EMERGING DISEASES IN INDONESIA: CONTROL AND CHALLENGES

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ABSTRACT: Infectious diseases remain an important cause of morbidity and mortality in Indonesia. The reduction, elimination, and eradication of infectious diseases have been the subject of numerous meetings and public health initiatives for decades. The malaria, yaws and other communicable disease eradication programs of earlier years, although unsuccessful, contributed greatly to an understanding of the difficulties faced in trying to achieve goal of disease control. The reemergence of old infectious diseases, along with the emergence of new diseases such as SARS, Avian Influenza and the development of antimicrobial resistance, pose significant challenges to public health.

BACKGROUND

The control, elimination and eradication of human diseases have been the subject of numerous public health interventions and discussions for decades. The eradication of smallpox was declared on May 8, 1980 at the 33rd World Health Assembly, and was followed soon after by poliomyelitis and other eradicable diseases. Although many diseases eradication program in the past were unsuccessful, the lessons learnt contributed to an understanding about the complexities and difficulties faced in trying to achieve the ultimate goal of disease control. An understanding of the natural history of a disease, including multiple causation and biological, sociopolitical and economic issues sheds light on the public health interventions available in dealing with communicable diseases and their containment.

Indonesia stretches from west to east, with an area of 1.9 million km²and a population of 230 million. In developing countries like Indonesia, health resources have always been limited, and decisions as to the most preferable and cost effective intervention programs have to be targeted to priority diseases. Disease control can be defined as the reduction of diseases in a defined geographical area as a result of deliberate control efforts. This definition should be further quantified to indicate the level of disease reduction to be achieved. Disease elimination and eradication are the ultimate goals of any public health intervention starting from disease control. Communicable diseases are still serious public health problems, killing and causing suffering for millions of people in Indonesia, especially the most vulnerable groups, i.e. the poor, women and children. Communi-

cable diseases exert a negative effect on development and place a burden on the economy of the individual and the country as a result of the huge costs of treatment and control.

Technical solutions combined with strategies to mobilize all levels of society from high level decisions-makers to communities and families will ensure the effective control and prevention of communicable diseases. The following is a brief description of re-emerging diseases, newly emerging diseases, and the challenges encountered in their control.

DENGUE HEMORRHAGIC FEVER

An epidemic of dengue fever / dengue hemorrhagic fever (DF/DHF) started in the Southeast Asia region after the Second World War. The first case of DF/DHF in Indonesia was reported in 1968 from Jakarta and Surabaya. Since then the frequency and magnitude of DF/DHF outbreaks have increased dramatically. As the principal mosquito vector, Aedes aegypti and the viruses (D₁, D₂, D₃, D₄) that cause DF /DHF, expanded their geographical and age distribution nationally. Figure 1 presents the distribution of DHF by province while Figure 2 presents the seasonal variation of DHF cases and deaths in 2004 - 2005 and a comparison of DHF cases in 2005 and 2006.

The epidemiologic trends in recent decades demonstrate that the prevention and control of dengue virus transmission have failed. There is no vaccine available for dengue viruses nor effective mosquito control programs dealing with breeding places. Emphasis has been placed on disease surveillance and immediate response using space sprays targeting adult mosquitoes in the affected focal areas. Now

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Figure 1. INCIDENCE OF DENGUE HEMORRHAGIC FEVER (DHF) BY PROVINCE IN 2005

a. Trends of Dengue Hemorrhagic Fever Cases & Deaths in 2004-2005



b. NUMBER OF DENGUE HEMORRHAGIC FEVER CASE IN 2005-2006 (UP TO 19 June 2006)





strategies are being revised so as to focus on community involvement in the elimination of breeding places and to improve partnership and professionalism among program managers at all levels.

A decentralized integrated approach that targets larval mosquitoes is being implemented for effective Aedes aegypti control. Along with high-level political commitment, community involvement is an important prerequisite for vector control.

TUBERCULOSIS (TB)

Tuberculosis (TB) is a bacterial disease caused by My-

cobacterium tuberculosis transmitted primarily by airborne droplets. Infection occurs when susceptible persons inhale infected droplets produces by coughs and sneezes of persons with active lung TB. TB causes suffering for millions of people, particularly the poor, women, children, and HIV/ AIDS patients. More than half a million new TB cases are estimated to occur every year, with 300 - 400 TB deaths daily. To cope with this problem, the DOTS strategy has been implemented since 1998 and aims to achieve a case detection rate (CDR) of 70% and cure rate or success rate (SR) of 85% by the end of 2006. Figure 3 and 4 show the date on CDR and SR from 1997 to 2005.



1997 1998 1999 2000 2001 2002 2003 2004 2005 Figure 3. Number of Cases Detected 1987-2005 in the TBC Control Program



Figure 4. CDR and SR of AFB Positive Cases in Indonesia 1997-2005

TB is diagnosed mainly if acid-fast- bacilli (AFB) are found in the sputum, body fluids or tissue in combination with clinical symptoms. In special cases, chest radiograph and PPD skin test abnormalities are also taken into consideration The principal challenges in TB control include obtaining and continuing the political commitment of decision makers, and international funding for the support of TB control efforts. Multiple drug resistance is also a challenge that will have to be addressed in the near future.

MALARIA

Most malaria eradication programs in the past have been unsuccessful. Figure 5 shows the malaria endemicity in 2005 and figure 6 the malaria situation in Indonesia from 1989 to 2005.

