

Model Ketahanan Imunisasi Campak Rubela Kabupaten Kota di Indonesia Tahun 2022-2023 = Model of Measles Rubella Immunization Resilience in Districts/Cities, Indonesia, 2022-2023

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Abstrak

Campak adalah penyakit dengan tingkat penularan dan fatalitas tinggi terutama di negara dengan sistem kesehatan yang lemah. Campak merupakan penyakit yang dapat dicegah dengan imunisasi sebagai bagian integral dari sistem kesehatan. Program imunisasi dasar merupakan bagian dari transformasi layanan kesehatan primer. Penelitian ini bertujuan untuk mendapatkan model ketahanan imunisasi campak rubela kabupaten/kota di Indonesia berdasarkan variabel-variabel yang berpengaruh terhadap imunisasi campak rubela.

Jenis penelitian ini adalah penelitian kuantitatif desain cross sectional, tapi pada level kabupaten kota menggunakan studi ekologi atau korelasi populasi, dimana unit penelitian terdiri dari 2 level, yaitu level individu dan level kabupaten/kota yang memiliki setidaknya 1 kasus positif IgM kasus campak rubela di 257 kabupaten kota tahun 2022-2023. Analisis menggunakan multilevel modelling, pada level individu dilakukan analisis variabel umur, jenis kelamin, dan riwayat imunisasi, sedangkan level kabupaten kota meliputi cakupan imunisasi, anggaran pelayanan imunisasi, pendanaan stabil, pemerintah kinerja program campak, SDM imunisasi dan surveilans terlatih, respon alert, kelengkapan dan ketepatan laporan.

Kasus campak rubela terbesar pada kelompok umur 0-5 tahun (60,7%), perempuan (51,3%) dengan riwayat imunisasi MR2 tidak lengkap (67%). Hasil analisis multivariat didapatkan variabel kasus campak rubela (OR=2,014), cakupan imunisasi campak rubela (OR=1,916), anggaran imunisasi (OR=1,856), pendanaan stabil(KLB) (OR=1,823), pemerintah kinerja program campak (OR=2,05), SDM imunisasi terlatih (OR=1,968) dan SDM surveilans terlatih (OR=1,841) menunjukkan pengaruh signifikan terhadap ketahanan imunisasi campak rubela kabupaten kota di Indonesia. Pada hasil analisis multilevel nilai MOR pada level individu 1.00159 dan level kabupaten kota 1.00081 sehingga dapat disimpulkan efek individu lebih besar dari efek level. Kontribusi variabel independen terbesar untuk level kabupaten kota adalah cakupan imunisasi sebesar 624,14% terhadap ketahanan imunisasi campak rubela kabupaten kota. Model prediksi ketahanan imunisasi campak rubela didapatkan dengan formula = $-2,314 + 0,787 \text{ kasus campak rubela} + 0,685 \text{ cakupan imunisasi campak rubela} + 0,586 \text{ anggaran imunisasi} + 0,568 \text{ pendanaan KLB} + 0,712 \text{ pemerintah kinerja program campak baik} + 0,627 \text{ SDM Imunisasi} + 0,596 \text{ SDM surveilans}$.

Kesimpulan : Model ketahanan imunisasi campak rubela pada studi ini menemukan variasi ketahanan imunisasi campak rubela hampir sama/tidak beragam antar kabupaten kota dibandingkan antar individu, namun kontribusi/peran dari cakupan imunisasi kabupaten kota sangat besar terhadap ketahanan imunisasi campak rubela kabupaten kota. Saran : Peran program imunisasi penting dalam mencapai cakupan imunisasi campak rubela kabupaten/kota tinggi dan merata dalam memperkuat ketahanan imunisasi campak rubela, Kabupaten kota dapat melakukan evaluasi program imunisasi dengan menganalisis data ketahanan

imunisasi untuk mewujudkan eliminasi campak rubela tahun 2026.

.....Measles is a highly contagious disease with a significant mortality rate, particularly in countries with underdeveloped healthcare systems. However, it is a vaccine-preventable illness. Immunization plays a vital role within the healthcare system, and basic immunization programs are a fundamental component of the ongoing transformation of primary healthcare services. This study seeks to assess the resilience of measles-rubella immunization at the district/city level. To achieve this, a model capable of evaluating the measles-rubella immunization resilience index is required, incorporating variables that influence immunization outcomes.

An observational study design employing an ecological or population-level correlation approach with multilevel analysis was used. The unit of analysis consisted of districts/cities that reported confirmed measles-rubella IgM-positive cases, resulting in a sample of 257 districts/cities. The analysis was conducted at two levels: the individual level (including variables such as age, sex, and immunization history), and the district/city level (including indicators such as immunization coverage, budget allocation for immunization services, funding stability, governance quality, availability of trained immunization and surveillance personnel, responsiveness to health threats, and the completeness and accuracy of reporting).

Results of the study with the largest cases of measles rubella were in the age group of 0-5 years (60.7%), women (51.3%) with a history of incomplete MR2 immunization (67%). The results of the multivariate analysis obtained the variables of measles rubella cases (OR = 2.014), measles rubella immunization coverage (OR = 1.916), immunization budget (OR = 1.856), stable funding (KLB) (OR = 1.823), government measles program performance (OR = 2.05), trained immunization human resources (OR = 1.968) and trained surveillance human resources (OR = 1.841) showed a significant influence on the resilience of measles rubella immunization in cities and districts in Indonesia. In the results of the multilevel analysis, the MOR value at the individual level was 1.00159 and the city district level was 1.00081 so it can be concluded that the individual effect is greater than the level effect. The largest independent variable contribution for the city district level is immunization coverage of 624.14% to the resilience of measles rubella immunization in cities and districts. The measles rubella immunization resilience prediction model with the formula = $-2.314 + 0.787 \text{ measles rubella cases} + 0.685 \text{ measles rubella immunization coverage} + 0.586 \text{ immunization budget} + 0.568 \text{ KLB funding} + 0.712 \text{ Good governance} + 0.627 \text{ Immunization HR} + \text{Surveillance HR} + 0.596$. The largest independent variable contribution for the district/city level is immunization coverage of 624.14% to the resilience of measles rubella immunization in the district/city.

Conclusion: The results of the study show that the measles rubella immunization resilience model in this study proves that the variation in measles rubella immunization resilience is almost the same/does not vary between districts/cities compared to individuals, but the contribution/role of district/city immunization coverage is very large to the resilience of measles rubella immunization in the district/city. The variables of measles rubella cases, measles rubella immunization coverage, immunization budget, funding during the outbreak, government performance of the measles program is good, immunization and surveillance human resources show significant and positive effects on measles rubella immunization resilience. This model can be an important tool in data-based policy making. **Recommendations/Suggestions:** Districts and cities can evaluate immunization programs by analyzing immunization resilience data and need to study and make

policies to realize measles and rubella elimination in 2026.