

## Pulse-Oximetry (Universal) Screening

<b>Classification:</b>	Guideline		
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<b>Authors Job Title:</b>	Consultant		
<b>Authors Division:</b>	Women & Children		
<b>Departments/Group this Document applies to:</b>	Any area within the Trust providing services for infants, children and young people.		
<b>Approval Group:</b> Children's Services PIG Children's Services CIG Trust Documentation Committee	<b>Date of Approval:</b>	22/4/2020	
	<b>Last Review:</b>	New document	
	<b>Review Date:</b>	22/4/2023	
<b>Unique Identifier:</b> PAED/GL/140	<b>Status:</b> Approved	<b>Version No:</b> 1	
<b>Guideline to be followed by (target staff):</b>			
<b>To be read in conjunction with the following documents:</b>			
<i>Plana MN, Zamora J, Suresh G, Fernandez-Pineda L, Thangaratinam S, Ewer AK. Pulse oximetry screening for critical congenital heart defects. Cochrane Database of Systematic Reviews 2018, Issue 3</i>			
<i>Jawin V, Ang H-L, Omar A, Thong M-K (2015). Beyond Critical Congenital Heart Disease: Newborn Screening Using Pulse Oximetry for Neonatal Sepsis and Respiratory Diseases in a Middle-Income Country</i>			
<b>CQC Fundamental standards:</b>			
Regulation 9 – person centred care			
Regulation 12 – Safe care and treatment			
Regulation 15 – Premises and equipment			
Regulation 17 – Good governance			

### Disclaimer

Since every patient's history is different, and even the most exhaustive sources of information cannot cover every possible eventuality, you should be aware that all information is provided in this document on the basis that the healthcare professionals responsible for patient care will retain full and sole responsibility for decisions relating to patient care; the document is intended to supplement, not substitute for, the expertise and judgment of physicians, pharmacists or other healthcare professionals and should not be taken as an indication of suitability of a particular treatment for a particular individual.

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The ultimate responsibility for the use of the guideline, dosage of drugs and correct following of instructions as well as the interpretation of the published material **lies solely with you** as the medical practitioner.

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## Guideline Statement

Pulse-oximetry (checking oxygen saturation) is used in maternity units to aid in the detection of serious congenital heart defects for babies born  $\geq 34$  weeks' gestation and in conjunction with clinical examination. Serious non-cardiac conditions may also be identified.

## Abbreviations:

ANNP - Advanced neonatal nurse practitioner

NIPE - Newborn and infant physical examination

FBC - Full blood count

CRP - C-reactive protein

CVS - Cardio-vascular system

PROM - Prolonged rupture of membranes

SpO<sub>2</sub> - Oxygen Saturation

SSRI - Selective serotonin reuptake inhibitor (e.g. Fluoxetine, Citalopram, Sertraline etc)

## 1.0 Roles and Responsibilities

### Paediatricians/ ANNP's

This is an additional screening test which is going to be carried out at the time of NIPE by the person carrying out the NIPE for all babies and enter data into the NIPE Smart system immediately after the examination has taken place.

### Midwives

With appropriate training may take on the responsibility for healthy/term infants in all birth settings.

