

Einstein

*Not everything that can be counted
counts,*

*and not everything that counts can
be counted.*

...attributed



Evolution of the data management systems
after the SARS Outbreak

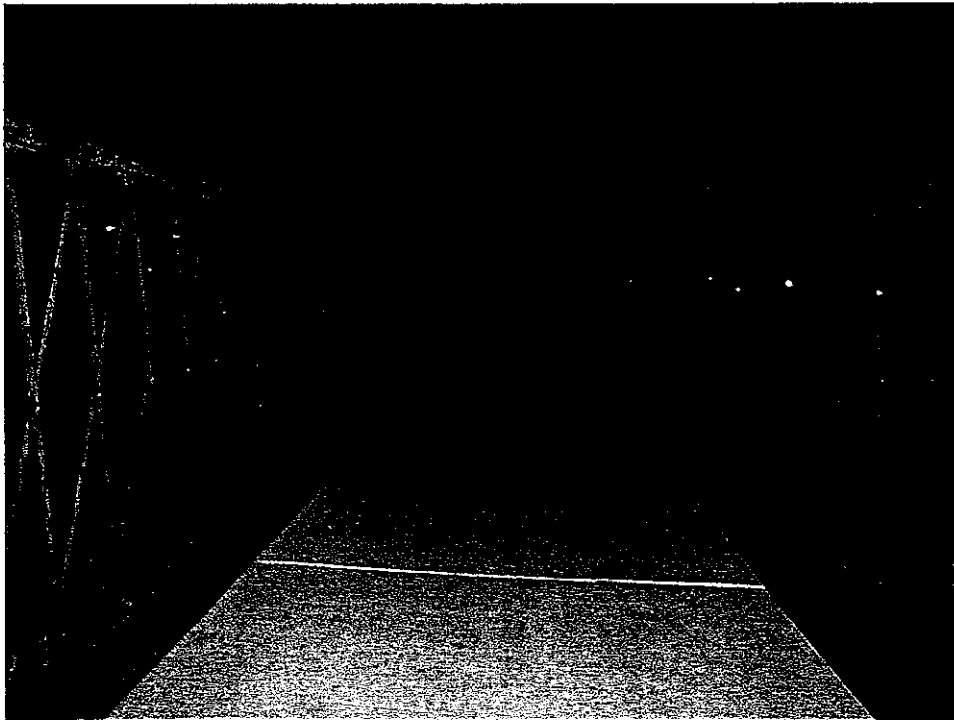


IT Systems

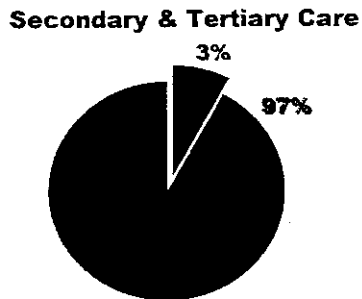
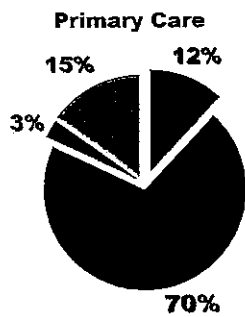
Background to eSARS



Health Informatics &
Information Technology Division



Healthcare in Hong Kong



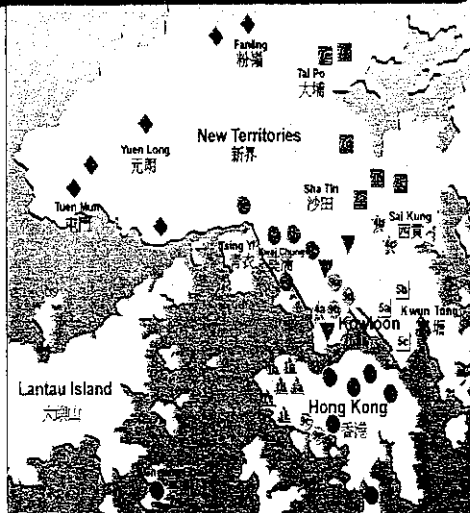
Private
 Dept. Health
 Hospital Authority
 Others



HK Hospital Authority (HA)

Established 1991

- ▣ 44 Public Hospitals
- ▣ 42 Outpatient Clinics
- ▣ 8m Outpatient attendances
- ▣ 27,800 Beds
- ▣ 2.4m AED attendances
- ▣ 1.2m Inpatient Discharges
- ▣ 50,000 Staff
 - ▣ 4,000 Doctors
 - ▣ 19,000 Nurses
- Annual Operating Budget HK\$30b



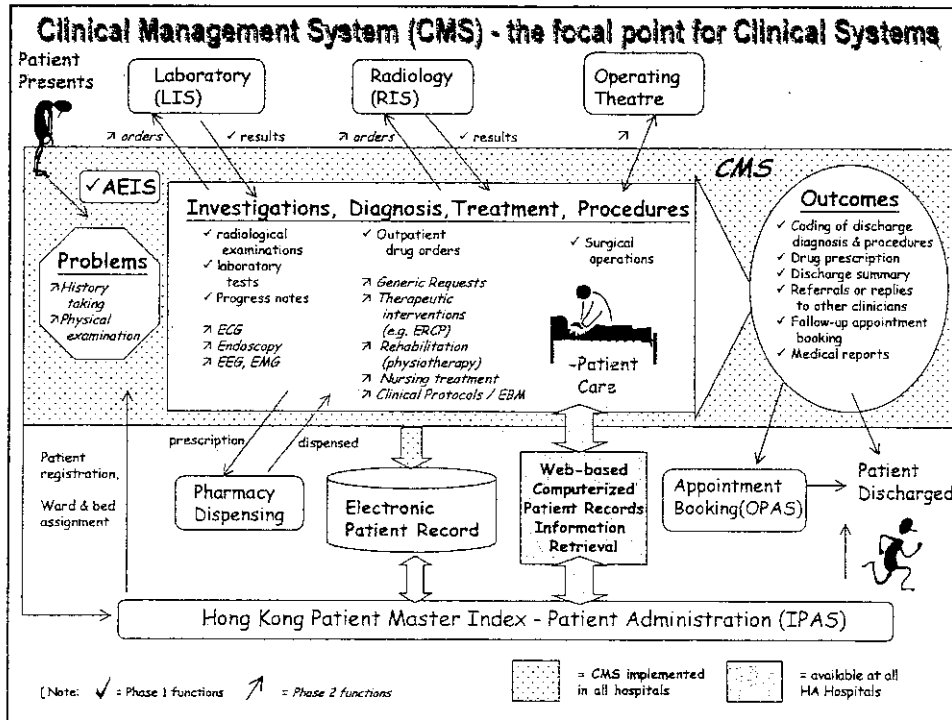
Applications

Clinical Systems

- ↪ HK Patient Master Index
- ↪ Patient Administration
- ↪ Outpatient Appointments
- ↪ Medical Records Tracking
- ↪ Accident and Emergency
- ↪ Clinical Management (Out)
- ↪ Clinical Management (In)

Informational Systems

- ↪ Data Warehouse
 - ☐ Operational hospital data from 1991
 - ☐ Web search tool
- ↪ Executive Information System
 - ☐ Web based enquiry tool
 - ☐ Operational data... 1992



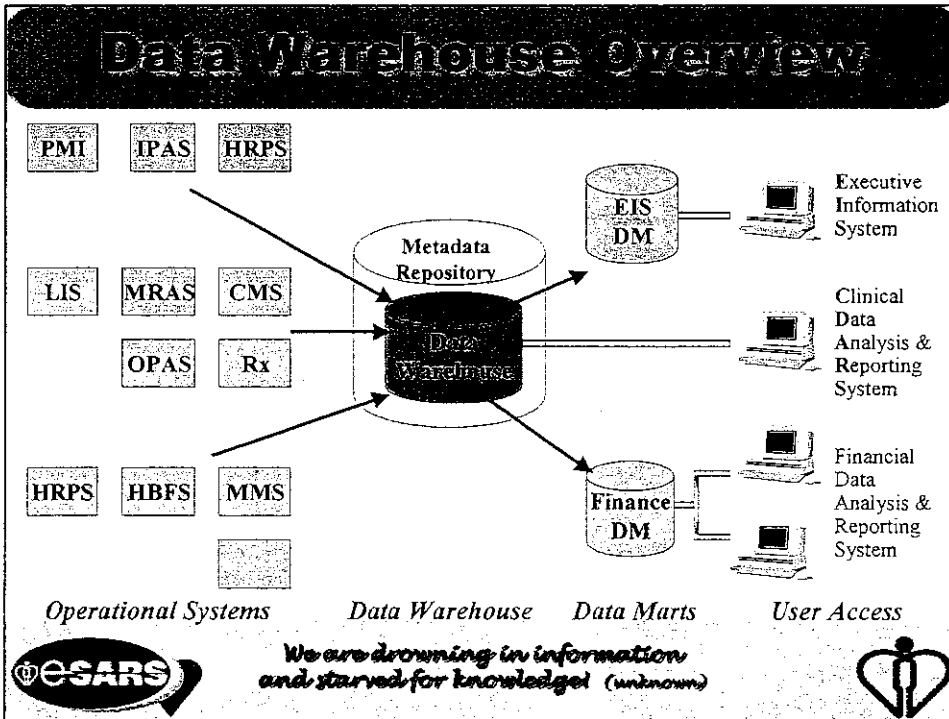
Electronix Patient Record of P:

