# Rajiv Gandhi Cancer Institute

Medical O.P.D

By : Dr. Mitu Khosla

A STUDY OF PROCESS FLOW AND PATIENT WAITING TIMES IN THE MEDICAL O.P.D OF A TERTIARY CARE CANCER RESEARCH INSTITUTE

Need of Study

- Outpatient department or the O.P.D is the First point of contact with the patient.

- Can make or mar the reputation of the hospital.

- Plays an important role in reduction in morbidity and mortality.

- Increase in patient loads in the O.P.D`s

Out of proportion to increase in the resources
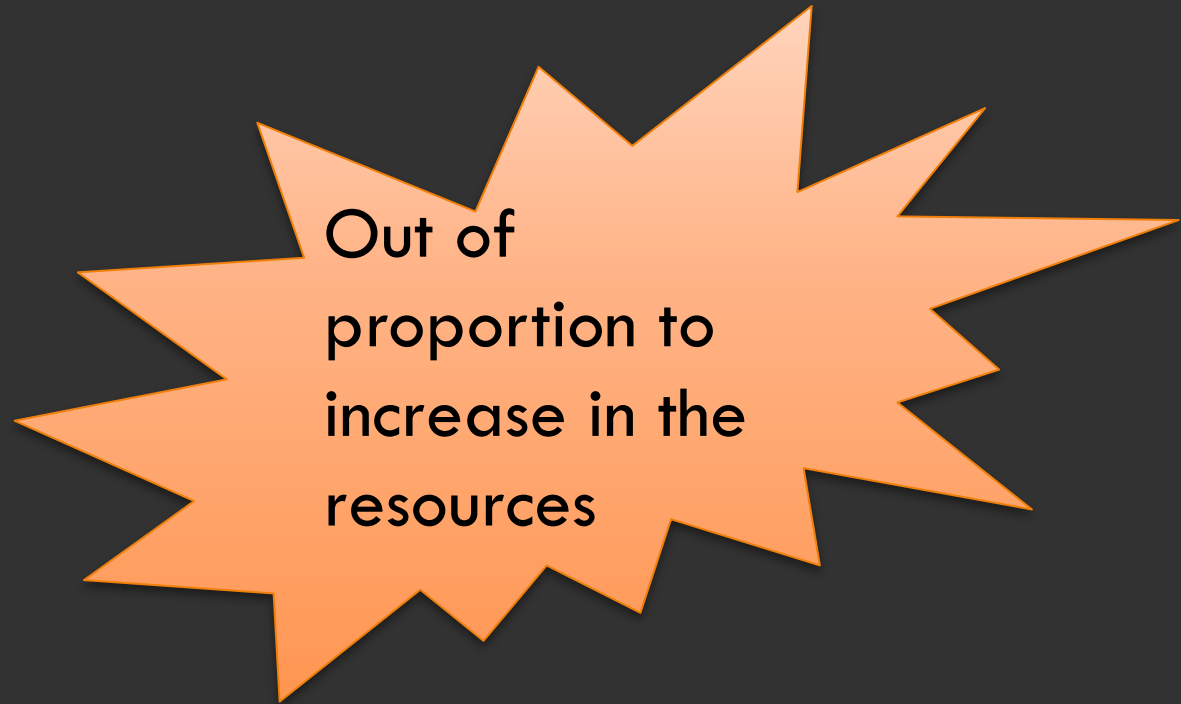
results in long queues

increased waiting times

Well preforming system

minimum delays in each stage

Patient flow smooth like a river

Broken system

Accumulation of patients at points.

Increased waiting times/delays

- Harms patients
  - wasted times
  - Increased Suffering
- Harms health Care providers-
  - Increased Costs
  - *reduced efficiency*
  - *Decreased patient satisfaction.*

Aims and objectives

- Process mapping of the Medical O.P.D
- Study of the patient distribution
- Study the patient arrival patterns
- Study the appointment scheduling patterns
- Study the waiting times

Methodology

- Type of sampling – Random sampling.

Sample Size

- Patient tracking for waiting times →
  - 759 patients with appointment
  - 300 patients without appointment
- Appointment Scheduling at discharge→
  - 540 discharge summaries
- Patient Classification →
  - All patients who visited Medical O.P.D in Jan and Feb 2012

Research Tools

- Pre formed Performa for patient tracking.

- Daily Appointment List from the HIMS

- Discharge slips of patients

- O.P.D registers

- Unstructured Interviews with staff of Medical O.P.D

Data Collection

The data recorded for patients coming to O.P.D

- For patients with Appointment

CR Number	Unit	Date	Time Of Appointment	Time Of Arrival	Time Of Consultation.

For Patients without Appointment

CR Number	Unit	Date	Time Of Arrival	Time Of File At Counter	Time Of Consultation.

Data recorded from discharge summaries

UNIT	CR no	Name	Age/sex	DOA	DOD	Follow up	Appointment Given

Data from the consultation register for month of Jan 2012 and Feb 2012

O.P.D card	Date	Unit	Type
2155	16-Jan-12	P	with
2156	16-Jan-12	I	new
2157	16-Jan-12	IV	with
2158	16-Jan-12	II	with
2159	16-Jan-12	IV	with
2160	16-Jan-12	H	with
2161	16-Jan-12	I	with
2162	16-Jan-12	I	with
2163	16-Jan-12	II	with
2164	16-Jan-12	II	with
2165	16-Jan-12	II	with
2166	16-Jan-12	II	with
2167	16-Jan-12	1	with

Calculations
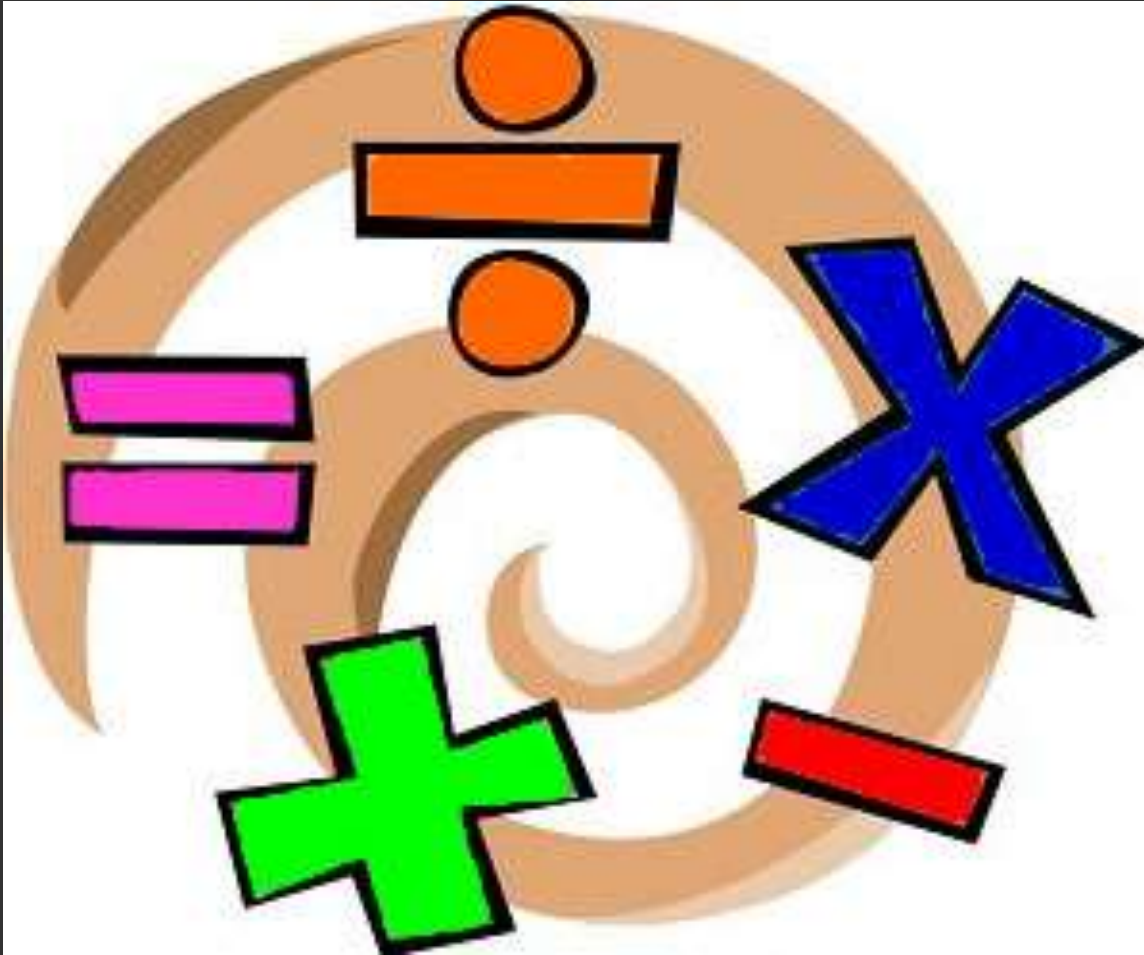
Waiting Time Calculations

• Patients without appointment →

Waiting Time =

Time of Consultation – Time of Arrival.

Waiting Time In Patients With Appointment

- Total waiting time = Time of Consultation – Time of Arrival

- True waiting time

  - In **patients coming early**

    True waiting time = Time of consultation – Time of Appointment

  - **In patients on time**

    - true waiting time= Time of consultation – Time of Appointment

  - **In patients Coming late**

    - true waiting time= Time of Consultation – Time of Arrival

Structure of Medical O.P.D
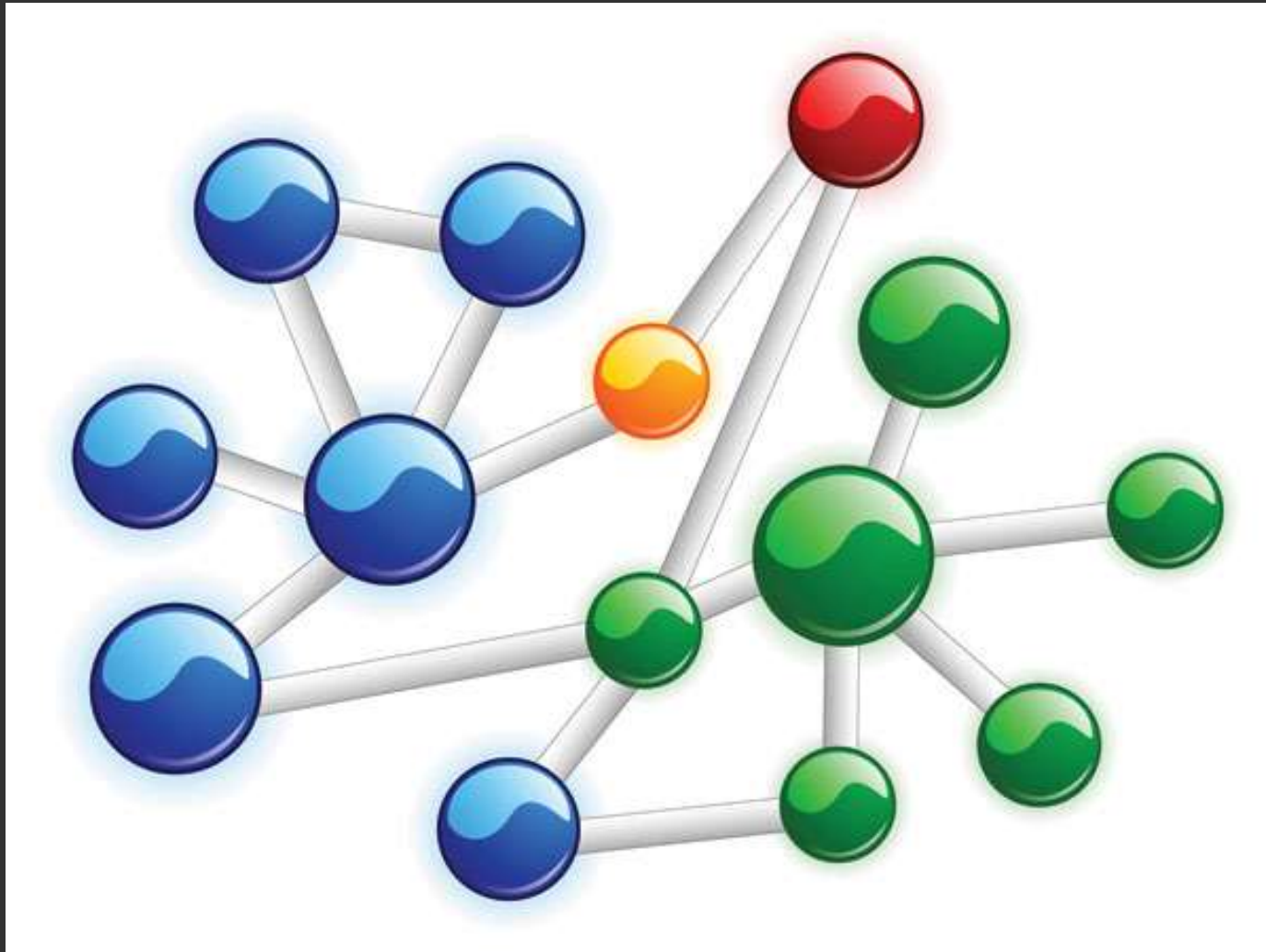
- Medical O.P.D consists of 6 Units –
  - Medical unit-I
  - Medical unit-II
  - Haematology Oncology unit
  - Medical unit-IV
  - Internal Medicine.
  - Paediatrics

Functions of Medical O.P.D

➢Consultation for new patients

➢Follow up for old patients – Routine / emergency

➢Consultations for patients referred from other O.P.D`s

➢Show laboratory reports

✓for routine follow up

✓before proceeding for chemotherapy.

