				

Note: The form shows a prescription for NOVORAPID TDS. The first three dates (7/7/13) have entries for dose, prescriber, nurse, and time. The fourth date (8/7/13) has a 'CEASED' entry with a signature and date, and a single oblique line through the insulin name. The fifth date (8/7/13) has a signature and nurse entry, but the insulin name is crossed out with two oblique lines.

If there are any changes made to the insulin order then a completely new order must be written and the previous order ceased. No alteration should be made to the original order.

If repeated use of supplemental, once only or telephone orders for subcutaneous insulin are needed, then the prescriber should review the need to adjust the patient’s regular subcutaneous insulin doses. The need for repeated additional doses of insulin indicates that BGL’s are not being adequately controlled by the regular insulin doses.

The preferred injection site for subcutaneous insulin is the abdomen.

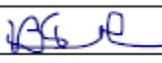
3.7 Subcutaneous insulin pump and other diabetes medications

<input type="checkbox"/> Insulin pump - (prescribe insulin on this chart. Write "insulin pump" below prescription)
<input type="checkbox"/> Other diabetes medication on National Medication Chart

If the patient is on a subcutaneous insulin pump or is receiving other diabetes medication then this must be indicated by ticking the appropriate box.

If the patient is on a subcutaneous insulin pump this is to be prescribed on the chart and “*insulin pump*” written below the order.

3.8 Special instructions

Special Instructions				
DATE	INSTRUCTIONS	NAME (DESIGNATION)		SIGNATURE
7/7/2013	Patient to use pens under supervision - abdominal injections only please	B. Sure	RMO Renal	

Special instructions can be completed by any staff member to communicate information at the patient’s bedside, e.g. ‘*please supervise the patient using their insulin pen*’ or ‘*change from 6mm to 4mm pen needles*’ or ‘*poor hypoglycaemic awareness so BGL target range is 6-14mmol/L*’ or type of insulin device e. g “*insulin pen*”.

All patient management must also be documented in the patients’ health care records

4 Insulin prescription orders; pages 2-3

The subcutaneous insulin chart is divided into four sections; regular, supplemental, once only and telephone orders. Patients may require a combination of these orders.

All insulin prescription orders, except intravenous (IV) infusions, should be documented on pages 2 and 3 of the chart.

4.1 Regular Subcutaneous Insulin; page 2

REGULAR SUBCUTANEOUS INSULIN												
NOVORAPID				LANTUS								
Type of Insulin	Frequency			Type of Insulin	Frequency			Type of Insulin	Frequency			
NOVORAPID	tds			LANTUS	nocte							
Signature Prescriber (Print name) R. Deal				Signature Prescriber (Print name) R. Deal				Signature Prescriber (Print name)				
Contact x1234				Contact x1234				Contact				
Date		Pharmacy		Date		Pharmacy		Date		Pharmacy		
7/7/2013				7/7/13								
or												
specify time												
Pre B/Fast	Pre Lunch	Pre Dinner	Bed Time	Pre B/Fast	Pre Lunch	Pre Dinner	Bed Time	Pre B/Fast	Pre Lunch	Pre Dinner	Bed Time	
20 Units	10 Units	24 Units					44 Units					
AB	CD	AB	CD				AB	CD				
0745	1210	1735					2200					
20 Units	10 Units	24 Units					44 Units					
AB	CD	AB	CD				AB	CD				
0800	1225	1805					2140					

There is space for up to 3 different types of insulin to be prescribed (most patients however are on 1 or 2 types of insulin) and up to 4 doses a day as needed. The chart accommodates 7 days of therapy and the dates run down the page. If insulin is still required after 7 days a new chart should be written.

The shading of the columns across the chart is intended to reduce the risk of administering insulin on the wrong day. It also assists in highlighting the corresponding BGLs for that day on page 3.

As previously mentioned, whilst daily prescribing and titration of insulin is best practice, insulin may be prescribed in advance if the patient's glycaemic management and insulin requirements are stable.

