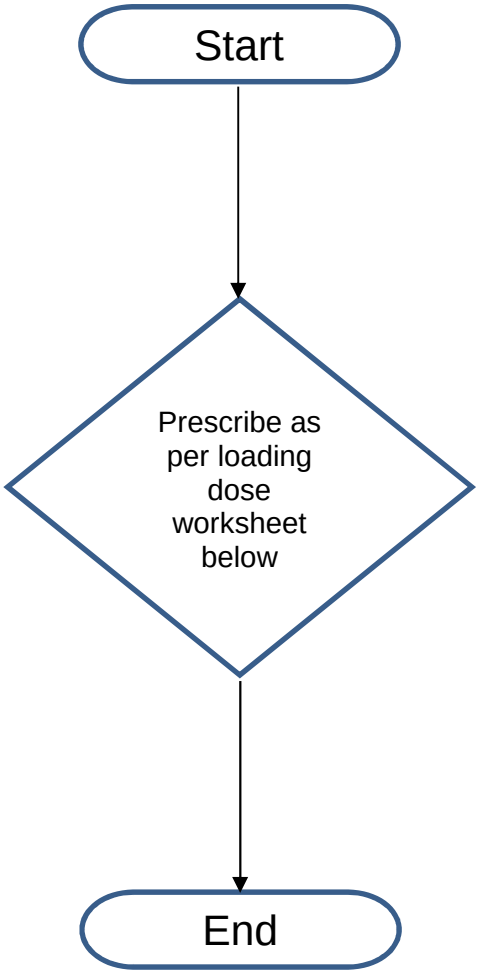
This applies to adult patients only

Loading Dose Worksheet for Intravenous Tirofiban

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 tirofiban loading doses in adults

2. The Guidance

2.1. See the next page(s)

This applies to Adult patients only

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Loading dose worksheet for IV Tirofiban

Administration

Dose (see overleaf for weight-based dose tables):

- Angiography within 0 - 4 hours of diagnosis (under specialist advice):
  - Initial bolus of 25mcg/kg given over 3 minutes at the start of PCI, followed by a continuous infusion at a rate of 0.15mcg/kg/min for 12-24 hours. Maximum duration of treatment of 48 hours.
- Angiography planned for 4 - 48 hours after diagnosis:
  - Initial intravenous infusion at a rate of 0.4mcg/kg/minute for 30 minutes, then continued at a maintenance infusion rate of 0.1mcg/kg/min for at least 48 hours. Continue during and for 12–24 hours after PCI. Maximum duration of treatment of 108 hours.
- **Please note:** if eGFR is **less than 30mL/min/1.73 m^2**, then use **HALF** the normal dose.

Instructions for dilution:

- Tirofiban (Aggrastat®) solution for infusion (250mL bag) is premixed at 50mcg/mL. No further dilution is necessary. The **premixed bag** is normally used at RCHT.
- Tirofiban (Aggrastat®) **concentrate** (50mL vial) must be diluted prior to infusion to make a 50mcg/mL solution:
  - Withdraw 50mL from a 250mL bag of either sodium chloride 0.9% or glucose 5%. Add total contents of vial (12.5mg) and mix well.

Other considerations:

- Tirofiban should be given concurrently with unfractionated heparin and oral antiplatelets, unless contraindicated.
- Tirofiban is Y-site compatible with unfractionated heparin.

Example Prescription (see dose tables overleaf)

- Based on a 70kg adult for angiography within 4 hours of diagnosis:

EPMA Supplementary intravenous therapy prescription sheet

All infusions, infusion fluids, blood and plasma must also be prescribed in EPMA

affix patient label

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	(50mcg/mL)	Tirofiban 1650mcg	33 mL	3 mins			Doctor (bleep)					
1/8 /17	(50mcg/mL)	Tirofiban		Contin -uous	12 mLs/hr		Doctor (bleep)					

Monitoring

- Bleeding is the major adverse effect of tirofiban therapy.
- Monitor platelet count, haemoglobin and haematocrit before treatment, then 2-6 hours after start of treatment and then once daily thereafter.
- Monitor carefully for bleeding if eGFR less than 60mL/min/1.73 m^2.
- Clotting parameters: tirofiban is contraindicated if prothrombin time greater than 1.3 times normal or INR greater than 1.5.

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

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Tirofiban— weight-based dose tables

Angiography within 0 –4 hours after diagnosis				
Weight (kg)	**25mcg/kg loading dose Over 3 mins**		**0.15mcg/kg/min Maintenance infusion**	
	Loading dose (mcg)	Volume (mL)	Dose (mcg/hr)	Infusion rate (mL/hr)
30-37	850	17	300	6
38-45	1050	21	350	7
46-54	1250	25	450	9
55-62	1450	29	550	11
63-70	1650	33	600	12
71-79	1900	38	700	14
80-87	2100	42	750	15
88-95	2300	46	800	16
96-104	2500	50	900	18
105-112	2700	54	1000	20
113-120	2900	58	1050	21
121-128	3100	62	1100	22
129-137	3350	67	1200	24
138-145	3550	71	1250	25
146-153	3750	75	1350	27

Angiography planned 4 –48 hours after diagnosis				
Weight (kg)	**0.4mcg/kg/min loading dose infusion over 30 mins**		**0.10mcg/kg/min Maintenance infusion**	
	Loading dose (mcg)	Infusion rate (mL/hr)	Dose (mcg/hr)	Infusion rate (mL/hr)
30-37	400	16	200	4
38-45	500	20	250	5
46-54	600	24	300	6
55-62	700	28	350	7
63-70	800	32	400	8
71-79	900	36	450	9
80-87	1000	40	500	10
88-95	1100	44	550	11
96-104	1200	48	600	12
105-112	1300	52	650	13
113-120	1400	56	700	14
121-128	1500	60	750	15
129-137	1600	64	800	16
138-145	1700	68	850	17
146-153	1800	72	900	18

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 Tirofiban.			
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 tirofiban in adults.			
Suggested Keywords:	'Tirofiban', 'Loading Dose'.			
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 Tirofiban 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 Ratification):	Internet & Intranet		Intranet Only	✓

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 Tirofiban.	
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 tirofiban 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 tirofiban 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 _____