➢Renewing of prescriptions

Staffing in Medical O.P.D

Unit	Se. Consultant	Consultant	D.N.B resident	Medical Assistant	Nurses	Ward-boy/girl
Med-I	1	2	2		2	1
Med- II	1	1	2		1	1
Med-IV	1	1	3		1	1
Haematology-Oncology	1	1	2	1	1	1
Internal medicine	1	1				
Paediatrics	1	1	2	1	1	1

Staffing at the main counter

O.P.D Co-0rdinator

Senior executive

Junior Executives-3

Ward Boys-3
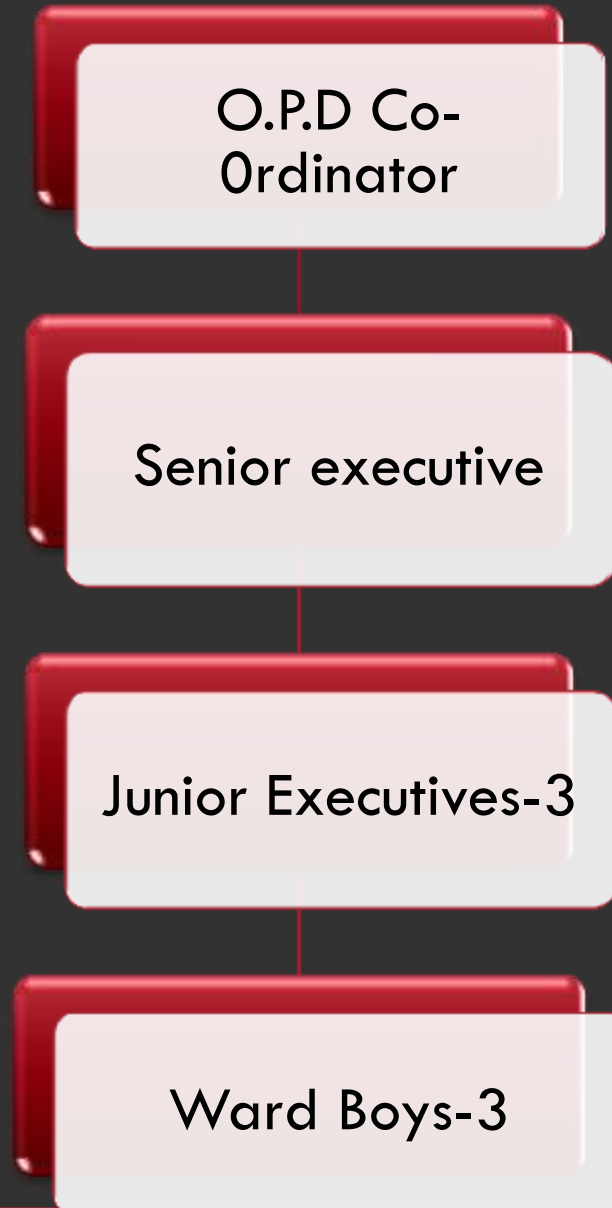
Documentations related to patient care

Patient register

File Movement Register

Sending Register

Multi-Speciality Clinics register

Patient Appointment System

- Appointment System –
  - Individual appointment time systems –Slots of 5 minutes.
  - Patients given appointment through HIMS
  - Inpatients→ appointments for follow up fixed at discharge
  - O.P.D patients→ take appointment for follow up.
  - Register Appointments for Medical Unit -1

- **Without Appointment patients –**
  - **No patient is sent back.**
  - **Files /records summoned when patient reports**
  - **Seen after Appointment patients.**

Patient scheduling – Appointment patients

Med Unit 1	File put in FCFS order. Names Called out
Med Unit -2	Given tokens in FCFS order Tokens Flashed
Med Unit -4	File put in FCFS order. Names Called out
Hemato-Oncology Unit	Given tokens in FCFS order Tokens Flashed
Pediatric-Oncology Unit	File put in FCFS order. Names Called out

Process Flow In patients with appointment

```
        ┌─────────────────────┐
        │  Patient arrives at │
        │   O.P.D counter     │
        └──────────┬──────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │ File already at counter. │
        └──────────┬──────────┘
                   │
                   ▼
               ◇ O.P.D CARD
                 VALID ◇
```

Yes   No

```
┌─────────────┐                    ┌──────────────┐
│ O.P.D card  │                    │   Patient    │
│ put in file │                    │ asked to get │
└──────┬──────┘                    │  O.P.D card  │
       │                           └──────────────┘
       ▼
┌─────────────┐      ┌─────────────┐      ┌──────────────┐
│   Put in    │      │ Taken in the│      │ Consultation │
│ respective  │─────▶│   doctors   │─────▶│              │
│ Doctors shelf│      │  chamber    │      └──────────────┘
└─────────────┘      └─────────────┘
```
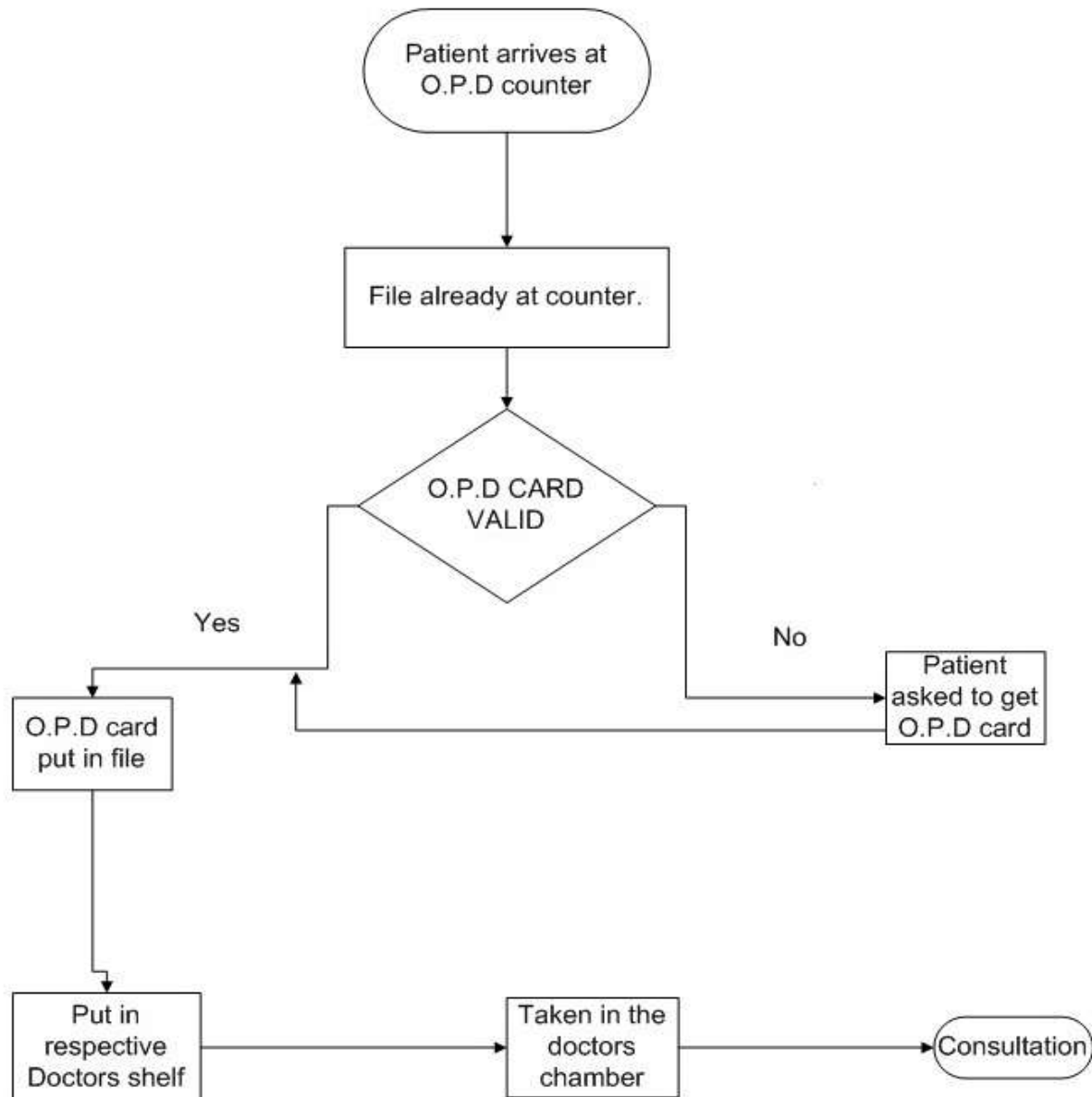
PROCESS FLOW IN PATIENTS WITHOUT APPOINTMENT

30
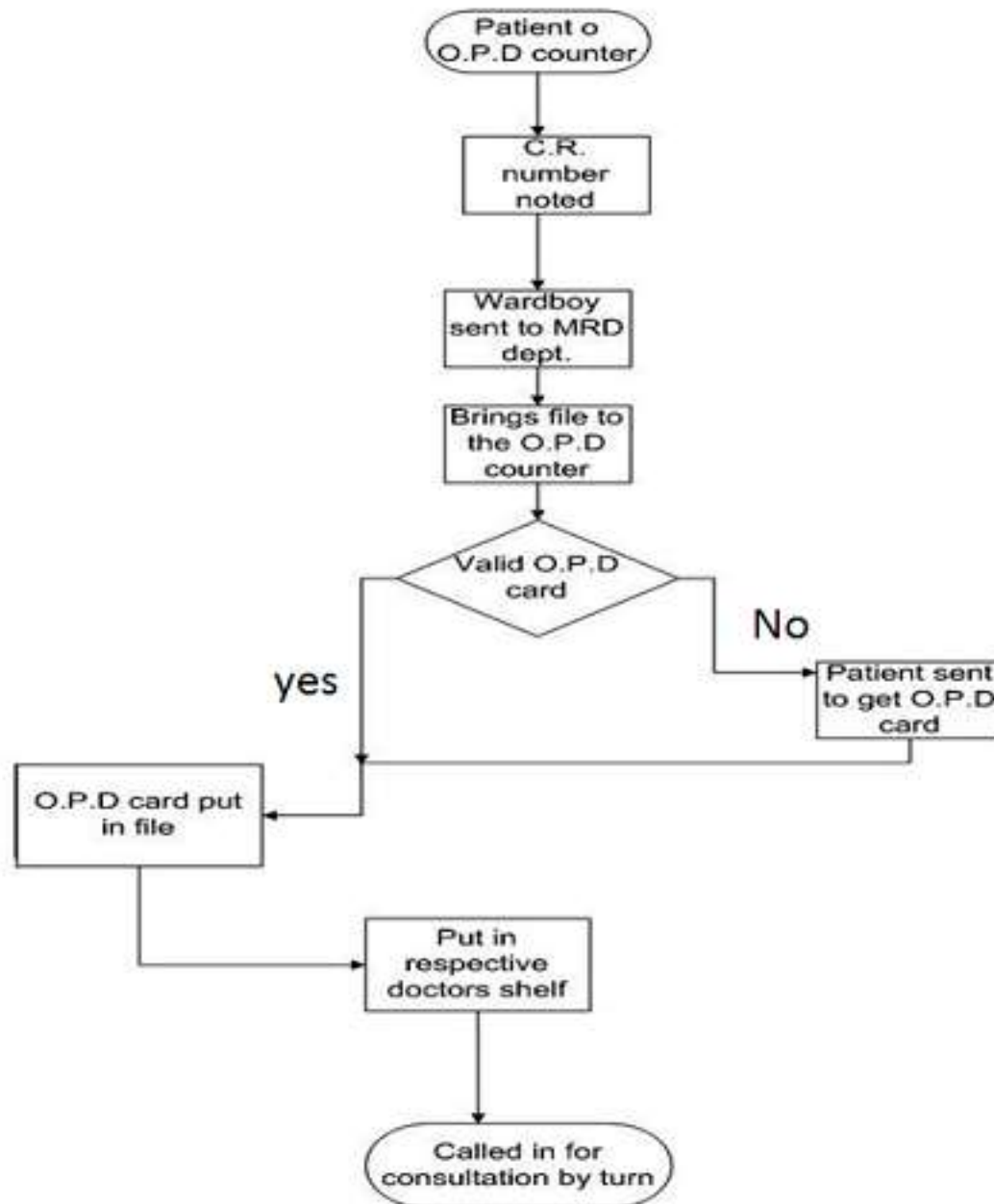
Analysis and Findings

Unit wise Distribution of patients.

Peads 11%
Hemat 15%
Med I 37%
Med IV 19%
Med II 18%
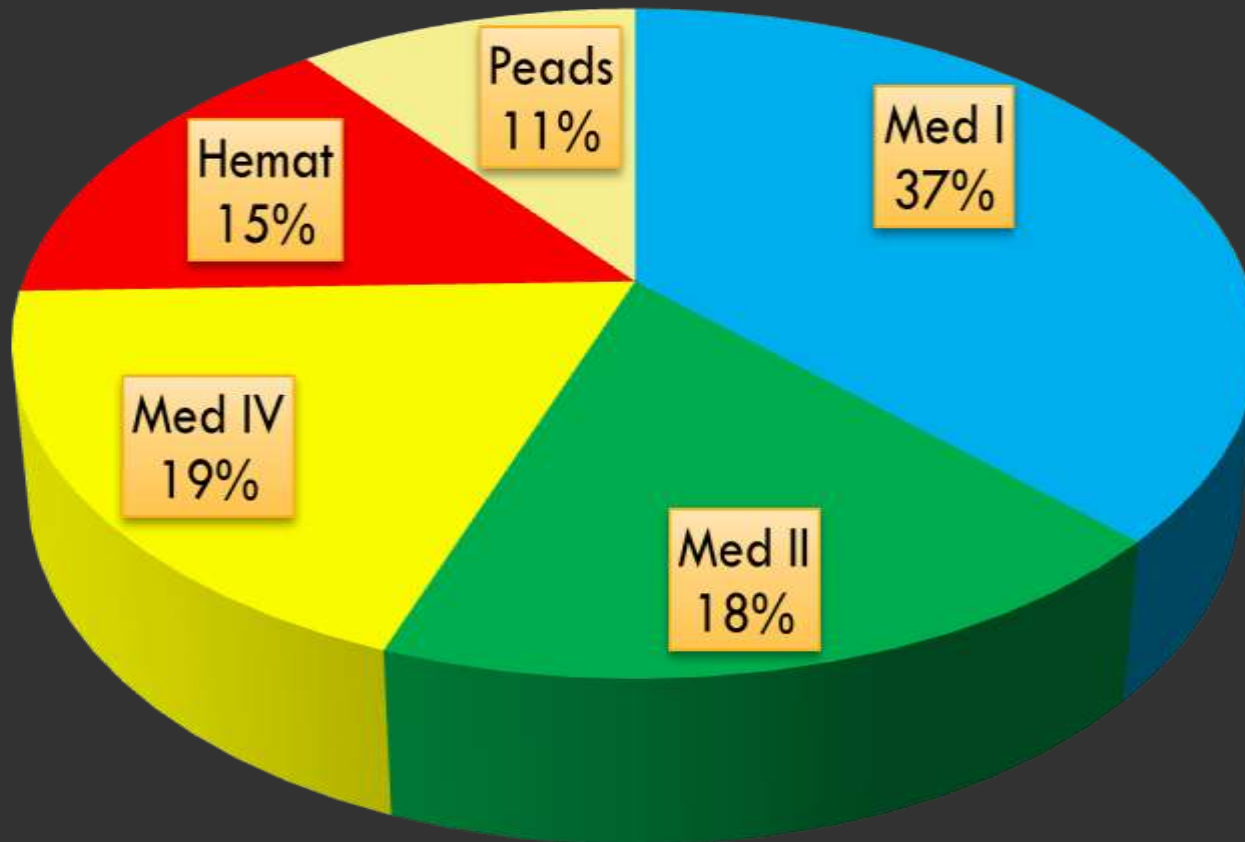
Total 9076 patients visited the Medical O.P.D in the month of Jan and Feb 2012

