



Report on Data Collection and Clinical Management on SARS

28 June 03



Teamwork





Re-Distribution of Work

HA Head Office

External Interface

- Regional Coordinators
- Emergency Logistics
- Private Sector
- Family Medicine
- Community Geriatrics

Advisory Groups

- Laboratory Diagnosis
- Radiological Diagnosis
- Treatment
- Paediatrics
- Obstetrics
- Exploratory Treatment
- Chinese Medicine

Internal Interface

- Operation
- Data Collection
- Infection Control
- Facilities, Equipment & Supplies
- Human Resources
- Communication

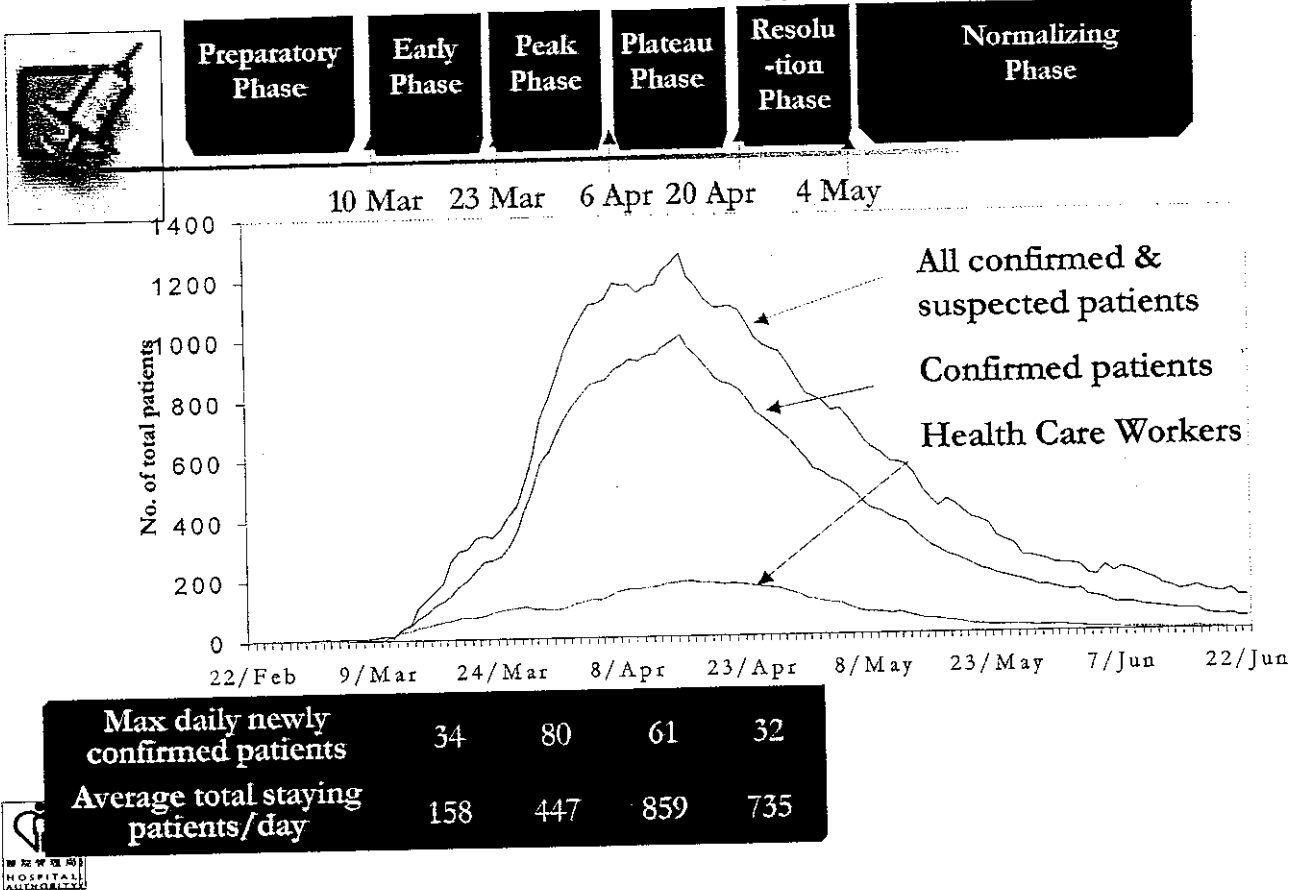


Cooperation across Divisions

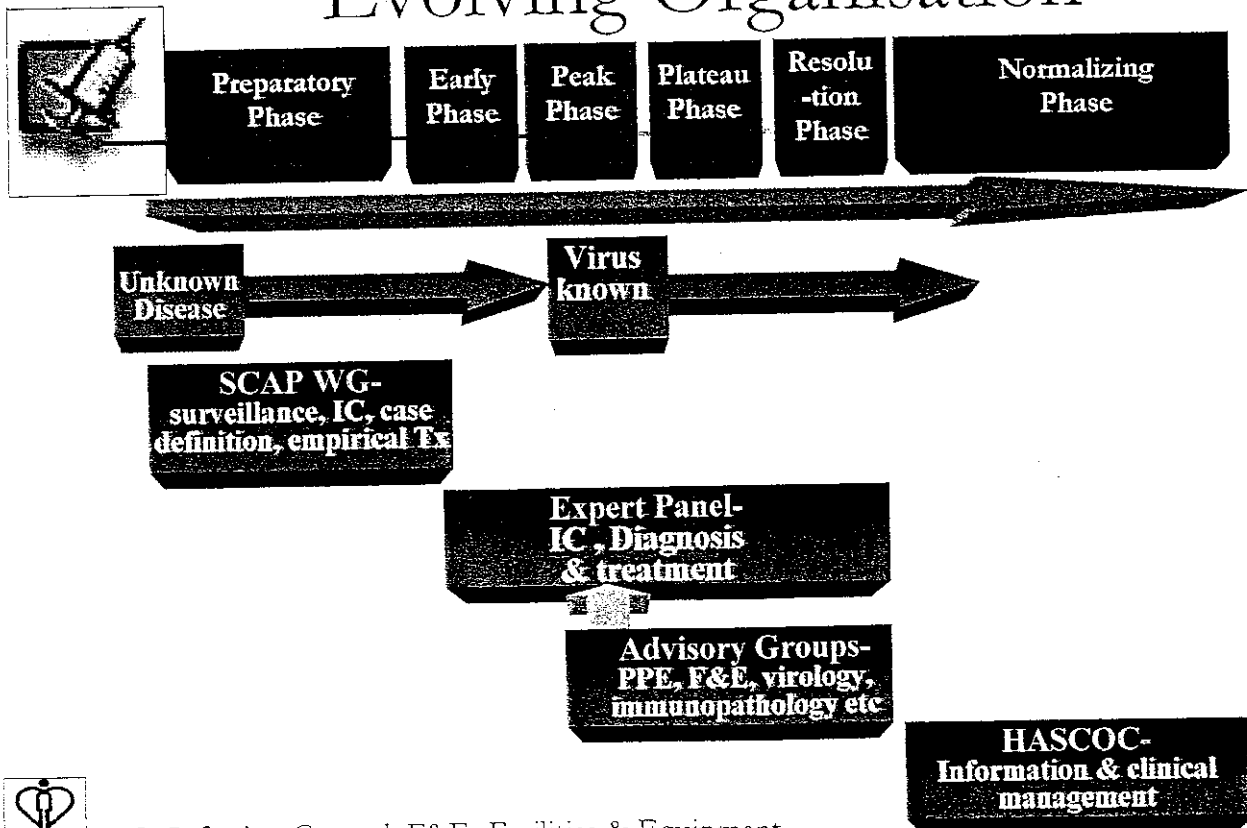
- Informatics
- Infection Control
- Statistics & Research Unit
- Clinical Effectiveness Unit
- Knowledge Management Unit



