

# Day Case Anaesthesia

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# Increasing Prevalence of Day Cases

Most people involved in peri-operative care are familiar with day case anaesthesia.

Day Case surgery increasingly common.

- Advances in anaesthesia. (“Titratable.” Shorter acting.)
- Advances in minimally invasive surgery.

# Introduction

Little that is completely specific to day case anaesthesia:

- Much of anaesthesia in general is applicable to day cases.
- (Elected not to talk about specific drugs and techniques.)

Specifics of Day Case anaesthetic care relate to:

- selection of patient/procedure
- planning for early discharge.

Clear evidence and policy exists in these areas.

Application of these principles can allow more complex procedures as day cases.

# Vaginal Hysterectomy.

## Pathology:

- Vaginal Hysterectomy easier if Prolapse: commonly older patients

## Patient:

- Older patient: likely co-morbidities (Cardiac, Respiratory.)
- Frail/arthritis: risk exacerbation from lithotomy position.

## Procedure:

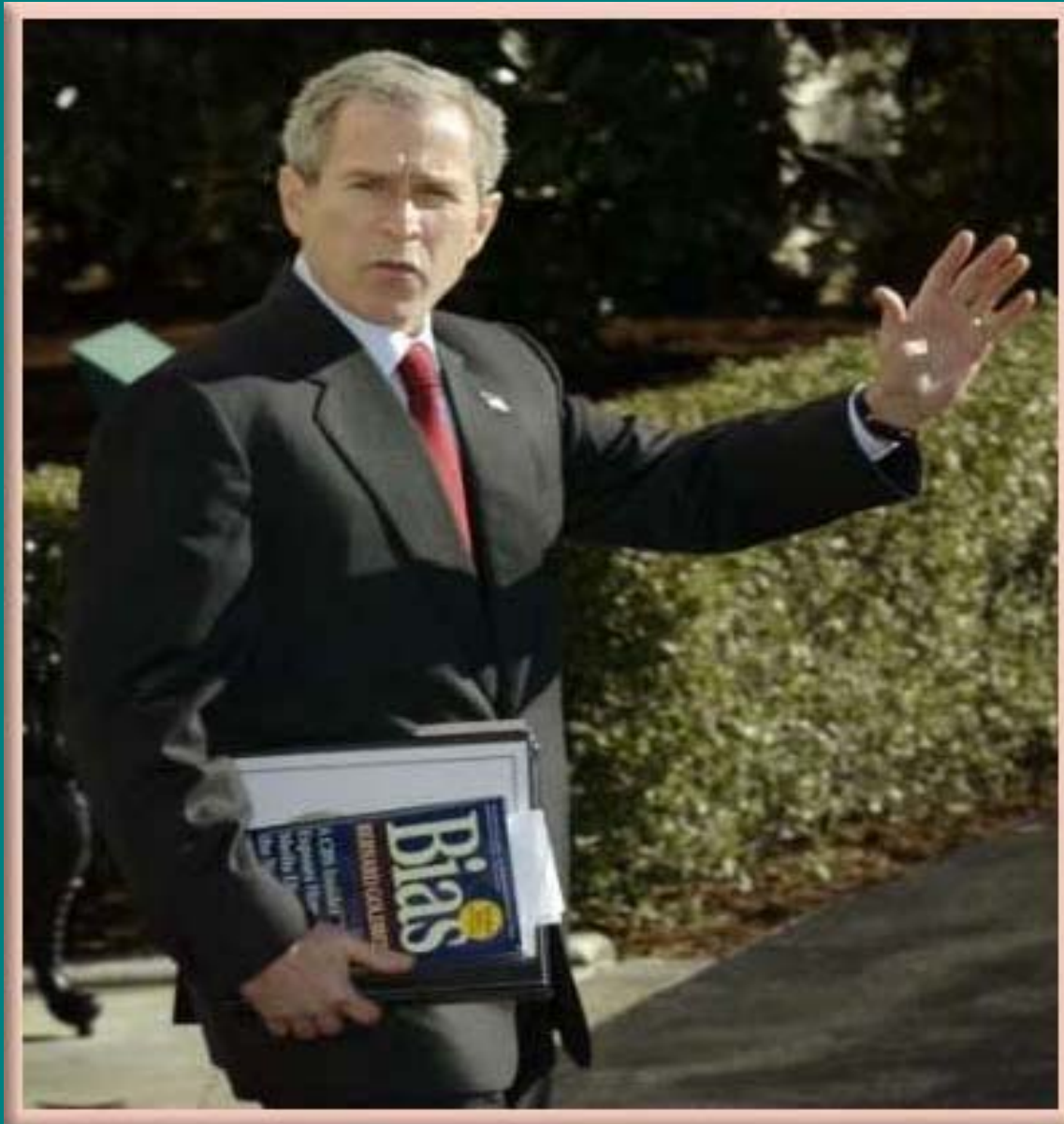
- Gynae surgery: PONV risk. (Increased as day case.)
- Pelvic surgery: urinary retention risk.
- Bleeding risk (increases if lap. Assisted.)
- Pain: mild-moderate (< TAH)



