OVERVIEW OF THE IMPLEMENTATION HPV VACCINATION PROGRAM IN MOJOKERTO CITY AND DISTRICT HEALTH CENTERS

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ABSTRACT

Cervical cancer is the second leading cause of death among women in Indonesia. HPV virus types 16 and 18 are the main causes of cervical cancer. One of the prevention of cervical cancer is HPV vaccination. In Indonesia, the HPV vaccine is included in the School Children Immunization Month (BIAS) program. This study aims to determine how the implementation of the HPV vaccination program at the Mojokerto City and District Health Centers. This type of research is descriptive with a quantitative approach. A sample of 4 health centers in the Mojokerto working area was taken with a sampling technique using random sampling. Respondents as many as 4 officers are immunization program coordinators. The variable in this study is an overview of the implementation of the HPV vaccination program which consists of sub-variables such as planning, preparation, implementation, and evaluation. The instrument used was a checklist sheet. Of the 4 respondents who had attended immunization program training, 3 officers. Planning results at the City Health Centers (91.6%) and District Health Centers (100%). The results of preparation at the City and District Health Centers were 100%. The results of the implementation at the City and District Health Centers were 100%. The evaluation results at the City and District Health Centers were 100%. The implementation of the HPV vaccination program in Mojokerto City and District Health Centers has been well implemented.

Keywords : *Cervical Cancer, HPV Vaccination, National Immunization Program*

INTRODUCTION

Cervical cancer is a disease characterized by abnormal cell spread and uncontrolled cell growth. Cervical cancer continues to rank among the top gynecological cancers worldwide and is the 4th most common cancer among women worldwide (Brisson & Drolet, 2019). Cervical cancer is the second cancer causing death in women in Indonesia (Sung, et al., 2021).

A total of 604,000 new cases of cervical cancer were diagnosed and 342,000 women died from cervical cancer. About 90% of the 342,000 cervical cancer deaths occurred in low- and middle-income countries (World Health Organization, 2023). The Global Cancer Observatory (Globocan) report in 2020 showed that the total population of cancer patients worldwide as of 2020 was 50,550,287 people. In 2020 cervical cancer cases amounted to 36,633 of the total new cancer cases of 396,914, so cervical cancer accounted for 9.2% of new cancer cases in Indonesia (The Global Cancer Observatory, 2020). Based on data from the East Java Provincial Health Office in 2019, the number of cervical cancer patients was 13,078 cases.

The coverage of early detection of cervical cancer by IVA in Mojokerto district has increased significantly in 2022-2023. The coverage of 148 positive IVA and 27 suspected cervical cancer referred in 2022 increased to 214 positive IVA and 29 suspected cervical cancer referred in 2023. Meanwhile, the coverage of early detection of cervical cancer in Mojokerto City decreased in 2022-2023. Coverage results of 27 positive IVA and 1 suspected cervical cancer referred in 2022 decreased to 7 positive IVA and no suspected cervical cancer in 2023 (Dinkes Jawa Timur, 2024).

HPV vaccination is one of the efforts to provide protection against human papilloma virus (HPV) infection, especially for HPV types 16 and 18, which cause cervical cancer about 70% of the time and can also reduce the prevalence of HPV types in targeted populations (Kjaer, et al., 2021). The implementation of HPV vaccination is scheduled simultaneously with the Immunization Month for School Children (BIAS) program which is held regularly every August every year. Efforts to accelerate HPV vaccination continue to be enhanced with a national expansion plan covering all districts / cities in Indonesia by 2023 with a target coverage of 95% (Sono, 2024).

The results of this study are expected to provide information the implementation of the HPV vaccination program in Mojokerto City and District Health Centers in 2024 and can be used as evaluation material regarding the implementation of the HPV vaccination program in the future. It is hoped that by 2030 the implementation of the HPV vaccination program will be comprehensive in all cities and districts in Indonesia and achieve the expected target

METHOD

This study is a type of quantitative research through a descriptive study to provide an overview of the implementation of the HPV vaccination program in Mojokerto City and District Health Centers. The variable in this study is an overview of the implementation of the HPV vaccination program which consists of sub-variables such as planning, preparation, implementation, and evaluation. Data collection was carried out using a checklist sheet prepared by the researcher based on references from vaccine management guidelines in health service facilities (Kemenkes, 2021) and modifications from research by Dani Catrianiningsih in 2018. The population of this study was the health centers in the Mojokerto working area. The sample

consisted of 2 city health centers, namely Kranggan health center and Blooto health center, 2 district health centers, namely Sooko health center and Jetis health center. The sampling technique used random sampling technique, and the research was conducted from September-December 2024. Data analysis was performed using univariate methods.