Based on type of patient
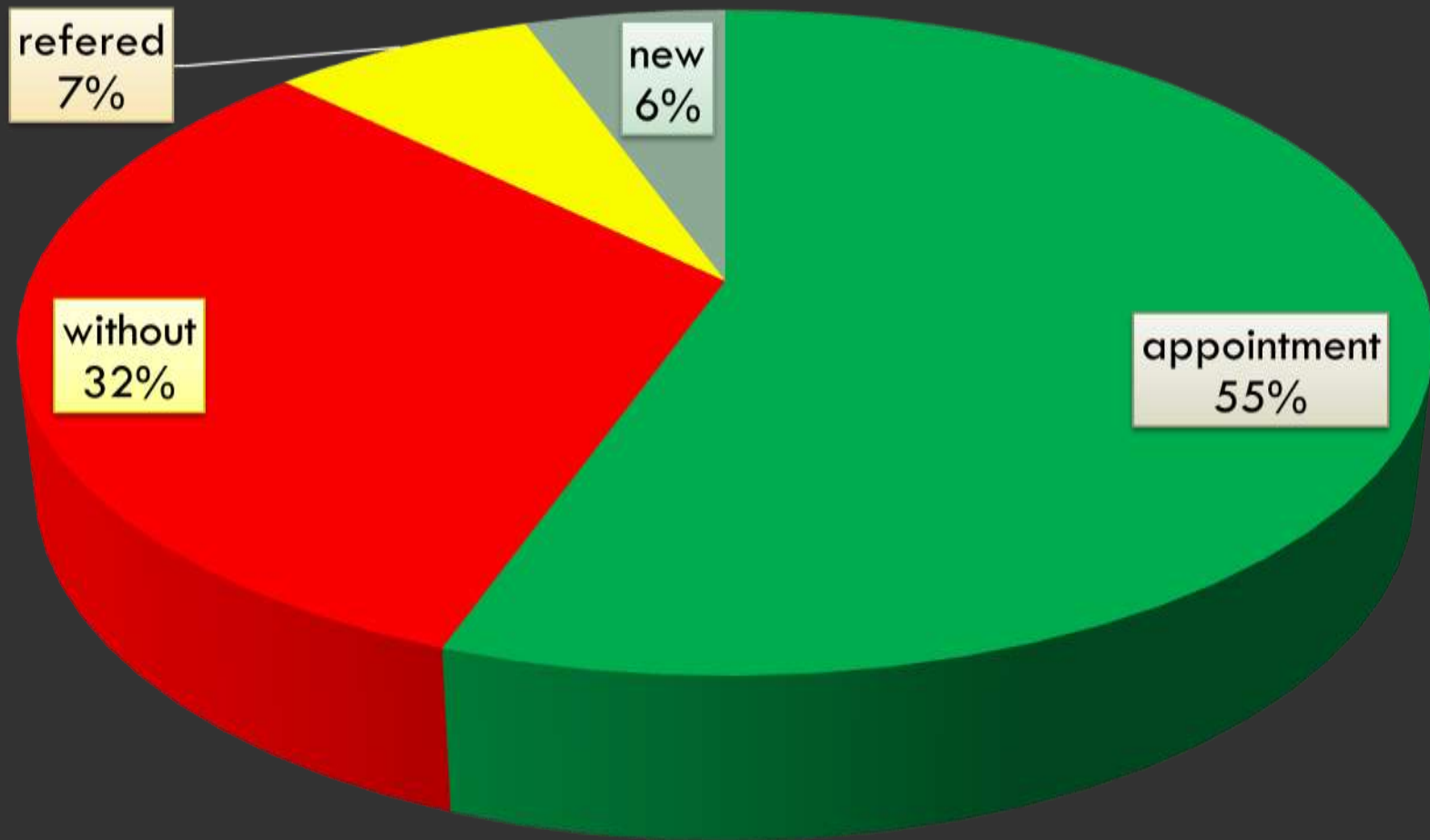
- 55% patients came with prior appointment
- 32 % were without prior appointment

33

Unit wise distribution of patient coming with prior Appointment

Pie chart:
- Med I — 32%
- Peads — 12%
- Hemat — 19%
- Med IV — 18%
- Med II — 19%
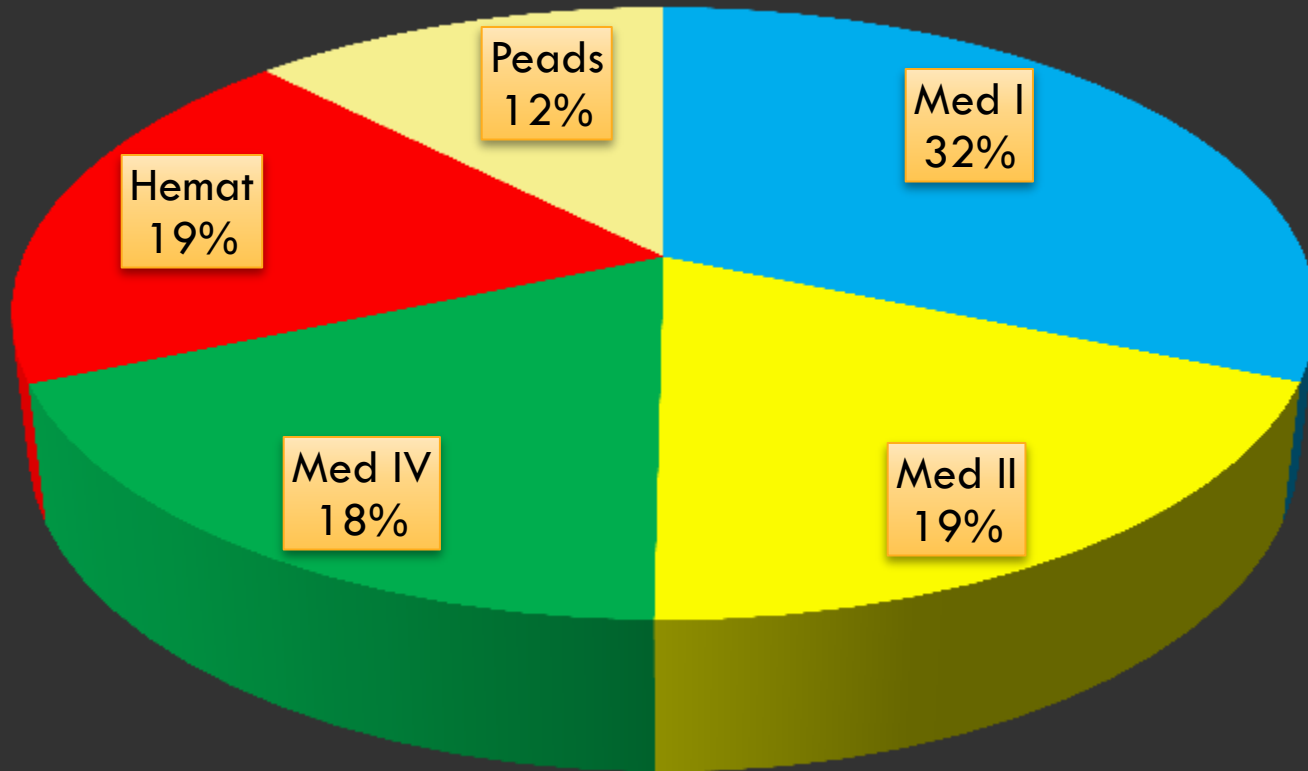
- 32% of the patients coming without appointment were for Med-I unit

Unit Wise Distribution Of Patient Coming Without Prior Appointment
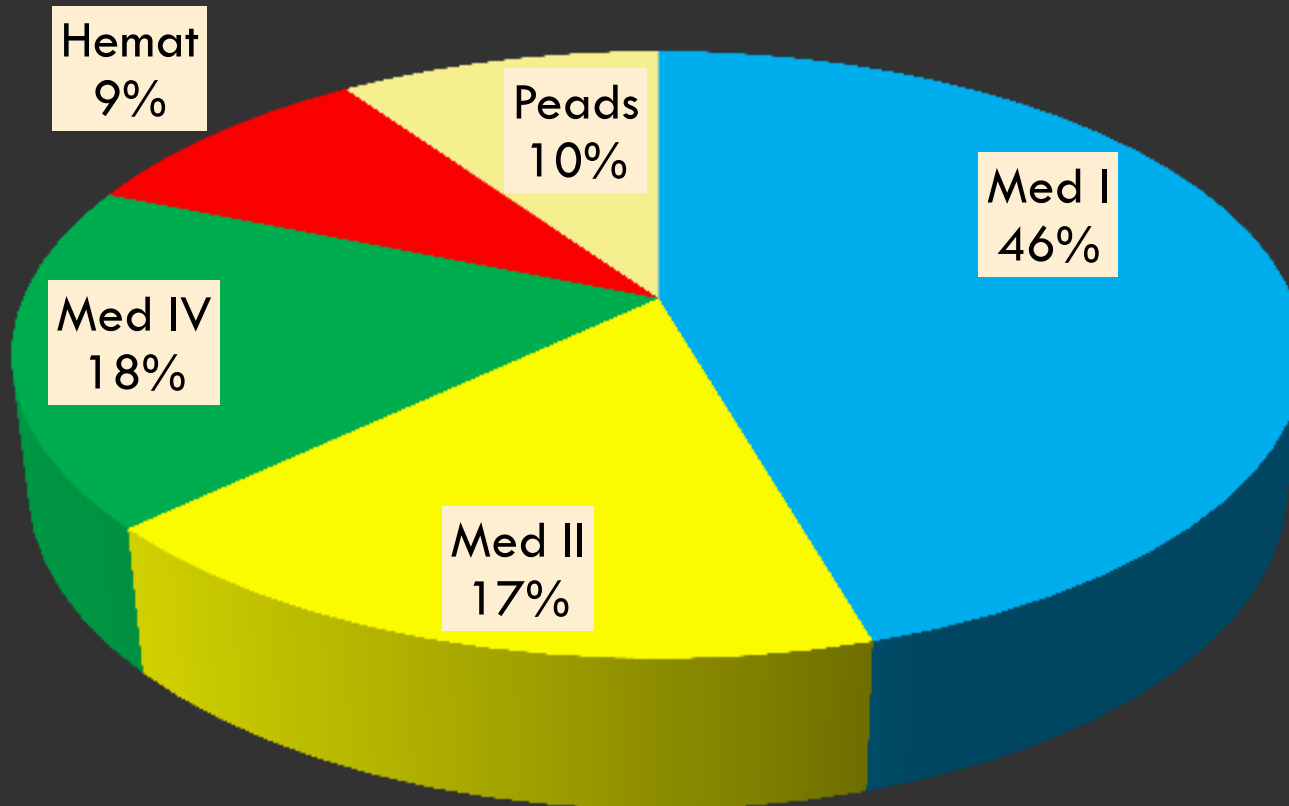
- 46% of the patients without appointment were also for Med-I unit

Unit Wise % Division of With and Without Appointment patients

■ With Appointment   ■ without appointment

	Med I	Med II	Med IV	Hemat	Peads
without appointment	38.85	30.66	30.44	19.73	29.02
With Appointment	46.67	57.32	53.18	71.10	65.24
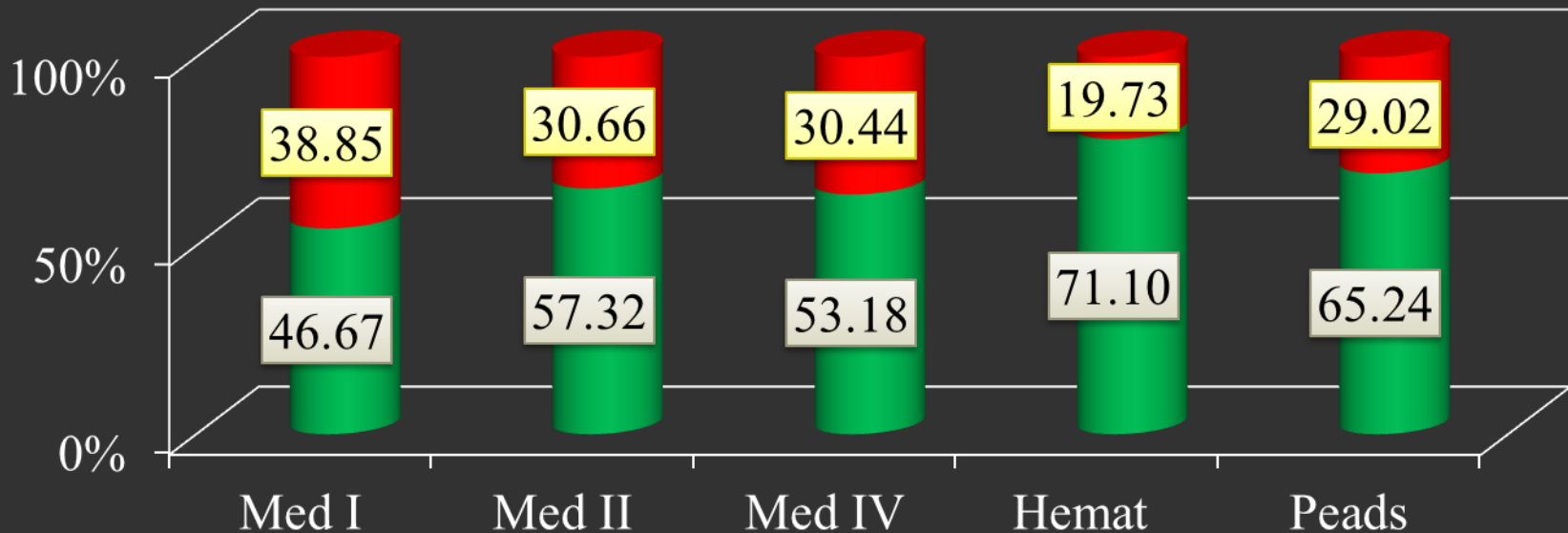
- >70% of the patients coming to hemato-Oncology unit came with prior appointment.
- Only 46.67% of patients coming to Med-I came with prior appointment

