

Investigations into preoperative fasting and how to improve the patient experience

Heart of England Foundation Trust

Historical Background

- Serious complications reported after aspiration on induction of anaesthesia
- All patients expected to have an empty stomach prior to induction
- Traditional periods for fasting have been very long for many years
- Most admission letters instructed fasting from midnight prior to surgery

Guidelines

ASA, AAGBI, RCOA, RCN

Ingested material	Minimum fast
Clear fluids	2 hours
Breast milk	4 hours
Infant formula	6 hours
Non-human milk	6 hours
Light meal	6 hours

Pre-Operative Fasting Audit

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HOEFT

Introduction

- First fasting audit Dec 2003
 - ◆ Patients were fasted longer than necessary
- Department audit meeting Jan 2004
- Presentation to SMC 2004
- MSA poster presentation April 2004
- Oral & poster presentation at Preoperative Association meeting, Brighton Nov 2005

Aspects audited

- Fasting periods for food and fluid
- Patient subjective hunger and thirst
- Changes in list order
- Preoperative patient instructions
- Staff knowledge of guidelines

Pre-Operative Fasting - Are we following the guideline?

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Introduction

Our Trust's pre-operative fasting guideline is in line with the AAGBI and ASA guidelines, which is 6 hours fasting for food or milky drinks and 2 hours fasting for clear fluids. Pre-operative drinking does not increase gastric contents¹ and decreases post operative nausea and vomiting². We are aware that many patients are being fasted for much longer. An audit was designed to establish the extent of the problem and identify possible causes.

Aims

To assess :

1. Pre-operative fasting duration in patients for elective surgery.
2. Awareness of fasting guideline among staff in surgical wards and theatres.
3. Uniformity of fasting instructions in pre-admission letters.

Methodology

A three part prospective audit was conducted across two sites in December 2003.

Part 1: A form was completed pre-operatively by anaesthetic staff recording

- (a) patients' fasting times for food and clear fluids
- (b) hunger and thirst scores on a scale from 0(none) to 4(severe)
- (c) preoperative fasting advice received
- (d) changes to the order of the list

Part 2: A questionnaire was distributed to surgical wards and theatre staff to assess their knowledge of the fasting guideline.

Part 3: Pre-operative admission letters from surgeons in the trust were collected to assess how long patients were being instructed to fast.

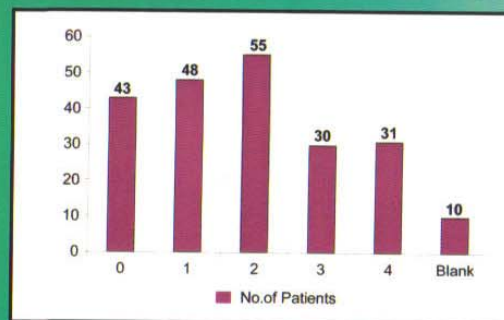


Fig 3: Hunger scores reported by patients (0 = none to 4 = severe)

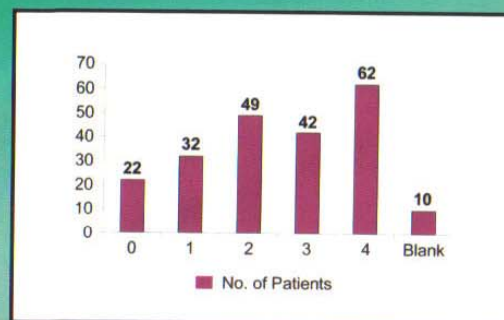


Fig 4: Thirst scores reported by patients (0 = None to 4 = severe)

Staff knowledge

115 staff members, 65% nurses, the remainder ODPs, doctors, HCAs and trainees completed questionnaires on fasting guideline.

- 80% gave the correct 6 hour fasting restriction for food.
- Only 21% gave the correct 2 hour restriction for clear fluids.
- 77% stated they would deny a patient a drink of water 2.5 hours before anaesthesia.

Results

- 233 patients from 89 elective lists on two sites were audited.
- Majority (45%) of patients appeared on Whole Day (WD) lists, as against AM or PM lists (Fig 1).
- The mean fasting time was more than 11 hours for fluids and almost 15 hours for food. There was no clinically significant difference in fasting times across the sites and by list type (Table 1).
- Mean fasting advice reported by patients was 9 hours for food and 7.5 hours for clear fluids.
- There was little correlation between length of fasting and hunger/thirst scores apart from increased thirst scores in those fluid fasted >12 hours.
- 60% of patients were admitted on the day of surgery, having been issued fasting instructions in the form of pre-admission letters. Most patients attend pre-operative assessment clinics where the correct fasting guidelines are displayed.
- 28% of patients were affected by changes to the order of the list (Fig 2).

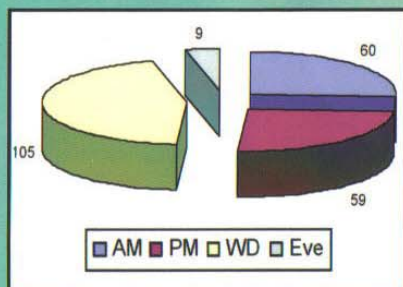


Fig 1: Number of patients by list type.

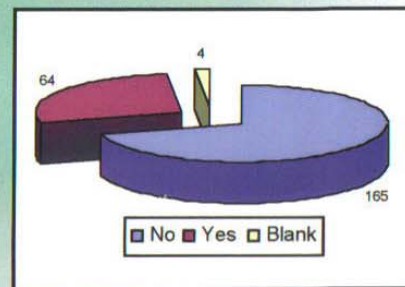


Fig 2: Change in the order of surgical list - number of patients.

List type	Hours from last meal	Hours from last drink
Heartlands (all)	15.0 (9.2)	11.8 (7.7)
Solihull (all)	14.8 (9.5)	11.4 (7.6)
AM lists	14.9 (9.2)	11.8 (7.7)
PM lists	14.9 (9.2)	11.8 (7.7)
Whole Day lists	15.0 (9.5)	11.7 (7.6)

Table 1: Duration of fasting - actual times (advised times) - by list type.

Pre-admission letters

- Of 12 letters surveyed for AM or WD lists - 10 request NBM from midnight (i.e. at least 9 hours fasting) 2 advise NBM from 0300 hrs.
- Of 10 letters surveyed for PM lists, all except one advise light breakfast but times vary from 0600 – 0800 hrs.
- A letter for a PM paediatric list gave instructions appropriate for AM (no food from MN, fluids till 0600hrs).
- Only one unit (Solihull DPU) issues instructions to take clear fluids up to 3 hours before start of list.

Summary

- The majority of elective surgical patients are being instructed to fast too long.
- Many patients fast even longer than instructed, on average 9 hours more than necessary. They obey the pre-admission letter in preference to pre-operative clinic instructions.
- High scores of 3-4 were reported by 30% patients (hunger) and 53% (thirst) (Figs 3 & 4).
- Staff have poor knowledge of the fasting time for clear fluids.

Actions proposed

- Present audit to surgical and nursing staff.
- Organise redrafting of pre-admission letters with uniform and correct fasting instructions.
- Place fasting guideline posters on wards.
- Publicise pre-operative fasting guideline in hospital magazine.
- Attempt to minimise list order changes. Where changes are unavoidable, these to be agreed before start of list and patients instructed to drink accordingly.
- Prescribe oral fluids as appropriate for pre-operative patients until 2 hours before surgery.
- Re-audit in 1 year's time.

References:

- 1) S Phillips, S Hutchinson and T Davidson. Pre-operative drinking does not affect gastric contents. Br J Anaesth 1993; 70: 6-9
- 2) A F Smith, H Vallance and R M Slater. Shorter pre-operative fluid fasts reduce post-operative emesis. BMJ May 1997; 314: 1486a

Summary of results

- Patients fasting far longer than guidelines
- Patients instructed to fast for too long
- Hunger and thirst was significant but unrelated to excessive fasting periods
- Inconsistent preoperative instructions
- Changes in list order
- Significant numbers of staff unaware of correct fasting policy

Recommendations, previous audit

- Confer with surgeons to change admission letters
- Produce patient information leaflets, give information at preoperative clinics
- Produce posters for all wards, arrange display
- Revise fasting guideline for ultimate simplicity
- Disseminate guideline to Trust via Intranet
- At pre-op ward visit prescribe clear drink to all patients waiting >2 hours for surgery
- Re-audit after making the changes

OUR Pre Op Fasting Policy

- In general, six hours after food, and two hours after clear fluids is the rule for adults, unless surgery is urgent. Milk is treated as a food.
- Children should be starved for six hours after food, but may take clear fluid up to two hours before the start of the operation

Birmingham Heartlands Hospital

Bordesley Green East
Birmingham B9 5SS

Tel: 0121 424 2000

Fax: 0121 424 2200

27 April 2007

Please find below details of your admission to Heartlands Hospital.

APPOINTMENT		LOCATION	Phone No.
Date:	Tuesday, 1 May, 2007	Name: Admissions Lounge	0121 424 2210
Time:		Located on Ward 5	
Dept:	Urology	Heartlands Hospital	
	Mr Phillips	Bordesley Green East	
		Bordesley Green	
		B9 5SS Birmingham	

Instruct:

On receipt of this letter, please contact me as soon as possible to confirm your attendance on 0121-42 42253

If you wish you can eat and drink up to 3.00 a.m. From 3.00 a.m onwards you can only have clear water until 7.00 a.m. Then nothing to eat or drink (including clear water) until after your operation.

You will need to bring your own toiletries and tissues, as the ward does not provide these.

You will be admitted to a single sex bay on a mixed sex ward. However, due to emergency admissions sometimes bays have to be mixed sex too. If you would object to being in a mixed sex bay please contact the ward.

Yours sincerely

Patient Booking Co-ordinator

Direct line: 0121-42 42253

Birmingham Heartlands Hospital

Bordesley Green East
Birmingham B9 5SS

Tel: 0121 424 2000
Fax: 0121 424 2200

27 April 2007

MR TAVIN GREGORY
OLD DICKENS STREET ROAD
SURLEY
STAFFORD
STAFFORD
STAFFORD
STAFFORD

Please find below details of your admission to Heartlands Hospital.

APPOINTMENT		LOCATION	Phone No.
Date:	Tuesday, 1 May, 2007	Name: Admissions Lounge	0121 424 1815
Time:		Located on Ward 5	
Dept:	Urology	Heartlands Hospital	
	Mr Phillips	Bordesley Green East	
		Bordesley Green	
		B9 5SS Birmingham	

Instruct:

On receipt of this letter, please contact me as soon as possible to confirm your attendance on 0121-42 42253

Please note that normal medication must be taken - even on the day of surgery.