RESULTS AND DISCUSSION

Table 1. Frequency Distribution Based on Respondent Characteristics

Karakteristik		N	%
Jenis Kelamin	Perempuan	4	100
Jabatan Fungsional	Koordinator program imunisasi	4	100
Pelatihan Program Imunisasi	Pernah	3	75
	Belum Pernah	1	25

Table 1, shows that the characteristics of respondents based on gender are all female. Of the 4 respondents, all were immunization program coordinators. Of all the respondents, those who had attended immunization-related training were 3 people (75%) and those who had never attended immunization-related training were 1 person (25%).

Table 2 Frequency Distribution of Planning HPV Vaccination Program at Mojokerto City Health Centers

No	Indikator Perencanaan	Hasil			
		PKM Kranggan		PKM Blooto	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Penentuan target sasaran dari kelas 5 & 6 SD		0	1	
2.	Identifikasi kebutuhan jumlah ADS dan safety box	1		1	
3.	Perhitungan jumlah vaksin	1		1	
4.	Pengajuan Permintaan vaksin sesuai dengan jumlah sasaran ke dinkes	1		1	
5.	Permintaan jumlah ADS dan safety box	1		1	
6.	Penentuan jadwal kegiatan pelaksanaan	1		1	
	Total (%)	**Sesuai**		**11 (91,6%)**	
		Tidak Sesuai		**1 (8,3%)**	

Table 2, the results showed that the planning indicators of the HPV vaccination program by the Mojokerto City Health Centers were in accordance with the indicators as many as 11

(91.6%) and 1 (8.3%) was not in accordance with the indicators, namely related to determining target targets.

Table 3 Frequency Distribution of Preparation HPV Vaccination Program at Mojokerto City Health Centers

No	Indikator Persiapan	Hasil			
		PKM Kranggan		PKM Blooto	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Penerimaan vaksin				
	- Kroscek jumlah vaksin	1		1	
	- Jenis vaksin yang diterima	1		1	
	- Persiapan penyimpanan dan pengecekan suhu lemari es	1		1	
	- Pengecekan kadaluarsa vaksin	1		1	
	- Pengecekan kondisi VVM vaksin	1		1	
2.	Penyimpanan vaksin *(cold chain)* Peralatan untuk vaksin				
	- Lemari Es RCW 50 EG	1		1	
	- *Freez tag*	1		1	
	- *Thermometer Muller*	1		1	
	- *Cool Pack*	1		1	
	Petugas menempatkan vaksin pada lemari es dengan suhu 2°-8° *celcius.*	1		1	
	Petugas meletakkan Coolpack di bagian bawah dan sekeliling dinding dalam lemari es sebagai penahan dingin.	1		1	
	Petugas menata vaksin pada lemari es model buka atas merk RCW 50 EG yang didekatkan pada Freeze di sisi bagian dalam.	1		1	
	Petugas menyimpan vaksin tetap pada kemasan.	1		1	
	Petugas mencatat pengeluaran dan pemasukan dalam kartu Batch.	1		1	
3.	Koordinasi pelaksanaan vaksinasi				
	- Pertemuan koordinasi antara pihak Puskesmas dan Sekolah	1		1	

- Kontak person dari pihak Puskesmas dan Sekolah	1	1
- Alur pelaksanaan vaksinasi	1	1
Total (%)	**Sesuai**	**34 (100%)**
	Tidak Sesuai	**0 (0%)**

Table 3, it was found that the indicators of preparation for the HPV vaccination program by the City Health Center were 34 (100%) indicators that had been carried out.