All subcutaneous orders must contain:

- Type of insulin
- Date prescribed
- Frequency of administration
- Time of administration or select pre breakfast, lunch, dinner or bed time options
- Dose to be administered
- Prescriber's signature and name printed
- Prescriber's contact details

Record of administration must include:

- Time given
- Initials of the person that administers insulin
- Initials of a second person to document double checking of the dose

NB: one of the staff members checking the insulin must be a **Registered Nurse**

4.2 Supplemental Subcutaneous insulin; page 2

SUPPLEMENTAL ORDER To be used in addition to patient's usual diabetes treatment. See guidelines page 4													
Type of Insulin NOVORAPID		Contact # 1234 Dr Deal		Record of Administration									
Signature <i>Ron Deal</i>		Date 7/7/13		Date 8/7/13		Date 9/7/13		Date 11/7/13		Date		Date	
Prescriber (Print name) Ron Deal				Dose given	Time/ given by	Dose given	Time/ given by	Dose given	Time/ given by	Dose given	Time/ given by	Dose given	Time/ given by
Administration Times: <input checked="" type="checkbox"/> Before meals or <input type="checkbox"/> Specify: _____				6	1735	4	1225	8	1755				
If BGL range: 10-12 Give 2 units				Units ABCD		Units CDAB	Units GHIEF	Units	Units	Units	Units	Units	
If BGL range: 12.1-15 Give 4 units													
If BGL range: 15.1-18 Give 6 units													
If BGL range: 18.1-20 Give 8 units													
If BGL range: >20 Give 10 units*													
If BGL range: _____ Give _____ units													
If BGL range: _____ Give _____ units													
Notify MO if BGL >20 mmol/L*													

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The doses are recorded down the page and the dates run across the page. There is space for up to 4 doses a day, for up to 7 days if required

Supplemental insulin is prescribed based on a preferred range specified by the prescriber in the space provided. Guidelines for use of supplemental insulin and an example of an order are documented on page 4. It should be noted that these doses may need to be modified according to the patient's needs.

Supplemental insulin should not be used as the only anti-hyperglycaemic therapy. The patient's usual diabetes treatment, particularly insulin requirements, should be reviewed at least daily in the acute phase of their illness and adjusted as appropriate.

If repeated doses of supplemental insulin are required the prescriber should review the need to adjust the regular insulin doses.

Supplemental insulin is best given before a meal, in addition to the patient's usual insulin doses. This will reduce hyperglycaemia following the meal.

All supplemental subcutaneous insulin orders must contain:

- Type of insulin
- Date prescribed
- Time of administration - select before meals or specify other time
- Dose to be administered for each BGL range

- Prescriber's signature and name printed
- Prescriber's contact details

Record of administration must include:

- Date
- Time
- Dose given
- Initials of the person that administers insulin
- Initials of a second person to document double checking of the dose

NB: one of the staff members checking the insulin must be a **Registered Nurse**

4.3 Once only subcutaneous insulin; page 3

ONCE ONLY ORDER									
Date	Type of Insulin	Dose	Date/Time of dose	Prescriber			Administration		
				Print Name	Signature	Contact	Date	Time Given	Given by
9/7/13	Novorapid	4 Units	9/7/13 0250	Jane Bug		x1444	9/7/13	0255	XY BC
		Units							
		Units							
		Units							

The once only subcutaneous insulin record provides space to record up to 4 orders, the dates prescribed occur down the page.

When prescribing a once only dose of subcutaneous insulin, the prescriber should inform the nurse caring for the patient to ensure the dose can be given in a timely manner.

