

# Arginine Intravenous Administration Guideline—Page 1 of 4—Prescribing of Loading doses and Continuous Infusions

Loading dose (if required)	250mg/kg over 90 minutes
Maintenance dose (continuous infusion)	200-500mg/kg/day
<b>Step 1</b> — Calculate daily requirements in grams [i.e. loading dose (if required) + maintenance dose]	e.g. 4kg patient requires 250mg/kg load followed by 250mg/kg/day maintenance (continuous infusion) [(4x250 = 1000mg load) + (4x250 = 1000mg daily maintenance) = 2000mg = 2g]
<b>Step 2</b> — Read off the preparation of solution guide (page2) to determine the formula for the prescription	Using the above example, 5g Arginine will be prepared, making up to 50mL final volume with Glucose 10%w/v.
<b>Step 3</b> — Complete the prescription with full details for the patient – i.e. formula, +/- loading dose and maintenance dose. A new prescription is written if the maintenance dose changes.	See completed model prescription below for example

## Arginine Intravenous Administration Guideline - Page 2 of 3—Preparation of Solution

Total calculated daily dose (g)	Dose to be prepared (g)	Volume (mL) of neat Arginine (using 5g in 10mL)	Volume (mL) of Glucose 10%w/v diluent	Final Volume (mL)	Final concentration of Arginine (%w/v = number of g in 100mL)	Preparation Instructions
0-5g	<b>5g</b>	10mL	40mL	<b>50mL</b>	10%w/v	Use syringe
>5-10g	<b>10g</b>	20mL	80mL	<b>100mL</b>	10%w/v	Use Buretrol

**Model Prescription e.g. 4kg patient**

### INTRAVENOUS INFUSIONS

## INTRAVENOUS INFUSIONS - IV fluids and Medication

Remember to check allergy section at the front of the kardex before prescribing  
Where an amendment is necessary, please rewrite the prescription IN FULL.

Affix Patient Identifier

Infusion Fluid or Base Solution	GLUCOSE 10% w/v	Final Volume (mL)	50mL	Date Prescribed	Prescriber's Signature	Prep. Check	Date Time	Pump Check	Date Time
Medication or Electrolyte to be added	Name: ARGinine Quantity: 5g			1 03/2/20	12345 Joe Bloggs (1)	JC	3/2/20 0900	JC	3/2/20 0910
Rate	① Loading Dose 1g (=250mg/kg) over 90 min			2	Reg. No. Bleep No.	(2)		JC	3/2/20 1040
Additional Instructions	then ③ maintenance dose 250mg/kg/day			3	Reg. No. Bleep No.				
		Batch no./EXP (if applicable)		4	Reg. No. Bleep No.				
				Date Cancelled	← CANCELLED (complete with full prescriber details)				

## Arginine Intravenous Administration Guideline - Page 2 of 4—Preparation of Solution

Total calculated daily dose (g)	Dose to be prepared (g)	Volume (mL) of neat Arginine (using 5g in 10mL)	Volume (mL) of Glucose 10%w/v diluent	Final Volume (mL)	Final concentration of Arginine (%w/v = number of g in 100mL)	Preparation Instructions
0-5g	<b>5g</b>	10mL	40mL	<b>50mL</b>	10%w/v	Use syringe
>5-10g	<b>10g</b>	20mL	80mL	<b>100mL</b>	10%w/v	Use Buretrol
>10-15g	<b>15g</b>	30mL	120mL	<b>150mL</b>	10%w/v	Use Empty Sterile 250ml Bag* <sup>1</sup>
>15-20g	<b>20g</b>	40mL	160mL	<b>200mL</b>	10%w/v	Use Empty Sterile 250ml Bag* <sup>1</sup>
>20-25g	<b>25g</b>	50mL	200mL	<b>250mL</b>	10%w/v	Use Empty Sterile 250ml Bag* <sup>1</sup>
>25-30g	<b>30g</b>	60mL	240mL	<b>300mL</b>	10%w/v	Withdraw 290mL from a 500mL* <sup>2</sup> bag and replace with 60mL of Arginine concentrate (5g in 10mL) <b>{530 - 290 + 60 = 300}</b>
>30-35g	<b>35g</b>	70mL	280mL	<b>350mL</b>	10%w/v	Withdraw 250mL from a 500mL* <sup>2</sup> bag and replace with 70mL of Arginine concentrate (5g in 10mL) <b>{530 - 250 + 70 = 350}</b>
>35-40g	<b>40g</b>	80mL	320mL	<b>400mL</b>	10%w/v	Withdraw 210mL from a 500mL* <sup>2</sup> bag and replace with 80mL of Arginine concentrate (5g in 10mL) <b>{530 - 210 + 80 = 400}</b>
>40-45g	<b>45g</b>	90mL	360mL	<b>450mL</b>	10%w/v	Withdraw 170mL from a 500mL* <sup>2</sup> bag and replace with 90mL of Arginine concentrate (5g in 10mL) <b>{530 - 170 + 90 = 450}</b>
>45g* <sup>3</sup>	<b>50g</b>	100mL	400mL	<b>500mL</b>	10%w/v	Withdraw 130mL from a 500mL* <sup>2</sup> bag and replace with 100mL of Arginine concentrate (5g in 10mL) <b>{530 - 130 + 100 = 500}</b>

\*<sup>1</sup> See Instruction Sheet for Drug Infusion Preparation via Empty Sterile 250ml Bag

\*<sup>2</sup> 500mL bags are determined to have an average volume of 530mL

\*<sup>3</sup> For all patients requiring >45g per day, make up a bag of 50g in 500ml final volume as directed. If the total daily dose is >50g, this will have to be prepared a second time within the 24 hour period.

