

A Quality Based Approach for Error Reduction in Surgical Sets Assembly

,Yaffa Raz, R.N., B.A

CSSD Manager

**Lady Davis Carmel Medical
Center, Haifa, Israel**







Lady Davis Carmel Medical Center

460 beds



11 operation theatres

CSSD department

20 workers

Seven days a week

Working hours: 7:00-23:00

Large surgical sets per day = 100

Medium and small size sets = 250

Single items = 200



Instruments Sets

Assembly requires knowledge and skills

Training > 6 months

Count sheets are used



Assembly & Warping

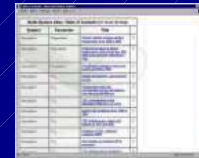
Count & assemble



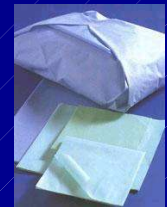
Quality control



Insert count sheet



Warp



Label



Instruments in surgical sets

**Are counted and inspected three times
:during reprocessing route**

Disassembly phase

Assembly phase

Quality control stage

Errors



Disrupt normal course of surgery

Cause dispute between CS and OR



Causes for Human Errors

**Forgetfulness
Sloppiness**



**Correlated with defects
in production**

Lack of experience

Slowness

Lack of standardization

Surprise

(Intentional (sabotage

Misunderstanding

