WEEKLY EPIDEMIOLOGICAL REPORT
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BLOOD TRANSFUSION SAFETY

The Ministry of Healthcare & Nutrition established the Eastern Province Blood Centre at the General Hospital Ampara recently with a view to strengthening Blood transfusion services in the Eastern Province. Expected functions of this Centre is to organize mobile blood collection centres, supply of Blood & Blood products to other Hospitals in the region when necessary and screening for HIV, Hep B & C, Syphilis and Malaria .

Every second, someone in the world needs blood. In every country, surgery, trauma, severe anaemia and complications of pregnancy are among the clinical conditions that demand blood transfusion. In countries with advanced medical, diagnostic and laboratory services, a large proportion of blood is used in sophisticated treatments requiring a high level of transfusion support, including chemotherapy, open heart surgery, organ transplantation and the management of haematological disorders such as leukaemia, thalassaemia and haemophilia. The pattern of blood usage is very different in countries where diagnostic and treatment options are more limited, with a much greater proportion of transfusions being given to women with obstetric emergencies and children suffering from severe anaemia. Whatever the degree of development of the health care system, transfusion is the only option for survival for many patients.

Many patients do not have access to blood when they need it. Of the estimated 80 million units of blood donated annually worldwide, only 38% are collected in the developing world where 82% of the world's populations live. The shortfall has a particular impact on women with complications of pregnancy, trauma victims and children with severe life-threatening anaemia. Up to 150 000 pregnancy-related deaths could be avoided each year through access to safe blood. Even where sufficient blood is available, many people are exposed to avoidable, life-threatening risks through the transfusion of unsafe blood. The risk of acquiring HIV through the transfusion of infected blood is virtually 100%. Blood is also an effective means of transmitting hepatitis B, hepatitis C, syphilis, malaria and Chagas disease. About 5% of HIV infections are transmitted by unsafe transfusion as a result of the collection of blood from unsafe donors, irregular or inadequate supplies of materials to test blood for infections, poor laboratory testing procedures, inadequately trained staff and absence of quality systems or unnecessary transfusions. While blood transfusion can be life-saving, many transfusions are given unnecessarily when the availability and use of simpler, less expensive treatments would provide equal or greater benefit. Not only does this expose patients needlessly to the risk of potentially fatal transfusion reactions, it also contributes to shortages of blood and blood products for patients who really need them.

Blood transfusion is a unique technology in that its collection, processing and use are scientifically based, but its availability depends on the extraordinary generosity of people who donate it as the most precious of gifts – the gift of life. Safe transfusion requires not only the applica-

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mobilization to promote voluntary blood donation by sufficient numbers of people with no infectious diseases that can be transmitted to the recipients of their blood.

An investment in a safe and adequate blood supply is not only a responsibility of governments, but also a cost-effective investment in the health and economic wealth of every nation. The incidence of transfusion-transmitted infection and its associated costs will increase in countries that do not take stringent measures to ensure blood safety.

The provision of safe and adequate blood supply at national level is the responsibility of the government of each country. The formation of a nationally organized and managed blood programme should be an integral part of each country's national health care policy and health care infrastructure. The blood transfusion service (BTS) should be established in accordance with an agreed national blood policy and plan and within a legislative framework. It should be responsible for establishing and maintaining a national quality system, including the development of guidelines and standards, staff training, a data/ information management system and a system for monitoring and evaluation of all blood transfusion activities.

Safe blood donors are the cornerstone of a safe and adequate supply of blood and blood products. The safest blood donors are voluntary, non-remunerated blood donors from low-risk populations. Despite this, family/replacement and paid donors, who are associated with a significantly higher prevalence of transfusion-transmissible infections (TTIs) including HIV, hepatitis B, hepatitis C, syphilis and Chagas disease, still provide more than 50% of the blood collected in developing countries. The key to recruiting and retaining safe blood donors is good epidemiological data on the prevalence (and incidence, where possible) of infectious markers in the general population to identify low-risk donor populations coupled with an effective donor education, motivation and recruitment strategy to recruit new voluntary non-remunerated blood donors from these populations. A pleasant experience during blood donation, good donor care and effective communication between blood centre staff and blood donors are all important factors for the retention of safe blood donors.

