Enhanced Recovery in Orthopaedics

Darent Valley Experience

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ITU & Anaesthetic consultant

ER Pathway

- Success with colorectal.
- Better outcomes for patients and reduced length of stay.
- Increased numbers of patients being treated.
- Better patient satisfaction.

Denmark

HVIDOVRE HOSPITAL, COPENHAGEN

- 5 DAY WARD
- SURGERY MON –WED
- ALL DISCHARGED BY FRIDAY

Landmark Study

- **Local infiltration analgesia in total knee arthroplasty and hip resurfacing: A methodological study**

  Kristian S. Otte et al: Acute Pain Volume 10, Issues 3–4, December 2008, Pages 111–116

Caledonian Technique
Golden Jubilee National Hospital

ERP multimodal anaesthetic regime.

Oral pre-medication (2 h before surgery)	10–20 mg Temazepam 10 mg Dexamethasone 300 mg Gabapentin 1 g Paracetamol
Intra-operative	Spinal anaesthesia: 2.75–3.2 ml heavy or plain Bupivacaine (no intrathecal opioids) 2.5 g Tranexamic acid 1.5 g Cefuroxime 200ml intra-articular ropivacaine (0.2%) — see Table 1b
Post-operative	300 mg Gabapentin twice daily for 5 days 1 g Paracetamol 4 times daily 400 mg Ibuprofen 3 times daily 10 mg Oxycontin® 12 hourly for 3 doses 5–10 mg Oxynorm® 2–4 hourly as required Three boluses doses of 40 ml Ropivacaine (0.2%) each via intra articular catheter at 4 h post surgery, 2300 and 0800 the following morning. Intra articular catheter .

Background ERAS

DAY BEFORE SURGERY
Carbohydrate loading 2 x 200mls PreOp drink eve (except in diabetics)

DAY OF SURGERY (DAY 0)
Carbohydrate loading 1 x 200mls PreOp before 6 am morning list and 11am for afternoon list (except in diabetics)

Pre-operatively (Give after consent form is signed)
Gabapentin 600mg (SAL) (300mg if wt <50 kg or renal impairment)
Oxycontin 10mg (SAL)
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Peri-operatively

Walk patient to theatre if possible. If drowsy use trolley SAL aware.
Spinal Anaesthetic without opiate (Type and Dosage of LA aiming for recovering motor function within 4 hours after spinal) ± Sedation
Approx Spinal **2.6m**l heavy bupivacaine for TKR (lie on operating side after)
Approx Spinal **3.0ml** heavy bupivacaine for THR (lie on operating side after)
On induction If no contraindications
Cefuroxime 1.5gms
Tranexamic acid 1.5 gm IV on induction
(CI Hx/O- VTE/TIA or CVA /Retinal vessel occlusion/ AF/ESRF)
(Reduced dose 1 gm renal impairment if EGFR < 80)

ERAS

Intra-operatively

- Core body temperature maintained throughout procedure
- forced air warming
- warmed fluids

If no contraindications

- Ranitidine 50 mg IV
- Paracetamol 1gm IV
- Dexamethasone 6.6mg IV
- (C/I – Diabetic) – can use other antiemetic

ALL PATIENTS - Wound infiltration

- 40mls of 0.5% Chirocaine diluted to 100 mls with saline.
- Fluid volume 1.0 l (If no major blood loss)
- Dressings – Surgeons choice
- Catheterize all THR . For TKR patients only if they have stress incontinence or BPH
- TED stockings for 6 weeks
- Flowtron legcuffs