The SARS Epidemic

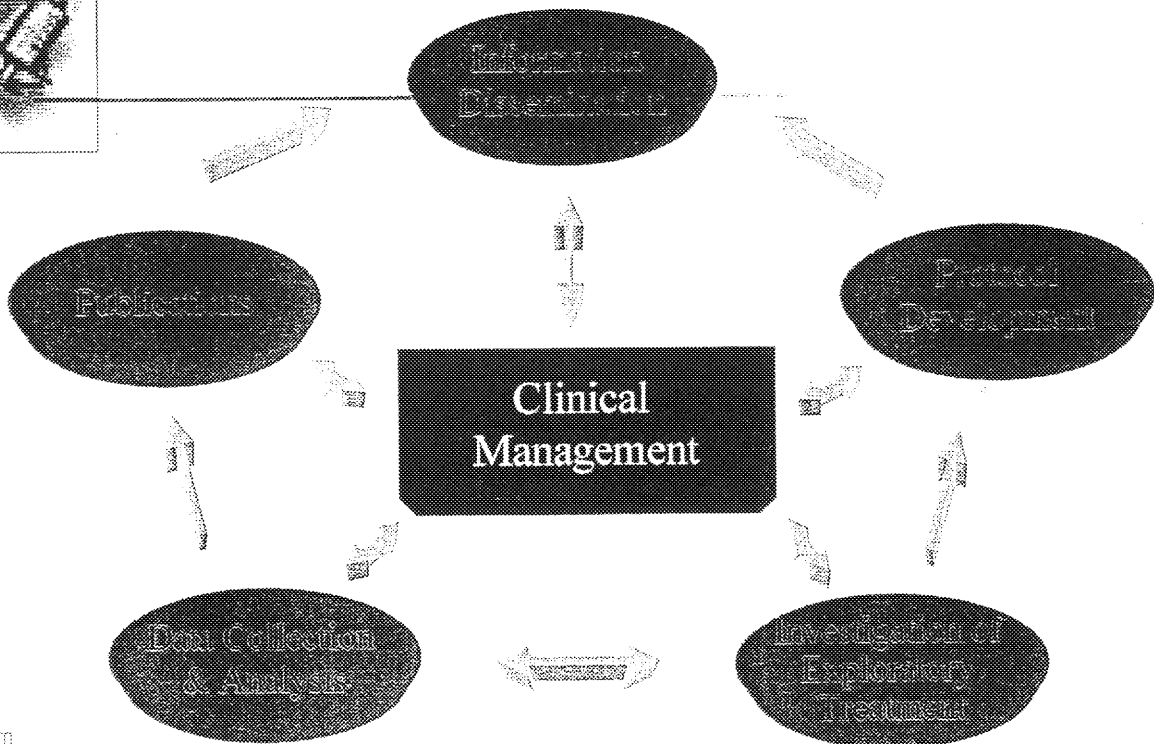
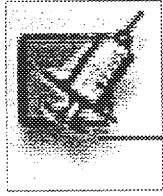


Evolving Organisation



* IC- Infection Control, F&E- Facilities & Equipment

Measures in Improving Clinical Management



Preparatory Phase

11 Feb – 9 Mar



Events

Severe Pneumonia in Guangdong

Data

Clinical

Action

**Severe Community
Acquired Pneumonia
Working Group**

**Empirical
Treatment**

Plans

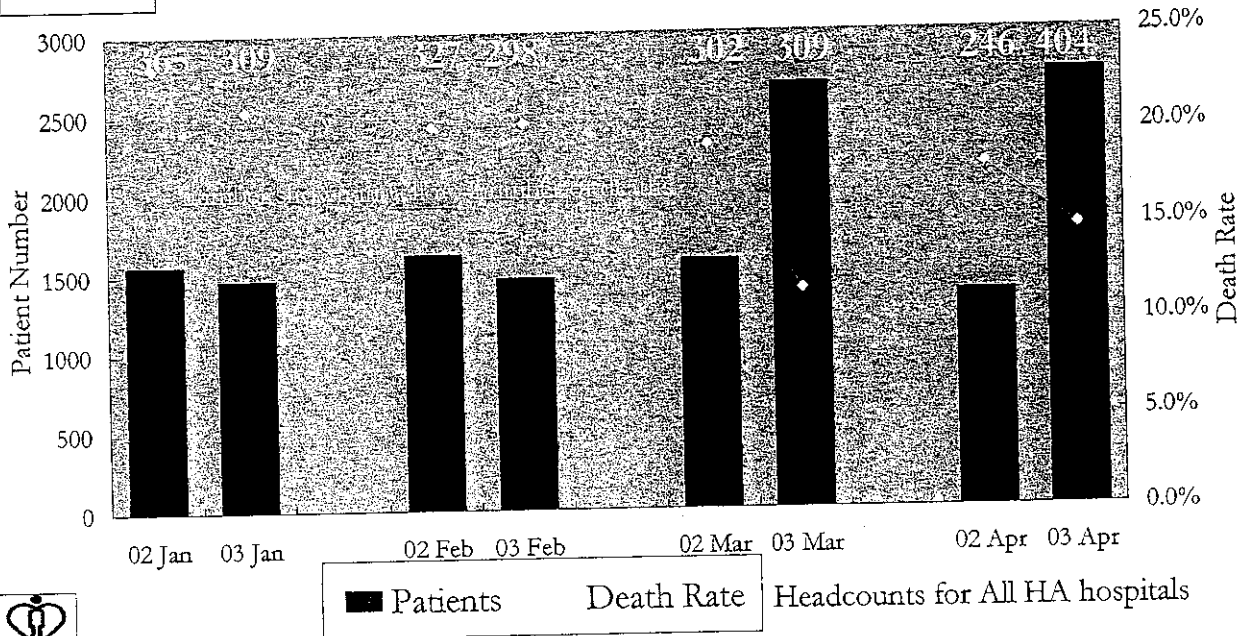
Surveillance

**Infection Control
Measures**





Atypical Pneumonia 02 vs 03



Early Phase

10 Mar – 23 Mar



Events

PWH Outbreak

SARS Defined

Data

Clinical

Action

**Identification,
Reporting,
Coordination Centre**

**Case
Definition**

Plans

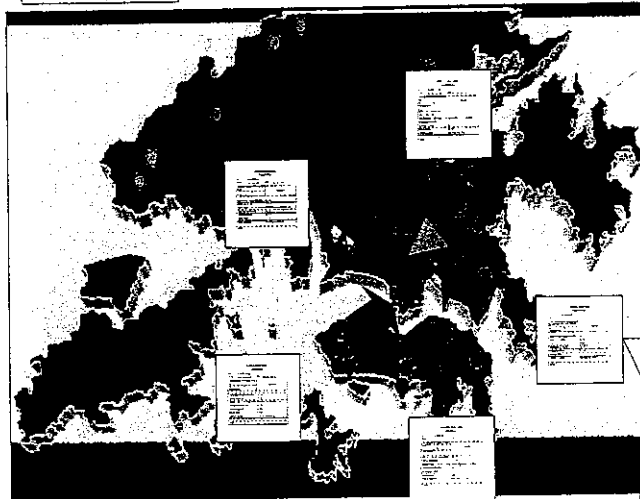
**Corporate
Registry**

**Trial of ribavirin
& steroid**





Daily Reporting since 19 March



- SARS Coordination Centre established at HAHO
- Daily reporting of confirmed SARS cases since 19 Mar

