Adult Nurse Recruitment

Medicines Management and Numeracy Assessment

Paper 4 - Practice

Time allowed: 60 minutes*

Marks available: 25

Pass marks: See below

*If you have any special requirements please discuss this with the facilitator (e.g. extra time will be given to individuals with dyslexia)

Pass marks		
Conversions	**Medicines Management**	**Nursing Practice Numeracy**
80% or more 4 out of 5 or more	100% 10 out of 10	80% or more 8 out of 10 or more

Medicines Management and Numeracy Assessment

Purpose

The purpose of this assessment is to assess your medicines management and functioning numeracy skills.

The administration of medicines is an important aspect of nursing practice, requiring the practitioner to use thought and exercise professional judgement to ensure this is performed in strict compliance with the written prescription of a medical practitioner (NMC 2007[1]). Whilst the use of calculators is permitted; the use of calculators to determine the volume or quantity should not act as a substitute for arithmetical knowledge and skill (NMC 2007[1]).

Important Notes

- Please read each question carefully.
- Use the column provided to show working out / rough work.
- Answers should be written in the space provided and in pen.
- Answers should include the appropriate unit e.g. 1 tablet, 20mL, 60mg, 67 drops per minute.
- The pass marks for each Part of the paper are indicated on the front page of the assessment document. If you do not achieve these marks on first attempt will be given the opportunity to review and resubmit the answer to these question(s) subsequently.

Useful Information

Useful Reference Information for Medicines Management and Drug Administration

Number of tablets (or capsules)	=	$\frac{\text{Amount prescribed}}{\text{Amount in each tablet or capsule}}$
	or	
Number of tablets (or capsules)	=	$\frac{\text{What you want}}{\text{What you've got}}$

Volume needed	=	$\frac{\text{Strength prescribed}}{\text{Strength available}}$	x	Volume it's in
	or			
Volume needed	=	$\frac{\text{What you want}}{\text{What you've got}}$	x	Volume it's in

Drip rate (drops per minute)	=	$\frac{\text{Volume of fluid (mL)}}{\text{Infusion time (minutes)}}$	x	Drops per mL of the giving set

Flow rate (mL per hour)	=	$\frac{\text{Volume (mL)}}{\text{Infusion time (hours)}}$

Standard Giving Set administers 20 drops per mL

[1] Nursing & Midwifery Council (2007) NMC Standards in Medicines Management, London, NMC.

Part 1 – Conversions			
Question	**Please use this column to show your working out / rough work**	**Answer**	**Do not write in this column**
1. Convert 1850 millilitres to litres.			
2. Convert 0.4 milligrams of Tamsulosin Hydrochloride to micrograms.			
3. Convert 2000 micrograms of Diazepam to milligrams.			
4. Convert 1.2 grams of Benzylpenicillin to milligrams.			
5. Convert 160 milligrams of Furosemide to grams.			
		Total Marks	/5

Part 2 – Medicines Management			
6. A patient with a gastric ulcer is prescribed 30mg Lansoprazole orally. Stock available on the ward is 15mg tablets. How many **tablets** should you dispense?			
7. A patient with a chest infection is being treated with Flucloxacillin. 500mg oral suspension is prescribed. The available stock is 250mg / 5 mL. What is the **volume** required?			

Question	Please use this column to show your working out / rough work	Answer	Do not write in this column
8. A patient in fast atrial fibrillation (AF) is prescribed an emergency loading dose of IV Digoxin 0.75mg over 2 hours. The stock available is 0.5mg / 2mL. What **volume** is required?			
9. A diabetic patient is prescribed Metformin 500mg once daily. 0.5g tablets are available. How many **tablets** will you dispense?			
10. A patient is prescribed an initial IV infusion of Acetylcysteine for the treatment of paracetamol overdose. The required dose is 150mg per kg over 15 minutes. The patient weighs 75kg. What is the required **dose**?			
11. A patient with rheumatic disease is prescribed Diclofenac Sodium 75mg b.d. What is the **total** daily dose?			
12. An asthmatic patient is prescribed Ipratropium Bromide (Atrovent) 250 micrograms to be given by nebuliser. The medication is available in ampoules containing 250 micrograms / 1mL. How many **ampoules** are required?			