Trends In patient coming with Appointment
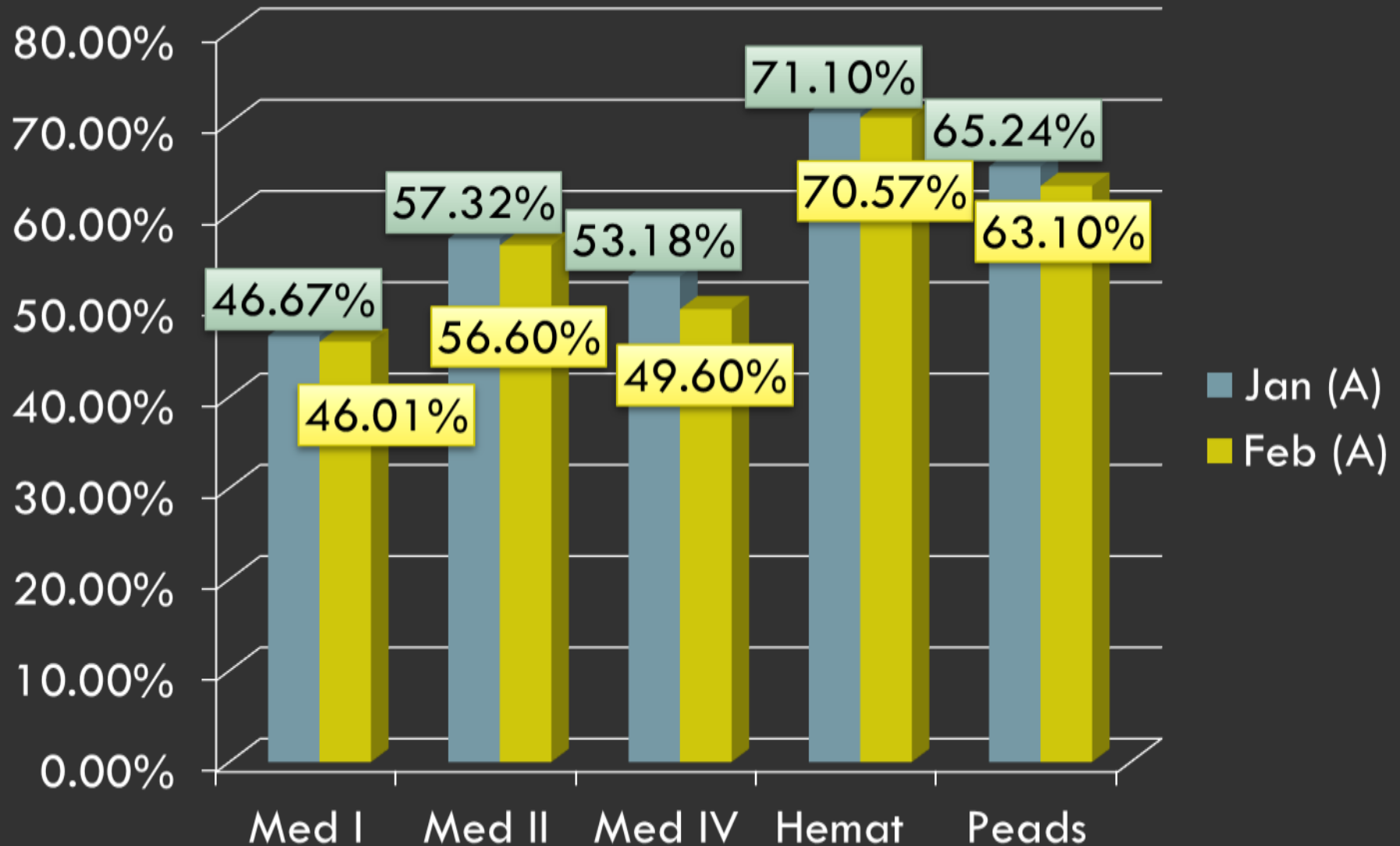
Trends In Patient coming Without Appointment
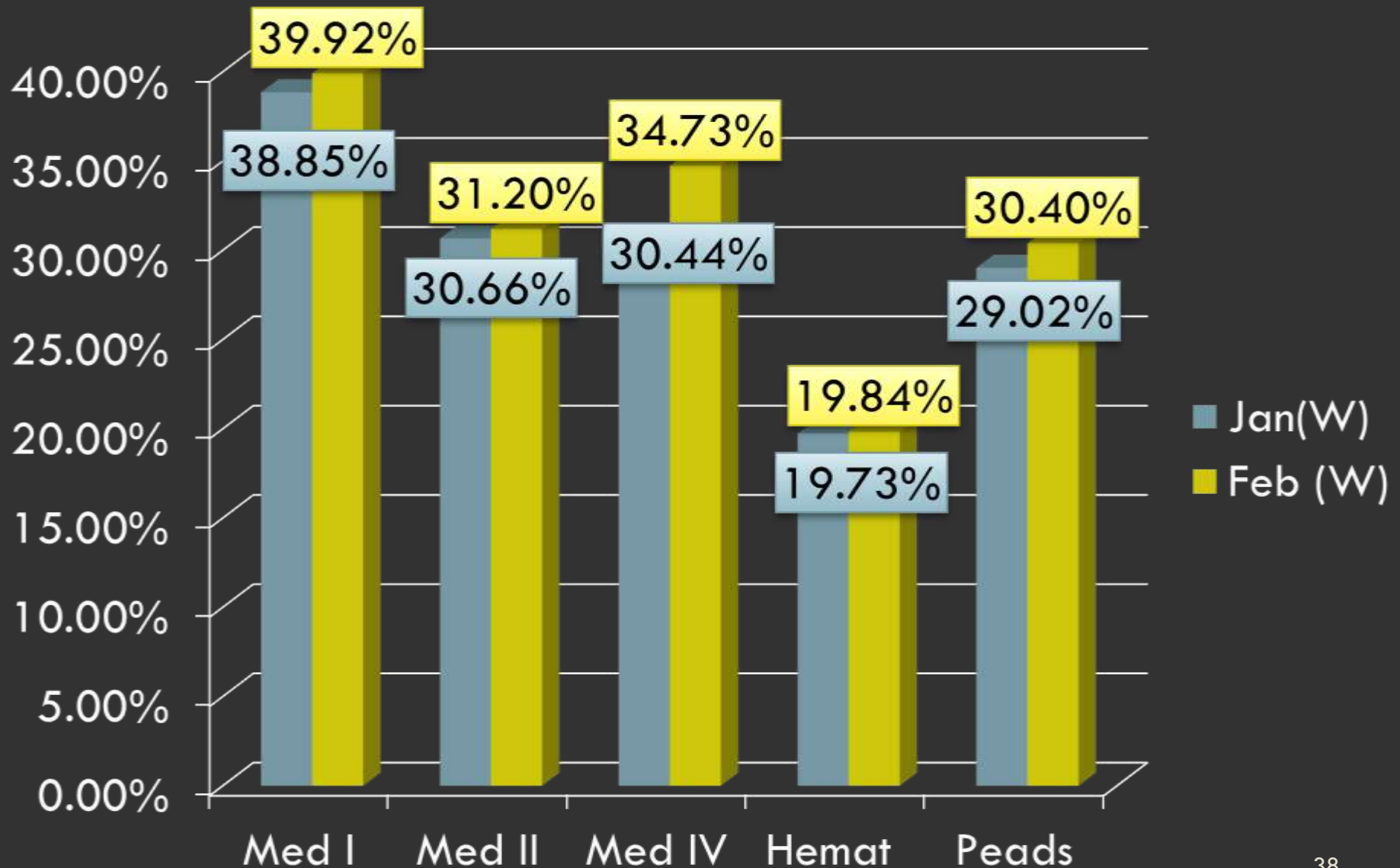
APPOINTMENT BOOKING AT DISCHARGE

% Appointment fixed for follow-up at discharge

Appointment not given
33%

Appointment given
67%

40
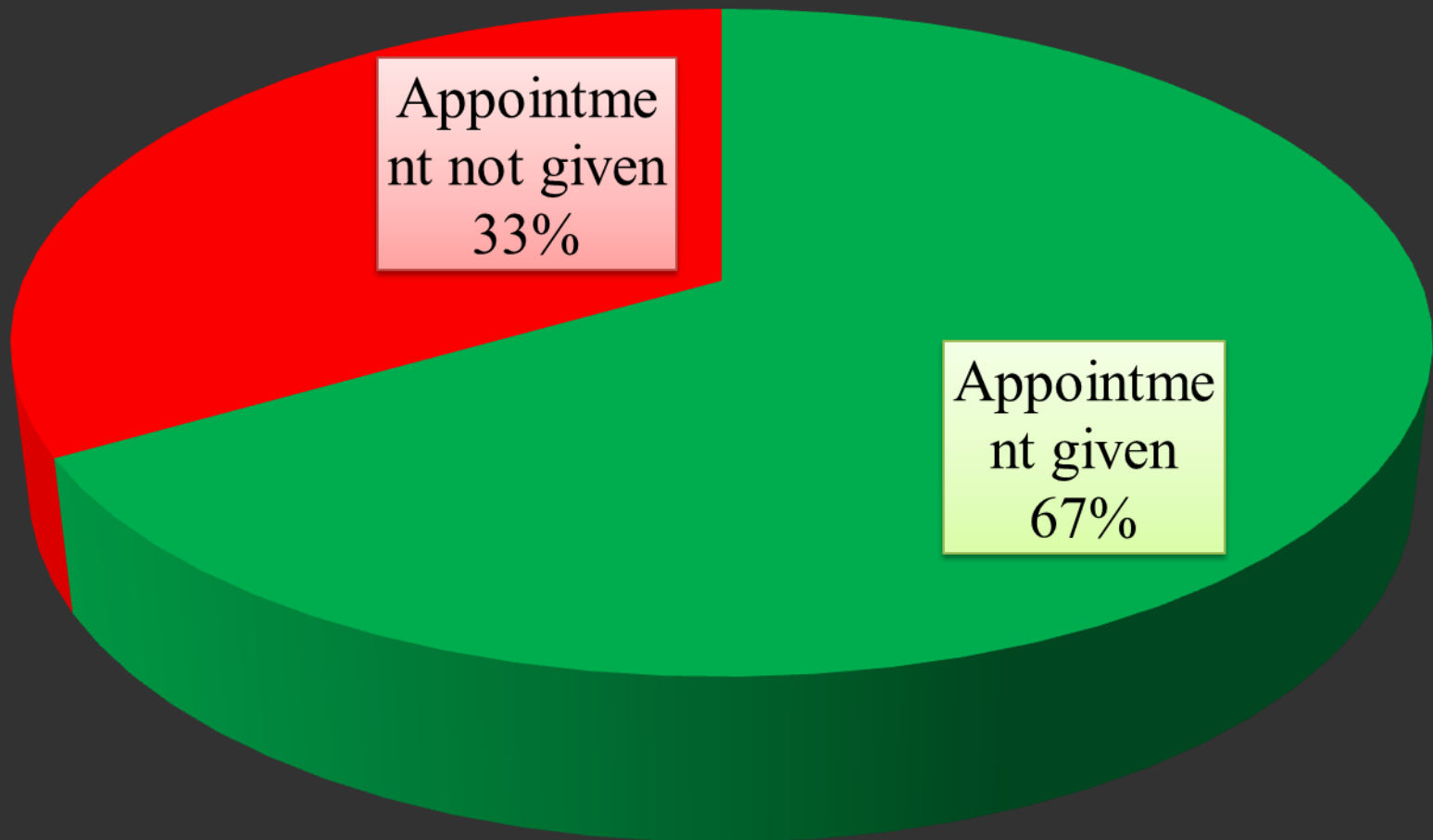
Unit Wise distribution of Patients given appointment for follow up

	Med I	Med II	Med IV	Hemat	Pediatrics
■ no	55	36	28	44	16
■ yes	74	63	72	69	83
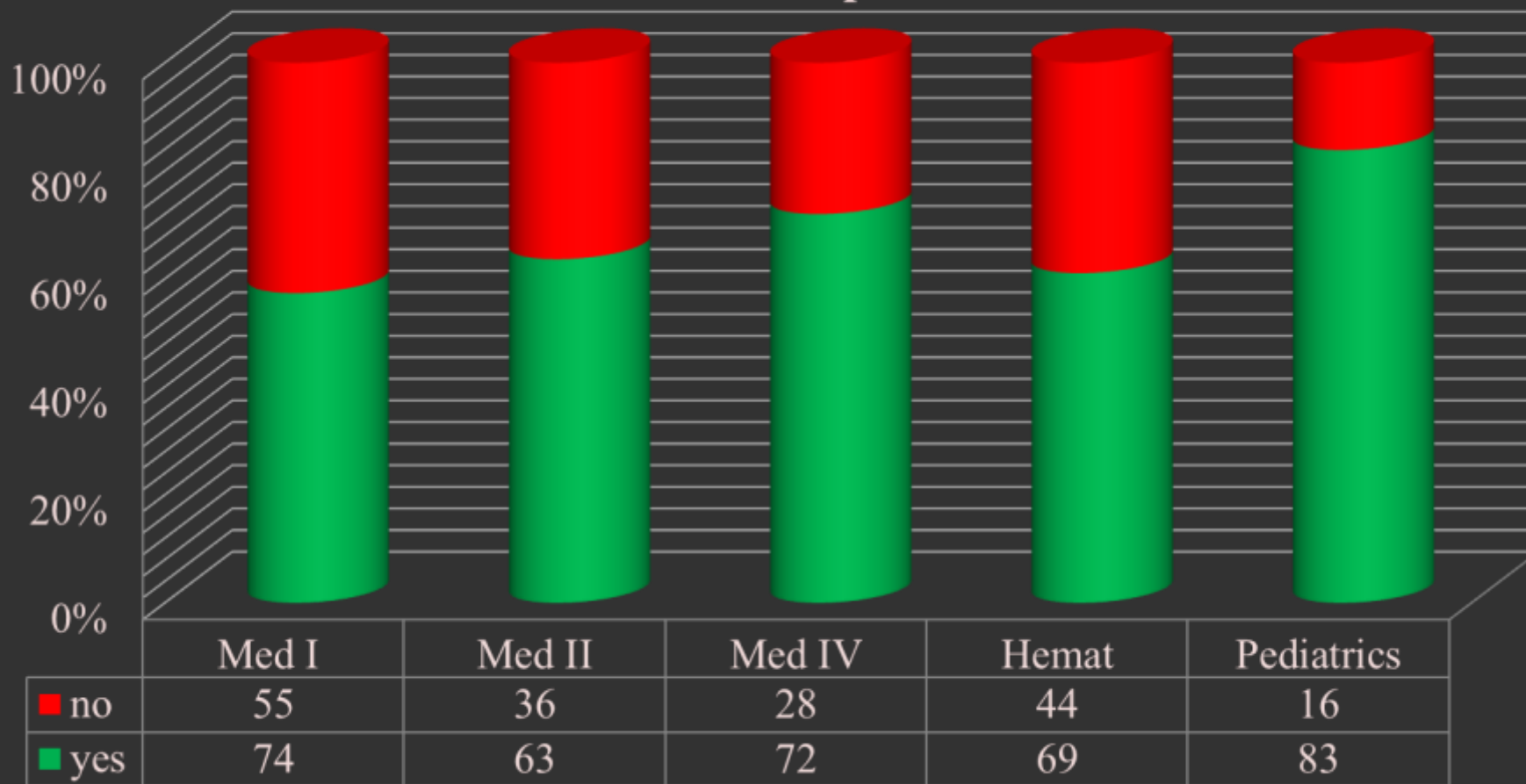
- \> 80% of the Pediatric oncology patients were given appointments for follow up

