

Assessment of IPC measures and the water, sanitation and health (WASH) system in medical institutions that provide in-patient care to women and children in the Republic of Kazakhstan

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Nur-Sultan, 2022



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INFECTION PREVENTION
AND CONTROL ASSESSMENT
FRAMEWORK AT THE
FACILITY LEVEL



A tool in the form of a system for evaluating IPC activities was used at the facility level

(WHO, 2018)

8 evaluation components

1. Infection Prevention and Control (IPC) program;
2. IPC guidelines;
3. Education and professional training in the field of IPC;
4. Epidemiological surveillance of healthcare-associated infections (HAI);
5. Multimodal strategies for the implementation of IPC measures;
6. Monitoring/audit of IPC practices and feedback
7. Workload, staffing and bed occupancy
8. Working environment, materials and equipment for PIC at the facility level.

Assessment locations

N o.	Region	Medical institution
1.	Almaty	City Perinatal Center
2.	Almaty region	Regional Perinatal Center
3.	East Kazakhstan region	Mother and Child Center
4.	Karaganda	Regional Clinical Hospital
5.	Karaganda region	Mother and Child Center
6.	Shymkent	Nursat City Perinatal Center
7.	Turkestan region	Regional Perinatal Center No.3

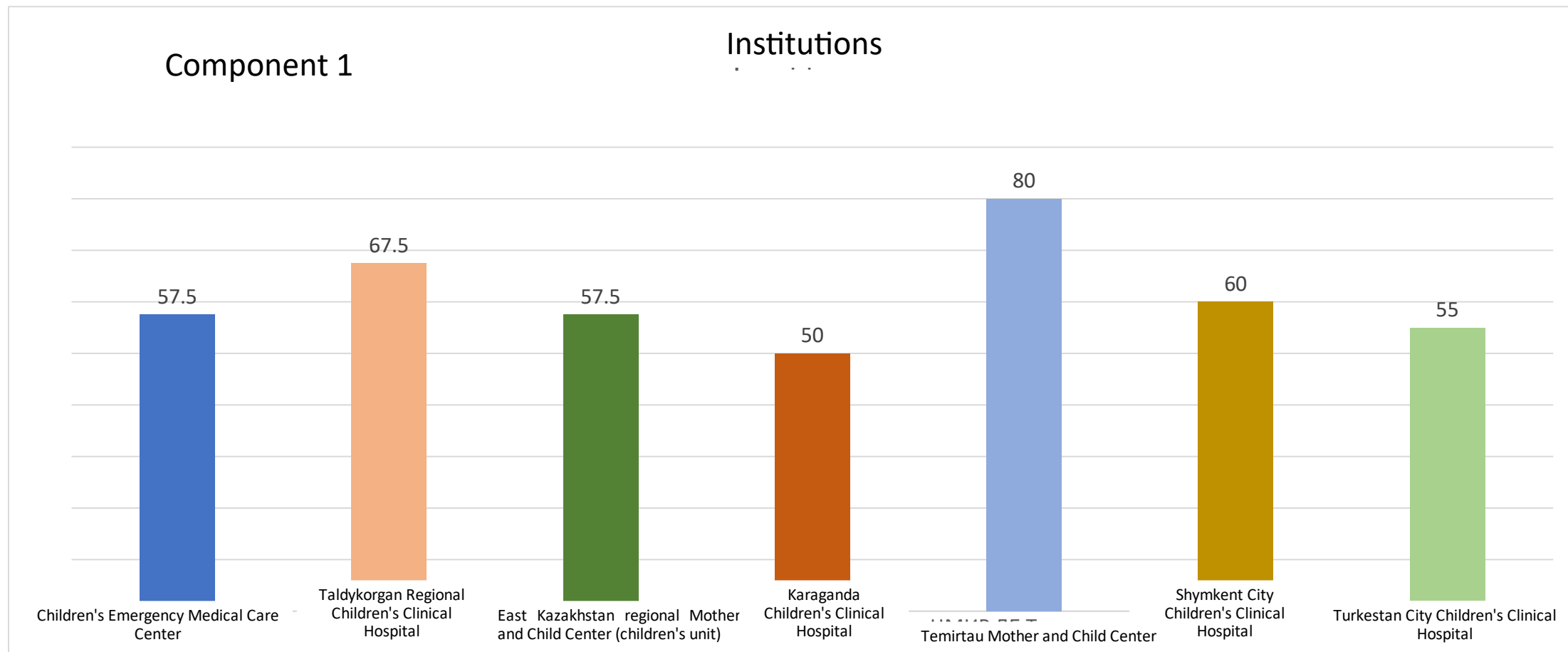
Assessment locations

No.	Region	Medical institution
8.	Almaty	Children's Emergency Medical Care Center
9.	Almaty region	Regional Multidisciplinary Children's Clinical Hospital
10.	East Kazakhstan region	Mother and Child Center (children's unit)
11.	Karaganda	Regional Clinical Hospital
12.	Karaganda region	Mother and Child Center (children's unit), Temirtau
13.	Shymkent	City Children's Clinical Hospital
14.	Turkestan region	Turkestan City Children's Clinical Hospital