Table 4 Frequency Distribution of implementation HPV Vaccination Program at Mojokerto City Health Centers

No	Indikator Pelaksanaan	Hasil			
		PKM Kranggan		PKM Blooto	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Petugas menyiapkan peralatan yang diperlukan untuk pemberian vaksinasi HPV.				
	Vaksin HPV dalam termos es	1		1	
	Spuit ADS *(Auto Disable Syrienge)*	1		1	
	Kapas Kering	1		1	
	Air disinfeksi tingkat tinggi (DTT)	1		1	
	Safety Box	1		1	
	Termometer	1		1	
	Blangko *Inform Concern*	1		1	
	Blangko rujukan internal dan eksternal	1		1	
	Set Syok anafilaksis	1		1	
2.	Petugas melakukan anamnesa dengan cara :				
	Petugas melihat keadan umum pasien	1		1	
	Petugas melakukan pengukuran suhu tubuh	1		1	
	Petugas menunda pemberian imunisasi, apabila ada demam	1		1	

	Petugas melakukan rujukan internal pada pasien yang demam dan rujukan eksternal pada anak dengan riwayat elergi dan kejang	1	1
3.	Petugas memberikan *inform concern* kepada klien	1	1
4.	Petugas mencuci tangan	1	1
5.	Petugas mengambil vaksin dari vial dengan dosis 0,5 ml menggunakan spuit ADS/yang tersedia	1	1
6.	Petugas memposisikan klien yang nyaman, kemudian membersihkan daerah penyuntikan dengan kapas yang dibasahi air DTT	1	1
7.	Petugas melakukan penyuntikan pada lengan kiri atas secara intramuskular pada daerah Musculus Deltoideus dengan menekan jarum kedalam kulit dengan sudut 90º	1	1
8.	Petugas mengontrol jarum dengan memegang ujung spuit dengan ibu jari dan jari telunjuk dan menghindari menyentuh jarum	1	1
9.	Petugas melakukan aspirasi lalu mendorong spuit agar vaksin masuk	1	1
10.	Petugas menekan bekas suntikan menggunakan kapas yang diberi air DTT	1	1

11.	Petugas membuang bekas spuit ke dalam *Safety Box* tanpa melakukan recaping, kemudian kapas dibuang ke tempat sampah medis.	1	1
12.	Petugas membersihkan alat-alat yang digunakan	1	1
13.	Petugas mencuci tangan	1	1
14.	Petugas melakukan pencatatan dan dokumentasi pelayanan	1	1
Total (%)		**Sesuai**	**50 (100%)**
		Tidak Sesuai	**0 (0%)**

Table 4, the results show that the indicators of the implementation of the HPV vaccination program by the City Health Center are 50 (100%) indicators have been carried out.

Table 5 Frequency Distribution of evaluation HPV Vaccination Program at Mojokerto City Health Centers

No	Indikator Evaluasi	Hasil			
		PKM Kranggan		PKM Blooto	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Format pelaporan KIPI	1		1	
2.	Vaksinator mengetahui apa yang dilakukan bila terjadi KIPI (rujukan, pelaporan)	1		1	
Total (%)		**Sesuai**		**4 (100%)**	
		Tidak Sesuai		**0 (0%)**	

Table 5, the results show that the evaluation indicators of the HPV vaccination program by the City Health Center are 4 (100%) indicators have been carried out.

Table 6 Frequency Distribution of Planning HPV Vaccination Program at Mojokerto District Health Centers

No	Indikator Perencanaan	Hasil			
		PKM Sooko		PKM Jetis	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Penentuan target sasaran dari kelas 5 & 6 SD	1		1	

2.	Identifikasi kebutuhan jumlah ADS dan safety box	1	1
3.	Perhitungan jumlah vaksin	1	1
4.	Pengajuan Permintaan vaksin sesuai dengan jumlah sasaran ke dinkes	1	1
5.	Permintaan jumlah ADS dan safety box	1	1
6.	Penentuan jadwal kegiatan pelaksanaan	1	1
Total (%)		**Sesuai**	**12 (100%)**
		Tidak Sesuai	**0 (0%)**

Table 6, the results showed that the indicators of HPV vaccination program planning by the District Health Center as many as 12 (100%) indicators have been carried out.