All once only subcutaneous insulin orders must contain:

- Type of insulin
- Date prescribed
- Time of administration
- Dose to be administered
- Date and time the dose is to be administered e.g. if dose to be given the next day
- Prescribers name and signature
- Prescribers contact details

Record of administration must include:

- Date
- Time given
- Initials of the person that administers insulin
- Initials of a second person to document double checking of the dose

NB: one of the staff members checking the insulin must be a **Registered Nurse**

If repeated doses of once only subcutaneous insulin are required, the prescriber should review the need to prescribe or to adjust the patient's regular subcutaneous insulin doses.

4.4 Telephone orders for Subcutaneous Insulin; page 3

TELEPHONE ORDERS (to be signed within 24 hours of order)											
Date	Time	Type of Insulin	Dose	Nurse Initials Nr 1/Nr 2	Prescriber				Administration		
					Print Name	Signature	Contact	Date	Date/Time Given	Given by	
9/7/13	1440	Novorapid	6 Units	LM OP	Will Call		x2756	9/7/13	1450	LM	OP
			Units								
			Units								
			Units								

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Local hospital policy will generally outline whether telephone orders are allowed and under what circumstances they are to be used.

The telephone order for subcutaneous insulin record provides space to record up to 4 orders, the dates prescribed run down the page.

All telephone orders must be documented by the staff member receiving the telephone order and verified by a second staff member, as per NSW Health Policy Directive Medication Handling in NSW Public Hospitals.

The telephone order must be signed and dated by the prescriber within 24 hours, as per NSW Health policy.

All telephone orders for subcutaneous insulin orders must contain:

- Type of insulin
- Date prescribed
- Time of the telephone order
- Dose to be administered
- Prescribers name
- Prescribers signature and date of signature
- Prescriber's contact details
- Initials of the 2 nursing staff who received the order

Record of administration must include:

- Date and time of administration
- Initials of the person that administers insulin
- Initials of a second person to document double checking of the dose

NB: one of the staff members checking the insulin must be a **Registered Nurse**.

If repeated telephone orders for subcutaneous insulin are required, then the prescriber should review the need to prescribe or to adjust the patient's regular subcutaneous insulin doses.

4.5 Pharmacy review

This section is to be used by the ward/clinical pharmacist to clarify the order, indicate the source of supply or provide administration instructions. Annotations include:

- I - medicines available on imprest
- S - non impress items that will be supplied and labelled for individual use from the pharmacy
- Pts own – Patients own medicines checked by the pharmacist and confirmed to be acceptable for use during the patients admission
- Fridge - indicates a medicine stored in the fridge

Any annotations by the pharmacist should be easily identified as being distinct from the prescribers writing

5 Blood Glucose and Ketone Monitoring; page 3

BLOOD GLUCOSE AND KETONE MONITORING											Hypoglycaemia Treatment Record					
BGL Frequency <input checked="" type="checkbox"/> Before meals <input checked="" type="checkbox"/> 2 hours after meals <input type="checkbox"/> 2200 hrs (Tick box) <input checked="" type="checkbox"/> 0200-0300 hrs <input type="checkbox"/> Other Specify: _____																
	0200 - 0300 hrs	Breakfast		Lunch		Dinner		Bed Time 2200 hrs	Time	BGL	Action	Sign	Time	BGL	Action	Sign
Time	0200	0730	1005	1150	1430	1720	2005									
BGL	11.4	4.9	14.2	9.8	18.1	17.5	12.1									
Time																
BGL																
Ketones																
Time	0235	0745	1015	1220	1435	1750	2015									
BGL	14.1	9.6	16.1	14.3	15	9.6	10.3									
Time																
BGL																
Ketones																

Patients that are on subcutaneous insulin must have their Blood Glucose (BGL) and ketone levels recorded on the chart in the spaces provided on page 3.

Dates run down the page with space for 7 days of recordings. There are 16 opportunities to record BGL per day if required.

If the patient is not prescribed subcutaneous insulin, but requires BGL monitoring, then readings should be recorded on a standard BGL monitoring or observation chart as per local policy.

A standardised location for recording vital signs will minimise the risk of missing BGL's when interpreting all of a patient's vital signs, and interpreting a BGL in isolation.

