Knowledge and Practices of Insulin usage among patients with Type 2 Diabetes attending a tertiary care hospital in South India

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Introduction

- India - Diabetes capital in the world

- 63million diabetics in India

- 30% require insulin**

- Early initiation of insulin in routine diabetes care is beneficial

- Insulin therapy presents with many challenges due to the complexities associated with use

- sufficient knowledge can achieve a good glycaemic control   *WHO/IDF

- ☐   **Robb A et al.

Objectives

- To study the Knowledge and practices regarding insulin usage among patients with Type 2 diabetes in a tertiary care hospital in South India

Methodology

- Study design: Cross sectional

- Study duration: 1st April to   30th June 2016

- Study population: Patients with type 2 diabetes on insulin.

- **Inclusion** Criteria:Adult patients (>18yrs) who were on Insulin therapy.(Out Patients or Inpatients)

- **Exclusion Criteria:**GDM and Terminally ill excluded

Methodology

- Sample size = 100 patients
  [p = 53, α = 5% , d=5%:]

- Ethical clearance St. John's Medical College Institution Ethics Committee (IEC Study Ref. No. IEC/123/2016).

- Written informed consent

- Structured interview schedule – 4 sections
  - Socio-demographic details
  - Insulin use
  - Technique
  - Disposal   *Germer et al

Data management

- Scoring
  - Total score = 11
  - Score ≥ 8 Adequate practice

- Data entry – Microsoft Excel
- Data analysis – SPSS Version 16

- Descriptive statistics – proportions, mean & standard deviation, details of insulin use