Table 7 Frequency Distribution of Peparation HPV Vaccination Program at Mojokerto District Health Centers

No	Indikator Persiapan	Hasil			
		PKM Sooko		PKM Jetis	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Penerimaan vaksin				
	- Kroscek jumlah vaksin	1		1	
	- Jenis vaksin yang diterima	1		1	
	- Persiapan penyimpanan dan pengecekan suhu lemari es	1		1	
	- Pengecekan kadaluarsa vaksin	1		1	
	- Pengecekan kondisi VVM vaksin	1		1	
2.	Penyimpanan vaksin *(cold chain)* Peralatan untuk vaksin				
	- Lemari Es RCW 50 EG	1		1	
	- *Freez tag*	1		1	
	- *Thermometer Muller*	1		1	
	- *Cool Pack*	1		1	
	Petugas menempatkan vaksin pada lemari es dengan suhu 2°- 8° *celcius.*	1		1	

	Petugas meletakkan Coolpack di bagian bawah dan sekeliling dinding dalam lemari es sebagai penahan dingin.	1	1
	Petugas menata vaksin pada lemari es model buka atas merk RCW 50 EG yang didekatkan pada Freeze di sisi bagian dalam.	1	1
	Petugas menyimpan vaksin tetap pada kemasan.	1	1
	Petugas mencatat pengeluaran dan pemasukan dalam kartu Batch.	1	1
3.	Koordinasi pelaksanaan vaksinasi		
	- Pertemuan koordinasi antara pihak Puskesmas dan Sekolah	1	1
	- Kontak person dari pihak Puskesmas dan Sekolah	1	1
	- Alur pelaksanaan vaksinasi	1	1
	Total (%)	**Sesuai**	**34 (100%)**
		Tidak Sesuai	**0 (0%)**

Table 7, it was found that the indicators of preparation for the HPV vaccination program by the District Health Center were 34 (100%) indicators that had been carried out.

Table 8 Frequency Distribution of Implementation HPV Vaccination Program at Mojokerto District Health Centers

No	Indikator Pelaksanaan	Hasil			
		PKM Sooko		PKM Jetis	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Petugas menyiapkan peralatan yang diperlukan untuk pemberian vaksinasi HPV.				
	Vaksin HPV dalam termos es	1		1	
	Spuit ADS *(Auto Disable Syrienge)*	1		1	
	Kapas Kering	1		1	
	Air disinfeksi tingkat tinggi (DTT)	1		1	
	Safety Box	1		1	
	Termometer	1		1	
	Blangko *Inform Concern*	1		1	
	Blangko rujukan internal dan eksternal	1		1	
	Set Syok anafilaksis	1		1	

2.	Petugas melakukan anamnesa dengan cara :		
	Petugas melihat keadan umum pasien	1	1
	Petugas melakukan pengukuran suhu tubuh	1	1
	Petugas menunda pemberian imunisasi, apabila ada demam	1	1
	Petugas melakukan rujukan internal pada pasien yang demam dan rujukan eksternal pada anak dengan riwayat elergi dan kejang	1	1
3.	Petugas memberikan *inform concern* kepada klien	1	1
4.	Petugas mencuci tangan	1	1
5.	Petugas mengambil vaksin dari vial dengan dosis 0,5 ml menggunakan spuit ADS/yang tersedia	1	1
6.	Petugas memposisikan klien yang nyaman, kemudian membersihkan daerah penyuntikan dengan kapas yang dibasahi air DTT	1	1
7.	Petugas melakukan penyuntikan pada lengan kiri atas secara intramuskular pada daerah Musculus Deltoideus dengan menekan jarum kedalam kulit dengan sudut 90º	1	1
8.	Petugas mengontrol jarum dengan memegang ujung spuit dengan ibu jari dan jari telunjuk dan menghindari menyentuh jarum	1	1
9.	Petugas melakukan aspirasi lalu mendorong spuit agar vaksin masuk	1	1
10.	Petugas menekan bekas suntikan menggunakan kapas yang diberi air DTT	1	1
11.	Petugas membuang bekas spuit ke dalam *Safety Box* tanpa melakukan recaping, kemudian kapas dibuang ke tempat sampah medis.	1	1
12.	Petugas membersihkan alat-alat yang digunakan	1	1
13.	Petugas mencuci tangan	1	1
14.	Petugas melakukan pencatatan dan dokumentasi pelayanan	1	1

Total (%)	**Sesuai**	**50 (100%)**	
	Tidak Sesuai	**0 (0%)**	

Table 8 The results showed that the indicators of the implementation of the HPV vaccination program by the District Health Center as many as 50 (100%) indicators have been carried out.