Case: HN97007712(5) HKID: JU0000001(5) Name: PATIENT_000001 祝安康 Sex: F Age: 48y

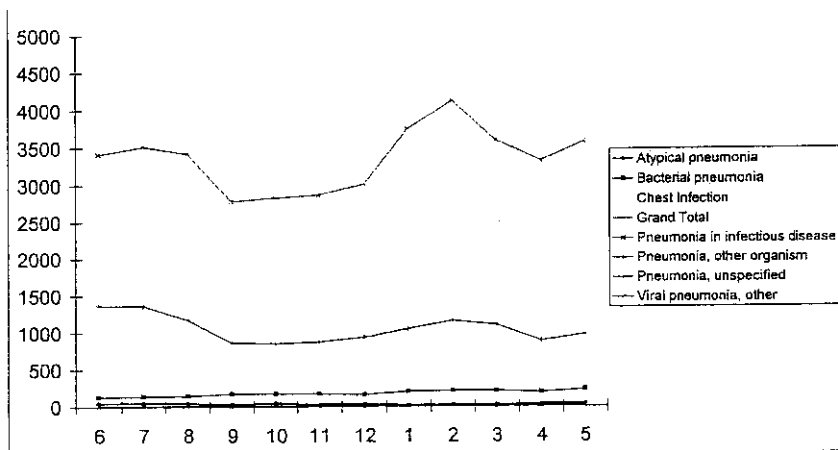
Request Date Period: 3 Months OR Request Date Range: From Date: To Date: search reset

Most recent from the left Page 1 of 2

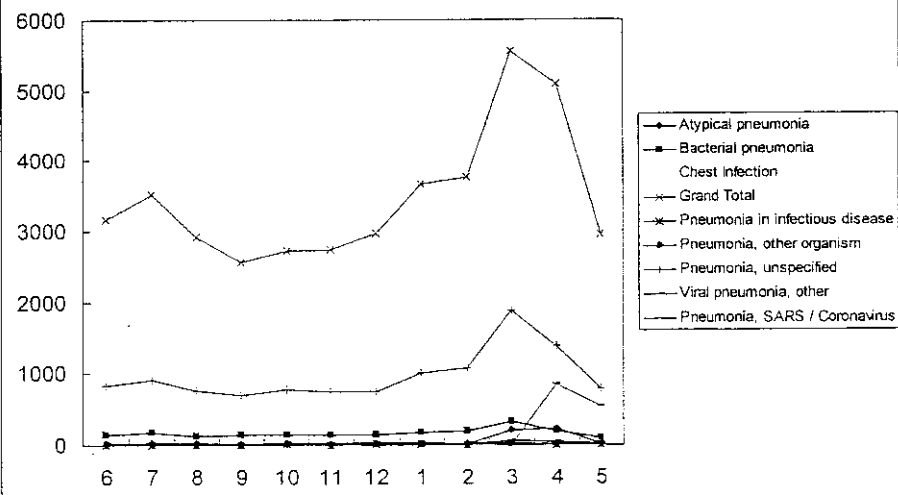
Reference Date	15/02/2002	10/02/2002	26/09/2002	24/09/2002	29/08/2002	28/07/2002	28/07/2002
Reference Time	Not Stated	Not Stated	Not Stated	Not Stated	Not Stated	Not Stated	Not Stated
Hospital Code	PWH	CMC	PWH	PWH	PWH	KWH	KWH
RFT							
Na	139	--	139	139	138	--	--
K	3.4 ↓	--	3.9	4.0	4.4	--	--
Urea	4.8	--	4.2	4.7	7.4	--	--
Cr	78	--	80	78	90	--	--
Bone							
Ca	2.22	--	2.13 ↓	2.18 ↓	2.28	--	--
Ca (Adj)	2.39	--	2.32	2.38	2.36	--	--
P04	1.10	--	1.08	--	1.08	--	--
LFT							
TP	71	--	72	67	71	63	--
Alb	33 ↓	--	32 ↓	32 ↓	37	35	--
Globulin	--	--	--	--	--	28	--
TBill	5	--	3	4	9	5	--
ALP	152 ↑	--	280 ↑	302 ↑	280	104	--
ALT	15	--	33	42	92 ↑	36 ↑	--
AST	--	--	--	--	--	36 ↑	--
CBP							
Hb	--	11.70	--	--	--	--	8.0 ↓



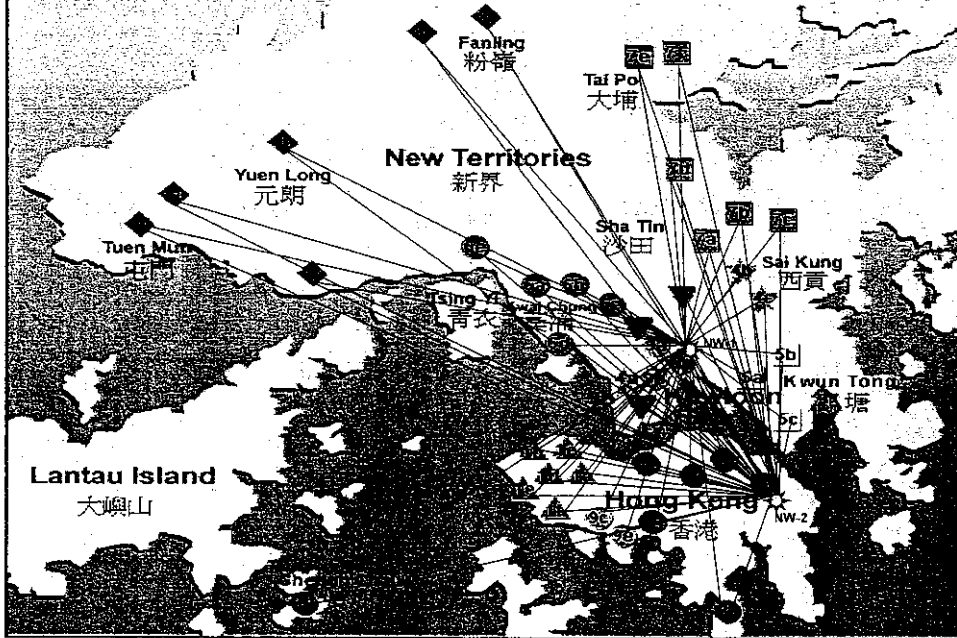
ATP 2001 - 2002 (HA)



ATP 2002 - 2003 (HA)



Hospital Authority Wide Area Network Connection



Progress

Perspective

The User
the Management
and the Community



George Bernard Shaw

The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself.

...therefore all progress depends on the unreasonable man.