Testing of all donated blood for transfusion transmitted infections (TTIs) such as HIV, Hepatitis B, Hepatitis C and Syphilis is one of the strategies recommended by WHO to ensure safe blood. Where appropriate and possible, donated blood should be tested for other infections such as Chagas Disease and Malaria. Blood is also tested to identify the blood group and for the presence of irregular red cell antibodies before transfusion. This is to make sure the patient receiving compatible blood in order to avoid serious haemolytic transfusion reactions.

Blood collected in an anticoagulant can be stored and transfused to a patient in an unmodified state. This is known as 'whole blood' transfusion. Blood may be used more effectively if component therapy is practised. One unit of donated blood may be divided into components, including red cells concentrates, fresh frozen plasma, cryoprecipitates and platelet concentrates, to meet the needs of more than one patient. Advantages of component therapy are: the recipient can be treated with only those blood components that are lacking, reducing the occurrence of adverse transfusion reactions; more than one patient can be treated with blood components derived from one donation; therapeutic support for patients with special transfusion requirements can be provided ; improved quality and functional capacity of each component when varied storage conditions and shelf lives are applied.

Blood transfusion is an essential part of modern health care. Used correctly, it can save life and improve health. However, as with any therapeutic intervention, it may result in acute or delayed complications and carry the risk of transmission of infectious agents.

The inappropriate use of blood and blood products, coupled with the transfusion of unscreened or improperly screened units, particularly in countries with poor blood programmes, increases the risk of TTIs to recipients. It also widens the gaps between supply and demand and contributes to shortages of blood and blood products for patient requiring transfusion. Thus, it is necessary to reduce the unnecessary transfusions. This can be achieved through the appropriate clinical use of blood, avoiding the needs for transfusion and use of alternatives to transfusion. The transfusion is deemed appropriate when it is used to treat conditions leading to significant morbidity and mortality that cannot be prevented or managed effectively by other means. The commitment of the health authorities, health care providers and clinicians are important in prevention, early diagnosis and treatment of diseases/ conditions that could lead to the need for blood transfusion.

WHO strategy for blood safety

A well-organized, nationally-coordinated blood transfusion service that can provide adequate and timely supplies of safe blood for all patients in need

The collection of blood only from voluntary non-remunerated blood donors from low-risk populations

Testing of all donated blood for transfusion-transmissible infections, blood grouping and compatibility testing

The appropriate clinical use of blood, including the use of alternatives to transfusion wherever possible, and the safe administration of blood and blood products

Quality system covering all stages of the transfusion process.

Source: Blood Transfusion Safety -World Health Organization,Geneva

Table 1: Vaccine-preventable Diseases & AFP

4th - 10th August 2007 (32nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	01 GM=1	00	00	00	00	01 PO=1	00	00	02	05	58	80	-27.5%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	01 KD=1	00	00	00	00	00	00	01	00	49	25	+96.0%
Tetanus	01 CB=1	00	00	01 BT=1	00	00	00	00	02	01	23	32	-28.1%
Whooping Cough	01 GM=1	00	00	00	00	00	00	00	01	00	28	60	-53.3%
Tuberculosis	99	04	03	00	00	01	09	17	133	149	6257	6471	-3.3%

Table 2: Diseases under Special Surveillance

4th - 10th August 2007 (32nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	56	08	08	02	08	01	03	24	110	273	3163	6212	-49.1%
Encephalitis	01 KL=1	00	00	00	01 KR=1	00	00	00	02	00	134	84	+59.5%
Human Rabies	00	00	00	00	00	00	00	00	00	00	42	42	00.0%

Table 3: Newly Introduced Notifiable Diseases

4th - 10th August 2007 (32nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007
	W	C	S	NE	NW	NC	U	Sab		
Chickenpox	08	05	01	04	04	01	04	09	34	2174
Meningitis	06 CB=3 GM=2 KL=1	00	05 GL=2 MT=3	05 KN=1,MN=1,VA=2,BT=1	02 KR=1 PU=1	00	01 BD=1	04 KG=4	23	290
Mumps	15	01	04	16	05	00	02	02	45	1049

*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.
NA= Not Available.

