

## IMPLEMENTATION OF THE E-PPGBM SYSTEM: AN OPPORTUNITY OR A CHALLENGE

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### ABSTRACT

**Background:** Stunting is a chronic nutritional deficiency problem and has an impact on development, cognitive, motor, verbal, higher susceptibility to non-communicable diseases which of course affect productivity as well as become a burden on the country. non-communicable diseases which of course affect productivity as well as become a burden on the country. The prevalence of stunting in Indonesia is still quite high, although Indonesia has succeeded in reducing the prevalence of stunting from 37.6% (2013) to 21.6% (2022). Reducing the prevalence of stunting from 37.6% (2013) to 21.6% (2022). One of the one of the strategies for reducing stunting is carried out through recording and reporting based on the strategy for reducing stunting is carried out through recording and reporting based on the community by accurate nutritional surveillance, so that information on the problems is specific as a basis for considering interventions carried out on target. specific as a basis for considering interventions carried out on target.

**Method:** This study applies the explanatory trial approach of the CIPP Evaluation Model, which consists of Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation.

**Result:** The results of the study formulate policy recommendations, including loading feedback systematically in the aspect of loading the e-PPGBM database, developing e-PPGBM application features through recording registration templates and determining risk factors, monitoring and evaluating the quality of e-PPGBM data through data analysis techniques, recording e-PPGBM interventions and evaluations, and building a network for utilizing the results of e-PPGBM data analysis as supporting data for planning toddler nutrition programs and interventions.

**Conclusion:** Optimizing the utilization of Optimizing the utilization of e-PPGBM at various stakeholder levels requires the active role and involvement of the parties, e-PPGBM at various stakeholder levels requires the active role and involvement of the parties, in order to ensure that the processed and produced data can be used as appropriate policy considerations in the community. appropriate policy considerations in the community.

**Keywords:** Stunting, Nutrition, e-PPGBM, CIPP Evaluation

### INTRODUCTION

Nutrition is a key aspect for human resource development. One of the nutritional issues that is a global focus and a target of sustainable development goal 2.2 is toddler stunting.

Stunting occurs due to chronic malnutrition, especially inadequate nutritional intake. Stunting affects development,

cognitive, motoric, verbal, higher susceptibility to non-communicable diseases such as obesity, hypertension, diabetes, to cancer during adulthood which will later affect productivity, income potential, skills, thus increasing state expenditures in health insurance and economic losses, as well as the country's economic burden.

The global prevalence of stunting in 2022 was 22.3% with 148.1 million toddlers

in the world experiencing stunting. More than half of the world's stunted toddlers come from Asia (76.6 million) and around 42% (63.1 million) come from Africa.

The ASEAN Snapshot Report shows that Cambodia, the Philippines, Vietnam, and Myanmar experienced a decrease in stunting prevalence while Malaysia, Thailand, and Indonesia experienced an increase in stunting prevalence. The prevalence of stunting in Malaysia increased from 17.7% in 2016 to 21.8% in 2020. Similarly, Thailand's stunting prevalence increased from 10.5% (2016) to 13.3% (2020). Meanwhile, based on the report, Indonesia's prevalence tends to increase slightly from 27.5% (2016) to 27.7% (2020). The average stunting rate in Southeast Asia is 25.4%.

In 2022, Indonesia is estimated to contribute 4.7% of all stunting cases in the world (UNICEF, 2023). Jambi Province has a fluctuating prevalence of stunting in 2013 (37.2%), 2018 (30.1%), 2020 (21.03%), increasing in 2021 (22.4%), 2022 (18%), and 2024 by 13.5% with a provincial target of 12% in 2024, meaning below the RPJMN target of 14% in 2024.

This decreasing trend in prevalence briefly illustrates the success of the programs that have been carried out by the government, because the results of the Basic Health Research or now renamed the Indonesian Health Survey have been utilized by program implementers in developing policy plans, monitoring, and evaluating evidence-based health programs.

