Activity Report
Japan Disaster Relief Expert Team

25 March 2003

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1 Outline of the Japan Disaster Relief Expert Team

1-1 Objective

The Government of Japan, through the Japan International Cooperation Agency (JICA), decided to deploy the Japan Disaster Relief Expert Team according to the official request by the Ministry of Health of the Socialist Republic of Vietnam on 13 March 2003 to contain the respiratory disease outbreak. The Team contributed to provide technical and material support to protect the health staffs and to contain the spread of so called SARS (Severe Acute Respiratory Syndrome) from 16 to 25 March.

1-2 Member

The following experts were deployed as the Team.

(1) Akihiko KAWANA, M.D., Ph.D. (Chief, Pulmonary Ward, Department of Pulmonology, International Medical Center of Japan)

(2) Katsuji TERUYA, M.D. (AIDS Clinical Center, International Medical Center of Japan)

(3) Nozomu YAMASHITA (Staff, Disaster Assistance Division, Secretariat of Japan Disaster Relief Team, JICA)

1-3 Activities

Refer to Annex 1 attached.

2 Outcomes of activities of the Japan Disaster Relief Expert Team

2-1 Current situation of SARS in Vietnam.

The first work of the Team was to collect information and data considering the current situation of SARS in Vietnam with regards to the outbreak condition, infection control strategy, and needs of equipment to perform infection control. With the information and data collected, the Team clarified what / how Japan can contribute to support the efforts of the Vietnam authorities to control this outbreak.

(1) Meeting with the Ministry of Health and WHO on 17 March

Summary of what was discussed in the meeting is as follows.

- As of the day, total number of the cases of SARS in Viet Nam is 50. Among them, 31 cases are admitted at French hospital and 19 at Back Mai hospital.
- Four cases are in serious condition under support of mechanical ventilation. On the other hand, twelve cases are fully recovered so far.
- World epidemic situation of SARS was also discussed.
- Several blood and respiratory specimens from cases were sent to Tokyo laboratory.

(2) Meeting with Dr. Oshitani (WHO, WPRO), Dr. Asao(WHO, Vietnam), and Dr.Doran (WHO Vietnam) on 19 March

The Team discussed mainly about the infection control strategy performed in two affected hospitals, the Bach Mai Hospital and the French Hospital. Summary of what was discussed is as follows.

- Infection control equipment such as N95 masks, gowns, alcohol-based hand solutions are in emergency need. Regarding the number of N95 masks, more than 1000 pieces are necessary a week for infection control.
- Treatment with any antibiotics seems to be not effective. Antibiotic use is recommended for prevention of secondary known bacterial infections, however, they are not the major priority of what is needed in management of the disease.
- Precautions to prevent airborne and / or droplet spread was performed only 6 days ago (Since 11 March). It is necessary to be careful of the number of new cases to make sure that precautions efforts are effective to prevent the spread of SARS.
- The WHO considers that SARS is possibly a new emerging disease and that the situation should be taken seriously. WHO issued travel advisory to the affected areas for the first time since its establishment in 1948.

The Team interpreted the situation as the critical time point to contain and control the disease in Vietnam. In order to accomplish this purpose, infection control equipments such as N95 masks and gloves was considered to be in urgent need. The Team issued an emergency report requiring the Government of Japan to send additional equipment supplies to Hanoi to support the efforts to control the infection. The report was officially forwarded to the Ministry of Foreign Affairs in Tokyo on 18 March.

The Team also collected necessary data from the Back Mai Hospital board on the SARS situation in Vietnam. These data change daily, and the Team worked on related organizations to update data and information. The result of the situation is summarized in Annex 2 to Annex 5. It can be said that the situation is still instable, and requires maximum carefulness. The possibility of SARS being community spread must not be excluded.

2-2 Provision of equipments of the Team and additional equipments from Japan

The Team brought along the following equipments worth ¥10,820,240 to support the efforts of the Ministry of Health and other related organizations to contain the outbreak of SARS in Vietnam.

List 1: Equipments of the Japan Disaster Relief Team

	Name of equipment	Quantity
1	Protective Suit	30
2	N95 Mask	480
3	Respirator	2
4	Formalin (500ml)	28
5	Surgical Gloves	1632
6	Surgical Cap	200
7	Surgical Gown	80

These equipments were handed over to the following organizations according to the need-assessment carried out and decision made by the Team.

List 2: Recipients of the Japan Disaster Relief Team's equipments

	Recipient	Equipment	No.	Date of handing over
1	Bach Mai Hospital	Ventilator	2	17 March 2003
2	Hanoi Health Service	Protective Suit	7	19 March 2003
3	WHO	Protective Suit	5	20 March 2003
4	Bach Mai Hospital	Protective Suit	18	20 March 2003
		N95 Mask	460	
		Formalin (500ml)	28	
		Surgical Gloves	1632	
		Surgical Cap	200	
		Surgical Gown	80	

(20 N95 masks were used by the Team for visiting the Back Mai Hospital.)

Especially, when urgent need of protective suits were informed to the Team by the Hanoi Health Service and the WHO on 19 and 20 March respectively, the Team was able to respond promptly and flexibly to meet the request.

Furthermore, as a result of the Team's emergency appeal on 18 March for additional equipments, the Ministry of Foreign Affairs and JICA Headquarter in Tokyo immediately procured and delivered the following equipments worth ¥1,919,600 on 21 March to prevent the spread of infectious disease within hospitals.

List 3: Additional equipments

	Name of equipment	Quantity
1	N95 mask	2,040
2	Surgical Gown	2,010
3	Surgical Gloves	2,100
4	Hand Solution (500ml)	80

These additional equipments will be handed over to the Ministry of Health as soon as the distribution list is developed, and hopefully they will contribute to the infectious

disease control.

2-3 Activities at Back Mai Hospital

(1) Meeting with JICA experts of Back Mai hospital on 19 March

The Team had a meeting with two Japanese JICA experts working at Back Mai Hospital. The purpose of this meeting was to clarify the outbreak situation at the Hospital including the rate of new suspected cases and whether there were any suspected cases among medical staffs working at the Hospital.

There were discussions about the current infection control efforts of the Hospital, what the real needs are to contain the infection, and also what / how Japan can do to support this serious situation.

The Team considered that infection control strategy of the Hospital was adequately performed for the following two reasons;

- No cases of medical staffs were reported at Back Mai hospital at the moment, and
- Number of newly suspected cases are still reported but are gradually decreasing.

The shortage of infection control equipments such as N95 masks, surgical gloves, and surgical gowns was indicated. Also, stocks of antibiotics and mechanical ventilators that are used in clinical treatment seemed not insufficient. The hospital is working to make a list of what equipments / supplies they need to contain and manage SARS.

(2) Meeting with the board of the Back Mai Hospital on 20 and 21 March

The Team visited Back Mai Hospital to have meetings with the board and medical staffs of the Hospital. The purpose of the meetings was to have discussions on measures to control / contain the outbreak and on treatment policies for the severe case of the SARS.

The Team had constructive discussions with the concerned staffs of the Hospital and gave some suggestions in the point of a Japanese medical expert in the field of respiratory diseases and infectious diseases.

Regarding discussions about infection control and management the points were;

- The new suspected cases still exist, however, outbreak seems to be under control because the number of new cases are decreasing,
- Good news is that there have been no cases of the Hospital medical staffs. This fact indicates that the current infection control precautions is working effectively,
- Stocks of infection control equipments are apparently in shortage. Staffs only use one set of equipment (mask, gown, glove) a day and it is not adequate for the infection control strategy, and
- More mechanical ventilators might also be needed as new cases still exist and some of them will fall in respiratory distress.

Regarding discussions about clinical feature of severe cases of SARS at the Hospital;

- Treatment performed at Back Mai Hospital is the same as that which will be

performed in hospitals in Japan in such pneumonia cases. Antibiotic treatment appeared not to be effective.

- Cases of SARS appear to be separated in two different groups. One group contain patients who experienced transient pneumonia and recovered soon, and the other group contain patients whose pneumonia progress very rapidly, and become serious condition, often needed mechanical ventilation.

The Team gave the doctor following suggestions as specialist in the field of respiratory and infectious diseases.

- LDH and CRP should be measured regularly because they are known to be good clinical marker in management of viral pneumonia or pnemonitis.
- Immunological vicious cycle such as VAHS (viral associated hemophagocytic syndrome) might play a role in the clinical course of severe patients. Early use of steroid up to some amount might be effective in managing this pneumonia.

2-4 Consensus meeting for SARS discharge policy on 21 March

The Team attended the consensus meeting for SARS discharge policy with related members of the Ministry of Health, hospital staffs, and the WHO. At this meeting, the WHO proposed a scheme of discharge policy as follows:

- The patients should be clinically well,
- There should be resolution of cough,
- The temperature of the patient should be 37C or less for at least 48 hours,
- Patient's white cell count and platelet count should be in the normal range.

On the other hand, hospital staffs of Vietnam proposed that more items should be added to this WHO policy. Their proposal is as follows;

- The temperature of the patient should be 37C or less for at least 5days,
- Improvement of appetite,
- Stable of chest X-ray, and the patient must be followed up at least 5days under close observation.

The Team made comments that since we must be very concerned and careful about this "unknown new pathogen", discharge policies must be more particular and proposals of the Vietnam hospital staffs were in that means very reasonable.

As a result, consensus was made in forms of "SARS discharge policy" among the 3 players directly involved.

2-5 Infection control inputs to the North Thang Long Hospital and Gia Lan District Hospital

The Team along with CDC experts (WHO consultants) and officials of the Hanoi Department of Health, visited the North Thang Long Hospital and Gia Lan District Hospital, where new SARS suspect patient is planned isolated and treated.

The newly assigned hospitals are rushing to be prepared both structurally and mentally and for the newly infected patients assumed. Looking through the two hospitals and

interviewing related staffs and officials, the Team would like to make a suggestion on the function of the two hospitals.

Taking into consideration the lack of number of sophisticated medical equipment such as ventilators and X-ray to treat critical (red categorized) patients in both hospitals, and also the discharge policy that was developed on 21 March by concerned parties, the two hospitals are proposed to be an institute for observation of candidate-patients who have improved and met with the discharge criteria. In this way, it is possible to ease the concern of the family members and also to minimize the possibility of the virus to be community spread.

3 Conclusion

Looking back to the 10 day-operation, the Team was able to make considerable inputs to various organizations that are making efforts to contain the SARS both materially and technically. Since the situation still needs maximum care, the Government of Japan decided to deploy a second Team from 26 March to contribute in developing infectious disease control guidelines and other related activities in close cooperation with the Ministry of Health and the WHO to a point when it can be said that the disease is contaminated.

Finally, the Japan Disaster Relief Expert Team would like to express our deep appreciation for the generous and sincere support provided by authorities and organizations concerned. Especially, we would like to thank Dr. Le Thu Ha of the Ministry of Health and Dr. Aileen Plant of the WHO for their excellent coordination. Our activity could not have resulted positively without you. The Team hopes that this good partnership would continue with the second Team that is on their way.

Also, the Team will not exclude the extensive full support and effort made by the Ministry of Foreign Affairs and the JICA Headquarters in Tokyo. The Team was continuously encouraged by related officials and staffs in Tokyo.

The Team wishes that the outbreak of SARS will be contained and no more precious lives of the people in Vietnam will be taken by this dreadful disease.

