



INTISARI

Latar belakang: Campak adalah penyakit yang sangat menular dan dapat menyebabkan komplikasi serius hingga kematian. Data 2022 menunjukkan peningkatan kasus campak di Indonesia, termasuk di Kota Yogyakarta yang mengalami Kejadian Luar Biasa (KLB) campak pada 2022 dan 2023. Meski cakupan imunisasi MR1 di Kota Yogyakarta mencapai $\geq 95\%$ dalam enam tahun terakhir dan rata-rata cakupan MR2 sebesar 81,3%, belum mampu mencegah terjadinya KLB campak. Penelitian ini bertujuan untuk mengevaluasi implementasi rantai dingin vaksin dan mengidentifikasi faktor yang memengaruhi ketepatan waktu vaksinasi campak pada bayi/baduta di Kota Yogyakarta.

Metode: Studi ini mencakup tiga sub-studi penelitian. Sub-studi evaluasi program manajemen rantai dingin vaksin dengan metode deskriptif, sub-studi evaluasi sistem surveilans manajemen rantai dingin vaksin dengan metode deskriptif, dan studi analitik faktor yang memengaruhi ketepatan waktu vaksinasi menggunakan *explanatory sequential mixed method*.

Hasil: Evaluasi menunjukkan bahwa program rantai dingin vaksin di Kota Yogyakarta memiliki kekuatan dalam perencanaan logistik dan dukungan anggaran, namun masih terdapat kelemahan seperti kurangnya pelatihan petugas, ketiadaan SOP, kondisi peralatan yang tidak standar, serta lemahnya pemantauan suhu dan proses distribusi. Implementasi rantai dingin pada fasilitas di wilayah KLB campak lebih rendah dibandingkan wilayah non-KLB campak. Dalam surveilans rantai dingin, aspek pencatatan, pelaporan, dan jejaring dinilai baik, namun masih lemah dalam analisis data, respons/kontrol, serta supervisi. Secara kuantitatif, proporsi ketepatan waktu imunisasi MR1 dan MR2 lebih tinggi selama dan setelah pandemi, namun lebih rendah pada jadwal imunisasi yang non-mingguan dan di wilayah KLB campak. Imunisasi ganda terbukti meningkatkan ketepatan waktu MR2. Studi kualitatif mengidentifikasi bahwa ketepatan waktu imunisasi dipengaruhi oleh kombinasi faktor individu (pengetahuan, keterampilan, motivasi petugas) dan faktor kontekstual (dukungan supervisi dan kebijakan yang adaptif, *community engagement*, dan ketersediaan logistik vaksin).

Kesimpulan: Implementasi program dan sistem surveilans rantai dingin vaksin di Kota Yogyakarta masih menghadapi tantangan yang berdampak pada kualitas vaksin. Ketepatan waktu imunisasi MR1 dan MR2 dipengaruhi oleh dinamika sistem layanan, kebijakan, serta faktor individual dan lingkungan petugas kesehatan. Intervensi berbasis penguatan sistem dan dukungan sumber daya sangat dibutuhkan untuk meningkatkan mutu pelayanan imunisasi campak.

Kata kunci: rantai dingin, vaksin, imunisasi, ketepatan waktu, campak



ABSTRACT

Background: Measles is a highly contagious disease that can lead to serious complications and death. Data in 2022 indicate a significant increase in measles cases in Indonesia, including Yogyakarta City, which experienced a measles outbreak in 2022 and 2023. Although MR1 immunization coverage in Yogyakarta City has consistently reached $\geq 95\%$ over the past six years, and the average MR2 coverage of 81.3% has not been sufficient to prevent measles outbreaks. This study aimed to evaluate the implementation of the vaccine cold chain system and identify factors influencing the timeliness of measles vaccination among infants and young children in Yogyakarta City.

Methods: This research consisted of three sub-studies: (1) a descriptive evaluation of vaccine cold chain implementation; (2) a descriptive evaluation of the cold chain surveillance system; and (3) an analytical study using an explanatory sequential mixed-methods design to examine factors associated with timely measles vaccination.

Results: The evaluation revealed strengths in vaccine cold chain implementation, including well-organized logistics planning and sufficient budgeting. However, several weaknesses were identified, such as inadequate staff training, absence of clear SOPs, substandard equipment, limited temperature monitoring, and weak vaccine distribution practices. The cold chain implementation in facilities in measles outbreak areas is lower than in non-measles outbreak areas. In the surveillance system, aspects such as recording, reporting, and networking were found to be strong, while weaknesses remained in data analysis, response and control, and supervisory practices. Quantitative findings showed that timeliness of MR1 and MR2 immunization improved during and after the pandemic but was lower among health centers with non-weekly immunization schedules and in outbreak-affected areas. Receiving multiple injections was significantly associated with higher MR2 timeliness. Qualitative findings highlighted that timeliness was influenced by a combination of individual factors (knowledge, technical skills, professional commitment) and contextual factors (supervision and policy support, community engagement, vaccine logistic).

Conclusion: The implementation of the vaccine cold chain program and surveillance system in Yogyakarta City continues to face systemic challenges that impact vaccine quality. Timeliness of MR1 and MR2 immunization is shaped by service delivery dynamics, policy, and health workers' individual and environmental factors. System-strengthening interventions and adequate resource support are urgently needed to improve the quality of measles immunization services.

Keywords: cold chain, vaccine, immunization, vaccination timeliness, measles