SARS Registry, Hospital Authority
CONFIDENTIAL

To: Cluster Co-ordinator Date: _____

File no: _____

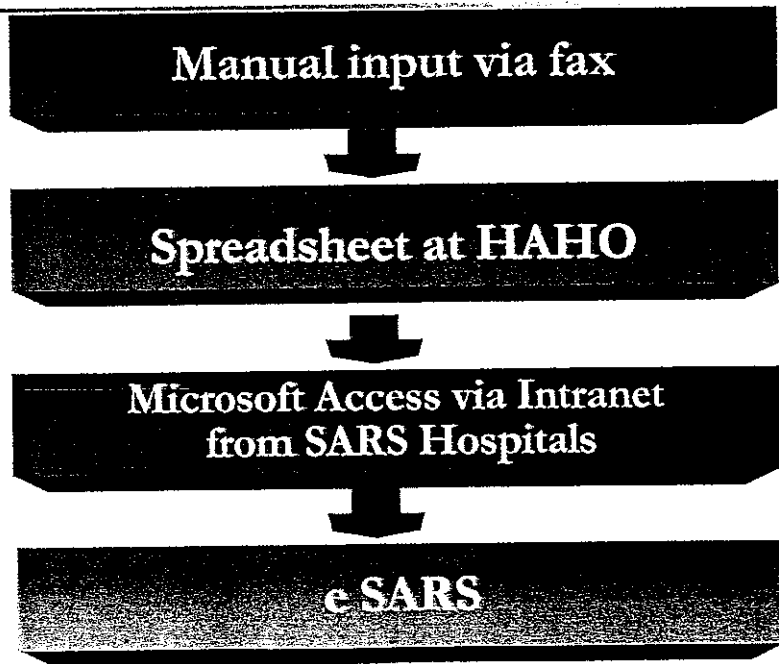
INDIVIDUAL GROUPS if you select 'Individual' (check one)

MRID	Case No.
Sex	Age
Chain of Address in _____	
History of Contact with patient with SARS	Yes / No
History of Travel to China	Yes / No
Household Member? <input type="checkbox"/> No / <input type="checkbox"/> Doctor / Nurse / Allied Health / Other	
Responsible Person (including staff)	Yes / No
Living with other suspect	Yes / No
Respiratory Subject	Yes / No
Classification of admission	Quar / Part / Entry / Clinical
Notes:	