Obstetric institutions

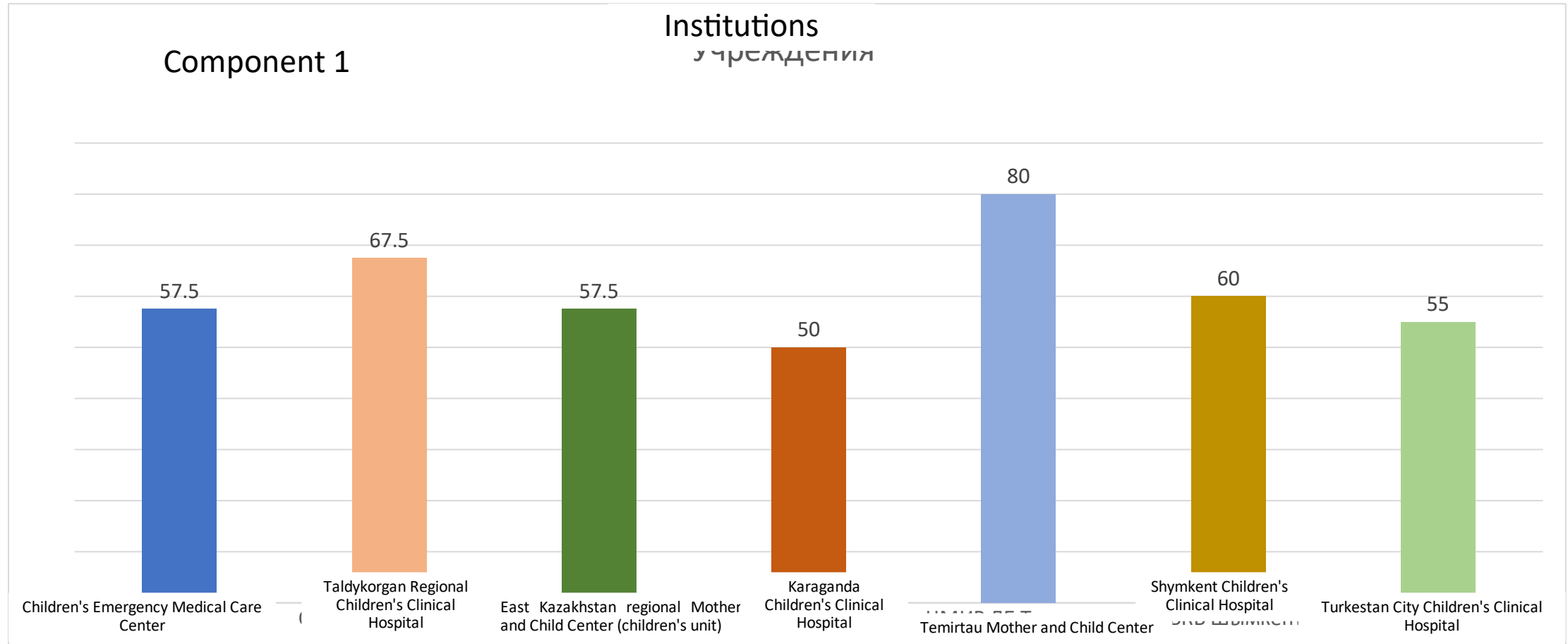
Component

1. IPC program



Children's multidisciplinary hospitals

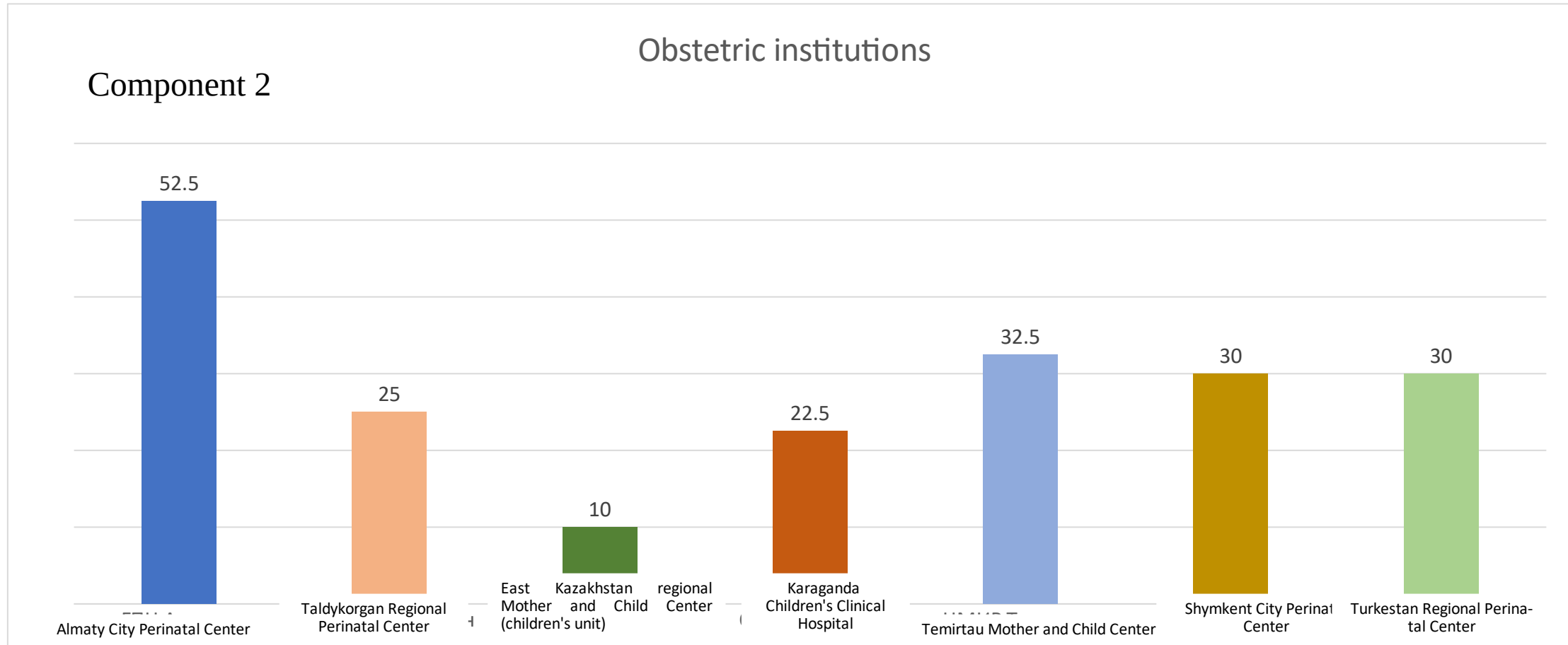
Component 1. IPC program



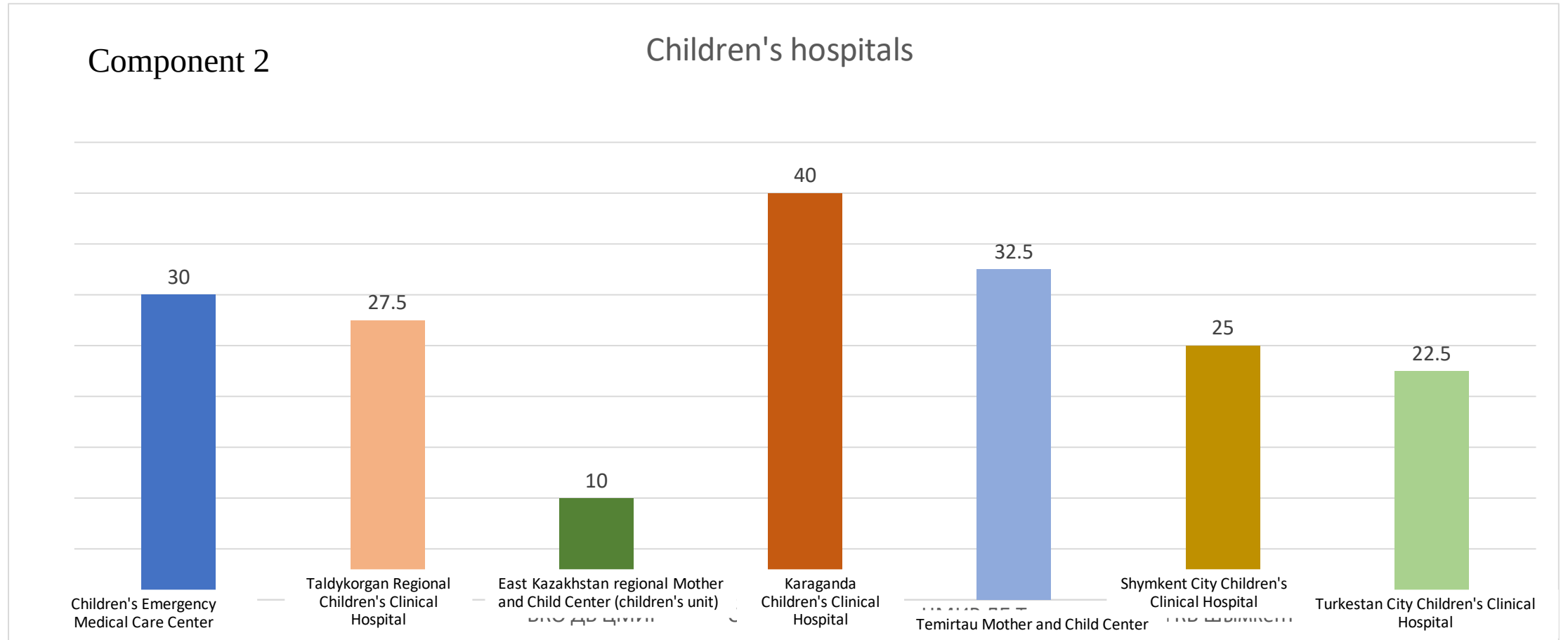
Component 1: comments

- Despite the existence of a program, a team and an infection control committee in each medical institution, this program **is not used** in the work of institutions, therefore, the presence of this component is **formal**.
- When developing the program, **goals and indicators for the future program are not defined**, taking into account the current state of infection control and the needs of a medical institution.
- The state of the microbiological laboratory in some medical institutions requires **improvement** taking into account the current requirements.