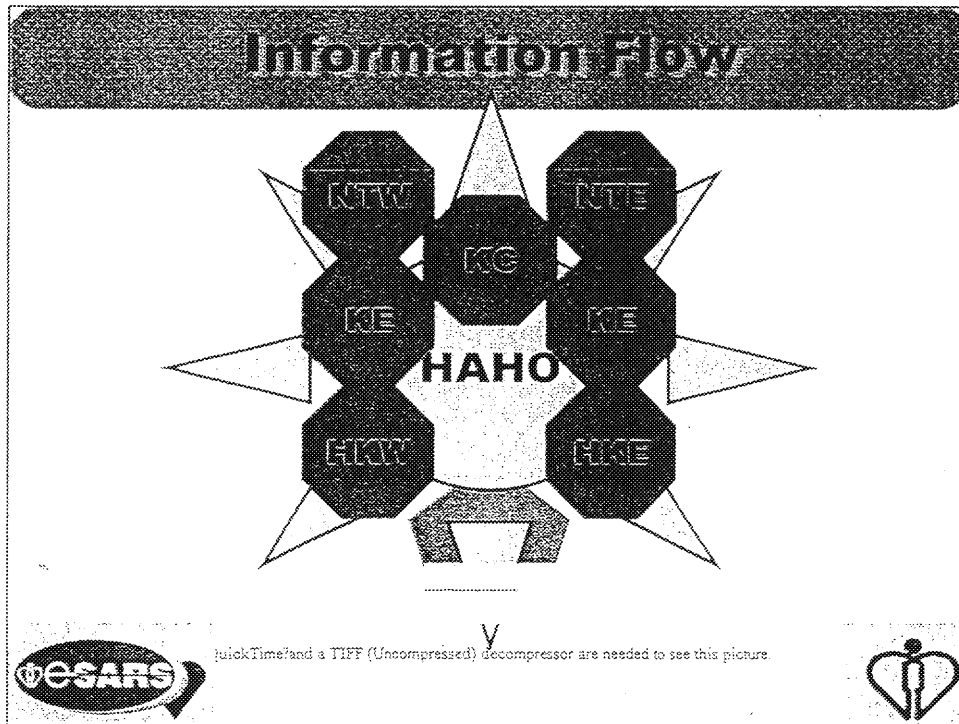
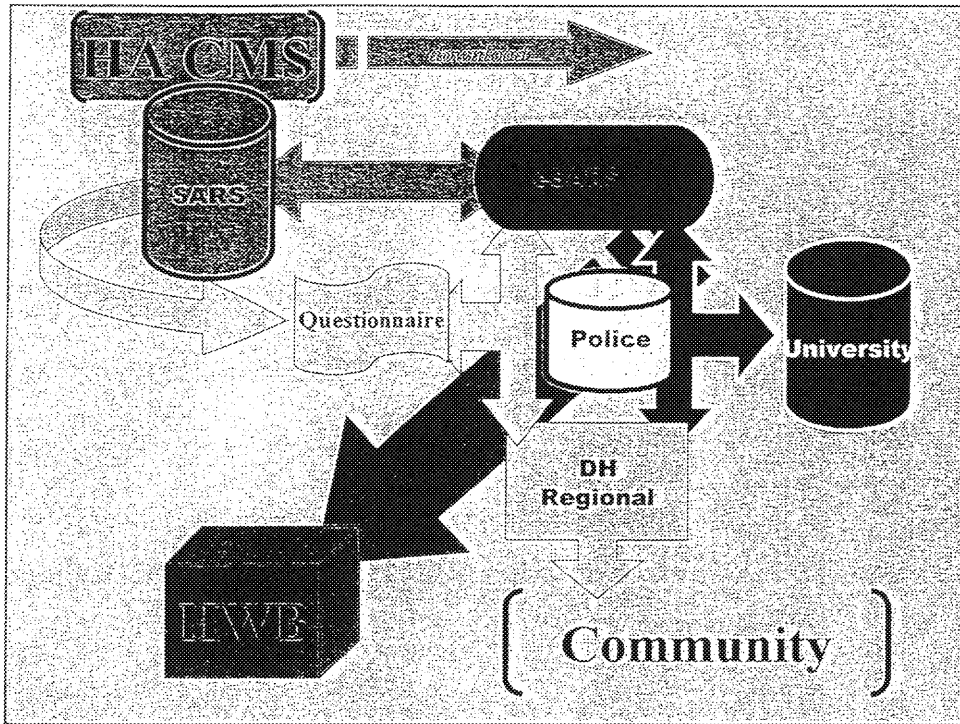


Progressive

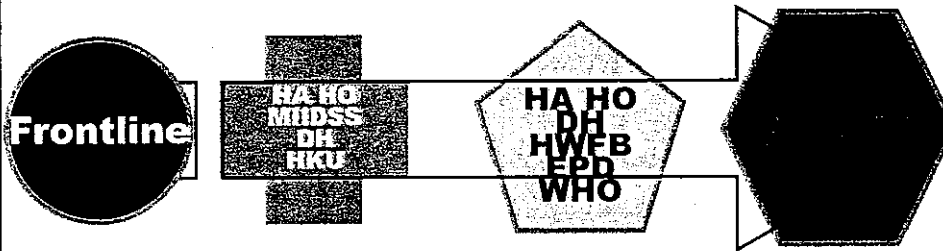
Microsoft Access

eSARS





Data .. Information



*Data is not information,
Information is not knowledge
Knowledge is not understanding*
Stoll & Schubert



Milestones...

- ☛ February 22
- ☛ March 21
- ☛ March 28
- ☛ April 8
- ☛ April 9
- ☛ April 13
- ☛ April 14
- ☛ Microsoft Access
- ☛ Frontline visit
- ☛ Dedicated..co-ordinator
- ☛ eSARS launch
- ☛ Daily Situation Report
- ☛ CTS launch



eSARS

- ☛ **Manhours**
 - ☐ Development 28 man-day
 - ☐ Data Conversion 1 man-day
 - ☐ Further 56 man-days
- ☛ **Database size** 200 MB
- ☛ **Records** 4000+ pts
 - ☐ HKPMI
- ☛ **Reports** 20+ variations
 - ☐ Download... Police, Uni, DH



Contact Tracing System

- ☛ **Manhours**
 - ☐ Development 60 man-day
 - ☐ Further 20 man-days
- ☛ **Database size** 150 MB
- ☛ **Records** 4000+ pts
 - ☐ HKPMI 16 GB
- ☛ **Reports** 20+ variations



Access

eSARS

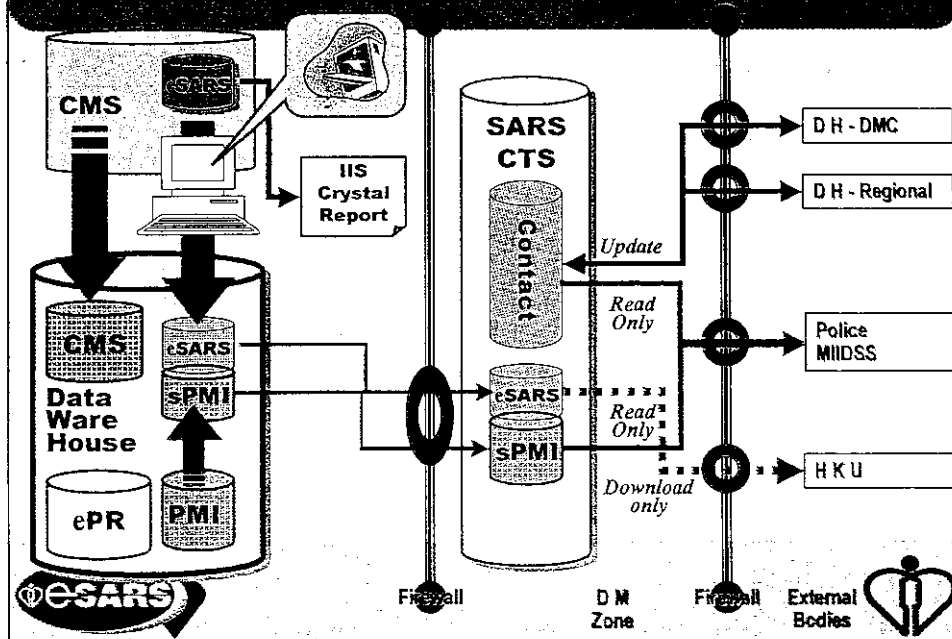
- ◆ Frontline users all
- ◆ SARS Coordinators ~ 150

CTS

- concurrent ~ 30 users
 - ◆ DMC
 - ◆ DH Regional & Head Offices
 - ◆ Police
 - ◆ HKU (download only)



Architecture



Perspective

- ☛ Frontline User
- ☛ Management
- ☛ Community
- ☛ Many hospitals
- ☛ Workload
- ☛ Standardization



Chinese Management System

Classical Investigation Enquiry Booking DT Report Doc/Print Other System Info Admin