Patients that may require BGL monitoring include:

- Patients with diabetes controlled by diet or oral medication
- Patients receiving intravenous (IV) insulin infusions or insulin pumps

- Patients with unstable BGLs e.g. those on corticosteroid treatment

The recommended target BGL range for most patients is 5-10mmol/L, pregnancy is an exception. BGLs outside of this range should be managed as per glycaemic management guidelines on page 4, or as per local guidelines. If necessary the prescriber may indicate a different target range by completing the alert section on page 1.

The frequency of BGL monitoring should be indicated by the prescriber or nursing staff as per local policy by ticking the appropriate options under “*BGL testing frequency*” on page 3 or by writing the frequency in the space provided.

The recommended frequency for BGL testing is before or 2 hours after a meal, at 2200, and 0200hrs-0300 hrs if nocturnal monitoring is required, or as per local policy. The frequency of BGL monitoring may be more or less frequent depending on the patient’s clinical needs. Patients whose glycaemic status is unstable may require more vigilant monitoring. The frequencies are intended as a guideline only and are not intended to replace individual clinical judgement.

BGL and ketone levels are recorded across the page and correspond to the prescription of regular subcutaneous insulin on the prescribing side of the chart. The shading of the columns across the chart corresponds to the regular subcutaneous insulin doses on page 2 for that day. Shading is intended to reduce the risk of documenting BGLs on the wrong day.

Documenting the patient’s BGL on the chart allows the prescriber to more easily adjust insulin doses according to the current BGL and provides a trend of clinical data.

Ketones should be tested and recorded as required according to local policy. Ketone testing may not be required for all patients, however it is particularly important for patients with type 1 diabetes that are unstable.

The hypoglycaemia record should be completed on page 3 for all hypoglycaemic episodes (BGL <4mmol). Documentation should include the time of the event, the BGL, the action taken to rectify it and the signature of the staff member. There are 4 opportunities to record hypoglycaemic episodes if required.

More comprehensive documentation of hypoglycaemic episodes should be made in the patient’s health care record. This will ensure that any hypoglycaemic episodes and treatment are not missed.

NB: All hypoglycaemic episodes should be managed immediately as per local policy or guidelines (page 4), and should include an assessment for the need for clinical review.

If BGL’s are frequently out of range, the prescriber should review the patient which includes review and adjustment of regular subcutaneous insulin doses.

5.1 Hypoglycaemia treatment record; page 3

BLOOD GLUCOSE AND KETONE MONITORING																
BGL Frequency <input checked="" type="checkbox"/> Before meals <input checked="" type="checkbox"/> 2 hours after meals <input type="checkbox"/> 2200 hrs (Tick box) <input checked="" type="checkbox"/> 0200-0300 hrs <input type="checkbox"/> Other Specify: _____								Hypoglycaemia Treatment Record								
	0200 - 0300 hrs	Breakfast		Lunch		Dinner		Bed Time 2200 hrs	Time	BGL	Action	Sign	Time	BGL	Action	Sign
Time	0215	0740	1000	1200	1420	1735	2005		16	3.8	Lucozade	EF				
BGL	9.6	8.2	12.3	6.6	7.3	7.2	9.4		00							
Time																
BGL																
Ketones																
Time	0240	0735	1010	1210	1415	1745	1955		11	3.1	Lucozade	GH				
BGL	8.9	6.1	5.2	7.7	16.6	19.1	11.3		00							
Time																
BGL																
Ketones																