Table 9 Frequency Distribution of Evaluation HPV Vaccination Program at Mojokerto District Health Centers

No	Indikator Evaluasi	Hasil			
		PKM Sooko		PKM Jetis	
		Sesuai	Tidak Sesuai	Sesuai	Tidak Sesuai
1.	Format pelaporan KIPI	1		1	
2.	Vaksinator mengetahui apa yang dilakukan bila terjadi KIPI (rujukan, pelaporan)	1		1	
Total (%)		**Sesuai**		**4 (100%)**	
		Tidak Sesuai		**0 (0%)**	

Table 9, The results showed that the evaluation indicators of the HPV vaccination program by the District Health Center as many as 4 (100%) indicators have been carried out.

Discussions

Characteristics of Respondents

Based on the results shown in table 1, the characteristics of respondents based on gender are all female. Of the 4 respondents, all of them are immunization program coordinators. Of all respondents, those who have attended immunization-related training are 3 people (75%) and those who have never attended immunization-related training are 1 person (25%).

Immunization coordinators who have undergone training play an important role in improving the success of immunization programs. Training provides the knowledge and skills needed to microplan, provide quality immunization services, effectively manage vaccines and cold chain, and conduct routine data analysis and monitoring. Coordinators who have not received training may lack understanding of proper procedures and operational standards, which may result in a decrease in service quality and immunization coverage. Therefore, training for immunization coordinators is crucial to ensure that immunization programs are successful and achieve the expected targets (Kemenkes RI, 2021).

Overview of the Implementation of the HPV Vaccination Program in Mojokerto City and District Health Centers

Planning

Based on the results shown in table 2 and table 6, the planning results at the City Health Center were 91.6%. The planning results at the District Health Centers were 100%. In the planning at the City Health Center, one of the indicators that was not achieved was related to the target. This can occur due to rejection from parents who are not willing to have their daughters given the HPV vaccine.

There are no significant obstacles in fulfilling the number of vaccines and other logistical needs at the City Health Centers and District Health Centers. Planning is conducted within the context of comprehensive annual planning for immunization service delivery. As such, HPV vaccination can leverage the strengths of the existing health system to help ensure that resource and logistical requirements are sustainably available while achieving the highest possible target coverage. Vaccination program planning is the responsibility of the immunization program coordinator. In this regard, immunization training for health workers is critical in the successful implementation of immunization programs. In addition to health workers, coordination with the education sector is also important to identify and create a target list of girls who are eligible to receive vaccines. The involvement of various national stakeholders and community organizations is also important in the success of national immunization programs (Kiarie, et al., 2023).

Preparation

Based on the results shown in table 3 and table 7, the results of the preparation carried out by the City Health Centers and District Health Centers were 100%.

In this preparation stage, things that need to be done are related to vaccine receipt, vaccine storage process, and coordination of vaccination implementation. Vaccine acceptance is carried out to ensure the suitability of vaccine type, vaccine quantity, and quality. This process aims to ensure that the vaccines received are correct, undamaged and unchanged during transportation. The vaccine storage process carried out by the health centers uses an RCW 50 EG type refrigerator with a top door model. Refrigerators with top doors have the effectiveness of maintaining temperature stability better than refrigerators with front doors. This is because when the door is opened, the cold temperature drops from top to bottom so that the temperature tends to be more stable. Temperature monitoring is in accordance with the standards set out in the Regulation of the Minister of Health of the Republic of Indonesia number 12 of 2017 concerning the implementation of immunization, namely for the standard temperature of HPV vaccine storage ranging from 2 ° - 8 ° C. Temperature monitoring uses the elitech temperature data logger tool, which is a tool for monitoring the temperature of vaccines in the refrigerator and can be monitored directly by the Ministry of Health so that the vaccine temperature can be maintained properly. In this preparation stage, coordination was also carried out between the health centers and the school. The purpose of this coordination is to determine an agreement on the schedule and flow of implementation of the HPV vaccination program.

Implementation

Based on the results shown in table 4 and table 8, the results of the implementation carried out by the City Health Center and District Health Center are 100%.