Component 2. IPC guidelines



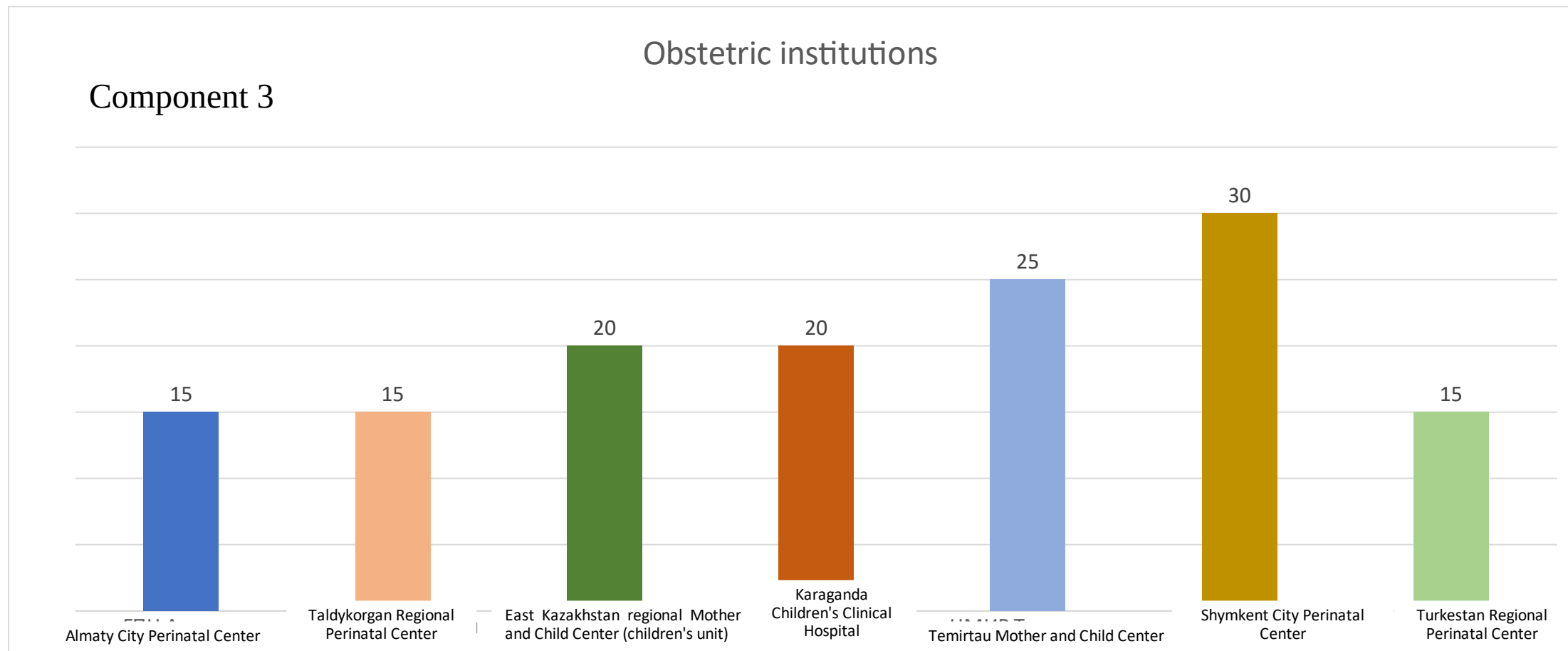
Component 2. IPC guidelines



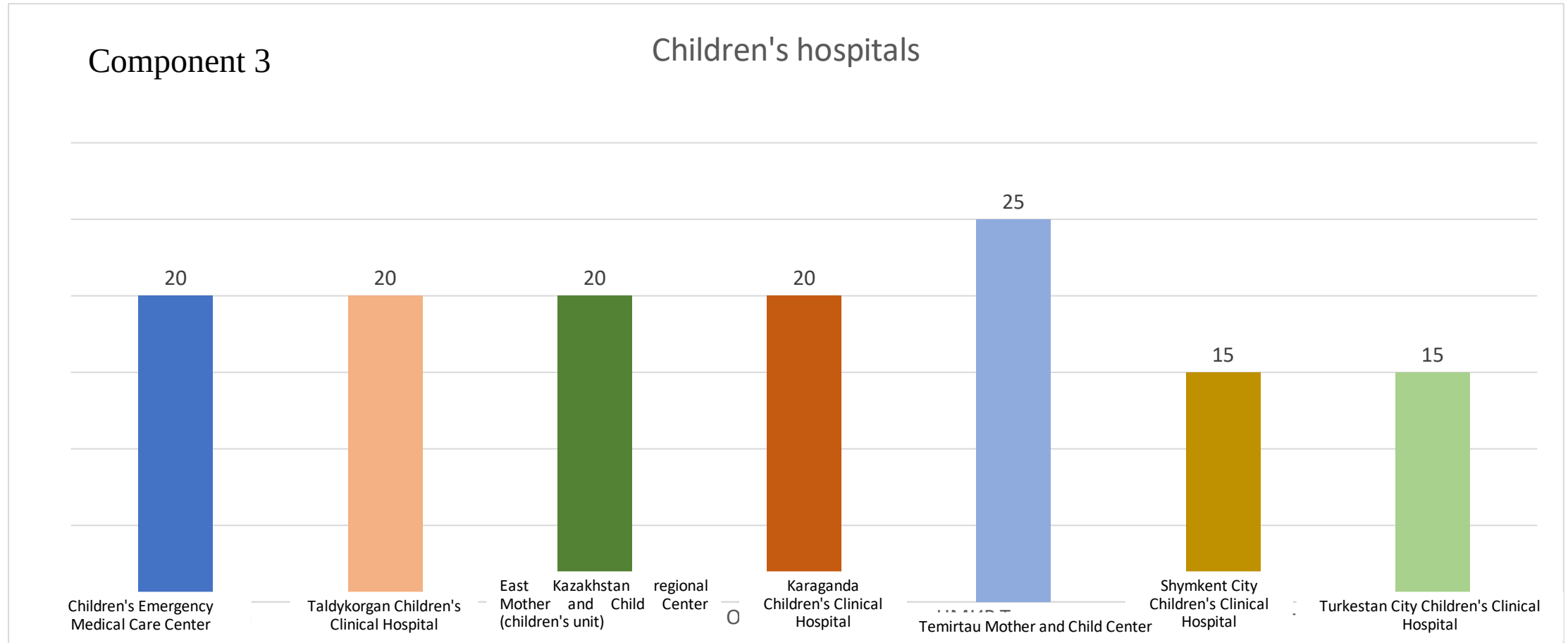
Component 2: comments

- Algorithms, standards of operational procedures (SOPs) comply with national standards and are developed only for some procedures due to the lack of experienced IPC specialists.
- The staff (doctors, nurses) of a medical institution involved in providing medical care to patients does not participate in the development/adaptation of IPC guidelines.

Component 3. Education and professional training in the field of IPC



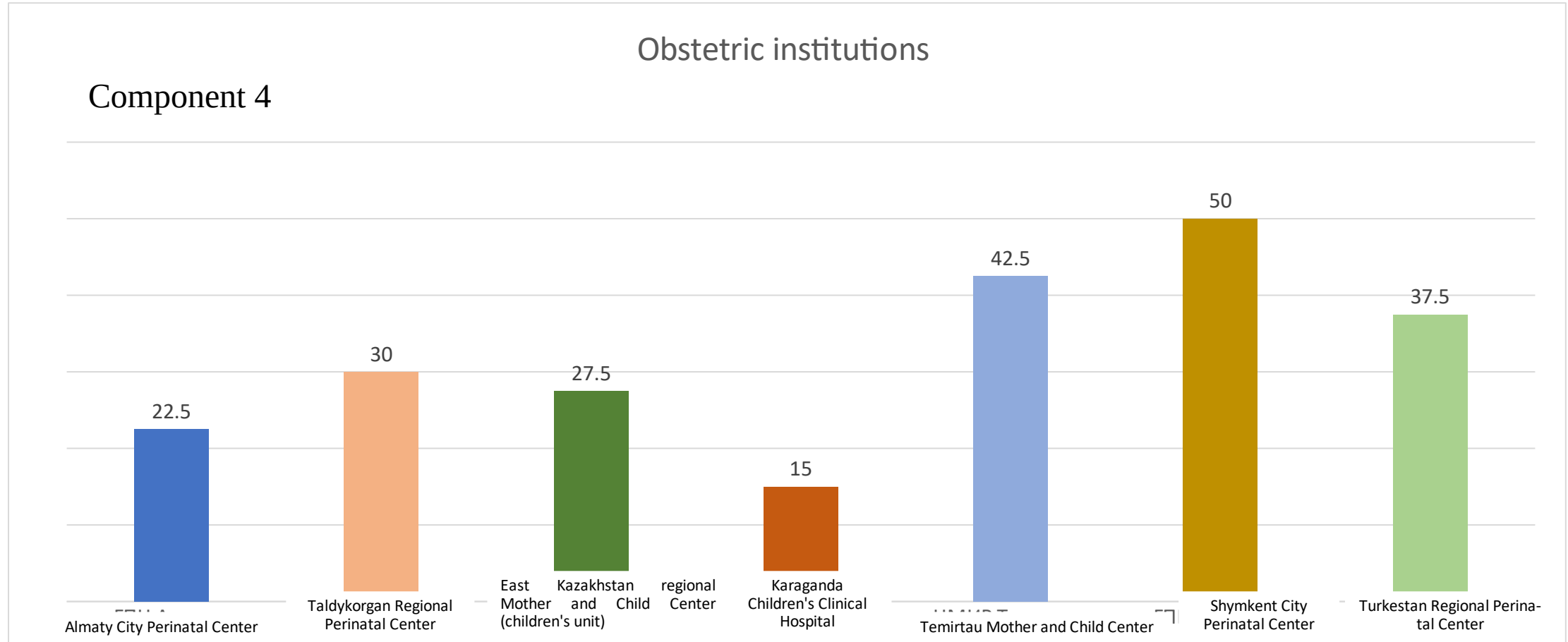
Component 3. Education and professional training in the field of IPC



