5. IV GTN *versus* Sublingual / Lingual SPRAY GTN

Pharmacokinetics

The pharmacokinetics of IV and Sublingual / Lingual SPRAY GTN are thought to be similar but have rarely been directly compared. The following is extracted from various sources.

- Onset of action: with 0.5 – 2 minutes
- Peak effect:
  - 1 – 2 minutes IV
  - 3 minutes SPRAY
- Duration of Effect:
  - 2 minutes (IV)
  - 3 - 15 minutes (SPRAY)
  - **Note, with both IV and SPRAY, the action on uterus** may only last a few minutes while the **action on BP** often lasts 15 minutes, occasionally up to 30 minutes
- Half Life (this does not included half-life of metabolites, which are not well characterised):
  - 2.5 minutes (IV)
  - 5.5 minutes (SPRAY)

  (MIMS Online 2019a, 2019b; AHFS 2019; Ducharme 1999; Redick 1995; Curry 1993

Relative Advantages of IV versus SPRAY

IV GTN has these advantages over Sublingual / Lingual SPRAY GTN:

- IV GTN is probably slightly **faster** in onset (Curry 1993).
- It also appears to be a little more **predictable** since:
  - SPRAY has a wide range of **inter-individual variations** regarding plasma concentration (MIMS Online 2019).
  - SPRAY **absorption** may be diminished in a **very dry mouth** (AHFS 2019)
- **However, both** are generally fast and effective, and wear off quickly. The limited available data suggest they can largely be used interchangeably.
- IV is more suitable for an intubated patient.

Sublingual / Lingual SPRAY GTN has these advantages over IV GTN:

- Available in an **immediately usable** form.
- **Less likely** to be associated with **dosage errors** as no dilution is required (note that the IV dilution regimen promoted in this procedure is very simple and greatly reduces dosage errors).
- SPRAY GTN can be used in **both BU and OT** as long as anaesthetic support is available while IV GTN is restricted to use in OT, to minimise dilution and dosing errors.

Interpreters

- Health care interpreters are to be engaged in all health care situations where communication is essential for patients / clients who are not fluent in English including people who are deaf (NSW Health Policy Directive PD2017_044).

Aboriginal and Culturally & Linguistically Diverse (CALD) Women

- The demographic composition of women giving birth in WSLHD in 2018 was:
  - Aboriginal women 1.6%
  - Women born overseas 67%
  - Women speaking a language other than English at home 30%
- These women need culturally-sensitive care and may need fuller explanations of proposed interventions and their reasons.

Infection Control

- There are no particular infection control measures associated with this procedure.
  - However, **staff should not re-use** SPRAY bottle for another patient but instead, discard after use for one patient is complete.
- Standard precautions should be adhered to as per risk assessment.
- Procedural hand hygiene compliance is required as standard.

Costs (Approximate, July 2019)

- IV GTN (1 ampoule 50 milligram in 10mL).....$45
- IV SUBLINGUAL / LINGUALSPRAY GTN one bottle.....$12
- IV TERBUTALINE (1 ampoule 500 microgram).....$ 4

Risk

- Risk category: Clinical Care & Patient Safety
- Risk rating: Medium

National Standard

☒ **Standard 1** – Clinical Governance

☐ **Standard 2** – Partnering with Consumers

☐ **Standard 3** - Preventing and Controlling Healthcare Associated Infection

☒ **Standard** 4 – Medication Safety

☐ **Standard 5** – Comprehensive Care

☐ **Standard 6** – Communicating for Safety

☐ **Standard 7** – Blood Management

☐ **Standard 8** - Recognising and Responding to Acute Deterioration

Essential of Care Domain:

3. Medication; 5. Clinical Intervention; 7. Preventing Risk, Promoting Safety

Implementation Plan

Implementation Timeframe	One month after approval. This is an update of an existing document and the changes will affect practice minimally.
Author	T.McGee
Department Manager	O&G HOD G Jenkins (Westmead) O&G HOD E Kamel (Blacktown) O&G A/HOD G Jenkins (Auburn)
Position Responsible	O&G: HOD at each site Midwifery: The appropriate midwifery educators at each site Anaesthesia: HOD at each site
Brief description of the implementation strategy:	Email updated PPG to all obstetricians/registrars and provide inservice at each site. Anaesthetists to inservice obstetric anaesthetic staff. CMEs to inservice midwives.
Process for monitoring and review of the implementation process:	IIMs system Mortality and morbidity meetings