41

Total waiting time in patients with appointment

Unit wise total waiting times in Patient with Appointment .
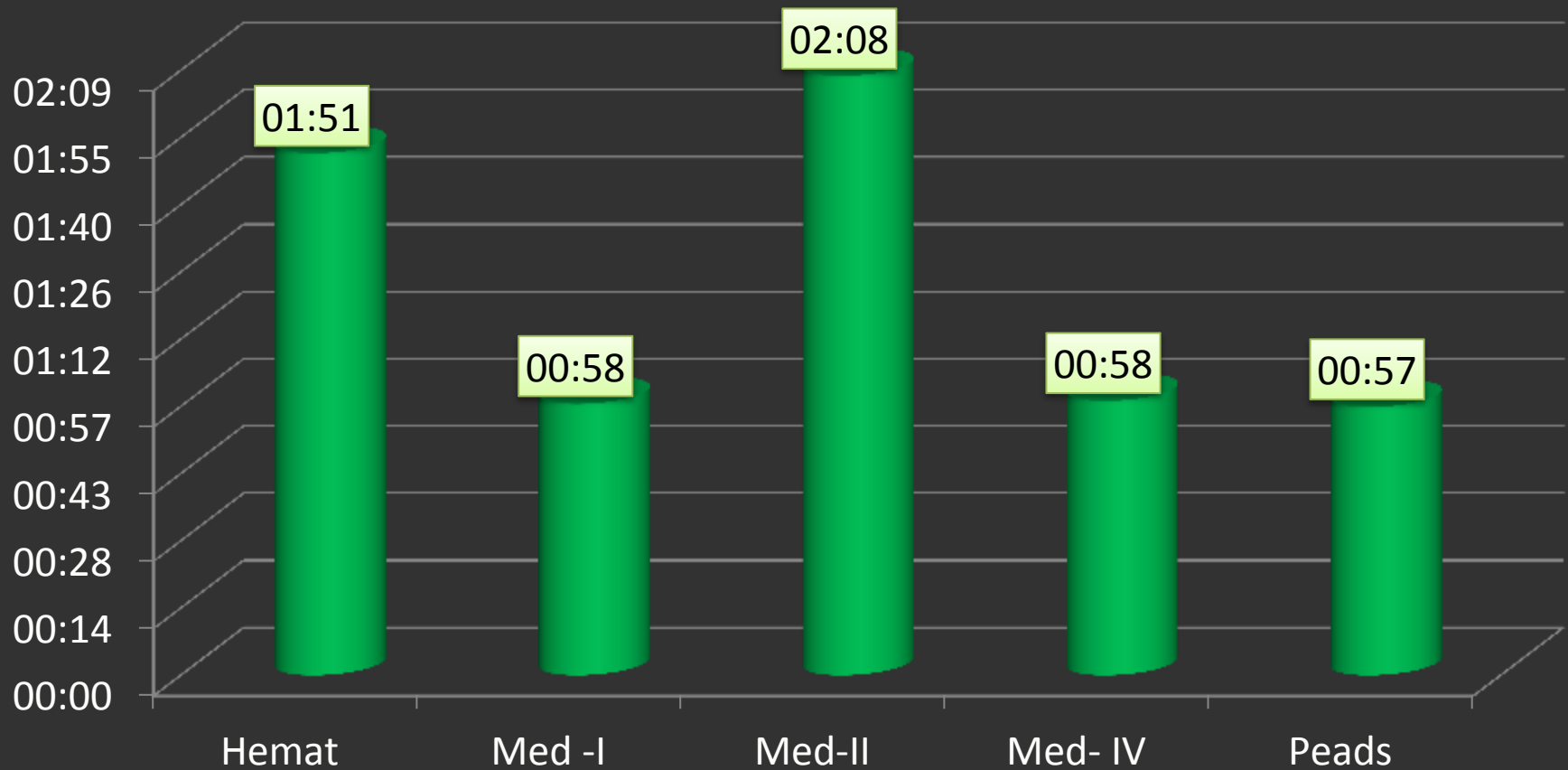
- The total waiting time was least in Pediatric Oncology Unit

PATIENT ARRIVAL PATTERNS FOR PATIENTS WITH APPOINTMENT

On time

Late

Early

Patient Arrival Pattern with respect to Appointment Time.

on time
2%
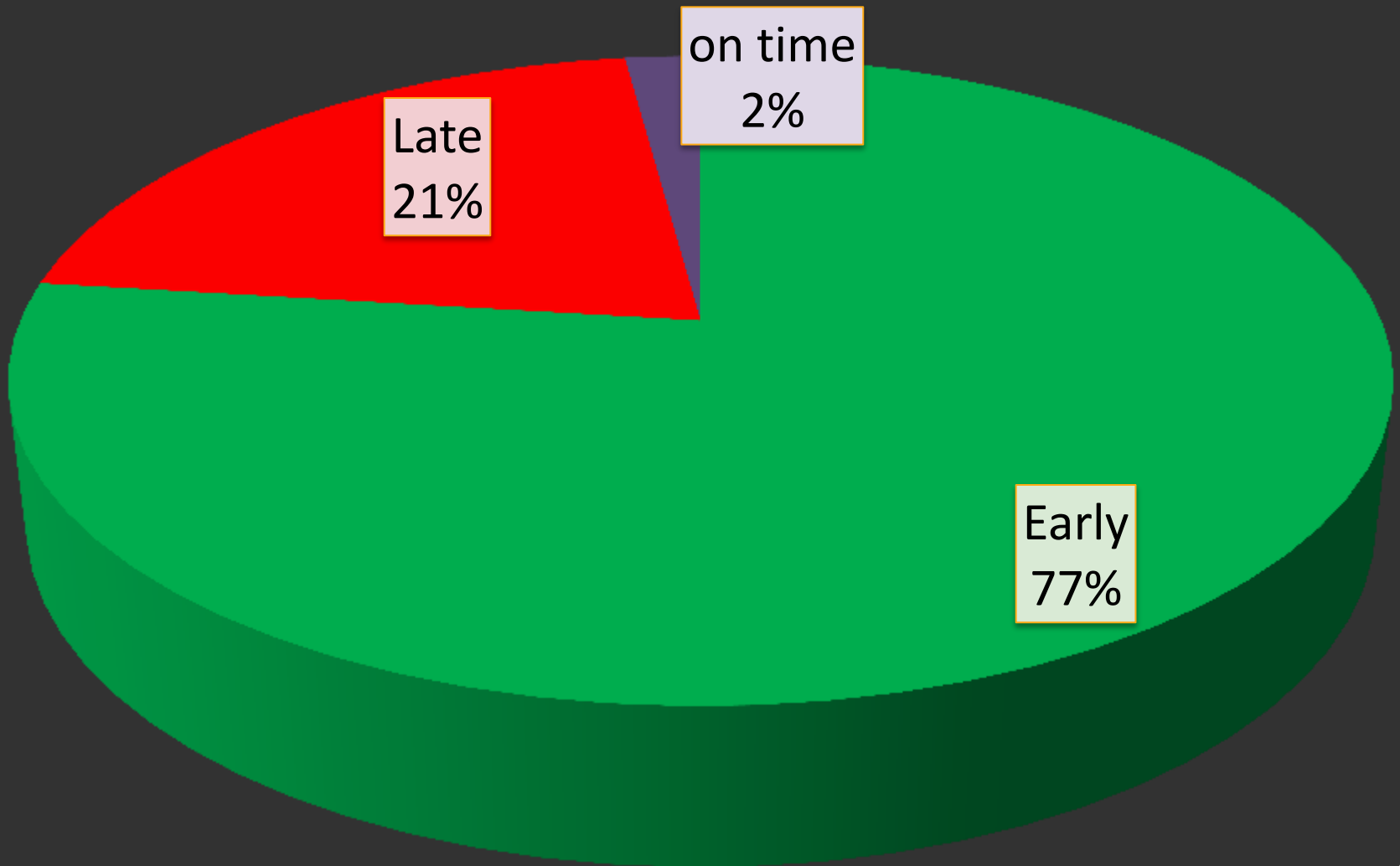
Late
21%

Early
77%
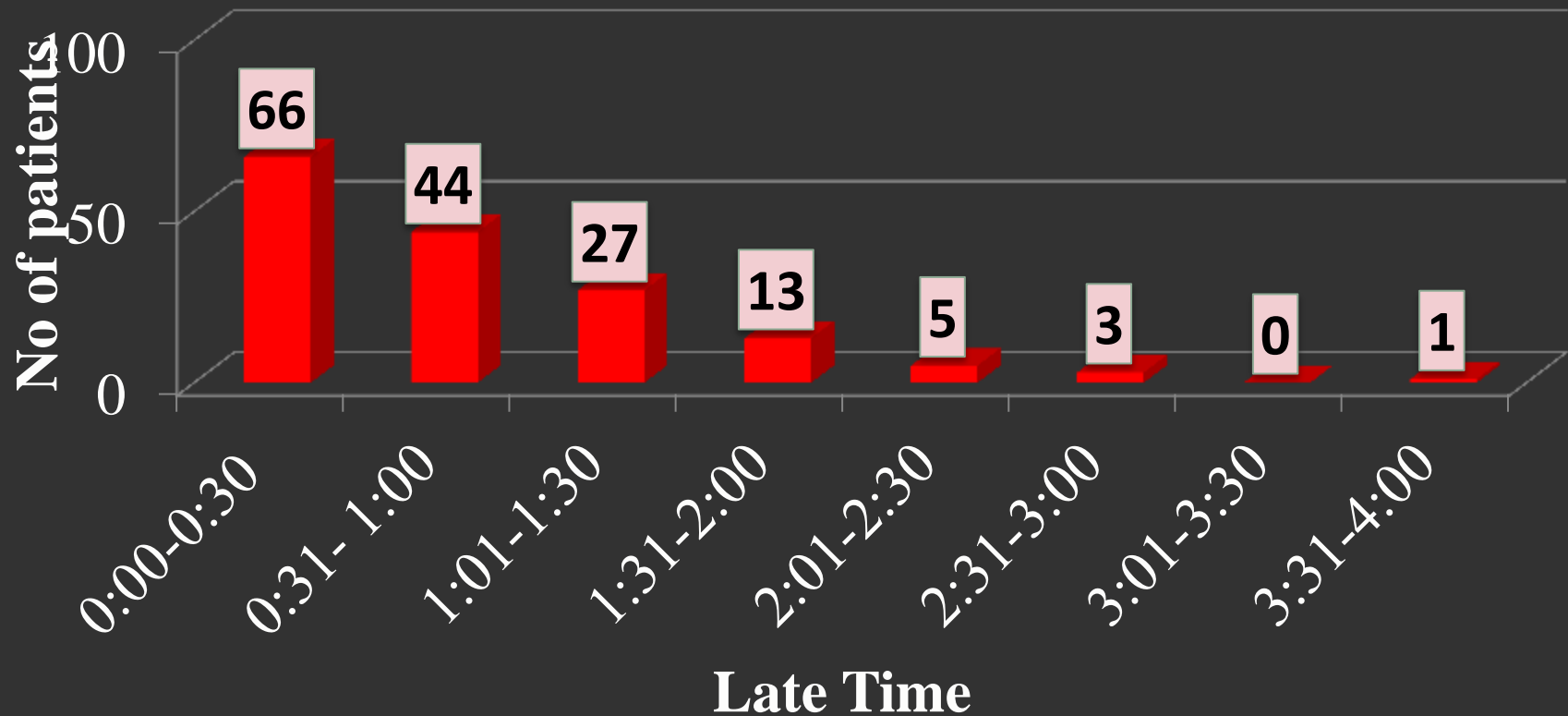
Late arrival time

- 159 patients came late for their appointment by an average of 49 minutes.

Average Total waiting time w.r.t late time.

