



Working together to improve the quality of healthcare: 10 years of Cooperation between Kenya and the Tuscany Region

5 September 2017 - Nairobi



Regione Toscana



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Patient Safety: results from a first pilot intervention at North Kinangop Catholic Hospital and Ruaraka Uhai Neema Hospital”

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How do we define quality of care?



6 dimensions of Quality
Institute of Medicine (IOM)

“WHO definition of quality of care: **“the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centred.”**

Safe

Delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors

Course: Fundamentals in Patient Safety

Topic: What is Patient Safety?

Patients can be harmed from health care, resulting in permanent injury, increased lengths of stay in hospital and even death. Over the past 15 years, we have learned that adverse events occur not because people intentionally hurt patients, but rather due to the complexity of health-care systems, where treatment and care depend on many factors, in addition to the competence of health-care providers. When so many and varied types of health-care providers, such as dentists, dieticians, doctors, midwives, nurses, surgeons, pharmacists, social workers, and others are involved, it can be difficult to ensure safe care, unless the system is designed to facilitate the delivery of quality and safe services.

Patient Safety: the reduction of risk of unnecessary harm associated with health care to an acceptable minimum. (*WHO-ICPS, 2009*)





Why Patient Safety is important

Health care - associated infection (HCAI)	<ul style="list-style-type: none">■ Hundreds of millions of patients are affected by HCAI worldwide each year, leading to significant mortality and financial losses for health systems and patients■ Of every 100 hospitalized patients at any given time, 7 in developed and 10 in developing countries will acquire at least one HCAI■ 5-15% of hospitalized patients acquire HCAI - about 40% in ICUs - mortality from HCAI is 12%-80% (WHO)■ 5 million HCAI estimated to occur in hospitals in Europe/year (WHO)
Medication errors	<p>Leading cause of injury in developed/developing countries</p> <ul style="list-style-type: none">■ 1.5 million harmed and thousands killed in USA/year (2006)■ In some countries, 70% of patients' medication histories contain errors (2005)
Unsafe surgery	<ul style="list-style-type: none">■ 234 million surgical procedures/year worldwide (more than childbirths)■ 7 million complications, 1 million deaths worldwide each year (WHO)
Clinical handovers	<p>Communication between units/health-care team/hospital facilities/community</p> <ul style="list-style-type: none">■ 15% handovers result in adverse events (Australia, 2007)
Injection safety	<ul style="list-style-type: none">■ Over 70% of injections in primary health-care are unnecessary■ Unsafe injections account for 33% of new HBV infections, 42% of HCV and 2% of all new HIV infections worldwide

Health care is one of the most unsafe industry



The burden of unsafe care in developing countries

BMJ

Patient safety in developing countries: retrospective estimation of scale and nature of harm to patients in hospital

- 15 548 records reviewed in 26 hospital from 8 countries in Africa (Kenya) and Middle East
- 8.2% showed at least one adverse event, with a range of 2.5% to 18.4% per country
- 83% were judged to be preventable
- 30% were associated with **death of the patient.**
- 34% adverse events were from **therapeutic errors**, 19% from **diagnostic errors**
- Main contributory factors:
 - Inadequate training and supervision of clinical staff
 - the failure to follow policies or protocols



Broadening the focus: from access to care to quality and safety of care

EVERYBODY'S BUSINESS

STRENGTHENING HEALTH SYSTEMS TO IMPROVE HEALTH OUTCOMES

WHO'S FRAMEWORK FOR ACTION



The World Health Organization's (WHO) 2007
Framework for Action for strengthening health systems
in developing countries
**identified quality and safety as key drivers of
improved health outcomes**

Quality & Safety initiatives can:

- Support the **achievement of greater equity**
- Optimize the use and **reduce waste** of the limited resources available
- Support **capacity-building** efforts and realizing widely agreed-upon and shared aspirations

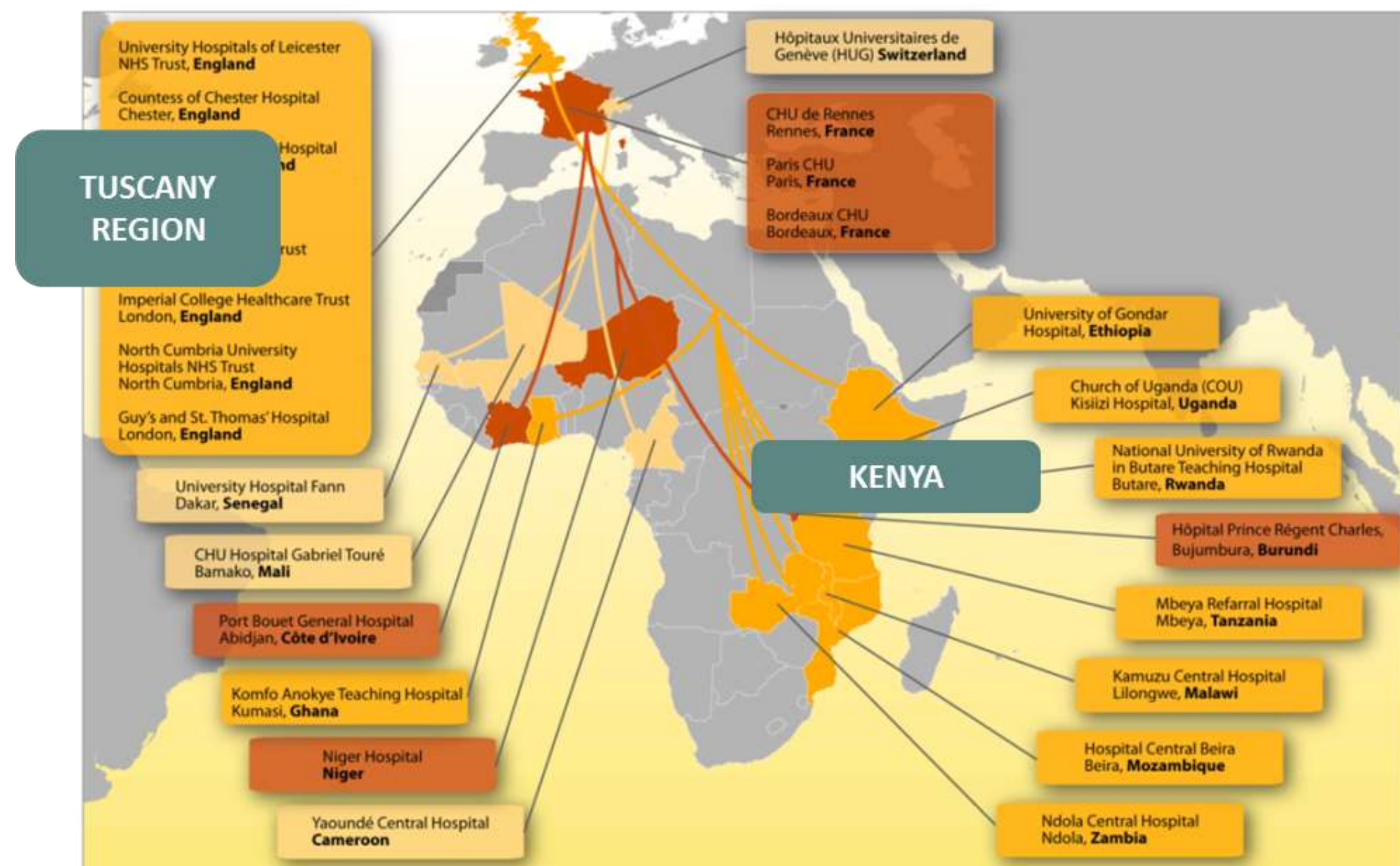


Examples of clinical areas describing significant improvement in quality and safety in developing countries

AREA	GOAL	INTERVENTION	RESULTS	SETTING
Emergency obstetric care	Reduce maternal and infant mortality	Obstetric first aid box, training for medical personnel, community intervention to improve access	Significant reduction in maternal mortality	Rwanda Ghana Nigeria
Acute child illness care	Reduce child mortality from acute infections	Integrated management of childhood illness; a multi-level approach, including provider, facility and community	Increased adherence to guidelines, reductions on childhood mortality	Tanzania Rural Bihar Uganda
Primary care	Improve service efficiency and quality	Peer review, performance standards, training, electronic records	Increased adherence to guidelines and efficiency	South Africa Cameroon Uganda
Prescribing practices	Improve appropriateness and safety of medication use	National essential drug lists with guidelines, training, performance feedback	Increased appropriate prescribing practices	Sudan Tanzania Delhi Nepal



WHO- African Partnership for Patient Safety

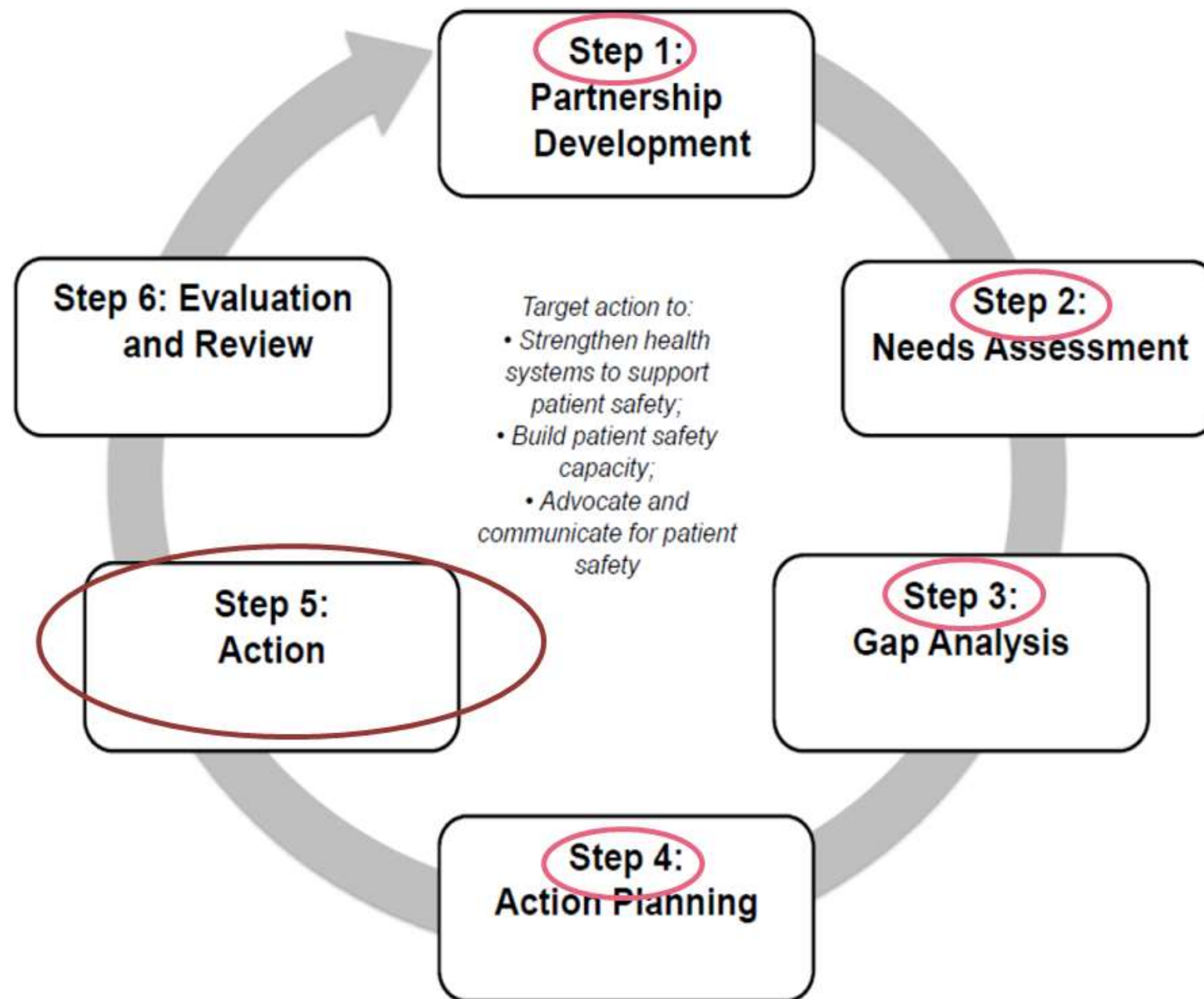


Building sustainable **patient safety partnerships** between hospitals in countries of the WHO African Region and hospitals in other regions

Bidirectional and intercontinental transfer of knowledge, experience and solutions: channel for patient safety improvements that can spread across countries



African Partnership for Patient Safety Approach





Partnership Kenya-Tuscany Region

Teaching Hospital of Siena

- IMPLEMENTING PARTNER

Ruaraka Uhai Neema Hospital

- IMPLEMENTING PARTNER

North Kinangop Catholic Hospital

- IMPLEMENTING PARTNER

Center for Clinical Risk Management and Patient Safety

- SCIENTIFIC SUPERVISION/ Community Member

Center for Global Health

- SCIENTIFIC SUPERVISION/Community Member



Need assessment and gap analyses

12 PATIENT SAFETY ACTION AREAS	HYPOTHETICAL AREAS OF INTERVENTION	CAMPAINGS & TOOLS
Health systems strengthening <ul style="list-style-type: none">○ Patient safety and health services and systems development○ National patient safety policy○ Patient safety surveillance and research○ Knowledge and learning in patient safety	NEEMA HOSPITAL <ul style="list-style-type: none">• Maternal and neonatal care• Pediatrics	<ul style="list-style-type: none">• Safe Childbirth Checklist• Pediatric Early Warning Score
Capacity Building <ul style="list-style-type: none">○ Preventing healthcare-associated infections○ Health worker protection○ Health-care waste management○ Safe surgical care○ Medication safety	<ul style="list-style-type: none">• Basic element of Patient Safety	<ul style="list-style-type: none">• RLS
Advocacy e Resource Mobilization <ul style="list-style-type: none">○ Patient safety awareness raising○ Patient safety partnerships○ Patient safety funding	NORTH KINANGOP <ul style="list-style-type: none">• Surgery• Infections prevention• Basic element of Patient Safety	<ul style="list-style-type: none">• Surgical safety checklist• Clean Care is Safer Care• RLS



Sharing a common language: the basic principles of patient safety



North Kinangop Catholic Hospital, January 2016

In both hospitals been constituted a group of facilitators that represents the
Patients Safety Team (PST)



Ruraka Uhai Neema Hospital, January 2016

PST has been trained on basic principles of patient safety and clinical risk management: they will provide cascade training and act as leaders and champions for improvement



Ruraka Uhai Neema Hospital

WHO Safe Childbirth Checklist



The WHO Safe Childbirth Checklits Collaboratives

- Launched in 2008 with the aim of testing the tool
- The Checklist underwent field evaluation in **nine countries**
- Following a successful pilot study in Karnataka, India, a large randomized control trial is now in progress in Uttar Pradesh, India



The final version of the checklist was release in 2015 after 3 year of piloting in 29 countries including the Tuscany Region, Italy, that tested a modified version of the tool



Improving Quality of Care for Maternal and Newborn Health: Prospective Pilot Study of the WHO Safe Childbirth Checklist Program

Jonathan M. Spector^{1*}, Priya Agrawal², Bhala Kodkany³, Stuart Lipsitz⁴, Angela Lashoher⁵, Gerald Dziekan⁵, Rajiv Bahl⁶, Mario Merialdi⁷, Matthews Mathai⁶, Claire Lemer⁸, Atul Gawande¹