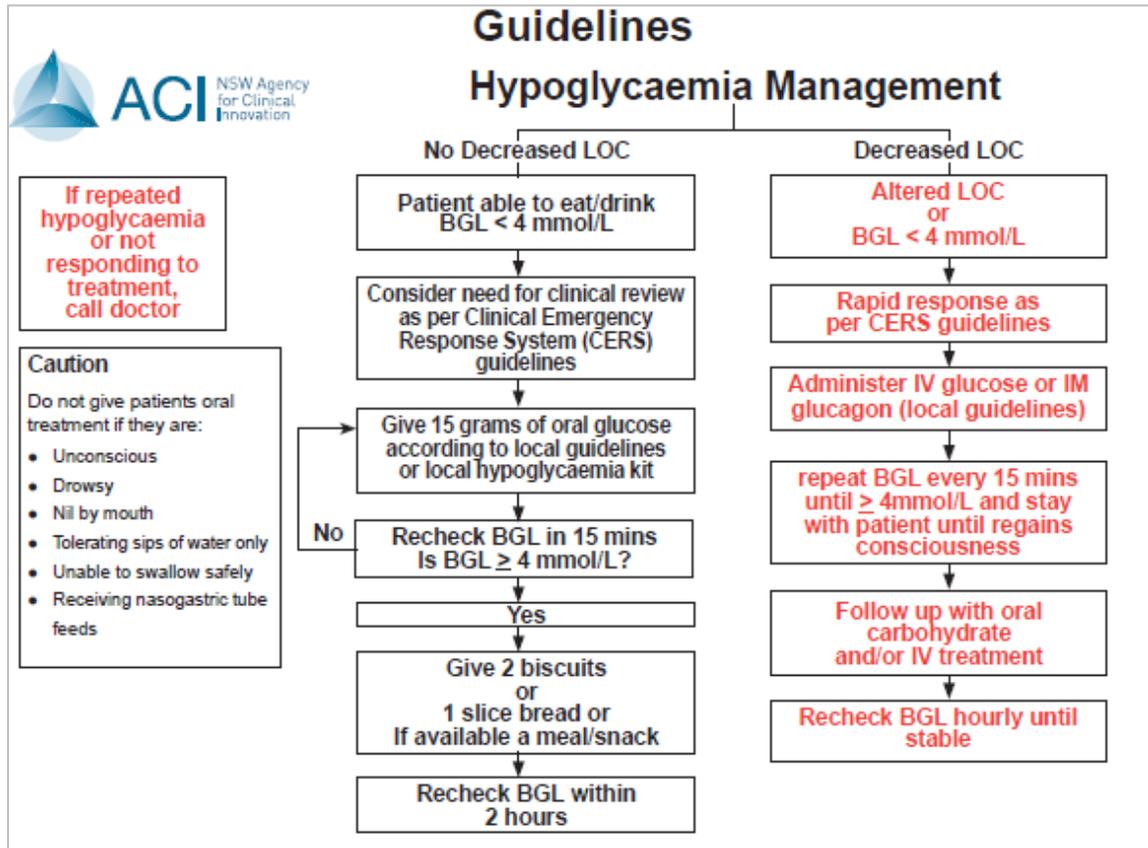
6. Guidelines: page 4

The glycaemic management guidelines and use of supplemental insulin are intended for use by clinicians to provide quality patient care. They do not take the place of local policies and are not intended, **nor should they replace, individual clinical judgment.**

The guidelines are intended to support clinicians that do not have access to local guidelines, policies or specialist services. They are intended to support clinicians at the bedside to minimise delays in management decisions, minimise errors and maximise patient care.

It is recommended that these guidelines be used when no local policy is available.

6.1 Guide to Management of Hypoglycaemia



The algorithm has two treatment pathways, one for 'no decreased level of consciousness' (No Decreased LOC) and the other for 'decreased level of consciousness' (Decreased LOC)

The pathways should be followed according to the patient's level of consciousness and vital signs. Escalation for clinical review should occur as per Clinical Emergency Response System (CERS) criteria.

The cause of hypoglycaemia should be identified and treated rather than simply treating the symptoms. This may prevent further hypoglycaemic episodes occurring.