End

ANNEX1

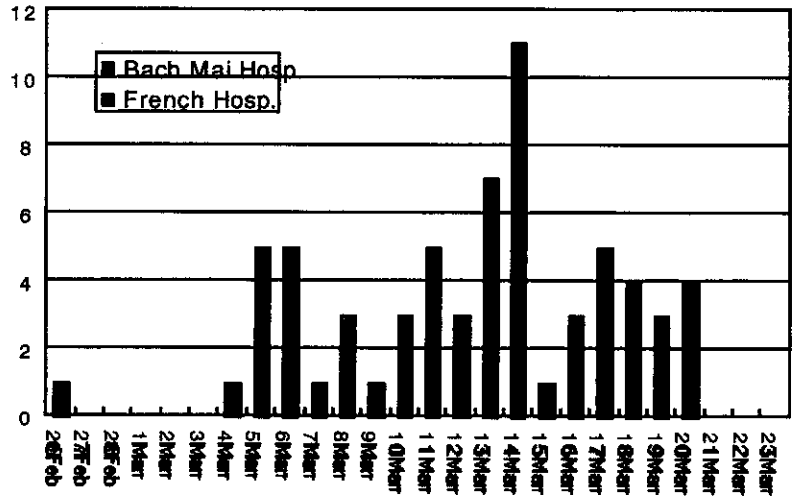
25 March 2003
Japan Disaster Relief Expert Team

Activities of the Japan Disaster Relief Expert Team

Date	Time	Activity
16 March (Sun)	16:15	Arriving at Hanoi Airport (CX791)
	19:00	Meeting with the Embassy of Japan and the JICA Office
17 March (Mon)	8:45	Meeting with the Ambassador of Japan
	10:00	Meeting with the Ministry of Health and the WHO
	14:00	Meeting with Dr. Oshitani (WHO)
	16:30	Meeting with the JICA Office
	18:00	Meeting with WHO sub-task members
		Deliverying two (2) vantilators to Back Mai Hospital
	21:30	Writing the Situation / Needs Assessment Report
18 March (Tue)	12:00	Situation / Needs Assessment Report completed
	13:00	Briefing to the JICA Office
	14:20	Briefing to the Embassy of Japan
	22:00	Writing the daily situation report
19 March (Wed)	9:00	Inofficial meeting with Dr. Plant (WHO) and Dr. Nicolai (French Hospital)
	10:00	Coordination Meeting with the Ministry of Health and the WHO
	13:40	Meeting with JICA Experts of Back Mai Hospital
	15:40	Inofficial meeting with Dr. Asao (WHO)
	16:30	Handing over 7 protective suits to the Hanoi Health Service
	22:00	Writing the daily situation report
20 March (Thu)	9:45	Inofficial meeting with Dr. Asao (WHO)
	14:30	Inofficial meeting with Dr. Plant (WHO)
	16:00	Handing over 5 protective suits to the WHO
	16:30	Meeting with JICA Experts in Back Mai Hospital
	17:00	Meeting with the board of the Back Mai Hospital
		Handing over infection control materials to the Back Mai Hospital
	22:00	Writing the daily situation report
21 March (Fri)	9:00	Coordination Meeting with the Ministry of Health and the WHO
		Meeting with experts of the Ministry of Health and the WHO
	10:00	Visiting the North Thang Lang Hospital and Gia Lan District Hospital
	17:00	Meeting with doctors of the Back Mai Hospital
	19:00	Meeting with the Embassy of Japan and the JICA Office
	21:00	Arrival of additional equipments to Hanoi Airport
	22:00	Writing the daily situation report
22 March (Sat)		Data analysis / Writing the final report
	15:00	Meeting with JICA Experts of Back Mai Hospital
23 March (Sun)		Data analysis / Writing the final report
	13:00	Inofficial meeting with Dr. Plant and Dr. Asao (WHO)
		Inofficial meeting with Mr. Claus (MSF)
	15:30	Writing the final report
24 March (Mon)	9:30	Meeting with the Ministry of Health
	10:00	Visiting the North Thang Lang Hospital and Gia Lan District Hospital
	15:00	Reporting to the Embassy of Japan
	20:00	Final internal meeting / Writing the activity report
25 March (Tue)	7:55	Departing Hanoi Airport (JL776) (Dr. Kawana, Dr. Teruya)
	14:00	Inofficial meeting with Dr. Maloney (WHO)

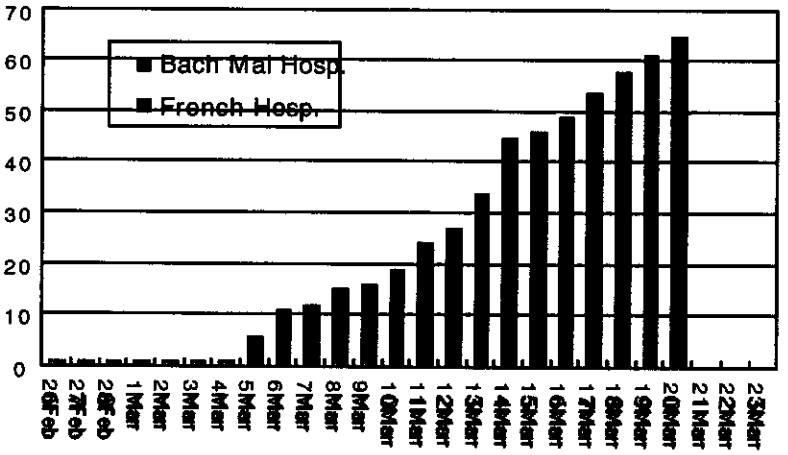
Daily new cases of SARS patients of two hospitals in Hanoi

(Data from Bach Mai hospital and French hospital as of 21 March)



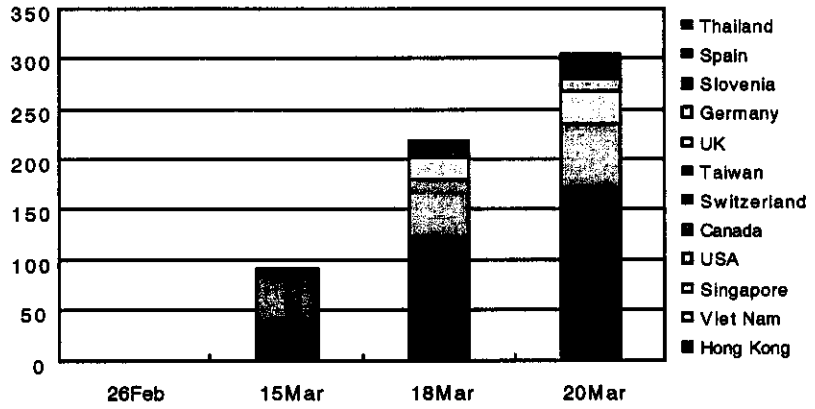
Cumulative number of SARS cases of two hospitals in Hanoi

(Data from Bach Mai hospital and French hospital as of 21 March)



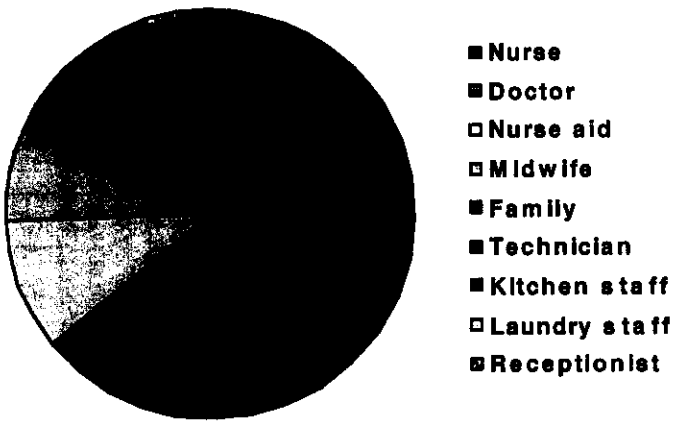
Cumulative number of SARS cases in the World

Cumulative number of reported suspect and probable cases (SARS)
From: 1 Feb 2003 To: 20 Mar 2003. World Health Organization



Nosocomial SARS infection in the personnel of French hospital

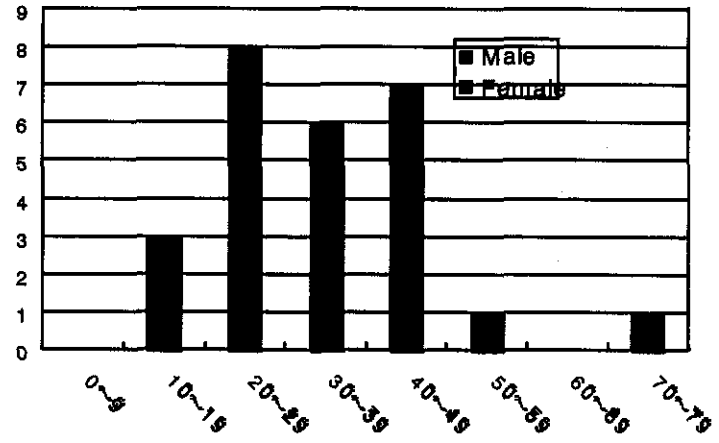
(Data from French hospital as of 21 March)



2

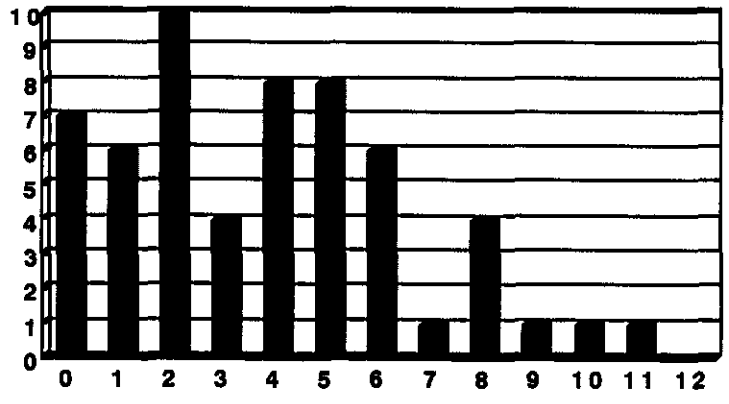
Characteristics of SARS patients (age, sex) of Bach Mai Hospital

(Data from Bach Mai hospital as of 21 March)



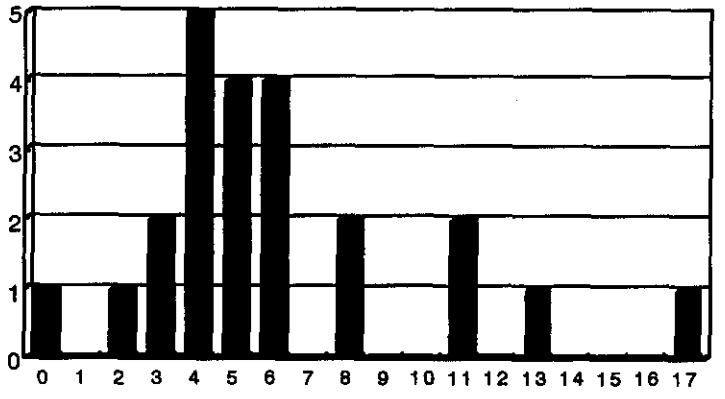
Duration from first symptom to admission

(Data from Bach Mai hospital and French hospital as of 21 March)



Duration from first contact to first symptoms

(Data from French hospital as of 21 March)



4

BACH MAI HOSPITAL
General Planning Dpt.