Method

- pre-post-intervention study observing childbirth practices (499 birth events at baseline and 795 birth events after introduction of the checklist program)
- review of birth registers

Primary end point

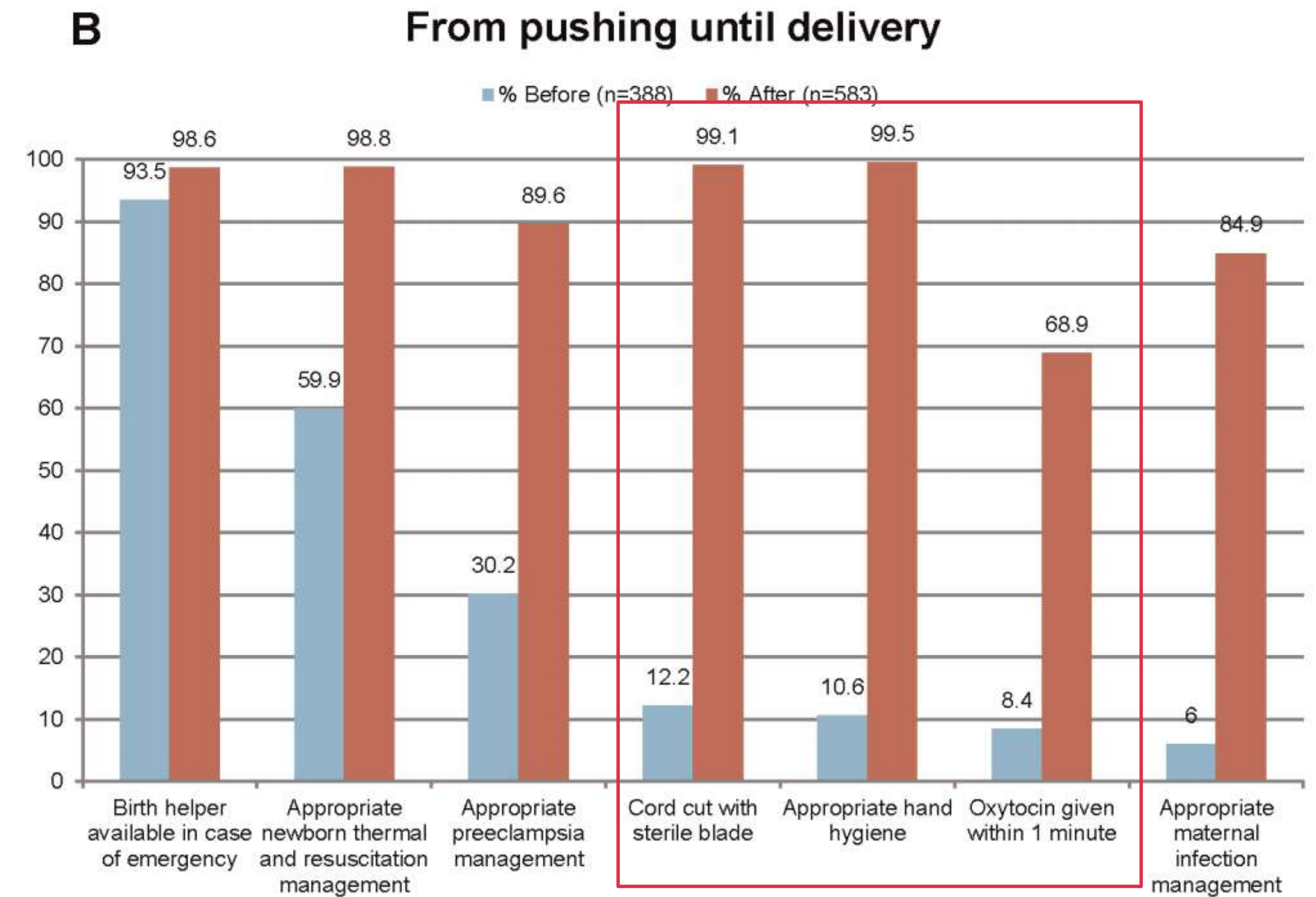
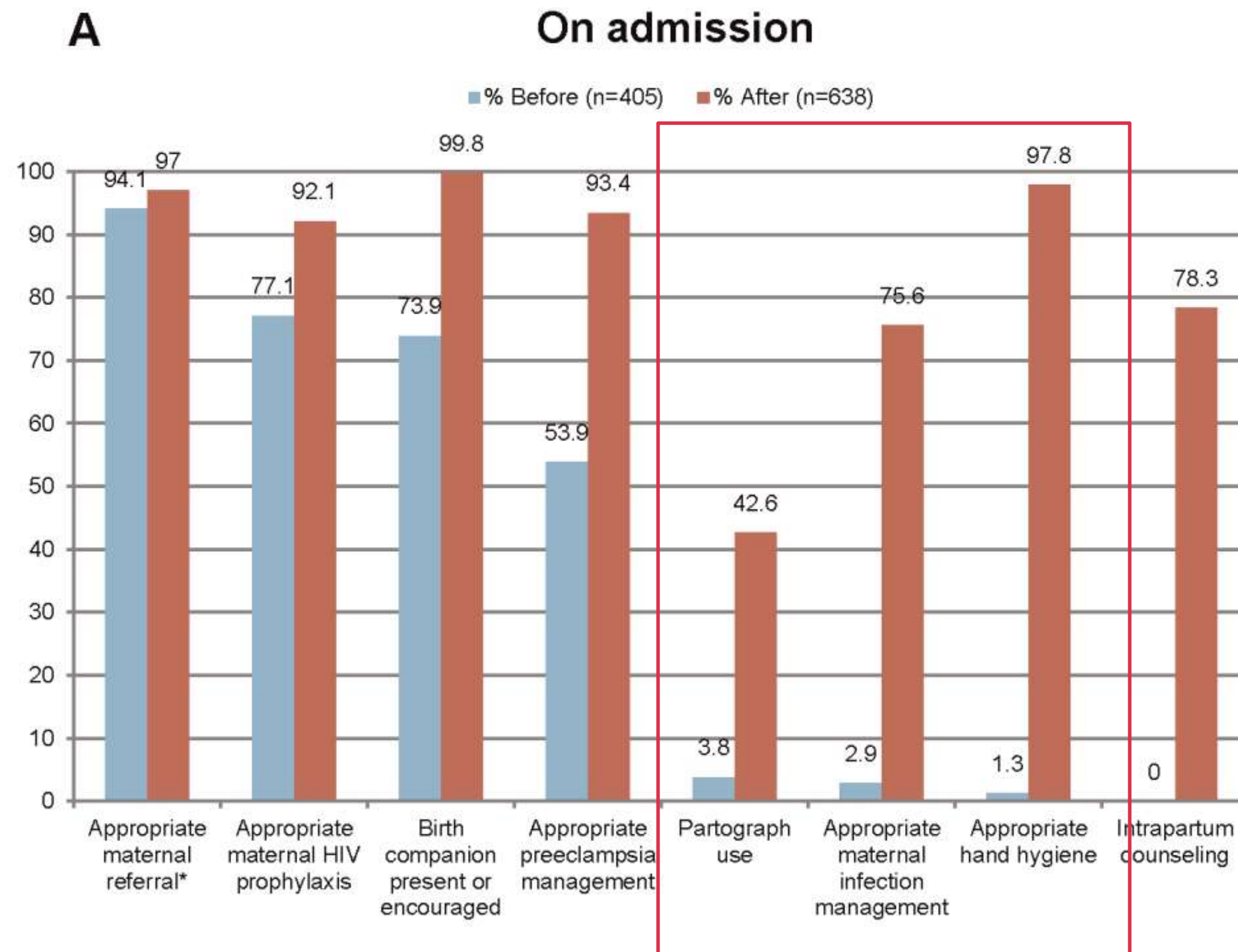
- the average rate of successful delivery of essential childbirth practices by health workers

Results

- **increase** in the delivery of essential childbirth-related care practices **from an average of 10 of 29 practices at baseline to an average of 25 of 29 practices afterwards**



The WHO Safe Childbirth Checklists Collaboratives





Action Plan at Neema



- Customization of the tool



- Coaching on basic principal of patient safety



- Piloting of the Safe Child Birth Checklits



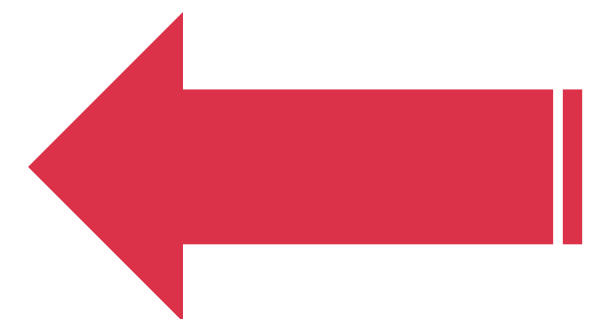
- Monitoring and evaluation



- Recustomization




- Launch



FIRST RESULTS



Customization of the WHO SCC and Coaching

BEFORE BIRTH
WHO Safe Childbirth Checklist  World Health Organization

1 On Admission

Does mother need:
☐ No
☐ Yes, organized

Partograph started:
☐ No, will start when ready
☐ Yes

Does mother need:
Antibiotics?
☐ No
☐ Yes, given

Magnesium sulfate and antihypertensive treatment:
☐ No
☐ Yes, magnesium sulfate
☐ Yes, antihypertensive


☐ Confirm supplies clean hands and vaginal exam.

☐ Encourage birth at birth.

☐ Confirm that mother has help during labor.

This checklist is not intended to be used for more information on recommendations.
© WHO 2015
WHO Safe Childbirth Checklist

2 Just Before Pushing (Or Before Caesarean)

BEFORE BIRTH
WHO Safe Childbirth Checklist  World Health Organization

Does mother need to start:
Antibiotics?
☐ No
☐ Yes, given

Magnesium sulfate and antihypertensive treatment:
☐ No
☐ Yes, magnesium sulfate
☐ Yes, antihypertensive

Confirm essential supplies prepare for delivery:
For mother:
☐ Gloves
☐ Alcohol-based hand disinfectant
☐ Chlorhexidine 10 units in 100 ml

For baby:
☐ Clean towel
☐ Sterile blade to cut cord
☐ Suction device
☐ Bag-and-mask


Does baby need:
Referral?
☐ No
☐ Yes, given

Antibiotics?
☐ No
☐ Yes, given

Special care and monitor:
☐ No
☐ Yes, organized

☐ Assistant identified at birth if needed.

This checklist is not intended to be used for more information on recommendations.
WHO Safe Childbirth Checklist

3 AFTER BIRTH
WHO Safe Childbirth Checklist  World Health Organization

Is mother bleeding abnormally?
☐ No
☐ Yes, shout for help

4 Before Discharge

☐ Confirm stay at facility for 24 hours after delivery.

Does mother need to start antibiotics?
☐ No
☐ Yes, given

Ask for allergies before administration of any medication
Give antibiotics to mother if any of:
• Mother's temperature $\geq 38^{\circ}\text{C}$
• History of foul-smelling vaginal discharge
• Rupture of membranes >18 hrs
• Caesarean section

Is mother's blood pressure normal?
☐ No, treat and delay discharge
☐ Yes

Give magnesium sulfate to mother if any of:
• Diastolic BP ≥ 110 mmHg and 3+ proteinuria
• Diastolic BP ≥ 90 mmHg, 2+ proteinuria, and any: severe headache, visual disturbance, epigastric pain
Give antihypertensive medication to mother if systolic BP >160 mmHg
• Goal: keep BP $<150/100$ mmHg

Is mother bleeding abnormally?
☐ No
☐ Yes, treat and delay discharge

If pulse >110 beats per minute and blood pressure <90 mmHg
• Start IV and keep mother warm
• Treat cause (hypovolemic shock)

Does baby need to start antibiotics?
☐ No
☐ Yes, give antibiotics, delay discharge, give special care

Give antibiotics to baby if any of:
• Respiratory rate >60 /min or <30 /min
• Chest indrawing, grunting, or convulsions
• Poor movement on stimulation
• Baby's temp $<35^{\circ}\text{C}$ (and not rising after warming) or baby's temp $>38^{\circ}\text{C}$
• Stopped breastfeeding well
• Umbilical redness extending to skin or draining pus

Is baby feeding well?
☐ No, establish good breastfeeding practices and delay discharge
☐ Yes

☐ Discuss and offer family planning options to mother.

☐ Arrange follow-up and confirm mother / companion will seek help if danger signs appear after discharge.

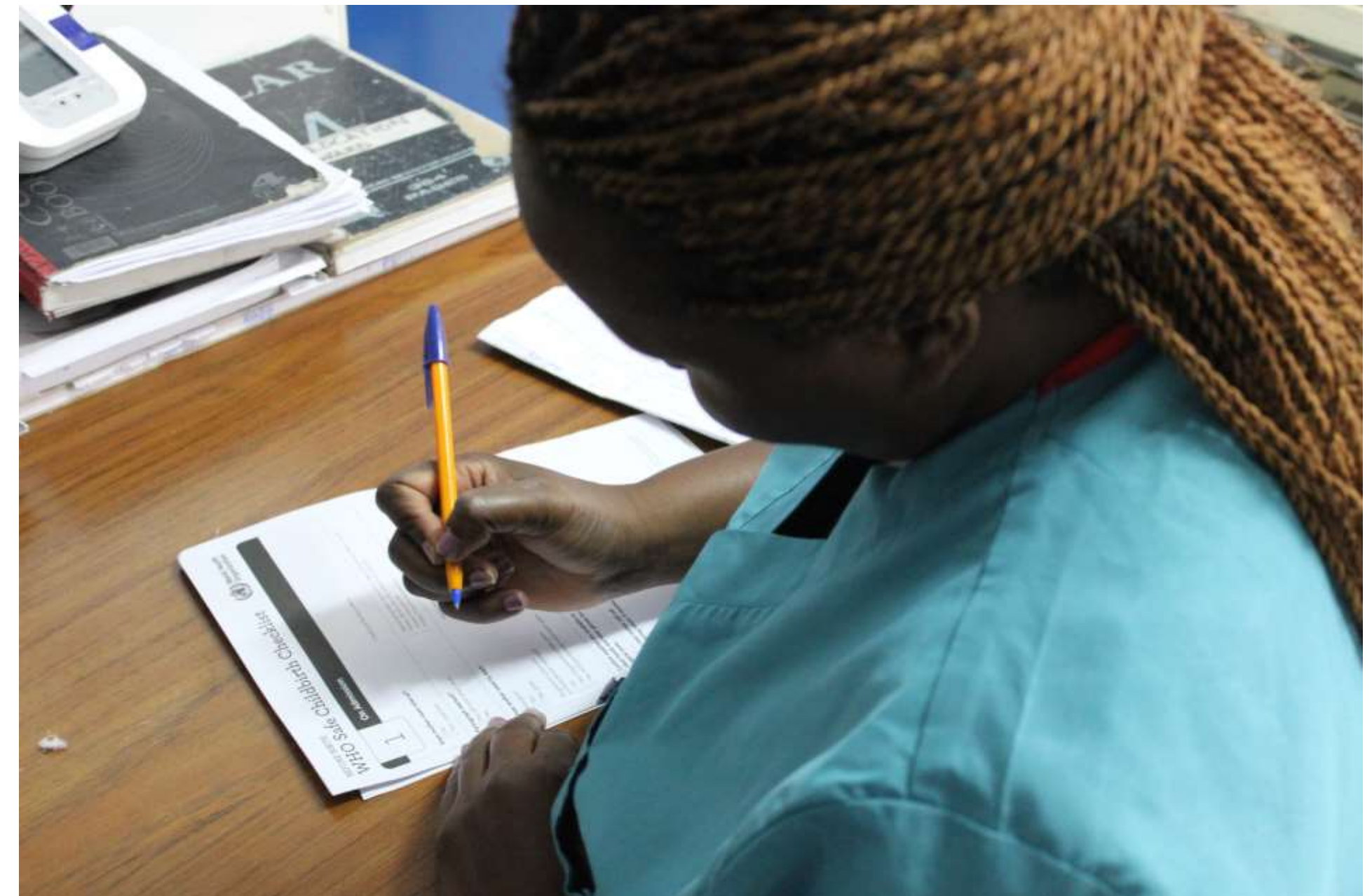
Danger Signs

Mother has any of:
• Bleeding
• Severe abdominal pain
• Severe headache or visual disturbance
• Breathing difficulty
• Fever or chills
• Difficulty emptying bladder