Diagnosis/Procedure (OP/PO)
 Discharge Information
 Discharge Summary
 Discharge Prescription/OP Prescription
 Medication Modification

Select | Print | Refresh | Chinese | <Reduce

No. of active patients in ward: 11
 No. of patient displayed in PSP: 14

SARS	Episode	Spec	Admission date/time	Sex	Age
N-Vert.	[REDACTED]	OBS 2	03-11-1998 10:44	F	49y
	[REDACTED]	MED 3	20-10-1998 18:52	M	76y
	[REDACTED]	MED 3	02-11-1998 16:16	M	56y
	[REDACTED]	MED 3	26-10-1998 17:41	M	73y
	[REDACTED]	MED 3	01-11-1998 02:13	F	77y
Y-Vert.	[REDACTED]	MED 3	01-11-1998 18:29	F	67y
	[REDACTED]	MED 3	24-10-1998 08:23	F	77y
Y-Distrs.	[REDACTED]	MED 3	28-10-1998 04:34	F	80y
	[REDACTED]	MED 3	03-11-1998 18:45	F	68y
Y-Stable	[REDACTED]	MED 3	28-10-1998 23:27	F	93y
	[REDACTED]	MED 3	30-10-1998 04:44	F	66y
	[REDACTED]	MED 3	30-10-1998 08:50	M	61y
	[REDACTED]	MED 3	28-10-1998 09:31	F	70y
	[REDACTED]	MED 3	02-11-1998 05:59	M	46y

Select Patient: _____

Possible value: HKID/H-NW/AE# OPD# NAME/%T+phone#

OSARS QNH MED SL PER USER 12246678981224667898

eSARS requirements

- ☛ standardized registry
- ☛ across all entry points
- ☛ daily monitoring of activities
- ☛ Issues
 - ☑ Large influx of suspects
 - ☑ Across many hospitals
 - ☑ Not a "real" management system



SARS Data Entry

Patient Information	
HKID: [REDACTED]	DOB: 1/1/1926 (Exact? N)
Name: [REDACTED]	Age: 77 Sex: M
Admission: 20-Apr-2003	Chinese Name: [REDACTED] Last Specialty: RES Hospital: UCH
	Discharge: 26-Apr-2003 Destination: DEATH Last Ward Code: 8B
Address	
Room: 2120 Floor: [REDACTED] Block: [REDACTED] Building: [REDACTED]	
District: LT	

Diagnosis: <input type="radio"/> Under Obs. <input type="radio"/> Suspect+Rx <input checked="" type="radio"/> Clin. SARS <input type="radio"/> Not SARS	Clinical Details: Ribavirin: 24-Apr-2003 Coronavirus: <input type="checkbox"/>	Last Update: 25-Apr-2003 10:29:28
Condition: <input type="radio"/> Satisfactory <input type="radio"/> Stable <input checked="" type="radio"/> Respiratory Distress <input type="radio"/> Ventilated <input type="radio"/> Convalescent	<input checked="" type="checkbox"/> PCR <input type="checkbox"/> IF	<input type="button" value="Print"/> <input type="button" value="Back"/>
On First Admission Temperature(°C): 38.20	Onset Date: [REDACTED]	
Chest: <input checked="" type="checkbox"/> Normal XR <input type="checkbox"/> Early Changes <input checked="" type="checkbox"/> XR <input type="checkbox"/> CT	Symptom: 17-Apr-2003 <input type="button" value="Clear"/>	
<input type="checkbox"/> Definite Changes <input type="checkbox"/> Unilateral <input checked="" type="checkbox"/> Bilateral <input type="checkbox"/> Effusion/Cavitation	Fever >=39°C: 17-Apr-2003 <input type="button" value="Clear"/>	
Occupation Choose (1) or (2)		
(1) <input type="radio"/> Healthcare Worker: [REDACTED] Work Place: [REDACTED]	Other Info: [REDACTED]	
(2) <input checked="" type="radio"/> Non-Healthcare Worker: Occupation: retired		
Provide Company / Work Details		
Name: [REDACTED] Building: [REDACTED]		
Address: [REDACTED] Phone: [REDACTED]		
Probable Source (Last contact, provide as much information as possible) <input checked="" type="checkbox"/> Source Unknown		Special Remarks / Alert
Who / Name: [REDACTED]		
Where: [REDACTED]		
When: [REDACTED] Tel: [REDACTED]		
Other Info: [REDACTED]		

Groups Vs. Categories

Under Observations	Category I
Suspect with treatment	Category II
"Clinical SARS"	



Case: HN98078247(1) Sex: F Age: 49y

Clinical Details Tick the relevant details to confirm this case.

Fever >= 38°C

Chest

Early Changes XR CT

Definite Changes Unilateral Bilateral

Late Changes Effusion / Cavitation

Symptoms

Chill/Rigor

Cough

Malaise/Myalgia

Diarrhoea

Contact history

To register your patient as a CLINICAL SARS case, the following features are required:

1. Radiological Changes consistent with SARS
2. Temperature >= 38°C

In addition at least 2 of the following...

- Chills or rigors
- Cough
- Malaise or myalgia
- Diarrhea
- Known history of Exposure...i.e. Contact Source

Diagnosis Suspected Satisfactory

Condition Satisfactory

On First Admission Term

* Chest Normal XR Definite Change

Occupation Choose (1) or more

(1) Healthcare worker

(2) Non-Healthcare worker

Provide Company

Name

Address

Probable Source (Last of)

Who / Name jassad

Where Work (Non medical) jassad

When 1 week before Tel 2334-2324

Other info. probable source other info

Remarks / Alert special remark

Intranet eSARS menu

[Enquiry](#) [Case Maintenance](#) [Change Password](#) [User Profile](#)

DH Functions

- [Input New Confirm Patient to DH](#)
- [Report - Patient List to DH](#)

Reports by Patient



- [Report - Current Patient List in ICU \(Condition\)](#)
- [Report - Summary of ICU Patients \(Current\)](#)
- [Report - Patient Records List \(Confirmed\)](#)
- [Report - Analysis of Suspected Case](#)

Reports by Hospital

- [Report - HCW List by treating hospital](#)
- [Report - Patient List \(all episodes\) by Hospital](#)
- [Report - Current Inpatient List by Hospital/Status](#)

Summary Reports

- [Report - Daily Situation Summary](#)
- [Report - Status Changes Figures](#)

No. of Patients in ICU

Generate ActiveX Viewer - Web Page Dialog

1 of 1

Preview

- KWH
- PMH
- PWH
- PPN
- QEH
- QMH
- RH
- TKO
- TMH
- UCH

Hospital	No. of Inpatients
KWH	5
PMH	24
PWH	17
PPN	3
QEH	15
QMH	2
RH	1
TKO	23
TMH	6
UCH	20
Total	126

CHT 2002.12.27 13:50: Meeting 5:42 PM

SARS Patient Records List

Record Creation Date (10/Apr/2003 12:00:00AM - 10/Apr/2003 12:00:00PM)

Diagnosis Status: Confirmed

Hospital: AHN

Record Creation Date	HKID/ PassportID	Name	Sex	Age	Date of Report	Daytime Address	Home Address	Current Condition	Diagnosis Status
10/04/2003	[REDACTED]	[REDACTED]	F	29	10/04/2003	[REDACTED]	[REDACTED]	Satisfactory	Confirmed

Total: 1

Hospital: PMH

Record Creation Date	HKID/ PassportID	Name	Sex	Age	Date of Report	Daytime Address	Home Address	Current Condition	Diagnosis Status
10/04/2003	[REDACTED]	[REDACTED]	F	22	10/04/2003	Amy Garden	[REDACTED]	Stable	Confirmed
10/04/2003	[REDACTED]	[REDACTED]	F	28	10/04/2003	amy garden	[REDACTED]	Stable	Confirmed
10/04/2003	[REDACTED]	[REDACTED]	F	32	10/04/2003	amy garden	[REDACTED]	Stable	Confirmed
10/04/2003	[REDACTED]	[REDACTED]	F	23	10/04/2003	NIL	[REDACTED]	Stable	Confirmed
10/04/2003	[REDACTED]	[REDACTED]	F	25	10/04/2003	nil	[REDACTED]	Stable	Confirmed

SARS HA Staff

SARS Patient Records List (Health Care Staff Members)