**Total Waiting Time** (y-axis)

y-axis values: 01:40, 01:26, 01:12, 00:57, 00:43, 00:28, 00:14, 00:00

Bar values:
- 0:00-0:30: 00:48
- 0:31-1:00: 00:38
- 1:01-1:30: 00:40
- 1:31-2:00: 00:58
- 2:01-2:30: 00:25
- 2:31-3:00: 00:25
- 3:31-4:00: 1:27

Time of Arrival- Time of Appointment

47
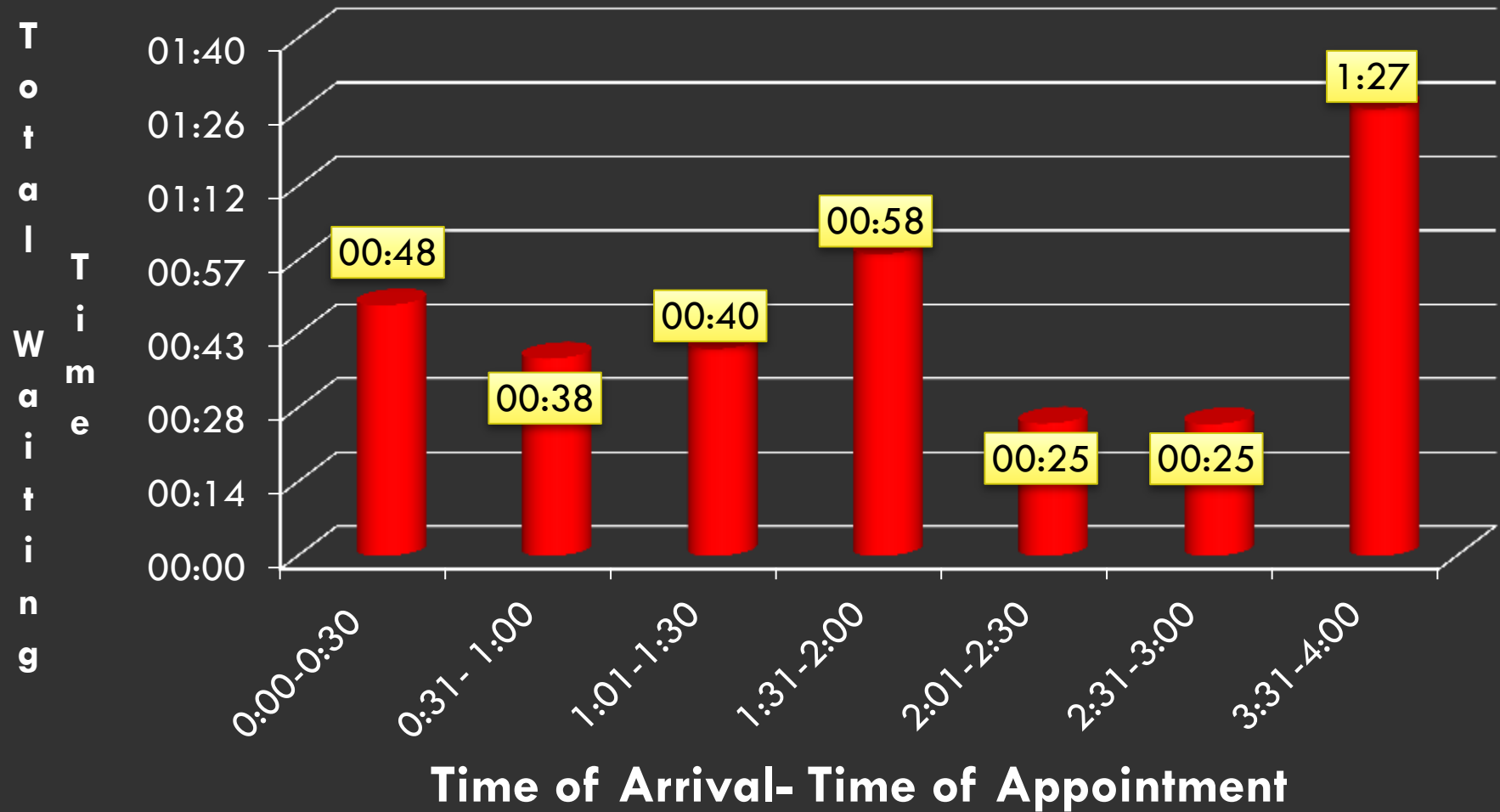
Early Arrival Times
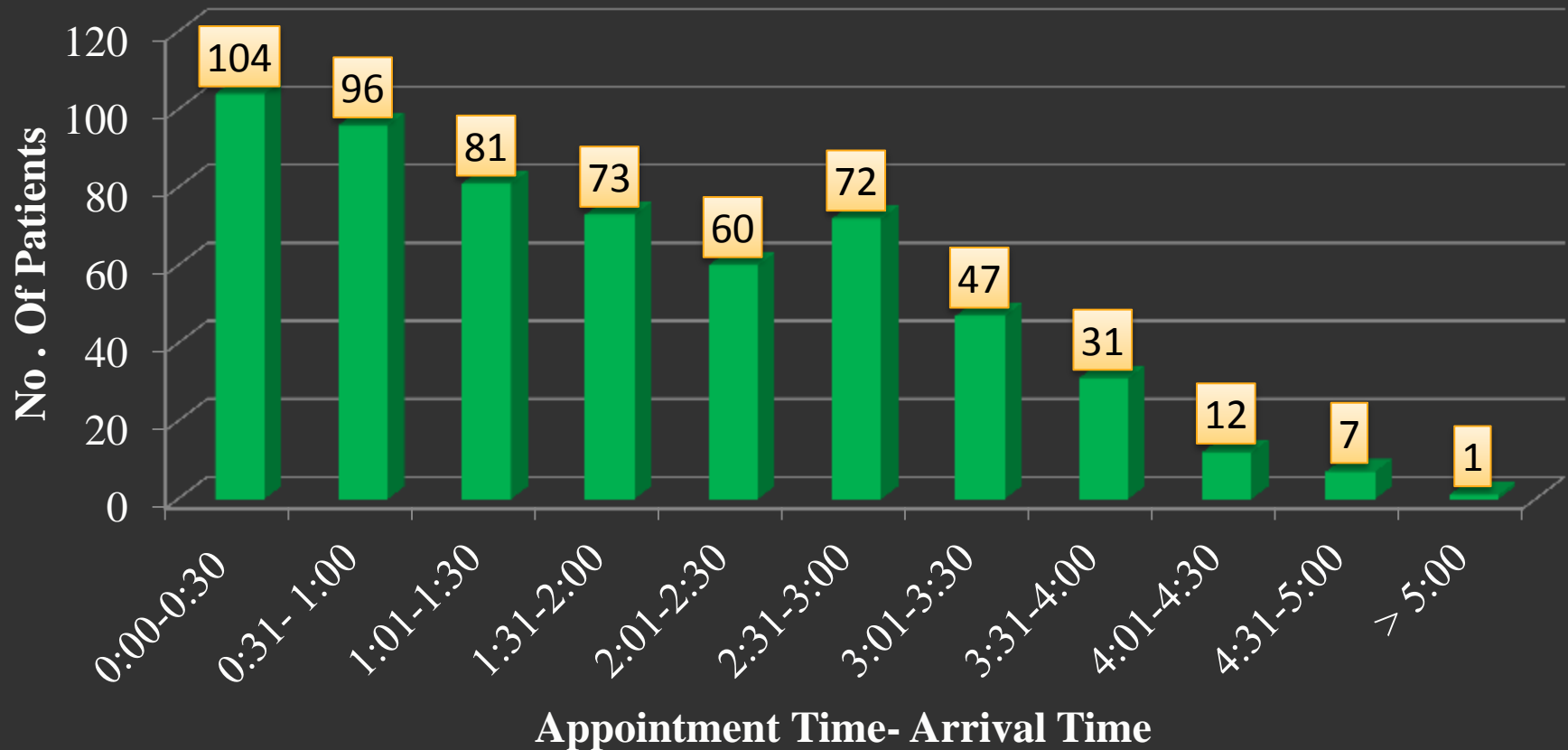
- 585 patients arrived before their appointment time. The early arrivals were on an average by 1 hour and 45 minutes.

Average Total Waiting Time With Respect To Early Arrival Times
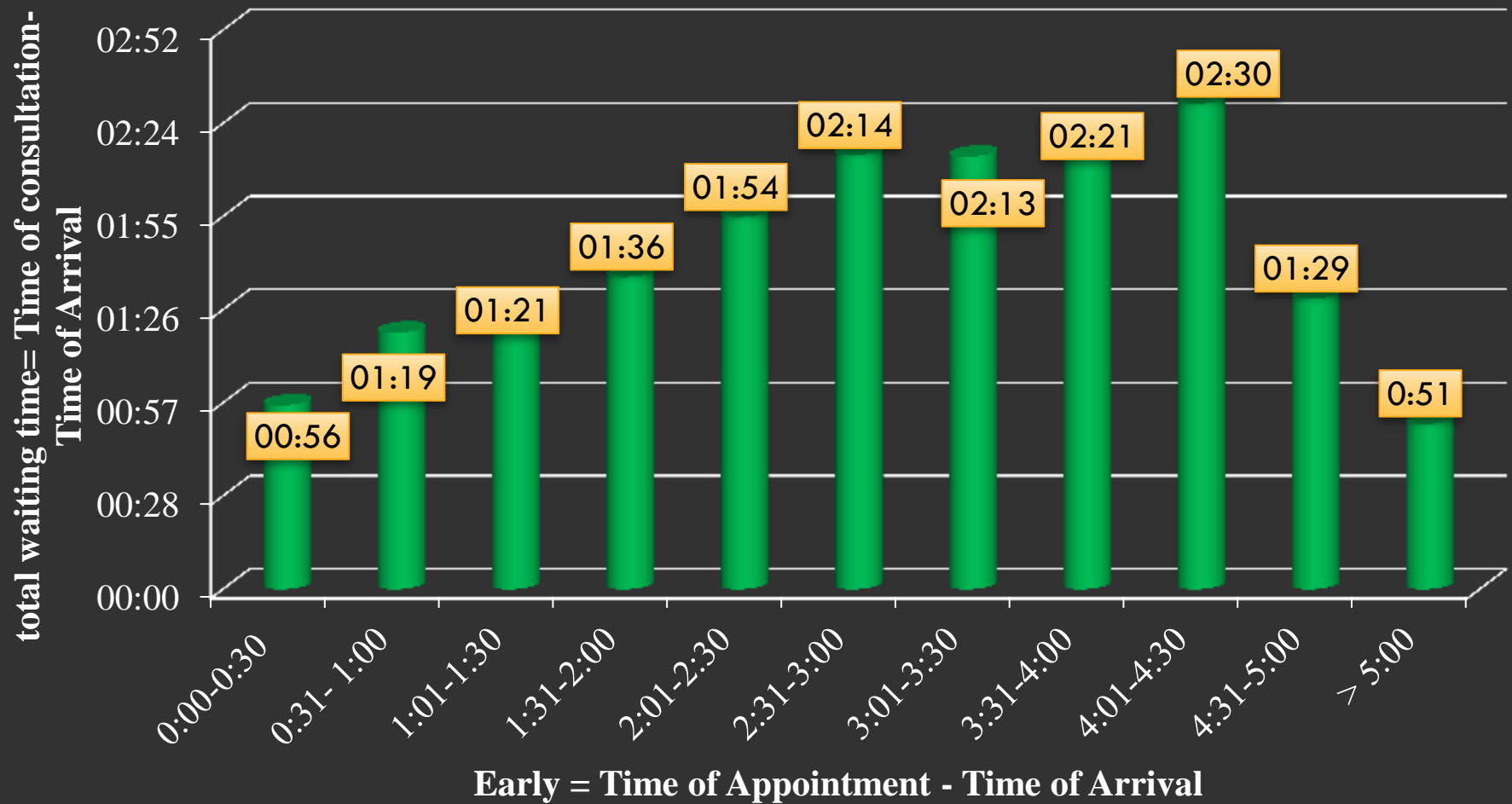
The total waiting time was more for patients who came earlier.
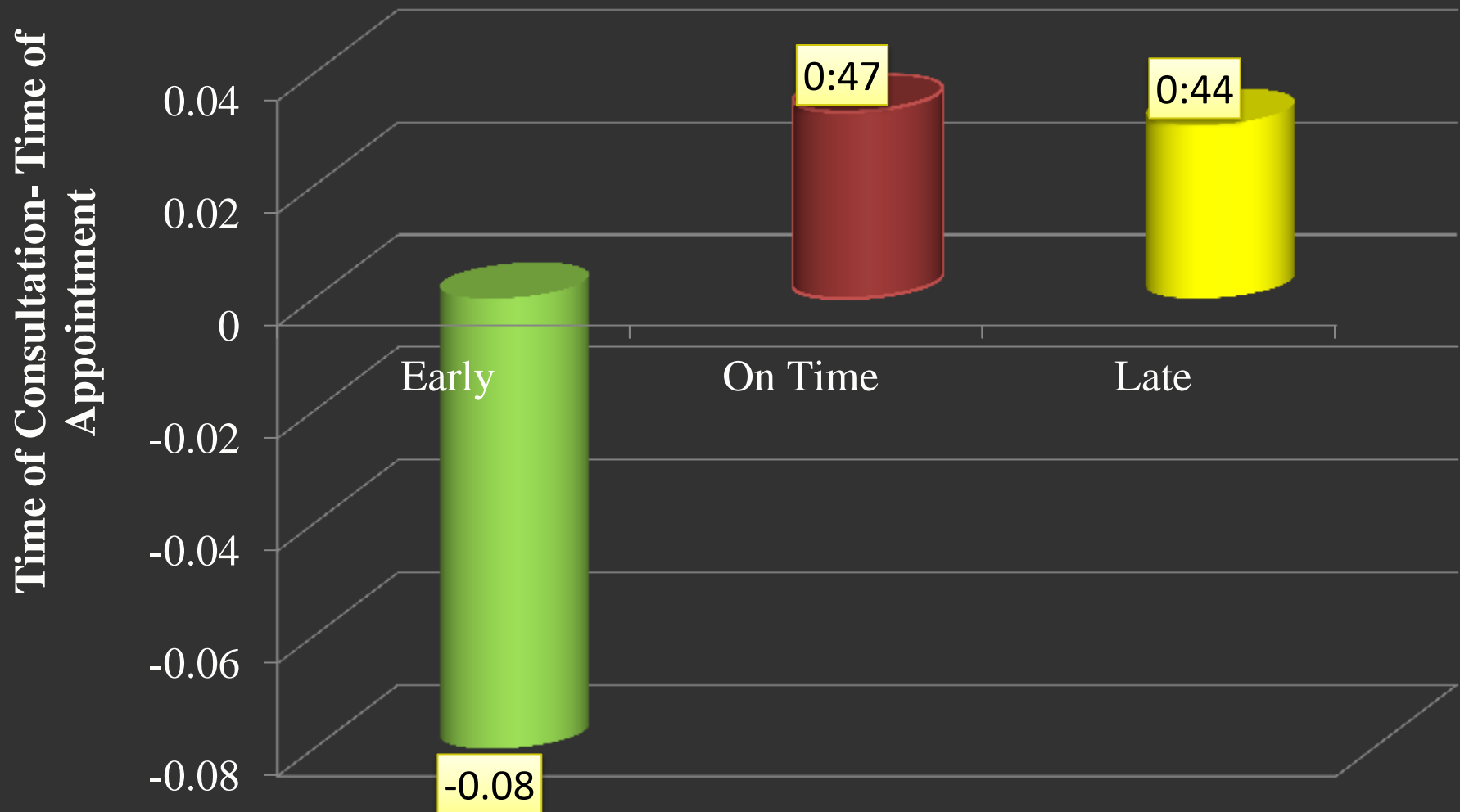
Consultation Time in patients coming Early
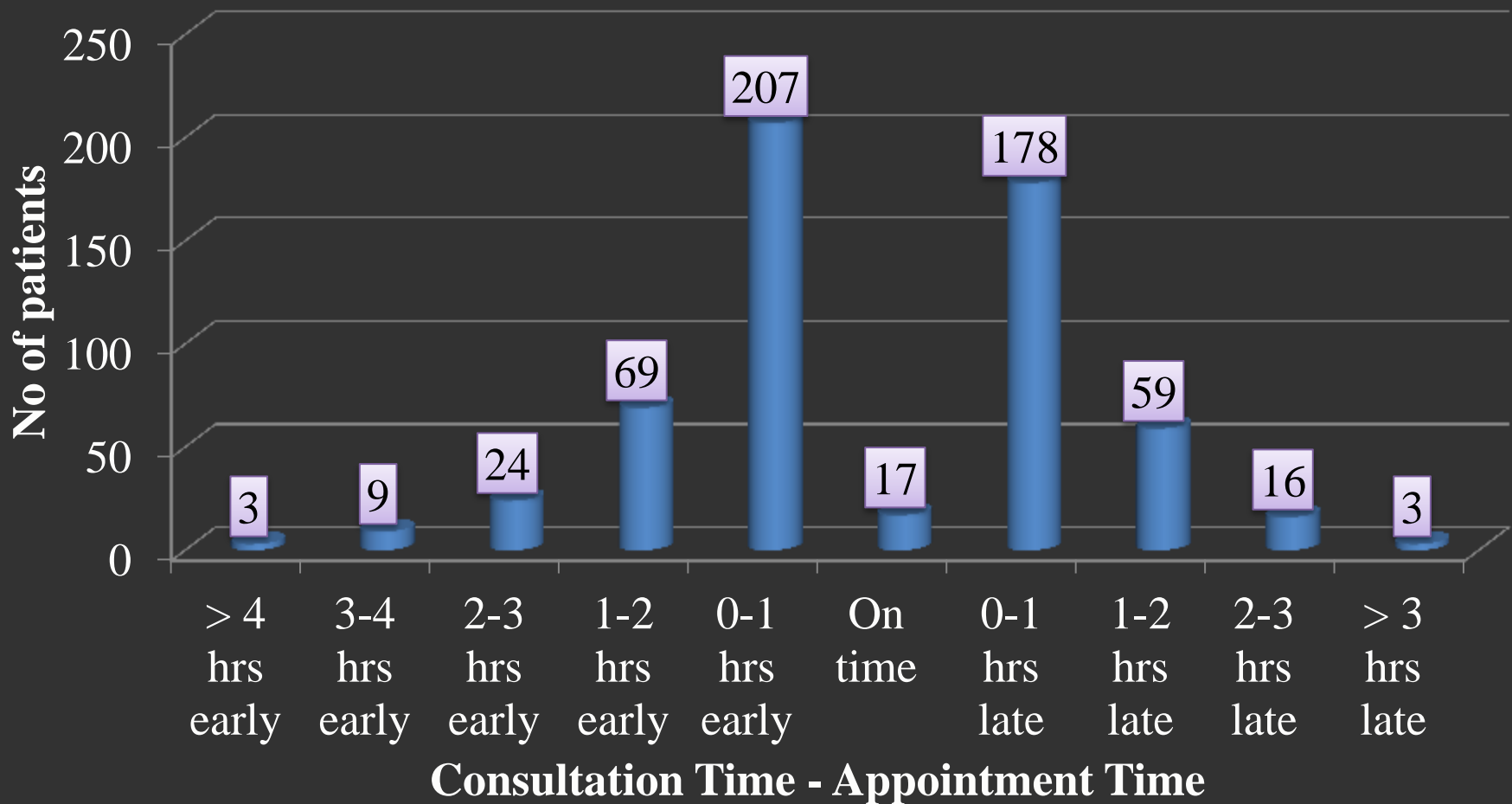
- Majority of the patients coming early were seen within +/- 1 hour of their appointment times.
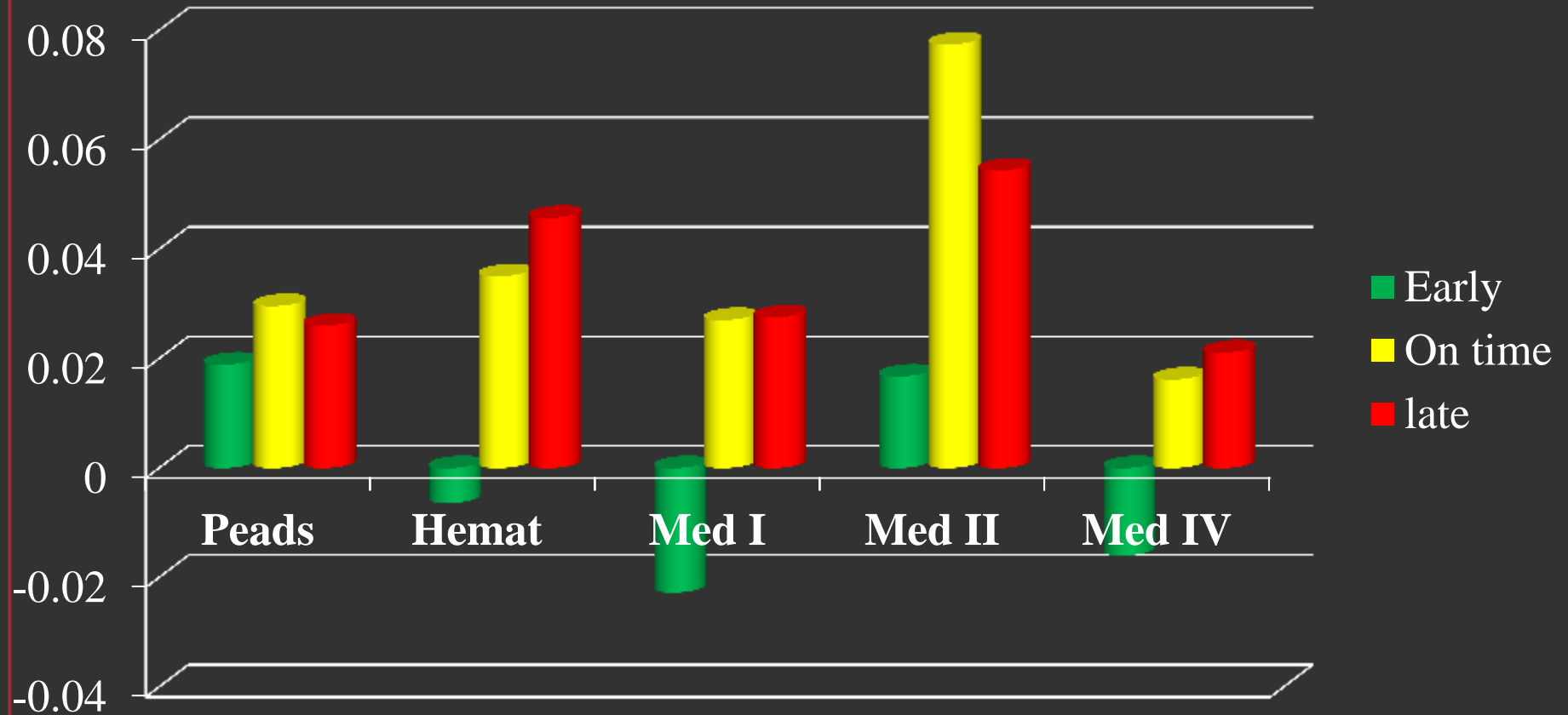
50

