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Assistance of Health Personnel in The Implementation of Calibration Results in Public Hospitals Dr. Iskak Tulungagung

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ABSTRACT Optimal quality of health services depends on the accuracy of medical devices. In an effort to improve quality standards, Dr. General Hospital Iskak Tulungagung implements a program to assist health workers in understanding and applying the results of medical device calibration. This research aims to increase health workers' knowledge about calibration, strengthen patient confidence, and improve the accuracy of diagnosis and treatment. This research contributes to improving the competency of health workers and increasing patient satisfaction through assistance in implementing calibration results. This contribution is important in building public trust in health services. The mentoring program involves regular counseling, practical workshops, skills training, as well as individual mentoring by a team of calibration experts. A feedback system is also implemented for continuous evaluation and improvement. This research shows a significant increase in health workers' understanding of medical device calibration. Patients report higher levels of satisfaction with services provided by healthcare professionals who use calibrated devices. This mentoring program was successful in increasing health workers' understanding of calibration, building patient trust, and increasing the accuracy of diagnosis and treatment. This success indicates the importance of assistance in the context of implementing calibration results in hospitals. The results of this research have positive implications for improving health service quality standards. These implications extend to the health education sector and clinical practice, strengthening evidence-based practice and increasing public trust in the health system. Thus, the mentoring program becomes a viable model for improving the quality of health services in hospitals and other health institutions

INDEX TERMS program to assist health, calibration, Dr. General Hospital Iskak Tulungagung

I. INTRODUCTION

Health equipment is an important factor in providing health services in hospitals and other health service facilities. In order to achieve good condition and function of health equipment and support health services, it is necessary to have integrated health equipment management. So that health equipment can be managed well, there is a need for government policies in managing health equipment in hospitals and other health service facilities. The health equipment cycle is differentiated before entering the health service facility (pre-market) and after entering the health service facility (post-market). Management of health equipment in health service facilities (post-market), starting with planning (preceded by technology assessment and evaluation of existing health equipment), procurement, acceptance, operation, maintenance, and disposal. This includes inventory, decontamination, surveillance vigilance,

and recall processes. For a report on the physical property measurement results, quantitative results have to be given in a way that allows their reliability to be fairly evaluated. Without these numbers, the outcomes of measurement cannot be made in relation to one another or using the standards' provided reference values or the standards that come with measurement tools. Those first, to guarantee global agreement in measuring science have produced readily implementable, un-reasonable, and widely recognized techniques for processing the measurements' findings with the idea of uncertainty when gauging [1]–[4][5], [6]. By calibrating a measuring device, one can ascertain the measurement uncertainty associated with the variation of the device's indication from a known value of the measurement supplied by the measurement standard. Stated differently, the variation in the sign of an instrument from the accepted measure's "true value" is established and

recorded. Because For instance, when calibrating micrometers or other dimensional measuring devices, blocks of gauge. One way to calibrate a measuring standard is to compare its quantity value with linked measurement uncertainty to a reference signal (along with related measurement uncertainty) discovered using a measurement device that is calibrated. As an example, a measuring device that was calibrated A secondary measuring standard can be calibrated using information provided by a primary reference standard [7]. An effective medical equipment maintenance program consists of adequate planning, management, and implementation. Planning considers adequate financial resources, facilities, and human resources. The medical equipment maintenance program must be continuous, uninterrupted, and managed so that health services improve. Sometimes during the period of use, medical equipment decreases, its performance is no longer suitable or cannot be used, and repairs are needed to restore the function of the medical equipment. Maintenance of medical equipment can be divided into two main categories namely

- Inspection and preventive maintenance (IPM)
- Corrective Maintenance / Corrective Maintenance (CM)

IPM includes all scheduled activities to ensure equipment function and prevent damage or failure. Inspection is ensuring the scheduled activities necessary for medical equipment to function properly. This includes performance and safety checks. Inspection activities can be carried out simultaneously with preventive maintenance activities. Testing of medical devices is a total of actions including physical examination and measurements to determine the characteristics of medical devices so that the suitability of medical devices can be ensured for work safety and specifications.

Meanwhile, the benefits that can be obtained from testing and calibration activities are that the condition of measuring instruments and measuring materials is maintained in accordance with their specifications. Medical devices that pass calibration will receive a Calibration Certificate and a Fit for Use mark, likewise, medical devices that pass the test will get a Testing/Calibration Certificate and a Fit for Use mark. Medical devices that do not pass calibration and/or testing will receive a Mark of Unfit for Use and may not be used in service. Certificates, Certificates of Usefulness and Signs of Unfitness for Use are issued by the Health Facilities Security Center, Health Facilities Security Center and authorized health facility testing institutions.