# Is this relevant to day case anaesthesia?

- Day case Vaginal Hysterectomy not commonly done in Australia (?)
- Vaginal Hysterectomy as a day case is common in America.
- Other case series in literature: (Tonsillectomy (!) unipolar knees, thyroidectomy, open cholecystectomy, CEA...)

# Do the Americans play by different rules?



# What are the “Rules” of Day Case Anaesthesia?

Day case anaesthesia closely related to quality care:

- Significant patient benefits exist.
- Patient preference
- Safety
- Cost effective.

# Patient Benefits.

- Less DVT
- Less pneumonia
- Lower Infection rates - incl. nosocomial (Particular benefit in immunocompromised.)
- Fewer cancellations. (Not dependent on beds.)
- Preference. eg: less separation anxiety in children.

# Safety in Day Case Anaesthesia

Safety in day cases is optimised by:

- Patient selection.
- Procedure selection
- Anaesthetic choice. (GA Vs. LA etc.)
- Discharge planning.

These are the anaesthetic issues most specific to day case anaesthesia.

Clear evidence and policy exist.

# Safety in Day Case Anaesthesia

How is safety measured?

- Unplanned admits (1%)
- Return to facility (3%)
- Complication rates (Definition varies from study to study.)

- 70% of complications occurred after discharge.

(Hence importance of discharge criteria/planning & follow-up.)

- “Complication” = exacerbation of pre-existing medical condition, or adverse effect of surgery or anaesthetic (Not including minor events: eg: mild pain, dizziness, nausea.)

# Safety in Day Case Anaesthesia

Safety and cost are interrelated:

1. Major cost items: Beds/nurses.

Vs.

2. Complications/unplanned admissions adding expense.

# ANZCA professional documents:

Policies exist relating to safety in day case anaesthesia:

1. Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery
2. Recommendations on Minimum Facilities for Safe Anaesthesia Practice in Operating Suites/Outside Operating Suites.
3. The Assistant for the Anaesthetist
4. Recommendations on Monitoring During Anaesthesia.
5. Recommendations for the Post-Anaesthesia Recovery room.

# ANZCA professional documents:

Others... this is not a complete list: [www.anzca.edu.au](http://www.anzca.edu.au)

All policies and documents are evidence based where possible.

- Policy should apply across the board.
- Eg: Office based anaesthesia: fewer facilities.
- Application of careful patient selection vital to safety.



AUSTRALIAN AND NEW ZEALAND COLLEGE OF ANAESTHETISTS

ABN 82 055 042 852

Review PS15 (2000)

**RECOMMENDATIONS FOR THE PERIOPERATIVE CARE OF PATIENTS  
SELECTED FOR DAY CARE SURGERY**

## Selection Guidelines:

- *Procedures* suitable for day care surgery.
- *Patient* requirements for day care surgery.
- *Social* requirements for day care surgery.

# Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery PS15 (2000)

1. Procedures suitable for day care surgery must entail:
  - 1.1 A minimal risk of post operative haemorrhage.
  - 1.2 A minimal risk of post operative airway compromise.
  - 1.3 Post operative pain controlled by out patient management techniques.
  - 1.4 No special post operative nursing requirements that cannot be met by the hospital in the home or district nursing facilities.
  - 1.5 A rapid return to normal fluid and food intake.
  - 1.6 Early commencement of procedures for which a long recovery period is likely.

# Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery PS15 (2000)

## 2. Patient requirements for day care surgery include:

2.1 Willingness, understanding, an ability to follow discharge instruction.

2.2 Place of residence within one hour from medical attention.

2.3 ASA I or II.

Medically stable ASA III or IV may be accepted following consultation with the anaesthetist.

2.4 Normal term infants > six weeks of age or ex-premature infants of > 52 weeks post-conceptual age.

## Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery PS15 (2000)

### 3. Social requirements for day care surgery include:

- 3.1 A responsible person to transport the patient in a suitable vehicle.
- 3.2 A responsible person staying at least overnight.  
“Mentally able.”
- 3.3 Patient /responsible person understands instructions and intends to comply... particularly with regard to public safety.
- 3.4 Remain within one hour of medical attention until the morning following.
- 3.5 Ready access to a telephone.
- 3.6 Advice as to when to resume activities such as driving and decision making.