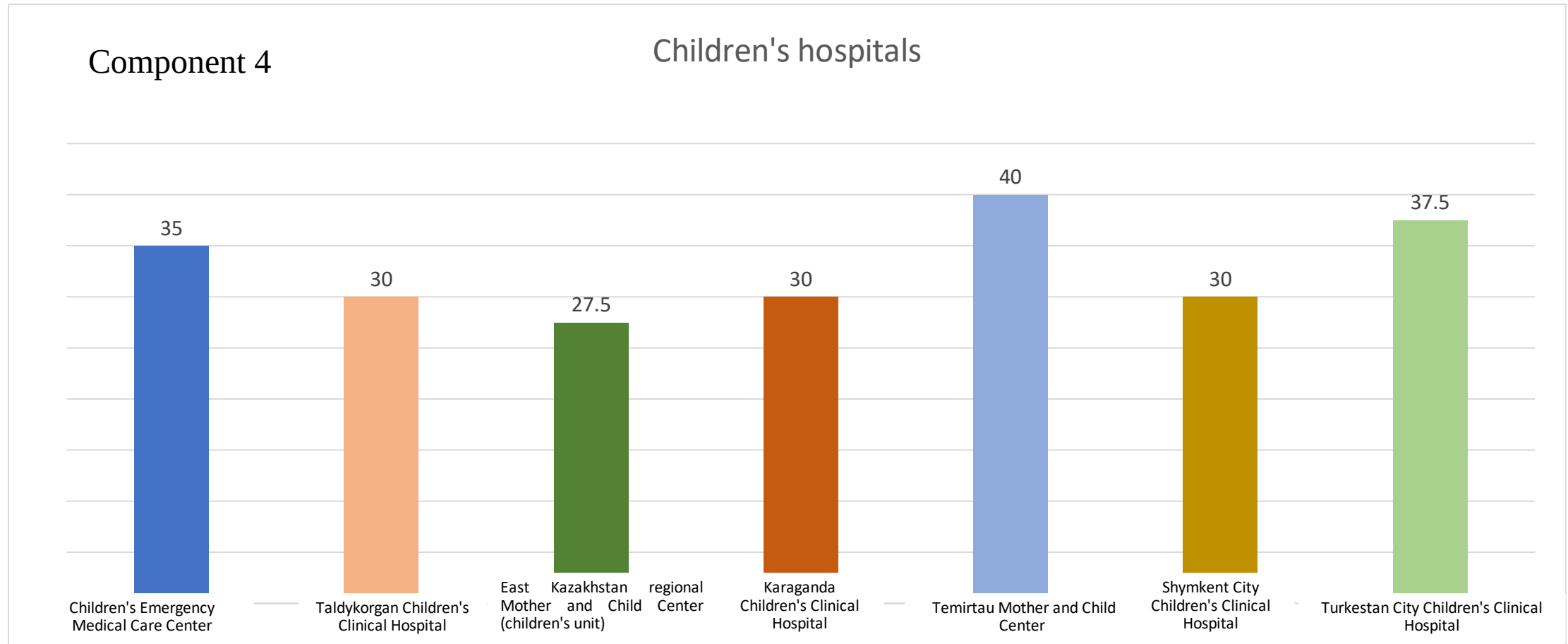
Component 3: comments

- Main weaknesses in the evaluation of this component: **absence of systematic** personnel training in IPC issues; some medical institutions provide periodic training in the field of hand hygiene, Covid-19 prevention, PPE wearing, prevention of infectious disease outbreaks, but a survey of medical personnel and observation showed low effectiveness of the training.

Component 4. Epidemiological surveillance of healthcare-associated infections (HAI)



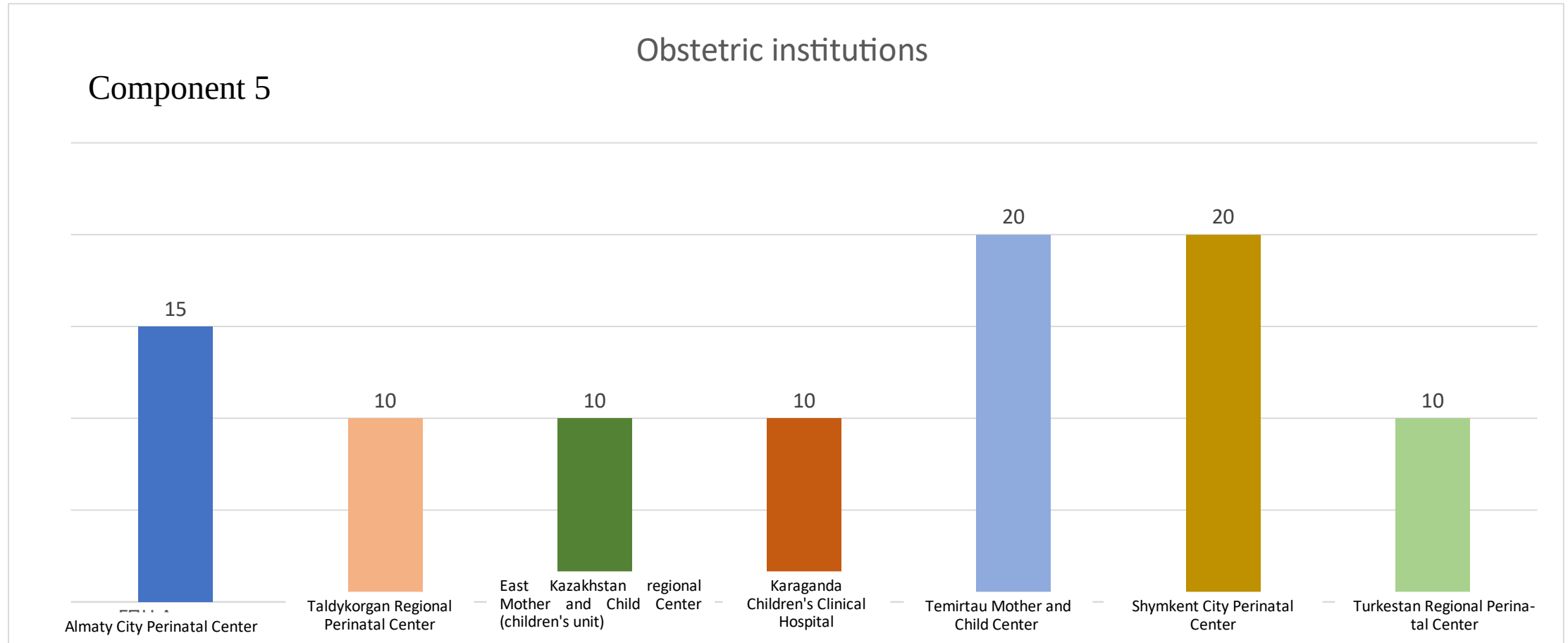
Component 4. Epidemiological surveillance of healthcare-associated infections (HAI)



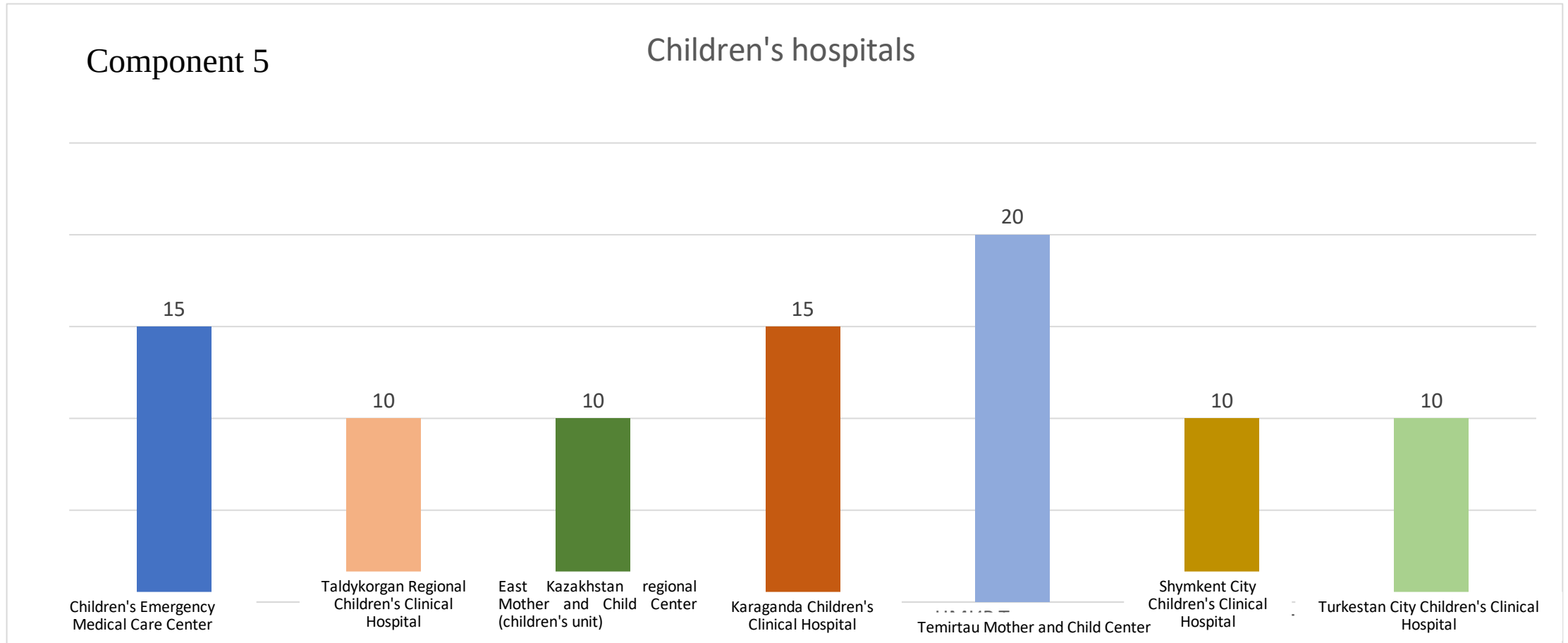
Component 4: comments

- Despite the **availability of resources** and personnel (epidemiological surveillance is defined as one of the main components in the IPC program), medical institutions do not conduct **epidemiological surveillance of IPC** and assessment of the current state of surveillance, therefore, data are not taken into account when developing the IPC program.
- The gap in this component is associated with **punitive** measures taken by public authorities (according to the staff survey).