- Analytical statistics – Chi Squared test of association

- Statistical significance at p value of < 0.05

Age & gender distribution

GENDER/AGE

N=100

- FEMALE<60
- MALE<60
- FEMALE>60
- MALE>60
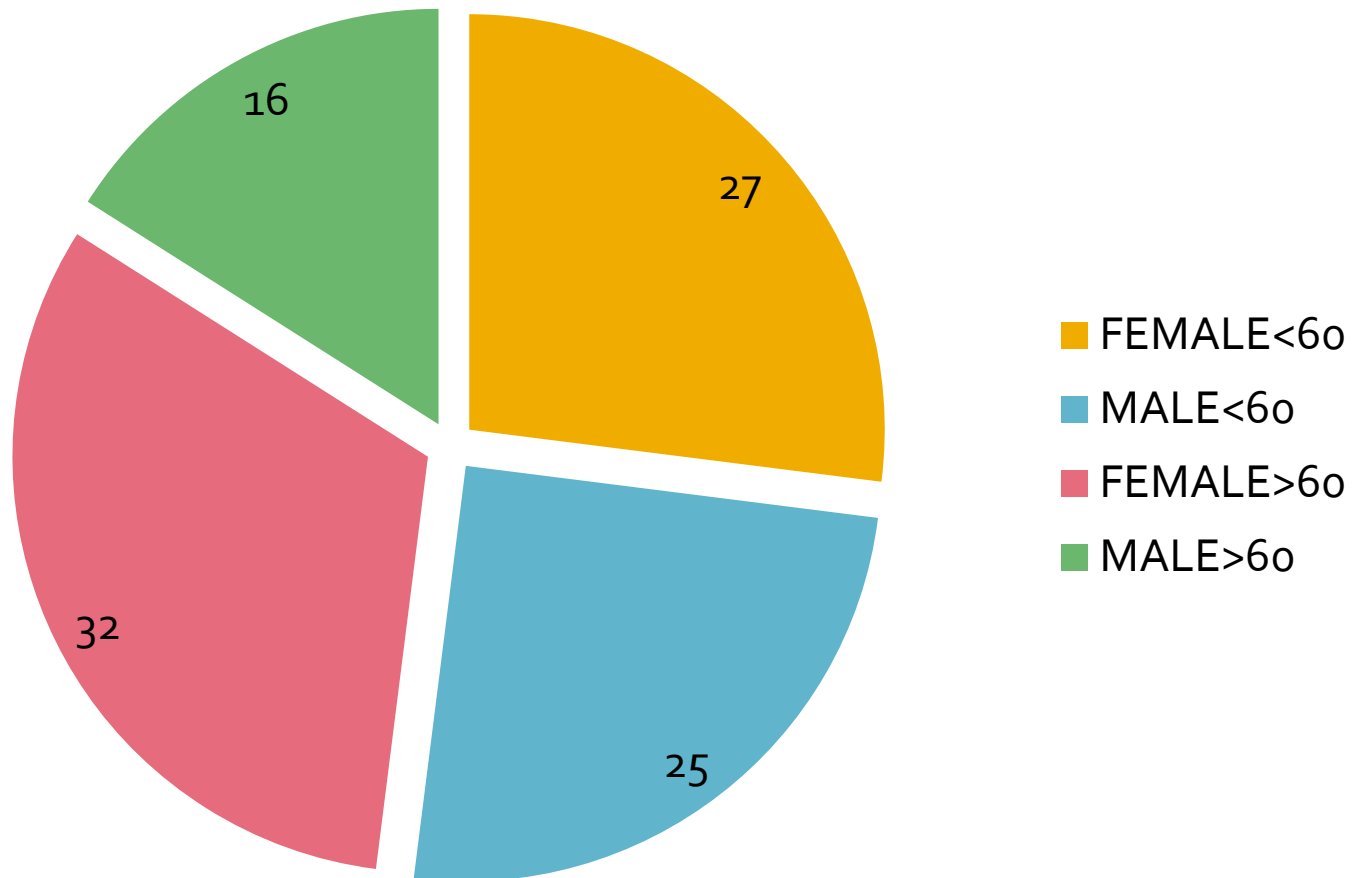
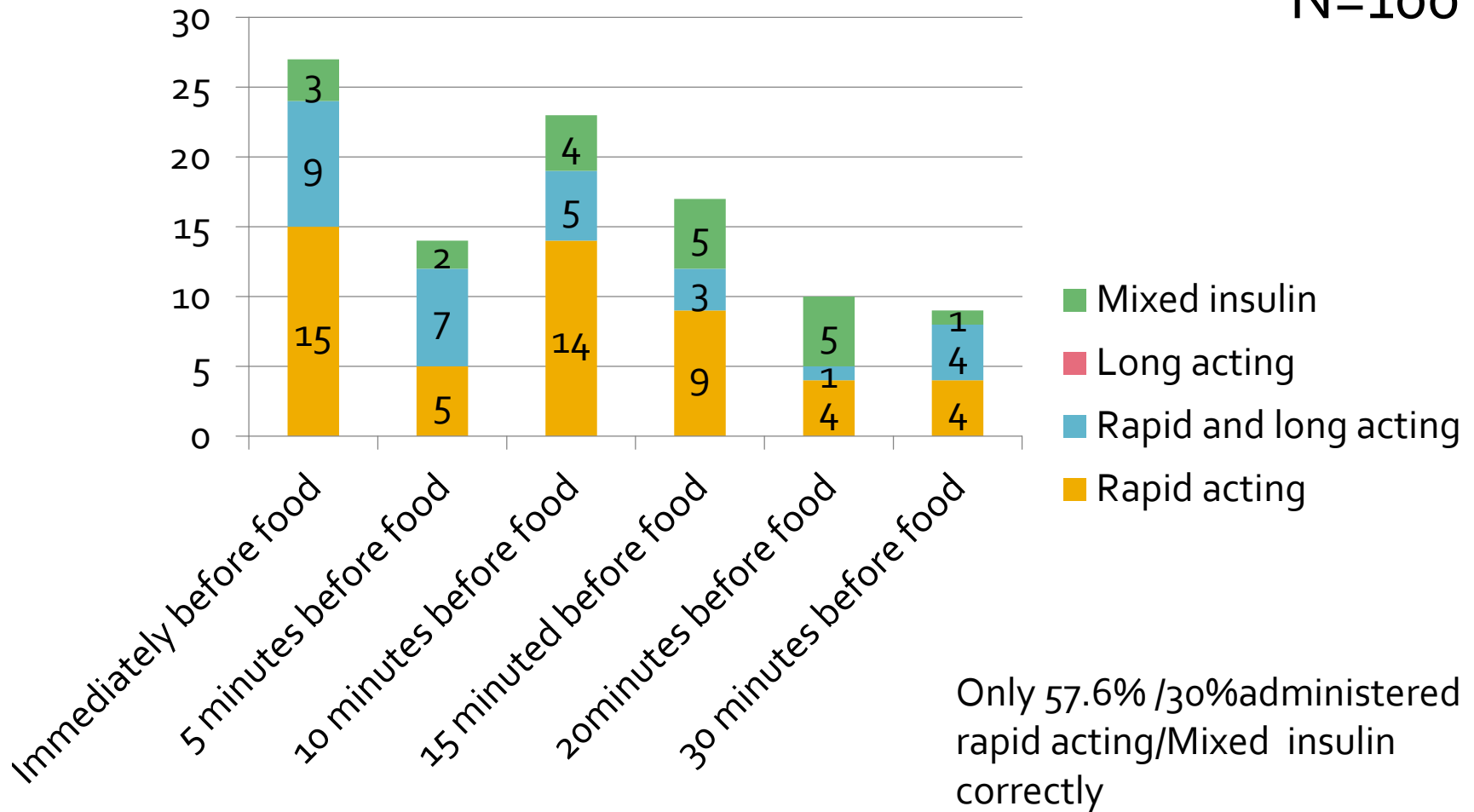# Practices regarding insulin use