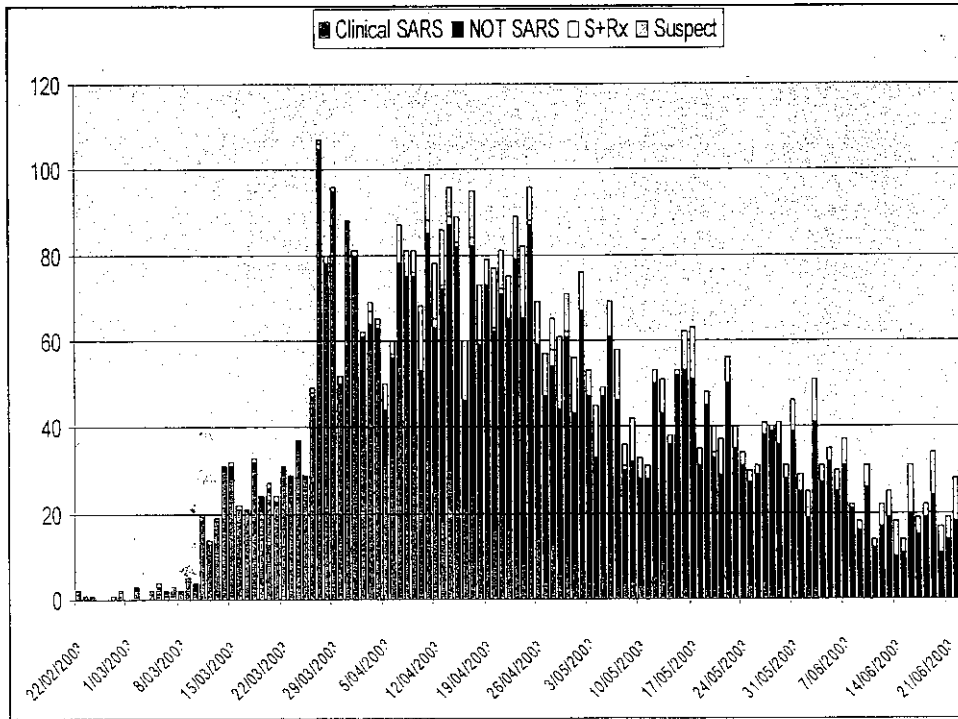
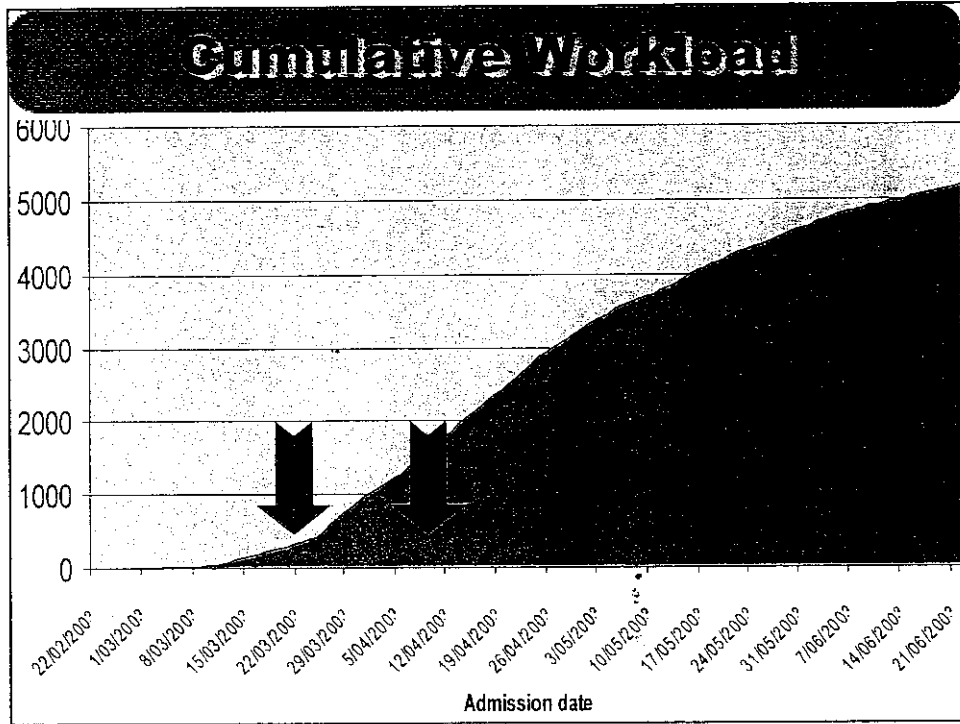
Hospital: AHN

Date of Report	HKID/ PassportID	Name	Sex	Age	Date of Admission	Working Hospital	Diagnosis Status	Current Condition	Staff Rank	Discharge Status
10/04/2003	[REDACTED]	[REDACTED]	F	43	10/04/2003	AHN	Confirmed	Satisfactory		

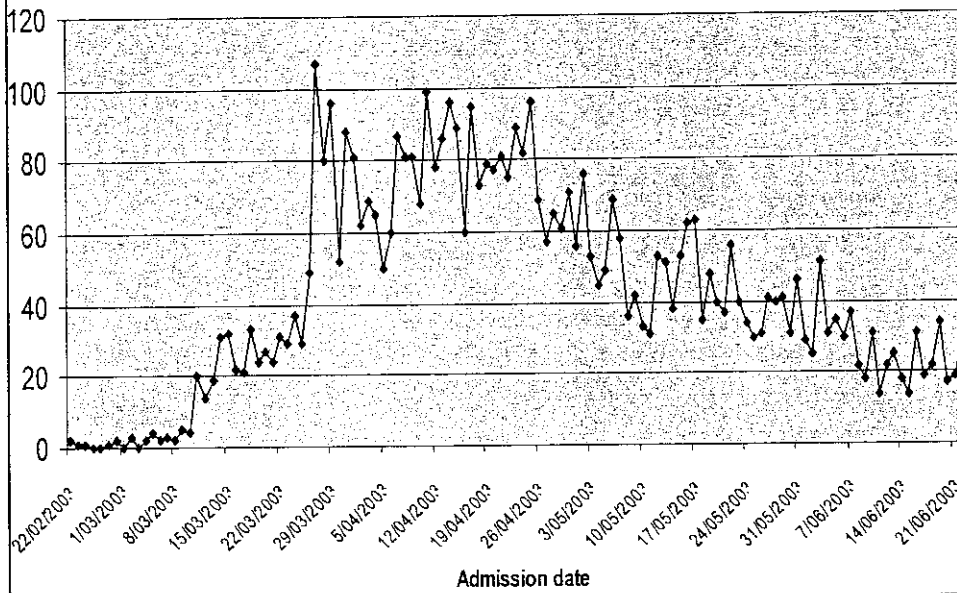
Total: 1

Hospital: KWH

Date of Report	HKID/ PassportID	Name	Sex	Age	Date of Admission	Working Hospital	Diagnosis Status	Current Condition	Staff Rank	Discharge Status
24/03/2003	[REDACTED]	[REDACTED]	M	46	16/03/2003	KWH	Confirmed	Satisfactory	OPERATING THEATRE ASSISTANT	
01/04/2003	[REDACTED]	[REDACTED]	F	42	16/03/2003	NEC	Confirmed	Stable	ENROLLED NURSE	
08/04/2003	[REDACTED]	[REDACTED]	F	37	06/04/2003	PMH	Confirmed	Stable	REGISTERED NURSE	
05/04/2003	[REDACTED]	[REDACTED]	F	28	04/04/2003	KWH	Confirmed	Stable	REGISTERED NURSE	
09/04/2003	[REDACTED]	[REDACTED]	M	24	08/04/2003	PMH	Confirmed	Stable	REGISTERED NURSE	
28/03/2003	[REDACTED]	[REDACTED]	F	56	07/03/2003	KWH	Confirmed	Satisfactory	HEALTH CARE ASSISTANT	H+FU
31/03/2003	[REDACTED]	[REDACTED]	F	36	28/02/2003	KWH	Confirmed	Satisfactory	REGISTERED	H+FU



Daily workload



SARS CONTACT TRACING SYSTEM

Filtering Criteria: First Admis. Date (dd/mm/yyyy): 16/4/2003, Condition Date (dd/mm/yyyy):, Discharge Date (dd/mm/yyyy):, Ethnicity Start Date (dd/mm/yyyy):, Age Group: ALL

