

This applies to adult patients only

## Loading Dose Worksheet for Intravenous Aminophylline

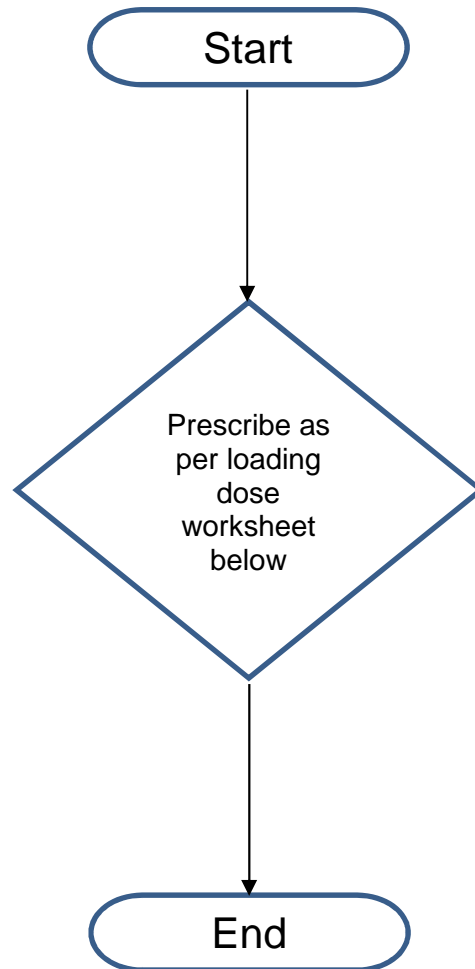
Key:

General Notes

GP/SWASFT

ED/MAU/SRU/Acute GP/Amb-Care

In-patient wards



## **1. Aim/Purpose of this Guideline**

1.1. This loading dose worksheet is intended to guide medical, nursing and pharmacy staff in the safe and appropriate prescription and administration of intravenous aminophylline loading doses in adults

## **2. The Guidance**

2.1. See the next page(s)

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## Loading dose worksheet for IV Aminophylline

### Administration

#### Dose

- Dosages are calculated using **ideal body weight (IBW)**:
  - Administer **loading dose** of 5mg/kg, diluted in 100 mL of diluent, by slow IV injection over at least 20 minutes, **then**:
  - Commence **maintenance IV infusion** at 0.5mg/kg/hr: dilute 500mg in 500 mL of diluent and infuse at the required rate.
- Reduce maintenance dose in the elderly (>70 years) to 0.3mg/kg/hr.

#### Diluent

- Glucose 5% or sodium chloride 0.9%.

#### Other considerations

- Adjust the rate and duration of the maintenance infusion according to plasma-theophylline levels (see '**Monitoring**' below).
- Patients taking oral theophylline or aminophylline may not require the loading dose—check plasma-theophylline levels before administering.

### Example Prescription—based on 70kg (IBW) adult

- Calculated using dose table (see overleaf).

EPMA Supplementary intravenous therapy prescription sheet										# patient label		
All infusions, infusion fluids, blood and plasma must also be prescribed in EPMA												
Date	Infusion solution	Name and dose of additive	Infusion volume	Duration of infusion	Infusion rate	Proposed start time	Prescriber signature	Infusion bag batch no.	Time actually started	Given by	Time finished	Pharmacy use
										Checked by		
01/08/17	Glucose 5%	Aminophylline 350mg	100mL	20 mins			Doctor (Bleep)					
01/08/17	Glucose 5%	Aminophylline 500mg	500mL	continuous	35 mL/hr		Doctor (Bleep)					

### Monitoring

- Plasma-theophylline levels: measure 4-6 hours after the start of IV infusion then daily thereafter (target range 10-20mg/L).
- Plasma-theophylline concentration is increased in heart failure and liver impairment—lower maintenance doses may be required.
- Plasma-theophylline concentration is decreased in smoking patients.
- Aminophylline has a narrow therapeutic index therefore monitor for signs of toxicity: nausea, vomiting, agitation, dilated pupils, tachycardia. More serious effects include haematemesis, convulsions and arrhythmias.
- Potassium levels: aminophylline may cause hypokalaemia (this may be potentiated by concomitant asthma therapy such as beta<sub>2</sub> agonists).