Sources:

Weekly Return of Communicable Diseases:
Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance:
Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases:
Tuberculosis.

Details by districts are given in Table 5.

Provinces: W=Western, C=Central, S=Southern, NE=North & East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 4: Laboratory Surveillance of Dengue Fever

4th - 10th August 2007 (32nd Week)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	08	02	00	00	02	00	00
Total number to date in 2007	376	37	01	18	11	00	06

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health
4th - 10th August 2007 (32nd Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Returns Re-ceived Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	25	838	06	254	00	07	02	44	00	51	05	83	00	02	01	92	**69**
Gampaha	21	352	03	255	00	18	03	49	00	35	00	149	00	13	10	102	**71**
Kalutara	10	213	02	336	01	03	00	35	05	30	00	76	00	01	00	43	**91**
Kandy	07	280	10	195	00	03	01	43	00	07	03	54	00	49	47	1669	**73**
Matale	01	71	06	136	00	06	01	14	00	11	00	35	00	05	04	101	**50**
Nuwara Eliya	00	31	04	187	00	02	00	92	00	366	00	08	00	29	12	389	**57**
Galle	04	63	02	104	00	09	03	16	00	36	00	34	01	22	00	14	**94**
Hambantota	02	37	13	98	00	05	00	19	00	17	00	33	01	35	00	13	**64**
Matara	02	103	05	214	00	08	00	25	00	13	02	118	05	145	01	25	**88**
Jaffna	00	28	00	99	00	02	00	327	00	05	00	00	00	81	00	16	**00**
Kilinochchi	00	01	00	00	00	00	00	04	00	00	00	00	00	02	00	02	**25**
Mannar	00	07	01	15	00	00	00	58	00	00	00	01	00	00	00	07	**75**
Vavuniya	00	12	03	36	00	04	01	12	06	46	00	02	00	00	01	07	**100**
Mullaitivu	00	03	00	17	00	08	00	18	00	01	00	00	00	00	00	04	**40**
Batticaloa	02	67	02	430	00	08	00	14	00	10	00	00	00	22	24	706	**45**
Ampara	00	03	00	74	00	00	00	03	00	00	00	00	00	01	00	19	**57**
Trincomalee	00	52	05	178	00	03	01	21	00	23	00	07	01	11	03	94	**67**
Kurunegala	08	343	06	300	01	04	00	50	00	19	00	20	00	32	01	45	**61**
Puttalam	00	84	01	86	00	10	03	59	01	04	01	17	00	04	01	65	**22**
Anuradhapura	00	119	03	71	00	08	00	17	00	14	00	18	00	18	00	35	**47**
Polonnaruwa	01	44	01	60	00	02	00	09	00	04	00	19	00	00	00	21	**100**
Badulla	03	31	09	408	00	02	03	71	00	08	01	35	04	113	09	219	**80**
Monaragala	00	18	02	245	00	02	04	43	02	12	00	37	06	51	01	28	**90**
Ratnapura	20	211	04	396	00	12	03	49	02	17	00	39	02	20	02	69	**81**
Kegalle	04	152	05	193	00	07	00	36	00	04	02	72	02	21	05	130	**64**
Kalmunai	0	03	08	122	00	01	00	08	00	04	00	00	00	02	02	94	**69**
SRI LANKA	**110**	**3163**	**101**	**4509**	**02**	**134**	**25**	**1136**	**16**	**737**	**14**	**857**	**22**	**679**	**124**	**4009**	**66**

Source: Weekly Returns of Communicable Diseases (WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 18 August 2007. Total number of reporting units =290. Number of reporting units data provided for the current week: 195
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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