Please come to Admissions Lounge at 12.00 noon

You can have your usual breakfast before 7.00 a.m. From 7.00 a.m onwards you can only have clear water until 11.00 a.m. then nothing to eat or drink (including clear water) until after your operation.

You will need to bring your own toiletries and tissues, as the ward does not provide these. Please Bring all current medication with you.

You will be admitted to a single sex bay on a mixed sex ward. However, due to emergency admissions sometimes bays have to be mixed sex too. If you would object to being in a mixed sex bay please contact the ward.

All patients whether given local or general anaesthetic must make arrangements for someone to collect you from the ward on discharge. It is important you do not operate machinery or drive a vehicle within 24 hours of discharge.

Yours sincerely

Patient Booking Co-ordinator
Direct line: 0121-42 42253

The Pre-Operative Assessment Service

Heartlands Hospital 0121 424 3375
Solihull Hospital 0121 424 5167

If your admission to hospital is on the same day as your surgery, please follow these instructions. These guidelines tell you what you may eat and drink before your hospital admission time. Please contact the Pre-operative Assessment Service if you have any concerns:

Patient Fasting Instructions

Morning Admission to Hospital

- No solid food for 6 hours before your hospital admission time.
- You may drink tea or coffee without milk up to 07:00 hours; you can have sugar in your tea or coffee if you wish
- You may drink clear water up to 07:00 hours. Following your admission to hospital the ward staff will be able to advise you if you can continue to drink clear water until 2 hours prior to your operation.

Afternoon Admission to Hospital

- You may have a light breakfast at 07:00 (cereal or toast)
- You may drink tea or coffee without milk up to 11:00 hours; you can have sugar in your tea or coffee if you wish
- You may drink clear water up to 11:00 hours. Following your admission to hospital the ward staff will be able to advise you if you can continue to drink clear water until 2 hours prior to your operation.

Please Note: Sweets and chewing gum are not permitted.

If you have any concerns regarding these guidelines, please contact the pre-operative assessment unit on the numbers shown above.

fasting periods for surgery

please apply to all elective patients unless
there are special requirements eg. bowel prep

up to **6 hours** before operation

- light meal (e.g. cereal or toast)
- drinks with milk

up to **2 hours** before operation

- water

Please encourage patients to keep drinking water
until their **2 hour** limit

Aims of re-audit

- To check whether the changes have made an improvement in the duration of preoperative fasting for elective surgery
- To assess the staff awareness of the pre-operative fasting policy

Audit 2007

- Prospective audit on two sites
- Multidisciplinary
- Patient audit Apr 30 – May 11 2007
- Staff questionnaires May 2007

AUDIT OF PRE-OP PATIENT FASTING

Date.....Theatre.....BHH / SOL
Consultant surgeon.....list : AM / PM / whole day / extended
Anaesthetist/s.....

Patient label:

Name
Age Sex
PID

Operation Planned:

Ward: Admitted on : Date: Time:
Patient Number on printed list
Patient Number on performed list
Last meal: Date.....Time.....
Last clear drink: Date.....Time.....
Time checked into theatre: (24hr clock)
Patient aware of fasting guidelines: Yes / No
Hunger score: 0.....1.....2.....3.....4 Thirst Score 0.....1.....2.....3.....4

Comments:

Patient label:

Name
Age Sex
PID

Operation Planned:

Ward: Admitted on : Date: Time:
Patient Number on printed list
Patient Number on performed list
Last meal: Date.....Time.....
Last clear drink: Date.....Time.....
Time checked into theatre: (24hr clock)
Patient aware of fasting guidelines: Yes / No
Hunger score: 0.....1.....2.....3.....4 Thirst Score 0.....1.....2.....3.....4

Comments:

Patient label:

Name
Age Sex
PID

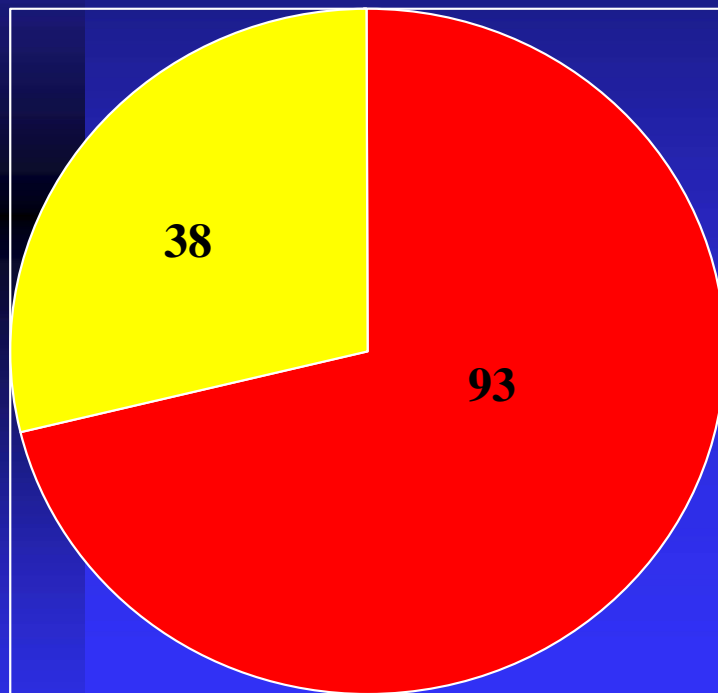
Operation Planned:

Ward: Admitted on : Date: Time:
Patient Number on printed list
Patient Number on performed list
Last meal: Date.....Time.....
Last clear drink: Date.....Time.....
Time checked into theatre: (24hr clock)
Patient aware of fasting guidelines: Yes / No
Hunger score: 0.....1.....2.....3.....4 Thirst Score 0.....1.....2.....3.....4

Comments:

