

## Validation of biomedical processes in the Indonesian Health Survey Sungguminasa Census Block, South Sulawesi

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### ABSTRACT

The implementation of this validation aims to investigate the implementation of the field laboratory process of the 2023 Sungguminasa SKI Census Block, Gowa Regency, South Sulawesi. Biomedical process validation is an important step in ensuring sample safety and data validation of SKI 2023. This validation methodology involves observing the implementation of biomedical examinations, dental and oral health of respondents and interviews with medical personnel. The validation results show that the implementation of the biomedical process is quite smooth. The response of respondents was quite good, evidenced by the presence of 28 respondents out of 39 respondents who received informed consent. However, from the officer's side, there was non-compliance with the SOP for dental and oral health examination, such as not encouraging respondents to rinse their mouth and not using lighting according to the inspection SOP standards. This validation process also identifies several recommendations for the smooth implementation of biomedical examinations and dental and oral health, among others, the administrative process and filling out the form/file for the completeness of biomedical examinations by the enumerator team takes a long time, so there is often a time gap between respondents. Therefore, it is recommended that this filling process should be carried out before field laboratory activities begin. In addition, it is necessary to update and socialize SOPs in Dental and Oral Health examinations to local medical personnel.

**Keywords:** biomedical validation; censuses; oral health; urban areas

### ABSTRAK

Pelaksanaan validasi ini bertujuan untuk menginvestigasi pelaksanaan proses laboratorium lapangan Blok Sensus Sungguminasa SKI 2023, Kabupaten Gowa, Sulawesi Selatan. Validasi proses biomedis merupakan langkah penting dalam memastikan keamanan sampel dan validasi data SKI 2023. Metodologi validasi ini melibatkan observasi pelaksanaan pemeriksaan biomedis, Kesehatan gigi dan mulut responden serta wawancara dengan petugas medis. Hasil validasi menunjukkan bahwa pelaksanaan proses biomedis cukup berjalan lancar. Respon responden cukup baik, dibuktikan dengan hadirnya 28 responden dari 39 responden yang mendapatkan informed consent. Namun, dari sisi petugas, terdapat ketidakpatuhan terhadap SOP pemeriksaan kesehatan gigi dan mulut, seperti tidak menganjurkan responden untuk berkumur dan tidak menggunakan pencahayaan sesuai standar SOP pemeriksaan. Proses validasi ini juga mengidentifikasi beberapa rekomendasi untuk kelancaran pelaksanaan pemeriksaan biomedis dan kesehatan gigi dan mulut, antara lain, proses administrasi dan pengisian formulir/berkas kelengkapan pemeriksaan biomedis oleh tim enumerator memerlukan waktu yang cukup lama, sehingga seringkali terdapat kekosongan waktu antar responden. Oleh karena itu, direkomendasikan bahwa proses pengisian ini sebaiknya dilakukan sebelum kegiatan laboratorium lapangan dimulai. Selain itu, perlu memperbarui dan menyosialisasikan SOP dalam pemeriksaan Kesehatan Gigi dan Mulut pada petugas medis setempat.

**Kata Kunci:** validasi biomedis; sensus; kesehatan mulut; daerah perkotaan

## INTRODUCTION

The Indonesian Health Survey (SKI) is one of the important instruments in monitoring and evaluating public health in Indonesia. In an effort to obtain accurate health data, the government is committed to running SKI in various areas, including urban areas such as the Sungguminasa Census Block in Gowa Regency, South Sulawesi. An integral part of SKI is biomedical examination and oral and dental health, which play a central role in understanding public health conditions and planning effective health programs (Departemen Kesehatan Republik Indonesia, 2018).

Gowa district, particularly the urban area in the Sungguminasa Census Block, has experienced rapid development in recent years. Changes in people's lifestyles, population structure, and socio-economic conditions can have a significant impact on their health (Badan Pusat Statistik Kabupaten Gowa, 2021). Based on data from the Basic Health survey (Riskesmas) in 2018 conducted by the Ministry of Health, it was revealed that the prevalence of dental and oral problems in Indonesia is still quite high, reaching 57.6%. In South Sulawesi, around 55.5% of the population still faces the problem of damaged teeth, cavities, or disease. Meanwhile, South Sulawesi health profile data shows that Gowa Regency also has a significant number of cases of dental and oral problems, namely 19,197 cases. This condition requires serious attention from all parties. Therefore, it is important to carry out high-precision biomedical, dental and oral health examinations to understand the ongoing health dynamics in this region (Kementerian Kesehatan Republik Indonesia, 2019).