LIST OF SARS PATIENTS AT TROPICAL MEDICINE HOSPITAL
(12 - 21 March)
(List collected from the Board of Bach Mai Hospital ; Translation by the JICA Vietnam Office)

	Full name	Age		Province	Transmission Source		Date of first symptom	Date of hospital admission	Condition			Disease progress
		Male	Female		International	Underdetermined			Red	Yellow	Blue	
1					×		3.Mar	12.Mar				
2					×		5.Mar	13.Mar				
3					×		5.Mar	13.Mar				
4					×		8.Mar	13.Mar	×			Delivery, Asthmaticus symptoms
5					×		5.Mar	13.Mar				
6					×		3.Mar	13.Mar		×		
7					×		9.Mar	14.Mar		×		
8						×	10.Mar	14.Mar				
9					×		16.Mar	16.Mar				
10					×		9.Mar	14.Mar				
11						×	11.Mar	16.Mar				
12					×		9.Mar	14.Mar	×			COPD
13								14.Mar				Discharged on 20 March
14					×		10.Mar	14.Mar				Discharged on 21 March
15					×		6.Mar	14.Mar				Discharged on 21 March
16					×		14.Mar	14.Mar		×		
17					×		3.Mar	14.Mar		×		
18					×		15.Mar	17.Mar				
19								17.Mar				
20						×	15.Mar	17.Mar				
21					×		11.Mar	17.Mar				
22						×	14.Mar	18.Mar			NN	
23						×	11.Mar	18.Mar			NN	
24						×	18.Mar	19.Mar			TD	
25						×	16.Mar	19.Mar			TD	
26					×		15.Mar	19.Mar				
	Total	10	16						2	4	20	

Red : Severe condition, Ventilator support, Yellow : Less severe, Oxygen mask, Blue : Mild condition, Can be discharged from the hospital
NN : Suspect, TD : Under supervision

ANNEX4

(Document collected form the Board of Bach Mai Hospital ; Translation by the JICA Vietnam Office)

BACH MAI HOSPITAL
GENERAL PLANNING DEPARTMENT

SOCIALIST REPUBLIC OF VIETNAM
Independence-Freedom-Happiness

Hanoi March 21, 2003

To: Director Board
Bach Mai Hospital Outbreak Prevention and Control Steering Committee

The General Planning Department would like to report SARS outbreak situation on March 21, 2003 to the Director Board and the Steering Committee as follows:

1.Total number of SARS cases:

- Cumulative number of cases: 26
- Present number of cases: 23
- Discharged number of cases: 3

2.Condition of SARS cases:

- Mild condition, dischargeable cases: 17 (2 suspected cases, 2 cases under supervision)
- Less severe condition, oxygen mask support: 4
- Severe condition, ventilator support: 2

3.Epidemiology:

a. By geographical area:

No.	Address of patient	Number of patients		Total
		Male	Female	
	Hanoi:			19
1	Ba Dinh district	1	2	
2	Dong Da district	2	4	
3	Hai Ba Trung district	1	4	
4	Hoan Kiem district	0	2	
5	Cau Giay district	0	0	
6	Tay Ho district	0	0	
7	Thanh Xuan district	0	0	
8	Thanh Tri district	1	1	
9	Gia Lam district	1	0	
10	Dong Anh district	0	0	
11	Soc Son district	0	0	
	Other provinces and cities:			4
1	Nam Dinh	1	1	
2	Quang Ninh	1	0	
3	Son La	1	0	
Total		**9**	**14**	**23**

(Document collected form the Board of Bach Mai Hospital ; Translation by the JICA Vietnam Office)

b. By referral area:

First referral institution	Number of cases		Total
	Male	Female	
- From residence	8	12	20
- From departments of Bach Mai hospital			
+ Gastro-Enterology Department	1	0	1
+ Pneumology Department	0	1	1
- From other hospitals:			
+ Institute for Mother and New-born Care and Protection	0	1	1
Total	9	14	23

Director of General Planning Department

Signed

Nguyen Quoc Tuan

List of Health Workers of French Hospital Admitted (21-March)

(List collected form the board of Bach Mai Hospital ; Translation by JICA Vietnam Office)

	Full Name	Profession	First Contact	First Symptom	Date of Admission	Progress
1			1.Mar	5.Mar	5.Mar	severe, on ventilator : 14-Mar
2			4.Mar	4.Mar	5.Mar	severe, on ventilator : 15-Mar
3			28.Feb	4.Mar	5.Mar	OK
4			27.Feb	4.Mar	5.Mar	OK
5			26.Feb	1.Mar	5.Mar	died on 15-Mar
6			1.Mar	5.Mar	10.Mar	died on 19-Mar
7			27.Feb	4.Mar	4.Mar	recovering stage
8			26.Feb	4.Mar	6.Mar	OK
9			26.Feb	4.Mar	6.Mar	OK
10			28.Feb	4.Mar	6.Mar	OK
11			2.Mar	4.Mar	6.Mar	OK
12			2-Mar / no direct contact		6.Mar	OK
13			2.Mar	7.Mar	7.Mar	recovering stage
14			26.Feb	6.Mar	8.Mar	OK
15			2.Mar	5.Mar	8.Mar	OK
16			26.Feb	6.Mar	8.Mar	OK
17			no direct contact	5.Mar	9.Mar	recovering stage
18			28.Feb	6.Mar	10.Mar	recovering stage
19			26.Feb	4.Mar	10.Mar	stable
20			28.Feb	5.Mar	11.Mar	OK
21			no direct contact		11.Mar	recovering stage
22			no direct contact	5.Mar	11.Mar	severe, on vantilator : 16-Mar
23			2.Mar	6.Mar	11.Mar	OK
24			26.Feb	9.Mar	11.Mar	OK
25			26.Feb	11.Mar	12.Mar	recovering stage
26			no direct contact	6.Mar	12.Mar	developing stage
27			1.Mar	12.Mar	13.Mar	developing stage
28			no direct contact	9.Mar	13.Mar	recovering stage

List of Health Workers of French Hospital Admitted (21-March)

(List collected form the board of Bach Mai Hospital ; Translation by JICA Vietnam Office)

29			26.Feb	no sign	14.Mar	OK
30					14.Mar	OK
31				13.Mar	15.Mar	recovering stage
32			no direct contact	10.Mar	16.Mar	developing stage
33			28.Feb	17.Mar	17.Mar	Initial Stage
34					18.Mar	Initial Stage
35					18.Mar	Initial Stage
36			direct contact	17.Mar	20.Mar	Initial Stage
37			direct contact	20.Mar	20.Mar	Initial Stage
38			direct contact	17.Mar	20.Mar	Initial Stage
39			12-Mar (?)	14.Mar	20.Mar	Initial Stage

(6) Report of the second group of the Japan Disaster Relief Expert Team in response to the outbreak of SARS, deployed from 25 March to 1 April 2003 in Vietnam — Hanoi, 31 March 2003 —

Report of the second group of the Japan Disaster Relief Expert Team in response to the outbreak of SARS, deployed from 25 March to 1 April 2003 in Vietnam

Hanoi, 31 March 2003

Koji MITSUI
Hiroshi OHARA
Nozomu YAMASHITA

1 Introduction

Upon request by the Socialist Republic of Vietnam, the Government of Japan, in collaboration with the Japan International Cooperation Agency (JICA), dispatched the Japan Disaster Relief Expert Team in response to the outbreak of SARS in Vietnam. The first group of the Expert Team deployed from 16 to 25 March and the second group from 26 March to 1 April 2003 in Vietnam.

Members, objectives, and activities of the second group are as follows:

1-1 Members

(1) Koji MITSUI, Assistant-Director, Overseas Disaster Assistance Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
(2) Hiroshi OHARA, M.D., Ph.D., Senior staff, International cooperation bureau, International Medical Center of Japan
(3) Nozomu YAMASHITA, Staff, Disaster Assistance Division, Secretariat of Japan Disaster Relief Team, JICA.

1-2 Objectives

The second group of the Team succeeded the first group that supported the Government of Vietnam protecting health care workers, especially the staff in charge of SARS, with technical advice and medical equipment. Furthermore, the second group was designed to assist the Ministry of Health in establishing infection control guidelines to prevent hospital transmission and in holding together a workshop giving technical advice to medical staff as well.

1-3 Outline of Activities

Please refer to Annex 1 for the outline of activities of the Team.

2 Details of Activities implemented by the second group

2-1 Support for the making of the *"Interim Infection Control Guidelines for Response to the Emerging SARS in Health Settings in Vietnam"*

On 27 March, the Team members discussed the ***"Interim Infection Control Guidelines for Response to the Emerging SARS in Health Settings in Vietnam"*** with the infectious control team of WHO. Although the ***Guidelines***, developed by WHO, were updated by the Team's comments after discussion, they are still improving with various comments.

2-2 Fact-findings of Infection Control in Bach Mai Hospital

On 27 and 28 March, the Team members visited the Bach Mai Hospital to interview about the infection control measures taken by the Hospital staff. To date, no hospital transmission was noted yet. Therefore, through credible information collected from the Hospital, the Team recognized that the Hospital staff are making great efforts to contain the infection.

2-3 Contribution to an Infection Control Workshop against SARS

On 31 March, the Team members participated in the Infection Control Workshop held by the MOH. The Workshop was held from 9 a.m. until noon in a meeting hall of the MOH. The number of participants was approximately 25, including clinical Sub-committee members, MOH officials, Team members, WHO consultant, MSF staff and others.

After the opening statement of Dr. Nguyen Huy Thin, Deputy Director of Therapy Department, MOH, Dr. OHARA, member of the Team, made a presentation with slides co-prepared by WHO on the basis of the ***"Interim Infection Control Guidelines for Response to the Emerging SARS in Health Settings in Vietnam"***. Please refer to Annex 2 for the slides of the Presentation.

Following the presentation, Dr. Peter Thomson, MSF and Dr. Daniel G. Bausch, WHO/CDC demonstrated how to use basic medical equipment such as N-95 Mask, surgical Gown and Gloves to the participants.

After longtime discussion among the participants on ways to develop training sessions and on contents of the infection control Guidelines, Dr. Nguyen Huy Thin closed the Workshop by stating that it enabled the participants to share and exchange their opinions frankly and to strengthen further cooperation against SARS.

2-4 Donation of medical equipment

In addition to the medical equipment for the infection control of SARS, which was brought by the first group of the Team, the second group brought additional equipment to the Government of Vietnam in order to support more its efforts to contain the outbreak of SARS. As such, all the equipment were handed over to the MOH on 31 March for appropriate utilization in Vietnam.

List of equipment donated by the GOJ through the second group of the Team

	Name of Equipment	Quantity
1	N-95 Mask	1,200 pieces
2	Surgical Gown	900 pieces
3	Surgical Gloves	900 sets

3 Outcome of Activities

As the result of the 10 and 7 day-operation of the first and second group respectively, it could be concluded that the Japan Disaster Relief Expert Team completed almost of the tasks supporting with technical advice, providing medical equipmen and contributing to extensive efforts of the MOH.

Although the Japan Disaster Relief Expert Team takes a leave from your country on 1 April, the Government of Japan would like to support continuously and appropriately the efforts made by the MOH. Therefore, before leaving, the Expert Team has requested that five JICA experts, currently working in Bach Mai Hospital, would follow-up our tasks by giving practical advice to the Hospital in order to implement the infection control measures proposed by the Guidelines and decided finally by the Government of Vietnam.