Baby has any of:
• Fast/difficult breathing
• Fever
• Unusually cold
• Stops feeding well
• Less activity than normal
• Whole body becomes yellow

Responsibility for the interpretation and use of the material in this checklist lies with the user. In no event shall the World Health Organization be liable for damages arising from its use. This pilot edition is for research purposes and is under refinement by a WHO-led international collaborative. For more information visit www.who.int/patientsafety
WHO Safe Childbirth Checklist

Completed by _____



Customization

- Hospital workflow and guidelines
- Health workers needs
- Cultural peculiarities

Coaching

- To a group of midwife and nurses
- “coach the coaches”
- By trained midwife and nurses
- “cascade coaching”



Monitoring and evaluation of the intervention

1- Usability, efficiency and functionality survey

- Anonymous questionnaire administered to a group of 10 representatives of the delivery unit

2- Prospective pre and post-intervention clinical record review for evaluating the effect of introduction of the checklist on some selected process measures

- Sample of 75 clinical records both before and after the intervention
- Clinical records sampled from the period February-March 2016 and October-November 2016 (after 3 months of piloting)

3- Hospital Survey on Patient Safety (AHRQ)

- AHRQ anonymous questionnaire administered to a group of 50 hospital workers in order to measure their perception about patient safety issue, medical errors and reporting



1_Usability, efficiency and functionality survey

Number of workers that participated in the survey: 10

Number of workers in the Maternal and neonatal unit: 45

Professional background: Midwife (10/10)

Years of experience: most between 2 and 4 years

- Most of them finds that the checklist **was easy or very easy to used**
- Half of them feels **very willing or willing** to use the checklist
- More that half of them believe that the checklist **has significantly improved** their practice around childbirth
- All of them believe that the checklist **has improved communication and teamwork**
- All of them believe that the cheklist **has improved awareness of patient safety** in the hospital



2_ Prospective pre and post-intervention clinical record review

Number of clinical records reviewed:

- 75 period pre-intervention (February-March 2016)
- 75 period pre-intervention (October- November 2016)

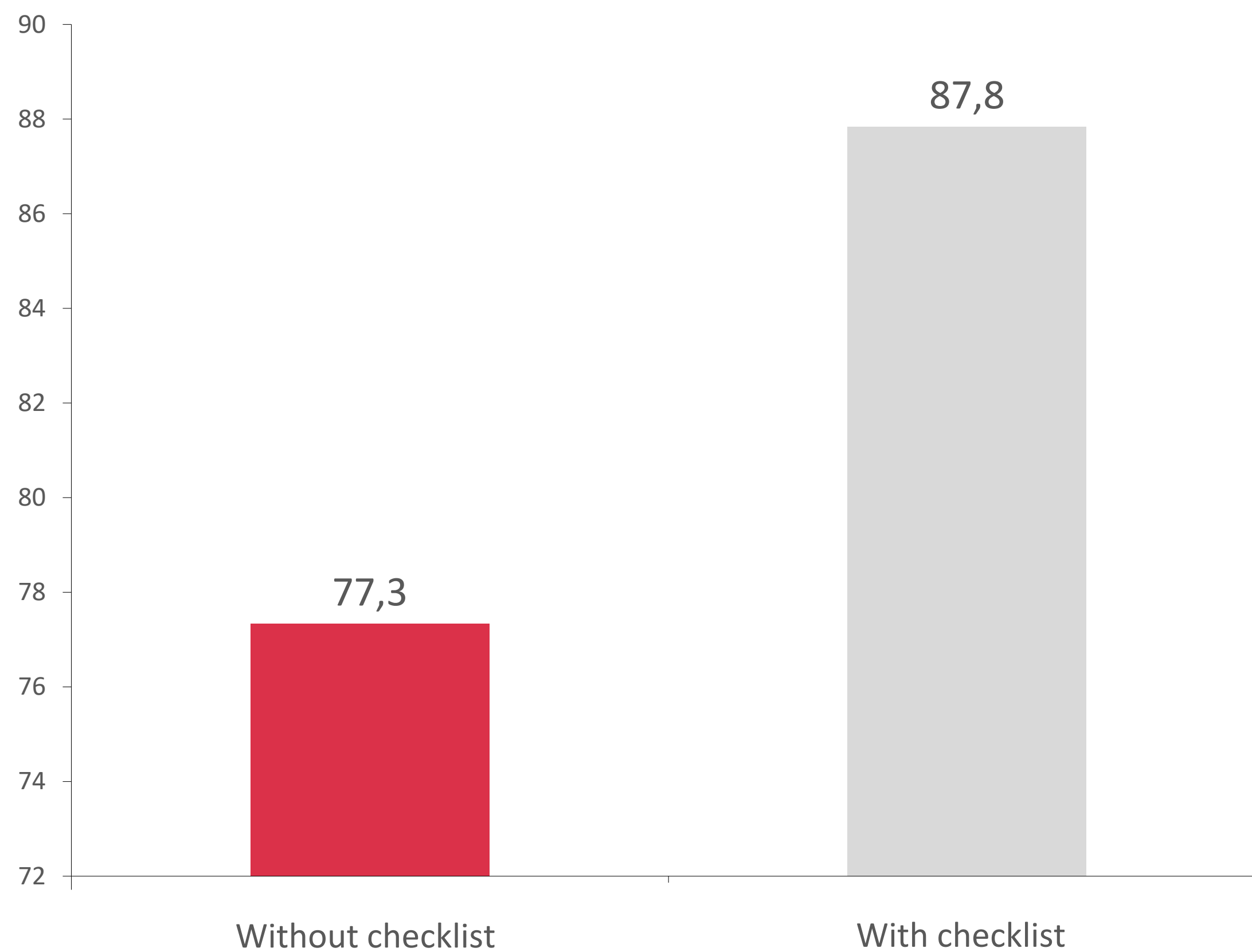
Number of deliveries in the periods:

- period pre-intervention
 - Vaginal delivery: 158
 - Emergency Caesarean Section: 57
 - Planned Caesarean Section: 14
- period pre-intervention
 - Vaginal delivery: 171
 - Emergency Caesarean Section: 71
 - Planned Caesarean Section: 21