- Regular /rapid acting insulin   51%   N=100

- Regular timing of insulin use   91%

- Stored insulin in refrigerator   81%

- Used insulin pens   18%

- Self Administration   55%

- Alternate the site of injection   84%

- Reuse of needle >5 times   42%

Relationship of insulin with meals

N=100

Only 57.6% /30%administered rapid acting/Mixed insulin correctly

Practices regarding insulin technique

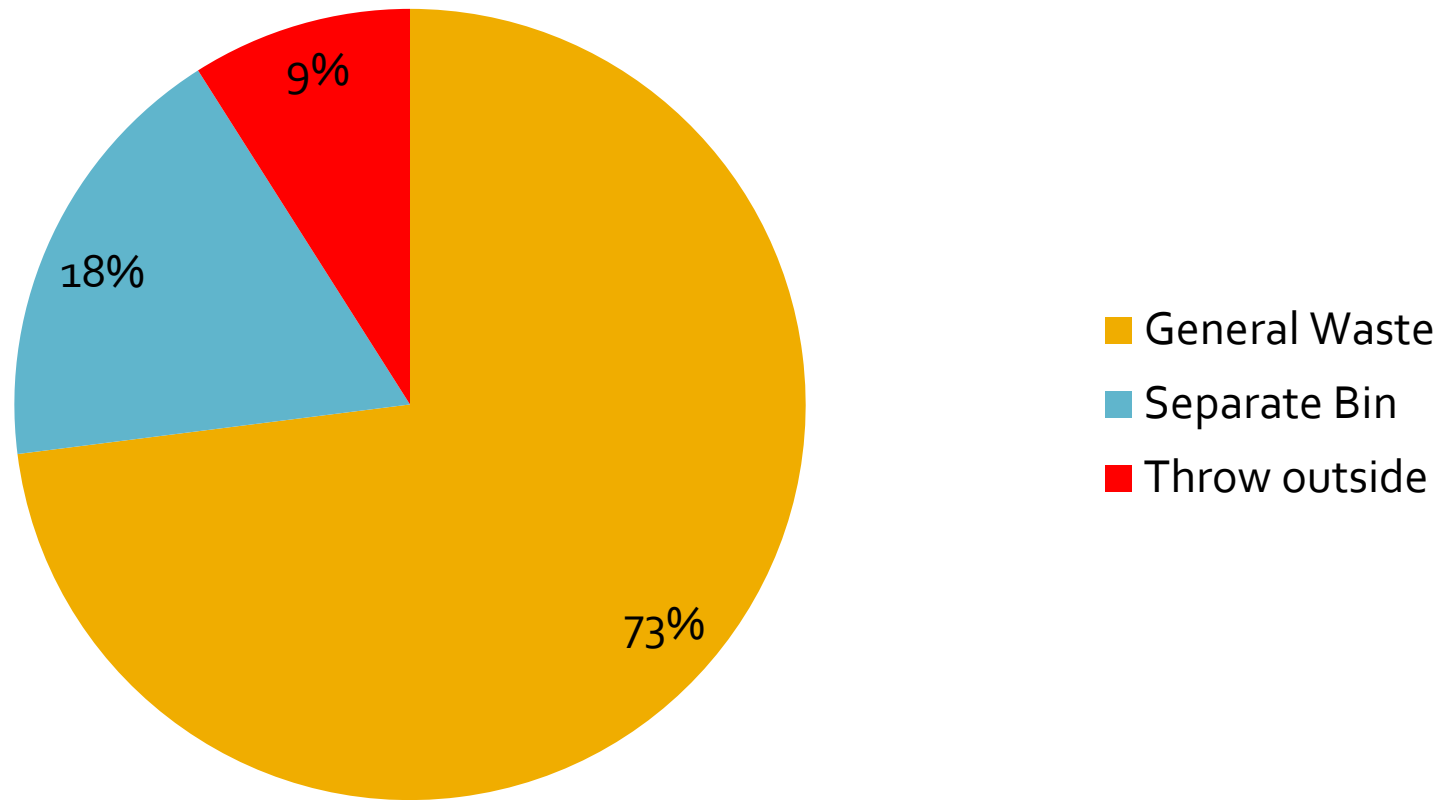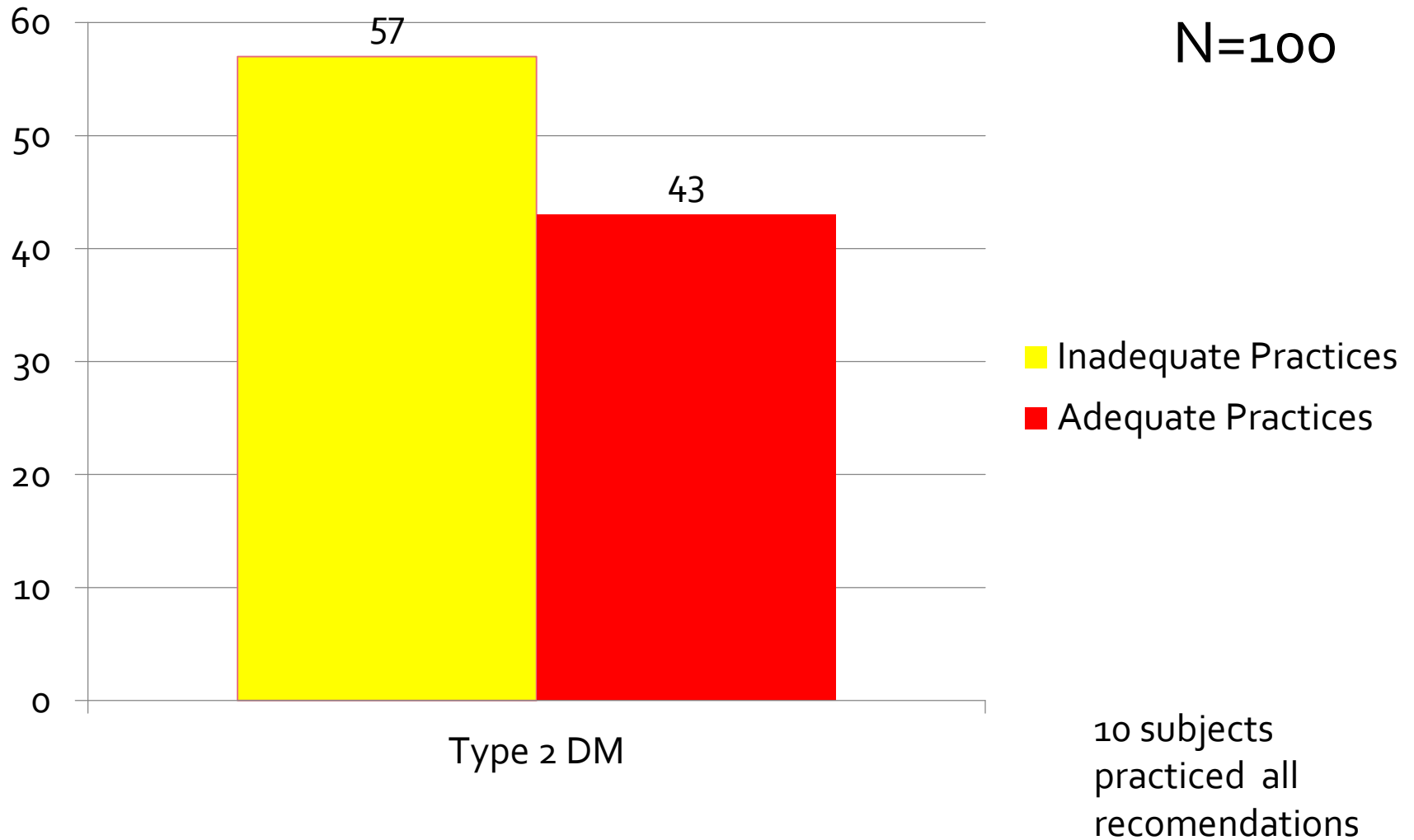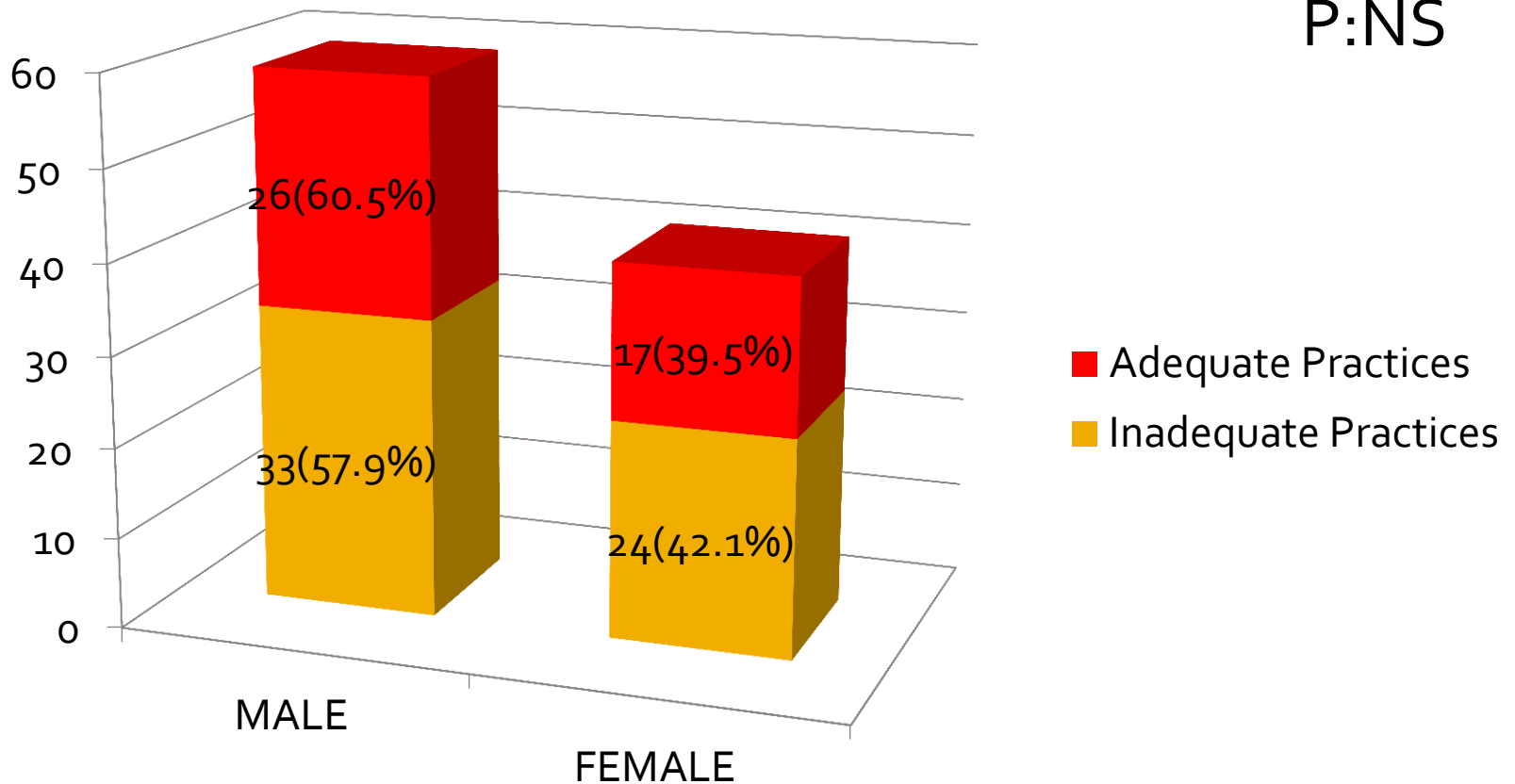|	
Checked potency	61%
Checked expiry date	85%
Shake vial before use	65%
Clean injection site	47%
Take a skin pinch	73%
Inject at 90 degrees	72%
Wait for 10 seconds before withdrawing	35%
Bring to room temperature before injecting	65%
Site of injection -abdomen	28%