Dr. Hospital Iskak Tulungagung has several services including the Emergency Room service. Emergency care services with the Emergency Room are hospital services that provide first service to patients with the threat of death and disability in an integrated manner involving multi-disciplinary knowledge. The emergency room serves 24 hours with 3 shifts and the doctor on duty is always on site 24 hours a day. Emergency services refer to international standards and are specifically designed according to their function to meet the community's needs for emergency

services, namely consisting of primary triage, secondary triage, non-critical area (green zone), semi-critical area (yellow zone), asthma bay, critical area (red zone), operating room, psychological emergency area, radiology room and intensive observation room. The emergency room service system implements the Modern Emergency Installation (Instagram), namely an emergency service system that prioritizes speed, precision and accuracy in handling emergency patient cases by sorting the level of emergency using the zoning method. The aim of this community service is so that health device users at Dr. Hospital Iskak Tulungagung understand the importance of the calibration system and reading calibration results for sustainable maintenance of health equipment. The contributions of this community service are:

1. Medical device users will understand more about reading calibration certificates.
2. This increased understanding will help them use health tools more effectively, ensure accurate results, and in turn, improve the overall quality of health care.

II. METHOD AND IMPLEMENTATION

A. METHOD

Community Service with this Community Partnership Program scheme regarding "Assistance to Health Workers in Implementing Calibration Results at Dr. General Hospital. Iskak Tulungagung" is a very important activity to support efforts to increase the accuracy of medical devices which is a key aspect of quality health services. Dr. General Hospital Iskak Tulungagung considers it important to involve health workers in understanding and implementing the results of medical device calibration. Through the mentoring program, it is hoped that health workers will be more skilled and confident in using well-calibrated equipment, which will ultimately increase patient confidence and quality of service. The method for assisting health workers is through counseling and workshops, including:

1. Hold regular education sessions about the importance of calibration and how to read calibration results.
2. Arrange practical workshops where health workers can directly practice using medical equipment that has been properly calibrated.
3. Provide assistance with special calibration certificate reading skills for nurses, doctors and medical equipment technicians.
4. Focus on operating health equipment that is frequently used and handling emergencies.
5. Service providers provide material for each department or unit, which will be given guidance on reading the calibration certificate.
6. Evaluate the results of the material provided during mentoring.
7. After implementing the mentoring program, the hospital needs to carry out regular evaluations. This can involve health worker satisfaction surveys, competency testing, and monitoring the level of patient confidence in

hospital services. The results of this evaluation must be used as a basis for continuing to improve the mentoring program so that it is more effective and has a positive impact on the accuracy and quality of the health services provided.

B. IMPLEMENTATION

The implementation of Community Service was held in the auditorium of Dr. General Hospital Iskak Tulungagung, Tulungagung Regency, East Java on October 6 2023. Coordination of activities was carried out by the Head of Community Service and Sub-Coordinator of Education and Research at Dr. General Hospital Iskak Tulungagung which was attended by 44 health workers at Dr. General Hospital Iskak Tulungagung and 6 people from the Surabaya Ministry of Health Polytechnic community service team. The activity began with an opening, and continued with conveying the purpose of the arrival and activities that would be carried out during Community Service at Dr. General Hospital Iskak Tulungagung. The aims and objectives conveyed by the Chair of Community Service are:

1. Provide assistance and ensure that health workers understand and apply the calibration results correctly, so that the health services provided can be more accurate and effective.
2. Ensure that health workers in hospitals have an understanding of the importance of calibration and how to carry it out so that patients receive safe treatment.
3. Help develop human resources in the health sector, especially in terms of the proper use and maintenance of medical equipment.

The activity continued with remarks from the Deputy Director of Dr. General Hospital Iskak Tulungagung and Head of Community Service. In brief, Dr. General Hospital Iskak Tulungagung welcomed the arrival of the Community Service Team to Dr. General Hospital Iskak Tulungagung, and thanked him for presenting the material to health workers in implementing calibration results at Dr. General Hospital Iskak Tulungagung which is explained in [FIGURE 1](#).



FIGURE 1. Speech by the Deputy Director of RSUD Dr. Iskak Tulungagung and Head of Community Service

The next activity was the presentation of souvenirs by the Deputy Director of RSUD Dr. Iskak Tulungagung to the Head of Community Service as a form of gratitude for the community service activity "Assistance to Health Workers in Implementing Calibration Results at Dr. General Hospital. Iskak Tulungagung" which is explained in [FIGURE 2](#), and then the presentation of souvenirs by the head of community service to the deputy director of the general hospital Dr. Iskak Tulungagung which is explained in [FIGURE 3](#).



FIGURE 2. The presentation of souvenirs by the Deputy Director of RSUD Dr. Iskak Tulungagung to the Head of Community Service



FIGURE 3. The presentation of souvenirs by the Head of Community Service to the Deputy Director of RSUD Dr. Iskak Tulungagung

The next activity was a presentation of material on Assistance for Health Workers in Implementing Calibration Results at Dr. General Hospital. Iskak Tulungagung. The material presented includes the meaning of measurement and calibration, the meaning of testing and calibration, factors in carrying out calibration, work methods, and the use of calibration certificates which are explained in [FIGURE 4](#). After the presentation of the material, the activity continued with an evaluation of health workers through a question and answer session. There were 3 health workers who held a question and answer session with the presenters.