One strategy in efforts to reduce stunting is to emphasize the importance of accurate electronic data for community-based recording and reporting by nutritional surveillance, so that the information obtained is appropriate and interventions are carried out on target (Zulaikha et al., 2021). The accuracy of reliable data and information is influenced by a good health information system. In fact, if the system is examined further at the district/city, provincial and

central levels, this e-PPGBM information system still has not contributed to producing accurate and timely data and information (Sugianti, 2020).

Input indicators are inputs used to run the system. Evaluation of input is used to ensure that resources are in accordance with the problem. Input can affect the process and have an impact on output so that evaluation of input is the initial stage that needs to be carried out before moving on to the next evaluation stage (Solehuddin, 2022). Input indicators are known to affect problems in recording e-PPGBM, namely delays in the reporting process. One of them is the lack of supporting facilities such as laptops, internet networks and personnel entering data (Febrianto et al., 2022).

This requires an evaluation of the input indicators or resources needed in the e-PPGBM surveillance system (Meidiawani et al., 2021). Data and information that have the potential to be used for nutritional surveillance still need to be considered in terms of quality. This is because the existing data has often been used to provide an overview of the nutritional status and risk factors in the community.

Available and accessible data for nutritional surveillance purposes at all levels of government administration, namely: data on the results of monitoring the growth of individual toddlers and at the community level, data on the height of new school children, anthropometric measurement data during the distribution of vitamin A in February and August, and data on weighing months (in several provinces). For the purposes of risk factor analysis, routine reports from government institutions (such as health, agriculture, social, public works) can be utilized. There are several data that have been entered in the e-PPGBM format.

Studies related to the use of the above data for nutritional surveillance purposes, in the sense of the 3A concept (Assessment, Analysis, Action) have not been conducted.

There are several questions about how the data is used for nutritional surveillance.

A good Health Information System is an information system that is able to produce accurate and timely data/information. Facts show that health management at the district/city, provincial and central levels, related to the e-PPGBM application Information System has not played a big role because it has not produced accurate and timely data/information. This has an impact on incomplete nutritional status information, resulting in inaccuracies in identifying nutritional problems and resulting in the formulation of incorrect policies in dealing with nutritional problems.

Therefore, we need to see the opportunities, challenges and gaps that are important and strategic substances for the sustainability of the e-PPGBM system.

## METHOD

This study applies the explanatory trial approach of the CIPP Evaluation Model, which consists of Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation. Service design is a human-centered design approach that aims to improve the quality of interactions between services and their users, by comprehensively considering the end-to-end processes and resources (people, infrastructure, protocols) required for services to run and generate value.

## RESULTS AND DISCUSSION

### 1. The Role of District/City/Provincial Governments in Creating the e-PPGBM System Database in Jambi Province

The District/City Health Office places the position in the role of monitoring and evaluation as well as analysis of e-PPGBM data (95.2%). The District/City Health

Office carries out monitoring of health centers (69.0%), in the monitoring aspect, in order to maintain the accuracy of data input according to the specified deadline.

e-PPGBM data is used by the District/City/Provincial Health Office, especially related to the nutritional status of toddlers, for early identification of health problems in the community. In addition to the role of monitoring, evaluation, and data analysis, the District/City/Provincial Health Office also plays a role in providing orientation to nutrition program holders and e-PPGBM applications.

### 2. Provision and Management of Resources for the Implementation of the e-PPGBM System

The implementation of the e-PPGBM system is realized in the form of optimizing the role of nutrition officers in managing the e-PPGBM system, including recapitulation of posyandu data and verification of data entry into the e-PPGBM system (84.1%), information management and data analysis (73.2%), and advocacy of analysis results as recommendations for alternative solutions and forms of follow-up to handling toddler nutritional status problems (56.1%).

Nutrition officers as the person in charge of the e-PPGBM system every month said that as individuals they feel burdened with carrying out e-PPGBM data entry (16.0%), one of the reasons is because they hold more than 1 position. Even the positions held reach 5 positions, of course it is a highlight regarding job analysis and the workload of an employee.