3 Recommendation

It could be considered that the emergency phase of the outbreak of SARS had mostly ended. However, the outbreak of SARS is still continuing to spread rapidly and demanding over the world. Taking the current situation into consideration, related Ministries and organizations should fight at all times against the disease with maximum care and readiness. Under the circumstances of the world, we decided to leave to the MOH some recommendations, which are attached as Annex 3.

****

The Japan Disaster Relief Expert Team would like to express our deep appreciation for the generous and sincere support of our activities and for the cooperation provided by the authority and other related organizations in Vietnam. As said in a proverb "a friend in need is a friend in deed", the Team would be pleased if our activities led to further strengthening of friendship and cooperation between Vietnam and Japan.

End

Outline of Activities of the Japan Disaster Relief Expert Team

(First and Second group)

(1) Activities of the first group of the Expert Team (**Dr. KAWANA, Dr. TERUYA and Mr. YAMASHITA**)

Date	Time	Activities
16 March (Sun.)	16:15	Arriving at Hanoi Airport (Dr. KAWANA, Dr. TERUYA and Mr. YAMASHITA) by Flight CX791
	19:00	Meeting with Embassy of Japan and the JICA Office
17 March (Mon.)	8:45	Meeting with Ambassador of Japan
	10:00	Meeting with Ministry of Health and WHO
	14:00	Meeting with Dr. Oshitani (WHO)
	16:30	Meeting with JICA Office
	18:00	Meeting with WHO sub-task members
		Delivering two ventilators to Back Mai Hospital
	21:30	Reporting the current Situation / Needs Assessment
18 March (Tue.)	12:00	Situation / Needs Assessment Report completed
	13:00	Briefing to JICA Office
	14:20	Briefing to Embassy of Japan
	22:00	Reporting the daily situation in Vietnam
19 March (Wed.)	9:00	Unofficial meeting with Dr. Plant (WHO) and Dr. Nicolai (French Hospital)
	10:00	Coordination-Meeting with MOH and WHO
	13:40	Meeting with JICA Project Experts of Back Mai Hospital
	15:40	Unofficial meeting with Dr. Asao (WHO)
	16:30	Handing over 7 protective suits to the Hanoi Health Service
	22:00	Reporting the daily situation in Vietnam
20 March (Thus.)	9:45	Unofficial meeting with Dr. Asao (WHO)
	14:30	Unofficial meeting with Dr. Plant (WHO)
	16:00	Handing over 5 protective suits to WHO
	16:30	Meeting with JICA Project Experts in Back Mai Hospital
	17:00	Meeting with the board of the Back Mai Hospital
		Handing over infection control materials to the Back Mai Hospital
	22:00	Reporting the daily situation
21 March (Fri)	9:00	Coordination-Meeting with MOH and WHO
		Meeting with experts of MOH and WHO

	10:00	Visiting the North Thang Lang Hospital and Gia Lan District Hospital
	17:00	Meeting with doctors of the Back Mai Hospital
	19:00	Meeting with Embassy of Japan and JICA Office
	21:00	Arrival of additional equipment at Hanoi Airport
	22:00	Reporting the daily situation
22 March (Sat.)		Analyzing Data/ Preparing the final Report of Expert Team
	15:00	Meeting with JICA project Experts of Back Mai Hospital
23 March (Sun.)		Analyzing Data/ Preparing the final Report of Expert Team
	13:00	Unofficial meeting with Dr. Plant and Dr. Asao (WHO)
		Unofficial meeting with Mr. Claus (MSF)
	15:30	Preparing the final Report of Expert Team
24 March (Mon)	9:30	Meeting with MOH
	10:00	Visiting the North Thang Lang Hospital and Gia Lan District Hospital
	15:00	Reporting the Activities to Embassy of Japan
	20:00	Final internal meeting / Preparing the activity Report
25 March (Tue)	7:55	Departing Hanoi Airport (JL766) (Dr. Kawana, Dr. Teruya)
	9:00	Finalizing the activity Report of Expert Team
	9:15	Coordination-Meeting with MOH and WHO
	14:00	Unofficial meeting with Dr. Maloney (WHO)
26 March (Wed)	15:00	Meeting with the JICA Office
	18:00	Unofficial meeting with Dr. Maloney (WHO/CDC) and Dr. Thomson (MSF)

(2) Activities of the second group of the Expert Team (Mr. MITSUI, Dr. OHARA and Mr. YAMASHITA)

Date	Time	Activities
26 March (Wed.)	21:30	Arriving at Hanoi Airport (Mr. MITSUI, Dr. OHARA)
27 March (Thus.)	8:45	Meeting with Ambassador of Japan in Vietnam
	9:00	Meeting with Embassy of Japan
	14:00	Meeting with Dr. Hai, Dr. Huong in MOH
	15:20	Meeting with Dr. Quy in Bach Mai Hospital
	17:00	Discussing with WHO on infection control Guidelines

28 March (Fri.)	9:00	Meeting with Dr. Quy, Dr. Chau, Dr. Kanagawa in Back Mai Hospital
	14:30	Discussing with MOH on infection control Seminar/ Workshop
	17:30	Interviewing with a Kyodo News journalist
	18:00	Meeting with Embassy of Japan
29 March (Sat.)	9:30	Discussing with WHO on infection control Guidelines
	13:00	Arranging slides / Preparing final Report
30 March (Sun.)	12:30	Meeting with WHO on infection control Guidelines
	15:00	Meeting with interpreter for Workshop
	16:00	*Preparing the final Report of Expert Team and* Workshop
31 March (Mon.)	9:00	Participating to Infection Control Workshop
	16:30	Meeting with MOH
	17:00	Debriefing Activities to Ambassador of Japan
1 April	7:30	Departing Hanoi Airport (Mr.MITSUI, Dr.OHARA and Mr. YAMASHITA) by Flight JL766

Recommendation to the Ministry of Health

The Japan Disaster Relief Expert Team would like to recommend the following 10 points in order to contain SARS.

1 Maintain maximum precaution towards SARS

2 Limit and control points of entry to infected wards

3 Create a list of contact information for persons visiting or caring for SARS patients

4 Wear disposable gowns, gloves, and goggles for close patient contact

5 Screen for symptoms of SARS-like illness among staff for duty

6 Separate wards / areas for each categories

7 Limit access to infected area

8 Implement training workshops for the staff that are on duty

9 Maintain list of all staff who worked with SARS patient or on the SARS wards

10 Implement infection control measures according to the Guidelines that are developed/approved by the Ministry of Health

End

(7) 資機材供与様式(受領書を含む)

Prof. Tran Quy
Director, Bach Mai Hospital

Handing over of Equipments of the Japan Disaster Relief Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 16 Match to provide technical and material support to protect the health staffs and to contain the spread of SARS (Severe Acute Respiratory Syndrome).

On the occasion of the request by Prof. Tran Quy, director of the Bach Mai Hospital, the Japan Disaster Relief Expert Team will hand over two (2) ventilators to support efforts of the Hospital to fight the outbreak of SARS.
The Japan Disaster Relief Expert Team hopes that the ventilators contribute positively to the measures taken by the Hospital.

17 March 2003

A. Kawana

Dr. Akihiko KAWANA, M.D., Ph.D.
Leader, Japan Disaster Relief Expert Team

Dr. Akihiko KAWANA
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The Bach Mai Hospital has received two (2) ventilators handed over on 17 March by the Japan Disaster Relief Expert Team.

17 March 2003

BỆNH VIỆN BẠCH MAI

Prof. Tran Quy
Director, Bach Mai Hospital

Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Handing over of Equipments of the Japan Disaster Relief Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 16 Match to provide technical and material support to protect the health staffs and to contain the spread of SARS (Severe Acute Respiratory Syndrome).

On the occasion of the request by Prof. Nguyen Van Thuong, Vice Minister of Health, the Japan Disaster Relief Expert Team will hand over seven (7) Protective Suits to support efforts of the Ministry to fight the outbreak of SARS.
The Japan Disaster Relief Expert Team hopes that the Protective Suits contribute positively to the measures taken by the Ministry.

19 March 2003

A. Kawana

Dr. Akihiko KAWANA, M.D., Ph.D.
Leader, Japan Disaster Relief Expert Team

Dr. Akihiko KAWANA, M.D., Ph.D.
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The Ministry of Health has received seven (7) Protective Suits handed over on 19 March by the Japan Disaster Relief Expert Team.

19 March 2003

Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Mrs. Pascale Brudon
WHO Representative (WR) in Vietnam

Handing Over of Equipments of the Japan Disaster Relief Expert Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 16 March to provide technical and material support to protect the health staffs and to contain the spread of SARS (Severe Acute Respiratory Syndrome).

On the occasion of the request by the WHO Representative in Vietnam, Mrs. Pascale Brudon, the Japan Disaster Relief Expert Team will hand over 5 Protective Suits (PPE-BUTYL) to support activities of WHO to fight the spread of SARS.
The decision was made considering the urgent need and the good partnership between the WHO and the Japan Disaster Relief Expert Team in supporting the Vietnam authorities to take measures against the emergency situation.

20 March 2003

Akihiko KAWANA

Dr. Akihiko KAWANA, M.D., Ph.D
Leader, Japan Disaster Relief Expert Team

Dr. Akihiko KAWANA
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The World Health Organization (WHO) Vietnam has received 5 Protective Suits (PPE-BUTYL) handed over on 20 March by the Japan Disaster Relief Expert Team.
I wish to thank Japan for his donation.

20 March 2003

WORLD HEALTH ORGANIZATION

Mrs. Pascale Brudon
WHO Representative (WR) in Vietnam

Prof. Tran Quy
Director, Bach Mai Hospital

Handing over of Equipments of the Japan Disaster Relief Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 16 Match to provide technical and material support to protect the health staffs and to contain the spread of SARS (Severe Acute Respiratory Syndrome).

On the occasion of the request by Prof. Tran Quy, director of the Bach Mai Hospital, the Japan Disaster Relief Expert Team will hand over equipments to support efforts of the Hospital to fight the outbreak of SARS.
The Japan Disaster Relief Expert Team hopes that the equipments contribute positively to the measures taken by the Hospital.
The list of equipments is attached herewith.

20 March 2003

A. Kawana

Dr. Akihiko KAWANA, M.D., Ph.D
Leader, Japan Disaster Relief Expert Team

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Bach Mai Hospital

	Name of equipment	Quantity
1	Emergency kit	7
2	Protective suit	4
3	N95 mask	360
4	Soft mask	100
5	Formalin (500ml)	28
6	Surgical Gloves	1,632
7	Surgical Cap	200
8	Surgical Gown	76

Dr. Akihiko KAWANA
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The Bach Mai Hospital has received equipments handed over on 20 March by the Japan Disaster Relief Expert Team.

The list of equipments is attached herewith.

20 March 2003

BỆNH VIỆN BẠCH MAI

Prof. Tran Quy
Director, Bach Mai Hospital

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Bach Mai Hoapital

	Name of equipment	Quantity
1	Emergency kit	7
2	Protective suit	4
3	N95 mask	360
4	Soft mask	100
5	Forrmalin (500)	28
6	Surgical Gloves	1632
7	Surgical Cap	200
8	Surgical Gown	76

BỆNH VIỆN BẠCH MAI

GIÁM ĐỐC
BỆNH VIỆN BẠCH MAI
GIÁO SƯ. TS. Trần Quy

Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Handing over of Equipments of the Japan Disaster Relief Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 16 Match to provide technical and material support to protect the health staffs and to contain the spread of SARS (Severe Acute Respiratory Syndrome).