Analysis & Results

Number of lists and patients



■ BHH ■ SOL

Total 131 lists

Total 432 patients

BHH 307 patients

SOL 125 patients

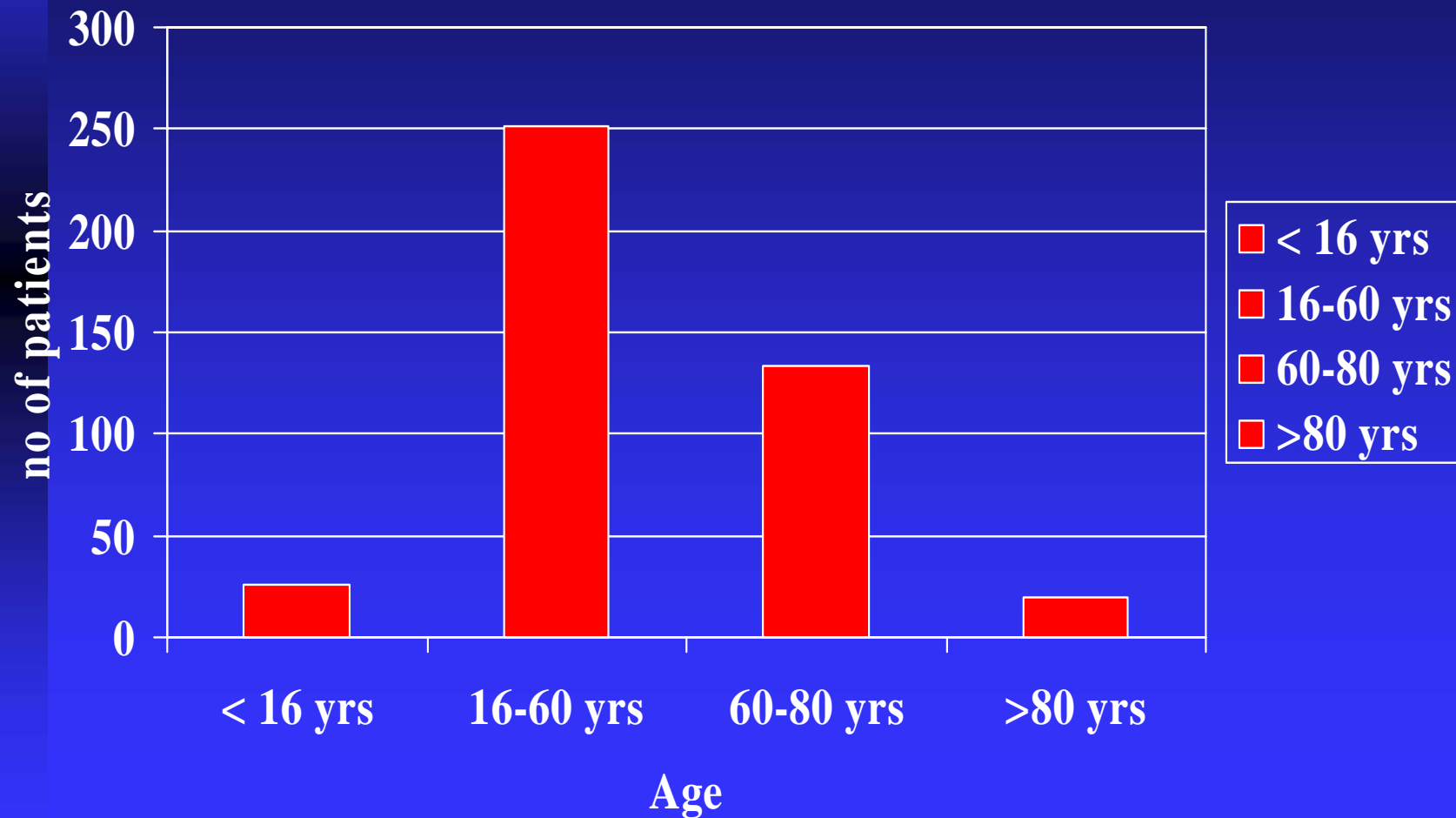
AM 126

PM 57

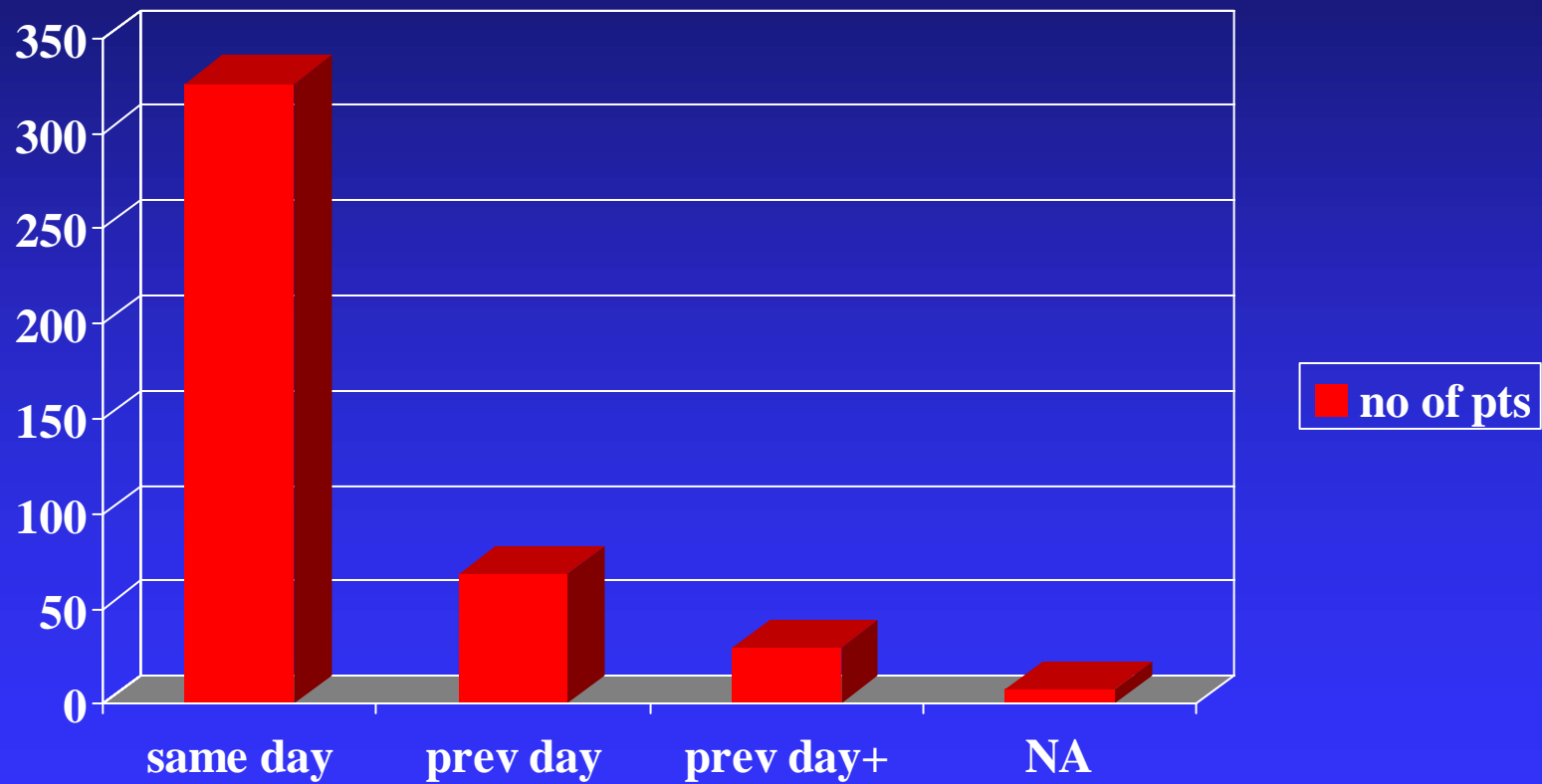
WD 241

Blank 8

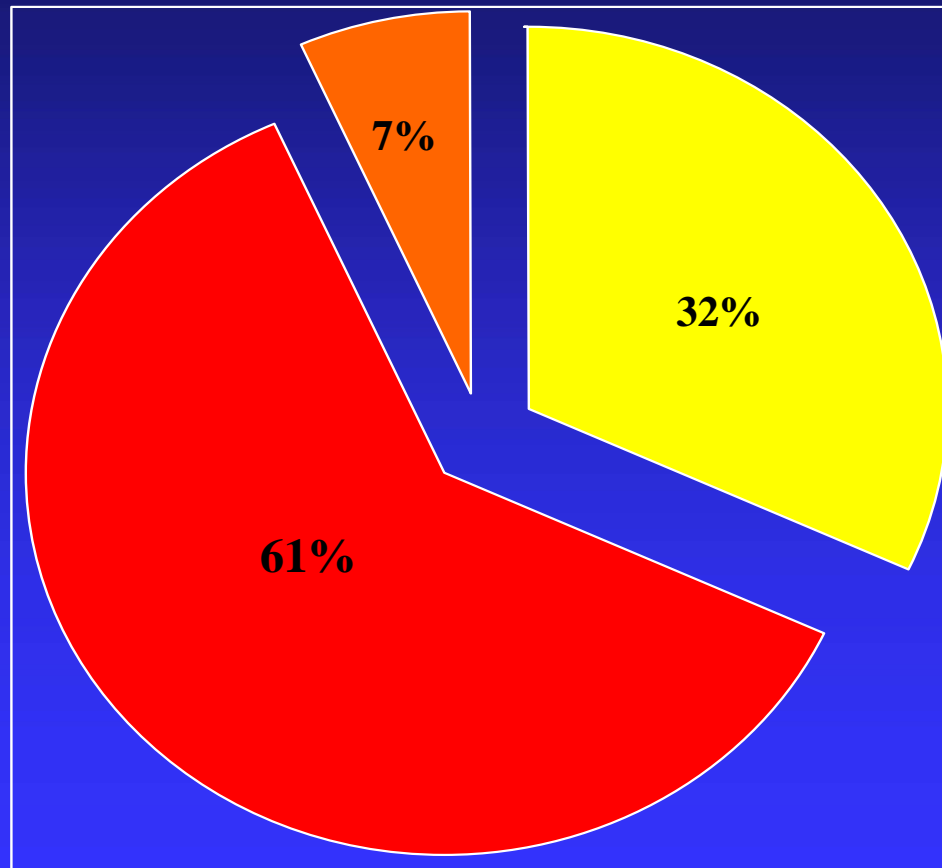
Age distribution of patients



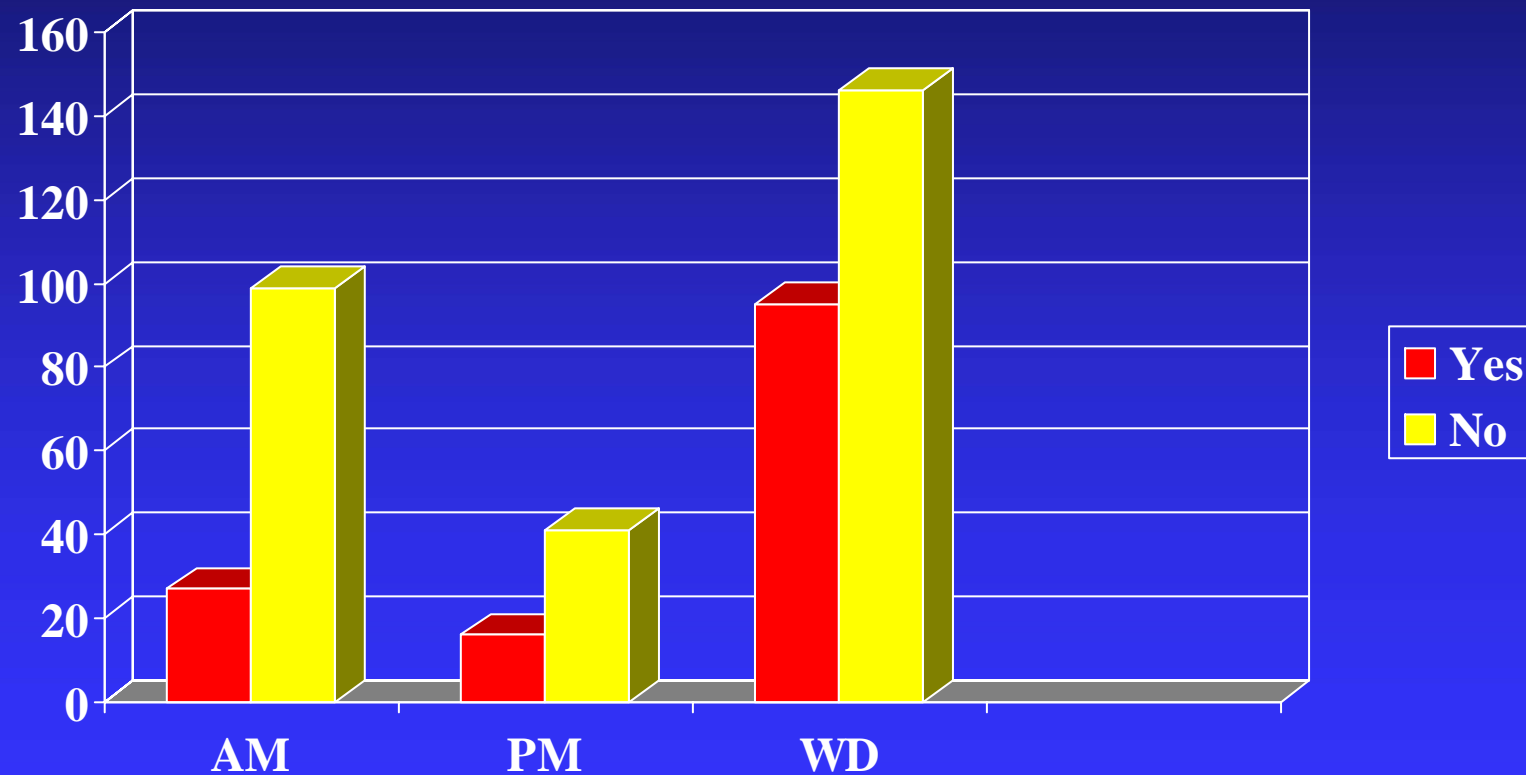
Date of admission



Change in order



Change in order



Last meal and drink

Last meal

- Range 5.5 – 26.3 hrs
- Mean 13.7 hrs
- Data 392 pts
- No data 38 pts
- Bowel prep 2 pts