Wrong identification

Ignoring rules

Purpose

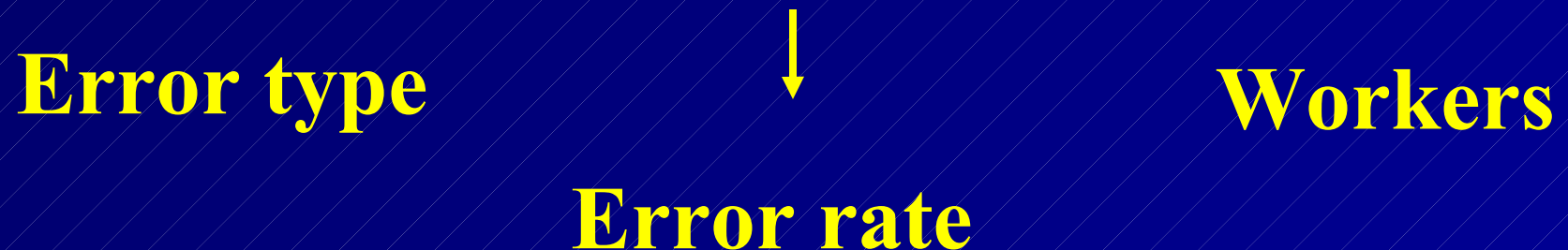
To reduce number of errors



Data Collection

Reports from OR

Number of sets assembled per month

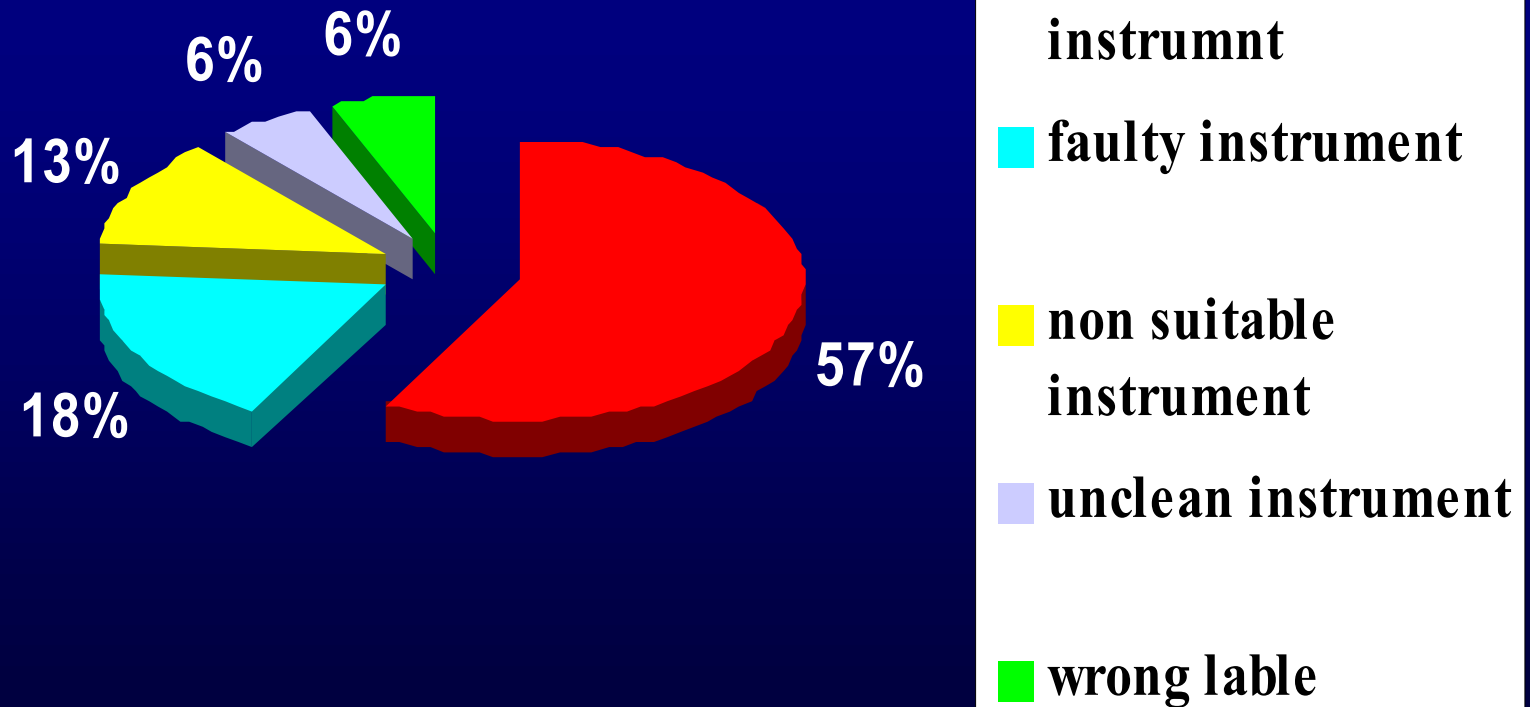


Results

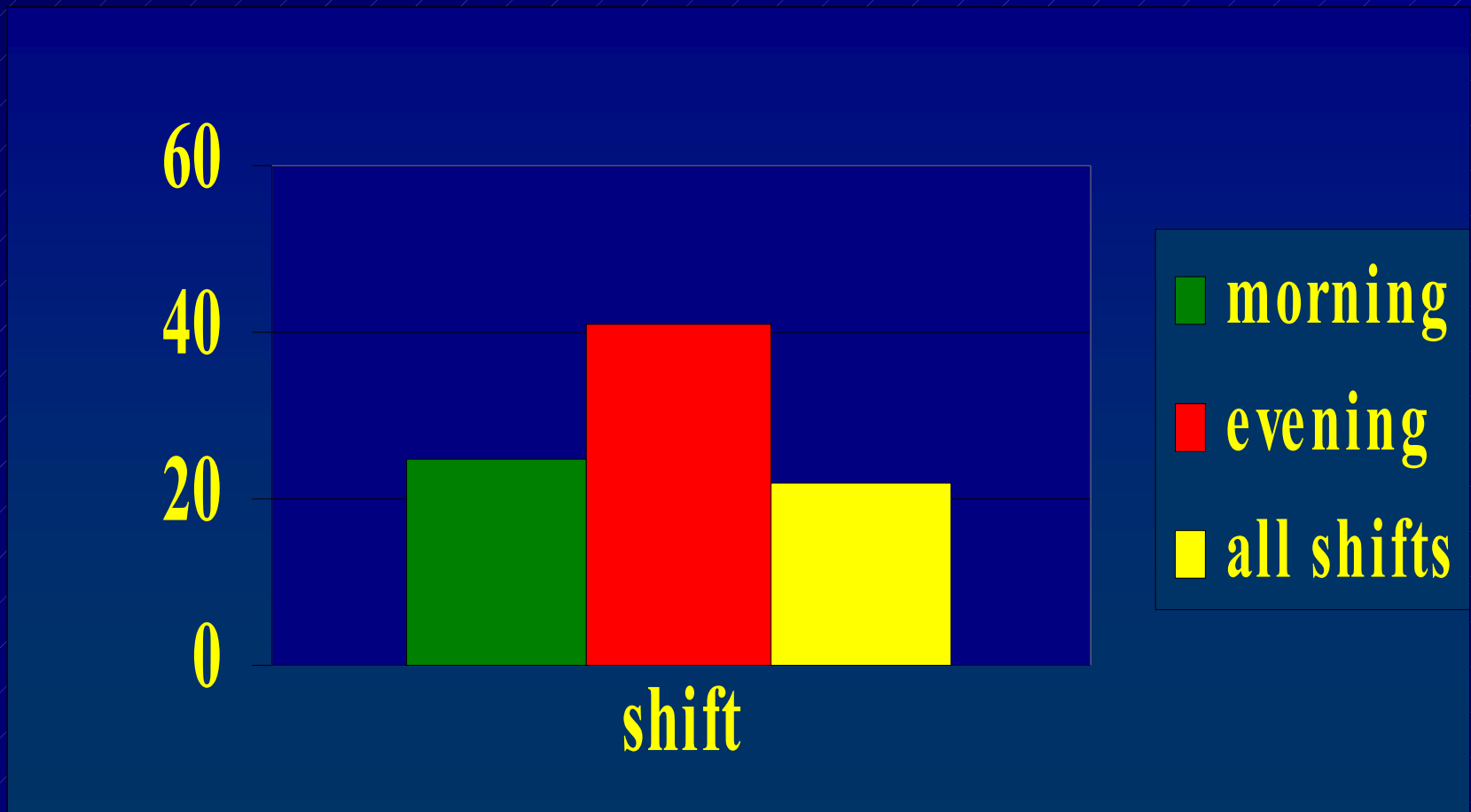
January-March 1999

Error rate = 1.33%

Errors Type Distribution



Evening shift technicians made more mistakes



Quality Assurance Program

Create a blame free environment

Focus on system problems

Use errors data to drive change

Identify training opportunities