On the occasion of the request by Prof. Nguyen Van Thuong, Vice Minister of Health, the Japan Disaster Relief Expert Team will hand over equipments to support efforts of the Ministry to fight the outbreak of SARS.
The Japan Disaster Relief Expert Team hopes that the equipments contribute positively to the measures taken by the Ministry.
The list of equipments is attached herewith.

24 March 2003

A. Kawana

Dr. Akihiko KAWANA, M.D., Ph.D.
Leader, Japan Disaster Relief Expert Team

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Ministry of Health

	Name of equipment	Quantity
1	N95 mask	2,040
2	Surgical Gown	2,010
3	Surgical Gloves	2,100
4	Hand Solution (500ml)	80

Dr. Akihiko KAWANA, M.D., Ph.D.
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The Ministry of Health has received equipments handed over on 24 March by the Japan Disaster Relief Expert Team.

The list of equipments is attached herewith.

24 March 2003

f. Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Ministry of Health

	Name of equipment	Quantity
1	N95 mask	2,040
2	Surgical Gown	2,010
3	Surgical Gloves	2,100
4	Hand Solution (500ml)	80

Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Handing over of Equipments of the Japan Disaster Relief Team

The Government of Japan, through the Japan International Cooperation Agency (JICA), has deployed the second Japan Disaster Relief Expert Team to the Socialist Republic of Vietnam from 26 March to provide technical and material support to contribute to the infectious control efforts that are being made against Severe Acute Respiratory Syndrome or SARS.

On the occasion of the request by Prof. Nguyen Van Thuong, Vice Minister of Health, the Japan Disaster Relief Expert Team will hand over equipments to support efforts of the Ministry to contain the outbreak of SARS.
The Japan Disaster Relief Expert Team hopes that the equipments will be useful for the measures taken by the Ministry.
The list of equipments is attached herewith.

31 March 2003

Koji MITSUI
Leader, Japan Disaster Relief Expert Team

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Ministry of Health

	Name of equipment	Quantity
1	N95 mask	1,200
2	Surgical Gown	900
3	Surgical Gloves	900

Mr. Koji MITSUI
Leader, Japan Disaster Relief Expert Team

Receipt of Equipments of the Japan Disaster Relief Expert Team

The Ministry of Health has received equipments handed over on 31 March by the Japan Disaster Relief Expert Team.

The list of equipments is attached herewith.

31 March 2003

f. Prof. Nguyen Van Thuong, M.D., Ph.D.
Vice Minister of Health

Japan Disaster Relief Expert Team

List of Equipments Handed Over to the Ministry of Health

	Name of equipment	Quantity
1	N95 mask	1,200
2	Surgical Gown	900
3	Surgical Gloves	900

(8) WHOからの感謝状

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

ORGANISATION MONDIALE DE LA SANTE
BUREAU REGIONAL DU PACIFIQUE OCCIDENTAL

Telephone (632) 528-8001
(632) 303-1000
E-mail postmaster@wpro.who.int

United Nations Avenue
P.O. Box 2932
1000 Manila, Philippines

Facsimile (632) 521-1036
(632) 526-0279
Website http://www.wpro.who.int

Message No.

FACSIMILE

Page 1 of 1 pages

Date : 25 March 2003

#. 1155

From : Director, Programme Management

Our ref. : (WP)CSR/ICP/CSR/001-A

Your ref. :

Subject :

To : Mr Nobuo Kimura
Managing Director
Secretariat of Japan Disaster
Relief Team
Fax No.: 81-3-5352-5400

Dear Mr Kimura,

I wish to express our sincere appreciation for the protection suits which were provided by Japan International Cooperation Agency (JICA) to a hospital in Thailand to aid in the treatment of one of our colleagues who, unfortunately, contracted Severe Acute Respiratory Syndrome (SARS) in Viet Nam.

Our colleague had to be presented to a hospital in Thailand. SARS being endemic in Viet Nam, the doctors at the Thailand hospital were reluctant to undertake treatment without the necessary protection suits. However, they were able to carry out treatment with the protection suits supplied by JICA. We hope that your timely and essential assistance will greatly contribute towards his full recovery, which we hope will be very soon.

Once again, please accept our gratitude for your kind and thoughtful support for the special arrangement.

Yours sincerely,

Dr Richard Nesbit
Director, Programme Management

(9) Discharge Policy — agreed by WHO Team in Hanoi — Needs to be cleared by Ministry of Health

Discharge Policy - agreed by WHO Team in Hanoi - needs to be cleared by Ministry of Health

Hospital discharge and follow - up policy for patients who have been diagnosed with suspected or confirmed Severe Acute Respiratory Syndrome(SARS)

Discharge protocol
Patients who have been diagnosed with suspected or confirmed Severe Acute Respiratory syndrome(SARS)may be discharged when they meet ALL of the following criteria:

*The patient should be clinically well
AND
*There should be resolution of cough
AND
*The temperature of the patient should be 37°C or less for at least 48 hours,and measured not less than 4 hourly.
AND
*The patient's white cell count should be in the normal range
AND
*The patient's platelet count should be in the normal range.

Follow-up protocol
Follow-up of all patients is essential
Arrangements should be made for regular follow-up of the patient. This should include the following:
7 days post-discharge
1.Confirmation of clinical status including full blood count to assess white cell and platelct counts on a weekly basis for 4 weeks
2.Collection and storage of convalescent blood specimen

14 days post-discharge
1.Confirmation of clinical status including full blood count to assess white cell and platelet counts on a weekly basis for 4 weeks

21 days post-discharge
2.Confirmation of clinical status including full blood count to assess white cell and platelct counts on a weekly basis for 4 weeks

28 days post discharge
1.Confirmation of clinical status including full blood count to assess white cell and platelet counts on a weekly basis for 4 weeks
A chest x-ray at 4 weeks post discharge and then four weekly until chest x-ray is normal or remains stable.

(10) Temporary Guidance on Diagnosis, Treatment and Prevention of Severe Acute Respiratory Syndrome

TEMPORARY GUIDANCE ON DIAGNOSIS, TREATMENT AND PREVENTION OF SEVERE ACUTE RESPIRATORY SYNDROME

(Issued together with Decision No: ... /QD-BYT dated..... 2003 by the Minister of Health)

PART I: DIAGNOSIS AND TREATMENT

I. DIAGNOSIS

1. Epidemiology

- Contact with patients being treated at the Hanoi French Hospital or affected areas.

- Contact with fever patients suspected of acute respiratory infection.

2. Clinical features

a. Beginning around one week after contacting infective agent;

b. Body symptoms:

- Sudden high fever, increased temperature of more than 38 degree Celcius, trembling, flushed features, raised pulse and loss of appetite;
- Headache, myalgia, pain in back muscles when coughing, pain in eyes sockets, or peripheral ganglion.

c. Respiratory symptom: one or more respiratory symptom including:

- Cough: dry cough, sometimes with sputum;
- shortness of breath, breathing speed may exceed 25 times/minute together with symptoms of acute respiratory failure;
- Crepitation rale.

3. Para-clinical

- Chest X-rays showing lung injury beginning in one lobe, then progressing to become bilateral. The condition progresses everyday, until two lobes are affected, leading to Acute Respiratory Development Syndrome – ARDS;

- Lowering of the haemoglobin count: reduction of oxygen in the blood, SpO_2 is lower than 90% or PaO_2 is lower than 60 mmHg, maybe together with an increase in CO_2 or not;

- Blood formula: the number of white blood cell and blood platelet remains normal or may decrease. Once bacterial super infection occurs, the number of white blood cell increases while the white blood cell formula is normal or shifts to the left.

4. Micro-organism diagnosis

- If possible, tests are needed to define micro-organism.

- Bacteriology test is a must if there is a suspicion of over infection of respiratory bacteria.

II. TREATMENT

A. Principle

1. Every case detected must be hospitalized and isolated.

2. Symptom treatment is applied for patients who are not in critical condition and without complication.

3. Any case detected must be reported to the local preventive medical center and the Ministry of Health.

B. Symptom treatment

1. Cough: use antibechic in case of dry cough.

2. Stuffed nose: use normal nose drop.

3. Fever:

- Take off some clothes and use a dry tower for cleansing;

- If the fever is more than $38^{0}5$, use antipyretic:
  + Adults: Paracetamol, 2 gram/day, 4 times a day,
  + Children: Paracetamol, 50-60 mg/kg/day, 4 times a day.

4. Nutrition, adjustment of water disorder and electro analysis:

- Ensuring nutrition for patients;

- Patients must drink as mush juice with salt as possible;

- Vein transfusion, using Natri Clorua 0.9%, Glucose 5%, Ringerlactat. The volume of fluid transfused depends on clinical progress and electro analysis;

- Vein transfusion, using amine acid.

5. Supportive treatment

- In case of severe respiratory failure, Methylprednisolone must be used for vein injection. Dose: 1mg/kg/day in three days;

- If possible, gammaglobulin can be used in vein transfusion. Dose: 200-400 mg/kg/day from two to five days.

C. **Acute respiratory failure treatment**

1. ***Evaluating the status of respiratory failure by:***

- Clinical signs:
  + Breath difficulty, breathing speed may exceed 25 times/minute (for adults). For children, the breathing speed can be defined by breathing frequency according to age group:
    - Under two months old: ≥ 60 times/minute,
    - From 2 to 12 months old: ≥ 50 times/minute,
    - From 1 to 5 years old: ≥ 40 times/minute.
  + Black and blue lips, acrocyanosis or contraction or respiratory muscle. Severe respiratory failure may lead to mental disorder.

- Measuring the oxygen saturation level via skin: SpO_2 is below 90% or measuring PaO_2 is below 60mmHg (if possible)

2. ***Acute respiratory failure treatment for adults:***

a. Principle: ensuring ventilation to supply patients with enough oxygen. If possible, in SpO_2 and PaO_2 test, $SpO_2 \geq 90\%$ or $PaO_2 \geq 60$ mmHg must be maintained;

b. Oxygen breathing by nose catheter or mask. Dose: 4-10 litre/minute for patients without chronic respiratory disease history; 1-3 litres/minute for patients with a history of obstructed chronic respiratory disease;

c. Indication of CPAP or BIPAP non-invasion artificial ventilation when:

- Breathing speed of 25 times/ minute, contraction of respiratory muscle, raised pulse of more than 100 times/minute;

- SpO_2 is below 90% or PaO_2 is below 60 mmHg despite breathing by nose catheter or mask;

- Blood pH: 7.3-7.35.

Non-invasion artificial ventilation must only be applied for lucid patients, showing good co-operation and spitting. After 30-60 minutes of non-invasion artificial ventilation, if the patients' clinical situation doesn't improve, endotracheal and respirator must be used.

d. Indication of invasion artificial ventilation (endotracheal and respirator) for patients with the following symptoms:

+ Mental disorder, spitting failure;
+ Raised pulse of more than 110 times/minute, maximum blood pressure is below 90 mmHg;
+ SpO_2 is below 90% despite oxygen breathing;
+ Slow breathing is below 10 times/minute or fast breathing is over 35 times/minute;

+ pH is below 7.25;
+ Non-invasion respirator breathing failure.

- Breathing method: artificial ventilation with positive ending expiration pressure (PEEP), starting with FiO_2 100% within one hour with PEEP +5 cmH_2O, Vt 6-8 ml/kg, breathing frequency 16-20 times/minute and adjusting PEEP based on SpO_2 to maintain $PaO_2 \geq 60$ mmHg or $SpO_2 \geq 90\%$.

- Using tranquillizer if patients resist respirator.

3. Acute respiratory failure treatment for children:

For children, follow the regiment for children acute respiratory failure.