1st version Case Reporting Form



Corporate Registry



Peak Phase

24 Mar – 6 Apr



Events

Amoy Outbreak

Virus Identified

Data

Clinical

Action

**Regional
Coordinators**

**Treatment
Guideline**

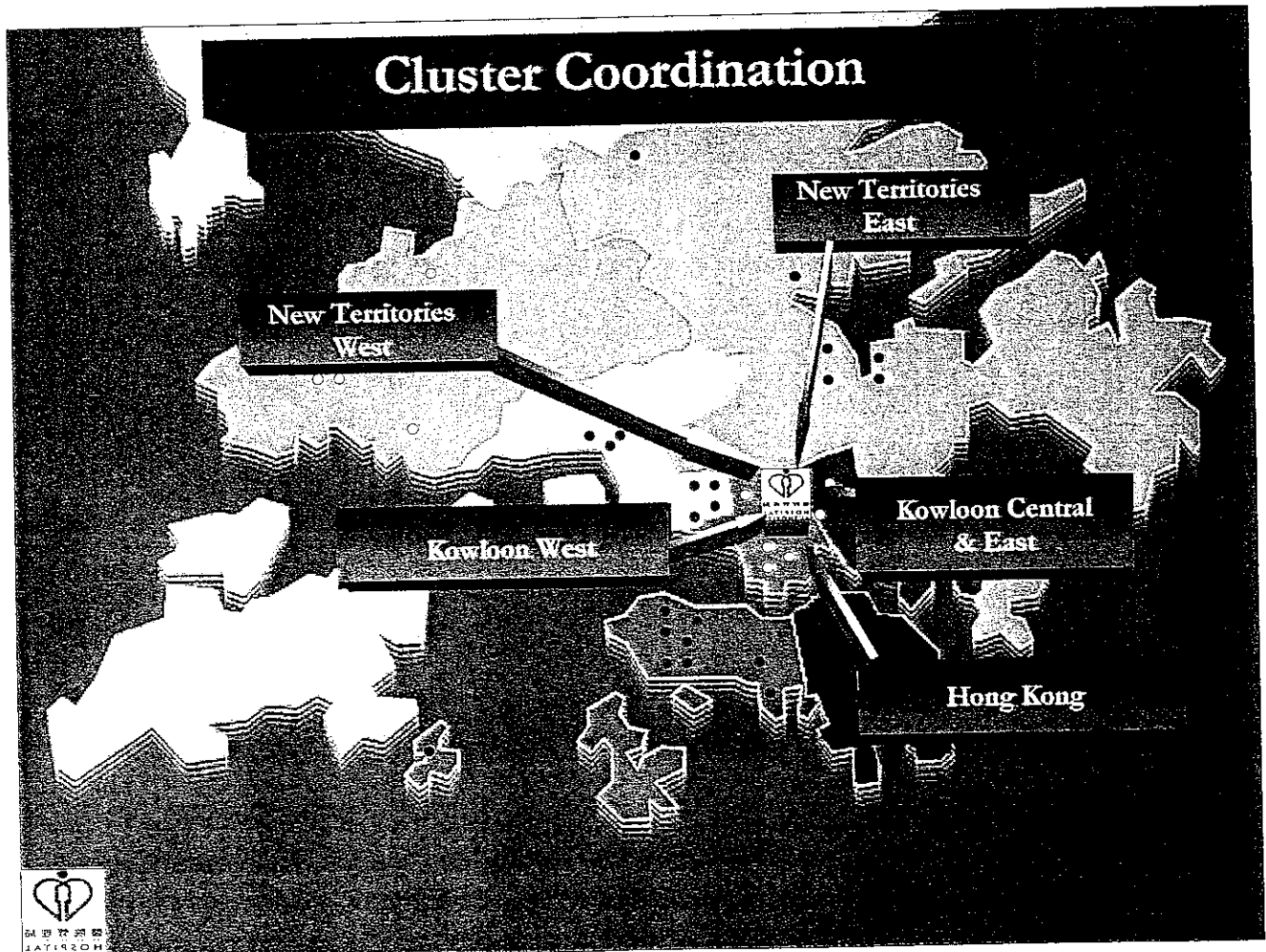
Plans

**Workload &
Bed Utilization
Projection**

**Virological
Tests**



Cluster Coordination

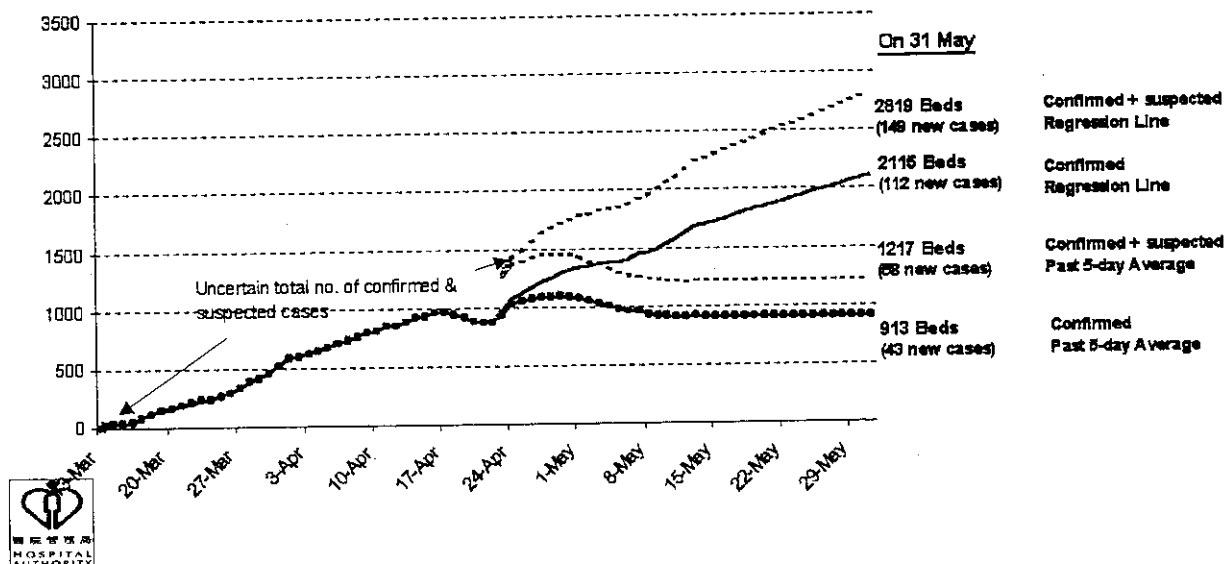


Bed Projection for confirmed & suspected SARS cases up to 31 May 2003

(using ALL data for 11 March - 22 April 2003 for Trend Analysis)



* Assume ALOS of admitted patients = 21 days &
Confirmed cases : "Confirmed+Suspected" cases = 1 : 1.33
Using data : 11 Mar-22 Apr for Trend analysis



Standard Treatment Regimen



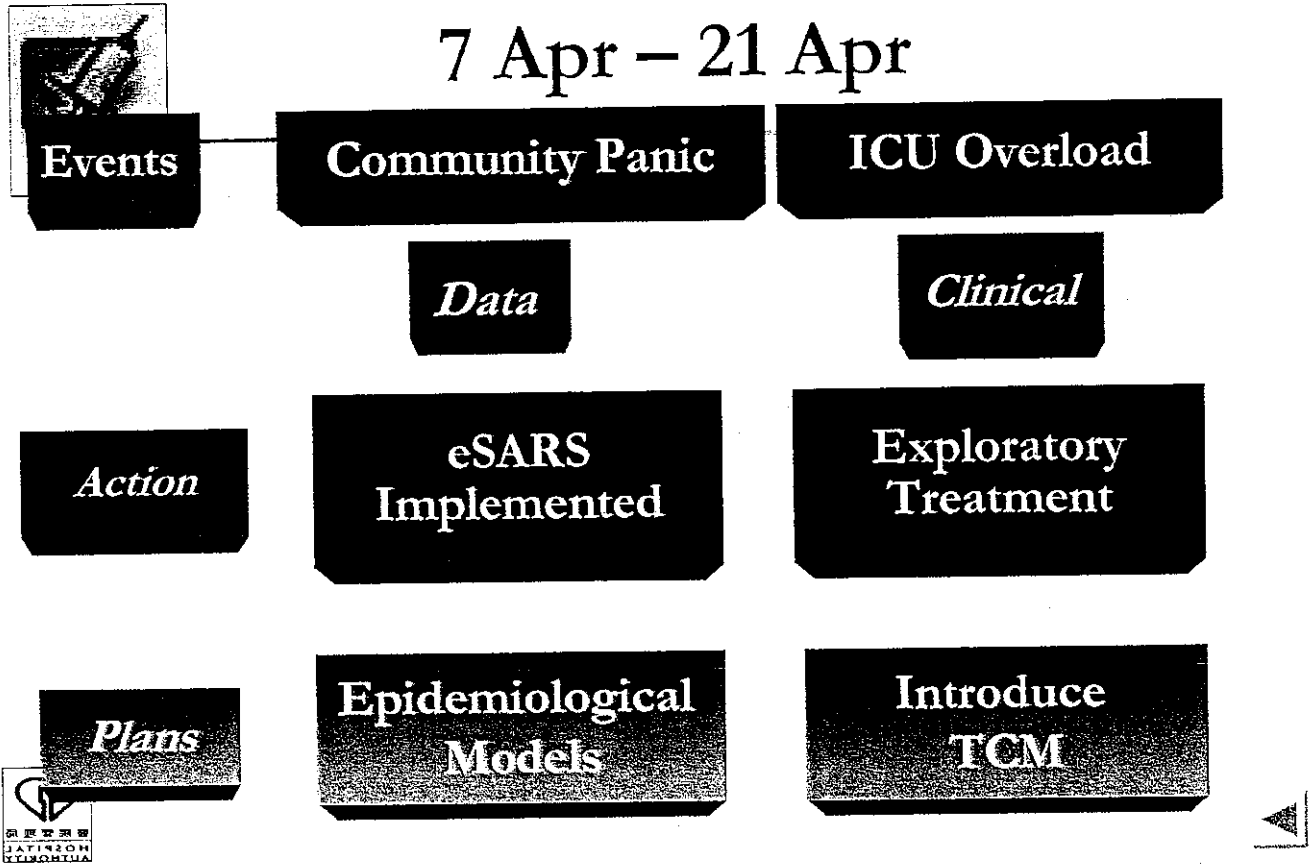
Standard treatment regimen

- wide-spectrum antibiotics
- anti-viral agent (ribavirin)
- corticosteroid
- general supportive therapy
- Oxygen- NIPPV under high risk precaution