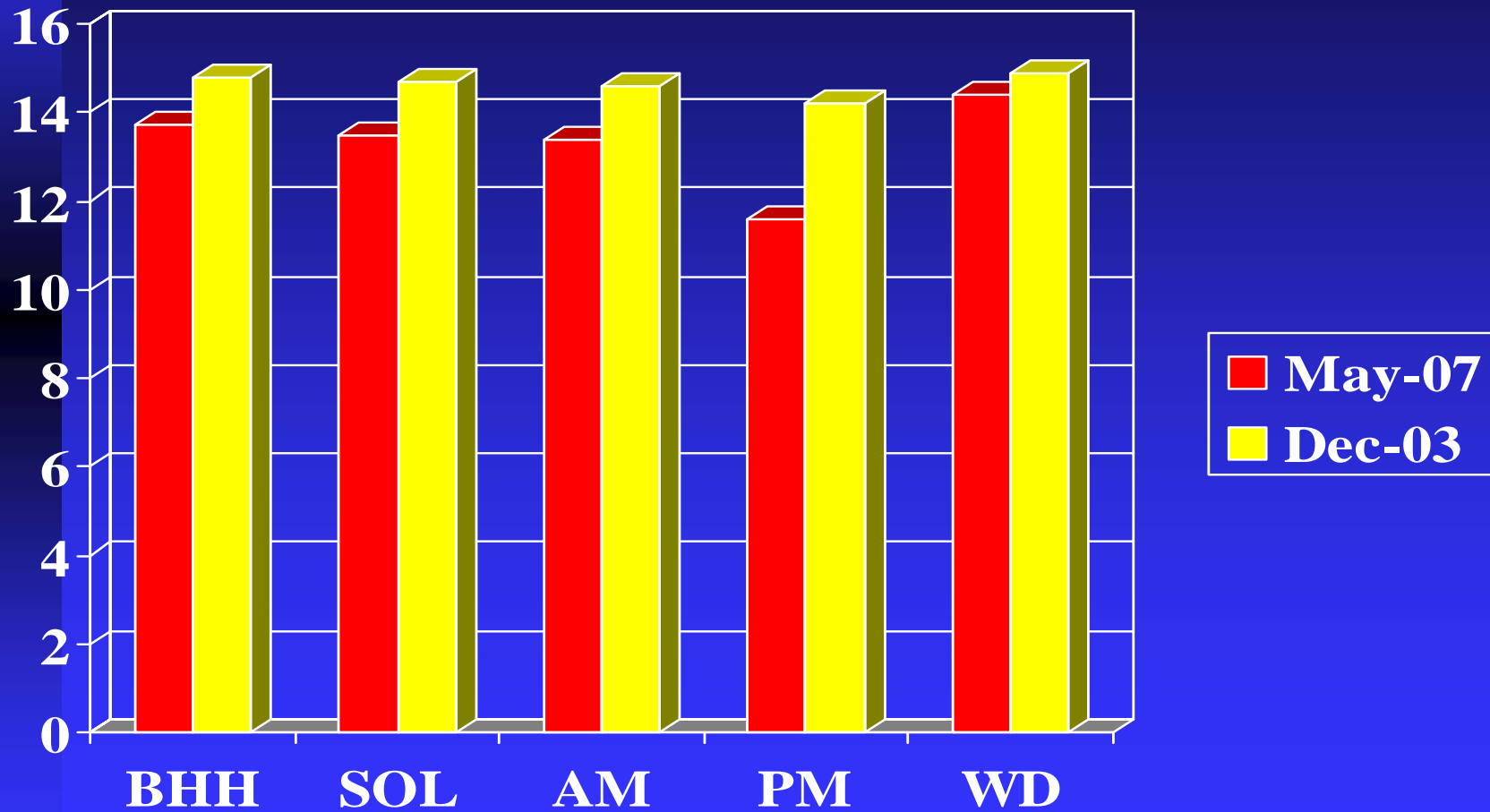
Last drink

- Range 1.5 – 21.4 hrs
- Mean 9.5 hrs
- Data 394 pts
- No data 38 pts

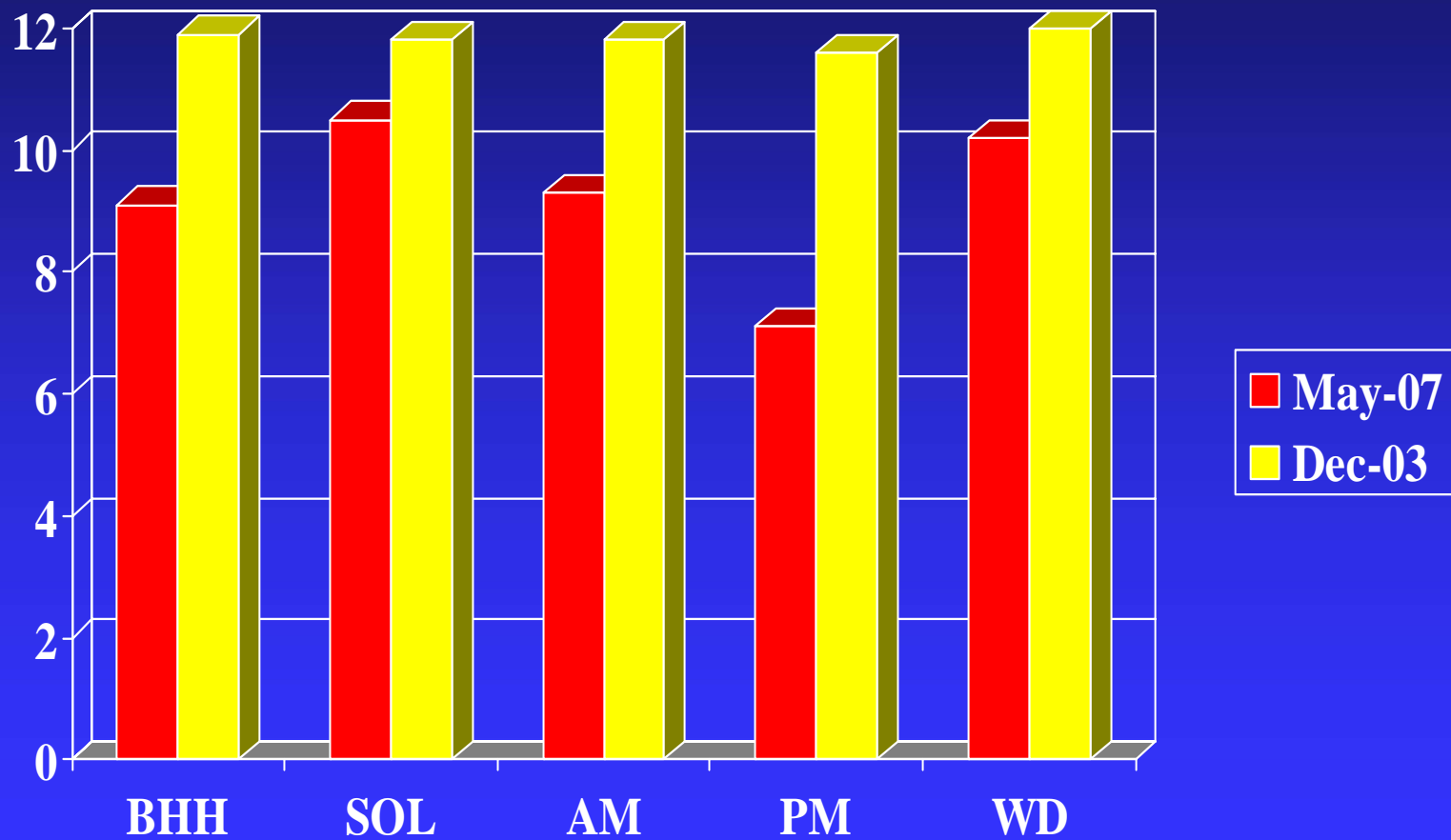
Comparison of 2 audits (mean duration in hours)

	Last meal May 07	Last meal Dec 03	Last drink May 07	Last drink Dec 03
BHH	13.7	14.8	9.1	11.9
SOL	13.5	14.7	10.5	11.8
AM	13.4	14.6	9.3	11.8
PM	11.6	14.2	7.1	11.6
WD	14.4	14.9	10.2	12.0

Last Meal (mean duration in hours)



Last drink (mean duration in hours)



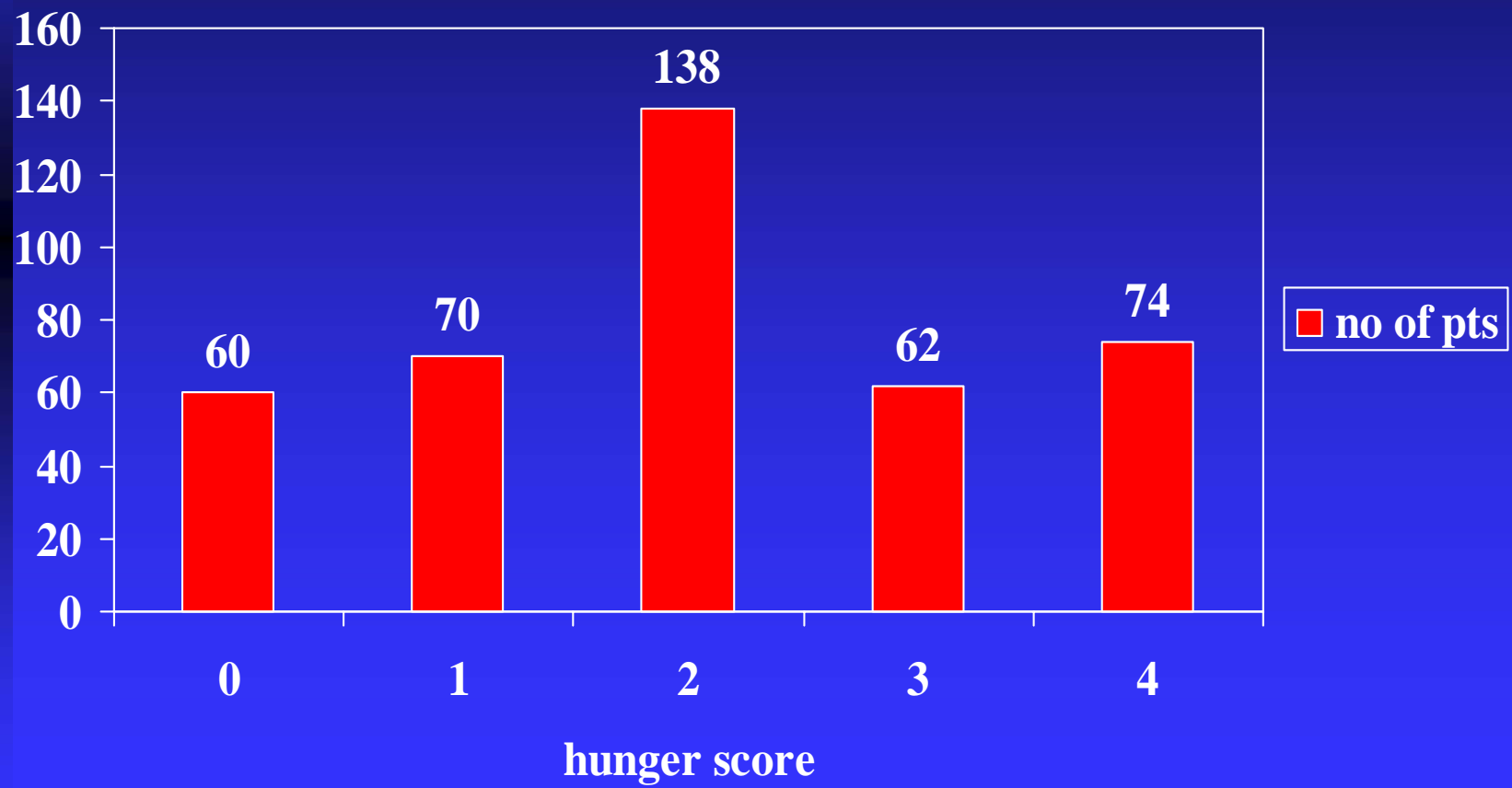
Comparison of age and mean duration of fasting (hours)