Component 5. Multimodal strategies for the implementation of IPC measures



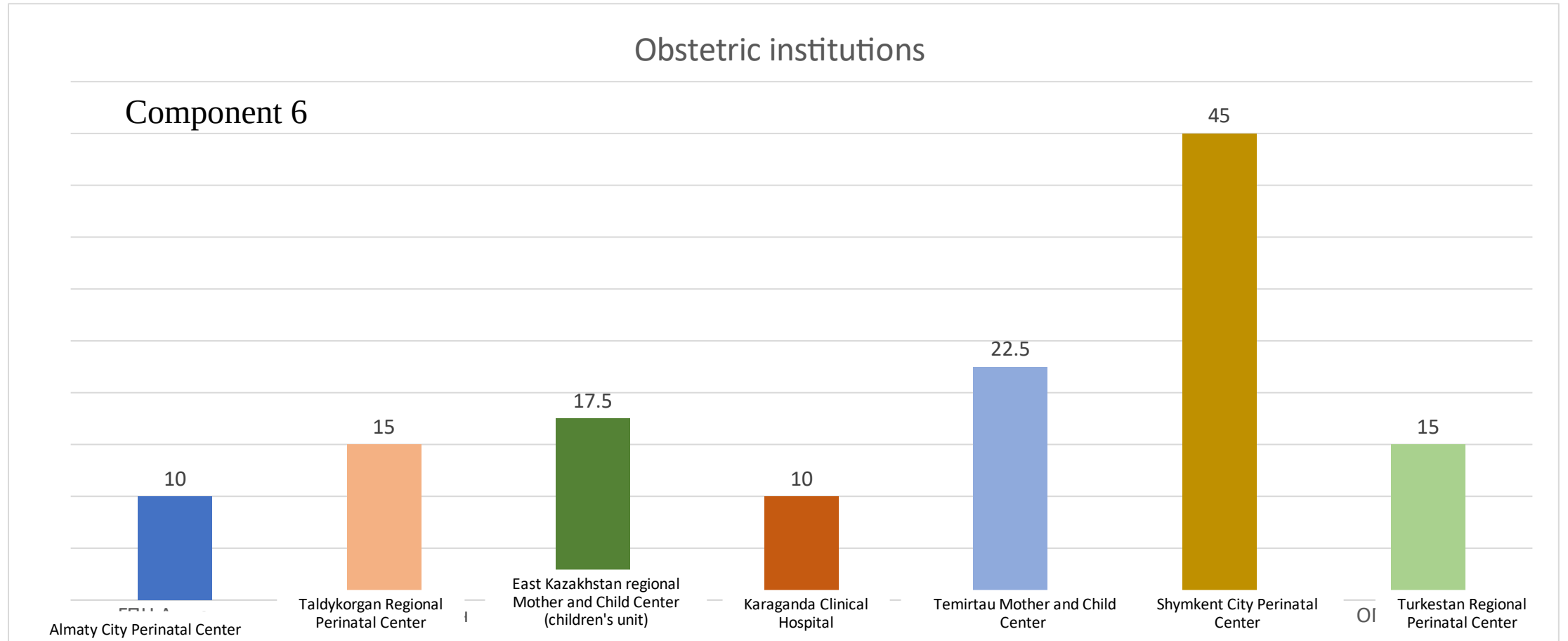
Component 5. Multimodal strategies for the implementation of IPC measures



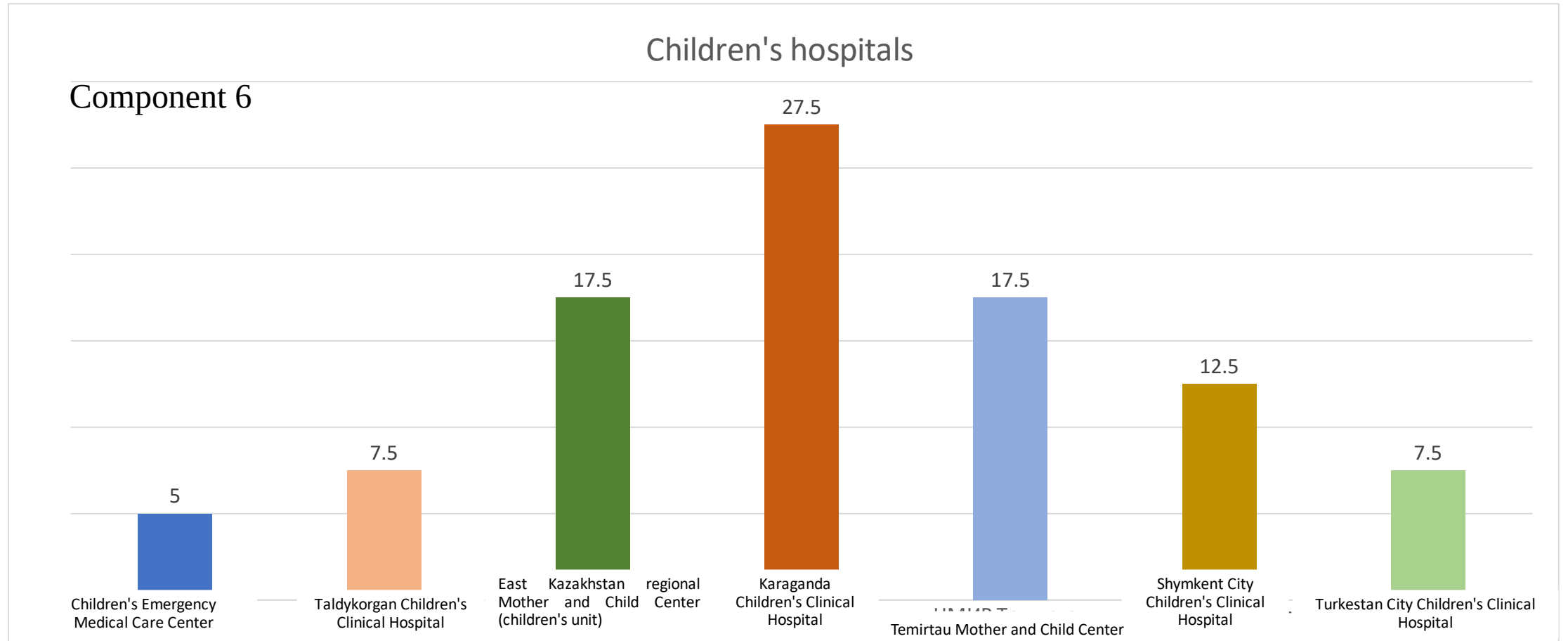
Component 5: comments

- Adequate functioning of the IPC system is possible if multimodal approaches are used.
- Unfortunately, this approach is applied **partially** in selected hospitals, which is unacceptable for the component to be effective.