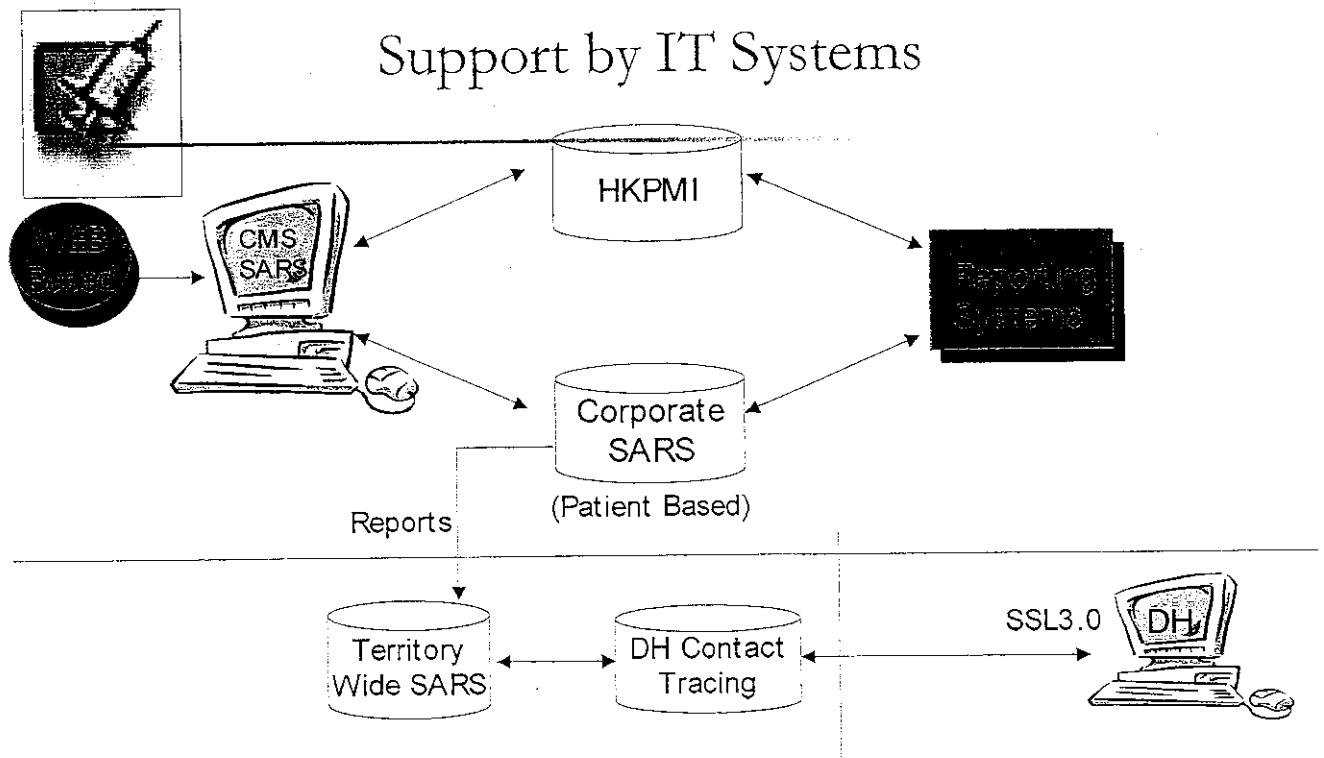


Plateau Phase

7 Apr – 21 Apr



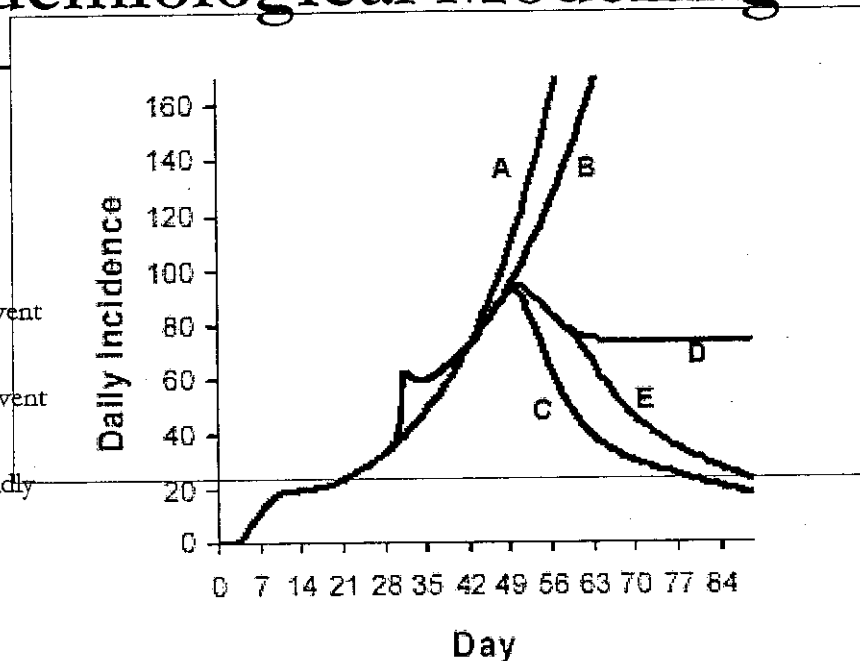
Data Collection- Support by IT Systems





Epidemiological Modelling

- A- No control
- B-no change in behavior
- C-control sufficient to prevent epidemic
- D-control sufficient to prevent epidemic growth
- E-control sufficient to rapidly control epidemic



Source : Riley S, Fraser C, Donnelly CA, Ghani AC, Abu-Raddad LJ, Hedley AJ, et al. Transmission dynamics of the aetiological agent of severe acute respiratory syndrome (SARS) in Hong Kong: the impact of public health interventions. *Science*. (published online 2003 May 23)



Alternative Treatment Modalities

- Pentaglobin
- Thalidomide
- Anti-TNF α
- Ribavirin vs Kaletra vs Placebo
- Traditional Chinese Medicine
- Use of mannose binding lectin
- Use of (Vitamin E, N-acetylcysteine, Pentoxifylline) in lung fibrosis



Resolution Phase

21 Apr – 4 May



Events

Target "0" Infection

Increasing Deaths

Data

Clinical

Action

Staff Infection Review

Review of Treatment

Plans

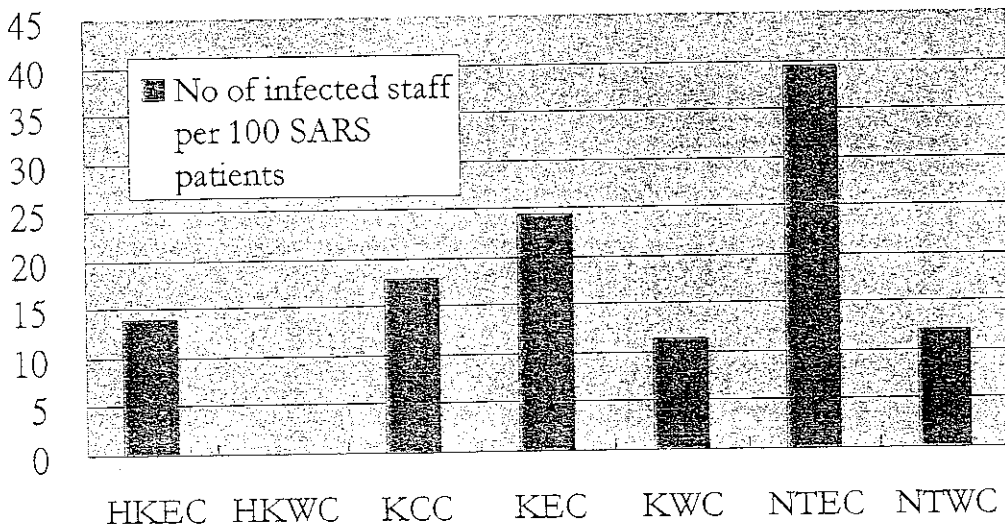
Clinical Database

Review of Virological Tests



Staff Infection Review

No of infected staff & No. of SARS patients by Clusters



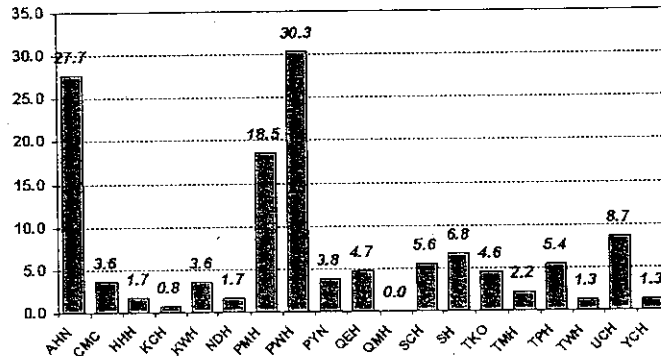
(as at 16 Apr 03)





Staff Infection Review (Con't)

Infected Staff per 1,000 FTE Staff Strength by Hospital*



* excluding KH
 No. of infected staff (up to 18 April 2003)
 FTE staff strength (as at end March 2003)