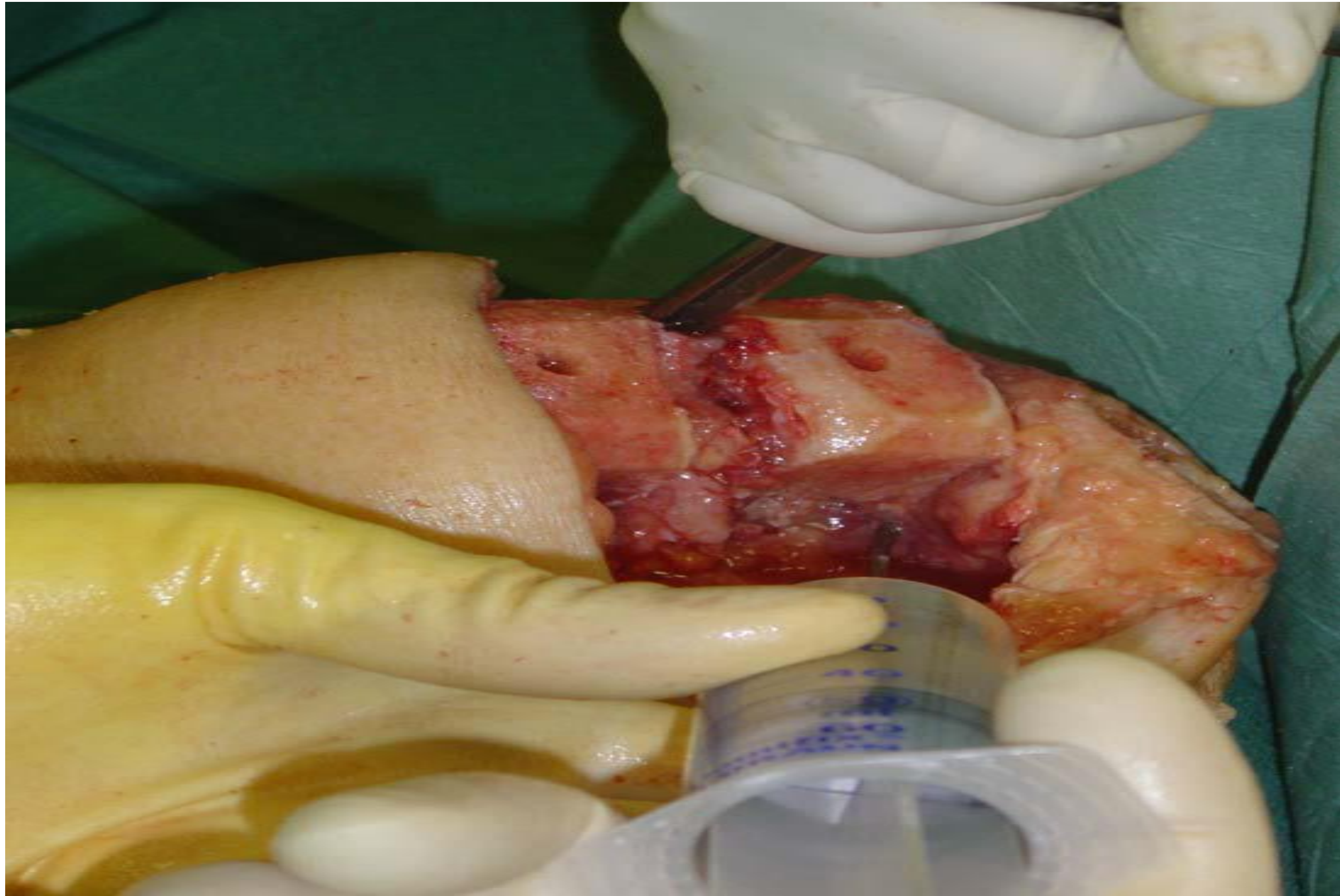
Post operatively

- Aim to mobilise all patients on day of surgery 6hrs Post Op or within 24 hrs.
- Strongly encourage oral fluid intake avoid any IV fluids unless hypotension or blood loss