# Elderly gentleman for repeat cystoscopy:

A true story:

- Repeat cystoscopy for Bladder tumor check.
- Short anaesthetic. Uncomplicated procedure.
- Recovered and fits discharge criteria.
- Then plans to drive self home... “I always drive home.”

# Evidence relating to patient selection:

Large retrospective case series (USA). Relates ASA status to complication risk.

Factors Predisposing to Complications During and After Outpatient Anaesthesia:

ASA I	1/156
Diabetes Mellitus	1/149
Asthma	1/139
COAD	1/112
Hypertension (Diuretic Therapy)	1/87 (1/64)
Heart Disease	1/74

# Evidence relating to patient selection:

Morbid obesity (BMI >35) not included in this list.

- Increases complication rates (esp. assoc. with comorbidities.)
- Technical issues in day care facilities.

Unstable medical conditions: not suitable for day case.

- Optimisation of medical condition has potential to lower complication rates. (eg: Stabilise unstable angina...)
- Careful selection of ASA III & IV patients results in rates of post-op complications no different to ASA I & II

# Minor General Surgical Procedure:

Another true story:

- Another elderly gentleman.
- Carefully screened through pre-admission clinic.
- Pre-anaesthetic consult 7am: cold morning.
- Reports Typical angina walking from car park.

# Evidence relating to patient selection:

Old age and Day Case anaesthesia:

- Age itself does not increase risk of complications.
- Older patients recover more slowly...
- Older patients more likely comorbidities.

# Safety & Discharge Criteria

Careful discharge planning another area more specific to day care

70% of complications occurred after discharge.

Hence importance:

- Discharge criteria/planning
- Education.
- Escort
- Proximity to medical care.
- Follow-up.

# Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery PS15 (2000)

Discharge of the patient from the day care unit:

1. Stable vital signs
2. Orientated.
3. Pain control
4. PONV, dizziness
5. Minimal bleeding

## Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery PS15 (2000)

6. Hydration adequate, likelihood of oral intake.
7. Patients at significant risk of urinary retention must have passed urine.
8. Responsible adult
9. Written and verbal instructions.
10. Suitable analgesia provided.
11. A telephone inquiry (following day) whenever possible.

# Discharge Criteria: “Input & Output”

Areas of controversy exist:

1. “Input”: oral intake prior to discharge.
2. “Output”: Requirement for urinary output.

ie: no definite direction/guidelines in literature.

Discharge sooner if requirements relaxed:

- Associated cost saving.
- Increased readmission/complication risk.

# Discharge Criteria: “Input & Output”

“Input”:

Discharge contraindicated while actively vomiting.

In children:

- Vomiting increased by 50% if forced oral intake.
- Vomiting more likely after discharge.
- (Therefore oral intake not predictive of later vomiting.)

# Discharge Criteria: “Input & Output”

ANZCA recommendations:

- Adequate hydration.
- Likelihood of oral intake.

“Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery.” PS15 (2000)

# Discharge Criteria: “Input & Output”

“Output”:

- If no requirement for voiding, discharge could be sooner.
- Risk of some patients returning in urinary retention.

(Risk factors: pain, drugs, sympathetic blockade, etc. )

Eg: day case spinal anaesthesia...!

ANZCA recommendations:

- Patients at significant risk of urinary retention must have passed urine.

# Vaginal Hysterectomy.

How does the evidence and policy apply to Vaginal Hysterectomy?

# Vaginal Hysterectomy.

## Pathology:

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# Outpatient Vaginal Hysterectomy

American experience:

- 500,000 procedures/year. (US\$2 billion)
- Previously hospitalized 1-3 days.
- Large number now performed as outpatient.

ie: Large potential for cost savings etc, but associated complication risk.

# Outpatient Vaginal Hysterectomy

Bran DF. Outpatient Vaginal Hysterectomy as a New Trend in Gynecology.

Memphis, Tennessee

Development of an outpatient vaginal hysterectomy protocol.

(This was not a quantitative study.)

# Outpatient Vaginal Hysterectomy

Careful patient selection:

- 18 - 50 years age
- No medical history requiring admission
- working telephone
- support person (at least 48 hours post-Op)
- desire to have an outpatient vaginal hysterectomy

## **Inclusion criteria**

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- 18 to 50 yr of age.
- No significant medical problems requiring postoperative hospitalization.
- Telephone in working condition in the patient's home.
- Available support person who will assist the patient for at least the first 48 hr after surgery.
- Signed informed consent form.
- Verbal understanding of postoperative instructions by patient and support person.