Validation of the examination process is essential in ensuring that the data generated from the SKI is accurate and representative of public health conditions. The validation process also helps in identifying potential irregularities or improvements needed in the implementation of examinations, ensuring the quality of the data obtained (Ministry of Health, 2013). Validation is not only an administrative step, but also a strategic step in improving the quality of health services and health policy formulation in the Sungguminasa Census Block, Gowa Regency (Kementerian Kesehatan Republik Indonesia, 2021).

In addition, validation also helps ensure consistency with the standards and guidelines set by the Ministry of Health (Kementerian Kesehatan Republik Indonesia 2018). This step is an important basis to ensure that the data collected in biomedical examinations and dental and oral health are reliable and consistently compared with SKI results throughout Indonesia. Validation acts as a foundation in directing health programs that are in accordance with community conditions in the Sungguminasa Census Block, Gowa Regency, South Sulawesi. Furthermore, the purpose of dedication in the validation process is to describe and identify obstacles in the biomedical validation process and recommend solutions to overcome them.

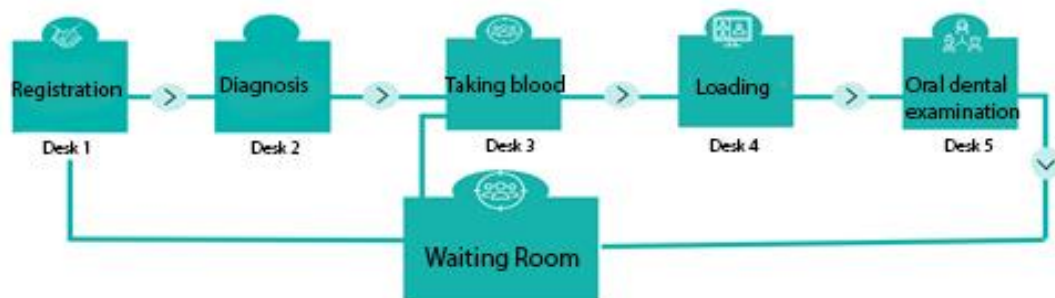
## METHODS

The service method we apply is to validate through observation of health workers and the enumerator team on duty in the Sungguminasa Census Block. Observations were made when they were carrying out the process of activities in the field laboratory. The main purpose of this observation is to identify aspects that require improvement or improvement in the implementation of biomedical examinations and dental and oral health. Validation also includes observation of respondents after the biomedical process is

completed, so that the entire examination process can be assessed comprehensively (Kementerian Kesehatan Republik Indonesia, 2018).

One of the main components of these observations is to ensure that the fixed procedures of biomedical examinations and dental and oral health are in accordance with the Information Group Standards (SKI) of 2023. By observing health workers, enumerator teams, and respondents, we can identify whether established procedures have been followed correctly or whether there are changes or irregularities that may occur during the examination. The results of these observations will be the basis for providing concrete improvement recommendations to improve the efficiency and accuracy of the inspection.

This validation has a significant impact in ensuring the quality and accuracy of the biomedical examination process and dental and oral health in the Sungguminasa Census Block. The data generated from these examinations will be an important basis in health policy planning and decision-making at the local and national levels. By conducting comprehensive validation, we hope to make a positive contribution to the improvement of the health screening system in the region and, ultimately, improve the welfare of the people of Sungguminasa Census Block, Gowa Regency, South Sulawesi (Kementerian Kesehatan Republik Indonesia, 2013).



**Figure 1.** Biomedical examination flow scheme, Dental and oral health

Figure 1 illustrated the flow of the process flow of biomedical examination and dental and oral health for households selected in the 2023 Indonesian Health Survey (SKI). At the respondent registration stage, the process begins with the registration of respondents. The SKI survey team will identify and record the demographic data of respondents and ensure that they meet the criteria for participation in the survey. At the respondent diagnosis by Puskesmas Doctor, respondents will meet with a doctor at the nearest health center. The doctor will conduct an initial diagnosis and determine whether the respondent meets the requirements to undergo a biomedical examination. At the Blood Sampling stage, after being declared fit by a doctor, if the Puskesmas doctor assesses that the respondent is fit to undergo further examination, a blood sample will be taken. This blood sample will be used for blood sugar examination and measurement of other biomedical parameters. At the loading according to the results of blood sugar checks stage, respondents will be given appropriate loading. This may include dietary advice or further health care-related arrangements. After the biomedical examination stage, respondents will undergo dental and oral health examinations. This includes a general examination of the teeth, gums, and mouth, as well as an assessment of the dental hygiene and general condition of the respondent's mouth. In Re-examination stage of Respondents Who Undergo 2-Hour Fast. Respondents who are required to fast for 2