This stage is the stage of administering the vaccine to the target. Vaccine administration must be carried out according to standards to ensure the quality, safety and efficacy of the vaccine to the user. Vaccine administration must be in accordance with the existing Standard Operating Procedures (SOP). Before carrying out the first immunization service that needs to be considered is ensuring the completeness of logistical preparation. The cold chain of vaccines must also be considered properly, by bringing vaccines and other logistics to the service location must use a vaccine carrier that has a cool pack inside so that the cold temperature can be maintained. Health screening is also important for the target to know whether the child can be immunized or not on the day of implementation. HPV vaccine injection is done in the upper left arm intramuscularly in the musculus deltoideus area at an angle of 90°. The injection must be done precisely and correctly, both at the injection site and the injection method. Antigens that are inserted not in accordance

with the route produce different cytokines so that different activation mechanisms occur. The used syringe is immediately disposed of into the safety box without recapping.

Evaluation

Based on the results shown in table 5.5 and table 5.9, the results of the evaluation carried out by the City Health Center and District Health Center are 100%.

The evaluation stage is carried out to determine the impact of immunization implementation. Post-immunization adverse events (AEFIs) are also considered. Post-immunization Adverse Events (AEFI) are medical events that are thought to be related to immunization in the form of symptoms, signs, laboratory test results or disease. All vaccines have the possibility of KIPI reactions. Possible reactions are local reactions such as pain, swelling, and redness at the injection site. Systemic reactions can include rash, fever, and malaise. Severe allergic reactions such as anaphylactic reactions can occur in everyone during vaccine administration. There are two types of KIPI, namely serious KIPI and non-serious KIPI. KIPI is reported along with immunization coverage results. If KIPI occurs, it is necessary to immediately carry out management and report to the local health office. KIPI that is not handled properly can have an impact on public confidence in the immunization program, so that it can reduce immunization coverage (KEMENKES RI, 2022).

CONCLUSIONS

1. The majority of the results planning indicators for the HPV vaccination program at the Mojokerto City and District Heatlh Centers are well implemented.
2. All the results of the preparation indicators for the HPV vaccination program at the Mojokerto City and District Heatlh Centers are well implemented.
3. All the results of the implementation indicators for the HPV vaccination program at the Mojokerto City and District Heatlh Centers are well implemented.
4. All the results of the evaluation indicators for the HPV vaccination program at the Mojokerto City and District Heatlh Centers are well implemented.

The results of this study can be used as additional material for learning and developing further research ideas. Research can be conducted again by observing the implementation picture in more places so that the results can cover the entire population.

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REFERENCES

Brisson, M. & Drolet, M., (2019). Global elimination of cervical cancer as a public health problem. The Lancet. Oncology, Volume 20(3), p. 319–321.

Catrianiningsih, D. (2018). GAMBARAN PENATALAKSANAAN IMUNISASI CAMPAK DI PUSKESMAS PAKEM (Doctoral dissertation, Universitas Gadjah Mada).

Dinkes Jawa Timur, (2024). Profil Kesehatan Provinsi Jawa Timur Tahun 2023. s.l.:s.n.

Kemenkes, (2021). Pedoman Pengelolaan Vaksin Di Fasilitas Pelayanan Kesehatan. s.l.:s.n.

Kemenkes RI, (2021). Pedoman Praktis Manajemen Program Imunisasi di Puskesmas. s.l.:s.n.

KEMENKES RI, (2022). Petunjuk Teknis Pelaksanaan Bulan Imunisasi Anak Sekolah (BIAS). s.l.:s.n.

Kiarie, L. et al., (2023). Resource Guide for Strengthening HPV Vaccination Service Delivery. s.l.:JSI Research & Training Institute.

Kjaer, S. K., Dehlendorff, C., Belmonte, F. & Baandrup, L., (2021). Real-World Effectiveness of Human Papillomavirus Vaccination Against Cervical Cancer. Journal of the National Cancer Institute, 20 April, Volume 113(10), p. 1329–1335.

Sono, R. H., (2024). *EVALUASI MANAJEMEN PROGRAM IMUNISASI HPV DALAM PENCEGAHAN KANKER SERVIKS DI KOTA BANDAR LAMPUNG*. s.l.:s.n.

Sung, H. et al., (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries.. *CA Cancer J Clin*, p. 1–41.

The Global Cancer Observatory, (2020). *Indonesia fact sheets.* [Online] Available at: https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact [Accessed 23 November 2023].

World Health Organization, (2023). *Cervical Cancer*. [Online] Available at: https://www.who.int/news-room/fact-sheets/detail/cervical-cancer [Accessed 23 November 2023].