Normalizing Phase Since 5 May



Events

Nosocomial Infection in the Elderly

Data

Clinical

Action

HASCOC
Launched

Review of
Elderly Cases

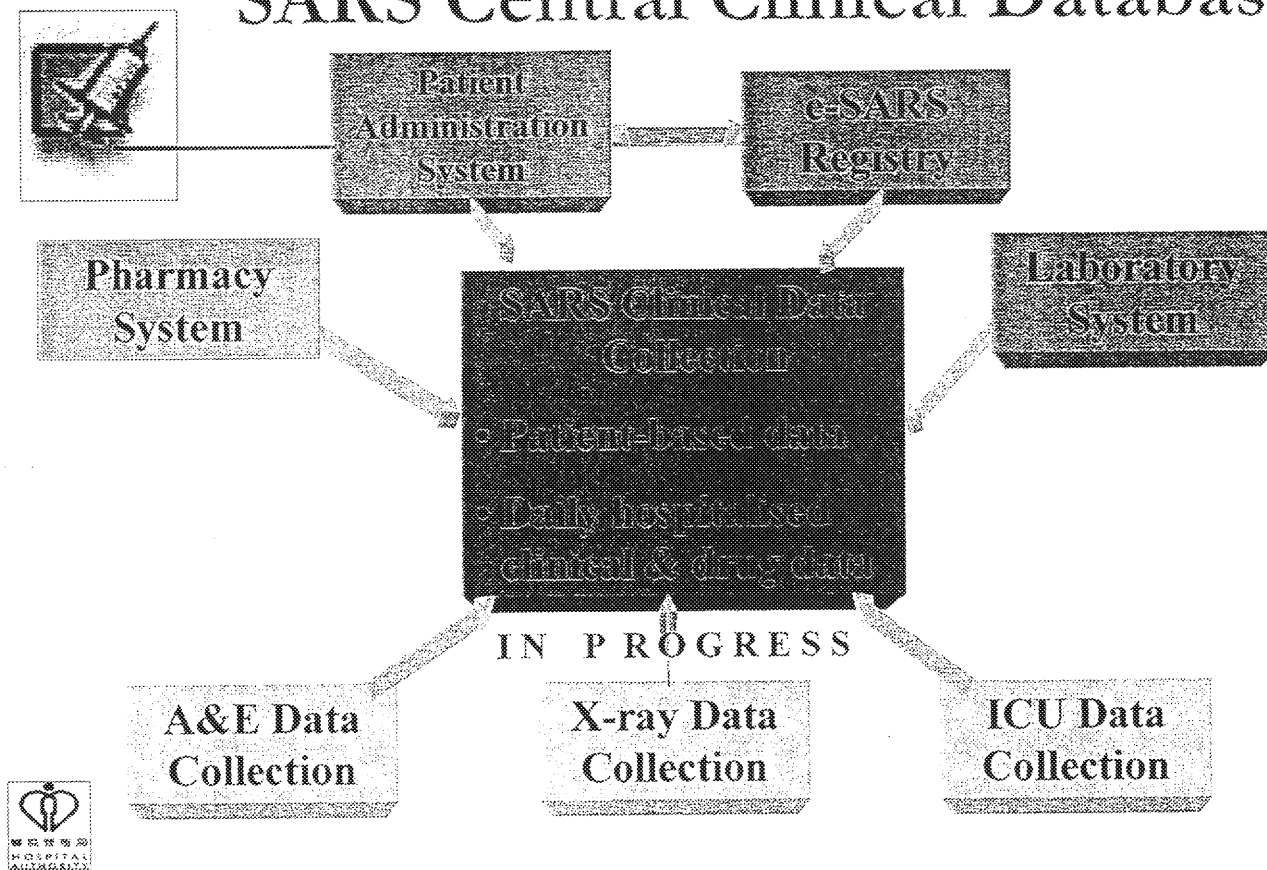
Plans

Expansion of
Database

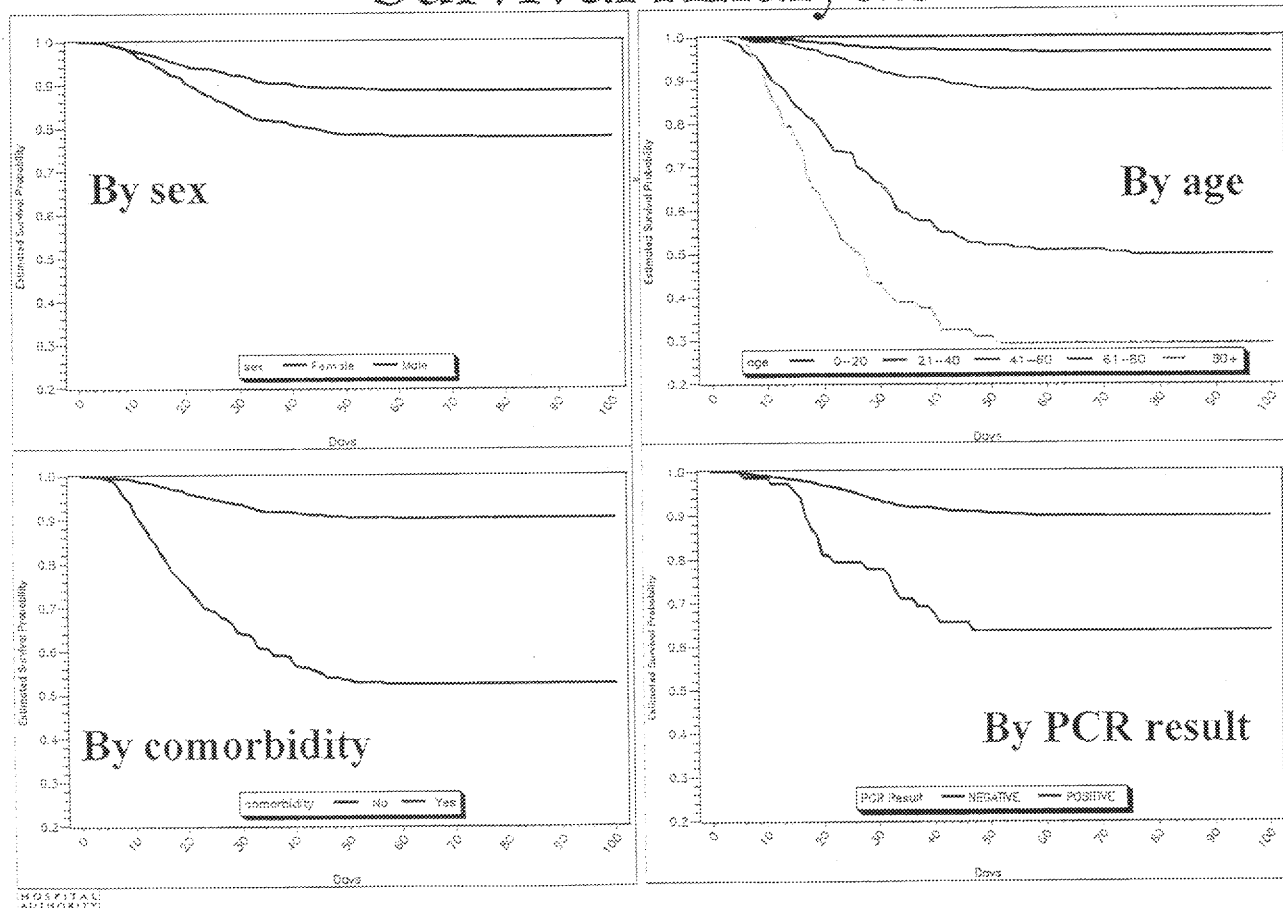
Rehabilitation
Programs



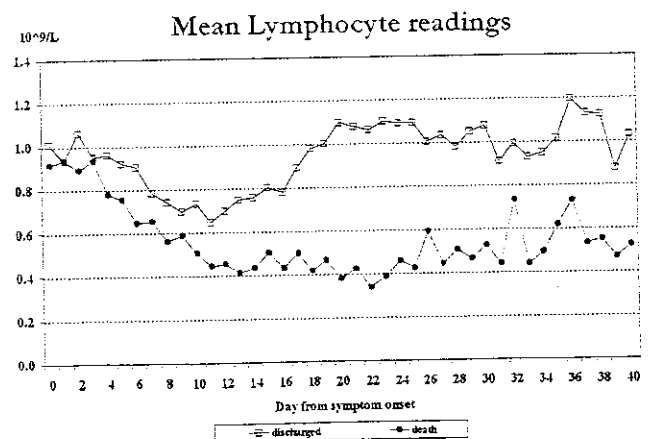
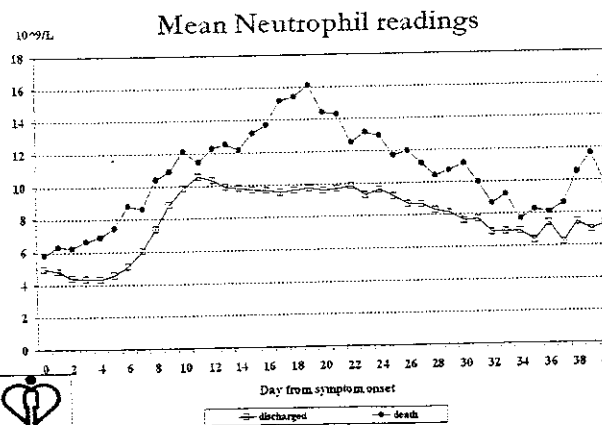