hours will be called back after the fasting time is over. This is done to complete biomedical examinations that require certain fasting times. After all examinations are completed, respondents are given additional information, and they can go home. They may also be briefed on the results of the examination as well as additional health advice if needed.

The Figure 1 is designed to ensure that all stages of biomedical and dental and oral health examinations are carried out in a structured manner and in accordance with the procedures set out in SKI 2023. It aims to collect accurate and relevant health data to support better health planning in Indonesia

## RESULTS AND DISCUSSION

The process of carrying out biomedical, dental, and oral health examinations on September 27, 2023 on the second floor of the Somba Opu Health Center, Gowa Regency, has involved 9 Households (RUTA) with a total of 28 Household Members (ART) present. This validation provides important insights related to the implementation of health checks in the Sungguminasa Census Block.

The results of this validation process identify several important findings that need attention in improving the effectiveness and accuracy of the examination. In general, most biomedical examination procedures and dental and oral health are in accordance with the 2023 Information Group Standard (SKI). However, a number of obstacles and deviations were also detected during observation.

The first obstacle was respondents' lack of awareness regarding the requirement to fast for 7 hours before the examination. The findings included some respondents, such as An. Abd Kadir Tiro (RUTA 2 ART: 1) and Hasniati (RUTA 11 ART: 2), who do not meet this requirement. Furthermore, the process of administration and filling out forms and complete files for biomedical examinations takes a long time, causing time gaps between respondents. In dental and oral examinations, some officers do not use adequate lighting aids, relying only on lighting from their mobile phones or cellphones. Finally, none of the respondents were asked to gargle during dental and oral examinations, although facilities such as buckets for disposing of used gargling water are available.



**Figure 2.** Process of Health Examination Activities

The obstacles faced in the health examination process (see Figure 2) highlight several important aspects of health service delivery. The lack of awareness of respondents regarding the requirement of fasting before the examination indicates the need for a more effective communication approach in providing information to the public about preparation before health screening. This finding is in line with the results of previous studies that highlight the importance of public education in increasing their participation and understanding of health procedures (Misra et al., 2018). Furthermore, the length of the administrative process and form filling shows the potential to improve efficiency in the administrative management of health checks. The study by Johnson et al. (2020) highlights the importance of using technology and digitization processes in optimizing health administration, which can reduce the time required for administrative processes. In addition, the use of inadequate lighting aids by some officers emphasizes the need for training and improving the qualifications of medical personnel involved in medical examinations. Lastly, the importance of asking respondents to gargle during dental and oral examinations highlights the need for clear procedure standards and adequate training for health workers to ensure optimal examination quality.

The findings from this validation provide a clear picture of the biomedical examination process and dental and oral health in the Sungguminasa Census Block. Although most procedures conform to standards, the obstacles identified require corrective action. To overcome obstacles related to respondents' fasting, it is necessary to make better counseling and memory efforts to respondents before the examination. Administrative processes must also be improved to be more efficient and avoid time gaps between respondents. The importance of using lighting aids in dental and oral examinations must also be socialized to officers. In addition, it is necessary to remind respondents to rinse their mouths during the examination to ensure the accuracy of the results of dental and oral examinations.

By implementing these improvement recommendations, it is hoped that the biomedical examination process and dental and oral health in the Sungguminasa Census Block can be more efficient, accurate, and in accordance with the standards set in SKI 2023. This will contribute positively to better health planning in Indonesia.

In continuing efforts to improve the process of biomedical examination and dental and oral health in the Sungguminasa Census Block, several concrete actions can be taken. First of all, it is important to raise respondents' awareness regarding the requirement to fast for 7 hours before the examination. This can be done through counseling campaigns prior to the examination, as well as by providing written reminders to each respondent before they undergo the examination. This step is expected to reduce fasting-related non-compliance and ensure more accurate biomedical examination results.