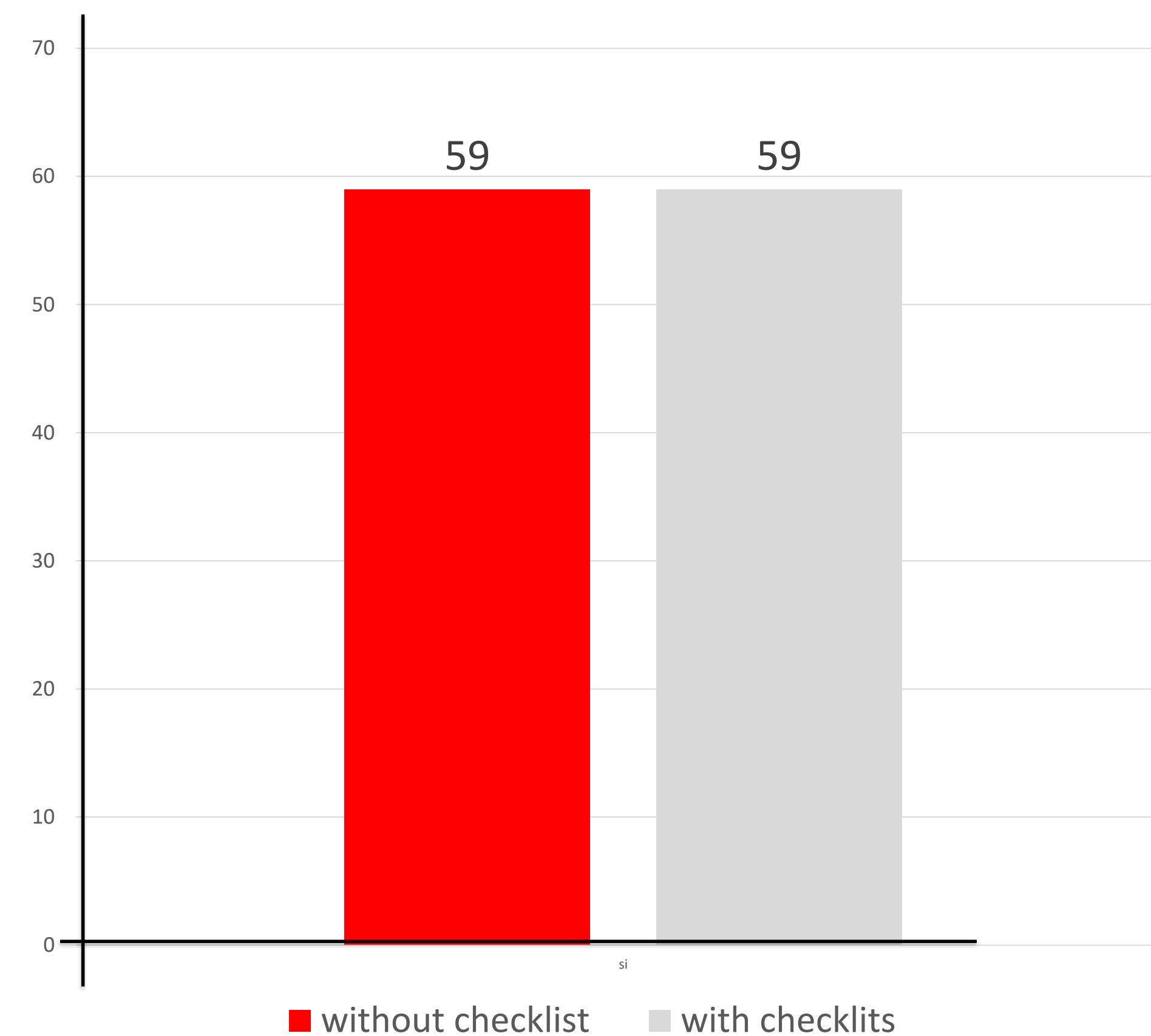


Pre-partum

Heart rate evaluation

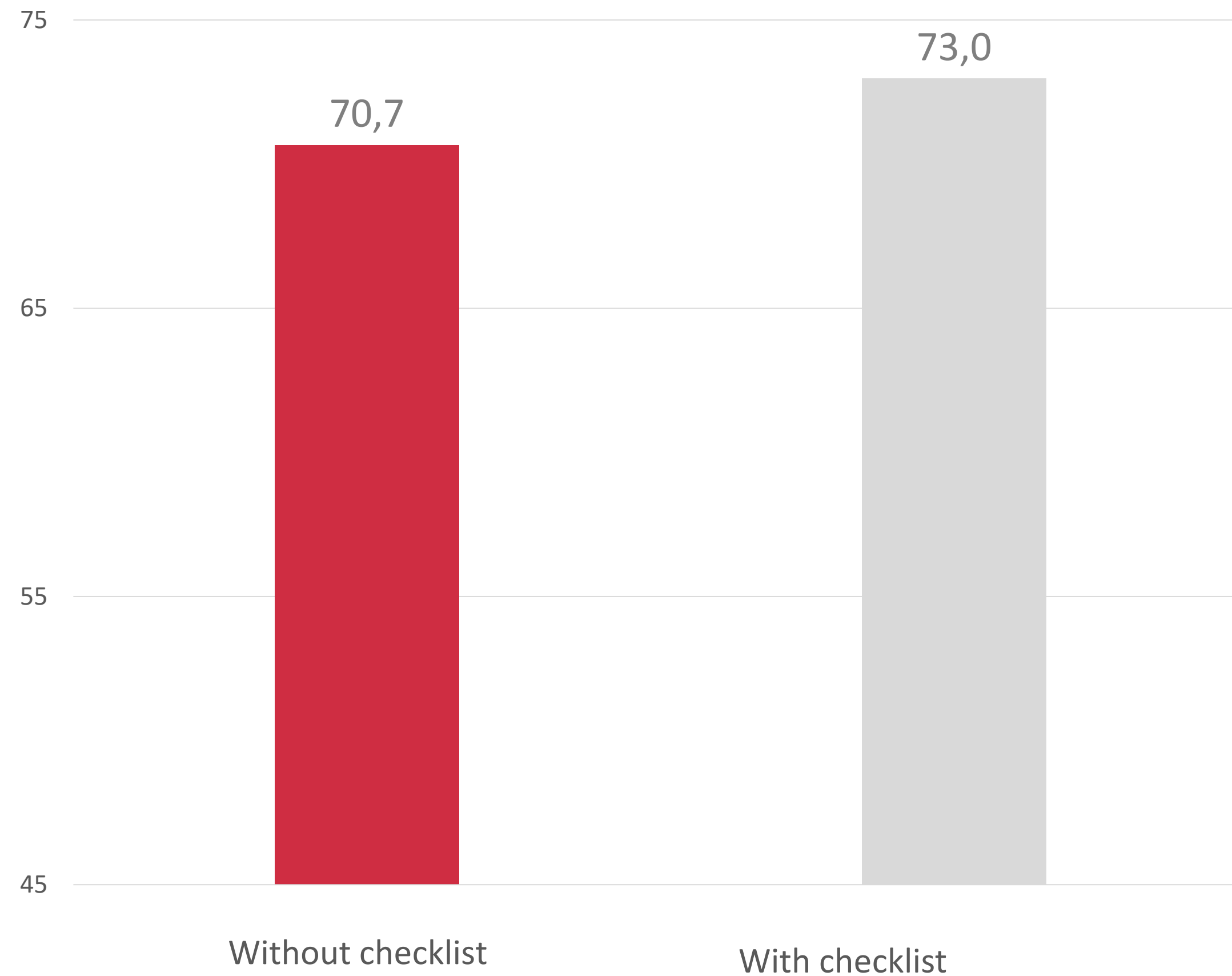


Diastolic Blood pressure evaluation

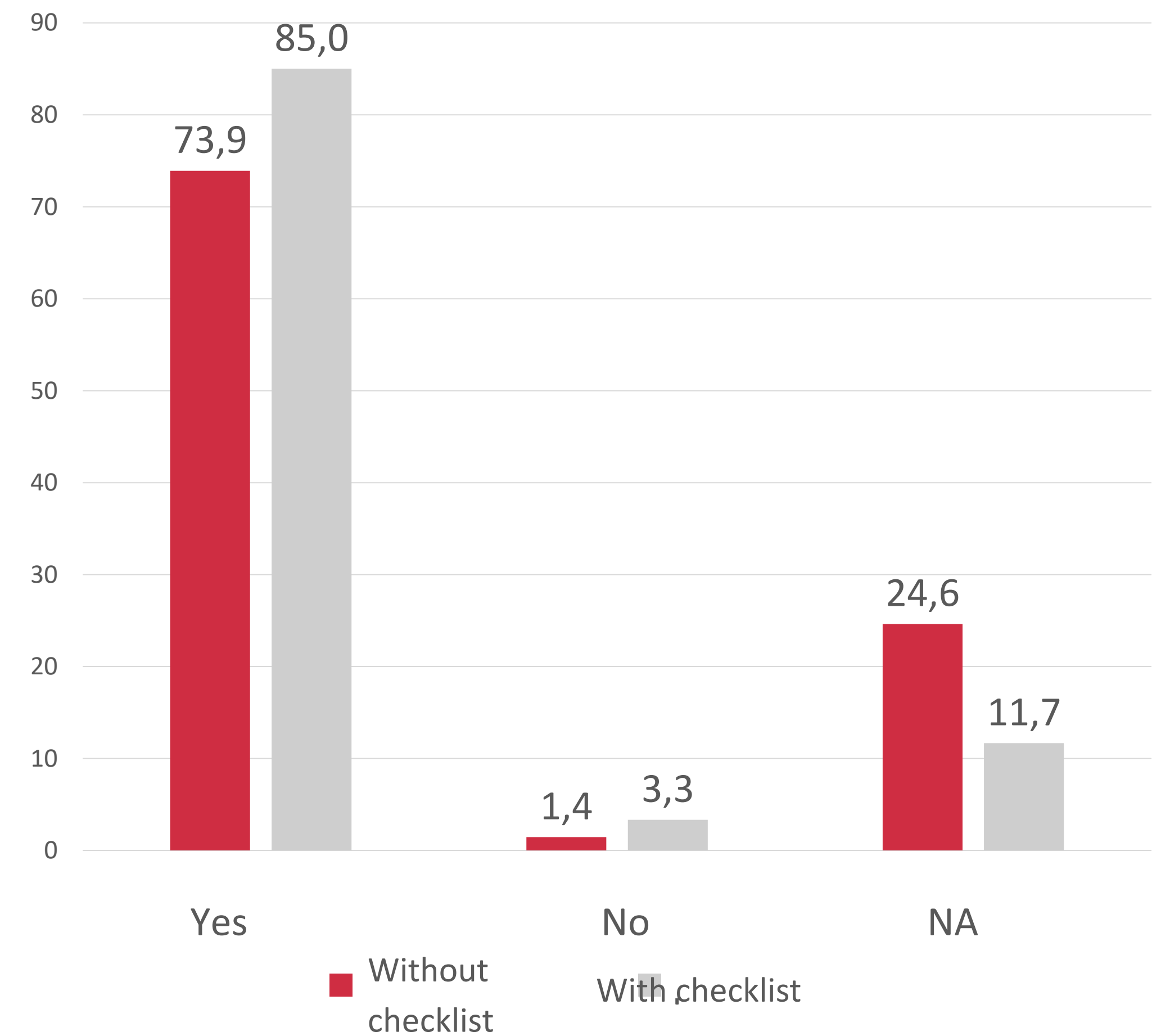


Increase in the number of heart rate evaluation

Presence of the partogram



Evaluation every 4h when cervix ≥ 4 cm

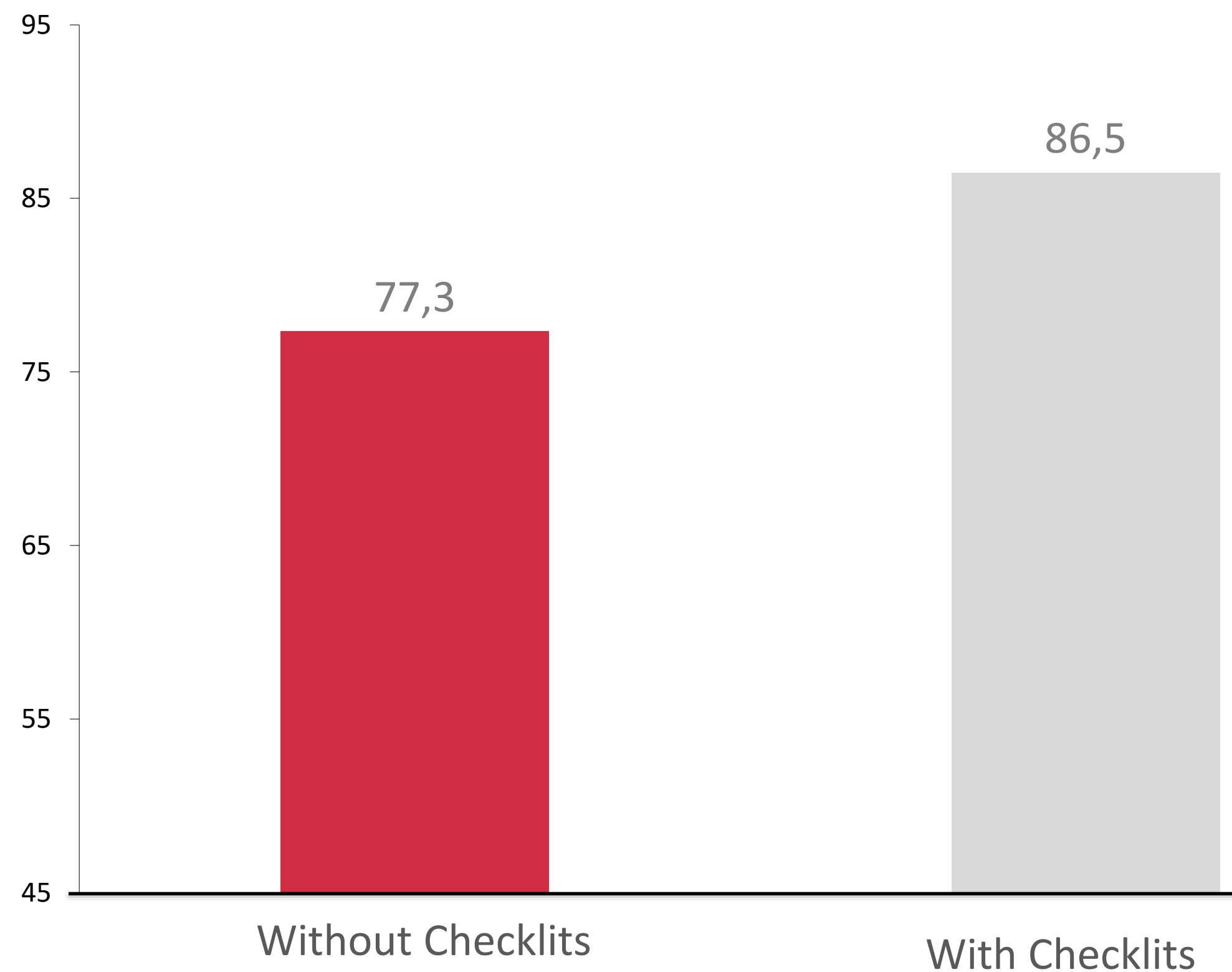


Increase in the number of partograms and in the evaluation of the women every 4 h