**Disclaimer:** This worksheet is a guideline—there may be other safe ways of prescribing and administering this drug

## Dose Table for IV Aminophylline

Ideal Body weight (Kg)	Loading Dose		Hourly infusion rate using a 500mg/500mL (mLs/hr)
	Dose (mg over 20 minutes)	Volume of Aminophylline required (mLs of 250mg in 10mL)	
Under 45 Kg	<i>Calculate on an individual basis</i>		
45-47	225	9	22.5
48 - 52	250	10	25
53 - 57	275	11	27.5
58 - 62	300	12	30
63 - 67	325	13	32.5
68 - 72	350	14	35
73 - 77	375	15	37.5
78 - 82	400	16	40
83 - 87	425	17	42.5
88 - 92	450	18	45
93 - 97	475	19	47.5
98 - 102	500	20	50

### 3. Monitoring compliance and effectiveness

Element to be monitored	Compliance with prescribing and administration in accordance with this guideline (or other safe practice).
Lead	Medications Safety Pharmacist.
Tool	No specific tool.  Datix will be used to identify clinical incidents.
Frequency	As required according to clinical incident reports.
Reporting arrangements	Via Medicines Practice Committee.  Clinical incidents on Datix will be reported to the senior nurse/manager in that area and will also be reported to the Medication Safety Group.
Acting on recommendations and Lead(s)	Actions from incident reports will be at a local level and may also result in broader actions, co-ordinated by the Medication Safety Group.  Matrons/ward managers
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within the time frame specified in the action plan.

### 4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ['Equality, Diversity & Human Rights Policy'](#) or the [Equality and Diversity website](#).

#### 4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

## Appendix 1. Governance Information

<b>Document Title</b>	Loading Dose Worksheet for Intravenous Aminophylline.			
<b>Date Issued/Approved:</b>	November 2017			
<b>Date Valid From:</b>	November 2017			
<b>Date Valid To:</b>	November 2020			
<b>Directorate / Department responsible (author/owner):</b>	Bronwin Staple, Medicines Information Lisa Thomas, Medicines Information Ann Cardell, Medication Safety			
<b>Contact details:</b>	01872 252587			
<b>Brief summary of contents</b>	Guidance on the prescribing and administration of intravenous aminophylline in adults.			
<b>Suggested Keywords:</b>	'Aminophylline', 'Loading Dose', 'Theophylline', 'Asthma' 'COPD'.			
<b>Target Audience</b>	RCHT	PCH	CFT	KCCG
	✓			
<b>Executive Director responsible for Policy:</b>	Chief Pharmacist.			
<b>Date revised:</b>	October 2017			
<b>This document replaces (exact title of previous version):</b>	Clinical guideline for aminophylline in adults – Loading Dose Worksheet.			
<b>Approval route (names of committees)/consultation:</b>	Medication Practice Committee.			
<b>Divisional Manager confirming approval processes</b>	<i>Head of relevant Division.</i>			
<b>Name and Post Title of additional signatories</b>	Not required.			
<b>Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings</b>	{Original Copy Signed}			
	Name:			
<b>Signature of Executive Director giving approval</b>	{Original Copy Signed}			
<b>Publication Location (refer to Policy on Policies – Approvals and</b>	Internet & Intranet		Intranet Only	✓

<b>Ratification):</b>				
<b>Document Library Folder/Sub Folder</b>	Clinical / Pharmacy			
<b>Links to key external standards</b>	None			
<b>Related Documents:</b>	N/A			
<b>Training Need Identified?</b>	N/A			

### Version Control Table

<b>Date</b>	<b>Version No</b>	<b>Summary of Changes</b>	<b>Changes Made by (Name and Job Title)</b>
October 2011	V1.0	Initial Issue.	Ian Nicholls, Medication Safety Pharmacist
October 2012	V2.0	Clinical update.	Ian Nicholls, Medication Safety Pharmacist
August 2014	V3.0	Update to include EPMA changes and review practice.	Ian Nicholls, EPMA and governance Pharmacist
October 2017	V4.0	Clinical update.	Lisa Thomas, Medicines Information Pharmacist; Bronwin Staple, Medicines Information Lead Pharmacist.