Mixing of insulin
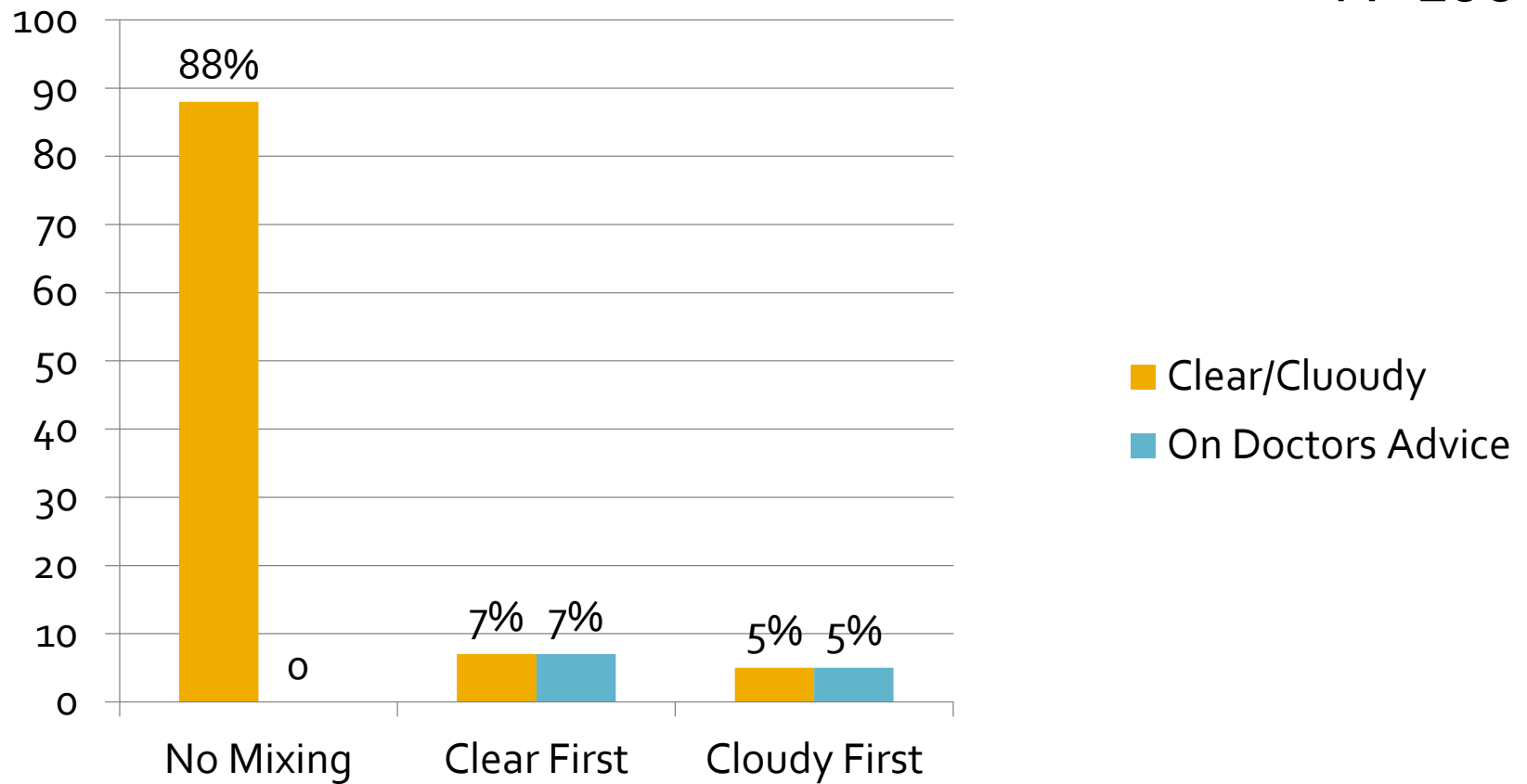
Disposal of needle

Adequate practices

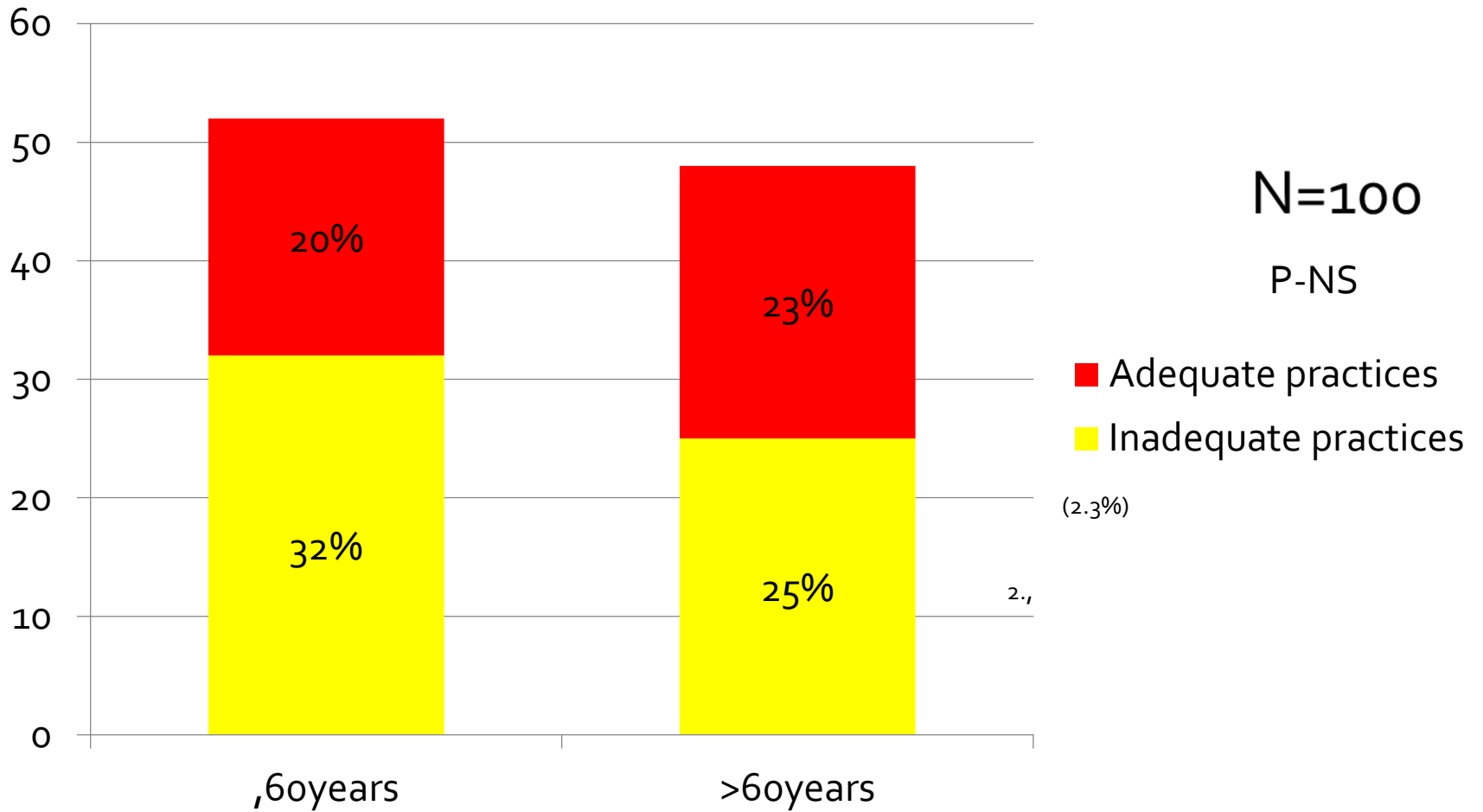# Gender and adequate practices

N=100
P:NS

N=100
P-NS

Iinadequate Practices
Adequate practices

Number of times of use & disposal of needle

N=100

p<0.05

Legend:
- Throw outside
- Separate container
- General waste

Data labels:
- SINGLE USE: 8(44.4%), 6(8.2%)
- 2-5 TIMES: 4(44.4%), 7(38.9%), 33(45.2%)
- 6-10 TIMES: 3(33.3%), 1(5.6%), 18(24.7%)
- 11-20 TIMES: 2(22.2%), 1(5.6%), 15(20.5%)
- >20 TIMES: 1(5.6%), 1(1.4%)
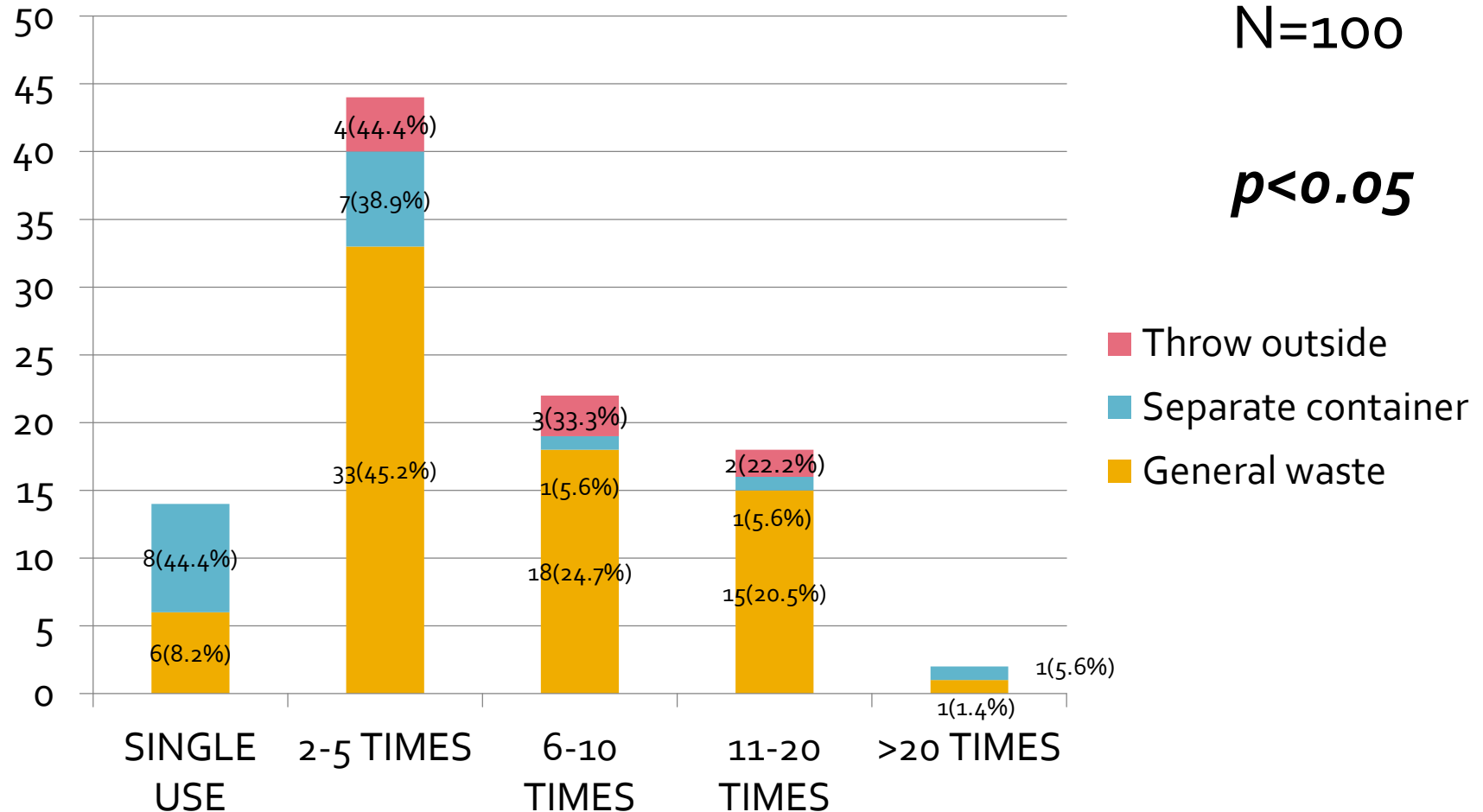
Storage of insulin & bringing to room temperature before use