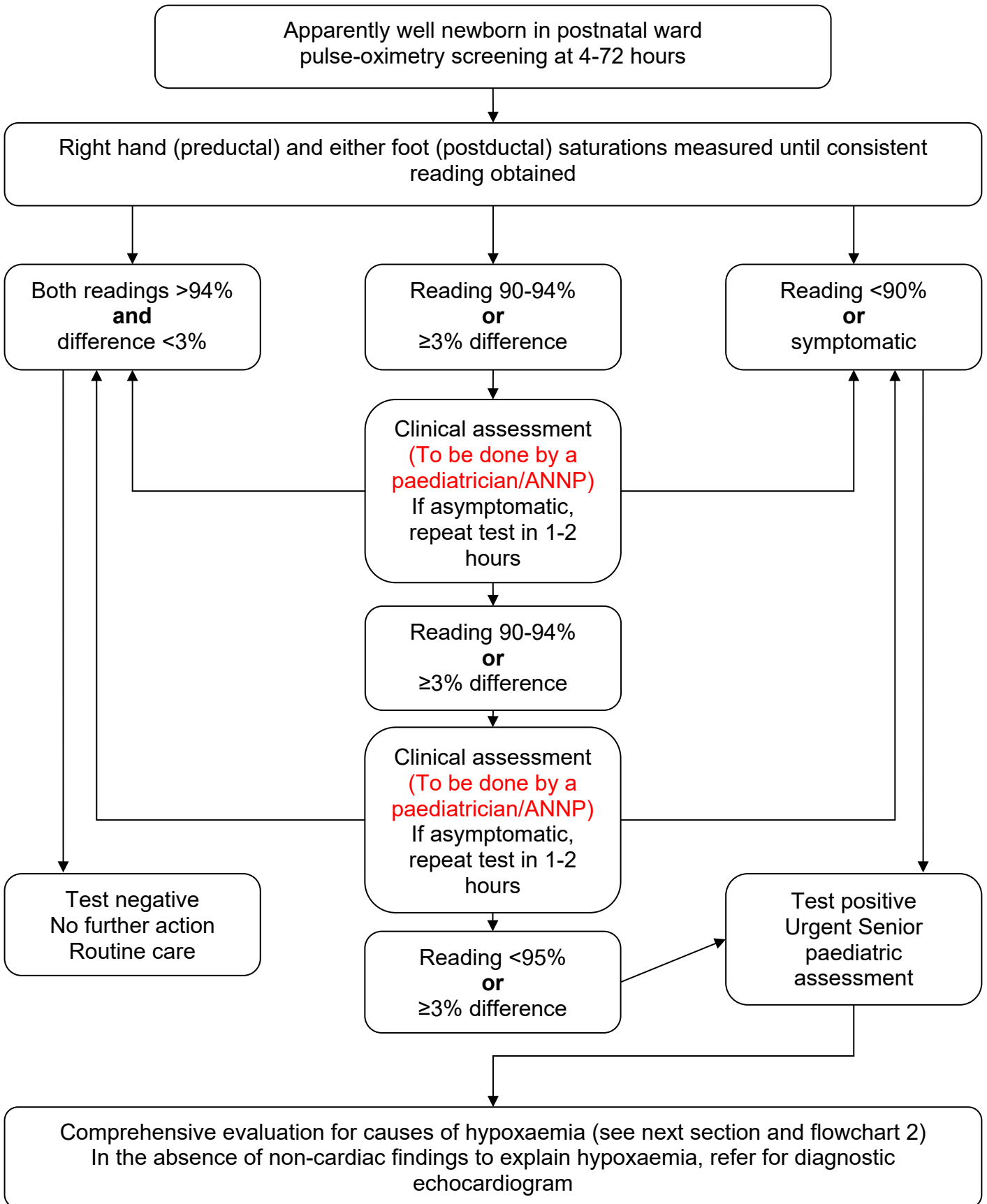
## 2.0 Implementation and dissemination of document

This document will be disseminated across the maternity and paediatric unit, through team meetings, and circulation to all colleagues. The document can be located via the hospital /community intranets.

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### 3.0 Processes and procedures

#### 3.1 Flowchart 1: Pulse-oximetry Screening Test



### 3.2 Positive Pulse-Oximetry Screen (Abnormal Test)

Initial assessment of test-positive baby

Assess cardiac and respiratory systems

- Is baby symptomatic?
  - Quiet, less responsive
  - Temperature instability
  - Tachypnoea with RR  $\geq$ 60 min
  - Respiratory distress
  - Grunting respirations
  - Nasal flaring
  - Chest wall recession
  - Apnoea

#### Examination

- Abnormal breath sounds
- Heart murmur
- Weak or absent femoral pulse
- Response to oxygen therapy

#### History

- Previous cardiac defect or congenital infection?
- Suspicion of congenital abnormality on antenatal scan?
- Maternal illness during pregnancy, including diabetes?
- Drug ingestion during pregnancy (anticonvulsants)?
- PROM
- Positive maternal culture
- Maternal fever or raised inflammatory markers
- Foul-smelling liquor
- Mode of delivery
- Need for resuscitation (Apgar score)

### 3.3 Management of Test-Positive Baby

#### Any test-positive baby

- See flowchart 2
- Seen by appropriately trained paediatric staff
- Seek advice from paediatric middle grade or above