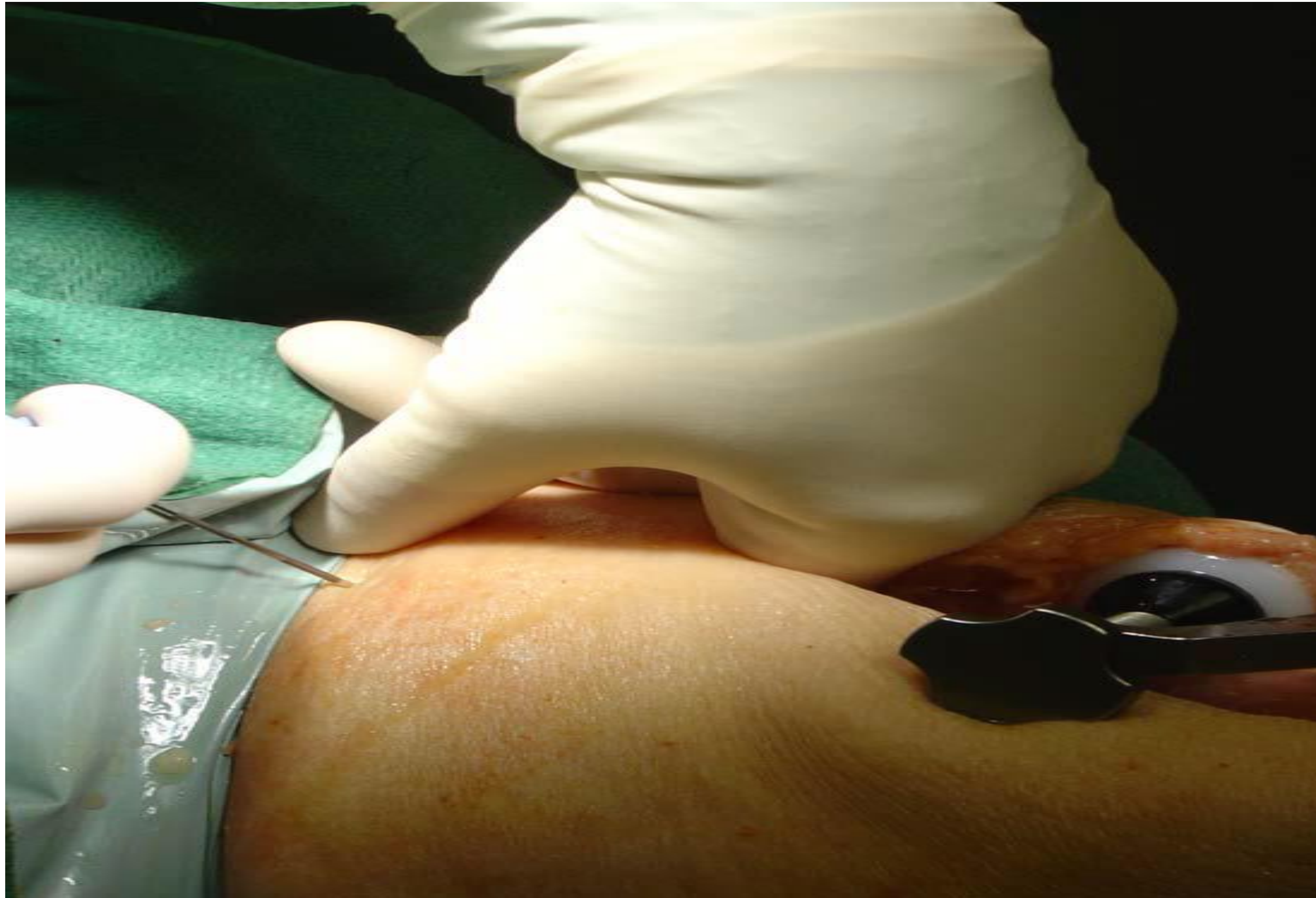
Analgesia

- Paracetamol 1gm po qds
- Gabapentin 300mg BD for 5 days **(Not required for THR)**
- Oxycontin 10mg po bd for 3days then Codeine 30 – 60mg qds
- Oxynorm 10mg prn 4hrly for breakthrough pain.
- Ibuprofen 400mg po tds (If Creatinine cl >50mls hr) + Lansoprazole 30mg od
- DVT Prophylaxis
- Antibiotic Prophylaxis
- 2 post op doses IV Cefuroxime 8 and 16 hours after induction
- Give patient hot food within 4 hours of return .
- **Enter patient details in Pain book for follow up.**