Question	Please use this column to show your working out / rough work	Answer	Do not write in this column
13. A 96kg adult requires 17,000 IU of Innohep® (Tinzaparin) for the treatment of a DVT. Stock is available in a pre-filled syringe containing 18,000 IU in 0.9mL. What **volume** should be given to the patient?			
14. A patient requires 1 unit of Blood to be infused over 3 hours via an electronic infusion pump. Each unit of Blood is 300mL. At what **hourly flow rate** do you need to set the electronic infusion pump at to deliver the solution over the prescribed time?			
15. Your patient is prescribed 1000mL of 0.9% Sodium Chloride with 40 mmols of potassium to be given over 8 hours. There are no electronic infusion devices on your ward so this needs to be delivered using a standard giving set. To the nearest whole number calculate the number of **drops per minute** at which the infusion set requires to be set.			
		Total Marks	/10

Use this space for any additional working out / rough work

Part 3 – Nursing Practice Numeracy Questions

Question		Do not write in this column

This is the Fluid Balance chart for a patient under your care.

Time	INTAKE (millilitres)				OUTPUT (millilitres)		
	Oral		Intravenous or other routes		Urine	NG / Vomit	Bowels / Stoma
	Amount mL	Fluid Type	Amount mL	Fluid Type	Amount mL	Amount mL	Amount mL
01:00			100	Nutrison NG Feed			
02:00			100	Nutrison NG Feed	275		
03:00			100	Nutrison NG Feed	75		
04:00			100	Nutrison NG Feed			
05:00			100	Nutrison NG Feed			
06:00			150	Water Flush	165		
07:00	85	Juice					80
08:00	50	Milk			20		
09:00							
10:00							100
11:00					35		
12:00	50	Water			360		60
13:00							
14:00							
15:00	30	Water			45		

16. Calculate in millilitres the fluid **OUTPUT** between 01:00 hours and midday. **Answer**

17. What is the **fluid balance** (positive or negative) for the first 12 hours of the day? **Answer**

Question		Do not write in this column
Look at the intravenous insulin sliding scale prescription below. **Blood Glucose (mmol per litre)** / **Sliding scale insulin infusion rate (mL / hour = units / hour)** **<3*** — 0 **3 – 4.9** — 1 **5 – 7.9** — 1.5 **8 – 11.9** — 2 **12 – 17.9** — 4 **>18** — 8 ***If blood glucose <3 STOP insulin, increase rate of glucose infusion (with 10% if needed) and recheck glucose / restart insulin after 15 minutes**		
18. What **rate** would you set the sliding scale insulin pump if the blood sugar recorded was **5.2 mmol / litre**?	**Answer**	
19. A patient is prescribed a 1 litre Nutrison Multi Fibre NG feed to be administered at a flow rate of 100mL per hour. How **long** will the infusion take to complete?	**Answer**	
20. If the above protocol begins at 7pm and the patient requires warfarin to be administered at 22:00hrs, with a break in the feed of 2 hours before **and** 2 hours after its administration, what time will the protocol **finish**? 	**Answer**	

Question	Do not write in this column
Arthur Williams is an 78 year old gentleman who has been admitted with a four-day history of abdominal pain and vomiting, which has got steadily more severe. He is diagnosed with a perforated bowel and undergoes emergency surgery which last 3½ hours. On return to the ward Arthur is bedbound; he has a urinary catheter insitu. Arthur's daughter advises that her father has lost a lot of weight over the last month, although is "unsure" of the exact amount. She reports that he hasn't been eating much and his BMI has fallen has clearly fallen. Arthur has dry skin.	

WATERLOW RISK ASSESSMENT

BUILD/WEIGHT FOR HEIGHT		SKIN TYPE/VISUAL RISK		MALNUTRUTION SCREENING TOOL (M.S.T.)	SPECIAL RISKS	
Average BMI 20-24.9	0	Healthy	0	A Has patient lost weight recently YES - go to B NO - go to C UNSURE - go to C & +2	TISSUE MALNUTRITION	
Above average BMI 25-29.9	1	Tissue paper	1		Terminal cachexia	8
Obese BMI > 30	2	Dry	1		Multiple organ failure	8
Below average BMI < 20	3	Oedematous	1		Single organ failure (resp/renal/cardiac)	5
		Clammy	1		Peripheral vascular disease	5
		Discoloured	2		Anaemia Hb <8	2
		Broken	3		Smoking	1
CONTINENCE		SEX/AGE		MOBILITY		
Complete/catheter	0	Male	1	SEX/AGE MOBILITY		
Incontinent of urine	1	Female	2	Fully	0	
Faecal incontinence	2	14-49	1	Restless/fidgety	1	
Double incontinence	3	50-64	2	Apathetic	2	
		65-74	3	Restricted	3	
		75-80	4	Bedbound	4	
		80+	5	Chairbound	5	
				B Weight loss score 0.5-5kg 1 >15kg 4 5-10 kg 2 Unsure 2 10-15 kg 3	NEUROLOGICAL DEFICIT Diabetes, MS, CVA, motor/sensory, paraplegia	6 each
				C Patient eating poorly or lack of appetite NO 0 YES 1	MAJOR SURGERY /TRAUMA Orthopaedic/Spinal On table >2 hours On table >6 hours	5 5 8
				M.S.T. SCORE A score >2 refer for nutrition assessment / intervention	MEDICATION cytotoxics, long term/high dose steroids, anti inflammatory * *	MAX 4
SCORE		10 + AT RISK		15 + HIGH RISK	20 + VERY HIGH RISK	