Regional Office: ALL, HA Status: ALL, Name:, HEND: Search

HRID	Name	Home Case No	Work Code	Work Unit	Home Tel	HA Status	OH Status	Home Address	Admiss. Date	Symptoms Onset Date	Disch. Date	Disch. Details
ASH1	HN	F1	SHA TH	Clin SARS	NA	NA	NA	[REDACTED]	24/2/03	24/2/03	27/4/2003	DEATH
ASH2	HN	F1	TAI PO	Clin SARS	NA	NA	NA	[REDACTED]	24/2/2003	17/4/2003	22/4/2003	DEATH
ASH3	HN	F1	TAI PO	Clin SARS	NA	NA	NA	[REDACTED]	1/3/2003	16/4/2003	25/4/2003	DEATH
ASH4	HN	F1	TAI PO	Clin SARS	NA	NA	NA	[REDACTED]	1/3/2003	1/4/2003		
ASH5	HN	F1	TAI PO	Clin SARS	NA	NA	NA	[REDACTED]	1/3/2003	12/4/2003	28/4/2003	HAFU
ASH6	HN	F1	YI EN	Clin SARS	NA	NA	NA	[REDACTED]	1/4/2003	2/4/2003		
CHC1	HN	D15	TS NG	Clin SARS	NA	NA	NA	[REDACTED]	23/4/2003	10/5/2003	25/5/2003	HAFU
CHC2	HN	U15	SHA TH	Clin SARS	NA	NA	NA	[REDACTED]	24/4/2003		1/5/2003	HAFU
CHC3	HN	D15	SHA TH	Clin SARS	NA	NA	NA	[REDACTED]	25/4/2003	1/5/2003		

Status Change Report Download Total No. of Records: 28

Microsoft Internet Explorer
 Address: https://ho-td-66-03:239/contact.asp?ID=1

SARS CONTACT TRACING SYSTEM

Case List Logout

Name: CHAN TAI MAN HKID No: EB10972 (B) Sex: Age: 55

Home addr: []

District: CENTRAL & WESTERN Contact type: Close Source: Case

Tel. no: [] Relationship: [] Day 1(dd-mm-yy): 2-4-2003

Case name: [] Case HKID: [] Chk Appointment date: []

DMC name: SYP Record centre: SYP By: Letter Serial no.: 12

Buttons: OPEN Save Cancel Close Record Delete Record

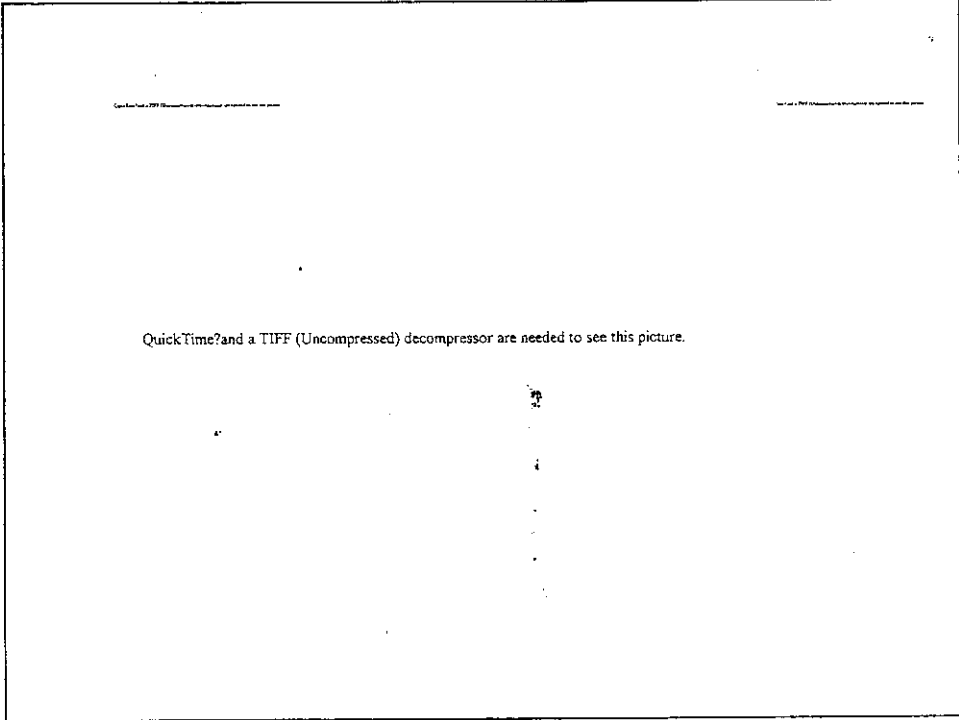
Day/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	Day 1
2-4-03	3-4-03	4-4-03	5-4-03	6-4-03	7-4-03	8-4-03	9-4-03	10-4-03	11-4-03	12-4-03	13-4-03	14-4-03		
By Phone	N	N	Y	Y						N	N	N		
Symptoms	N	N	N	N						N	N	N		
CXR	N	Y	N	N						N	N	N		
Refer to A&E	N	N	N	N						N	N	N		
No FU	N	N	N	N						N	N	N		
FU Mene	N	N	N	N						Y	N	Y		
Refer to DMC	N	N	N	N						N	N	N		

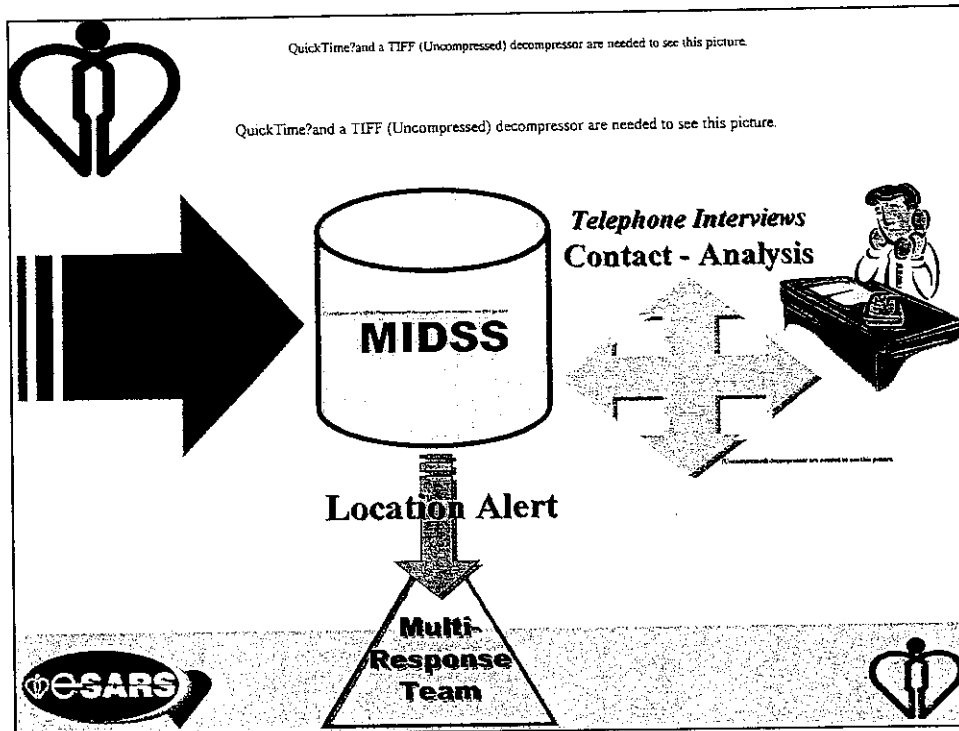
Attendance Records

Buttons: Update Remove

QuickTime?and a TIFF (Uncompressed) decompressor are needed to see this picture.

Done Local intranet 7:17 PM





What's in a name?