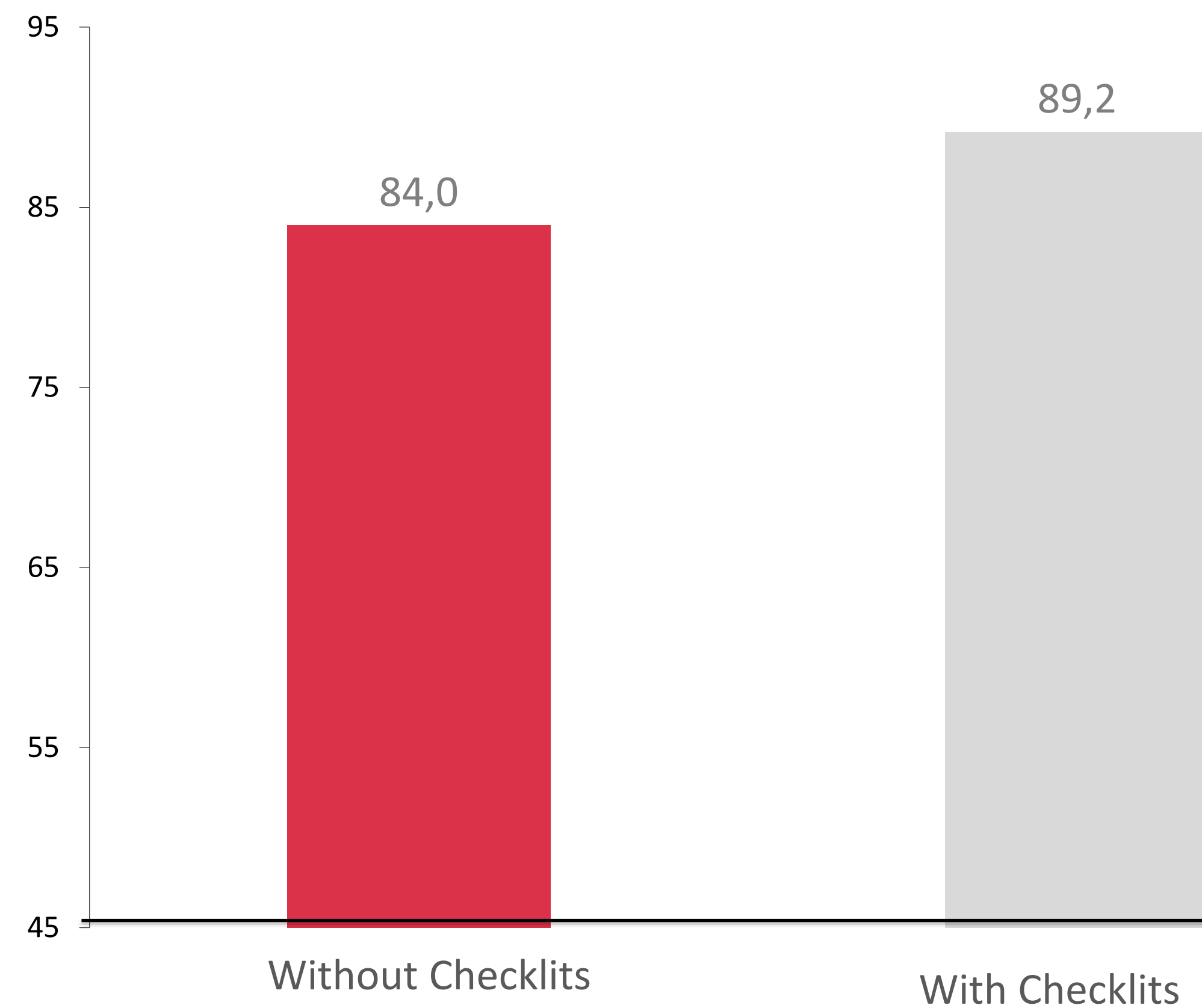


Post-partum

Heart rate evaluation



Diastolic Blood pressure evaluation

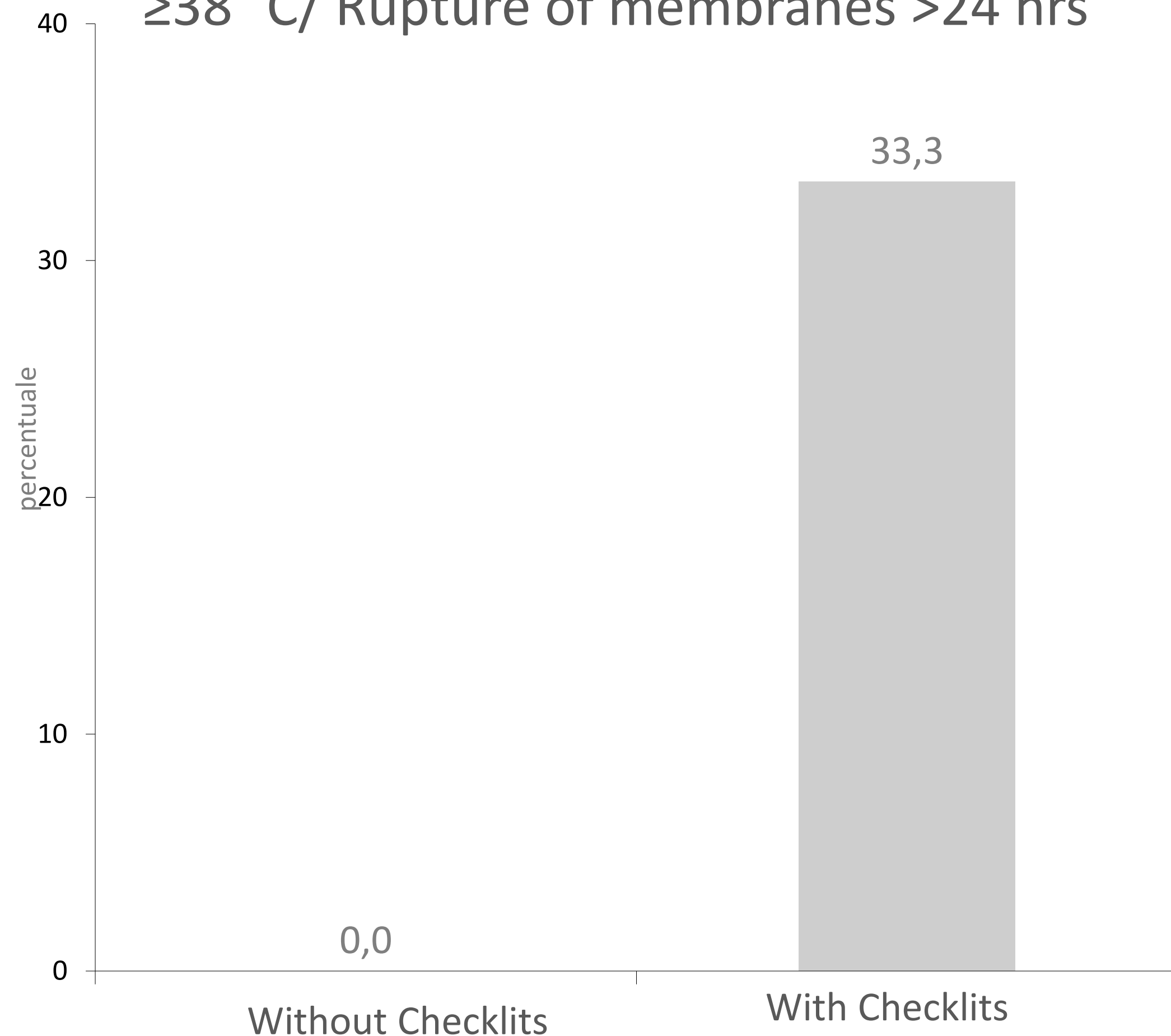


Increase in the number of heart rate and diastolic blood evaluations

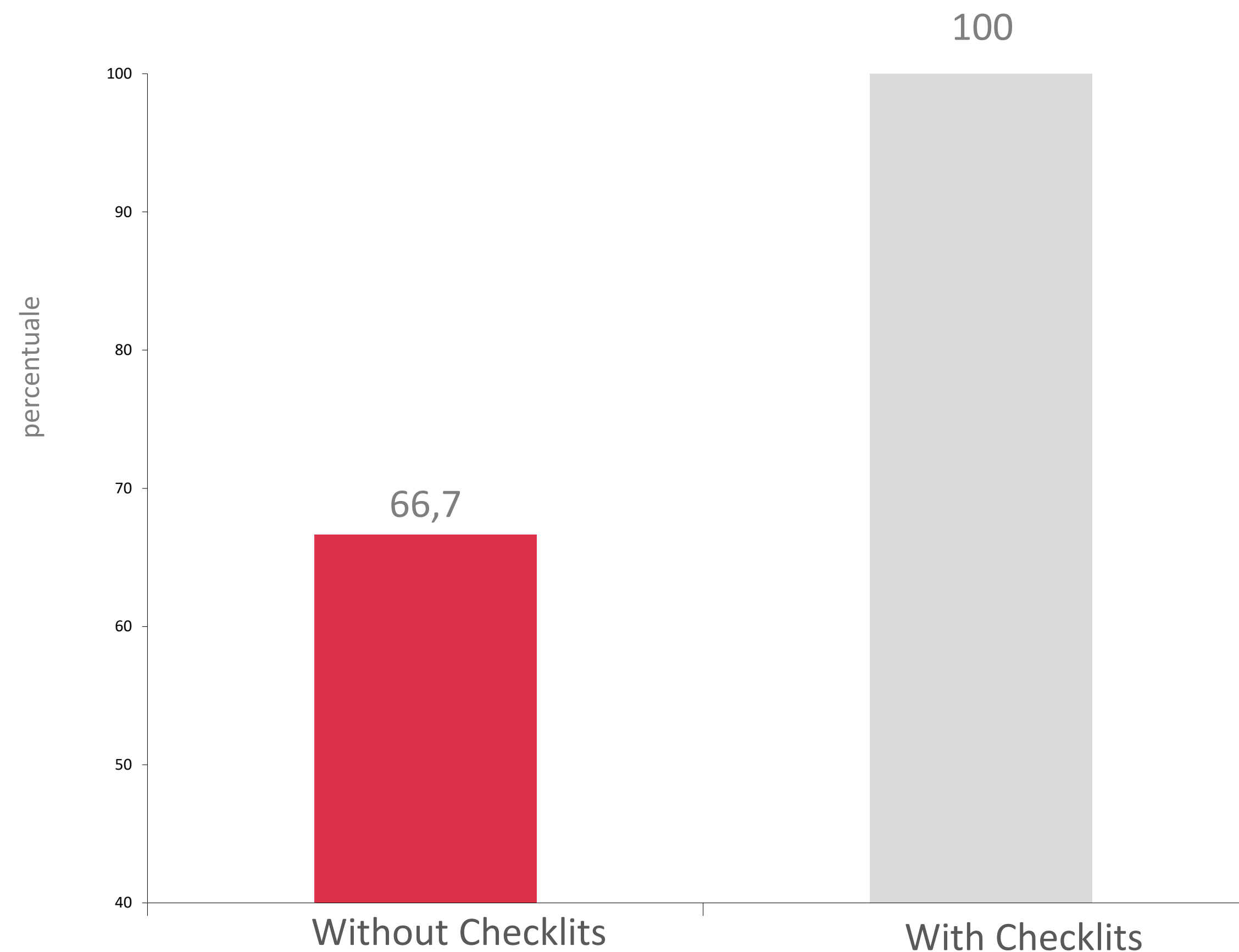


Process Indicators

Adm. antib. if mother's temperature $\geq 38^{\circ}\text{C}$ / Rupture of membranes >24 hrs



Adm. antihyp. Treat. if Diastolic BP ≥ 100

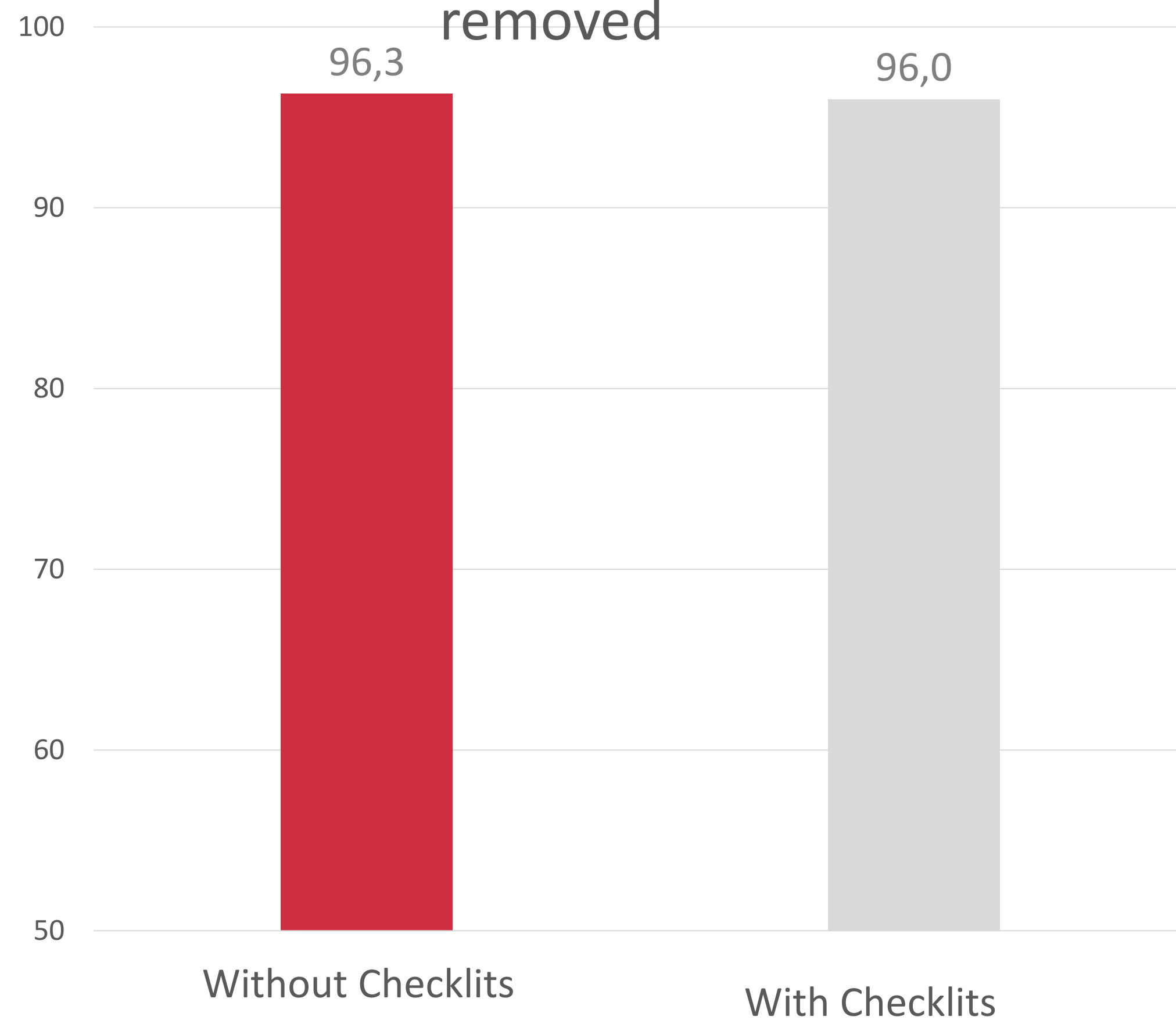


Increase in appropriateness during the administration of antibiotic therapy and antihypertensive treatment

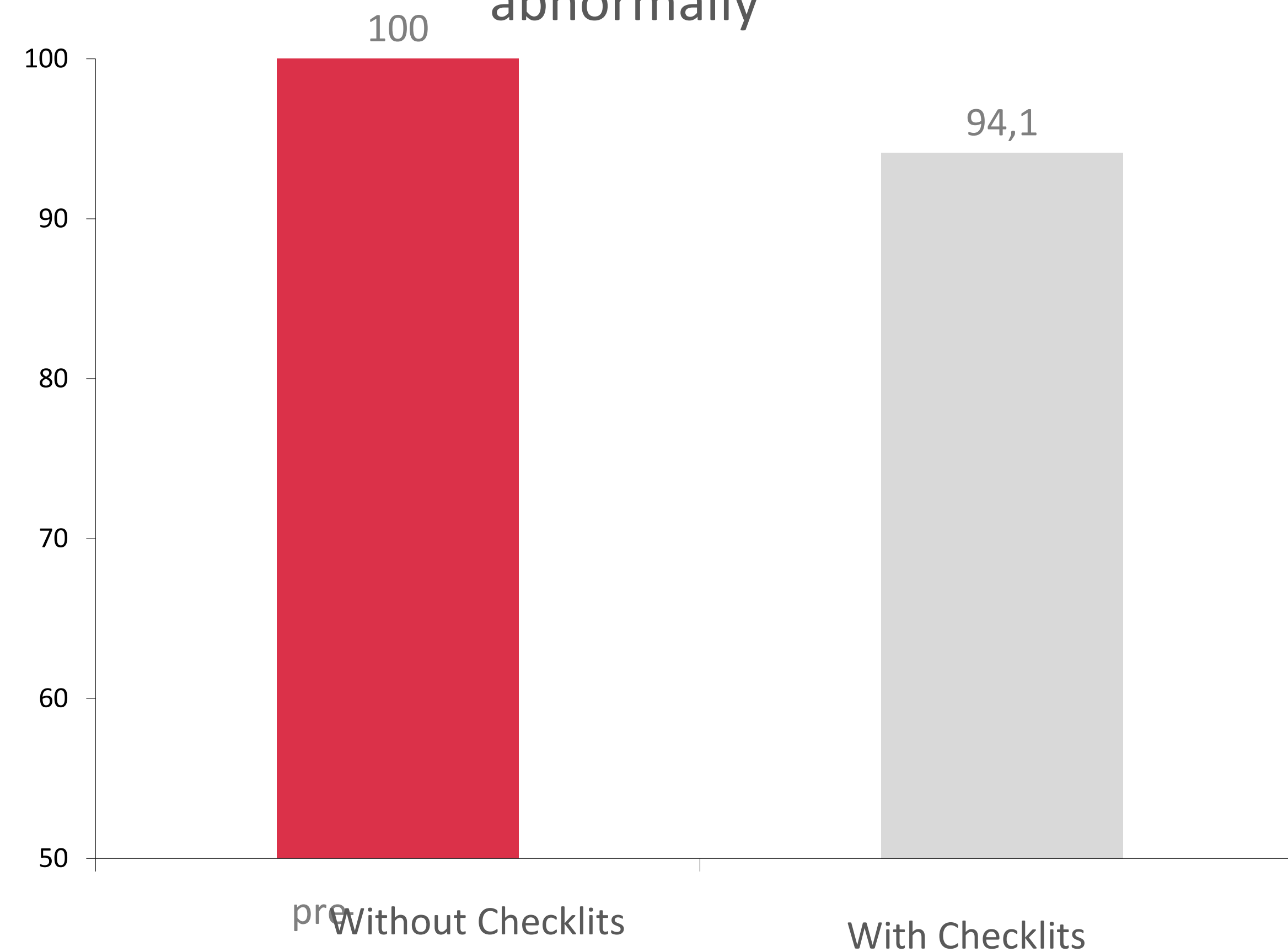


Process Indicators

Adm. Antib. If if placenta manually removed



Adm. Uterotonic if mother is bleeding abnormally

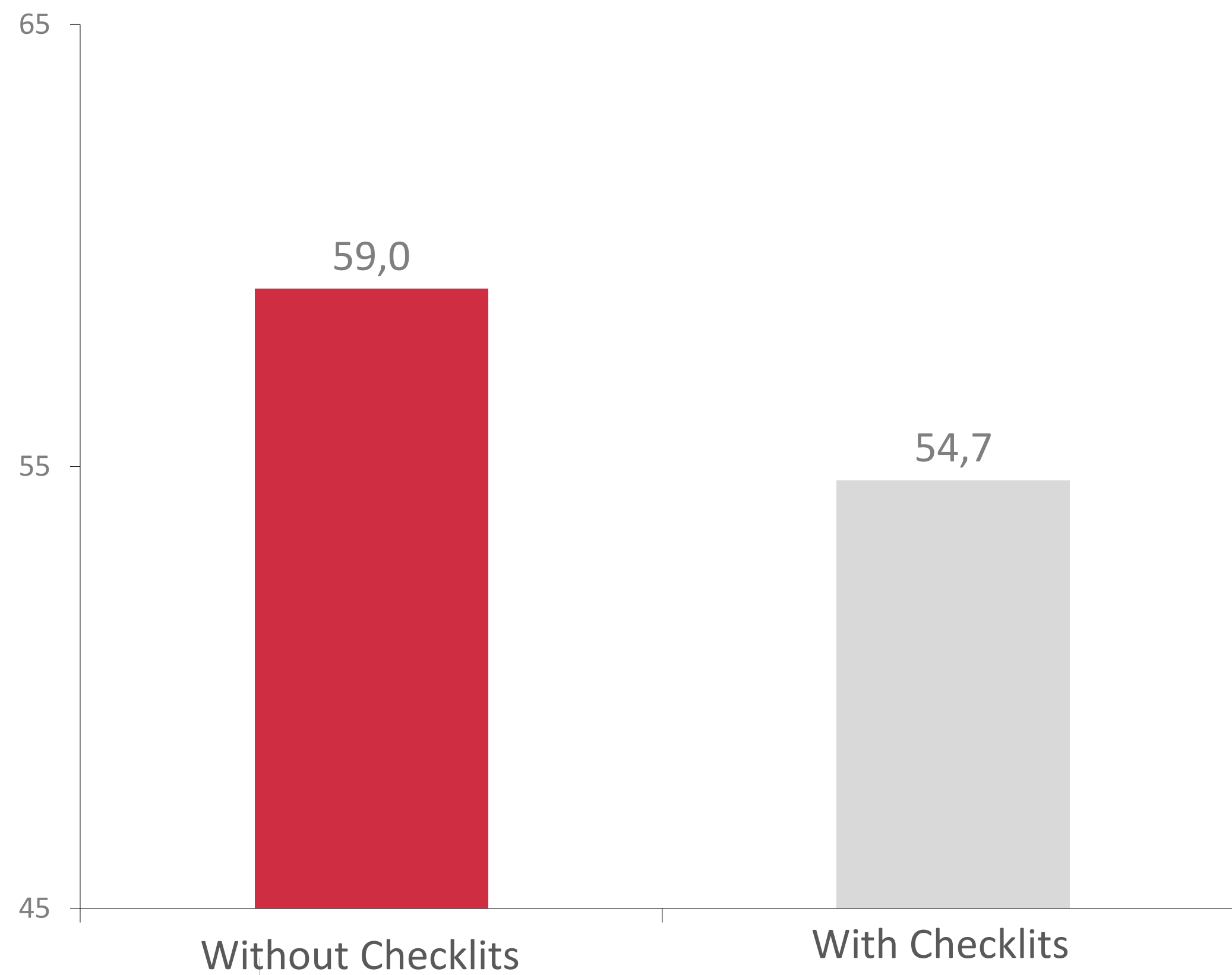


Limited increase in appropriateness in the administration of antibiotic therapy



New born

Breastfeeding within 2 hrs



Detection of the body temperature of newborn within 2 h completely missing



3_Hospital Survey on Patient Safety (AHRQ)