D. Follow-up

1. Clinical: follow pulse, blood pressure, temperature, respiratory and urine volume.
2. Paraclinical: chest X-ray, creatinin, electro analysis and blood formula.

E. Causative treatment

- Causative agent has not been defined, resulting in no specific treatment. However, virus can be considered a causative infection agent;

- If the patient is suspected of respiratory and lung super infection, mew and broad spectrum antibiotic applied for popular bacteria and atypical bacterial causing respiratory infection is recommended, depending on bacterial experience and sensibility of each locality;

- If possible, the following antiviral drugs are recommended with supervision of specialized doctors:
  + Amantadine (MANTALIX 100 mg tablet) 5mg/kg/day for chidren form to 9 years old. From 10 to 64 years, 2 tablets/day, divided by two times. From over 65 years old: 1 tablet/day (supervise kidney function for dose adjustment);
  + Or Ribavirim (REBETOL 200 mg) 4 tablets/day divided by two times during meals (supervise blood formula, lever and kidney function for dose adjustment);
  + Or Oseltamivir 75 mg x 2 times/day for patients over 18 years old if possible.

G. Hospital discharge and post hospital follow-up

- Patients are transported to another isolation area (buffer area) when they meet the following criteria:
  + No fever for at least 5 days without using antiperatic;
  + Living function returns to normal, in good situation, normal eating and sleeping;
  + Blood formula test proves normal;
  + Chest X-ray proves normal;
  + SpO_2 is over 95%, PaO_2 is over 60 mmHg.
- Patients are moved to another isolation area (buffer area). They still receive appropriate treatment and care. They are only allowed for discharge after one week in good condition;

- Before discharging the patients, the medical establishment must inform the National Epidemic Standing Committee;

- After discharge, patients must have follow-up check-up in the same medical clinic once a week in 8 consecutive weeks;

- After discharge, patients must inform any unusual sign at the nearest healthcare establishment and come for check-up at the same medical clinic.

PART II: INFECTION PREVENTION

1. PRINCIPLE

- Implementation of appropriate isolation measures;
- Prevention of infection for healthcare workers, patients, patients family and the community.

2. ESTABLISHMENT OF ISOLATION AREA

- Setting up separate isolation area;

- There should always be guards to check on persons going in and out of the isolation area. It is imperative to have a separate entrance leading to the isolation area. Patients' family and visitors must be instructed on how to use filter masks and preventive measures;

- A notice board stating **"SPECIAL ISOLATION AREA"** must be put at the entrance to the isolation area as a notification for visitors and patients' families;

- In the isolation area, there must be a clear division between the check-up unit, diagnosis unit, treatment unit and heavily infected patients;

- Limit the number of people going in and out of the isolation area.

3. PREVENTION FOR PATIENTS AND VISITORS

- Early detection and isolation of suspected cases;

- SARS patients should be placed in a separate hospital room. SARS patients must be separated from suspected cases;

- All SARS patients and suspected cases have to wear filter masks both inside and outside hospital rooms;

- X-ray, tests and a specialised check-up for patients must be done in bed. In the case of necessity, relevant departments must be notified in advance before taking the patients out for tests or X-ray. The patients must wear filter masks and blouses when moving in the hospital;

- Patients should be instructed to cover their mouth when coughing, using a tissue only once. The tissue must then be put onto the waste bin immediately;

- Family members and visitors to the isolation areas should be under close supervision. They have to wear filter mask, blouses, head covers when visiting patients and they must wash their hands after coming out of the isolation area;

- While the epidemic continues, all hospital patients and their visitors to the hospital should be encouraged to wear filter masks. Filter masks should be available for sale at the hospital.

4. PREVENTION FOR HEALTHCARE WORKERS

- ***Preventive facilities***: filter mask, preventive eye glasses, facial mask, a use once only blouse, gloves, head cover and boots (boots are not compulsory);

- ***Distribution and use of preventive facilities***: before starting a shift, each health worker is given and must use appropriate preventive facilities before coming into contact with patients and respiratory fluids. When the shift is over, used preventive facilities must be put onto the waste bin while infective bacterial medical waste must be treated;

- ***Use of filter mask***: Healthcare workers are advised to use filter masks of N95 standards without adding any further layer. The filter mask should cover the nose and mouth. Each filter mask is used for one shift and should be replaced when dirty;

- ***Use of preventive blouses***: healthcare workers should wear preventive blouses while in contact with patients. Use once only blouses are highly recommended. If there are not enough preventive blouses, an preventive blouse should be used for only one shift and should be replaced when dirty. When not in use, the preventive blouses should be hung inside out;

- ***Use of gloves***: healthcare workers should wear use once only gloves when in contact with patients, tools or the immediate environment. Gloves should be removed after each use. After removing gloves, hands must be washed using antibiotic liquid or soap;

- ***Use of preventive eyeglasses and facial mask***: these should be worn when implementing clinical procedures or coming into contact with respiratory fluids (fluid withdrawal, endotraceal, patients coughing or runny nose...);

- ***Hands cleansing***: hands must be washed, using soap or antibiotic liquid. Hands must be washed after touching respiratory fluids, caring for patients, touching used equipment and tools, after removing gloves and before leaving the hospital room and the isolation areas;
- ***Personal hygiene***: Healthcare workers in the infectious areas must take a shower and change their clothes before leaving the hospital;

- ***Supervision***: keep a list of healthcare workers directly involved in the care and treatment of healthcare workers working in departments where SARS patients are available. A list must be kept of healthcare workers who have developed symptoms after being in contact with SARS patients. Their symptoms must be listed.

5. TREATMENT OF MEDICAL EQUIPMENT, PATIENT CLOTHING AND EQUIPMENT

- ***Medical equipment***: multiple-usage tools must be categorized and placed in covered cabinets to be transported to the sterilizing rooms for sterilization and disinfection. Equipment used on other patients must undergo bacterial sterilization. A sign must be placed to distinguish between sterilized and non sterile equipment;

- ***Equipment for patients***: must be sterilized and disinfected everyday with anti-bacterial soap. Each patient must have his/her own set of nutrition and hygiene equipment;

- ***Cloths***: Methods for transportation and treatment of infectious cloths. Cloths must be isolated in a yellow plastic bag before delivery to the sterilizing rooms. Cloths must be soaked into disinfection solution. There must be an increase in the usual amount of disinfection solution in case of necessity.

6. TREATMENT OF HOSPITAL ENVIRONMENT AND WASTE

- ***Environment***: The area around the patient is considered heavily infected. Floor, room corners, corners of chairs and desks must be cleaned at least twice a day using germicide solution;

- ***Waste***: Any solid waste from the isolation treatment area is considered infected waste. This must be isolated in yellow plastic bags and those bags must be secured before transportation to hospital waste treatment area. It is imperative that plastic bags are checked to ensure they have no holes through which waste could escape during transportation.

7. PATIENT TRANSPORTATION

- Principle:
  + Limit the transportation of patients;
  + Patients should only be transported when the patient's situation is beyond the scope of the medical establishment;
  + Ensuring the safety of patients and people involved in the transportation process (drivers, healthcare workers, family, etc.), following disease prevention guidance.

- Healthcare workers involved in transporting the patients must use all preventive facilities including filter mask, use only once blouses, facial masks, gloves and head covering;

- Ambulance must be disinfected after the transportation of patients, using germicide solution.

8. TREATMENT OF DEAD PATIENTS

Principle: ensuring safety for healthcare workers, family and the community.

- Dead patients must be shrouded on the spot, using regulations on epidemic prevention and they must be disinfected using chemicals namely cloramin B and formalin;

- The dead patients will be transported to the cemetery or graveyard in a separate car, following regulations on epidemic prevention;

- The patients must be cremated or buried within 24 hours of death. Cremation is highly recommended. In case of burial, a deep burial is the best./.

(11) Interim Infection Control Guidelines for Response to the Emerging Severe Acute Respiratory Syndrome (SARS) in Health Care Settings in Vietnam

Interim Infection Control Guidelines for Response to the Emerging Severe Acute Respiratory Syndrome (SARS) in Health Care Settings in Viet Nam

These are interim guidelines and may need to be modified as the outbreak in Viet Nam evolves

Contents

1 Introduction

Recent events in China, Hong Kong, and Viet Nam, where a newly emerging 'severe acute respiratory syndrome' (SARS) has affected high numbers of health care workers with some deaths, and patients, dramatically illustrates the importance of minimising the risk of infection to patients and staff in hospitals. This document describes a system for implementing infection control measures to reduce the risk of transmission of SARS in the health care setting. This information will be updated as the etiology and epidemiology of this disease becomes known.

1.1 Audience targeted for this information

This document is intended primarily for use by medical and nursing staff that are responsible for triaging and managing patients with suspected or probable SARS.

1.2 Objectives of the document

This document will help health facility and other staff to:

- Understand the epidemiology of the newly emerging syndrome
- Recognise potential SARS~~possible~~ cases
- Implement appropriate infection control measure to prevent transmission and to protect patients, health care workers, families and the community
- Establish systems for human and materials resource allocation and acquisition
- Monitor for transmission in the healthcare setting

2 Current Knowledge About SARS~~Epidemiology~~

2.1 Incubation period

Based on current epidemiological knowledge, the median incubation period is estimated to be 7 days, with a range of 4 to 13 days.

2.2 Transmission

The pathogen responsible for the outbreaks observed in South East Asia and other parts of the world remains unknown. Evidence of person-to-person

spread has been established. The mode of transmission is probably via infective droplets deposited onto the oral or respiratory mucosa during close contact with an infectious person; the possibility of airborne transmission cannot be eliminated. The susceptibility of the mucous membranes of the eyes has yet to be established but is a concern. It is assumed that contaminated hands or fomites also can transmit the pathogen, i.e., transfer of infection via contaminated inanimate objects, including contaminated clothing or bed linen. Transmission during close contact with an infected person is highly efficient. Casual contact seems much less likely to result in infection.

Limited data are available on transmission rates. Preliminary data from one hospital outbreak in Hanoi has shown an attack rate of greater than 50%, with the majority of cases occurring among hospital personnel.

The onset and duration of infectivity are not known. As a precaution, and for the purpose of contact tracing, patients should be regarded as infectious from 24 hours before the time when fever was first recognised.

2.3 Organism survival

It is not known how long the pathogen can survive in normal environmental conditions (i.e., ambient temperature, ordinary levels of humidity, and exposure to sunlight). Until the pathogen has been identified, it must be assumed --for the purpose of safety--that it might survive for several days.

3 Case definitions

Case definitions for SARS will evolve, as the etiology and epidemiology of this disease become known. The following should be regarded as provisional case definitions for the purpose of case ascertainment and determination of the appropriate isolation of symptomatic patients:

3.1 Suspect case

A person presenting after 1 February 2003 with history of fever (>38°C)

AND one or more respiratory symptoms including cough, shortness of breath, difficulty breathing

AND one or more of the following:

- Close contact,[1] within 10 days of onset of symptoms, with a person diagnosed with SARS.
- History of travel, within 10 days of onset of symptoms, to an area in which there are reported foci of transmission of SARS.

3.2 **Probable case**

A suspect case with chest x-ray findings of pneumonia or respiratory distress syndrome

- OR a suspect case with an unexplained respiratory illness resulting in death, with an autopsy examination demonstrating the pathology of respiratory distress syndrome without an identifiable cause.

Note: The global outbreak of SARS is evolving over time. For current information on countries and areas where foci of SARS have been reported, please see www.who.int.