Quality Assurance Program



Weekly workers quality meeting

Week's errors reviewed

**Brainstorming process:
discussion about error reports**

Brainstorming Process

Workers participation

Team working



Root Cause Analysis

Workers suggested factors that played a role in the errors



Suggestions produced a cause-effect diagram

Example

**Label printer is
not located on
assembly table**

**Label is not taken to
assembly table at the
beginning of process**

Wrong label

**Distracting
noises:workers,
telephone, etc.**

**Inspection does not
include label
verification**

Example

Operation theatre nurses placed it in a different set

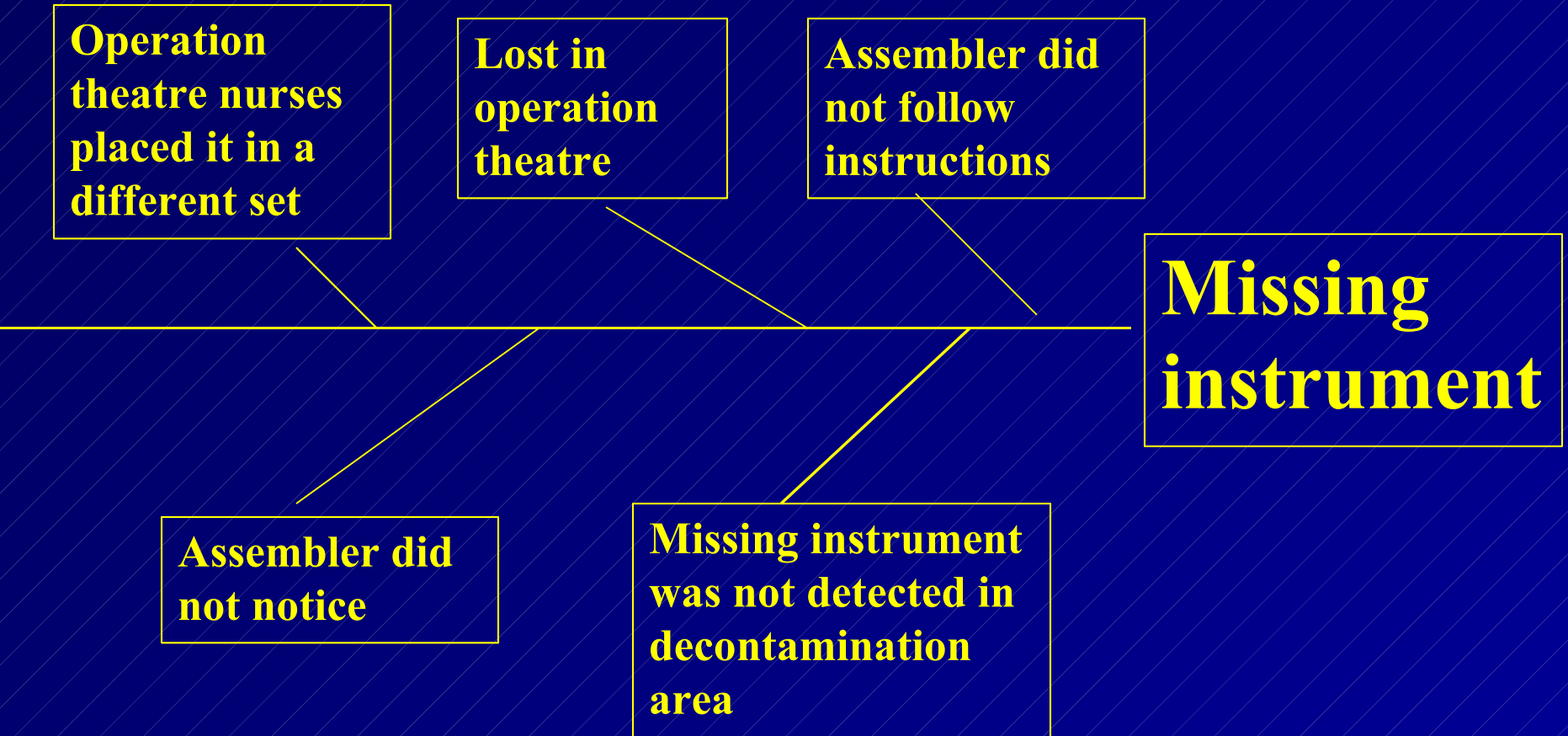
Lost in operation theatre

Assembler did not follow instructions

Missing instrument

Assembler did not notice

Missing instrument was not detected in decontamination area



Corrective Actions

Modifications in content sheets layout

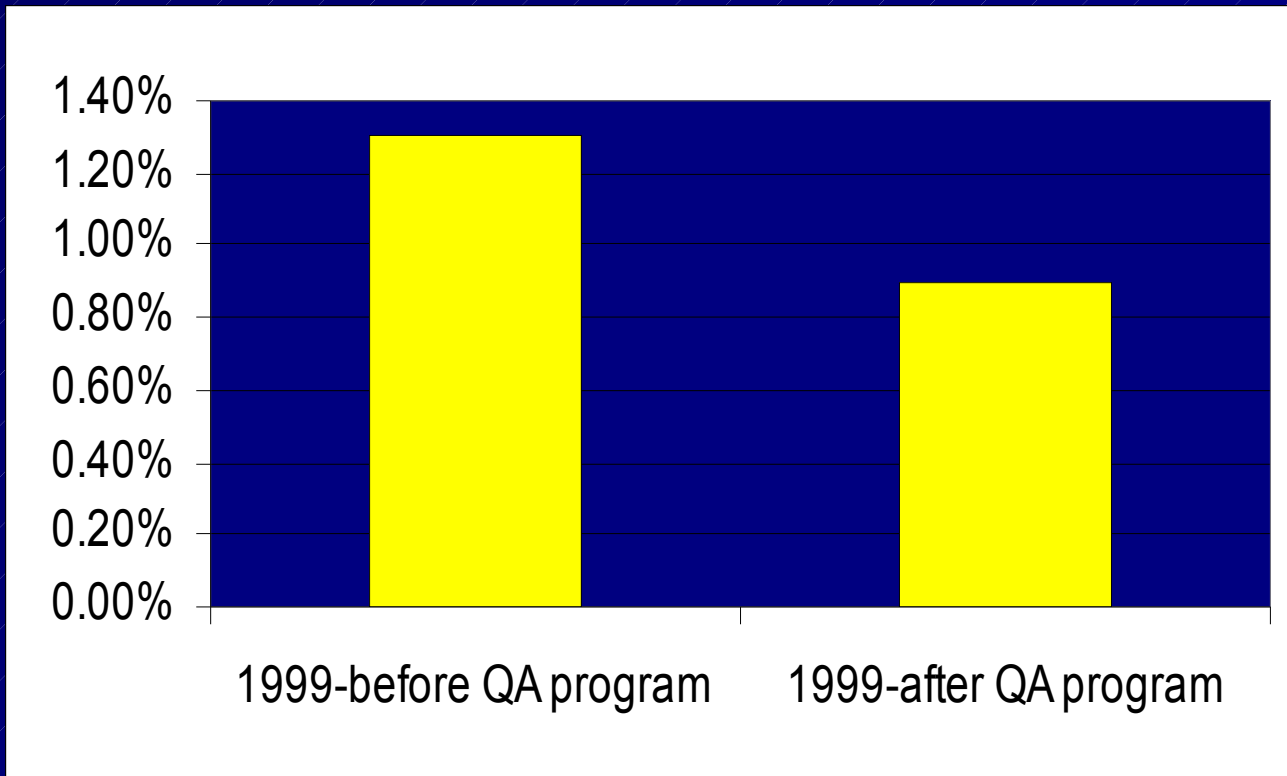
**Changes in working standards: detailed
.flowcharts of tasks**

Education program

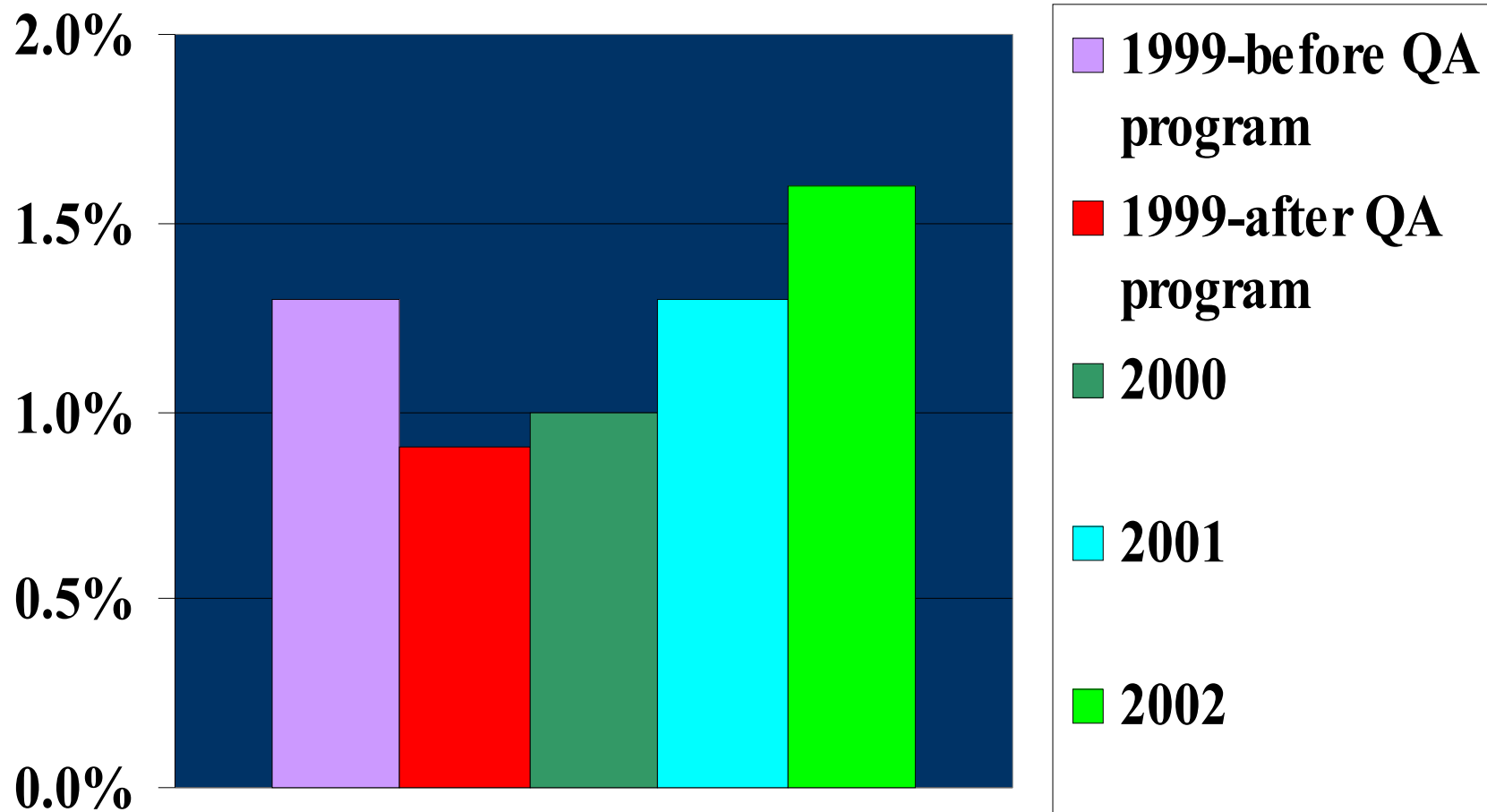
**Changes is sets are posted and signed by
workers**