## Arginine Intravenous Administration Guideline—Page 3 of 4—Rate calculation and Programming the Infusion Pump

<b>Step 1</b> —Prepare the infusion as per prescription and preparation of solution guide (page 2)	e.g. previous example of 4kg patient requiring 2g (including loading dose) - prepare 5g in 50mL final volume Glucose 10%w/v.
<b>Step 2</b> —Choose appropriate pump (Infusomat® or Perfusor®)	e.g. using previous example volume is ≤50mL so the appropriate pump is Perfusor®
<b>Step 3</b> —If loading dose is required, calculate the required volume to be infused ( <i>if no loading dose is needed proceed to step 5</i> )	As from table below, a 250mg/kg loading dose for a 4kg patient will require 10mL [VTBI = 2.5 x Wt]
Step 4—Programme the pump to administer “Arginine Load”. ( <i>This is found in the care unit “Metabolic Agents”</i> )	Volume to be infused (VTBI) according to the pump should match your calculation
<b>Step 5</b> —For the maintenance dose, using the table, calculate the default rate (mL/hour) for the default start dose	(0.083 x Wt)mL/hour = 200mg/kg/day e.g. (0.083 x 4)mL/hour = 200mg/kg/day 0.33mL/hour = 200mg/kg/day
<b>Step 6</b> —If the required dose is different from the default start dose, calculate the rate (mL/hour) for the required dose using the “rate calc formula”	e.g. Using previous example where required maintenance dose for 4kg patient is 250mg/kg/day = $\frac{250 \times 0.33}{200} = 0.41$ mL/hour
<b>Step 7</b> —Programme the pump to administer “Arginine Maintenance”.	The flow rate (mL/hour) according to the pump should match your calculation

Metabolic Agents : CONTINUOUS INFUSIONS AND LOADING DOSES STANDARD CONCENTRATION INFUSION DRUG LIBRARY					Rate calc (mL/hour) =	$\frac{\text{Required Dose} \times \text{Default Rate (ml/hr)}}{\text{Default Start Dose}}$	
Drug	Category	Weight Band	SCI (Normal)	Diluent	Usual Dose Range	Default Dose and Rate Calculator	
						<i>All Weights in kg - rounding can occur</i>	
						Default Start Dose	Default Rate (mL/hr)
<b>Arginine Load</b> <i>(In own care-unit on pumps - "Metabolic Agents")</i>  <i>Scroll past weight-bands and choose "Change care"</i>		All	5g/50mL (Perfusor) 100mg/mL (Infusomat) <i>see protocol</i>	Glucose 10%	250mg/kg  over 90 mins	250mg/kg	VTBI (mL) = 2.5 x Wt
<b>Arginine Maintenance</b> <i>(In own care-unit on pumps - "Metabolic Agents")</i>  <i>Scroll past weight-bands and choose "Change care unit"</i>		All	5g/50mL (Perfusor) or 100mg/mL (Infusomat) <i>see protocol</i>	Glucose 10% w/v	200-500mg/kg/24hours	200mg/kg/24hours	0.083 x Wt

## Arginine Intravenous Administration Guideline - Page 4 of 4—Preparation of Intermittent Infusion Doses

Total Calculated intermittent dose (g)	Dose to be prepared (g)	Volume (mL) of neat Arginine (using 5g in 10mL)	Volume (mL) of Glucose 10% w/v diluent	Final Volume (mL)	Final concentration of Arginine (%w/v = number of g in 100mL)	Preparation Instructions
0-5g	<b>5g</b>	10mL	40mL	<b>50mL</b>	10%w/v	Use syringe
>5-10g	<b>10g</b>	20mL	80mL	<b>100mL</b>	10%w/v	Use Buretrol
>10-15g	<b>15g</b>	30mL	120mL	<b>150mL</b>	10%w/v	Use Empty Sterile 250ml Bag* <sup>1</sup>

\*<sup>1</sup>See Instruction Sheet for Drug Infusion Preparation via Empty Sterile 250ml Bag

### Notes

- “Intermittent infusions” - e.g. total Arginine daily dose is given in three or four divided intravenous doses over 90 minutes each time.
- Prescribe in the regular medications section of the Medication Prescription and Administration Record (MPAR)
- Select “No” to the Drug Library in the smart pumps
- Programme the appropriate volume to be infused (VTBI) and time of administration as usual.