Deforestation, mining, active rapid population migra-





Figure 5. MALARIA ENDEMICITY DISTRIBUTION IN 2005

tion and other development activities have contributed to the resurgence of malaria in Indonesia. The roll back malaria strategy, which was implemented as GEBRAK Malaria in 2000, focuses on partnership. Malaria control strategy primarily focuses on vector and disease surveillance, early diagnosis and prompt treatment, integrated vector management and community participation.

The principal challenges to malaria control programs are effective coordination, long-term sustainability of vector control efforts, population migration and environmental changes. Anti-malaria drug resistance and insecticide resistance are also primary challenges for the future.

POLIO

Polio eradication has been targeted for the year 2008.



Figure 7. EPI TARGET DISEASES Polio epidemic in Indonesia, weeks 11-22

The polio eradication campaign is a good example of multipartner leadership in that partners come from a broad array of organizations such as Rotary International, WHO UNICEF, CDC-Atlanta, USAID, AUSAID, and World Bank.

Poliomyelitis is caused by the poliovirus (P_1, P_2, P_3) transmitted via the orofecal route due to poor personal hygiene and environmental sanitation. Potent oral polio vaccine and injectable vaccine are available to combat the disease, and the former was included in the Routine Immunization Program in Indonesia in 1980. Universal Child Immunization coverage (\geq 80%) was achieved in 1990. National Immunization Days were designated in 1995, 1996 and 1997 consecutively as part of the global polio eradication campaigns launched in 1988 by WHO. A wild poliovirus-free status continued for 10 years from 1996, but an imported polio case was reported from Cidahu, Sukabumi in March 2005. This wild poliovirus was imported from Nigeria via Yemen and Saudi Arabia. Figure 7, 8, and 9 show the spread of wild poliovirus and efforts made to control the outbreak.

Since the outbreak in March 2005, there have been 305 lab confirmed WPV cases (303 in 2005 and 2 in 2006), and 46 VDPV cases. The most recent wild polio case was reported on 20 February 2006 from Aceh Tenggara district, NAD province

Since the outbreak in March 2005, the total number of lab confirmed polio cases was 305, including 303 in 2005





Figure 8. Wild Poliovirus Cases in Indonesia, March 2005- present





Figure 9. Wild Polio Cases by Week of Onset, Indonesia 2005-2006

and 2 cases in 2006, and 46 VDPV (vaccine derived polio virus) cases. After various efforts including mopping up, National Immunization Days (NID) and Sub NID, the last case was reported in 20 February 2006 from Southeast Aceh. A future challenge to EPI is the sustainability of the routine immunization, including both managerial and financial sustainability. A long-term plan is being developed to address future challenges.

HIV/AIDS

The Human Immunodeficiency Virus (HIV) causes acquired immunodeficiency syndrome (AIDS). The first HIV/ AIDS case in Indonesia was reported in the late 80's from Bali, after which the disease spread rapidly to 32 out of the 33 provinces of Indonesia. The cumulative number of HIV



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Risk Factors

Figure 12. RISK FACTOR OF AIDS CASES BY MODE OF TRANSMISSION UP TO SEPTEMBER 2006

infection and AIDS cases reported up to September 2006 is 4617 and 6987, respectively. Figure 10 shows the trend of AIDS cases from 1997 to 2006 and figure 11 shows the sex distribution. The AIDS cases were predominantly male (82%), with females accounting for only 16% and unknown for 2%. Risk factors by mode of transmission are shown in figure 12. Intense and rapid spread of HIV was documented among injecting drug users (IDU) (52%), followed by heterosexuals (37.2%). The cumulative number of AIDS cases is expected to reach 93,968 to 130,000 by the year 2010. In Papua, pregnant women and newborn babies were infected by HIV. The main strategy to combat HIV infection includes efforts to prevent new infection, to promote comprehensive care, and to increase coverage of HIV infection

through partnership. The principal challenges to HIV/AIDS control programs are intersector coordination, behavior changes, and human resources.

SARS (Severe Acute Respiratory Syndrome)

During the SARS outbreak in 2003, there were only 7 suspected and 2 probable cases admitted to hospitals in Indonesia. No confirmed case was reported. Strategies and actions taken during the SARS outbreak included the screening of incoming passengers from affected countries with thermo scanners, establishment and capacity building of 35 referral hospitals and 45 port health offices, public awareness and regional networking (ASEAN +3).

AVIAN INFLUENZA

Outbreaks of H5N1 infection in the poultry population were first reported in 2003. Human cases were first reported in July 2005. To date, 32 of 33 provinces of Indonesia have experienced H5N1 infection among the poultry population, while H5N1 infection in humans has been reported from only 9 provinces. Figure 13 shows the distribution of avian influenza outbreaks in animals and humans.

Strategies to control H5N1 transmission include the prevention of H5N1 transmission in the poultry population, surveillance, bio-security, case management, public awareness/risk communication, research and development. The main challenges to H5N1 control are coordination and resources.

NEGLECTED DISEASES

Leprosy, lymphatic filariasis, yaws, rabies, and Japanese encephalitis are considered to be neglected diseases. Very little attention has been paid to these diseases, and insufficient resources have been allocated for their control. Fortunately, international agencies and the international community are interested in leprosy and lymphatic filariasis and as a result we aim to eliminate leprosy and lymphatic filariasis by 2020. An integrated approach is being implemented to cope with the limited resources available.



Animal H5N1 Outbreaks

Figure 13. AVIAN INFLUENZA OUTBREAK IN ANIMALS AND HUMANS H5N1 in animals: 30 provinces, 202 districts/munics. H5N1 in humans: 9 provinces, 24 districts/munics.