Number of questionnaire: 50

Total personnel: 186

Period of administration: July 2017

Main area/unit (out of 24)

- Rehabilitation (7)
- Laboratory (5)
- Obstetric (4)
- Emergency (4)
- Paediatric (3)

Years in the unit

- 56% 1 year - 5 years
- 20% 6 years-10 years
- 24% less than 1 year

Main professional positions (out of 16)

Registered nurse (11)

Physical, Occupational or speech therapist (5)

Technician (5)

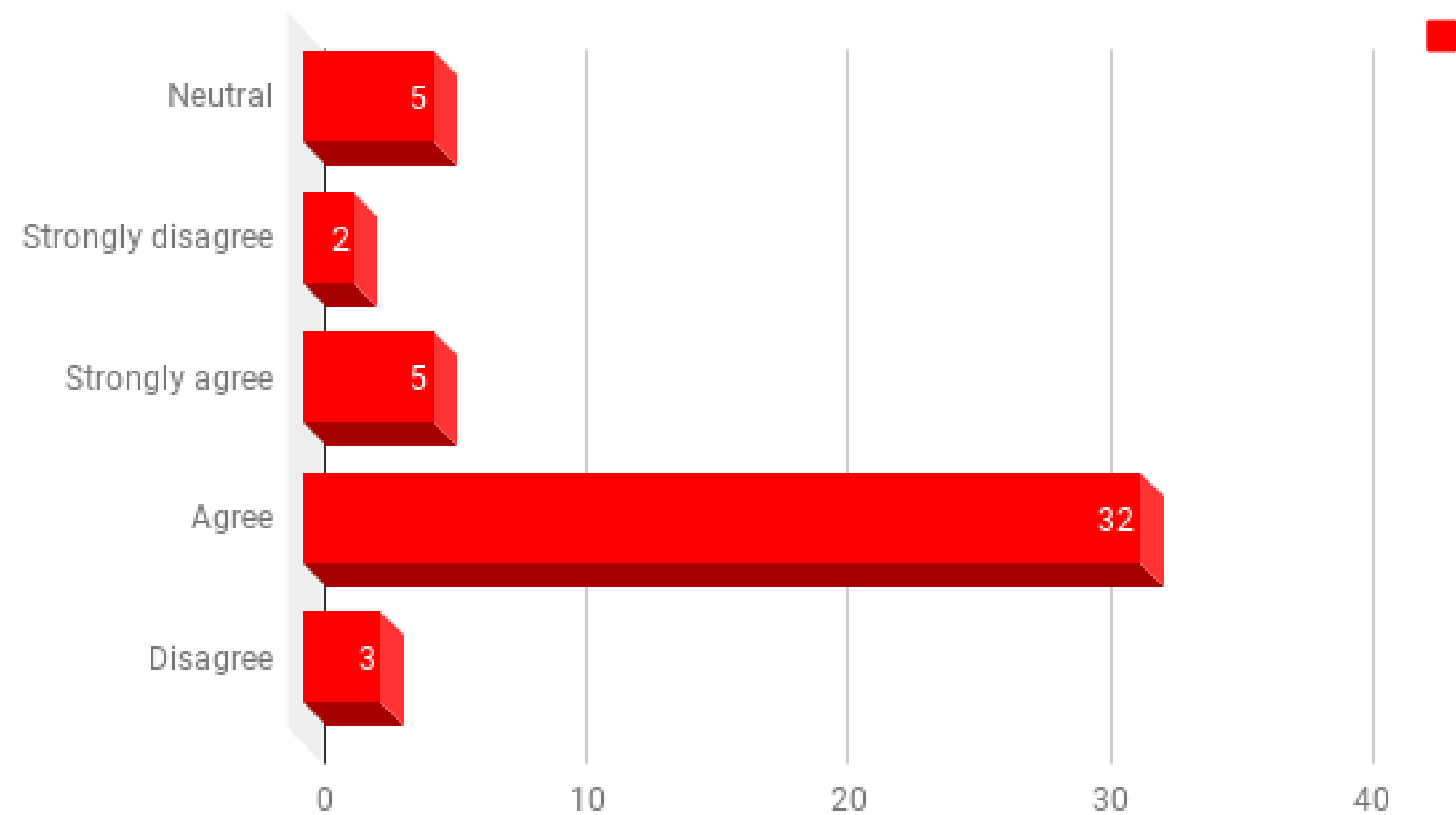
Unit Assistant/ Secretary (3)

Physician Assistant/Nurse practitioner (3)

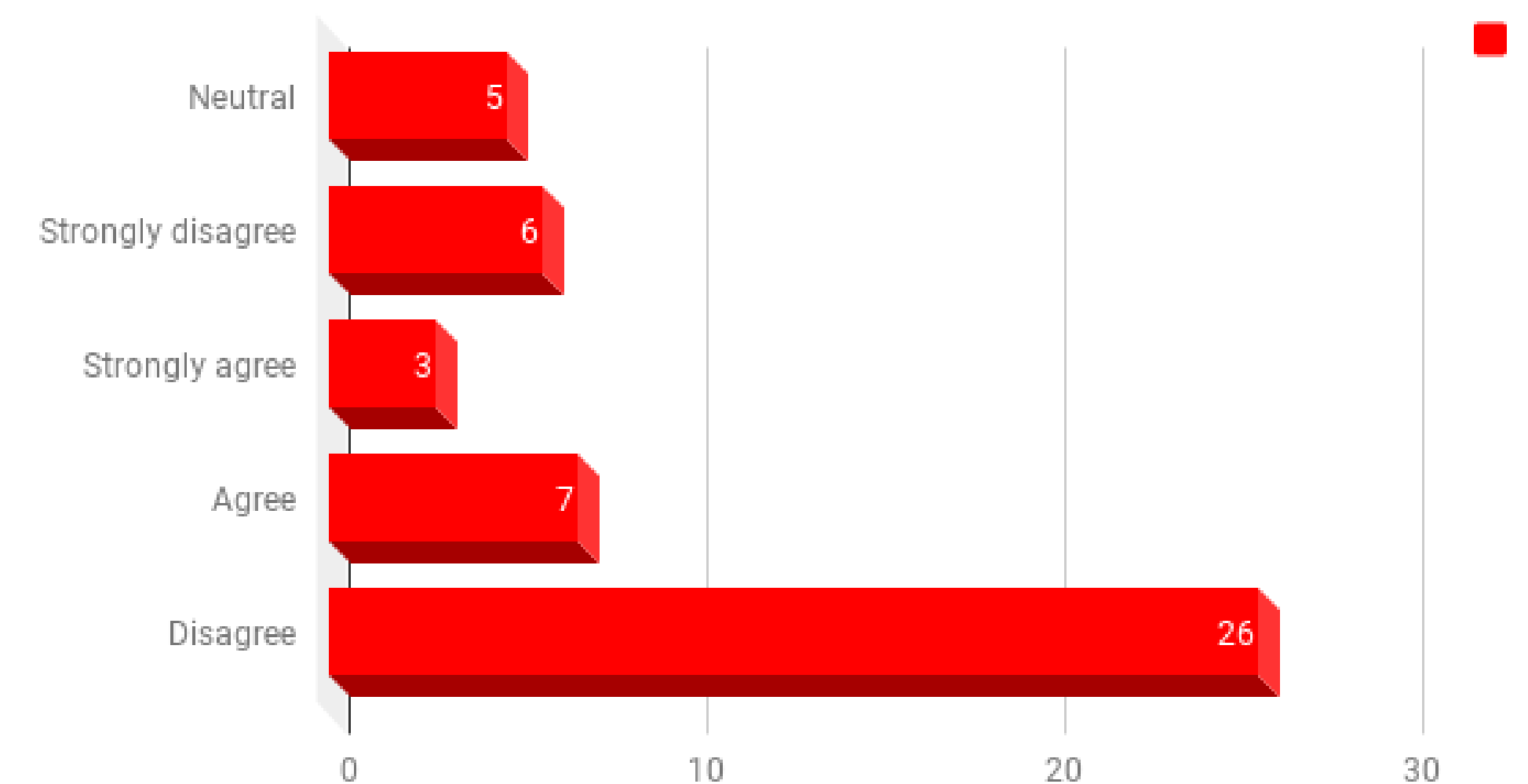


Top Management Commitment

Hospital management provides a work climate that promotes patientsafety



Hospital management seems interested in patient safety only after an adverse event happens

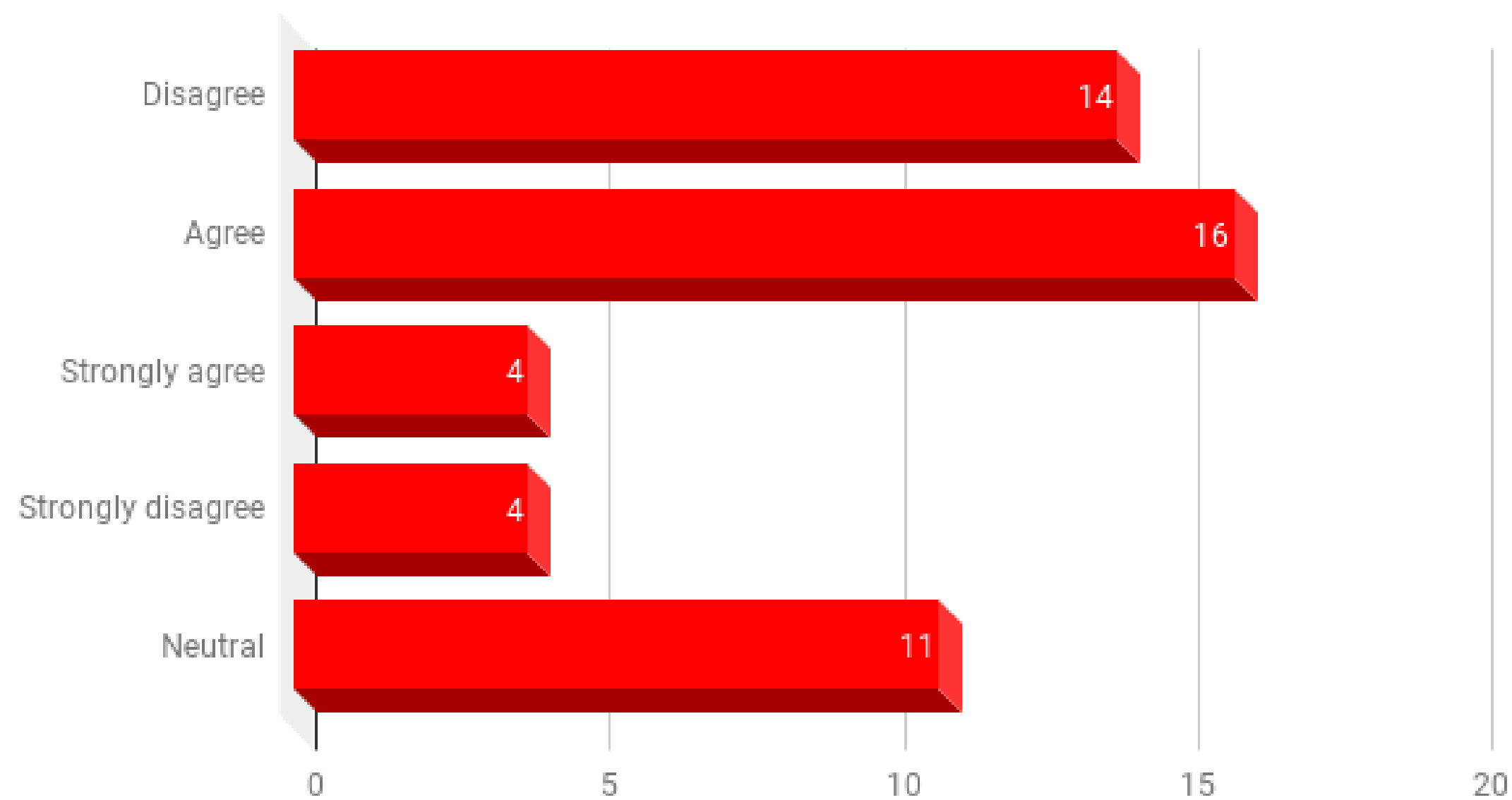


Workers feel that the **top management is committed** in improving patient safety and this represents a **positive background** for developing quality and safety interventions