Age & No.of Pts	Meal (hrs)	Drink (hrs)
<12 (16)	14.2	10.7
12-16 (10)	13.3	10.0
16-60 (251)	13.7	9.2
60-80 (133)	13.4	9.6
>80 (20)	15.3	11.5

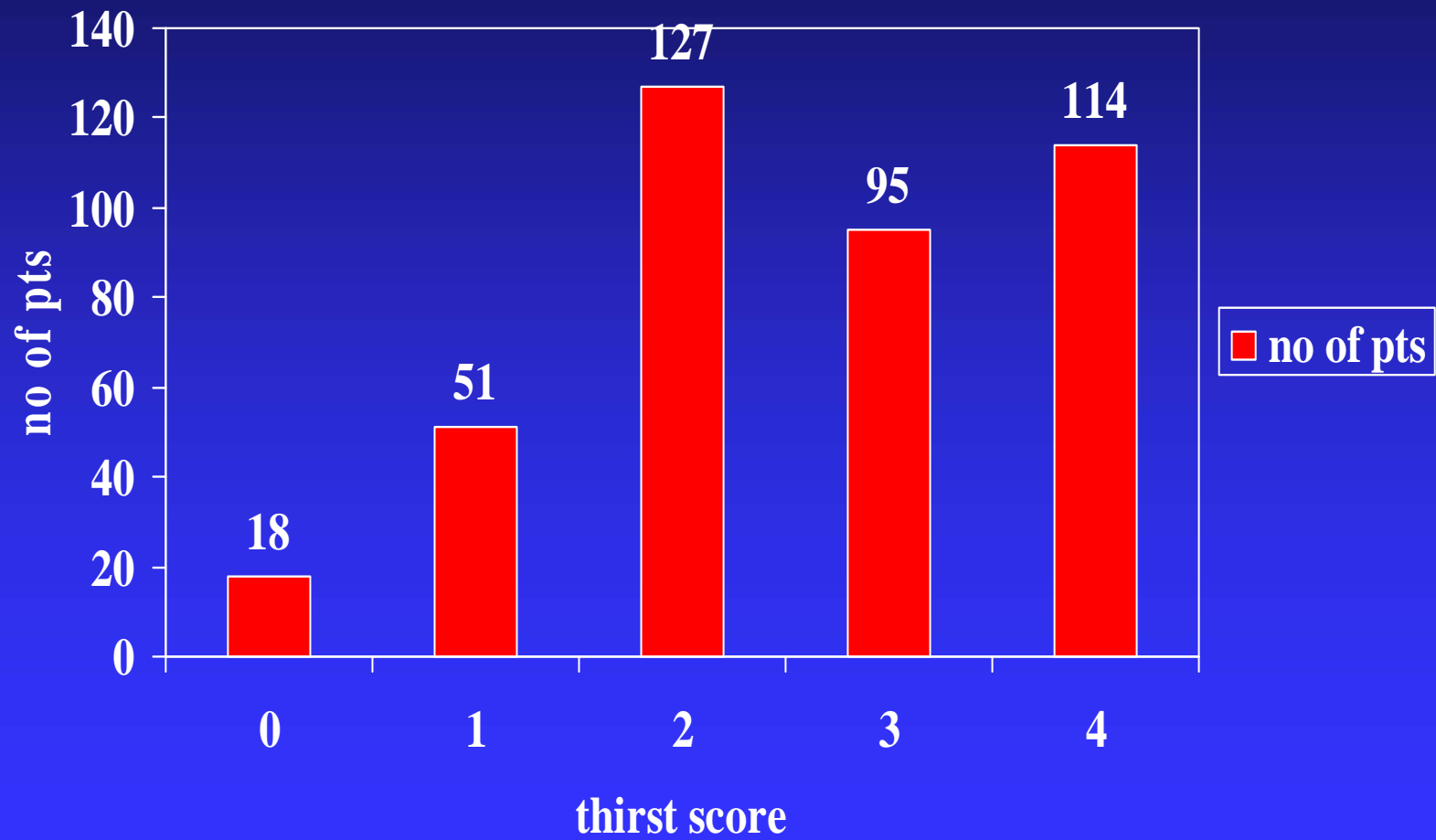
Change in order vs mean duration of fasting (hours)

Change in order of list (no of patients)	Meal	Drink
Yes (138)	14.2	10.0
No (265)	13.3	9.2

Hunger score



Thirst score



Fasting (Meal) vs. Hunger score

- Hunger score 0-2

Mean fasting time -13.4 hrs (15.3 hrs)

- Hunger score 3 & 4

Mean fasting time - 14.4 hrs (15.2 hrs)

Fasting (Drink) Vs Thirst Score

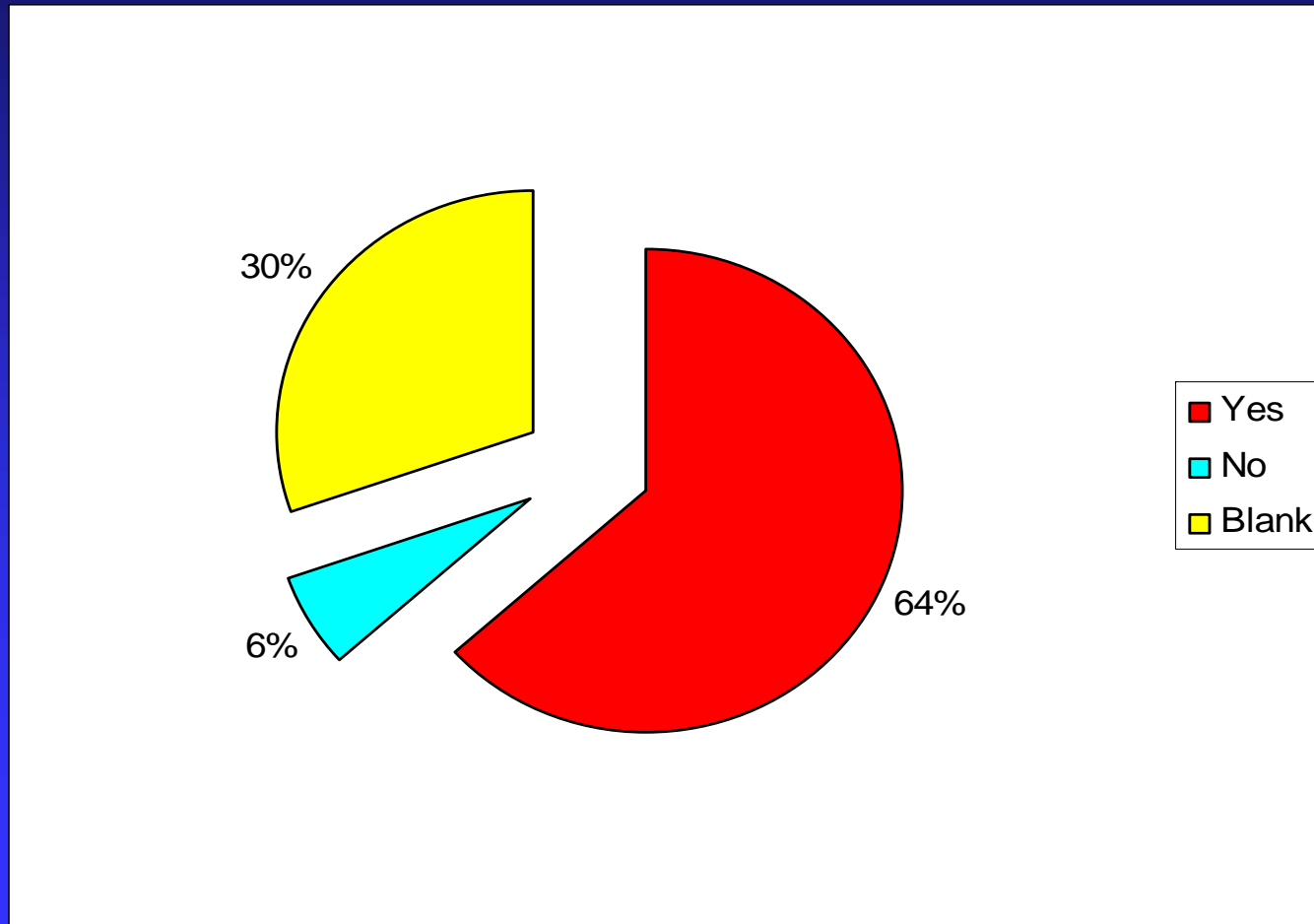
- Thirst score 0-2

Mean fasting time – 9.1 hrs (12.0 hrs)