21. Using the following information work out Arthur's **Waterlow score**. Male = **1** 78 years of age = **4** Major Surgery on table >2 hours = **5** Bedbound = **4** Catheterised = **0** Weight loss unsure of amount = **2** Eating poorly = **1** Average BMI = **0** Dry skin = **1**	**Answer**	
22. Circle his Waterlow **risk rating**: AT RISK • **HIGH RISK** • VERY HIGH RISK		

Question		Do not write in this column

Miss Ida Jones is a 71 year old lady under your care, who has been admitted with a suspected stroke. It's 22:15hrs and the Student Nurse on-duty with you has just recorded her observations. These are:

Pulse = **78 irregular**

Temperature = **38.2ºC**

Blood Pressure = **188/96**

Respiratory Rate = **20**

Level of Consciousness (AVPU) = **Voice**

Oxygen Saturations = **93%**

Inspired Oxygen = **Air**

ViEWS	3	2	1	0	1	2	3
Pulse (bpm)	≤ 40		41-50	51-90	91-110	111-130	≥ 131
Temperature (ºC)	≤ 35.0		35.1-36.0	36.1-38.0	38.1-39.0	≥ 39.1	
BP Systolic (mm Hg)	≤ 90	91-100	101-110	111-219			≥ 220
Respiratory rate (bpm)	≤ 8		9-11	12-20		21-24	≥ 25
AVPU				Alert			Voice Pain Unresponsive
SATs	≤ 91	92-93	94-95	≥ 96			
Inspired oxygen				Air		Any O_2	

23. Use the recorded observations to work out her Early Warning **Score** (ViEWS).

Answer

24. Based on Miss Jones' current ViEWS score what **time** are her next observations due?

Answer

ViEWS	Category	Observation interval	Message
0-1	Low	12 hours/ 6 hours*	
2	Low	6 hours	
0-2 with concern or 3-5	Medium	4 hours	1. Inform RN in charge of pt 2. Review obs interval
6	High	4 hours	1. Inform RN in charge of pt for decision to call one of following for review within 2 hrs: • Senior House Officer (9am – 5pm) • Specialist Reg, Middle grade (out of hours) • CCOT (Bleep 037) or Hospital at night (Bleep 271) 2. Review obs interval
7-8	High	1 hour	1. Inform RN in charge of pt who MUST call one of following for review within 30 mins: • Senior House Officer (9am – 5pm) • Specialist Reg, Middle grade (out of hours) 2. Contact CCOT (Bleep 037) or Hospital at night (Bleep 271) 3. Start continuous patient monitoring
9+	Critical	30 minutes	1. Inform RN in charge of pt who MUST call the following for IMMEDIATE review: • Specialist Reg, Middle grade 2. Contact CCOT (Bleep 037) or Hospital at night (Bleep 271) 3. Start continuous patient monitoring

Question	Do not write in this column

Your colleague has completed the Discharge Assessment Tool for a patient under your care who is a social admission from home.

Discharge Assessment: To be completed for all patients within 24 hours of admission

Age		Type of Admission		Current Admission		Previous Admission	
0 =	54 years	0 =	Elective	0 =	No change in function	(0 =)	None in last 3 months
1 =	55 to 64 years	4 =	Emergency	(5 =)	Moderate change in function	2 =	One or more in last 3 months
2 =	65 to 79 years	(5 =)	Social	10=	Major change in function	5 =	More than 2 in last 3 months
(3 =)	80 years plus						
Score =		**Score =**		**Score =**		**Score =**	

Social / home circumstances		Type of home		Mental State	
0 =	Nursing / residential home	0 =	No access problems to facilities	(0 =)	No history of mental health condition
(1 =)	Lives with spouse / partner	2 =	Any steps within the ground floor	4 =	Pre-existing confusion / mental health condition
1 =	Lives with family	(3 =)	Upstairs toilet / bathroom only	5 =	New confusional state
2 =	Lives alone with family / friends or support / warden controlled complex	4 =	Outside toilet		
3 =	Existing care package	4 =	No running water / other utilities		
4 =	Lives alone with no support				
5 =	Inadequate existing care package				
10=	Placement no longer meets patient needs				
10=	Lives with or acts as carer to another				
10=	Homeless				
Score:		**Score:**		**Score:**	

25. **Complete** the chart and **calculate** the Discharge Assessment **score**.	**Answer**	
	Total Marks	/10

END OF ASSESSMENT