Component 6. Monitoring/audit of IPC practices and feedback



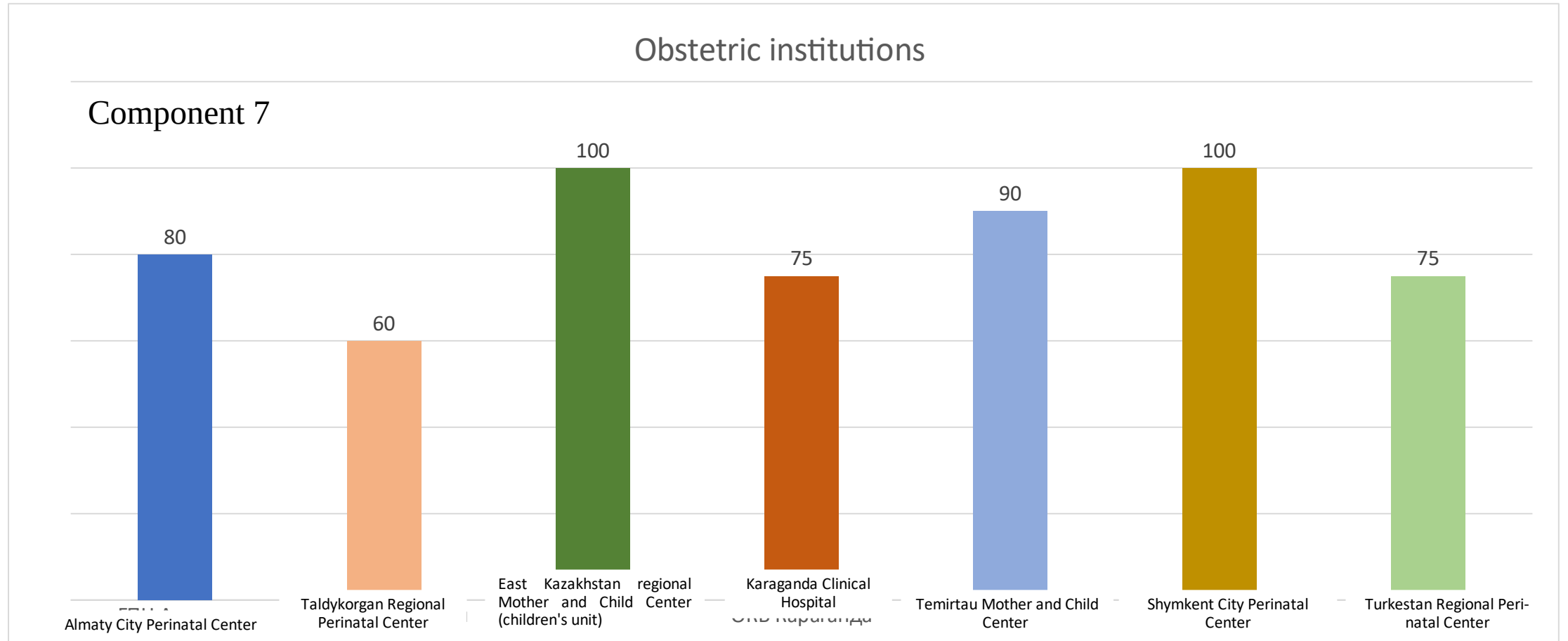
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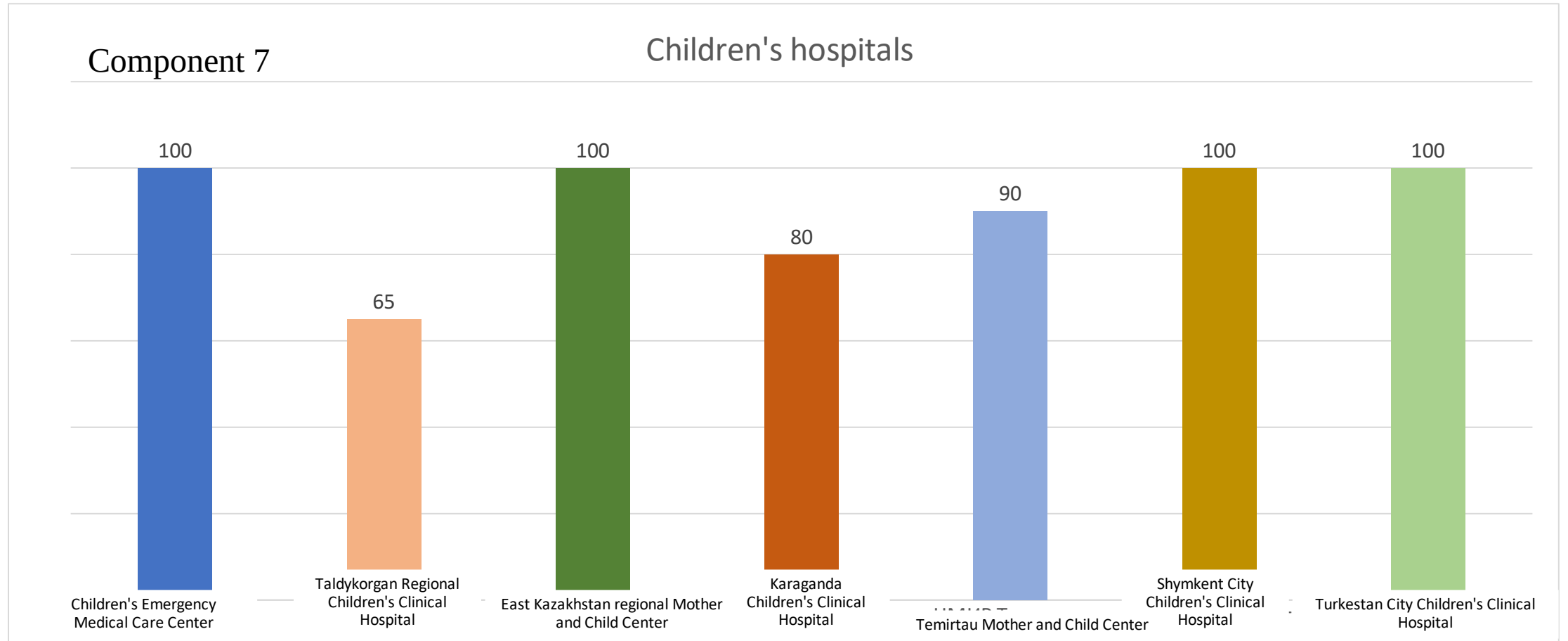
Component 6: comments

- Organization of feedback regarding the effectiveness of IPC activities implies the creation of an **external** and **internal** assessment. Monitoring and audit of practices in a medical institution should be aimed at improving processes and results but not at finding and punishing guilty persons. Feedback between services and specialists should be provided for making clinical and managerial decisions.
- Monitoring/auditing of IPC practices in medical institutions is carried out **partially**, without feedback from staff.

Component 7. Workload, staffing and average bed occupancy



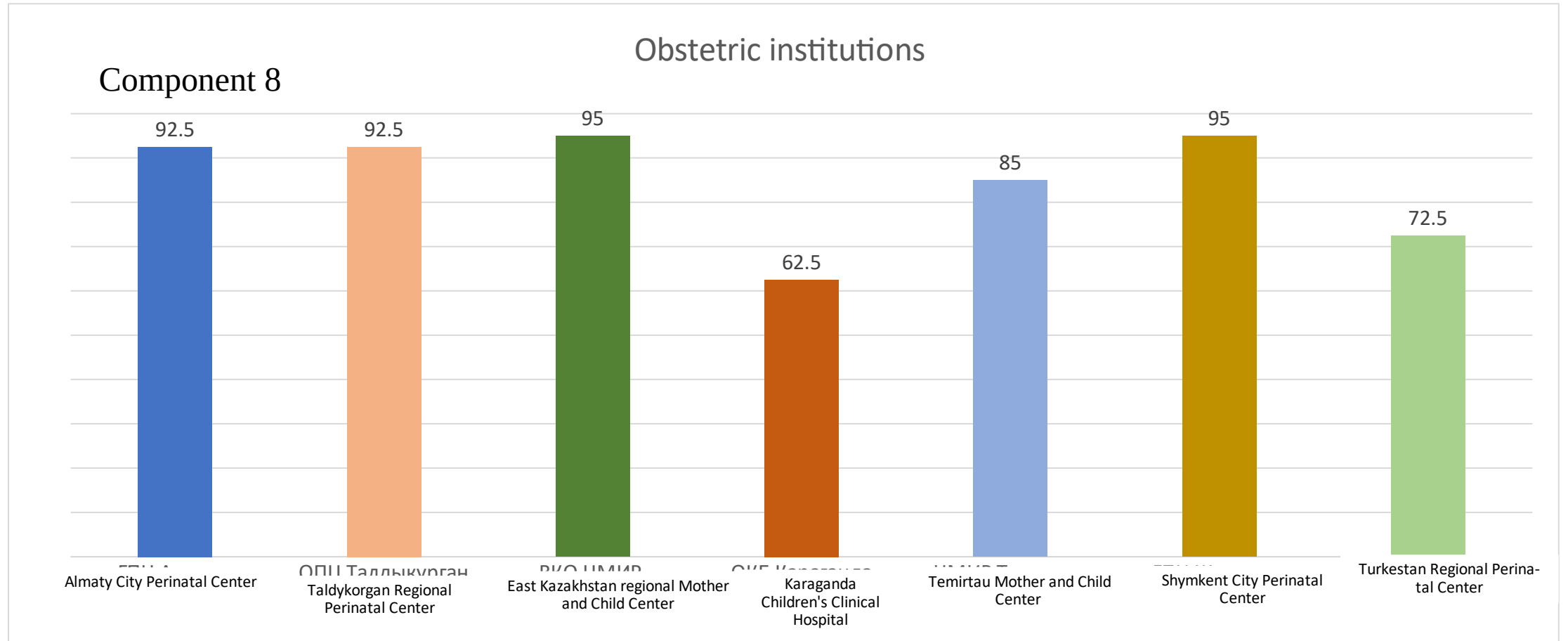
Component 7. Workload, staffing and average bed occupancy