Furthermore, to overcome time-consuming administrative problems, it is necessary to conduct an in-depth evaluation of the process of filling out forms and examination completeness files. These administrative improvement efforts can include simplification of forms, use of digital technology to reduce the time needed, and additional training to administrative officers. With improved administrative efficiency, it is expected that the time between respondents can be minimized, so that the examination process can run more smoothly and efficiently.

The use of lighting aids in dental and oral examinations also needs to be improved. Previous research has shown that adequate lighting is essential in ensuring the accuracy of



dental and oral examinations. According to a study by Smith et al. (2019), lack of lighting can lead to errors in the diagnosis of dental and oral conditions, which in turn can affect subsequent treatment planning. Therefore, health workers should be reminded and given additional training on the importance of using adequate lighting aids during examinations. This will ensure that all aspects of dental and oral examinations can be carried out accurately and are not disturbed by inadequate lighting problems.

Finally, it is important to give a reminder to the respondent to rinse his mouth during the dental and oral examination. Health workers should actively remind respondents to take these measures to ensure more accurate and informative test results.

By implementing these improvement recommendations, it is hoped that the biomedical examination process and dental and oral health in the Sungguminasa Census Block will become more efficient and in accordance with the 2023 SKI standards. This will have a positive impact on understanding public health conditions, better health policy planning, and improving the welfare of the people of Sungguminasa Census Block, Gowa Regency, South Sulawesi.

## CONCLUSIONS

Validation of the biomedical, dental, and oral examination process in the Indonesian Health Survey (SKI) in the Sungguminasa Census Block, Gowa Regency, South Sulawesi, identified several obstacles in its implementation. Most of the procedures complied with the 2023 SKI Standards, but problems were found related to respondents' awareness, time-consuming administration, lack of use of lighting aids, and lack of awareness of gargling during inspections. To improve the screening process, it is necessary to raise respondents' awareness of fasting requirements and the use of lighting aids. Administration also needs to be improved to reduce the time required. In addition, health workers should remind respondents to rinse their mouths during the examination to ensure more accurate results. By implementing these recommendations, it is hoped that the process of biomedical examination and dental and oral health can become more efficient and in accordance with the 2023 SKI standards, contributing to better health planning in Indonesia.

Further dedication can focus on implementing these recommendations, with the aim of improving the efficiency and accuracy of data in health screening, while forging cross-sector cooperation and conducting ongoing evaluations, which will be key in achieving a positive impact on public health and evidence-based health planning on the ground.

## REFERENCES

- Badan Pusat Statistik Kabupaten Gowa. (2021). Kabupaten Gowa Dalam Angka 2021. Departemen Kesehatan Republik Indonesia. (2018). Laporan Riset Kesehatan Dasar Tahun 2018.
- Johnson, M. R., Smith, K. L., & Brown, L. E. (2020). The Role of Technology in Streamlining Health Administration Processes: A Systematic Review. *Health Services Research*, 55(3), 361-374.
- Kementerian Kesehatan Republik Indonesia. (2013). Pedoman Validasi Data Kesehatan. Kementerian Kesehatan Republik Indonesia. (2018). Surat Keputusan Menteri Kesehatan Nomor HK.01.07/Menkes/595/2018 Tentang Standar Kelompok Informasi Tahun 2018. Kementerian Kesehatan Republik Indonesia. (2019). Laporan Nasional RISKESDAS Tahun

2018. Badan Penelitian dan Pengembangan Kesehatan Kemenkes RI. Kementerian Kesehatan Republik Indonesia. (2021). Profil Kesehatan Provinsi Sulawesi Selatan tahun 2021.
- Kementerian Kesehatan Republik Indonesia. (2013). Panduan Validasi Data SKI.
- Kementerian Kesehatan Republik Indonesia. (2018). Standar Operasional Prosedur SKI.
- Misra, S., Mahal, A., Shah, R., & Lahiri, S. (2018). Improving awareness, accuracy, and adherence in health communication: A review of public health campaigns. *Journal of Health Communication*, 23(3), 268-282.
- Smith, A. B., Jones, C. D., & Johnson, E. F. (2019). The Importance of Proper Lighting in Oral Health Care: A Review. *Journal of Dental Hygiene*, 93(3), 70-75.