- Thirst score 3 & 4

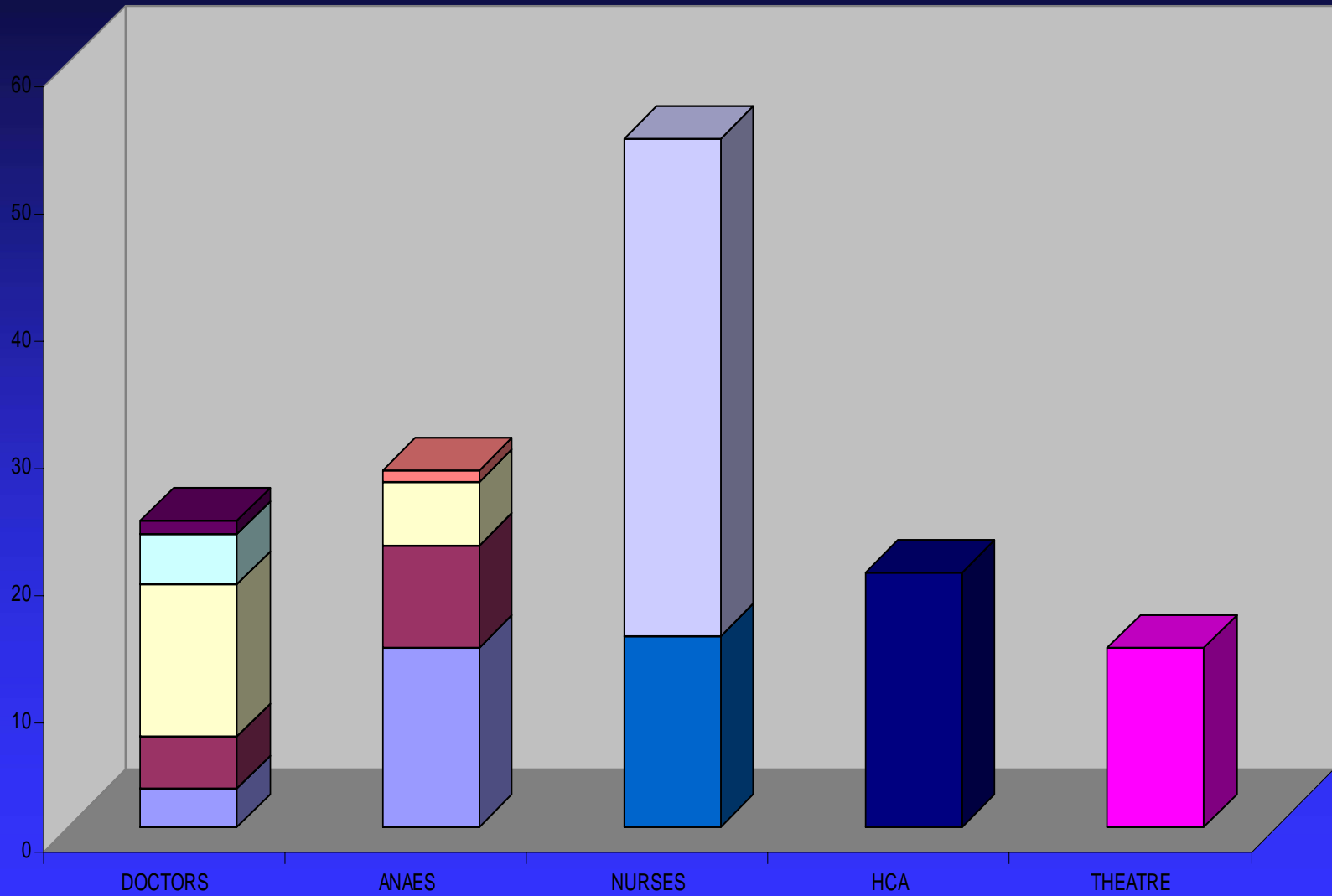
- Mean fasting time – 9.9 hrs (11.9 hrs)

Awareness of fasting guidelines



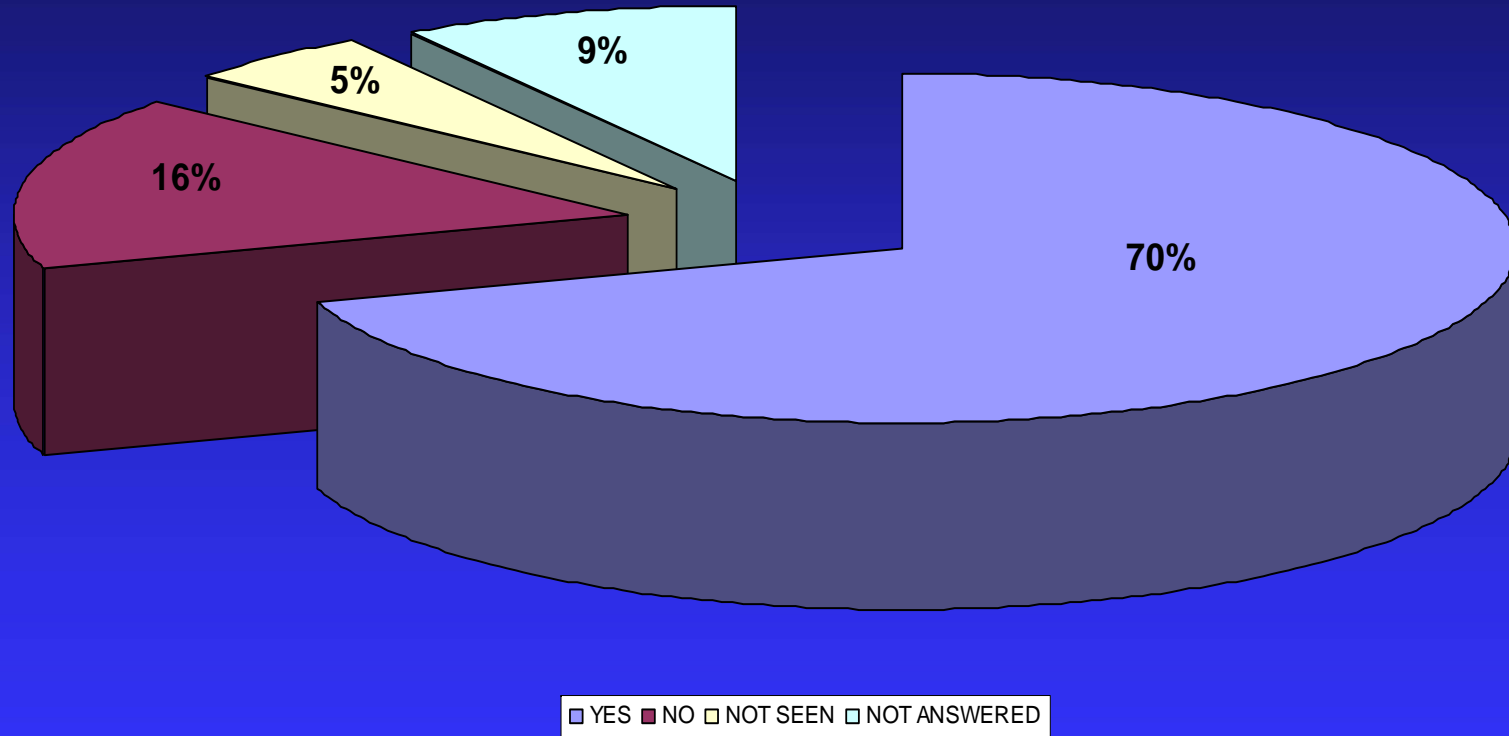
Staff Questionnaires

- Given out during Audit period to all surgical wards and opportunistically.
- **TOTAL - 140 questionnaires completed**
 - ◆ 28 Anaesthetists
 - ◆ 24 Other doctors
 - ◆ 14 Theatre Staff
 - ◆ 54 Ward nurses
 - ◆ 20 Ward HCAs