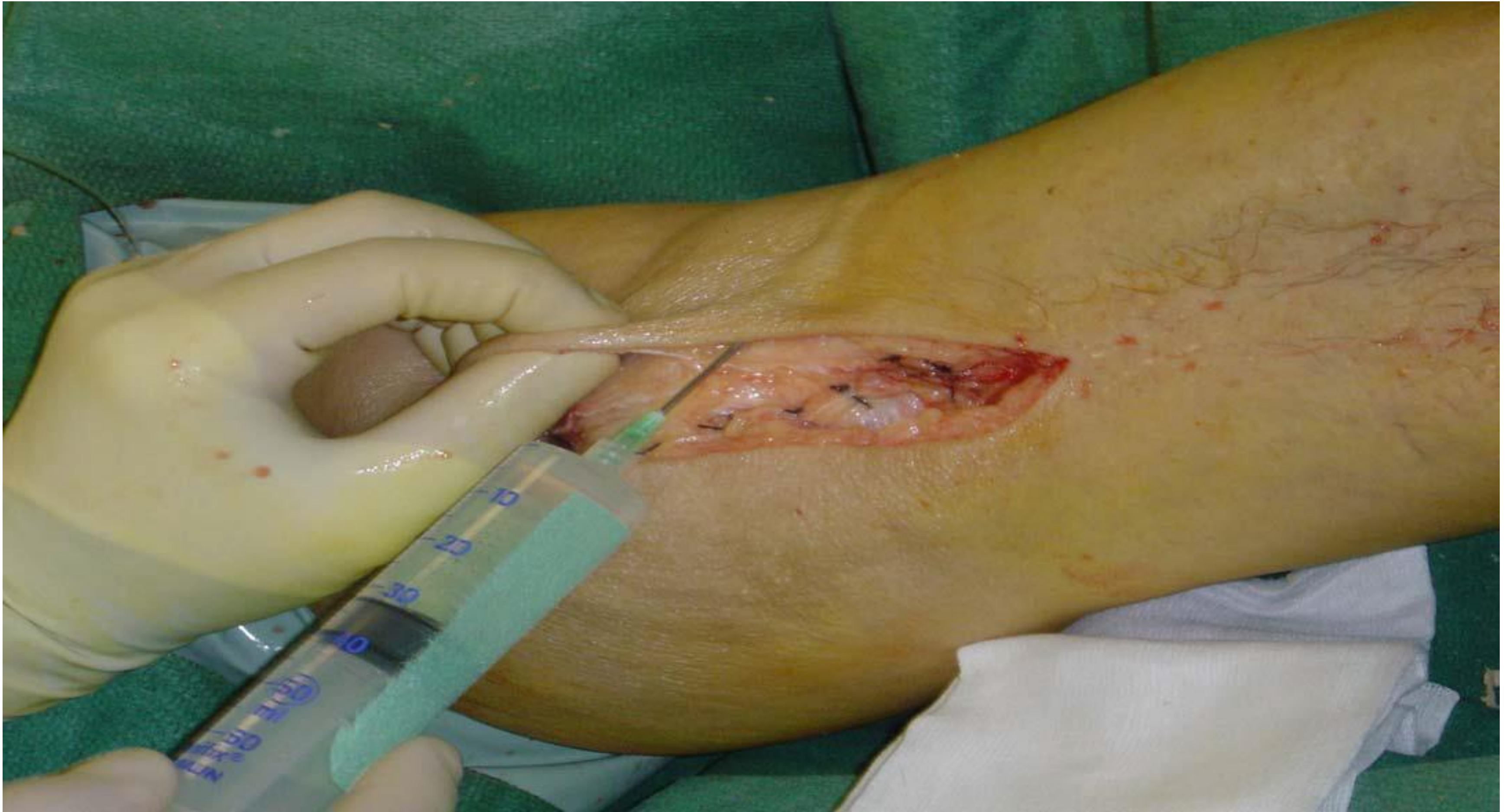
Post capsule



Supra patellar



Muscle and Subcut



Advantages

- Well set up pre assessment clinic.
- SAL & enthusiastic.
- Great support from Acute Pain Team.
- New orthopaedic surgeon.
- CQUIN payment linked.

Doubters

Doubters

- I have done this for years.
- Pharmacy evidence Gabapentin.
- Gabapentin causes drowsiness.
- Urinary retention & Incontinence wards.
- Diluting local anesthetic does not work.
- My LOS longer - Friday.