## **Exclusion criteria**

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- Need for concomitant surgical procedure.
- Medical conditions requiring hospitalization after surgery.
- Need for postoperative IV antibiotic therapy.
- Patients who do not fulfill all pre-operative and postoperative inclusion criteria.
- Patients not willing to participate.
- An intraoperative complication requiring hospital admission.

# Outpatient Vaginal Hysterectomy

Careful Pre-operative preparation:

- Education a “Key” factor.
- Baseline investigations included FBE (Haematocrit. HCT)  
(Amongst other routine investigations/preparation.)

# Outpatient Vaginal Hysterectomy

## Post-Operative Protocols:

- 60-90 minutes in PACU (!?)
- HCT on arrival in Day ward, and 3-4 hours later. Report if <30%.
- IV Fluids continued in post-op period.
- Aim for pain control with *oral* analgesics, PONV control *PR* Phenergan.
- Specific discharge criteria

# Outpatient Vaginal Hysterectomy

## Discharge Criteria:

- < 3% decrease in HCT
- ambulant
- voided urine
- tolerating clear liquids
  
- provided with written discharge instructions.

Average hospital stay 9.4 hours:

These cases obviously scheduled earlier in the day.

- Record your temperature every 4 hr for the next 48 hr.
- Do not do any heavy lifting, driving, or exercise for the next 7 days.
- Drink at least 6 glasses of clear liquids during the next 24 hr. Notify physician if any difficulty voiding.
- Begin eating solid food in the morning.
- Do not douche, use tampons, or have sexual intercourse for the next 4 weeks.
- Support person must stay with you for the next 48 hr.
- Notify the physician in these instances:
  - Vaginal bleeding is heavier than a normal period.
  - Nausea and vomiting are unrelieved by an antiemetic.
  - Pain is unrelieved by pain medication.
  - Temperature is greater than 100.4° F (38° C).

# Outpatient Vaginal Hysterectomy

## Home Follow-Up Protocols:

- Surgeon telephones twice in 1<sup>st</sup> 24hrs.
- Nurse visits on day 1 & day 2
- Check FBE (HCT) at 24 and 48 hours.
- Readmit if HCT drop >5%

# Outpatient Vaginal Hysterectomy

## Patient Outcomes:

- “majority of patients expressed satisfaction with their choice of outpatient surgery”

(“Satisfaction” not quantified in this article.)

- No figures re: complications

But: “success of our outpatient vaginal hysterectomy protocol... now offering this option to patients who choose to undergo laparoscopy-assisted vaginal hysterectomies.”

# “Cost” & Day Case Anaesthesia

Cost is another important issue in provision of quality day care anaesthesia:

- Use of newer (Expensive) anaesthetic agents can decrease time spent in PACU (Decrease PACU costs.)

# “Cost” & Day Case Anaesthesia

“Fast Tracking”:

- Bypassing PACU.
- Patients from theatre directly to the Phase II (step-down) recovery area.
- *Patients must be suitably recovered.*

If occurs as a systematic policy, allows smaller recovery room with fewer staff.

# “Cost” & Day Case Anaesthesia

Study: D.Song (1998)