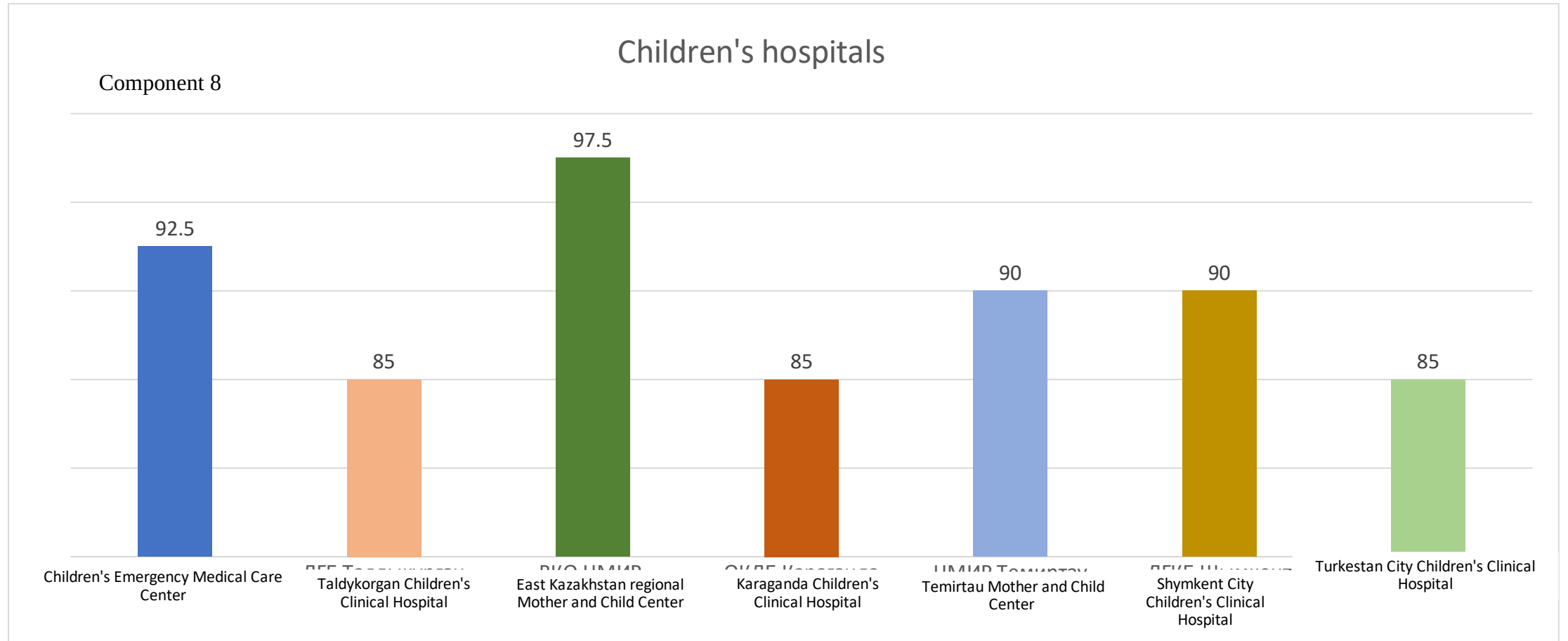
Component 7: comments

- The rational organization of work processes and the provision of resources are essential for ensuring adequate safe clinical practice (issues of hand hygiene, provision of aseptics and antiseptics, etc.).
- According to WHO, an indicator of rational organization is workload, staffing and average bed occupancy. If one of these elements is violated, the entire system fails, which leads to a significant increase in the risk of developing HAI.

Component 8. Working environment, materials and equipment for PIC at the facility level



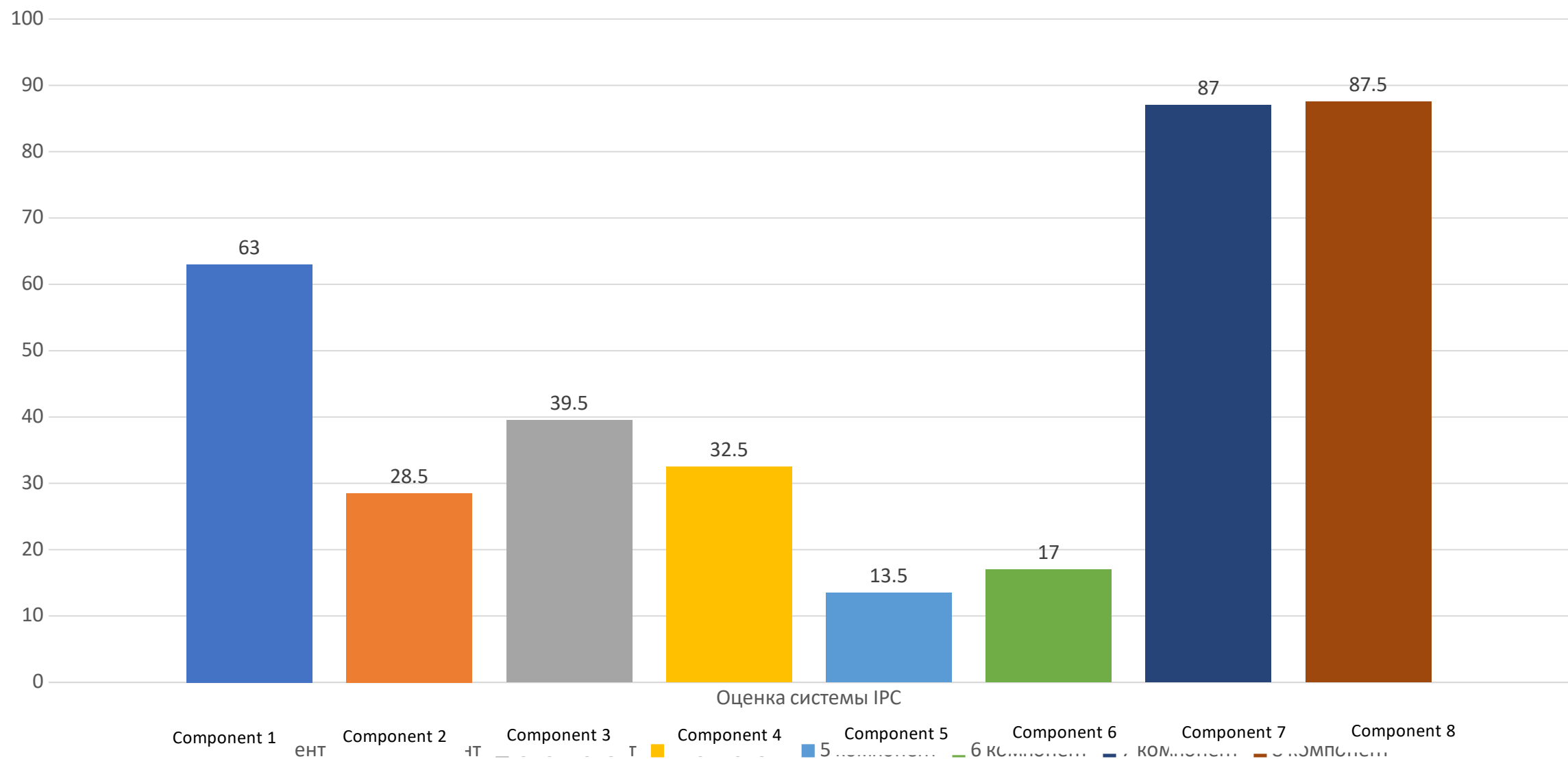
Component 8. Working environment, materials and equipment for PIC at the facility level



Component 8: comments

- To ensure the proper functioning of the IC system, an environment that prevents the spread of infections is required.
- An adequate environment means an infrastructure, which includes necessary premises and spaces, equipment for organizing work processes ("dirty" and "clean" flows, etc.), systems of water supply, nutrition, medical waste disposal and artificial ventilation are available.

Average rating of the IPC system in 14 medical institutions.



Total average score- 344

A medical institution is assigned one of the four levels of IPC.

- Insufficient (0-200 points): the implementation of the main IPC components is insufficient, significant improvements are required.
- **Basic (201-400 points): some aspects of the main IPC components exist, are insufficiently implemented, and further improvement of the situation is required.**
- Average (401-600 points): most aspects of the main IPC components have been implemented, and it is necessary to continue to improve the quality of the program implementation and develop long-term plans for implementing the IPC program.
- High (601-800 points): the main IPC components have been fully implemented in accordance with WHO recommendations and meet the needs of a medical institution.

