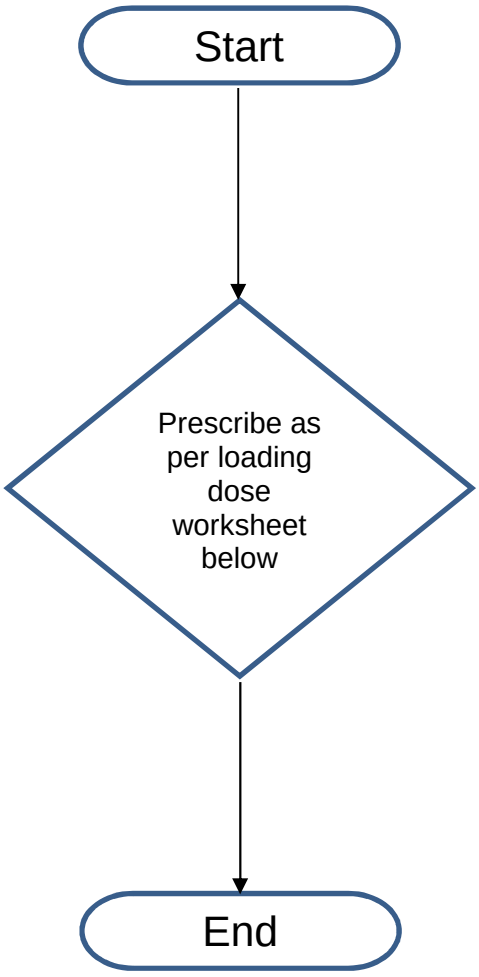
This applies to adult patients only

Loading Dose Worksheet for Intravenous Acetylcysteine

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 acetylcysteine loading doses in adults

2. The Guidance

2.1. See the next page(s)

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Loading dose worksheet for IV Acetylcysteine

Administration

Dose

- Dosages are calculated using **actual body weight**.
- Use a **ceiling weight** of 110 kg to prevent overdosing in the obese.
- Full course of treatment comprises 3 consecutive IV infusions:
  1. **Initial loading dose of 150 mg/kg body weight infused in 200 mL over 1 hour then:**
  2. **50 mg/kg in 500 mL over the next 4 hours then:**
  3. **100 mg/kg in 1000 mL over the next 16 hours.**

Diluent

- Preferably **glucose 5%** (sodium chloride 0.9% may also be used).

Other considerations

- Continued treatment (given at the dose and rate as used in the third infusion) may be necessary depending on the clinical evaluation of the individual patient.

Example Prescription—Based on 75kg Adult

- Calculated using dose banding table (see overleaf).
- Dose calculations are based on weight in the middle of each band.

EPMA Supplementary intravenous therapy prescription sheet

affix 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 / Checked by	Time finished	Pharmacy use
1/8/17	Glucose 5%	Acetylcysteine 11.25g	200mL	1 hour	257 mL/hr		Doctor (bleep)					
1/8/17	Glucose 5%	Acetylcysteine 3.75g	500mL	4 hours	130 mL/hr		Doctor (bleep)					
1/8/17	Glucose 5%	Acetylcysteine 7.5g	1000 mL	16 hours	65 mL/hr		Doctor (bleep)					

Monitoring

- Adverse effects usually occur 15—60 minutes after the start of the initial infusion.
- Observe for anaphylactoid reactions, nausea/vomiting, flushing, rash, pruritis, angiodema, bronchospasm and tachycardia.
- Hypersensitivity reactions can be managed by suspending the infusion until the reaction settles and restarting at a lower rate:
  - Restart at 50mg/kg over 4 hours, followed by the final 16 hour infusion (100mg/kg over 16 hours).
- Refer to Toxbase for full management guidelines.

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

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Acetylcysteine— Dosing table

Adult N-acetylcysteine prescription (each ampoule = 200mg/mL N-acetylcysteine)									
Regimen	Dose 1			Dose 2			Dose 3		
Fluid	200mLs 5% glucose or sodium chloride 0.9%			500mLs 5% glucose or sodium chloride 0.9%			1000mLs 5% glucose or sodium chloride 0.9%		
Duration of infusion	60 minutes			4 hours			16 hours		
Drug Dose	150mg/kg N-acetylcysteine			50mg/kg N-acetylcysteine			100mg/kg N-acetylcysteine		
Patient Weight[1]	Dose	Ampoule volume[2]	Infusion Rate	Dose	Ampoule volume[2]	Infusion Rate	Dose	Ampoule volume[2]	Infusion Rate
kg	g	mL	mL/h	g	mL	mL/h	g	mL	mL/h
40-49	6.75	34	234	2.25	12	128	4.5	23	64
50-59	8.25	42	242	2.75	14	129	5.5	28	64
60-69	9.75	49	249	3.25	17	129	6.5	33	65
70-79	11.25	57	257	3.75	19	130	7.5	38	65
80-89	12.75	64	264	4.25	22	131	8.5	43	65
90-99	14.25	72	272	4.75	24	131	9.5	48	66
100-109	15.75	79	279	5.25	27	132	10.5	53	66
>110— Max dose	16.5	83	283	5.5	28	132	11	55	66

[1] Dose calculations are based on the weight in the middle of each band
[2] Ampoule volume has been rounded up to the nearest whole number

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

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

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

Version Control Table

Date	Version No	Summary of Changes	Changes Made by *(Name and Job Title)*
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 *policy*) (Provide brief description): Loading Dose Worksheet for Intravenous Acetylcysteine.	
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 acetylcysteine loading doses in adults.
2. Policy Objectives*	To ensure RCHT complies with the requirements of the NPSA RRR018: *Preventing fatalities from medication loading doses.*
3. Policy – intended Outcomes*	Reduction in the risk associated with the prescribing and administration of intravenous acetylcysteine 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.

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

Disability - Learning disability, physical disability, sensory impairment and mental health problems		✓	Policy for all patients
Religion / other beliefs		✓	Policy for all patients
Marriage and civil partnership		✓	Policy for all patients
Pregnancy and maternity		✓	Policy for all patients
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		✓	Policy for all patients

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation- this excludes any *policies* which have been identified as not requiring consultation**. or**
- Major service redesign or development

8. Please indicate if a full equality analysis is recommended.	**Yes**	**No** ✓

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 _____