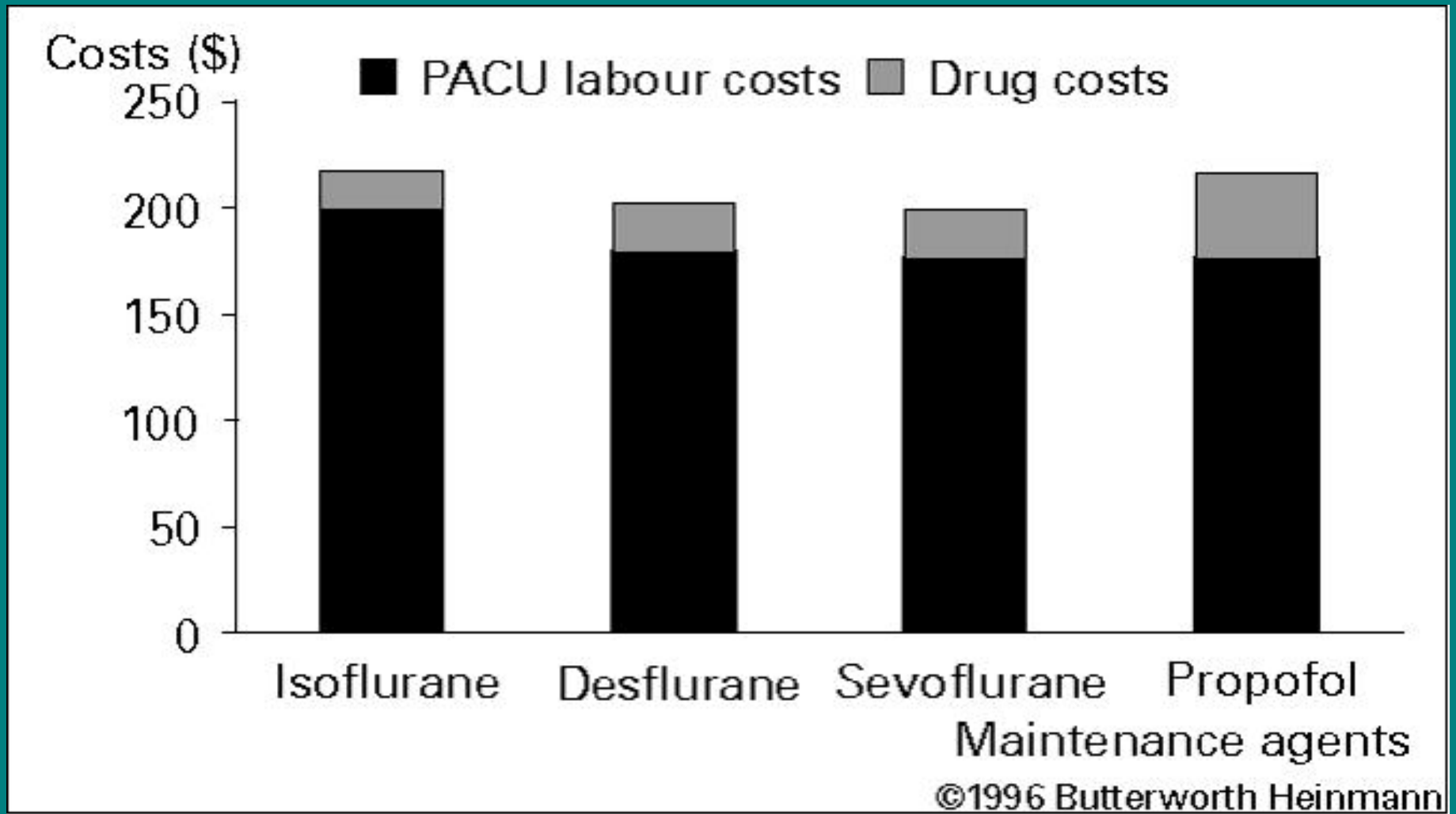
Patients for laparoscopic tubal ligation:

Percent patients judged eligible for fast-tracking:

- Desflurane 90%
- Sevoflurane 75%
- Propofol 26%

	Desflurane	Sevoflurane	Propofol
Awakening (min)	4.7 ± 2.6	5.2 ± 3.0	8.3 ± 6.9*
Extubation (min)	5.1 ± 3.3	5.6 ± 2.6	8.9 ± 5.3*
Orientation (min)	9.8 ± 4.5	11.3 ± 4.6	14.7 ± 7.2*
Transfer to PACU (min)	10.1 ± 3.1	10.6 ± 4.2	12.9 ± 3.9
Aldrete score of 10 (min)	10.0 ± 4.4	11.7 ± 3.8	15.7 ± 4.6*
PACU stay (min)	39 ± 7	33 ± 6	39 ± 10

Values are mean ± SD; PACU, postanesthesia care unit. \* $P < 0.05$  versus the other two groups. Published with permission [1<sup>••</sup>].



Drug costs: calculated based on theoretical 60 min anesthetic.  
PACU costs: (Labor) calculated on time spent in PACU.

# “Cost” & Day Case Anaesthesia

But: showed no differences in duration of PACU stay or discharge times.

Therefore:

- For cost savings - policies/procedures must be in place to allow “fast-tracking” of suitable patients.
- At very least rapid emergence can allow for shortened PACU time.

(No large scale outcome studies examining safety of fast-tracking.)

# Conclusion

Day case anaesthesia is becoming more common:

- Titratable anaesthesia (Rapid recovery: “Fast tracking.”)
- Less invasive surgery (Vaginal > TAH)

Specific issues of Day Case anaesthesia has much to do peri-operative care, (patient selection etc.)

As complexity of day case procedures increase, observation of quality must continue:

- Cost
- Safety.

## References:

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