The extension of the Nutrition Officer at the Health Center is a health cadre who has been trained and empowered, through workshop activities and direct assistance in integrated health post activities and toddler anthropometry.

Increasing the capacity of health workers in Community Health Centers is balanced with increasing information technology capabilities and the implementation of e-

PPGBM system monitoring from the Community Health Center, Regency/City, and Provincial levels.

### **3. Data Collection and Dissemination Practices in the e-PPGBM System**

Toddler anthropometric data were obtained based on Posyandu visits that were coordinated and implemented every month. However, the recorded manual forms required verification to ensure that the data entered was correct and precise. Data entry in the e-PPGBM system included toddler identity (55.4%), anthropometric measurements (94.0%), Additional Food Provision (PMT) (48.2%), measurements of pregnant women (19.3%), infant mortality (4.8%), vitamin A consumption (69.9%), and monthly reports based on these indicators.

The input of anthropometric and health data of toddlers in the e-PPGBM application is assisted by Posyandu (62.2%), although it must go through verification and validation from the Health Center to minimize data deviations. However, several areas do not involve Posyandu in the application data entry for various reasons, including health cadres are not yet proficient in inputting e-PPGBM application data (69.3%), at the Posyandu level, health cadres only need to manually record anthropometric data of toddlers and pregnant women (48.0%), and it is considered efficient if health center officers do it themselves (25.3%).

### **4. Constraints and Obstacles to Utilizing e-PPGBM**

The survey results accompanied by elaboration from nutrition officers conveyed that there were obstacles and barriers that were often faced in accessing the e-PPGBM system, including the application often experiencing disruption/maintenance (65.0%), the strength of the internet network needed to access the e-PPGBM system in several Puskesmas/Posyandu locations was very limited (62.5%), limited health human resources as data verification and validation officers at the Puskesmas level (45.0%), and

technically incomplete data entry from each Posyandu (50.0%).

This hypothesis is reinforced by the argument of nutrition officers that data correction is often done because of data input errors or the verification and validation process of measurement data that has not been completed. At times, officers submit data that is not recorded in the e-PPGBM application, thus requiring re-entry and of course requiring more time and effort. Incidents like this hinder officers in carrying out their functions, thus impacting the accumulation of other work.

Alternatives offered in the development of the e-PPGBM application include the addition of control and feedback features by the District/City/Province Office, so that the Health Center can verify that the data is recorded by the District/City/Province.

### **5. Flow of e-PPGBM Utilization at Health Center and Regency/City/Province Levels**

The e-PPGBM application system is an instrument for surveillance as well as monitoring and evaluation of the nutritional status of toddlers in the region. The availability of e-PPGBM at the Health Center is used to find out information on the growth and development of toddlers (87.8%), provide an accurate picture of the nutritional status of individuals (86.6%), and obtain target data for individual toddlers by name by address (78.0%).

Processed e-PPGBM data becomes the basis for consideration in formulating health policies and programs. At the Regency/City/Province level, the data utilization stage enters the concept of analysis and information dissemination as a basic form of policy recommendations or alternative solutions to the problem of toddler nutritional status. Achieving good data quality for quality policies certainly requires solutions to the roots of the problems in the field, such as the provision of facilities and infrastructure, the

provision of health human resources based on workload analysis, the preparation of effective and efficient role models for Posyandu technical services that are in line with e-PPGBM data records.

The implementation of e-PPGBM data has the potential to produce accurate and real-time nutritional data, which will facilitate the identification of nutritional problems and the planning of targeted nutritional interventions. Furthermore, the e-PPGBM system supports digital health transformation through integrated data.

## CONCLUSION

The study shows that optimizing the use of e-PPGBM at various stakeholder levels requires the active role and involvement of parties to ensure that the data processed and produced can be used as a consideration for appropriate policies in the community.

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## CONFLICT OF INTEREST

All of the authors declared no conflict of interest regarding funding, including names in published articles, and the data collection process.