**All or part of this document can be released under the Freedom of Information Act 2000**

**This document is to be retained for 10 years from the date of expiry.**

**This document is only valid on the day of printing**

### **Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.

## Appendix 2. Initial Equality Impact Assessment Form

Name of the strategy / policy / proposal / service function to be assessed (hereafter referred to as <i>policy</i> ) (Provide brief description): Loading Dose Worksheet for Intravenous Aminophylline.	
Directorate and service area: All clinical areas	Is this a new or existing Policy? Existing.
Name of individual completing assessment: Lisa Thomas	Telephone: 01872 252587
1. Policy Aim* Who is the strategy / policy / proposal / service function aimed at?	This loading dose worksheet is intended to guide medical, nursing and pharmacy staff in the safe and appropriate prescribing and administration of intravenous aminophylline loading doses in adults.
2. Policy Objectives*	To ensure RCHT complies with the requirements of the NPSA RRR018: <i>Preventing fatalities from medication loading doses.</i>
3. Policy – intended Outcomes*	Reduction in the risk associated with the prescribing and administration of intravenous aminophylline loading doses in adults.
4. *How will you measure the outcome?	Review of Clinical Incident Reports.
5. Who is intended to benefit from the policy?	All adult inpatients within the Trust.
6a) Is consultation required with the workforce, equality groups, local interest groups etc. around this policy?  b) If yes, have these *groups been consulted?  C). Please list any groups who have been consulted about this procedure.	No.       Medications Safety Group.

<b>7. The Impact</b>			
Please complete the following table.			
Are there concerns that the policy <b>could</b> have differential impact on:			
Equality Strands:	Yes	No	Rationale for Assessment / Existing Evidence
<b>Age</b>		✓	Policy for all patients
<b>Sex</b> (male, female, trans-gender / gender reassignment)		✓	Policy for all patients
<b>Race / Ethnic communities /groups</b>		✓	Policy for all patients



<b>Disability -</b> Learning disability, physical disability, sensory impairment and mental health problems		✓	Policy for all patients
<b>Religion / other beliefs</b>		✓	Policy for all patients
<b>Marriage and civil partnership</b>		✓	Policy for all patients
<b>Pregnancy and maternity</b>		✓	Policy for all patients
<b>Sexual Orientation,</b> Bisexual, Gay, heterosexual, Lesbian		✓	Policy for all patients
<p>You will need to continue to a full Equality Impact Assessment if the following have been highlighted:</p> <ul style="list-style-type: none"> <li>• You have ticked “Yes” in any column above and</li> <li>• No consultation or evidence of there being consultation- this <u>excludes</u> any <i>policies</i> which have been identified as not requiring consultation. <b>or</b></li> <li>• Major service redesign or development</li> </ul>			
8. Please indicate if a full equality analysis is recommended.		<b>Yes</b>	<b>No</b> ✓
9. If you are not recommending a Full Impact assessment please explain why.			
It is not required as the guideline does not have a differential impact on any group.			
Signature of policy developer / lead manager / director		Date of completion and submission November 2017	
Names and signatures of members carrying out the Screening Assessment	1. Lisa Thomas 2. Bronwin Staple		

**Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead,**  
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa,  
Truro, Cornwall, TR1 3HD

A summary of the results will be published on the Trust’s web site.

Signed \_\_\_\_\_

Date \_\_\_\_\_