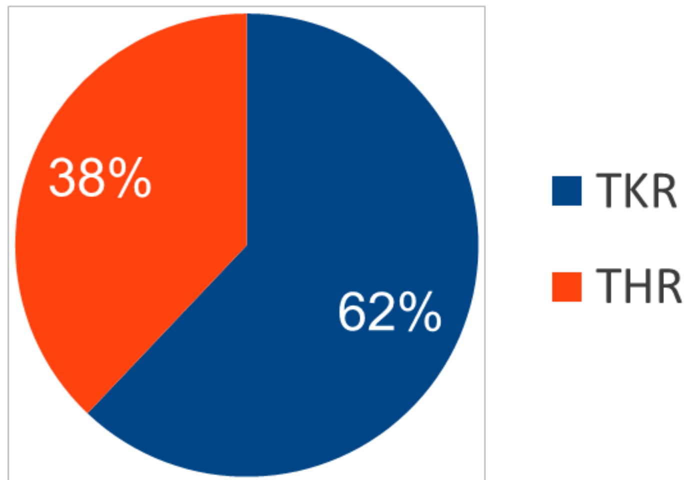
Sing together

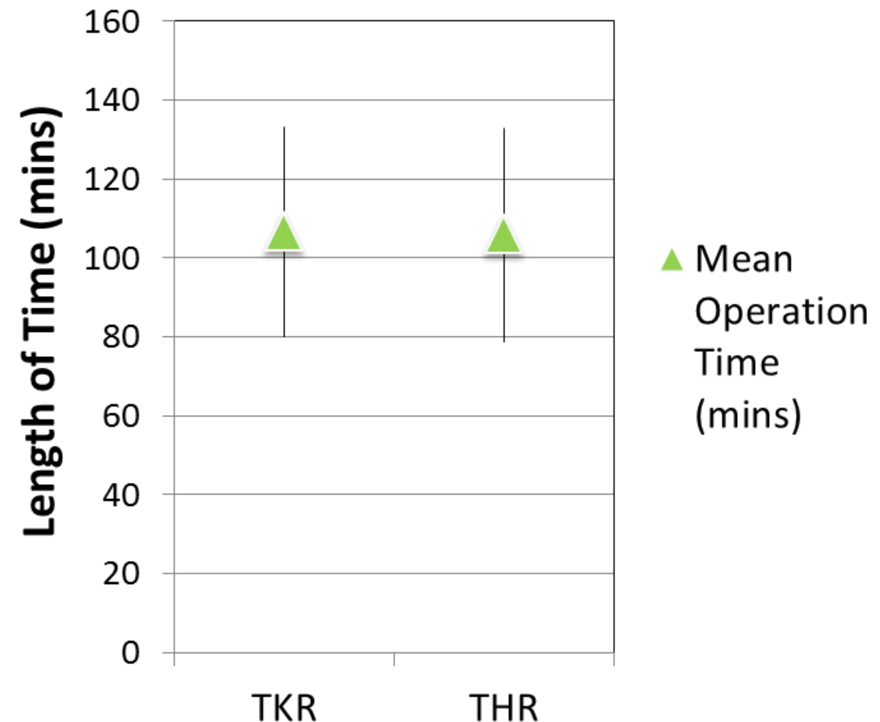
Audit

- Prospective audit of all THR and TKR elective theatre cases for 2 months – 87 cases
- Exclusion
    - Revision.
    - Chronic pain medications.
    - Post Op HDU/ITU