Error Rate

Before and after QA program



Error Rate 1999-2002



2003-A New (additional) Program

Workers performance



Method

**Each worker was monthly
assessed in every working station**



**Assessment parameters included 43
qualitative and quantitative measures**

**Workers were notified about the
assessment prior to onset of program**

**But were not aware when
the actual measurements
took place**



Assessment topics

Cleaning and disinfection activities

Sets assembly

Safety issues

Sterilization validation activities

Set Assembly -Examples

Observation: Does worker follow instructions on content sheet?

Observation: Does assembler check instruments?

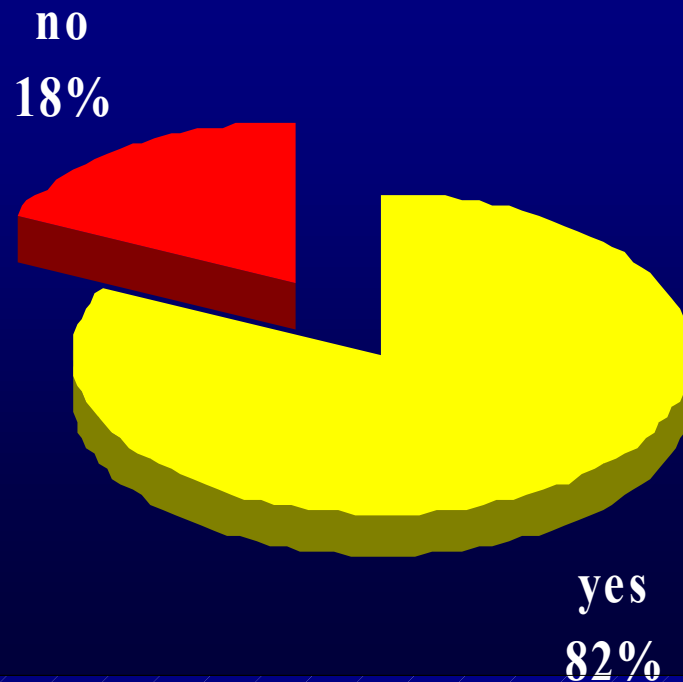
The surveyor unpacked five instrument sets and performed a quality check