#### Admission

- Admit to NNU for assessment if:
  - Abnormal examination findings or
  - Pulse-oximetry screening positive on 3 occasions (see flowchart 2)

#### Investigations

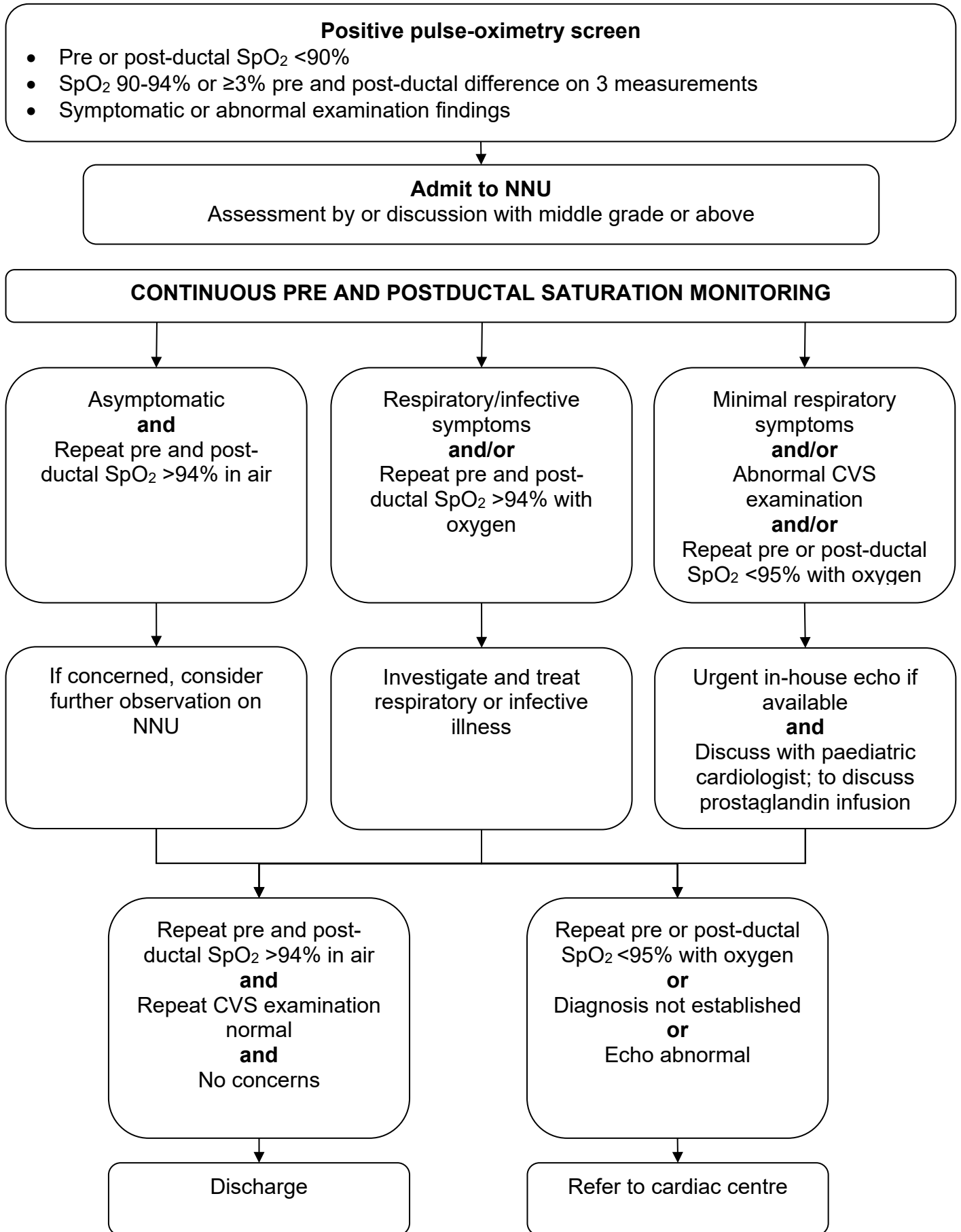
- If respiratory / infective condition suspected from history/examination and saturations improve with oxygen
  - FBC / CRP / blood culture / chest x-ray as appropriate

#### Echocardiogram

- Indicated if any of the following:
  - CVS examination abnormal
  - No respiratory signs
  - No response to oxygen
  - Low saturations persist
  - No satisfactory explanation
- If echo unavailable, contact consultant regarding prostaglandin E<sub>2</sub> infusion / paediatric cardiology.