Bringing to room temperature before use	Refrigerator	Other	Total (N)	p value
Yes	58(71.6)	7(36.8)	65	X^2= 21.3
No	23(28.4)	12(63.2)	35	p=0.004
Total	81	19	100	

Parameters	1999-2000	2008-2009	2014-2015 (worldwide ITQ- Anders H et al)	Indian injection technique study(Kalra S et al 2015-2017)	Our study
N (total No.)	1002	4352	13289	1011	100
Mean age	47	48.4	51.9	51.1	59.7
Duration of therapy(mean)	14.7	13.9	13.2	5.3	12.02
Using pens%	78.8	92.3	89.6	55	18
Using 8mm needles%	55	48.6	29.2	15.9	88
Site% i) Abd	85	88	90.9	38.1	28
ii) Abd+thigh				30.7	13
iii) Abd+arm				5.3	12
iv) Abd+thigh +arm				8	11
v) Thigh	69	59	43	83	8
vi) Buttock	24	16	13.8	1.7	0
vii) Arm	34	29	31.9	4	20
Skin pinch%	69.4	72.9	63.7	79.6	73

parameters	1999-2000	2008-2009	2014-2015 (worldwide ITQ-Anders H et al)	Indian injection technique study(Kalra S et al 2015-2017)	Our study
Inj. 90' %				84.9	72
Rotation of inj. site %	38	91	83.9	–	84
Single needle use%	3.3	3.6	–	–	6.3
Needle used directly into trash%	47	38	55	57	73
Disposal - separate container%	–	–		9.8	18
Wait for 10 sec			29.3	31.8	35
Reuse needle i) <5 time ii) 6-10 time iii) >10 time				74.4 16.1 9.5	58 22 10

Conclusion

- Practices regarding insulin administration were unsatisfactory (57%) in the study population

- Age, gender, education, duration of insulin use are not significantly associated with correct insulin use practices

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