**Workers received an
evaluation of their
monthly score**



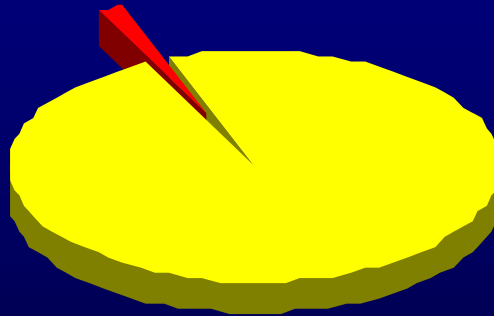
Average score 81.3 ± 7 (maximum=100)

Do Workers Follow Instruction on Content Sheet



Perfect vs. Erroneous Sets

erroneous
sets
1.6%

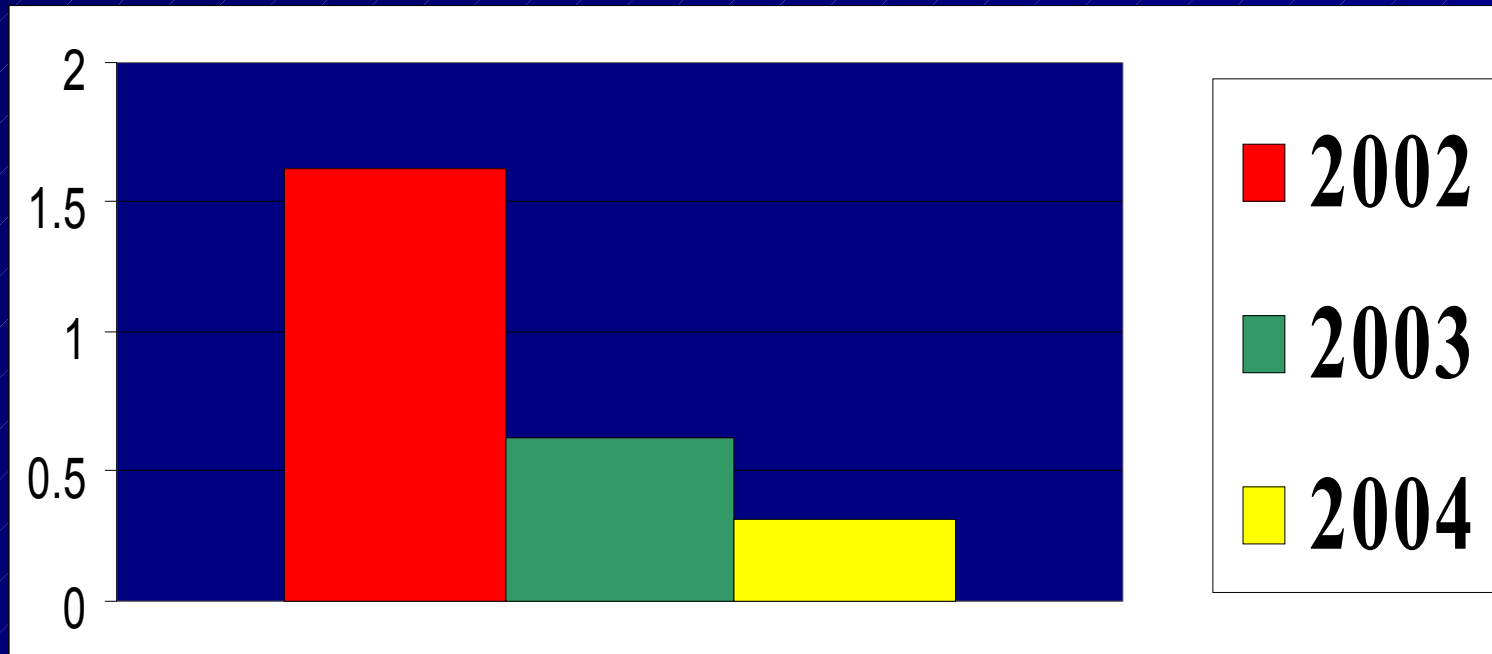


perfect sets
98.4%

Correlation between error rate and age 0.79
p=0.001

Average workers age 50 (median 51)

Error Rate 2002-2004



Conclusions

Quality assurance is a never ending task

Workers participation is essential

Multiple mechanisms contribute to error reduction

Thank You