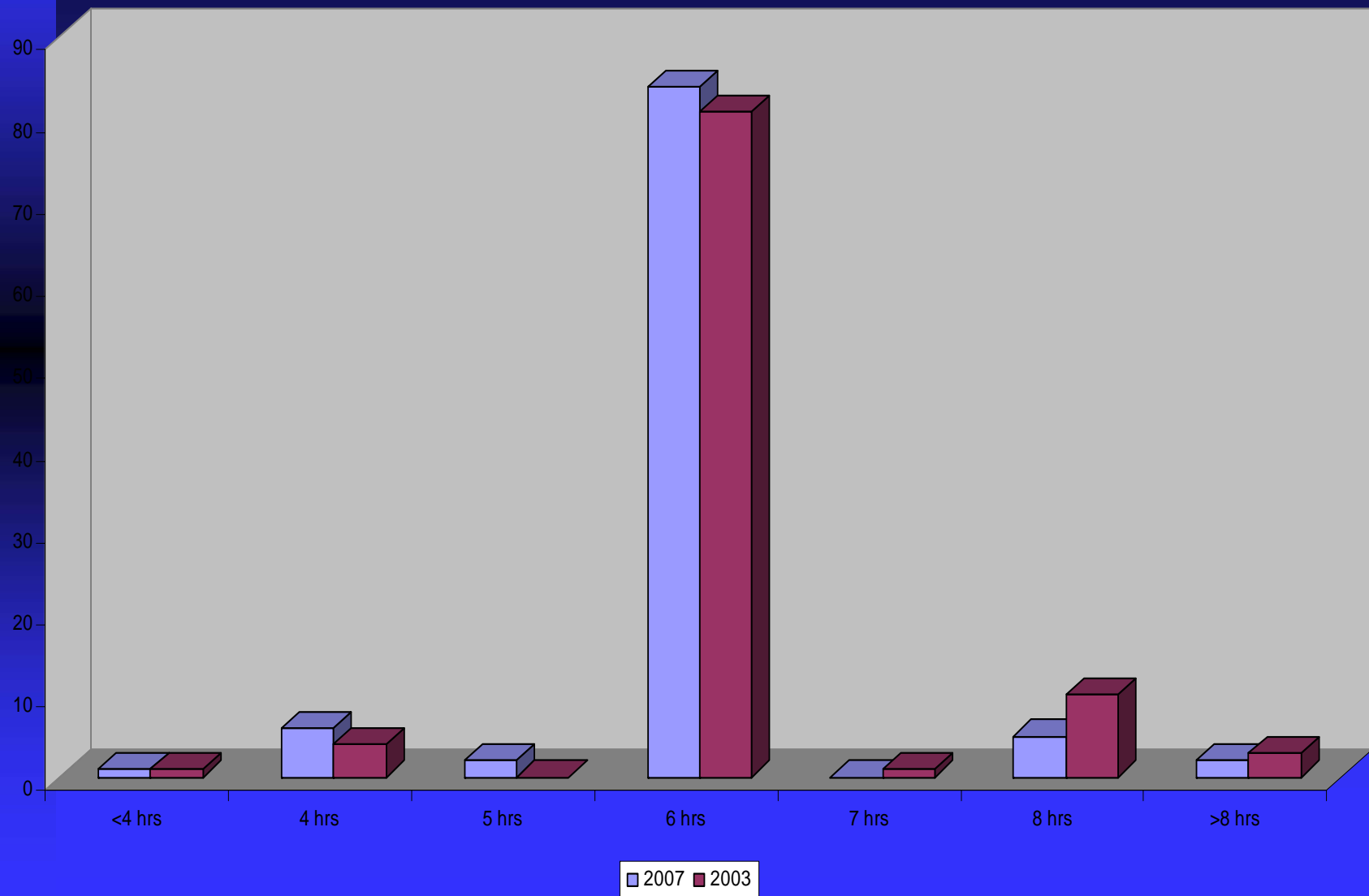


Cons
 SAS/SpR
 SHO
 FY1/2
 Med Stud
 AP
 Sister
 Staff Nurse
 HCA
 Theatre

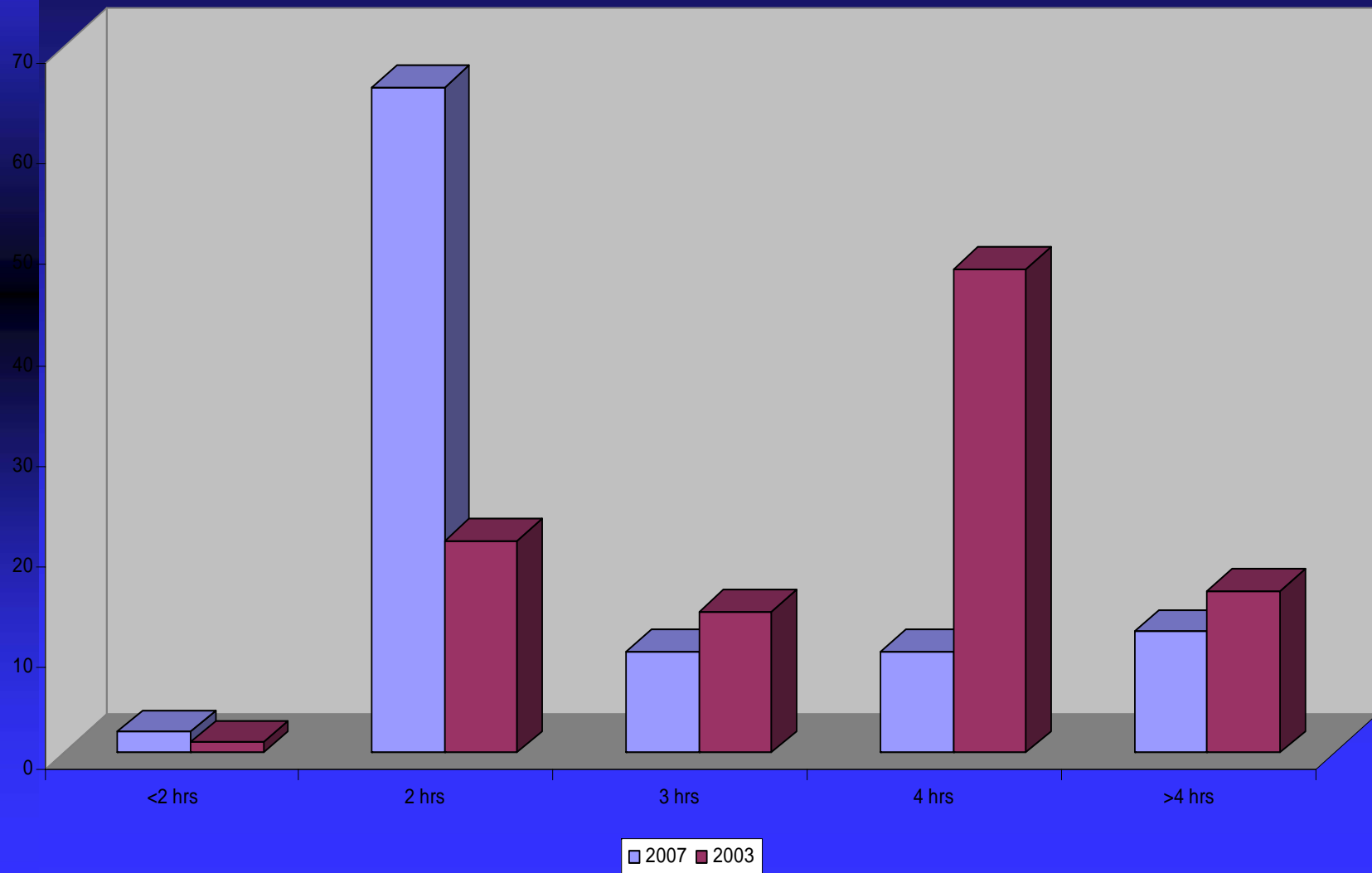
Are our Pre-op fasting guidelines clear ?



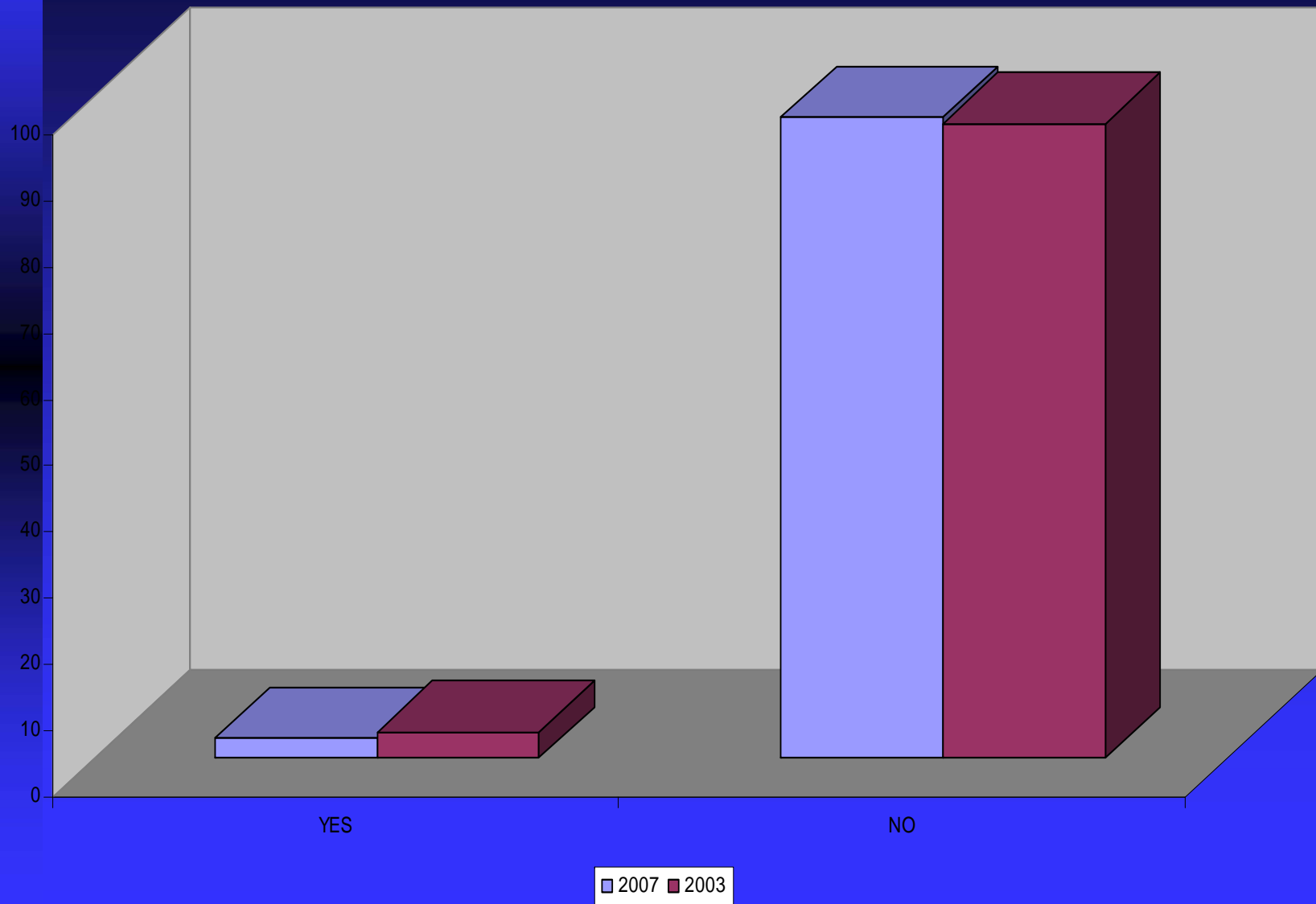
How long before going to theatre should a patient go without food?



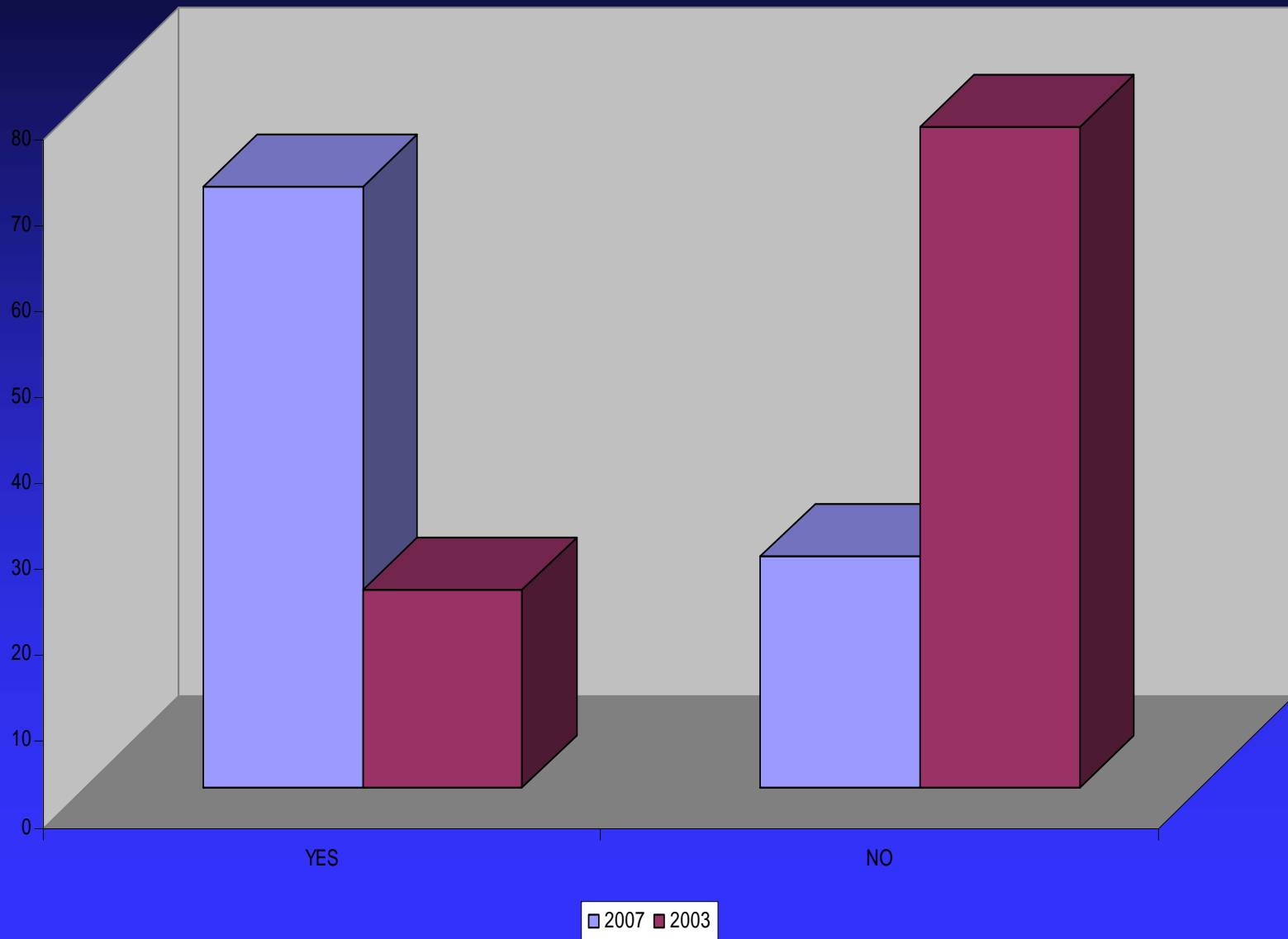
How long before going to theatre should a patient go without fluid?