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### 3.4 Flowchart 2: Positive Pulse-Oximetry Screen (Abnormal Test)



## 4.0 Statement of evidence/references

### Statement of evidence:

#### References:

*Plana MN, Zamora J, Suresh G, Fernandez-Pineda L, Thangaratinam S, Ewer AK. Pulse oximetry screening for critical congenital heart defects. Cochrane Database of Systematic Reviews 2018, Issue 3*

[www.cochranelibrary.com](http://www.cochranelibrary.com)

*Jawin V, Ang H-L, Omar A, Thong M-K (2015). Beyond Critical Congenital Heart Disease: Newborn Screening Using Pulse Oximetry for Neonatal Sepsis and Respiratory Diseases in a Middle-Income Country*

<https://umexpert.um.edu.my/>

#### External weblink references:



## 5.0 Governance

### 5.1 Document review history

Version number	Review date	Reviewed by	Changes made
1			

### 5.2 Consultation History

Stakeholders Name/Board	Area of Expertise	Date Sent	Date Received	Comments	Endorsed Yes/No
Denise Campbell	Quality Lead Paediatrics	07/01/2020	07/01/2020	I have reviewed and made comments within the document. (Tracked changes attached to email)	Yes
Marion Forster	Practice Educator	07/01/2020	07/01/2020	I have attached my comments. (Tracked changes attached to email)	Yes
Julie Cooper	Head of Midwifery and Paediatric Nursing	09/01/2020	09/01/2020	Please see my attached comments for this guideline. (Tracked changes attached to email)	Yes
Omar Mulki	O & G Consultant	05/03/2020	05/03/2020	I have no edits but the formatting was wrong on my screen and things overlapped but I couldn't see anything obvious to change	Yes
Mary Plummer	Matron	07/03/2020	07/03/2020	I have made a couple of comments.  (Tracked changes attached to email)	Yes
Trust Documentation Committee	Governance	21/4/2020	22/4/2020	Document required tidy up and audit section completed	Yes

### 5.3 Audit and monitoring

Audit/Monitoring Criteria	Tool	Audit Lead	Frequency of Audit	Responsible Committee/Board
Annually once guideline has been embedded	TBD	Dr Indranil Misra	Annual	Paediatrics

### 5.4 Equality Impact Assessment

As part of its development, this Guideline and its impact on equality has been reviewed. The purpose of the assessment is to minimise and if possible remove any disproportionate impact on the grounds of race, gender, disability, age, sexual orientation, religion or belief, pregnancy and maternity, gender reassignment or marriage and civil partnership. No detriment was identified. Equality Impact assessments will show any future actions required to overcome any identified barriers or discriminatory practice.

Equality Impact Assessment			
Division	Women & Children's	Department	Paediatrics
Person completing the EqIA	Administrator	Contact No.	86589
Others involved:	Quality Lead	Date of assessment:	8/4/2020
Existing policy/service	No	New policy/service	Yes
Will patients, carers, the public or staff be affected by the policy/service?		Yes	
If staff, how many/which groups will be affected?		Paediatricians, midwives	
Protected characteristic	Any impact?	Comments	
Age	NO	Positive impact as the policy aims to recognise diversity, promote inclusion and fair treatment for patients and staff	
Disability	NO		
Gender reassignment	NO		
Marriage and civil partnership	NO		
Pregnancy and maternity	NO		
Race	NO		
Religion or belief	NO		
Sex	NO		
Sexual orientation	NO		
What consultation method(s) have you carried out?			
Face-to-face meetings, email			
How are the changes/amendments to the policies/services communicated?			
Email, meetings, newsletter			
What future actions need to be taken to overcome any barriers or discrimination?			
What?	Who will lead this?	Date of completion	Resources needed
N/A	N/A	N/A	N/A
Review date of EqIA	8/4/2020		