Conclusions

- Difficulties in understanding and interpreting the assessment tool. Self-assessment of medical institutions using this WHO tool is premature.
- 2 components (component 7: workload, bed occupancy, staffing, and component 8: working environment, materials and equipment for IPC) scored 80-85 points each. The overall score for 8 components is rated as basic due to these components.
- The average score for the component 1 (IPC Program) is 65 points. A relatively high rating: the program is mandatory in the accreditation standards and is available in almost all medical institutions, just like the availability of IC services. Allocation of a separate budget, revision and support of the Program by the the medical institution administration are required.
- Microbiological laboratories have differences in terms of provision with equipment and the scope of research being conducted. Low demand, understanding and use of the data obtained in clinical practice.

Conclusions

- The average score for the component 2 (IPC Guidelines) is 29 points. The low score is explained by the lack of knowledge of Generally Accepted Guidelines for the prevention of infections and the limitation of SOPs. The developed algorithms and SOPs are not based on evidence-based medicine data (the algorithm for the use of antibiotics). Guidelines and SOPs for the prevention of the following HAIs are absent at the republican and facility level:
 - urinary tract infections (urinary catheters)
 - bloodstream infections (vascular catheters)
 - hospital-acquired pneumonia, including ventilator-associated infections of the surgical intervention area.
- There is no policy of controlling the spread of multidrug-resistant microorganisms.
- Incidents are not recorded in emergency logs for 2-3 years.
- Special training of healthcare workers on the adaptation of infection prevention guidelines is practically not conducted.

Conclusions

- The average score for the component 3 (Education and Training in IPC) is 20 points. The extremely low rating is due to the lack of training of personnel and persons who are responsible for training.
- IPC training is not integrated into personnel training at the level of universities or medical colleges.
- The training is conducted in the form of an introductory briefing at the commencement of employment.

Conclusions

- The average score for the component 4 (Epidemiological HAI surveillance) is 32 points.
- There is practically no registration of HAI cases, despite the availability of personnel responsible for registration and monitoring. Monitoring of the main HAI types is also not conducted. Intrauterine infections have priority in registration, in the absence of the diagnosis verification.
- The average score for the component 5 (Multimodal Strategies for the Implementation of IPC Measures) is 14 points. This component is in an embryonic stage; there is no policy for the implementation of algorithms/SOPs in clinical practices. Lack of training, monitoring and visual aids, SOPs at workplaces.

Conclusions

- The average score for the component 6 (Monitoring/Audit of Practices and Feedback) is 19 points. The low rating is due to the lack of monitoring of the implementation of infection prevention practices. Hand hygiene is monitored incompletely. Implementation of a number of recommendations is required.
- The total average score for 14 medical institutions is 344 points, which corresponds to the basic level (201-400 points) of the IPC program implementation.

Recommendations at the republican level

- Develop a national HAI IPC program with the participation of international and domestic experts based on the study of successful practices.
- Revise the system of personnel training in the field of infection control in universities and colleges.
- Professional development of healthcare workers in the field of IPC, taking into account clinical needs.
- Revise/develop/update training programs for specialists (clinical epidemiologists, infection control doctors and nurses)
- Revise the regulatory legal acts in the field of infection control, taking into account evidence-based medicine data.

Recommendations at the republican level

- Establish monitoring of the HAI registration reliability at the level of obstetric and childhood organizations and monitoring at the national level.
- Establish monitoring and analysis of the use of observed and reserve antibiotics in obstetric and childhood institutions.
- Review the monitoring system and appropriate measures taken by the ДГСН service. Reduce the powers of sanitary and epidemiological surveillance services to control obstetric and childhood institutions. Allocate separate expenditure items for IPC in budgets of medical institutions.

Recommendations at the facility level

- Establish reliable registration of HAI cases.
- Include heads of structural divisions, senior midwives and senior nurses in the infection control committees.
- Develop algorithms of procedures involving the risk of HAI development in departments with the participation of the staff of the entire department and taking into account the needs. Develop checklists to evaluate the implementation of algorithms.
- Monitor the use of observed and reserve antibiotics.
- Conduct an analysis of antibiotic resistance in an institution (if bacteriological laboratories are available).
- Conduct continuous personnel training on standard infection prevention measures in institutions. Develop training plans.
- Review the cleaning system, including the routine use of disinfectants, waste disposal, sterilization of tools and equipment.

Assessment of basic access to the WASH system in 12 perinatal centers and children's hospitals (WASHFIT)

Data collection methods:

- observation
- in-depth interview
- patient survey
- review/study of documentation (SOP, regulatory legal acts)

Water Supply

Water treatment, supply, storage, water quality control, showers, power supply

Hygiene

Hand hygiene, environmental cleanliness and disinfection

Sanitation and Medical Waste

Fecal waste management, types of toilet facilities, maintenance and accessibility, compliance with hygiene requirements during menstruation, medical waste management

Work Organization in Medical Institutions

Staffing, management, problem reporting, accounting/bookkeeping

Conclusions relating to Water Supply

- In all medical institutions, water supply has a basic infrastructure.
- In most cases, water is used for hygienic purposes rather than for drinking. According to Sanitary Regulations and Norms, the water must be suitable for drinking purposes.
- Seasonal nature when connecting to hot water. In summer, hot water is turned off for a certain time. Having boilers is not a stable solution.
- Lack of routine monitoring of the technical condition of the water supply system.

Conclusions relating to Sanitation

- All medical institutions have a basic level of sanitation infrastructure (access to toilet facilities, water discharge, sewerage)
- Difference in the ratio (number of patients : number of toilet facilities). Different number of toilets in different healthcare organizations.
- Lack of routine monitoring of the technical condition of toilet facilities.
- Basic access is available, but not for all categories of patients. Toilet facilities are not accessible for persons with reduced mobility.
- Lack of privacy. The doors do not close from the inside.
- No provision with toilet paper.
- The staff does not teach children in proper use of toilet facilities and sanitary behavior.

Conclusions relating to Medical Waste Disposal

- Absence of documentation, including waste disposal algorithms and SOPs, in the medical waste collection/storage room.
- The practice of disposing of medical waste is unprotected. The route of medical waste disposal should not cross the patient's route, including the use of separate elevators.
- Medical waste disposal is carried out by an outsourcing company. In this regard, it is impossible to trace the entire chain of waste disposal due to its fragmentation.
-

Conclusions relating to Hand and Room Hygiene

- Hand hygiene
 - Lack of sufficient amounts of soap and detergents and hand drying products/tools for hygienic needs of patients (paper towel/electric hand dryers)
 - Training materials and talks/trainings/monitoring in the field of hand hygiene are not routinely conducted among both patients and healthcare workers
- Environmental hygiene
 - Maintenance of equipment and appliances:
 - Lack of rules for the maintenance and operation of washing machines
 - Improper storage of equipment and appliances

Conclusions relating to Organization and Management of the WASH System

- Lack of regulatory legal acts/standards for the WASH system in most institutions
- Lack of understanding of the WASH system and the corresponding strategy
- Lack of protocols for the operation and maintenance of the WASH system
- Lack of routine monitoring of the WASH system
- Funding in the field of hygiene is limited
- Competences, job descriptions and functional duties contain points on the WASH system partially and for a limited number of personnel. Absence of a comprehensive and interdisciplinary approach.
- Lack of ongoing training and monitoring in the field of WASH/IPC issues on a yearly basis

Conclusions

- Most of bottlenecks identified in providing access to the WASH system are associated with significant health risks (the spread of hospital-acquired infection), while the complexity of the solution is not high.
- Most of weaknesses of the WASH system are related to the organization of processes within a medical institution:
 - Correct description of employees' functionality
 - Correct description of the functionality execution processes (checklists for routine monitoring for a plumber; rules for maintenance of a washing machine) and self-assessment
 - Processes of continuous training of staff and patients in the field of environmental health hygiene

Recommendations

- **At the republican level:**

- Ensure the implementation of a unified WASH strategy in each hospital (possibly through the implementation of WASH FIT)
- Meet basic needs in tariffs for payment of medical services

- **At the facility level:**

- Implement a unified strategy for access to WASH system with annual self-assessment and external supervision
- Organize a functionality team for the execution of WASH FIT
- Develop and implement the functionality of employees taking into account the WASH system
- Organize continuous training of employees and patients followed by monitoring visits

- **Recommendations for UNICEF**

- Provide technical and methodological support in accordance with the Plan
- Provide support in conducting a repeated external evaluation to monitor the progress



Thank you!

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