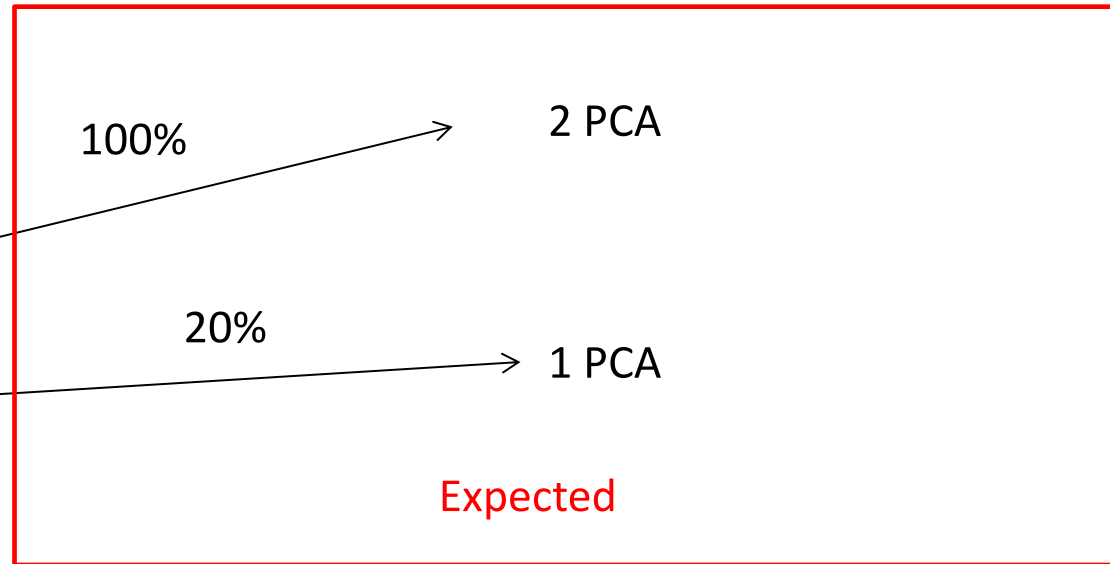
Patient Demographics

- TKR = 54 Patients
- THR = 33 Patients





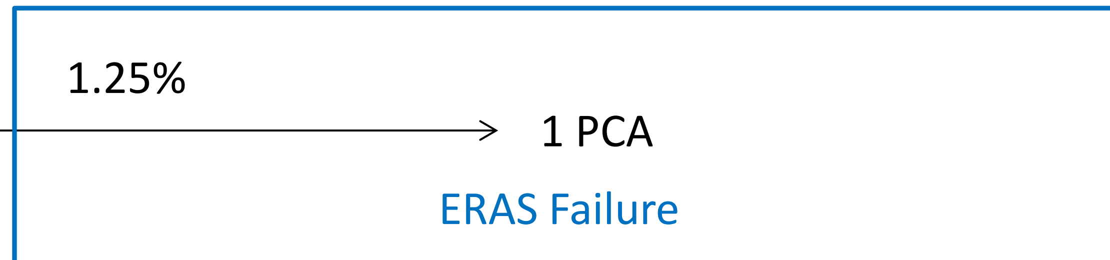
Results – Anaesthetic Technique



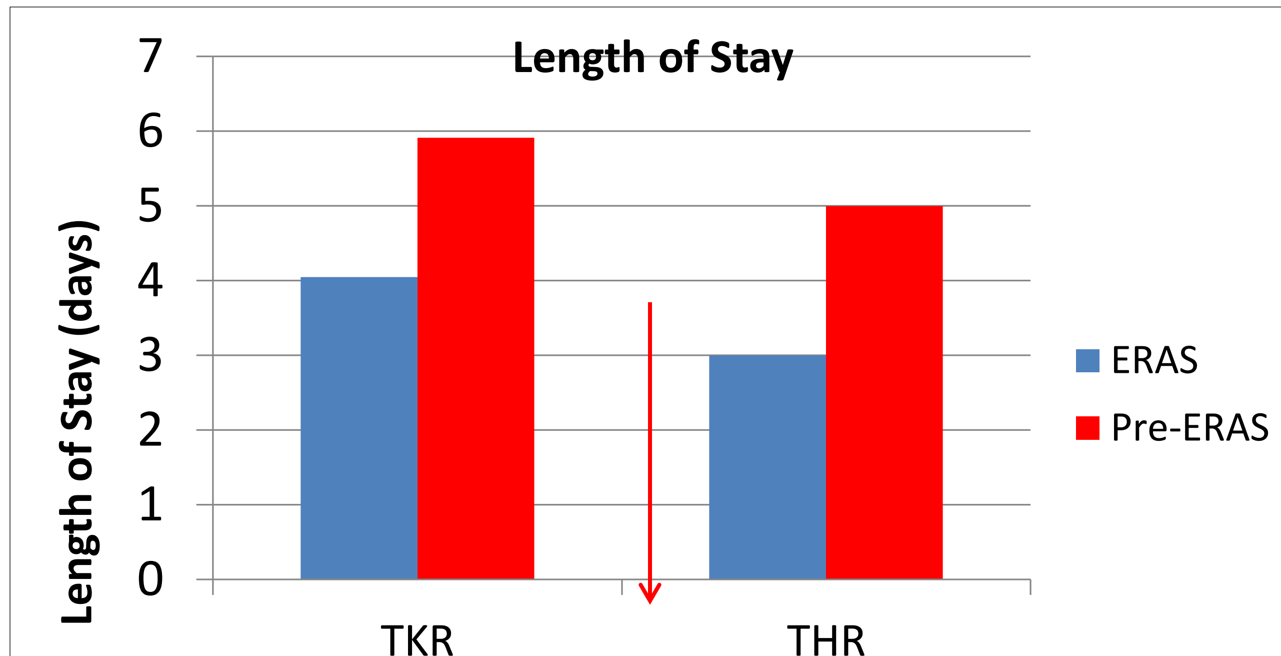
7 GA

- 2 TKR
- 5 THR

80 Spinal



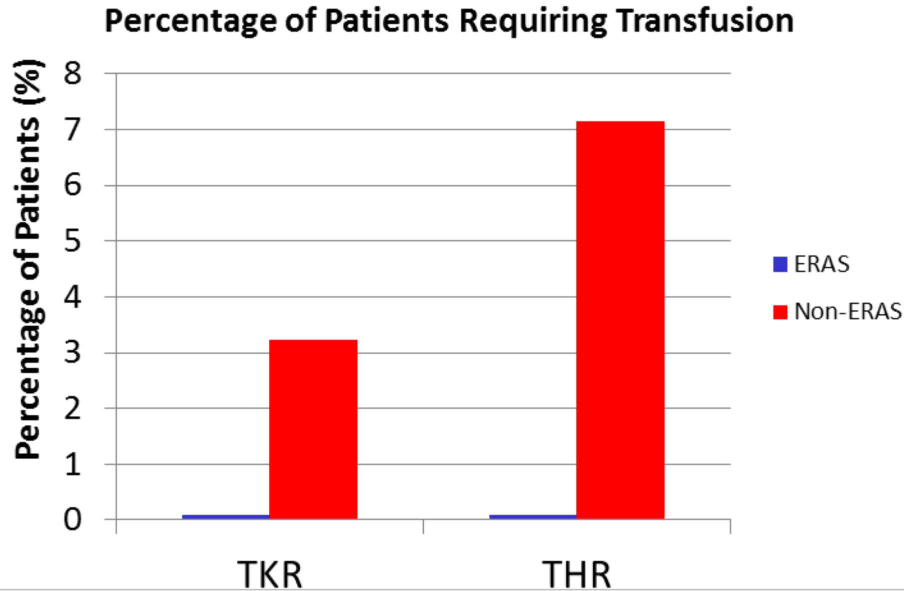
Results – Length of Stay



- NHS Institute of Innovation and Improvement Tools can estimate Bed-Day savings and hence estimate annual cost savings