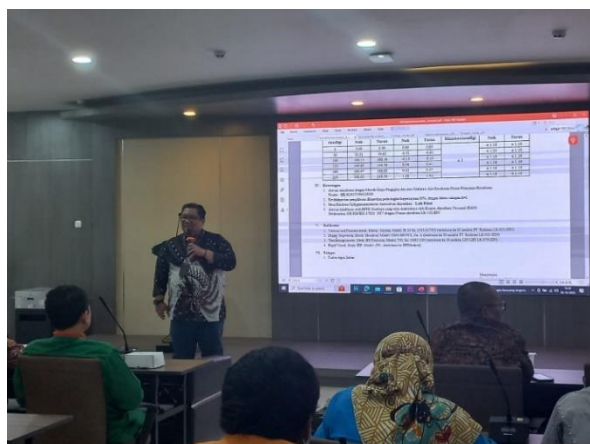


FIGURE 4. Presentation of accompanying material for reading calibration certificates

Questions asked by health workers at Dr. One of the Iskak Tulungagung questions is regarding tools that are calibrated, if there are missing points or one of the measurement results is not suitable, what action must be taken and whether the tool can be used if there is no spare tool. This evaluation activity aims to increase the understanding of health workers in implementing calibration results, so that the health services provided can be more accurate and effective. And the activity ended with a group photo session by Dr. RSUD health workers. Iskak Tulungagung and the Community Service team, Department of Electro-medical Technology, Poltekkes Kemenkes Surabaya which is explained in [FIGURE 5](#).



FIGURE 5. Photo with Community Service Participants

III. DISCUSSION

assistance to health workers in implementing calibration results at Dr. General Hospital. Iskak Tulungagung can improve the quality of health services. In an effort to ensure that medical devices are used accurately, assistance is key in understanding health workers about the importance of calibration and how to read calibration results. The benefits of mentoring health workers include increasing knowledge and skills: Through individual training and guidance, health workers can increase their knowledge about medical devices

and how to operate them correctly after calibration. This reduces the risk of errors in the use of medical devices that can affect patient diagnosis and treatment. Increased Confidence: Through mentoring, health workers feel more confident in using medical equipment that has been well calibrated. This belief has a positive impact on interactions with patients, creating a more comfortable and safer environment for patients. Emergency Handling Ability: Assistance also includes training in handling emergencies using medical equipment. In emergency situations, trained healthcare workers can respond quickly and efficiently, ensuring patient safety.

Benefits of patient assistance: patient safety and satisfaction, namely patients feel safe when they know that the medical devices used for their diagnosis and treatment have gone through a careful calibration process. This creates a sense of trust and patient satisfaction with hospital services. Accurate Diagnosis: Properly calibrated medical devices provide accurate results. Thus, the patient's diagnosis becomes more precise and provides a solid basis for an effective treatment plan. Improved Quality of Service: With trained health personnel and calibrated medical equipment, hospitals can provide higher quality and professional health services to patients. Assistance for health workers in implementing calibration results at Dr. Iskak Tulungagung has a significant positive impact, both on the health workers themselves and the patients who receive health services. With this approach, hospitals can ensure that every step in diagnosis and treatment is carried out accurately, create a safe environment, and improve the patient's quality of life through the best health services. Assistance for health workers in understanding and applying the results of medical device calibration at Dr. Iskak Tulungagung is a proactive step that supports improving the overall quality of health services. Through this approach, the hospital's main goal of providing accurate, safe and quality care to patients can be achieved more effectively. Regular counseling and skills training conducted by the mentoring team empowers health workers with in-depth knowledge about the importance of medical device calibration and ensures that they are able to read calibration results carefully.

IV. CONCLUSION

The aim of this community service is so that health device users at Dr. Hospital Iskak Tulungagung understand the importance of the calibration system and reading calibration results for sustainable maintenance of health equipment. The results of this mentoring create a positive domino effect. Health workers who feel confident in using properly calibrated medical equipment radiate confidence and professionalism to patients. Patients feel safe and entrusted to health workers who use equipment that has gone through a strict calibration process. Accurate diagnosis, fast emergency treatment, and increased patient confidence are clear evidence of the effectiveness of this assistance. Not only that, through outreach to patients, the public is also invited to understand the importance of implementing

calibration results in their health care. The hospital environment also becomes more transparent, building trust and positive relationships between patients, health workers and the hospital. In this way, the hospital is not only a place of healing, but also a center for caring health services, prioritizing accuracy and safety in every medical procedure. By continuing to implement this mentoring program, Dr. General Hospital Iskak Tulungagung not only maintains high quality standards, but also strengthens bonds of trust with the community. In the world of health services that continues to develop, assisting health workers in implementing calibration results is not only a proactive step, but also a necessity that guarantees the future of quality and reliable health services.

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