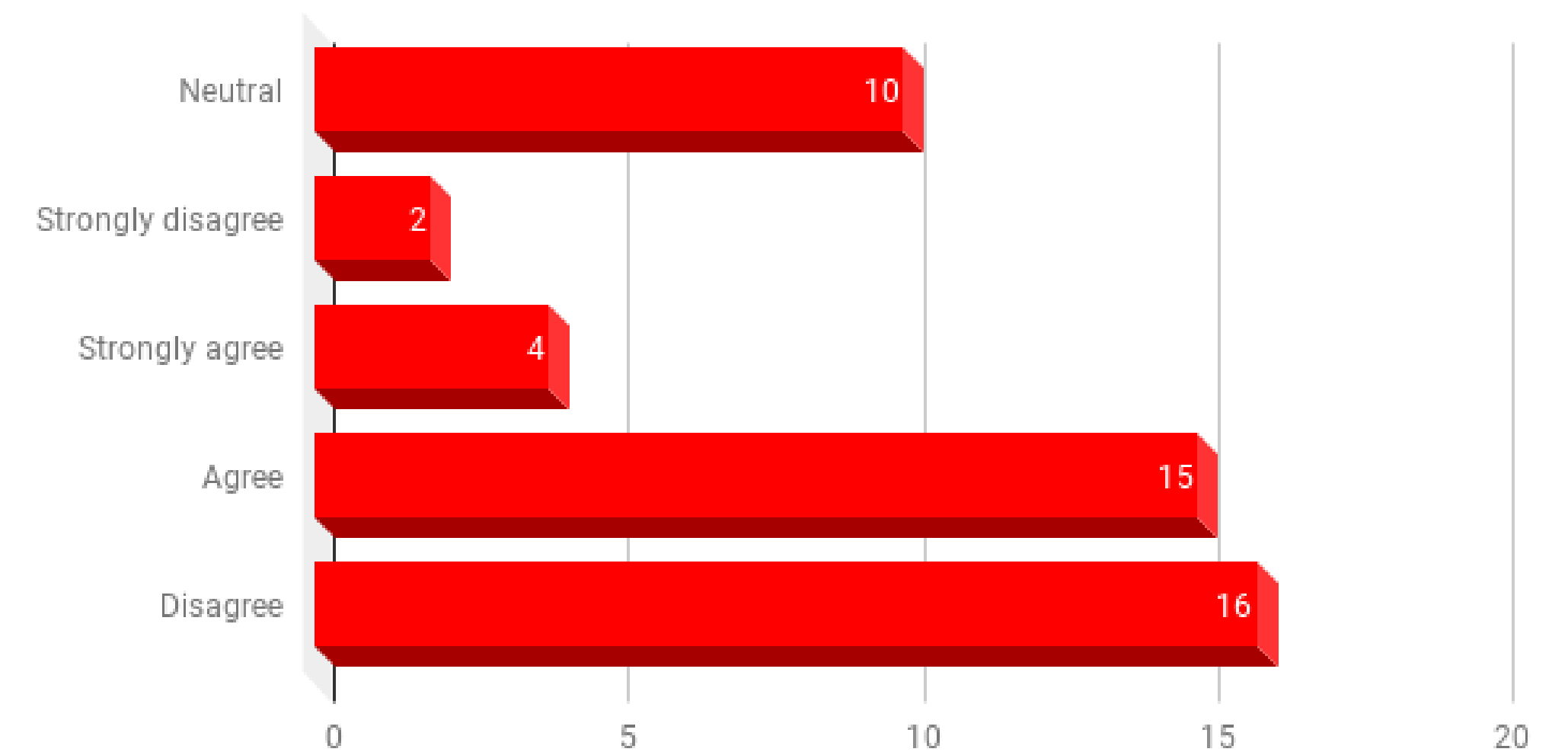


Blame Culture

Staff feel like their mistakes are held against them



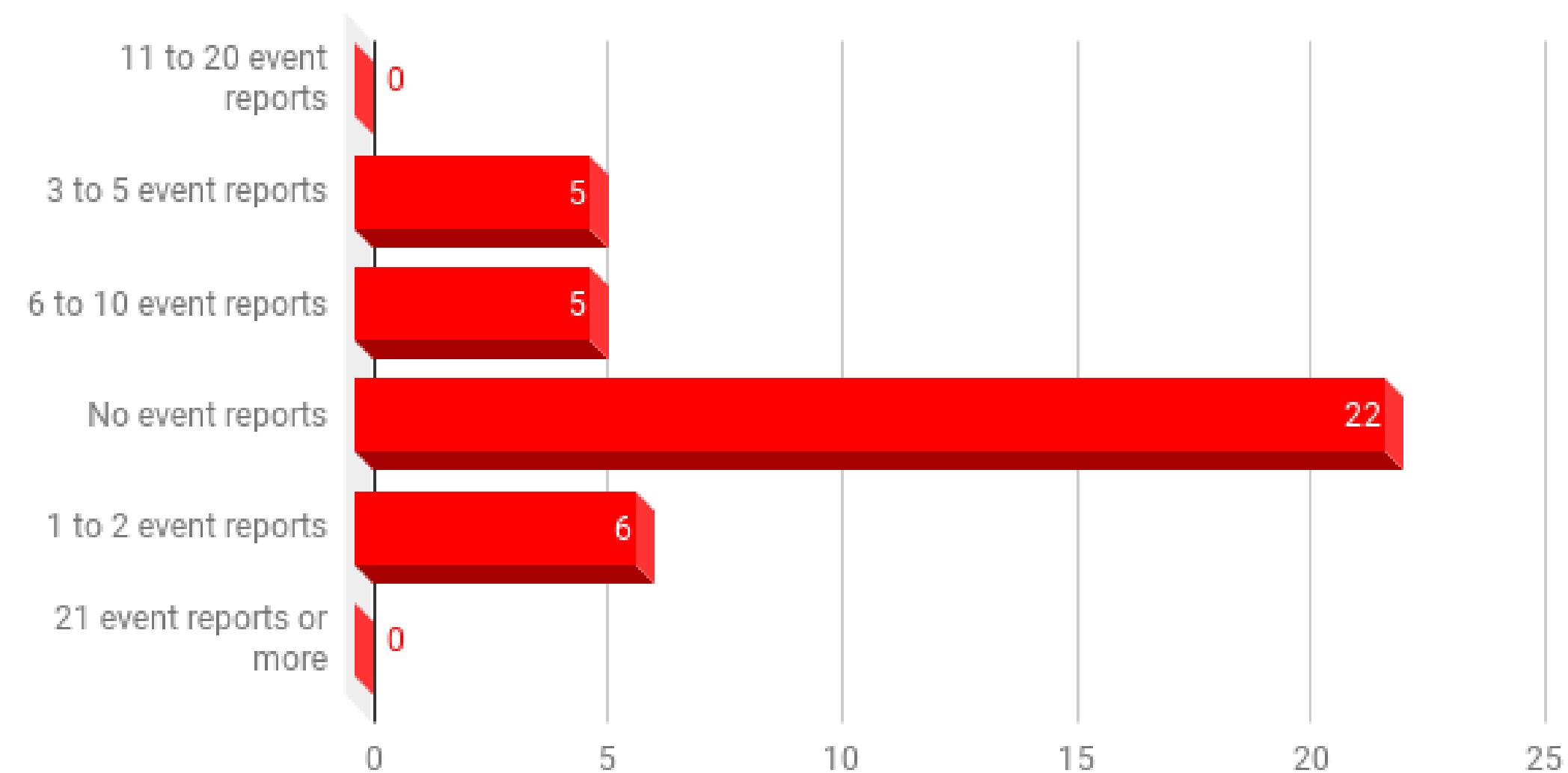
When an event is reported, it feels like the person is being written up, not the problem



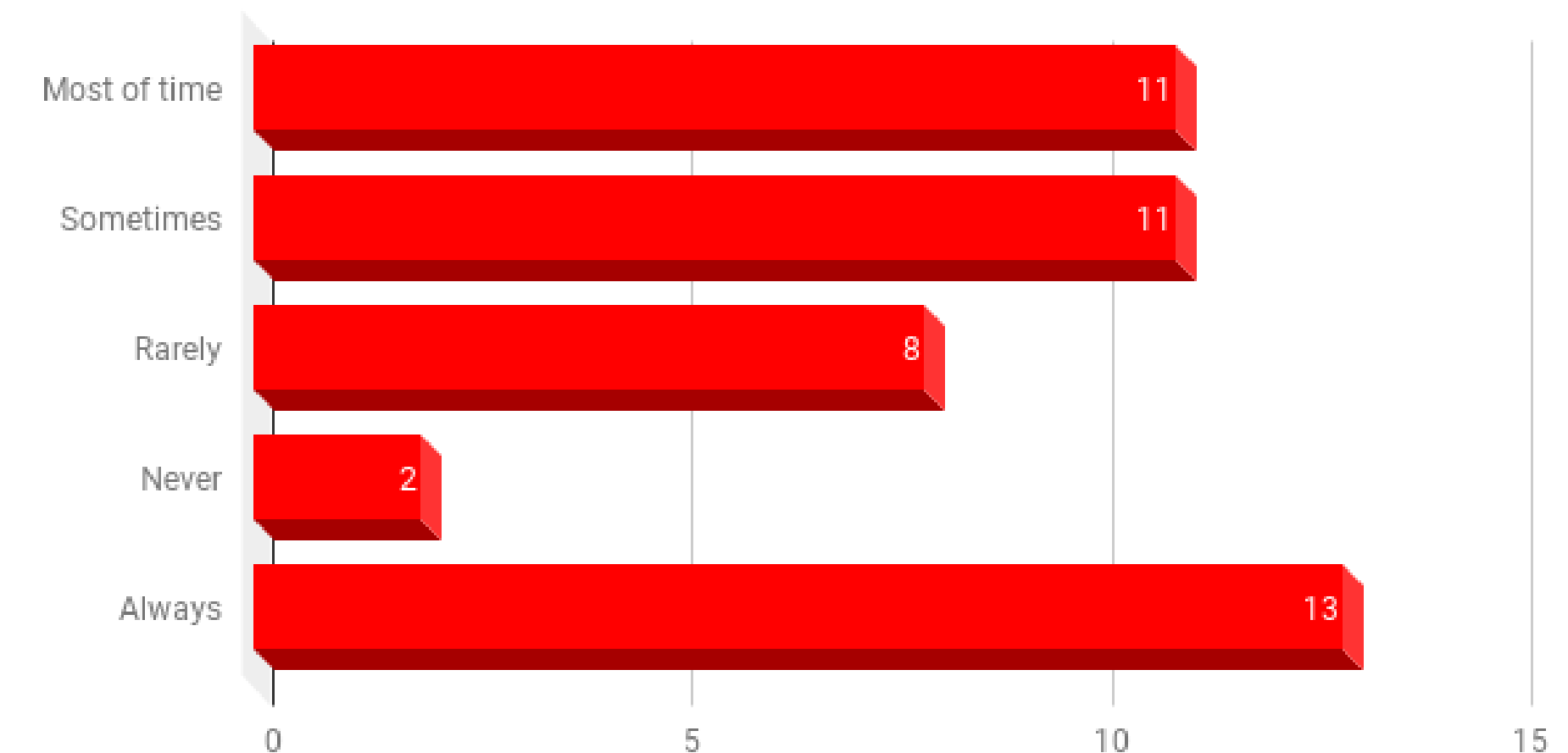
Staff needs to develop **more awareness** on safety culture: about 50% of the staff associate the occurrence of an adverse event to **potential blaming rather than a learning opportunity**.
This can represent a barrier to reporting

Reporting

In the past 12 months, how many event reports have you filled out and submitted?



When a mistake is made that could harm the patient, but does not, how often is this reported?

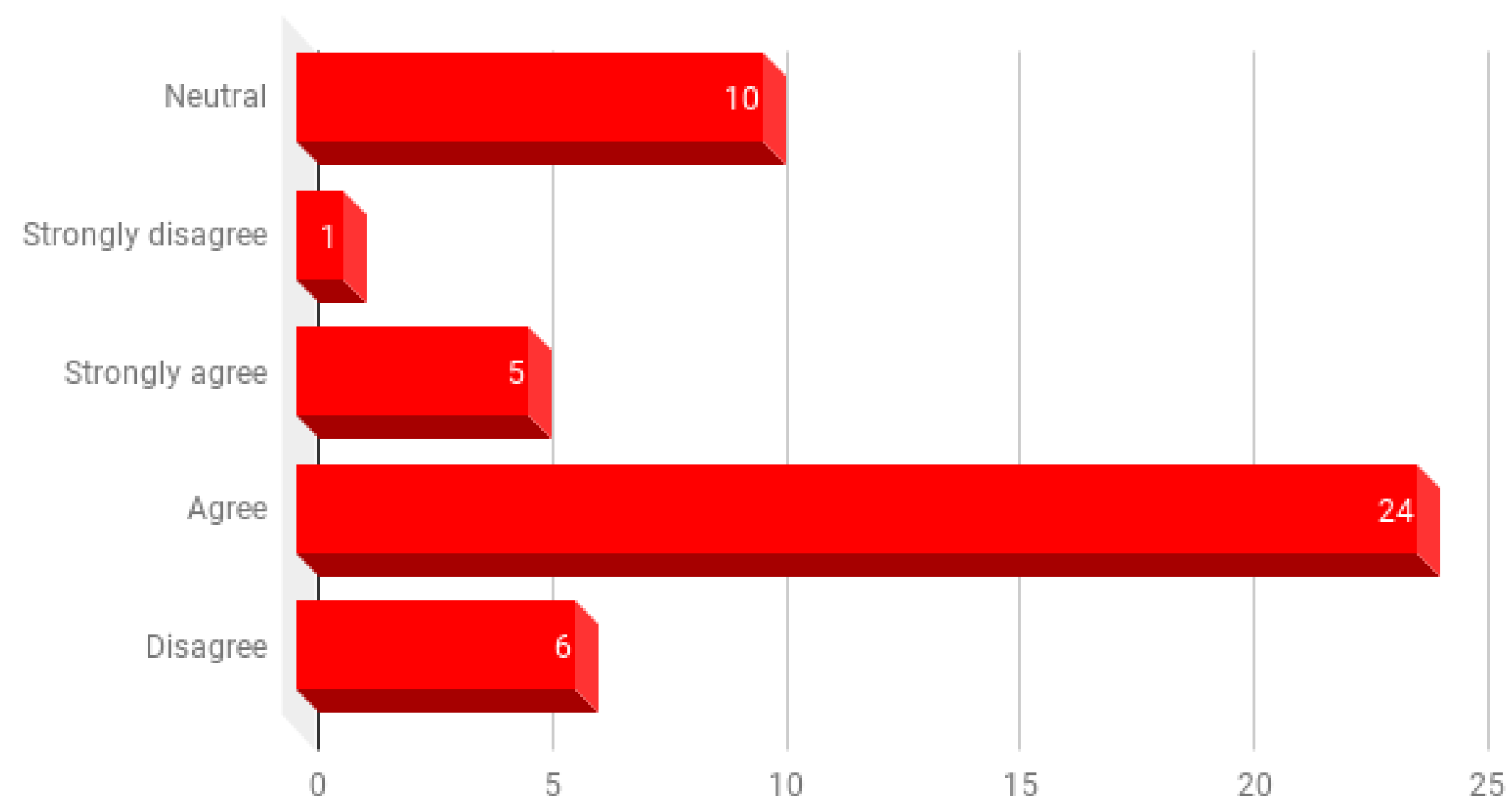


In line with the previous slide, most of the headworkers say that there is a **limited culture of reporting** even related to near misses