- TKR mean length of stay reduced by 1.867 days (p=0.000007)
- THR mean length of stay reduced by 2 days (p=0.00023)

Audit

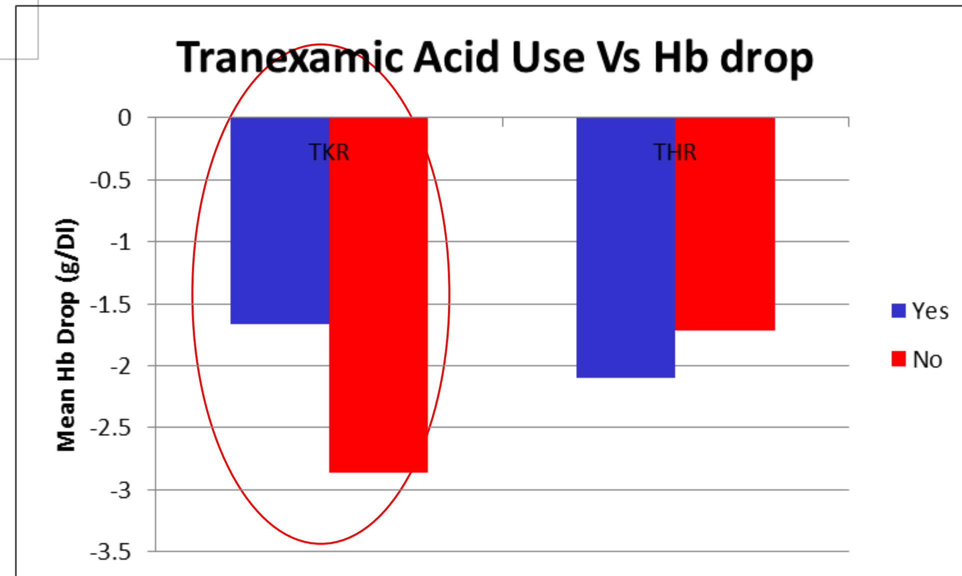
Results – Blood Loss



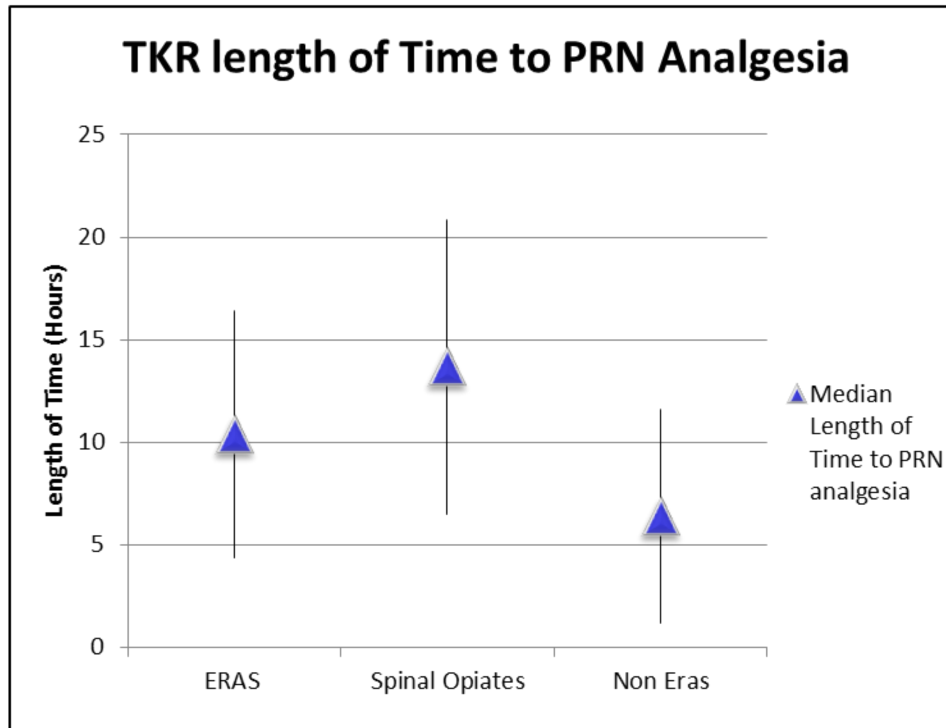
- 0% ERAS TKR and THR Transfused

- Audit Standard Met

- Statistically significant reduction in HB change for TKR prescribed Tranexamic Acid
- p= 0.007