4 Detection of patients with SARS

Clinicians in office, clinic and emergency room settings should suspect SARS in patients presenting with fever and respiratory symptoms. Emergency rooms should place signs and surgical masks at the facility entrance advising patients with respiratory symptoms to place a mask over their face and report to the reception area. The case definitions described above should be used to assess patients for possible SARS. If a case is suspected, a surgical mask should be placed on the patient (if not in place already) and the patient should be immediately segregated from other patients, preferably in a private room. Before examining and evaluating the patient, personnel should put on ~~don~~ the recommended protective attire described in this document. If SARS is suspected, the Ministry of Health should be notified and the patient transferred in accordance with the instructions provided. After transferring the patient, the ambulance or transport vehicle should be disinfected with usual disinfectants or a 1:100 dilution of 5% bleach and water.

[1] Close contact means having cared for, lived with, or had direct contact with respiratory secretions and body fluids of a person with SARS.

5 Protection of healthcare workers and other persons caring for patients with suspected or probable SARS

5.1 Protective attire and practices

- N-95 respirator mask for all persons entering the room of a patient with probable or suspected SARS. Masks should fit snugly on the face and fully cover the nose and mouth. If a respirator is not available, a surgical mask should be worn.
- Goggles or face shield – for persons who may have close contact with respiratory secretions, especially during procedures that may generate droplets or aerosols e.g., intubation, suctioning, respiratory treatment
- Disposable or reusable isolation gown for direct contact with the patient
- Disposable gloves for direct contact with the patient, patient's respiratory secretions, and waste materials
- If dictates require, head and shoe covers may be worn.
- Hand hygiene is one of the most important practices for preventing disease transmission in hospitals. Hands should be washed with soap and water and dried with disposable towel following completion of patient care duties and removal of protective attire. Alternatively, when hand washing facilities are not available, hand hygiene may be performed using an alcohol-based ($\geq$ 60% alcohol) hand disinfection agent.

5.2 Use and handling of protective attire

In general, protective attire is intended for single use only. However, given limited resources, it may be necessary to use protective attire multiple times during a shift. The following describes how to safely use and handle attire that must be reused.

- N-95 respirator masks. When healthcare workers leave the isolation area, masks may be removed. The mask should be discarded after use, or if reuse is required, at the end of the shift. Hand hygiene should be performed after touching the mask.

- Disposable isolation gowns. If necessary, disposable gowns may be reused in a SARS isolation area during a shift.
  - An area should be designated for hanging gowns that will be reused during a shift.
  - Gowns should be assigned either for individual patient use (preferred) or for individual staff use. If the latter, the gown should be labelled with the worker's name and hung inside out until needed.
  - Gowns that are visibly soiled should be discarded immediately after use and not reused.
- Plastic goggles or face shield should be assigned at the beginning of each shift to each worker who will have close, face-to-face contact with SARS patients. At the end of the shift, these materials should be returned to the dirty area, cleaned and disinfected.

6 Isolation and Management of Ceases

Isolation of cases will establish a barrier between the patient with SARS and uninfected patients, other health facility staff, and visitors.

6.1 Select site for the isolation of cases

Ideally, an appropriate isolation facility with its own entrance, individual cubicles, negative pressure ventilation, and a team trained in infection control procedures should be available. Such facilities are often lacking to the required extent in parts of the world currently managing cases.

In the absence of an appropriate isolation facility, selected hospitals with the capacity to isolate and cohort groups of patients during an epidemic should be designated regionally. An evaluation of the facility's airflow and exchange parameters should be conducted by an environmental engineer when possible to determine optimal ways to control airflow. The optimal airflow is from hospital corridors to the patient room and to the outside.

Patients with a diagnosis of probable or suspected SARS should be transported to the designated isolation facility. Three patient categories should be established and spatially separated from each other; suspect cases, probable cases, and possible cases under investigation (in which the SARS status is yet undetermined). Possible cases should be placed in a private room, away from suspect and probable cases, until their SARS status has been determined. The isolation hospital should have sufficient rooms and lavatory facilities, and equipment to meet patient care needs.

6.2 Administrative measures

Implement the following measures to ensure adherence to recommended infection control practices.

6.2.1 Designate responsibility and authority for implementing and monitoring the following:

- Patient admission and placement on wards or areas designated for possible, suspect, and probable cases of SARS
- Assigning personnel at entry point of wards or areas housing patients with possible, suspect, and probable SARS
- Setting up isolation areas
- Enforcing adherence to infection control measures for health care workers and visitors
- Assessing need for and requesting infection control supplies
- Containment and removal of contaminated materials
- Monitoring for potential transmission as described in the section on surveillance

6.2.2 Assign entry point personnel with the following tasks:

- Log the names and contact information of persons entering the unit for the first time each day. Inquire about the presence of fever and respiratory symptoms. If present, refer to a designated medical authority.
- Prohibit entry of unauthorized persons, including:
    - Healthcare personnel who have no patient care or infection control responsibilities on ward

    - Non-essential patient family members
- Enforce patient use of a surgical mask to cover the nose and mouth when going outside the patient room and prohibit patients from leaving the designated area of the ward to which they have been assigned.
- Provide mask – encourage placing name on mask for reuse purposes
- Provide disposable or reusable gowns for all persons who may have patient contact
- Instruct staff and family members on proper use of mask
- Require performance of hand hygiene as the final infection control measure for anyone leaving the isolation area. The entry/exit point should be equipped with the hand hygiene product for use by persons leaving the area.
- Ensure the following materials and equipment are available at the entry/exit point on the ward.
    - Supply of N-95 respirators or surgical mask according to current recommendations
    - Supply of disposable or reusable gowns for persons who will have patient contact
    - Supply of hand hygiene product
    - Large plastic-lined waste container for disposing gowns and other materials leaving unit.
    - Instructional materials for patient families

6.2.3 Implement the following visual communication measures:

- Prominently place signs warning that unauthorized persons are restricted from entering the SARS isolation area
- Signs at entry/exit point and outside patient rooms specifying the requirements for hand hygiene and use of protective attire. (Examples can be provided)

6.2.4 Develop systems to monitor for SARS in healthcare staff

- Maintain a daily log of staff assigned to the isolation ward (s)
- Implement procedures for daily monitoring for fever, myalgias, and/or respiratory symptoms among staff reporting for duty. Symptomatic staff

should be evaluated for possible SARS, and managed in accordance with this document.

6.3 Supplies for patient care

- Assign each patient a single bed with a mattress that can be easily cleaned and disinfected. Provide a daily supply of clean bed linen to meet patient needs.
- Provide each patient with a bedpan and wash basin.
-
- Whenever possible, commonly shared patient care equipment (e.g., blood pressure cuff, stethoscope) should be dedicated to single patient use.

Assess the need for other essential equipment including portable X-ray machine, ventilator, oxygen support, respiratory therapy, and other equipment deemed essential by the health care providers.

6.4 Isolation supplies

Ensure an adequate supply of the following, based on the number of patients isolated and staffing level.

- N-95 respirator masks and/or surgical masks if respirators are not available
- Reusable plastic goggles and/or face shields
- Disposable or reusable isolation gowns
- Disposable gloves
- Hand hygiene supplies including soap and disposable paper towels provided at sink areas and/or alcohol-based gel product
- Colour-coded bags for collecting discarded gloves, masks, and disposable gowns to be incinerated
- Colour-coded bags for soiled linen
- Receptacles for receiving soiled linen and waste

Designate areas for storage of clean isolation supplies. The location of storage areas should take into consideration the need for proximity to patients.

6.5 Inform family members about patient care

Provide family members of the reasons why the patient is being isolated and why visiting is restricted. Identify several members of staff to serve as a liaison between the health facility staff and the family.

6.6 Visits to other Departments

Isolation wards/areas should have portable X-ray machines so that patients SARS do not leave the isolation area unless it is for an essential investigation that can not be performed in the isolation area. When such a visit is essential, the portering, nursing, and other staff in contact with the patient should wear gloves, gown, and a disposable N-95 respirator or surgical mask.

The manager of the investigative area must be consulted, so that the patient can have his/her investigation(s) carried out without delay and without contact with other patients. The patient should wear a disposable mask and isolation gown for transport.

6.7 Laboratory specimens.

Contact health authorities for instructions concerning the collection of specimens from patients with suspected or probable SARS. Collect and handle specimens carefully ensuring that the outside of the container is not contaminated. Place specimens into a plastic bag Bio-hazard bag and seal in preparation for transport to a designated laboratory facility.

6.8 Discharge criteria

Criteria for discharge and the management of discharged patients will evolve as information about SARS becomes known. Consult current Ministry of Health criteria for discharge and follow-up procedures for patients recovering from SARS.

7 Cleaning, disinfection and sterilization

Standard procedures and agents for cleaning and disinfection of environmental surfaces and patient care equipment should be used for surfaces and items that may be contaminated with the etiologic agent associated with SARS. Alternatively, a 1:100 dilution of a 5% household bleach and water may be used and is readily available and inexpensive.

7.1 Clean and disinfect reusable items

All reusable patient care items such as basins and bedpans should be cleaned and disinfected before use on another patient. Equipment should be taken to a dirty utility area for reprocessing. Personnel should protective attire, at a minimum wear gloves, when handling, transporting and reprocessing contaminated equipment. Beds and bedside stands should be thoroughly cleaned and disinfected following patient discharge.

Devices that require sterilization should be reprocessed in accordance with current procedures in the facility

7.2 Cleaning environmental surfaces.

The immediate area around patients hospitalized with SARS should be considered heavily contaminated. The bedside table, accessible areas of the bed and floors should be cleaned with a disinfectant daily. Other surfaces should be disinfected if visibly contaminated. There is no need to routine perform disinfectant fogging following discharge of a SARS patient.

8 Waste and linen handling

8.1 Clinical waste

Clinical waste includes all items from clinical treatment areas including soiled surgical dressings, swabs, face masks (from patients and staff), gowns, and other contaminated waste. It includes ALL items for disposal from isolation areas. Such waste should be collected into the designated color-coded plastic bags and incinerated. Personnel handling waste should at a minimum wear gloves.

8.2 Linens and laundry

Normal measures for handling and laundering linens, other laundry, and personal clothing in the hospital should be followed. Linen should be placed in a colour-coded bags for transport to the laundry facility or area. Standard procedures for laundry staff should be followed; staff should wear protective attire when loading washing machines. Sorting of laundry is not recommended. Standard detergents may be used and bleach may be added if desired and compatible with the material being laundered.

9 Handling of bodies

There may be a theoretical risk of transmission to health care workers and relatives when a patient with SARS dies because the bodies and body fluids of deceased patients may remain contagious for several days after death. Family and community members may therefore be at risk if burial practices involve touching or ritual cleansing of the body.

9.1 Prepare bodies safely

Burial should take place as soon as possible after cessation of life. The Health Facility staff should:

1. Prepare the body safely
2. Be aware of the family's cultural practices and religious beliefs. Help the family understand why some practices cannot be done because they place the family and others at risk for exposure.
3. Counsel the family about why special steps need to be taken to protect and community from illness. If the body is prepared without providing information and support, they may not wish to bring other family members to the health facility if further cases occur.
4. Identify a senior family member who has influence with the rest of the family and who can make sure that family members avoid practices such as kissing, washing or touching the body.

To prepare the body in the health facility:

1. Wear protective clothing as recommended for staff in the patient isolation area.
2. Place the body in a stout plastic 'body bag' (mortuary sack) and close it securely.
3. If body bags are not available, wrap the body in two thicknesses of cotton sheeting. Next, wrap the body in plastic sheeting, and seal the wrapping with plastic tape.
4. Place the body in a coffin if one is available
5. Transport the body to the burial site as soon as possible.