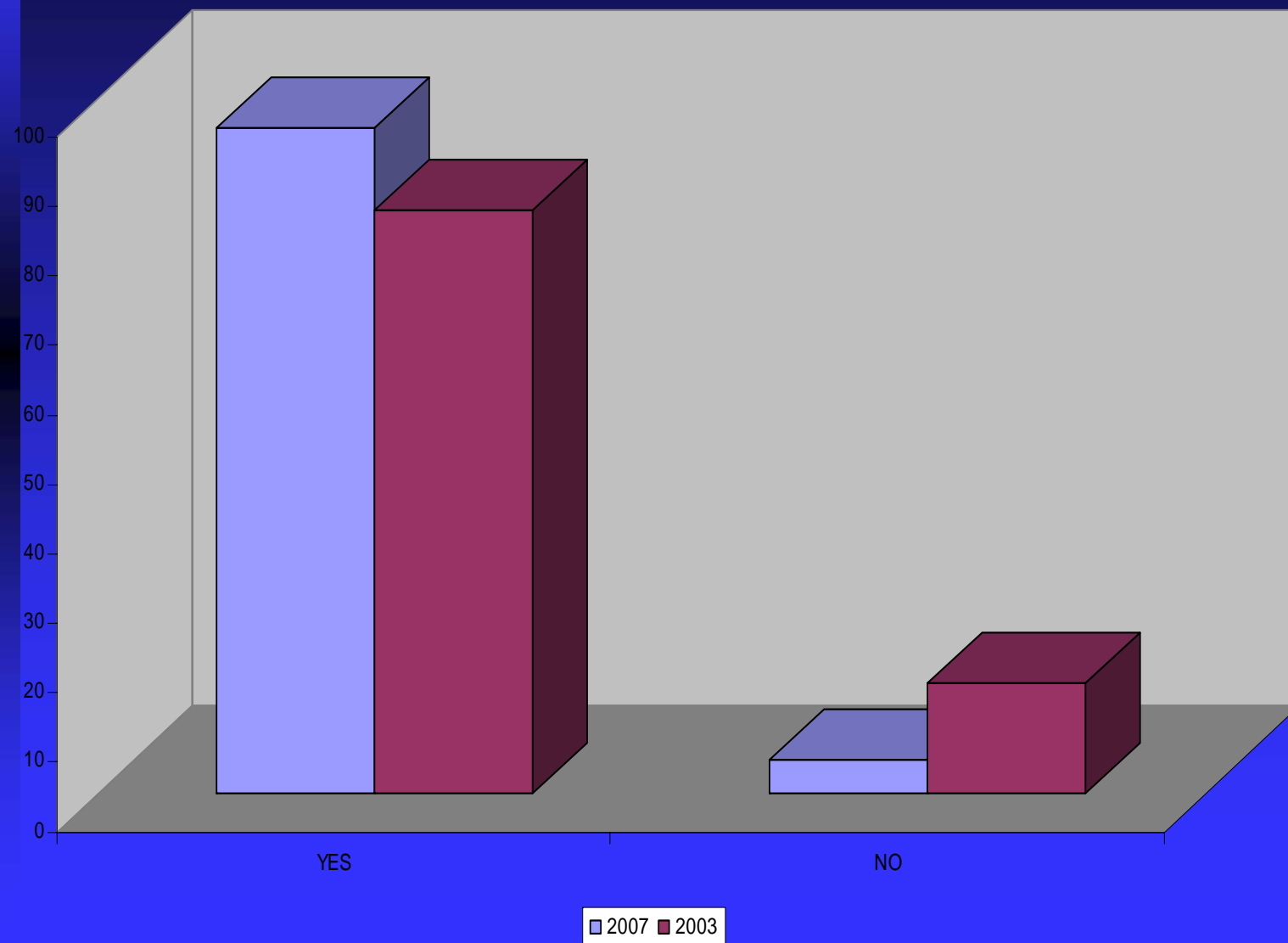
Is Tea with Milk a Clear Fluid?



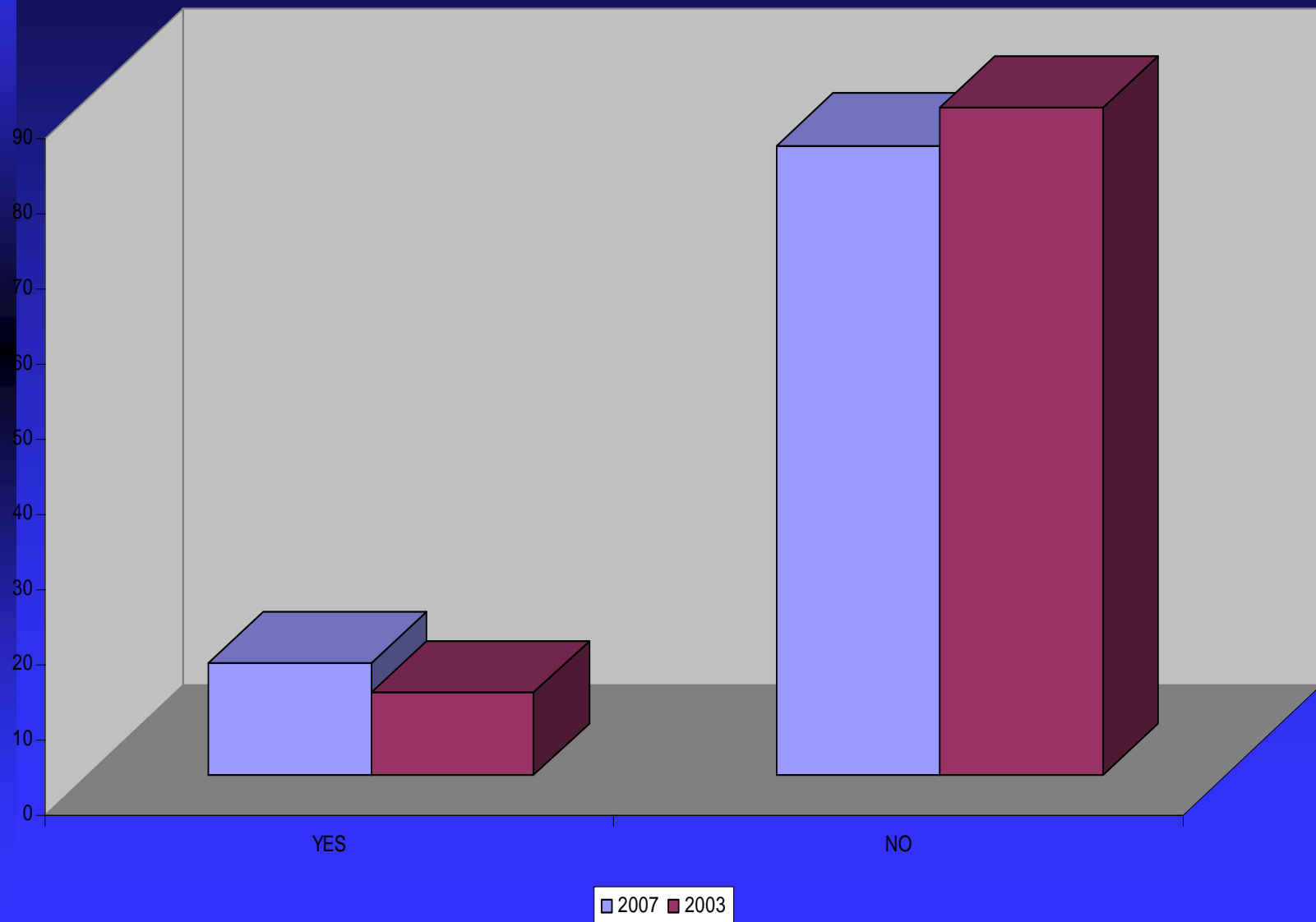
If theatre at 13.30 can have water at 11.00



Should fasting patients have their usual medication?



Is it OK for fasting patients to chew gum?



Summary

- 131 elective lists with 432 patients audited
- 75% patients admitted on day of surgery
- List order change affected ~ 32% patients
- Patients still fast longer than necessary though there has been some improvement
- Staff awareness of guidelines has improved
- Further work is required in staff and patient education

Recommendations from this audit

- Continue to educate staff re guidelines
- Reinforce patient education at pre-op clinics
- Maintenance of posters on the wards
- Republicise guideline on the intranet
- Try not to move order of the list around
- Inform ward staff of the order of the list early
- ALL patients to have water before setting off from home (ie before 07.00)
- All day lists to have defined break to enable patients to have breakfast if scheduled late in the day

Where to go from now ?

- **Re-audit**

- ◆ include Emergency list patients

- Guidelines to be given out at Junior Doctor Induction

- Anaesthetists to prescribe water at their preoperative visits

References

- S Phillips, S Hutchinson, and T Davidson, Preoperative drinking does not affect gastric contents Br. J. Anaesth. 1993 70: 6-9.
- A F Smith, H Vallance, and R M Slater, Shorter preoperative fluid fasts reduce postoperative emesis BMJ, May 1997; 314: 1486a.
- Dubin SA, McCraine JM. Sugarless gum chewing before surgery does not increase gastric fluid volume or acidity, Canadian Journal of Anaesthesia 1994; 41: 603-6.
- RCN Guideline for the multidisciplinary team : Perioperative fasting in adults and children (www.rcn.org.uk/publications)