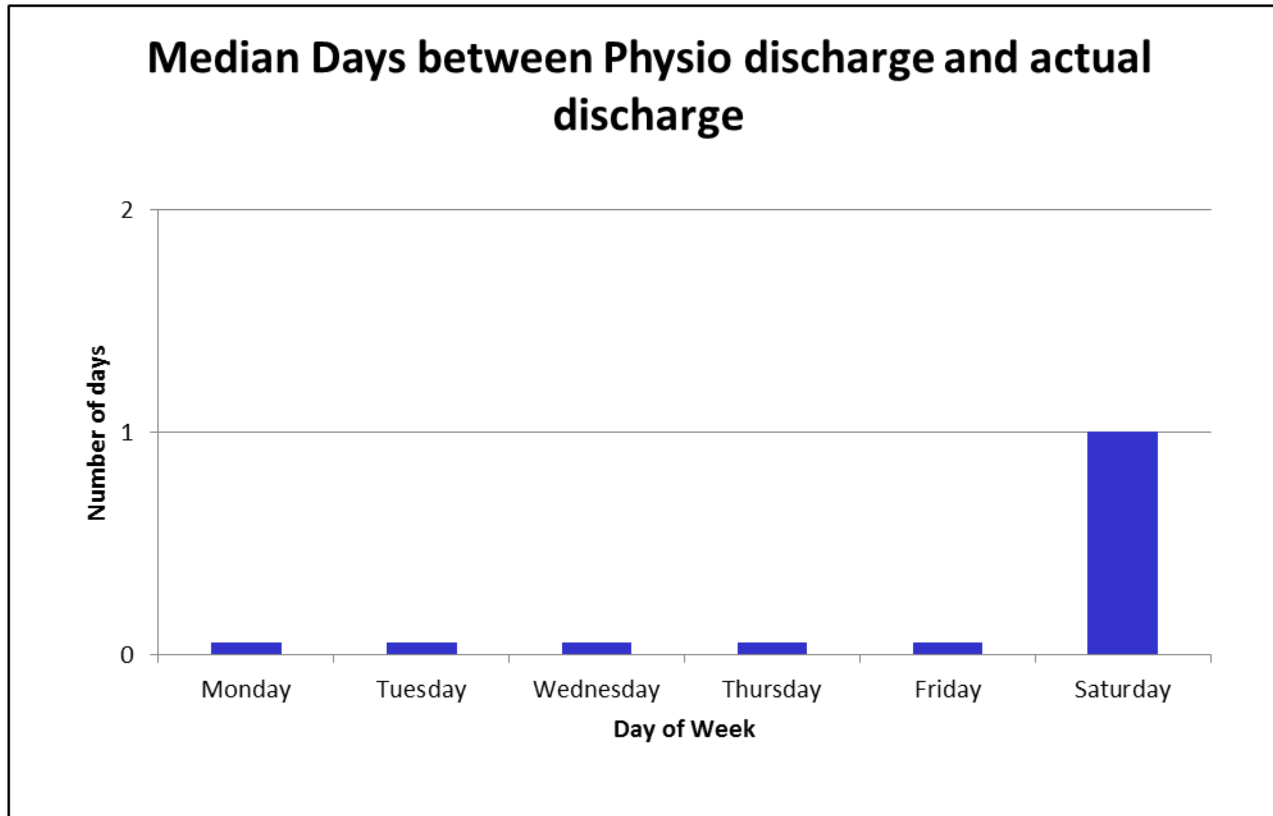


Results – Time to PRN Analgesia



- Spinal opiates delay onset to use of PRN analgesia.

Results – Time to Discharge after Physio fit for Discharge



- Patients discharged promptly, with only 1 day delay at weekend.

Achieved

- 1.25% PCA vs 100%
- No unnecessary blood transfusion and Statistically significant reduction in HB change.
- Reduction LOS by 2 days. Significant cost saving for trust and better patient turn over.
- Avoid unnecessary urinary catheters.

Issues to resolve

- Doubters
- Weekend physio cover
- Weekend doctors discharge
- Ropivacaine
- Ongoing education
- Scope for improvement

Questions?

THANK YOU