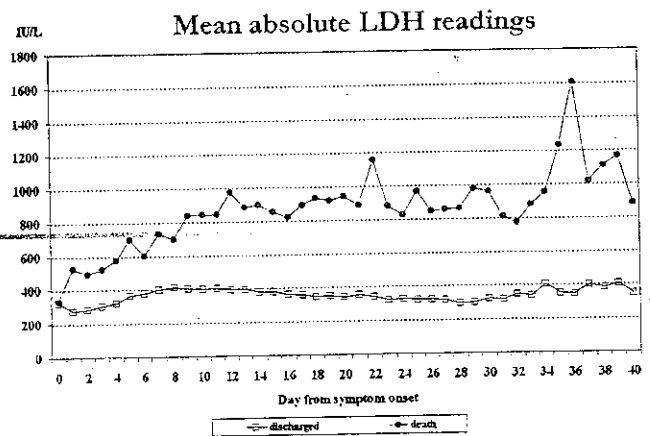
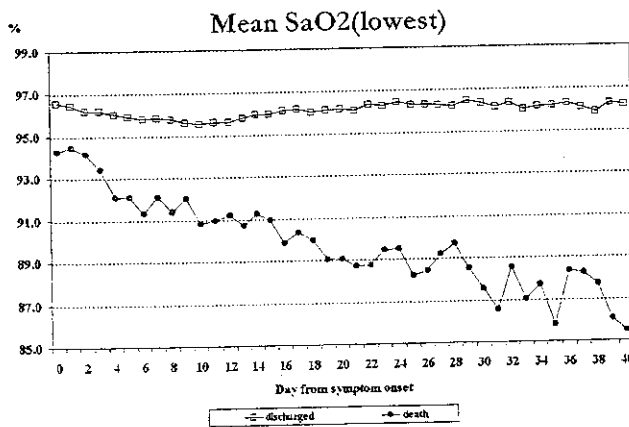
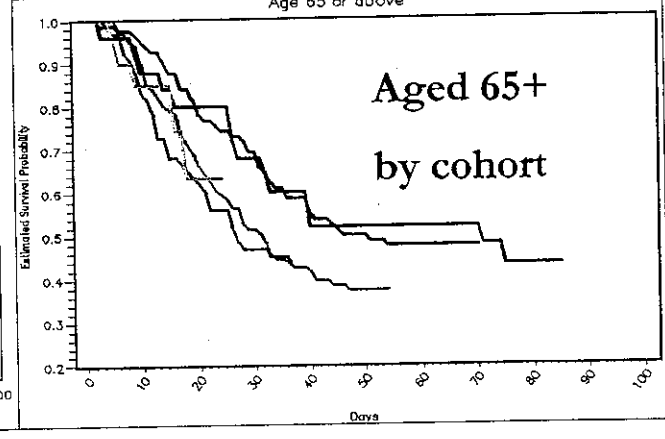
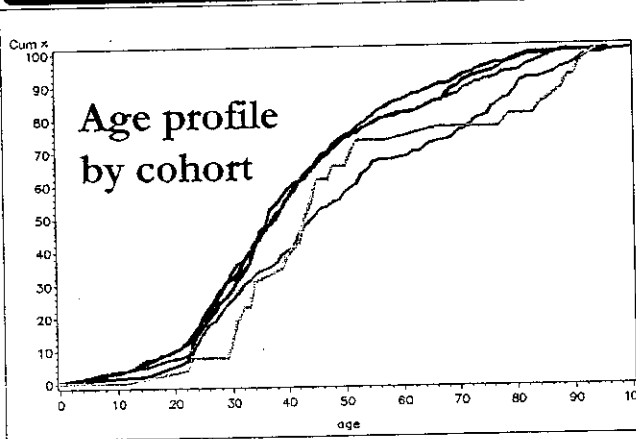
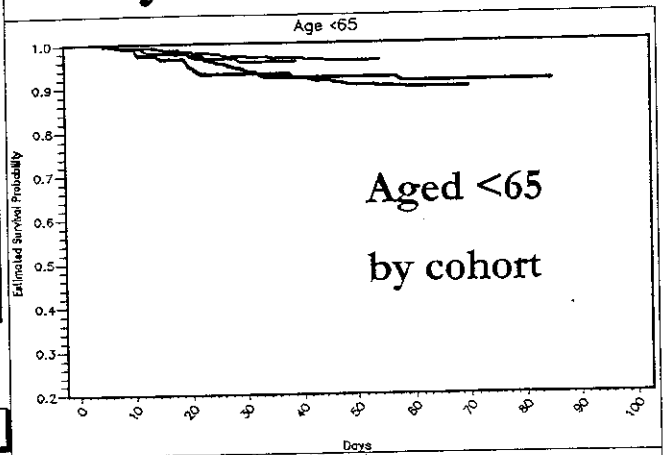
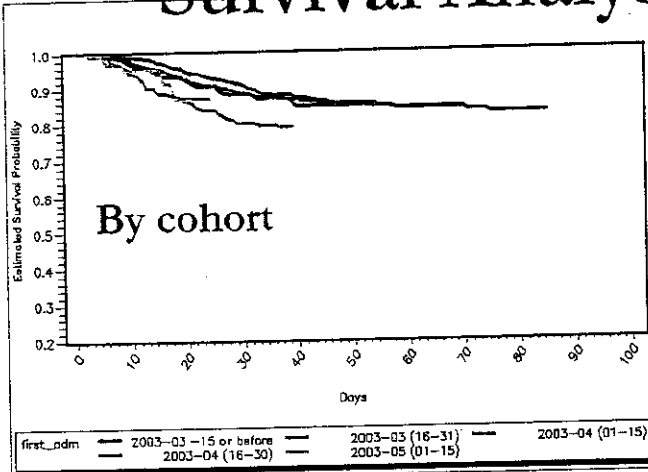
SARS Central Clinical Database



Survival Analysis



Survival Analysis by Cohorts



Risk/Prognostic Factors + Drug Treatment vs Outcome (Aged 15-74)



