Ketamine
A 1994 study suggests Ketamine safe in Paramedic hands.
Australian experience.

- Withdrawn after a patient death from the Western Australia Ambulance service.
- Reinstated after coroner's inquest.
- Also now used by Queensland Ambulance Service.
St John procedure.

Ketamine

- Indicated in severe pain, particularly musculoskeletal or burn pain. Is preferably used in combination with morphine.
- Contraindicated if:
  a. Age less than one year or
  b. Unable to obey commands or
  c. Has active psychosis or
  d. Has cardiac chest pain or
  e. Midazolam has already been given.
- Give oxygen via nasal prongs or acute (ordinary) mask.
- Continually monitor airway, breathing and consciousness. Continually monitor pulse oximetry if practical.
- In adults:
  a. If morphine or IM ketamine already given, give 10 mg ketamine IV and give further doses of 5 mg IV every 3-5 min.
  b. If morphine or IM ketamine has not been given, give 20 mg ketamine IV and give further doses of 10 mg IV every 3-5 min.
  c. If unable to gain IV access, give 1 mg/kg ketamine (rounded off to nearest 10 kg) IM or oral, up to a maximum of 100 mg. This may be repeated after 20 minutes if required. Do not use IM route if shocked and avoid IM use in children if possible. Oral ketamine may be given in paracetamol syrup, water or juice.
  d. Reduce the dose if the patient is elderly, small or physiologically unstable.
- For children, see paediatric drug dose table.
Case Study 1

- Male aged 19 years.
- Driver of car v motorway barrier.
- Ejected from car.
- Fractures to both femurs.
Physiology.

- Awake with full memory of events prior.
- HR. 76
- BP. 100/50
- RR. 22
- Significant pain to both legs.
Pain relief used

- Entonox and Ketamine 20mg, followed by two further doses of 10mg IV.

- Excellent result enabling realignment of legs and extrication to Ambulance.

- No hallucinations experienced.
Case Study 2

- Male aged 41 years.
- Fall from a tree approximately 6 metres.
- Fell onto outstretched hands.
- Bilateral colles fractures.
- Physiology.

- Awake with full memory of events prior.

- HR. 72 (ED obs)

- BP. 140/? (ED obs)

- RR. Not recorded

- Significant pain to both arms. Unable to move patient due to pain.
Pain relief used

- Entonox and IV Morphine 20mg total with little effect.
- “C” Collar
- Ketamine IV total of 20mg (10mg, 5mg, 5mg)
- Excellent result enabling us to roll to supine and use a scoop stretcher.
- The patient hated the Ketamine and requested no more. “Don’t give me any more of that dream stuff”
- Remained uncomfortable despite further Morphine.
Ketamine

- First used as an anaesthetic agent in the Vietnam War.
- Later discovered to be beneficial in low dosages as an analgesic with a low incidence of hallucinations.
- Also commonly used for recreational purposes.
Ketamine

- NMDA (N-methyl-D-aspartic acid) antagonist.

- In high doses produces dissociative anaesthesia.

- Ketamine also binds to both opioid mu and sigma receptors.
St John.

Indicated for severe pain. Particularly burn or musculoskeletal pain.
Best used in addition to morphine.

Common effects:

- Profound analgesia.
- Relative preservation of breathing and circulation, often with a small rise in HR and BP, sometimes temporary apnoea.
- Involuntary movements and a trance like state.
- Salivation, mouth movements, sucking.
- Hallucinations.
Ambulance pain relief Hx.

- Only Entonox (Nitrous oxide) until 1985.
- Introduction of Pentazocine (Fortral).
- Early 1990's Introduction of Morphine with conservative doses.
- Some DHB services also used Nubain.

- Ketamine introduced into St John Advanced Paramedic procedures in 2007.
Westpac rescue advanced paramedics first used Ketamine in 2005.
Ketamine is controversial?

- There is a range of views...
- Some believe that Ketamine should not be used outside of anaesthetic hands.
- Others believe that it should remain in the hands of Doctors.