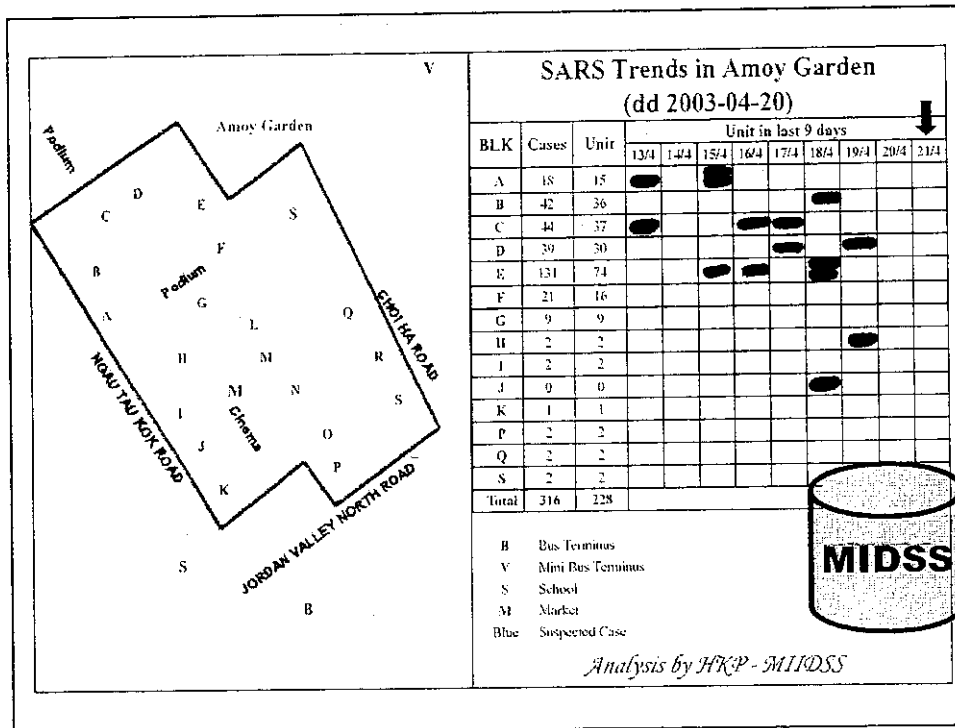
Names...
 Yeung = Young = Yeoh

Buildings...

- ▣ **Lee Kee Building**
- = Lee Kee Mansion
- = Li Kei Building
- = Lei Kay Building
- ~ Ricky Terrace

MIDSS

ESARS



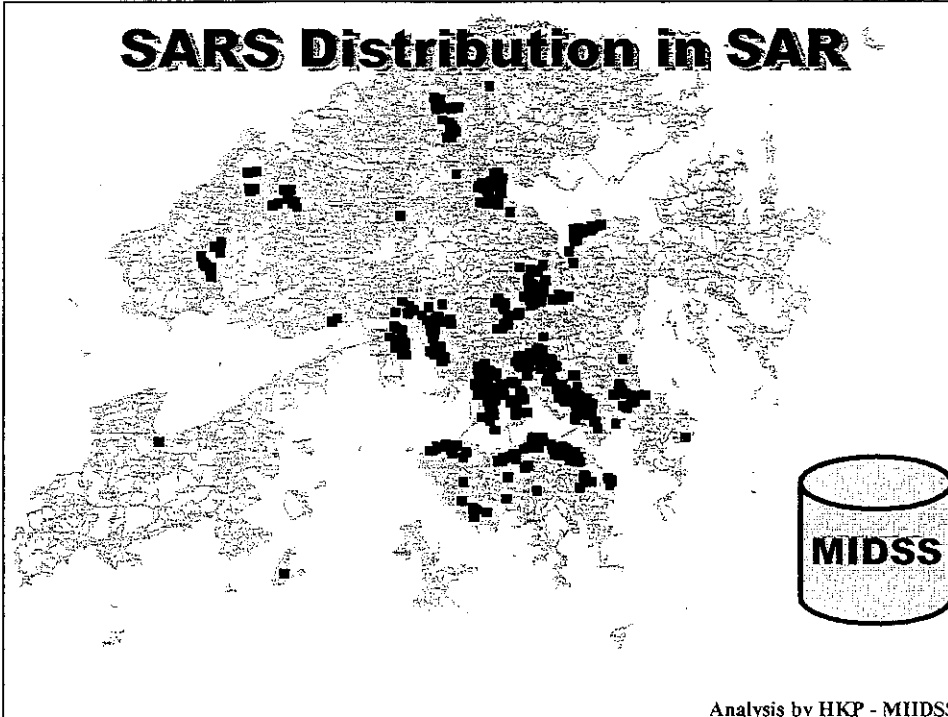
SARS Case Distribution (dated 2003-04-20)

DISTRICT	ESTATE	CASES
SMP	AMOY GARDEN	330
	NGAU TAU KOK LOWER ESTATE	46
	LEE KEE BUILDING	14
	LOK WAH ESTATE	9
	WANG KWONG BUILDING	9
	TELFORD GARDEN	7
	SAU MAU PING ESTATE	5
	SHUN TIN ESTATE	4
	TAK BO GARDEN	4
	TP	FU SHIN ESTATE
KWONG FUK ESTATE		11
TAI WO ESTATE		9
TAI YUEN ESTATE		8
CHEUNG WAH ESTATE		5
FU HENG ESTATE		4
TAI PO CENTRE		4
KING SHING COURT		4
ST		CITYONE
	SUNSHINE CITY	10
	WO CHE ESTATE	10
	LUNG HANG ESTATE	8
	HENG ON ESTATE	7
	JAT MIN CHUEN	7
	KWONG LAM COURT	7
POK HONG ESTATE	7	