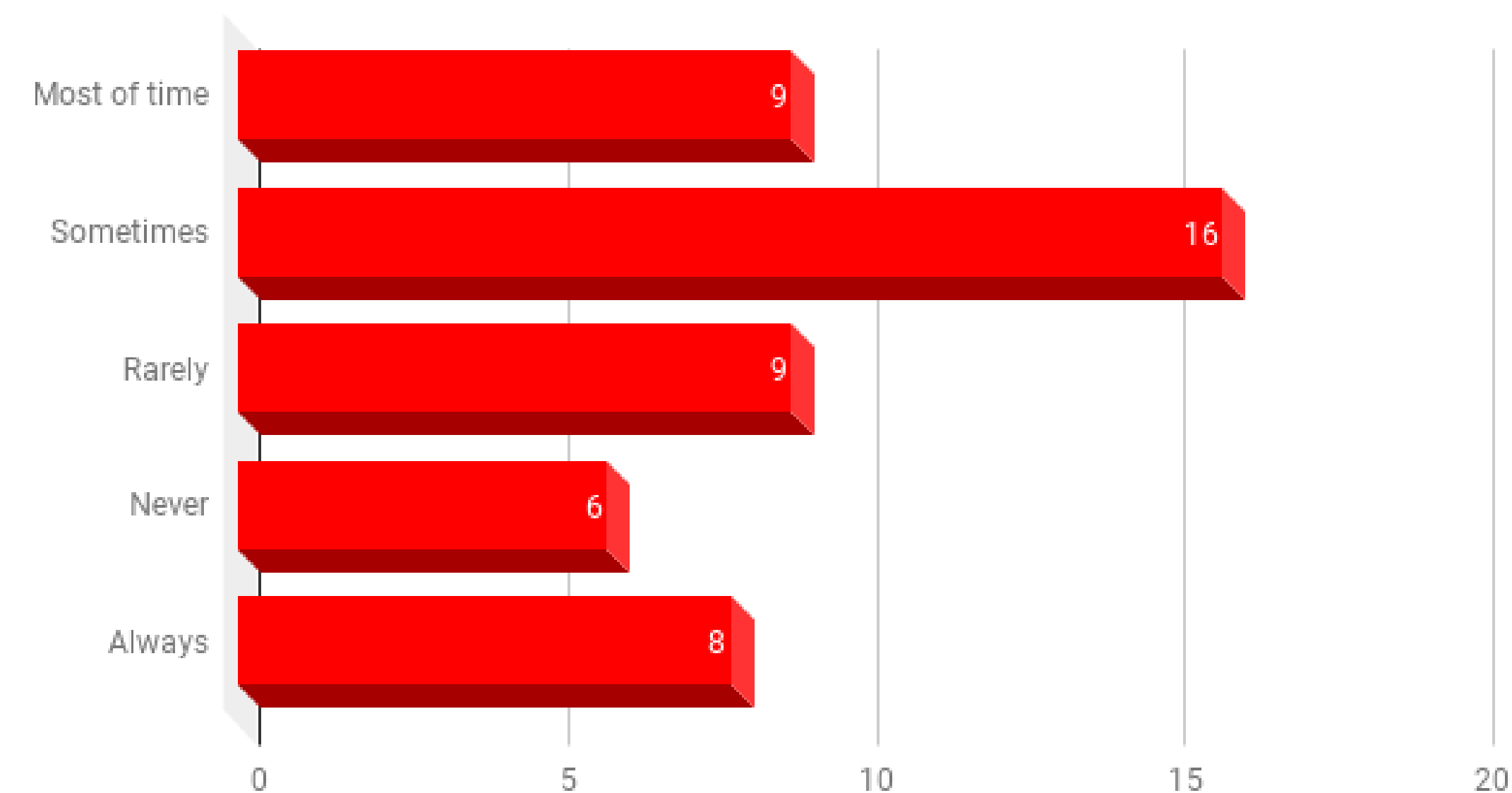


Learning from mistakes

Mistakes have led to positive changes here



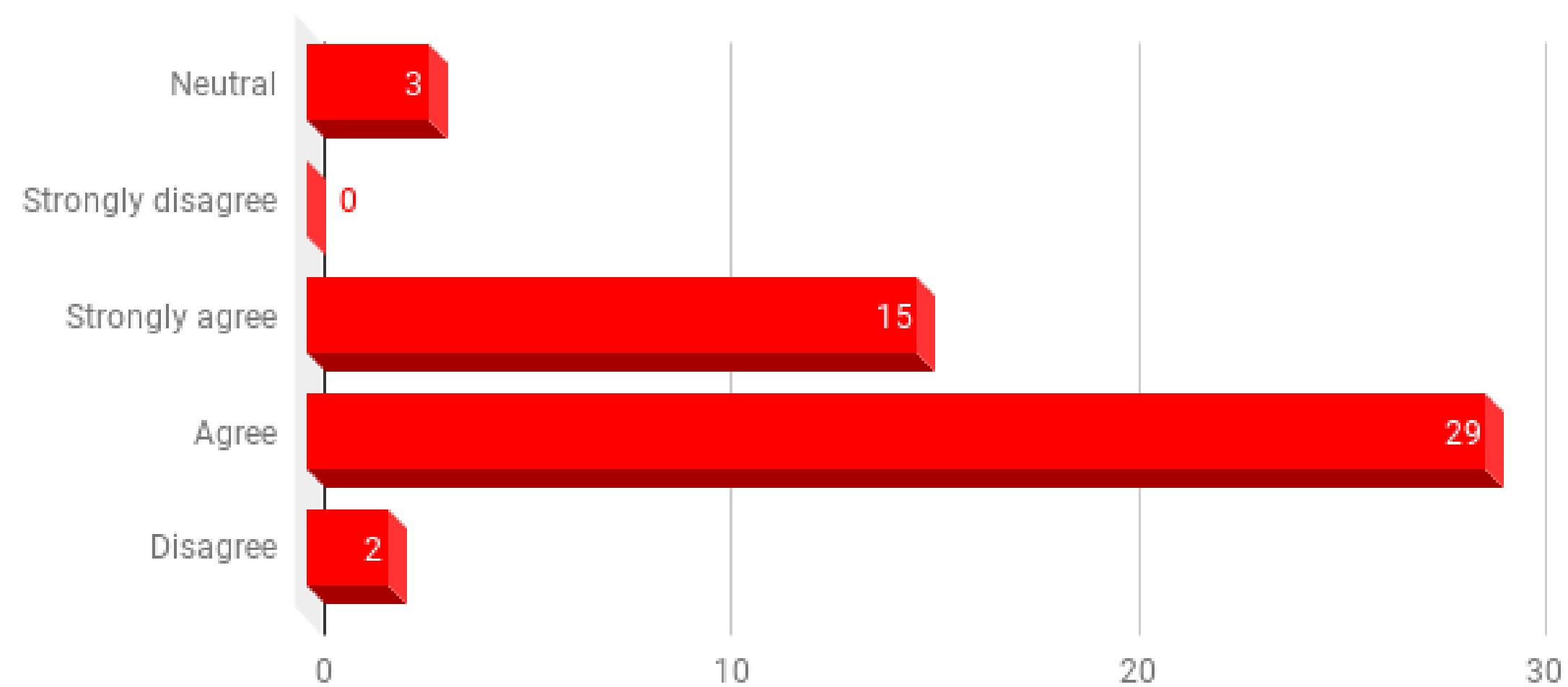
We are given feedback about changes put into place based on event reports



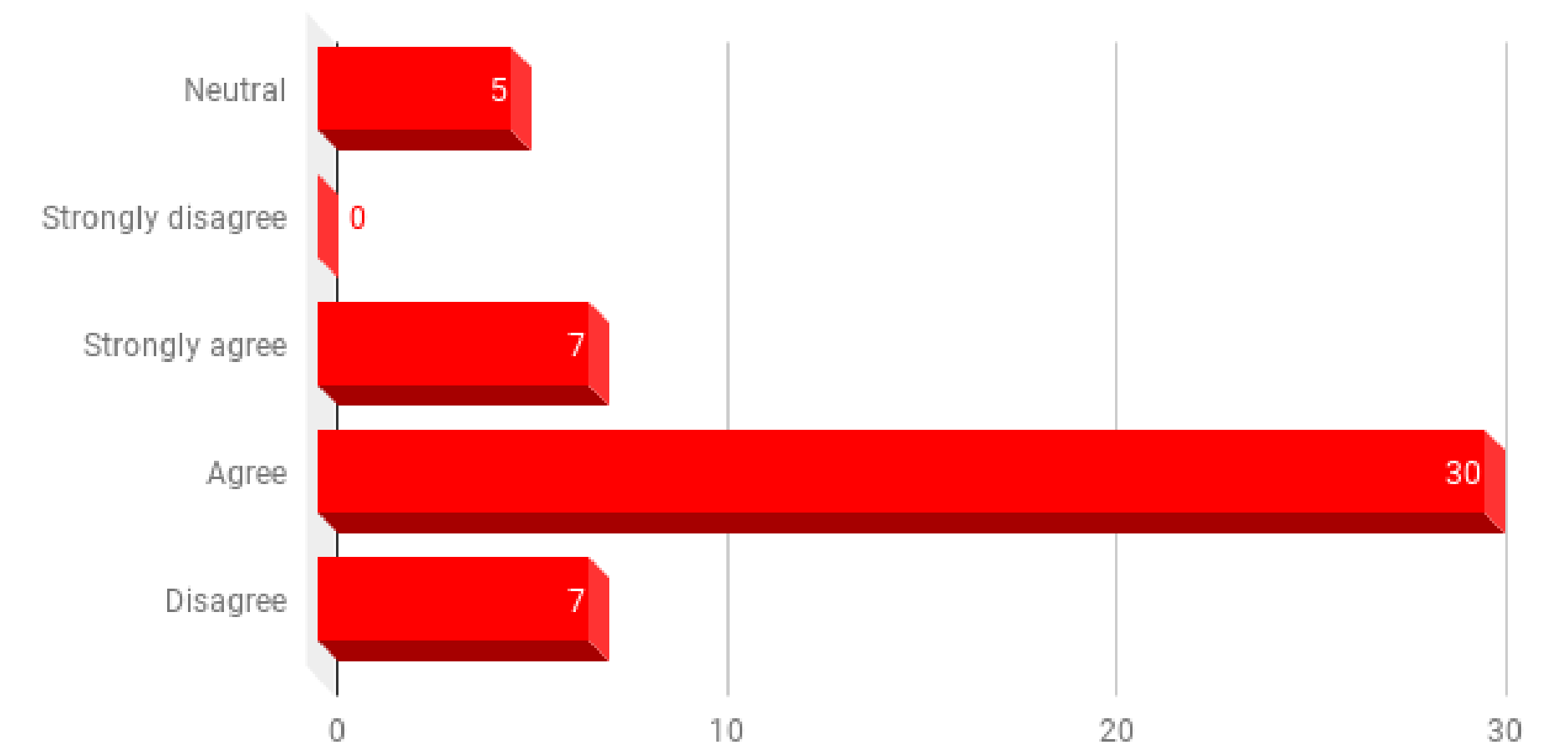
These data need further understanding as they are not in line with the others

Teamwork

When a lot of work needs to be done quickly, we work together as a team to get the work done



My supervisor/manager seriously considers staff suggestions for improving patient safety



In line with the other data, staff feel to be part of a **positive environment** for teamwork and collaboration also with top management



Limits and Opportunities

Limits

- Sample non statistically significant
- Need to conduct further analyses on a larger sample

Opportunities

- «Narrative evaluation»: telling local success stories and reporting small concrete changes in the approach to safety and quality can act as an effective vehicle for change
- Deeper understanding of cultural and social diversity and its impact on implementation strategies
- Low-cost, low-technology and simple tools and solutions can promote a broad cultural change towards safety and quality of services delivery



North Kinangop Catholic Hospital

WHO Surgical Safety Checklist and WHO Hand Hygiene Campaign



Action Planning

• Customization of the tools

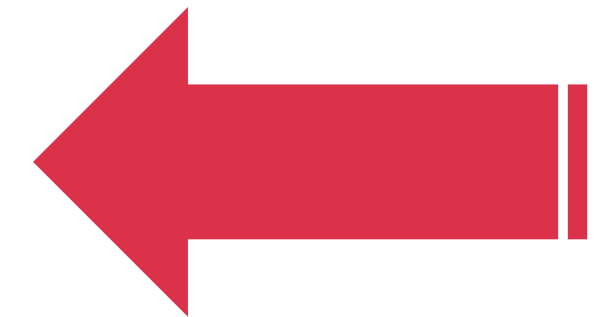
• Coaching

• Piloting of the tools

• Monitoring and evaluation

• Re-Customization

• Launch



NEXT STEPS



Customization of the WHO Surgical Safety Checklist



DONE

- Customization of the tool
- Coaching the coaches to a group of surgeons and nurses

TO DO

- Cascade coaching to the others surgeons and nurses
- Pilot of the tool
- Monitoring and evaluation
 - Prospective pre and post-intervention clinical record review
 - Direct observation to evaluate the compliance to the tools

Surgical Safety Checklist
North Kinangop Catholic Hospital

WARD: ☐ Casualty ☐ Surgical ☐ Maternity ☐ Paediatric ☐ Medical ☐ Other

1. Patient identification

Date / / h :

Surname Name
Sex ☐ M ☐ F Age Date of birth / /
IP Number Bed Number
Planned date of operation / / Time :

Allergy ☐ Drug ☐ Anesthetic ☐

Diagnosis Type of Operation

Informed Consent for:

☐ Operation ☐ Anesthesia ☐ Blood Transfusion
☐ Signed on / / By

2. Pre-operative checklist

Date / / h :

☐ Fasting ☐ Removal Dentures ☐ Jewellery ☐ Artificial Limbs

Patient preparation:

☐ Shaving ☐ Bath ☐ Theater Gown ☐ Skin Cleansed with
☐ Catheter ☐ Nasogastric Tube ☐ Intravenous Infusion

Investigations:

☐ FHB ☐ COAG ☐ Urinalysis ☐ Blood group
☐ X-RAY ☐ Other Investigations

☐ Blood Request N. ☐ sacks Available ☐ Yes ☐ No

Vital Signs:

☐ Blood Pressure ☐ Temperature ☐ Pulse ☐ Respiration ☐ Oxymetry %

Premedications ordered Time :

PATIENT TAKEN TO THEATRE ☐ h :

PATIENT THEATRE CHECKIN ☐ h :

3. Traceability

4. Post-operative checklist

Date / / h :

Vital Signs:

☐ Blood Pressure ☐ Temperature ☐ Pulse ☐ Respiration ☐ Oxymetry %

Level of consciousness:

☐ Alert ☐ Sopor ☐ Sedated ☐ Agitated

Pain: ☐ Yes ☐ No Analgesic therapy: ☐ Yes ☐ No
Oxygenotherapy: ☐ Yes ☐ No ☐ It Infusive therapy: ☐ Yes ☐ No
Vomit: ☐ Yes ☐ No Nasogastric tube: ☐ Yes ☐ No
Catheter: ☐ Yes ☐ No
☐ Wound ☐ Drainage

Investigations:

☐ FHB ☐ COAG ☐ Urinalysis
☐ X-RAY ☐ Other Investigations

Ward Nurse Signature

Theatre Nurse Signature



WHO Hand Wash Campaign

d%20Hygiene/H.H.%20DEF/Annex%207_How_To_HandWash_Poster.pdf

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

⌚ Duration of the entire procedure: 40-60 seconds



DONE

- Provided poster to the surgical department and surgical room
- Coaching the coaches to a group of surgeons and nurses

TO DO

- Cascade coaching to the others surgeons and nurses
- Monitoring and evaluation
 - Monitor for 3 months the use of soap (difference between the amount of the soap ordered and the amount consumed)
 - Defined a schedule of observations of the opportunity for HW

enya/Kinagop/Hand%20Hygiene/H.H.%20DEF/Annex%208_Evaluation%20Grid%20(2).pdf



Hand Hygiene Moment 1 Observation Form

(adapted from the original WHO 5 Moments "Observation Form")

Session Number*:
Observer: (initials)
Page N°:
Date: (dd/mm/yy) / /
Start/End time: (hh:mm) : / :
Department*:

Prof.cat Nurse/midwife			Prof.cat Medical doctor			Prof.cat Clinical Officer			Prof.cat Auxiliary		
Total no. persons observed			Total no. persons observed			Total no. persons observed			Total no. persons observed		
Opp N°	Indication	HH Action	Opp N°	Indication	HH Action	Opp N°	Indication	HH Action	Opp N°	Indication	HH Action
1	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	1	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	1	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	1	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
2	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	2	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	2	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	2	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
3	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	3	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	3	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	3	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
4	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	4	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	4	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	4	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
5	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	5	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	5	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	5	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
6	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	6	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	6	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	6	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
7	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	7	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	7	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	7	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
8	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	8	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	8	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed	8	bef-pat.	<input type="checkbox"/> HW <input type="checkbox"/> missed
9	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	9	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	9	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	9	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed
10	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	10	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	10	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed	10	bef-pat	<input type="checkbox"/> HW <input type="checkbox"/> missed

Professional category codes (including respective students): 1. Nurse/midwife; 2. Auxiliary; 3. Medical doctor; 4. Others
* To be completed by the data manager, according to the standardized nomenclature (see next page)



Nine "principles" learned from the "developing world"

Don Berwick

1. Simplify everything...complexity is waste.
2. Take teams seriously...uncooperativeness is waste.
3. Be pragmatic about measurement...too much counting is waste.
4. Strip the support system for improvement to a minimum...dependency is a form of waste.
5. Manage the political interface wisely... naivety is waste.
6. Help patients become advocates for change...keeping patients silent is waste.
7. Go quickly, start now...delay is waste.
8. Make spread a system...isolation is waste.
9. **And finally, don't complain...complaint is waste**



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Human interaction is the key force
in overcoming resistance
and speeding change

Atul Gawande, Slow ideas 2013