9.2 Transporting the body

The above safety precautions should be sufficient to minimise the risk to the driver of the vehicle, family members, and those carrying out the burial. No additional disinfection is required, e.g., to the vehicle transporting the body.

9.3 Burial

The above safety precautions should be sufficient to obviate any risks to the family and wider society. The burial should proceed in the normal way.

(12) Severe Acute Respiratory Syndrome (SARS)— Infection Control Measures to Prevent Hospital Transmission

Severe Acute Respiratory Syndrome (SARS)

Infection Control Measures to Prevent Hospital Transmission

Objectives

- Understand epidemiology of SARS
- Recognize potential SARS
- Implement appropriate control measures to protect patients, health care workers, families, and the community
- Monitor for transmission

Background

- Approximately 1550 cases worldwide
  - Asia, Europe, North America
- At least 54 deaths
- Most cases have been in health care workers

Cumulative Number of Reported Cases (SARS) as of 29 March 2003

Country	No. of cases	No. of death	Country	No. of cases	No. of death
Canada	37	3	Romania	3	0
China	806	34	Singapore	89	2
Hong Kong	470	10	Switzerland	3	0
Taiwan	10	0	Thailand	3	1
France	1	0	United Kingdom	3	0
Germany	4	0	United States	59	0
Italy	2	0	Vietnam	58	4
Ireland	2	0	Total	1550	54

Epidemiology

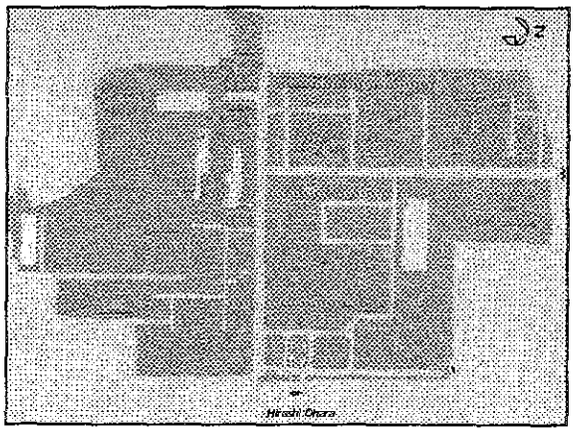
- Cause unknown
  - Recent evidence of new virus or virus strain
- Highly infectious
- Means of transmission
  - Evidence of person to person transmission
  - Close contact with respiratory droplets
  - Possibly airborne transmission (inhalation of aerosols)
  - Contaminated hands, clothes, equipment may also be important

Epidemiology

- Incubation period
  - Median: 7 days (4-13 days)
- Onset and duration of infectivity
  - Unknown
- Organism survival in environment
  - Duration unknown

Current Status in Hanoi (As of March 29, 2003)

- ~58 cases, *most in health care workers*
  - 4 deaths
- Most transmissions in hospitals
  - Preliminary data suggests attack rate >50%
  - Many doctors and nurses infected
  - Most cases in close contact with infected persons
  - Casual contact less likely to result in infection



Case definition *

Suspect Case

- Fever >38 ^{0}C
- *AND* one or more respiratory symptoms
  - Cough, shortness of breath, difficulty breathing
- *AND* one or more of the following within 10 days of symptom onset:
  - Close contact with person diagnosed with SARS
  - History of travel to areas with reported transmission of SARS

* Case definition is evolving and may change over time

Case definition

Probable Case

- Suspect case PLUS
- Chest X-ray findings of pneumonia or Adult Respiratory Distress Syndrome (ARDS)
- *OR* unexplained respiratory illness resulting in death, with autopsy pathology of respiratory distress syndrome without an identifiable cause

SARS Infection Control Goals

- Detect new cases
- Implement appropriate isolation measures
- Protect patients and healthcare personnel
- Protect family and community members

Detect New SARS cases

- Think of SARS in patients with
  - Fever and respiratory symptoms
  - History of travel to area of SARS transmission
- Triage area
  - Signs and surgical masks at entrance
  - Masks for patients with respiratory symptoms
  - Segregate from other patients
- If admission needed, transfer to SARS Hospital

SARS Admissions

- Separate wards/areas for each of the following categories
- Possible cases (SARS case status undetermined)
  - Single patient per room
- Suspect cases
  - May share room with other suspect cases
- *Probable cases*
  - May share room with other probable cases

Components of SARS Isolation

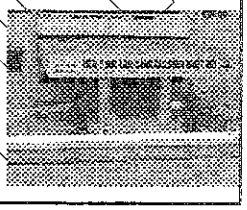
- Facility Characteristics
- Administrative Controls
- Organization of Isolation Area
- Protective Attire
- *Hand Hygiene*
- Cleaning and Disinfection
- Waste and Linen Handling
- Other Issues

Facility Characteristics

- Removed from main hospital traffic
- Good ventilation
  - Air movement: corridor to room to outdoors
- Sinks and running water
- Adequate bathroom facilities
- Capacity to handle waste and laundry
- Sufficient rooms for expected patients

Administrative Controls

- Limit and control points of entry to infected wards
  - One entrance
  - "Guard" to control entrance
  - Log of personnel and visitors
- Limit access to infected area
  - Minimize visitors
  - Limit patient travel/transport
  - outside unit



Administrative Controls

- Assignment of responsibility
  - Determining patient placement
  - Overseeing implementation and enforcement of infection control measures
  - Enforcing access restrictions
  - Supply acquisition and distribution
  - Surveillance for transmission

Surveillance

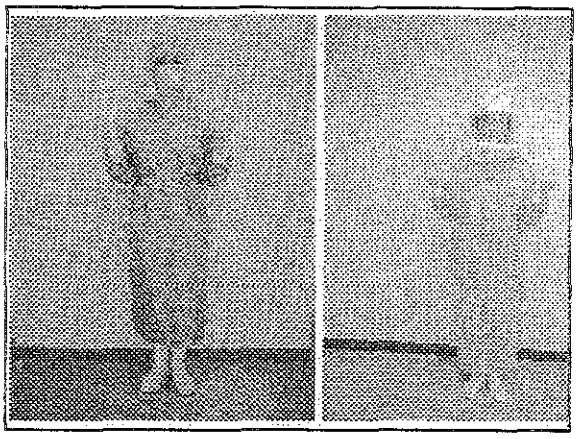
- Maintain list of all staff who worked with SARS patients or on the SARS ward
  - Systematically monitor for SARS-like illness
- Screen for symptoms of SARS-like illness among staff reporting for duty
- Create a list of and contact information for persons visiting or caring for SARS patients

Organization of Isolation Area

- Sign designating isolation area
  - Instructions for using protective attire
- Separation of clean and dirty supplies
- Designated area for clean protective attire
  - Accessible to personnel
  - Sufficient inventory to meet daily needs
- Designated area for containment of waste and soiled linen
  - Color-coded bags and containers for contaminated waste and laundry

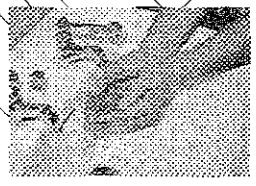
Protective Attire

- N-95 Masks
  - If not available, a surgical mask should be worn
- Goggles (protective glasses)/face shields
- Disposable or Reusable Gowns
- Disposable Gloves
- Head and/or shoe covers not required but may be used according to local preference



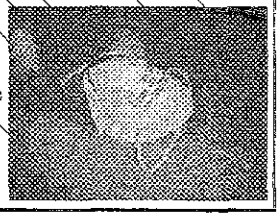
Key Points

- Wear disposable gowns, gloves and goggles for close patient contact
- Wash hands or perform hand hygiene between patients
- Perform hand hygiene when leaving unit



N-95 Masks for Respiratory Protection

- N95 offers higher filtration than surgical mask
- Fit mask securely over BOTH nose and mouth
- Use for single shift unless
  excess moisture
  necessitates replacement
  - Label with name
- Dispose with medical waste



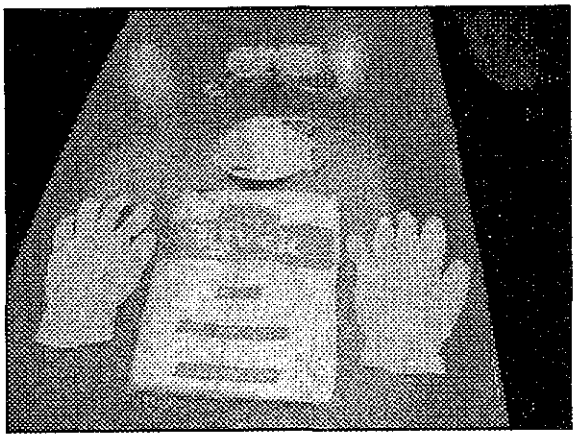
8

Proper use of N-95 Mask

- Avoid touching front of mask
- Wear only one mask – no need for additional protection
- No need to wear mask outside of ward housing infected or suspect patients

Goggles and Face Shields

- Assign to each worker at beginning of shift
- Wear when anticipate spray or splatter of respiratory secretions
  - eg, suctioning, intubation, coughing, sneezing
- Returned to dirty area at end of shift
  - » To be cleaned and disinfected



Gowns

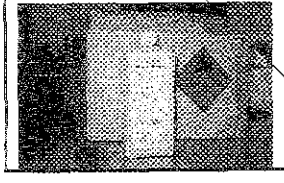
- Gowns should be worn for direct patient contact
  - Intended for one patient contact
  - If necessary, may be reused during one shift
- Designate one or more gowns for each patient per day
  - Discard immediately if visibly contaminated
  - Hang gown with outside facing in when not in use
  - Discard at end of shift

Gloves

- Wear disposable gloves for contact with patients and their environment
- Dispose gloves after use
- Wash hands or perform hand hygiene after glove removal

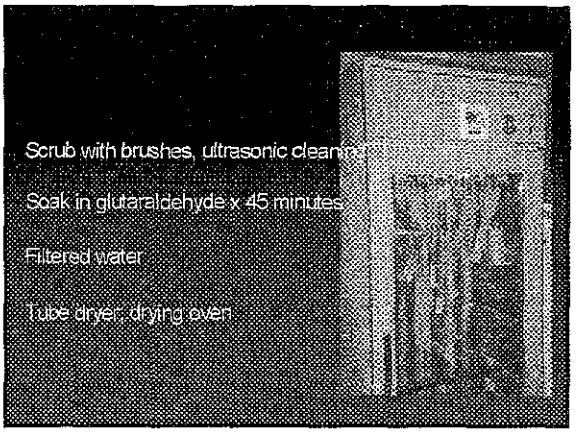
Hand Hygiene

- Wash hands with soap and or use an alcohol-based hand hygiene product
- Perform hand hygiene
  - After contacting respiratory secretions
  - After removing gloves
  - Before leaving the isolation area



Disinfecting the Hospital Environment and Equipment

- All reusable patient items (eg, basins and bedpan) *should be*
  - Cleaned and disinfected before use on another patient
  - Take to dirty utility room for reprocessing
  - Personnel should at a minimum wear gloves when handling contaminated equipment



Disinfecting the Hospital Environment and Equipment

- Immediate area around patients should be considered heavily contaminated
- Bedside table, bed stand, and accessible areas of bed and floors should be cleaned with a *disinfectant daily*
- Disinfect other surfaces if visibly soiled
- No need to perform disinfectant fogging