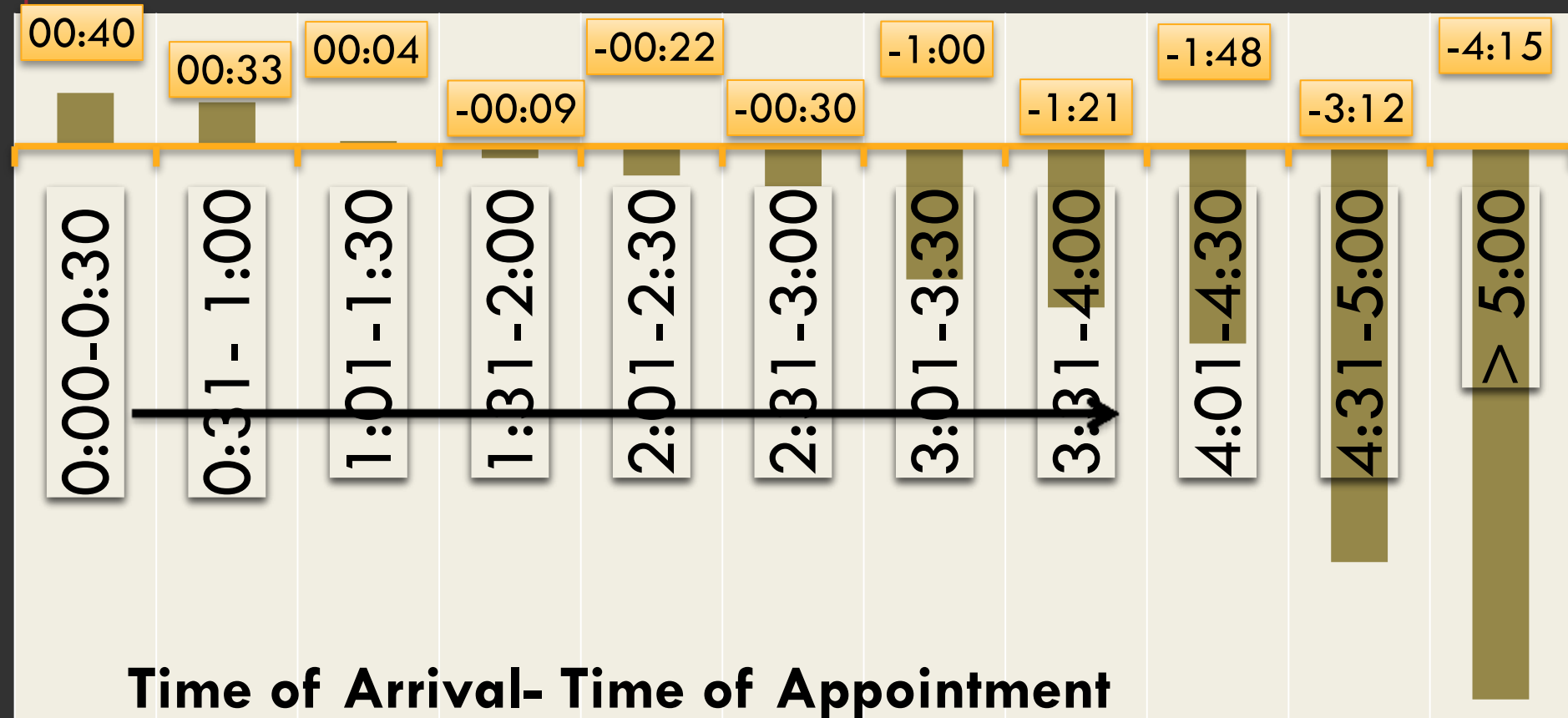# True waiting times in patients with appointment

True Waiting time

Patients coming early were on an average seen 8 minutes before their scheduled appointment time.

Unit wise true waiting times

- Patients coming early were seen before their appointment times in Hemato-Oncology, Med I and Med IV

Average True Waiting Time with respect to early arrival

00:40	00:33	00:04	-00:09	-00:22	-00:30	-1:00	-1:21	-1:48	-3:12	-4:15
0:00-0:30	0:31-1:00	1:01-1:30	1:31-2:00	2:01-2:30	2:31-3:00	3:01-3:30	3:31-4:00	4:01-4:30	4:31-5:00	> 5:00

Time of Arrival- Time of Appointment

- True waiting times decrease with increasing early time- **trend opposite to total waiting times.**