If the patient is hypoglycaemic when the next injection of insulin is due, the insulin dose should be delayed until the hypoglycaemia has been corrected. Do not omit insulin. If insulin is omitted this will result in hyperglycaemia and unstable BGLs. A review of insulin doses should also be considered to prevent further hypoglycaemic episodes from occurring.

Caution: Do not give patients oral treatment for hypoglycaemia if they are unconscious, drowsy, Nil By Mouth (NBM), tolerating sips of water only, unable to swallow safely or

receiving nasogastric feeds. Giving oral fluids to a patient that cannot protect their airway can result in aspiration.

Any episodes of hypoglycaemia and treatment should be documented in the “hypoglycaemia treatment record” on page 3. These should also be documented in the patients’ health care record.

6.2 Guidelines for the Management of Hyperglycaemia

When a patient is hyperglycaemic it is important to identify and treat the cause. Management of hyperglycaemic episodes without addressing the underlying cause is ineffective and potentially dangerous. The cause of hyperglycaemia should be identified and treated rather than treating the symptoms in isolation. This may prevent further episodes occurring. In addition all episodes should be considered for escalation for review as per clinical review criteria and must be documented in the patients health care record.

Review the appropriateness of the current insulin regimen and adjust doses as necessary. Insulin requirements may change as the patient recovers and mobilises, therefore daily review is recommended.

If the patient is NBM, vomiting or if hyperglycaemia persists despite treatment, then an insulin infusion may need to be considered following clinical review of the patient, as per local policy.

BGL should be rechecked. Ketones should also be checked and may include either blood or urine ketones, as per local policy.

6.3 Guide to use of Supplemental Insulin and Correction of Hyperglycaemia

The patient’s usual diabetes treatment, particularly insulin requirements, should be reviewed at least daily in the acute phase of their illness and adjusted as appropriate. Insulin requirements may change as the patient recovers and mobilises.

Supplemental insulin is not a replacement for regular anti hyperglycaemia therapy and should not be used as the only means of glycaemic control. If repeated doses are required, the prescriber should consider review and adjust of the regular insulin dose.

Supplemental insulin is best given before a meal, in addition to the patient’s usual pre-meal insulin doses.

When prescribing supplemental insulin the following should be stipulated:

- Type of insulin
- Frequency of administration
- Dose to be administered for each BGL range

It is preferable to use the rapid-acting insulin analogues aspart (NovoRapid), lispro (Humalog) or glulisine (Apidra). These insulin's are preferred due to their more rapid onset and shorter duration of action.

An example of a supplemental insulin order is provided and is to be used as a guide when there is no local policy for use of supplemental insulin. The doses on the initial order may need individual modification according to the patient's clinical needs. The suggested initial range is as follows:

If BGL range before meals is:

- 10-12 mmol/L - give 2 units of rapid acting insulin
- 12.1-18 mmol/L - give 4 units of rapid acting insulin
- 18.1- 20 mmol/L - give 6 units of rapid acting insulin
- >20 mmol/L call for clinical review

The dose of supplemental insulin is determined by the current BGL and the patient's insulin sensitivity or weight.

Supplemental insulin should not be given more frequently than every 4 hours. Multiple doses of supplemental insulin given within a short timeframe (e.g. less than every four hours) may have an additive effect and result in hypoglycaemia.

If significant hyperglycaemia persists, an insulin infusion may need to be considered following clinical review of the patient according to local policy.

7. References

1. Clinical Excellence Commission, *Incident Management in the NSW Public Health System - Looking, Learning, Acting*, July to December 2008
2. Institute of Safe Medication Practice (USA). *List of High Alert Medicines*. 2008. Available at <http://www.ismp.org/Tools/highalertmedications.pdf>
3. National Patient Safety Agency. *Patient Safety Observatory Report 4. Safety in Doses*. 2007. Available at <http://www.nrls.npsa.nhs.uk/resources/patient-safety-topics/medication-safety/?entryid45=59822&q=0%c2%acsafty+in+doses%c2%ac>