## REFERENCE

ASEAN. (2022). The 2022 ASEAN SDG Snapshot Report. <https://www.aseanstats.org/wp>

<content/uploads/2022/11/The-2022-ASEAN-SDG-Snapshot-Report-b.pdf>

Direktorat Gizi Masyarakat Direktorat Jenderal Kesehatan Masyarakat. (2018). Petunjuk Teknis Sistem Informasi Gizi Terpadu (Sigizi Terpadu). In Kementerian Kesehatan RI. Kementerian Kesehatan RI.

Febrianto, F., Gustina, E., & Rosalina, S. (2022). Analisis Kinerja Petugas Kesehatan Dalam Penemuan Kasus Baru Stunting Pada Balita Diwilayah Kerja Dinas Kesehatan Kabupaten Ogan Komering Ulu Tahun 2021. *Jurnal Kesehatan Saemakers Perdana*, 5(1), 11–28. <https://doi.org/10.32524/jksp.v5i1.386>

Jahari, A. B. (2022, July 25). Surveilans Gizi dalam Penanganan Masalah Gizi Terkini: Nutritional Surveillance In Handling Recent Nutritional Problems. *Prosiding Temu Ilmiah Nasional (TIN) PERSAGI 2022*, 101–108.

Kementerian Kesehatan Republik Indonesia. (2024). Survei Kesehatan Indonesia Tahun 2023: Potret Indonesia Sehat. <https://www.badankebijakan.kemkes.go.id/laporan-tematik-ski/>

Meidiawani, M., Misnaniarti, M., & Syakurah, R. A. (2021). Kepuasan Pengguna Aplikasi E-PPGBM Berdasarkan Model Kesuksesan Delone-Mclean. *PREPOTIF: Jurnal Kesehatan Masyarakat*, 5(1), 96–102 <https://doi.org/10.31004/prepotif.v5i1.1323>

Satriawan, E. (2018). Strategi Nasional Percepatan Pencegahan Stunting 2018 - 2024. Siswati, T., Hookstra, T., & Kusnanto, H. (2020). Stunting among children Indonesian urban areas: What is the risk factors? *Jurnal Gizi Dan Dietetik Indonesia (Indonesian Journal of Nutrition and Dietetics)*, 8(1), 1.

[https://doi.org/10.21927/ijnd.2020.8\(1\).1-8](https://doi.org/10.21927/ijnd.2020.8(1).1-8)

Sugianti, E. (2020). Evaluasi Program Perbaikan Gizi Berbasis Pemberdayaan Masyarakat dalam Pos Gizi di Kabupaten Bojonegoro. *Cakrawala: Jurnal Litbang Kebijakan*, 14(2), 113-128.

<https://doi.org/10.32781/cakrawala.v14i2.355>

Solehuddin. (2022). *Manajemen Sumber Daya Manusia: Performance Analysis* (T. Hidayat (ed.)). CV Absolute Media. UNICEF/WHO/World Bank Group. (2023, May 31). Joint Child Malnutrition Estimates (JME) 2023. UNICEF Data.

Vaivada, T., Akseer, N., Akseer, S., Somaskandan, A., Stefopoulos, M., & Bhutta, Z. A. (2020). Stunting in childhood: An overview of global burden, trends, determinants, and drivers of decline. In *American Journal of Clinical Nutrition* (Vol. 112, pp. 777S-791S). Oxford University Press. <https://doi.org/10.1093/ajcn/nqaa159>

Wahyuni, L. (2021). Stunting dan 1000 HPK. *Koran Jawa Pos Radar Banyuwangi*. World Health Organization. (2018). *Reducing Stunting in Children: Equity Considerations for Achieving The Global Nutrition Targets 2025*.

Zulaikha, Y., Windusari, Y., & Idris, H. (2021). Analisis Pelaksanaan Program Pencegahan Stunting. *Jurnal Keperawatan* <https://doi.org/10.31539/jks.v5i1.3007>