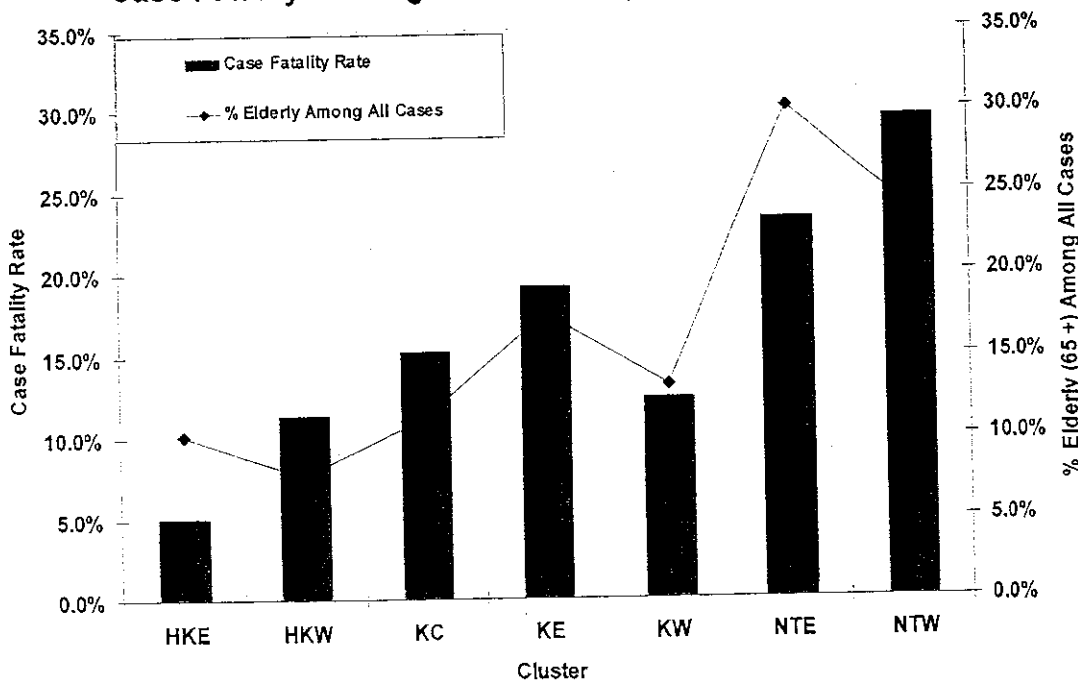
Death vs Discharged (n=679)		Adjusted Odds Ratio
Age	per 10 years ↑	1.75*
LDH - 1 st Reading	per 10 IU/L ↑	1.02*
Comorbidity	vs Without	3.77*
Lowest SaO2 Before Intubation	per 1% ↑	0.92*
PCR	vs Negative	3.50*
Sex	vs F	3.16*
Neutrophil - 1 st Reading	per 10 ⁹ /L ↑	1.16*
Contact Source - Amoy Hosp Others	vs No Known Source	1.78 1.89 1.22
Lymphocyte - 1 st Reading	per 10 ⁸ /L ↑	0.98
Ever Steroid	vs No Steroid	0.60
Ever Ribavirin	vs No Ribavirin	1.31
HBsAg	vs Negative	0.99
Smoking	vs No Smoking	2.21
* Significant at p < 0.05		Overall model : p < 0.0001



Case Fatality Rate



Case Fatality Rate Against % Elderly (65+) Among All Cases



Virology Test Results



Case Fatality Rate α CoV

Hong Kong - 92%

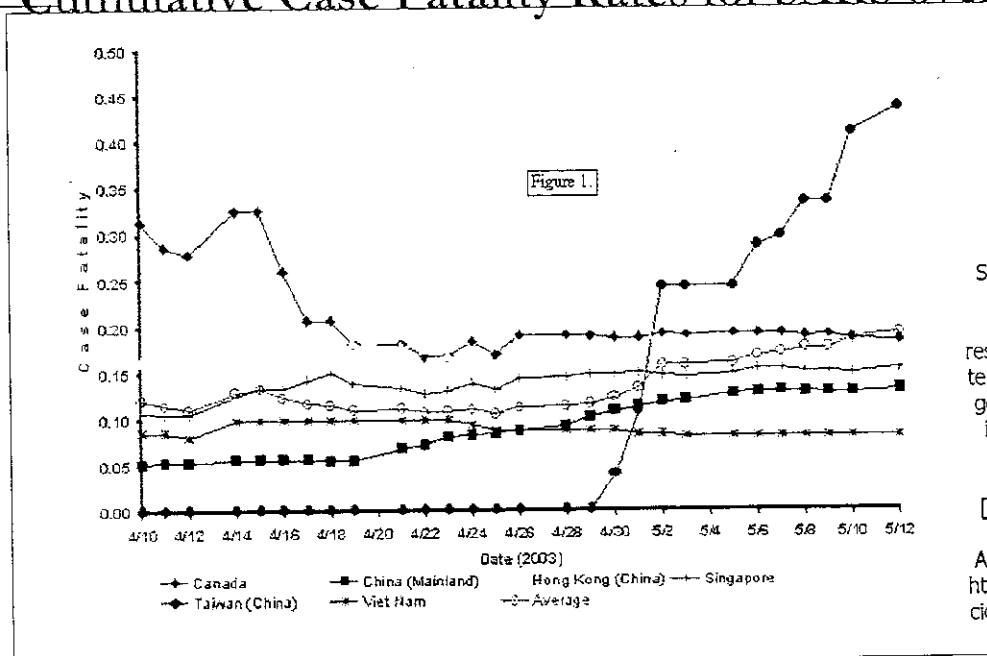
USA - 12% (6 out of 68)



Case Fatality Rates



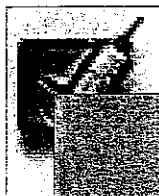
Cumulative Case Fatality Rates for SARS over time



Source: Galvani AP, Lei X, Jewell NP. Severe acute respiratory syndrome: temporal stability and geographic variation in death rates and doubling times. Emerg Infect Dis [serial online] 2003 Jul [date cited]. Available from: URL: <http://www.cdc.gov/nccidod/EID/vol9no8/03-0334.htm>



Casemix & Diagnostic Criteria as Risk/ Prognostic Factors



		Total No. of Discharged case	Death case	Death rate
		Col. %	Col. %	Row %
Sex	Male	44	63	24%
	Female	56	37	11%
Age	0 - 14	5	0	0%
	15 - 34	37	3	1%
	35 - 54	37	27	12%
	55 - 74	14	34	42%
	75 +	7	36	83%
Co-morbidity	With	15	49	55%
	Without	85	51	10%
PCR result	+ve	63	81	20%
	-ve	37	19	8%



Source: SARS integrated database (n=1315)

SARS Clinical Management Workshop co-organised by HWFB & WHO



13th - 14th Jun 03 – Presentations from HK

Diagnostic index

Atypical presentation

Prognostic indicators

Pregnancy

Paediatric cases

Geriatric cases



SARS Clinical Management Workshop

co-organised by HWFB & WHO

13th - 14th Jun 03 – Presentations from HK



Antiviral therapy

Ribavirin + Kaletra- case control study

Immunomodulating agents

Intensive Care

Steroid therapy

Pulmonary Complications

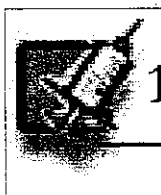
Radiological indicators



SARS Clinical Management Workshop

co-organised by HWFB & WHO

13th - 14th Jun 03 – Presentations from HK



Routes of transmission

Infection of healthcare workers

Nosocomial infection

High risk procedures

Viral factors in infection control



SARS Clinical Management Workshop

co-organised by HWFB & WHO

13th - 14th June 2003 -Discussions



Further study in:

- public health measures
- case definition
- PPE, Facilities & equipment
- infection control measures
- prophylaxis and treatment



International Collaboration



Preparation for the next epidemic ?