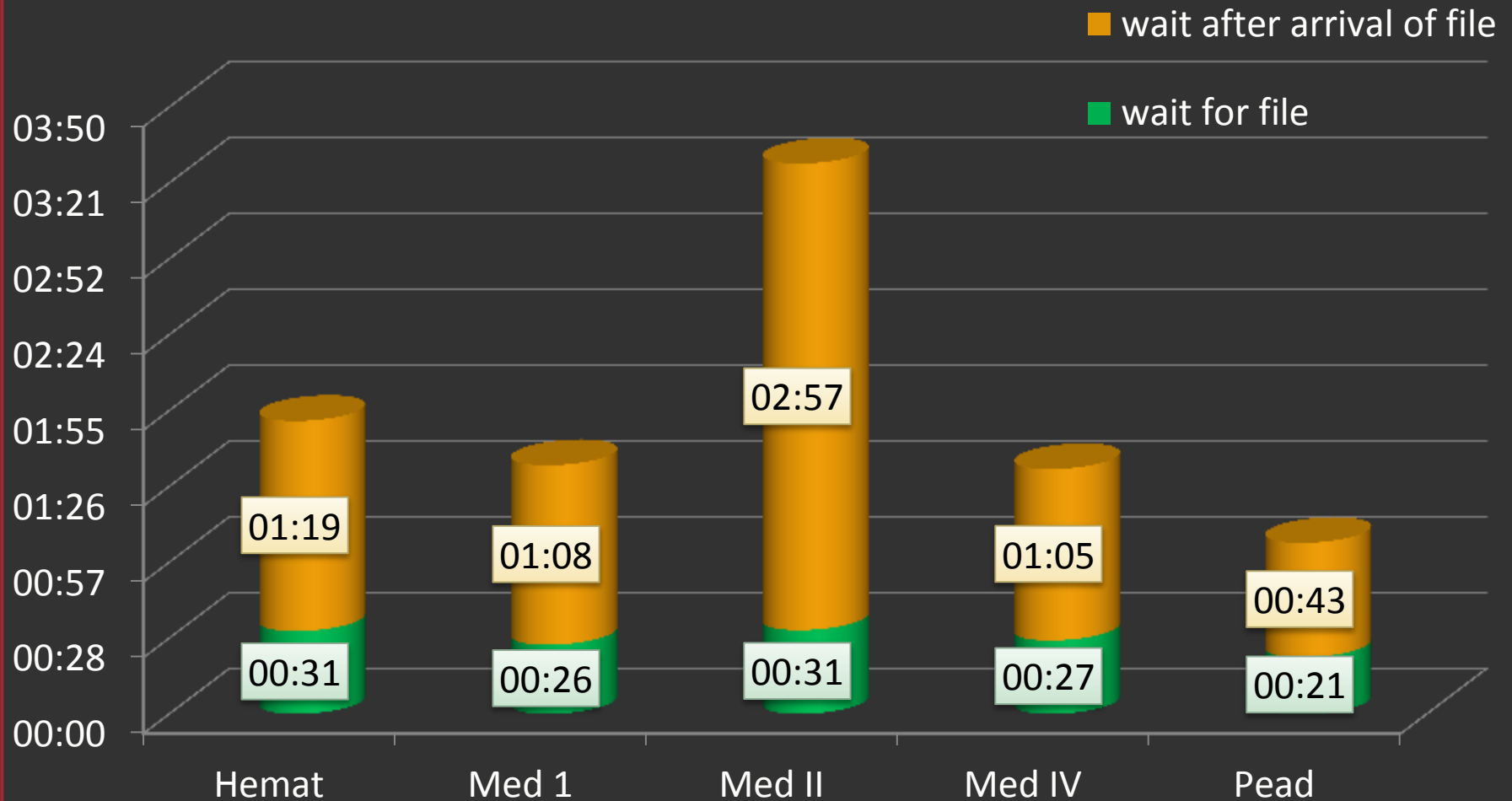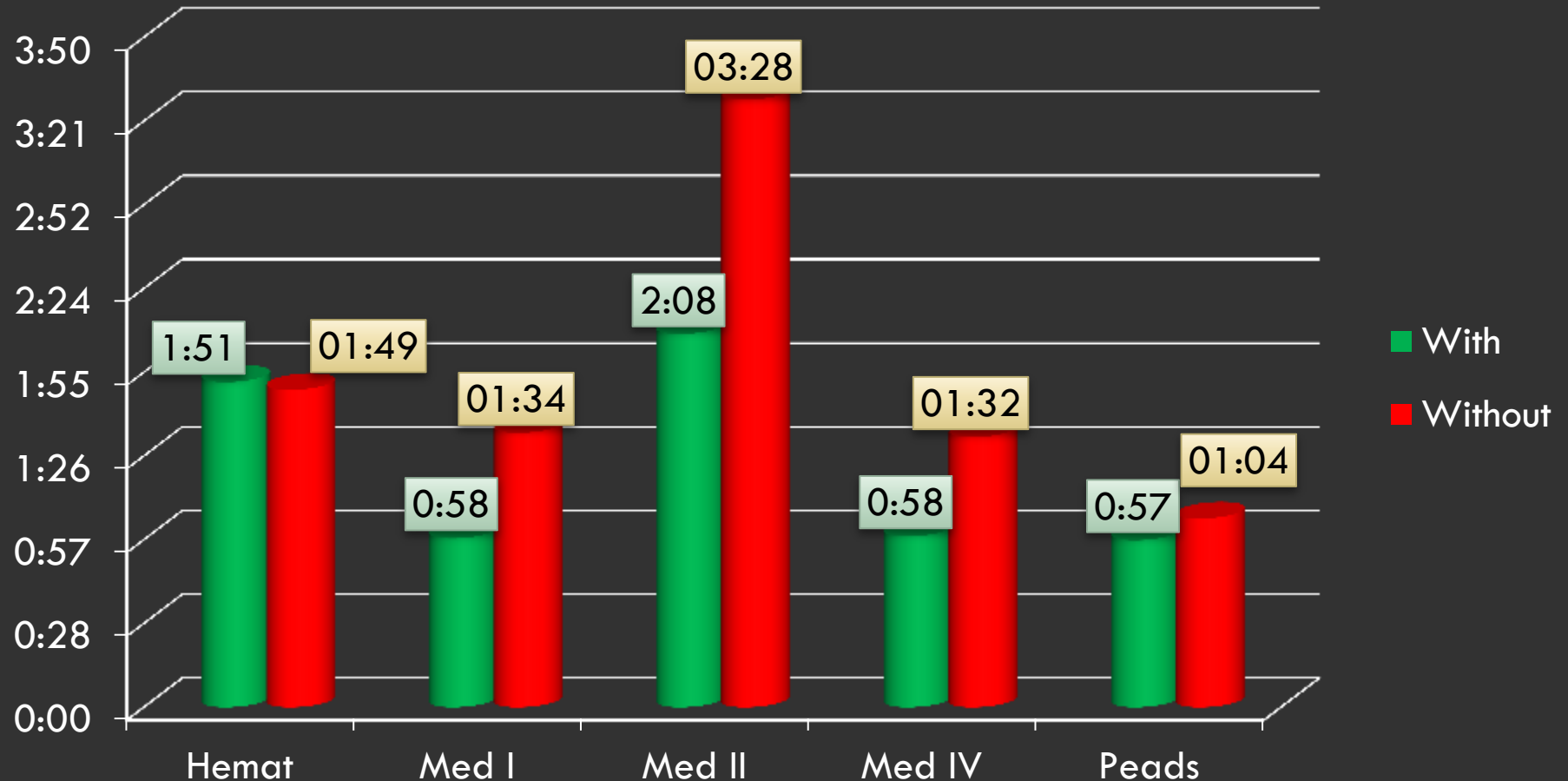# TOTAL WAITING TIME IN WALK – IN PATIENTS

Total Wait (without Appointment)

Department	Wait
Hemat	01:49
Med I	01:34
Med II	03:28
Med IV	01:32
Peadiatrics	01:04
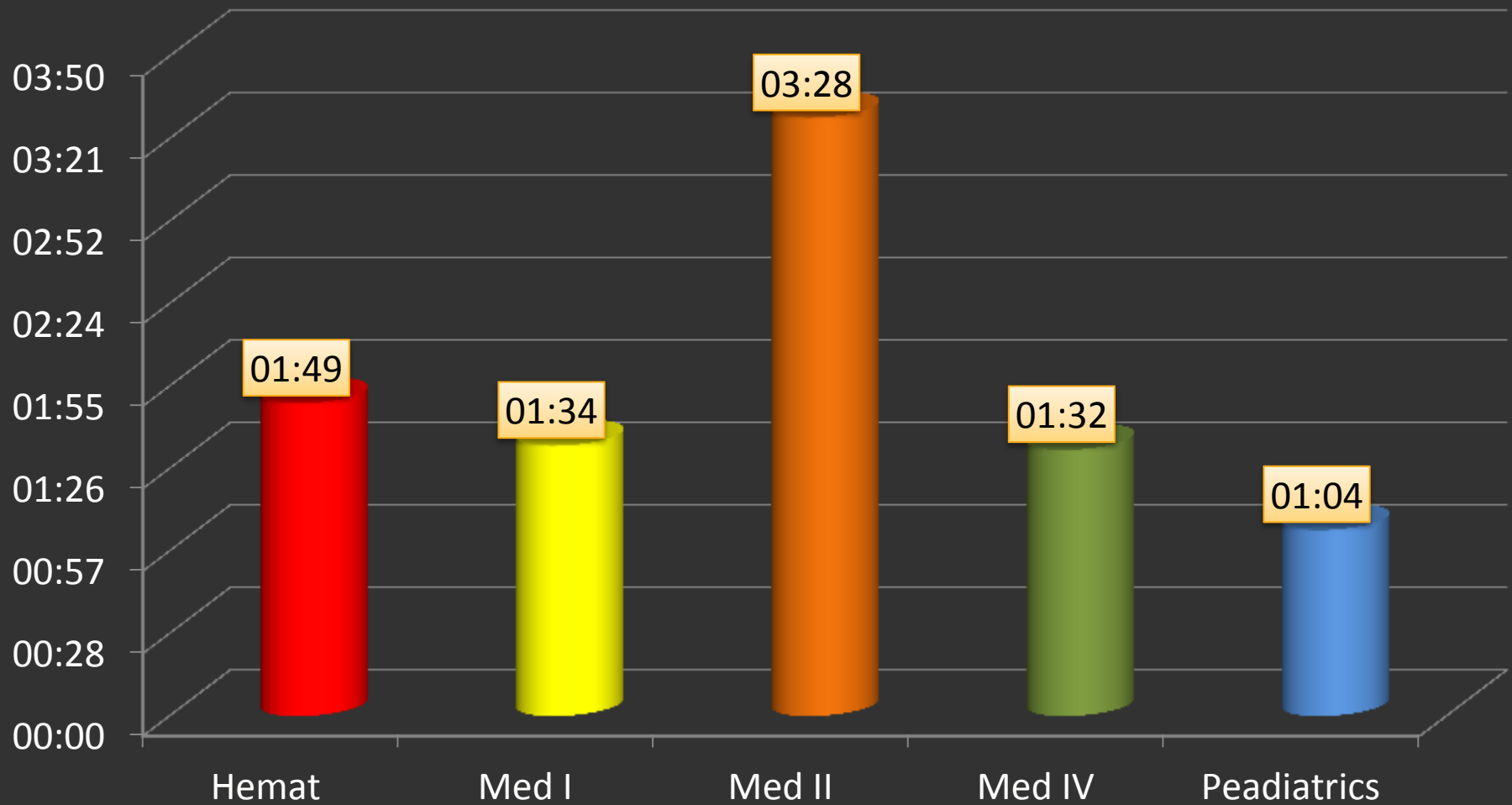
- The average wait for file → 27 Minutes.
- Average total waiting time → 1 hour 48 minutes.

Waiting Time in Patient without Appointment

- wait after arrival of file
- wait for file

	Hemat	Med 1	Med II	Med IV	Pead
wait after arrival of file	01:19	01:08	02:57	01:05	00:43
wait for file	00:31	00:26	00:31	00:27	00:21

- Average waiting time for file- minimum in Pediatric Oncology

Total waiting time

The waiting time was maximum in Med –II unit and Minimum in Pediatric Unit.

Conclusion

- Adherence to appointment system needs to be increased by Staff and Patients.

- Early arrivals lead to increased perceived waiting times.

- Waiting time is more in patients without appointment .

Policy and Procedures

Manpower

Recommendations

Technology

Resources

Policy and Procedures

Appointments
- Strict enforcement of policy to book appointments at discharge
- Appointment scheduling simpler for O.P.D follow ups

Scheduling
- Multiple block/fixed-interval
- Slots fixed according to type of consultation

9:00-11:30- Daycare Clearance by D.N.B/Junior Consultant

11:30- 4:00- Routine consultations by Senior Consultants and team.

4:00-5:30- Investigation reviews.

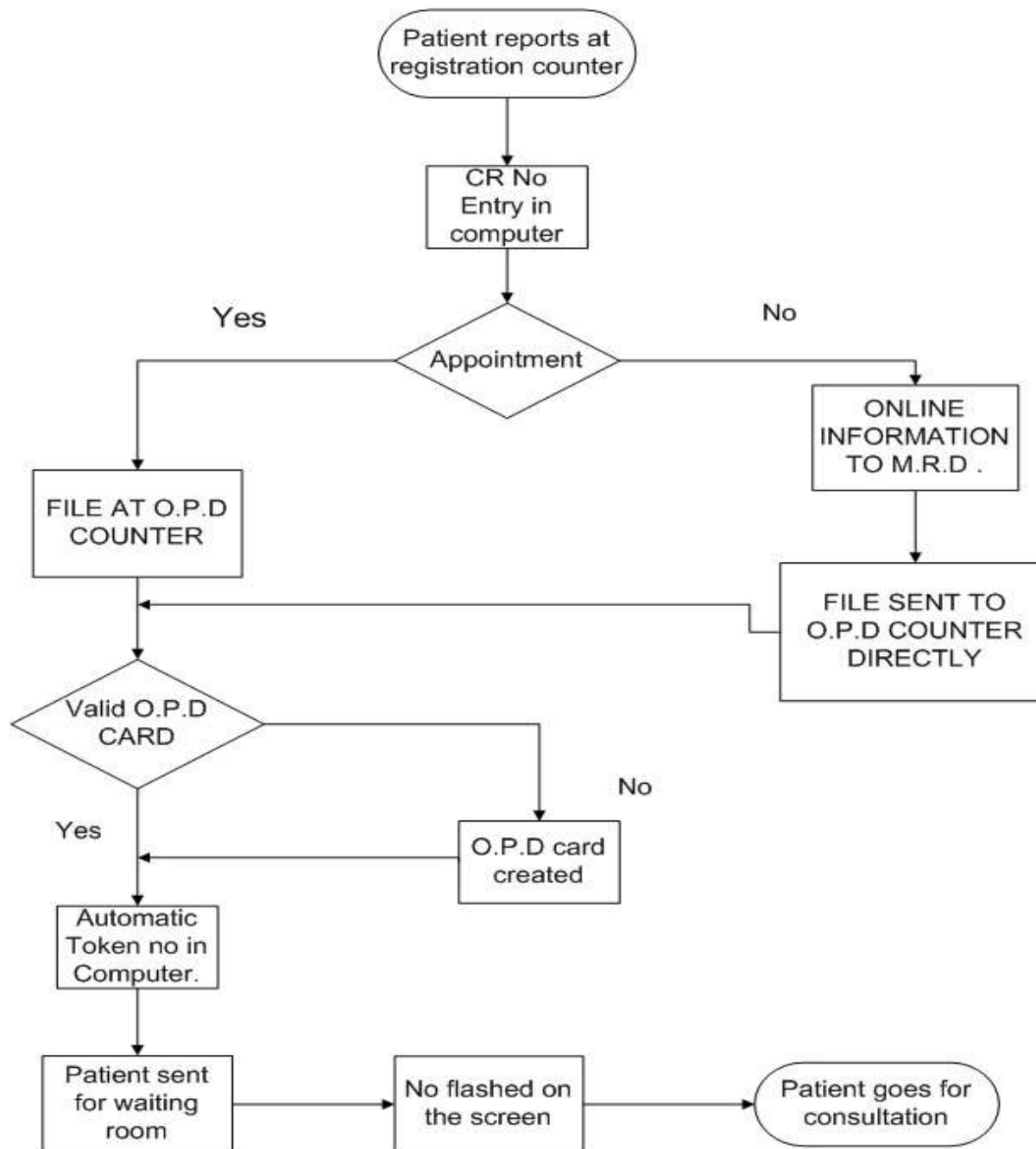# Proposed order of scheduling patients in slots for no-shows/ empty slots.

New patients

⬇

Referred patients

⬇

Patient late for appointment

⬇

Without appointment patient.

63

TECHNOLOGY RECOMMENDATIONS

Information technology enabled requisition system for files from M.R.D (as in stores).

Barcoding of files → to track files during patient flows from one department to another.

Online appointment bookings for patients esp. for International patients.

Rajiv Gandhi Cancer Treatment Master Card

Lump sum Deposit of Money .

Can be Swiped at any place where payment has to be made e.g.- Investigations/ O.P.D card etc.

Patient issued a receipt of the transaction and money debited from the amount.

Appointment desks on each floor.

Computer training to all staff

Records of patients and file movements online/excel rather than paper.

Staff rotation on regular intervals to reduce favoritism.

Ward boys stationed in M.R.D. department to keep files ready and take to the respective O. P. D`s