MIDSS

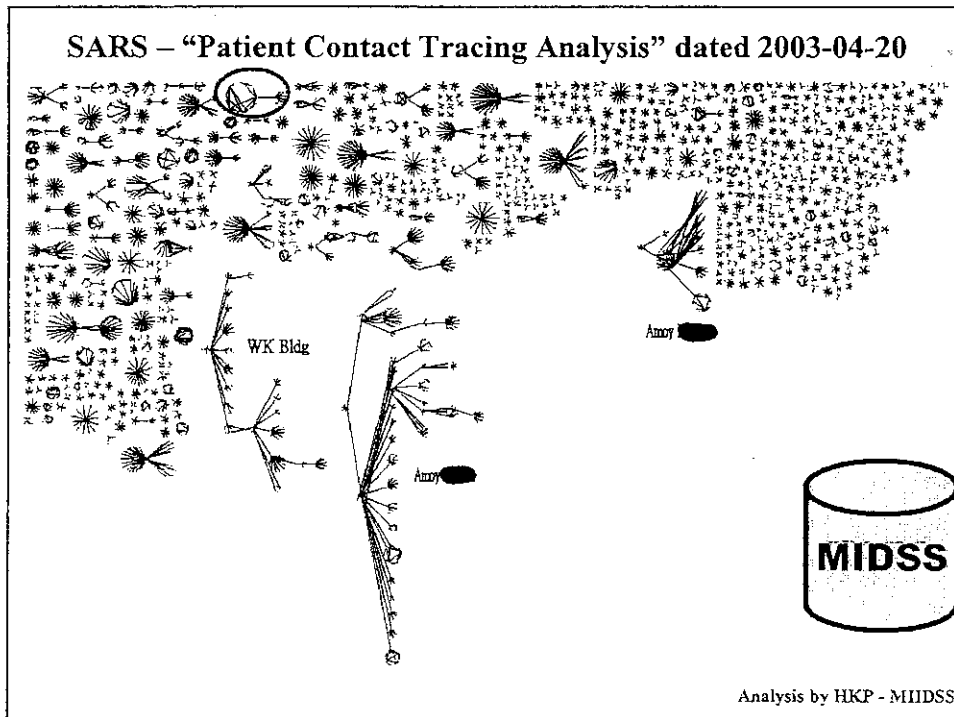
Analysis by HKP - MIDSS

SARS Distribution in SAR

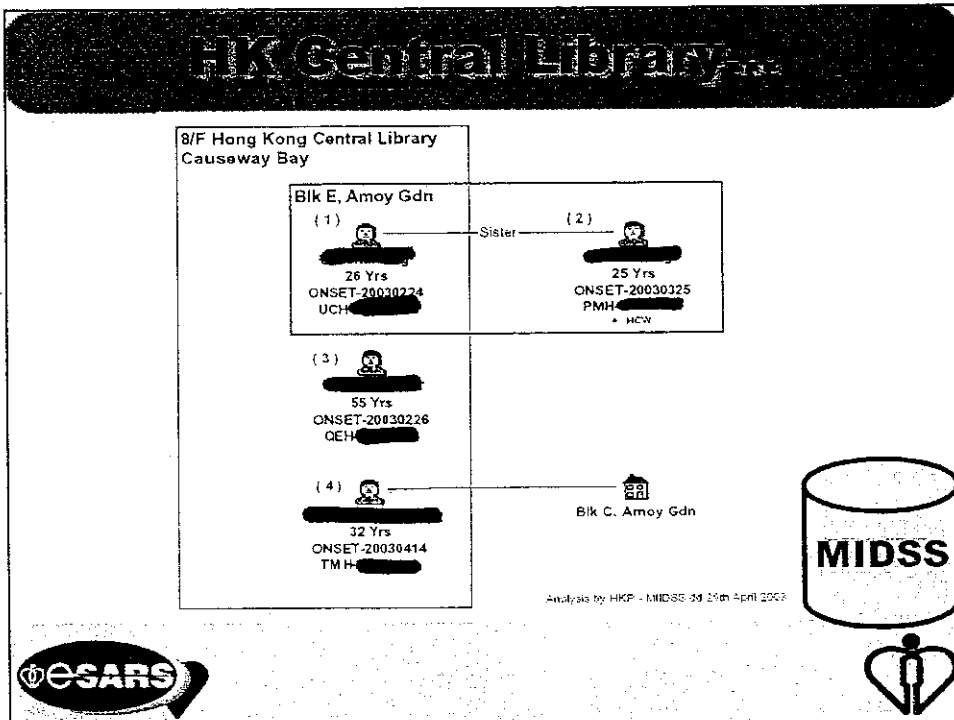
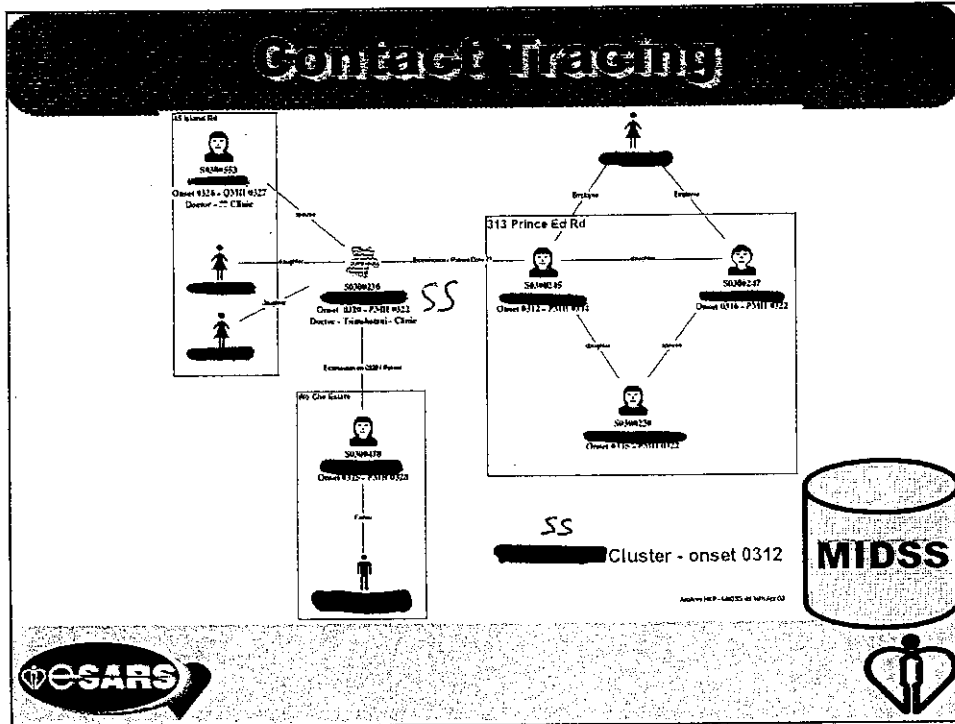


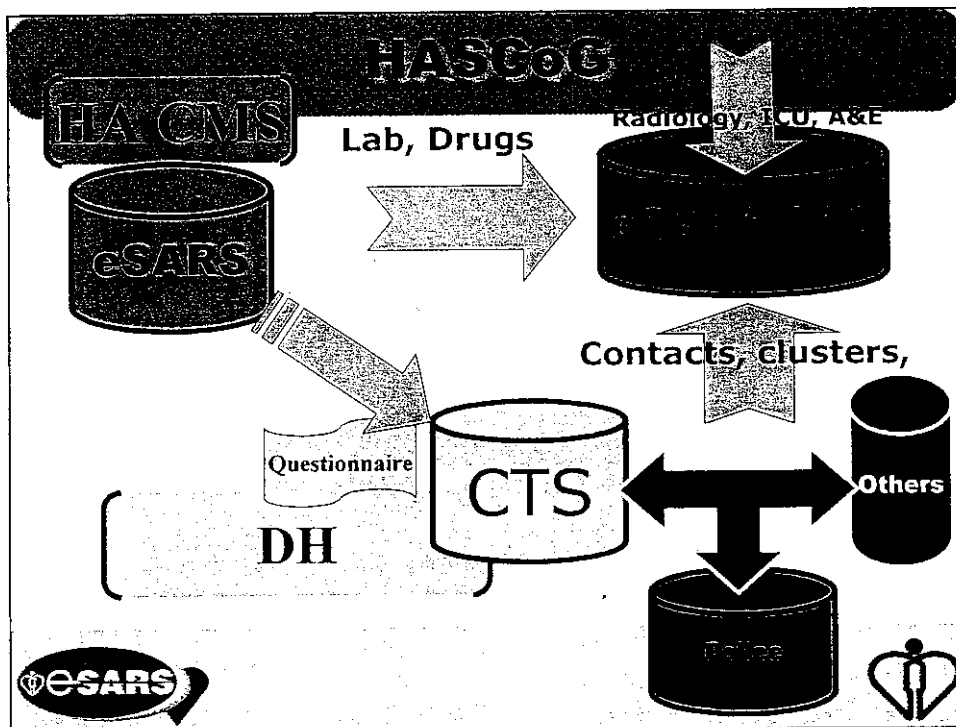
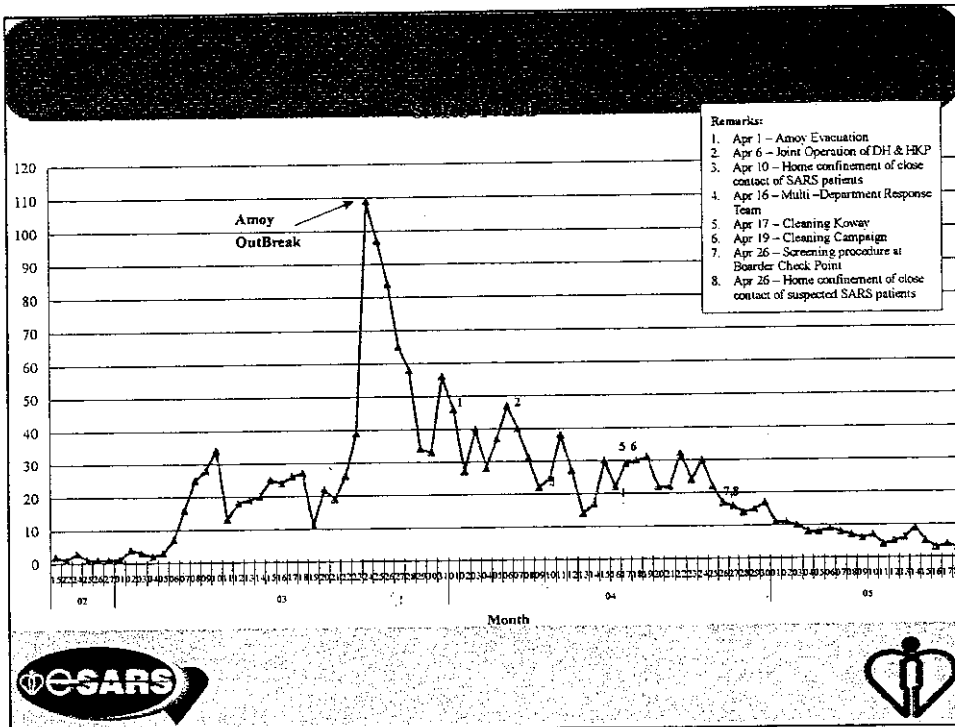
Analysis by HKP - MIIDSS

SARS - "Patient Contact Tracing Analysis" dated 2003-04-20



Analysis by HKP - MIIDSS





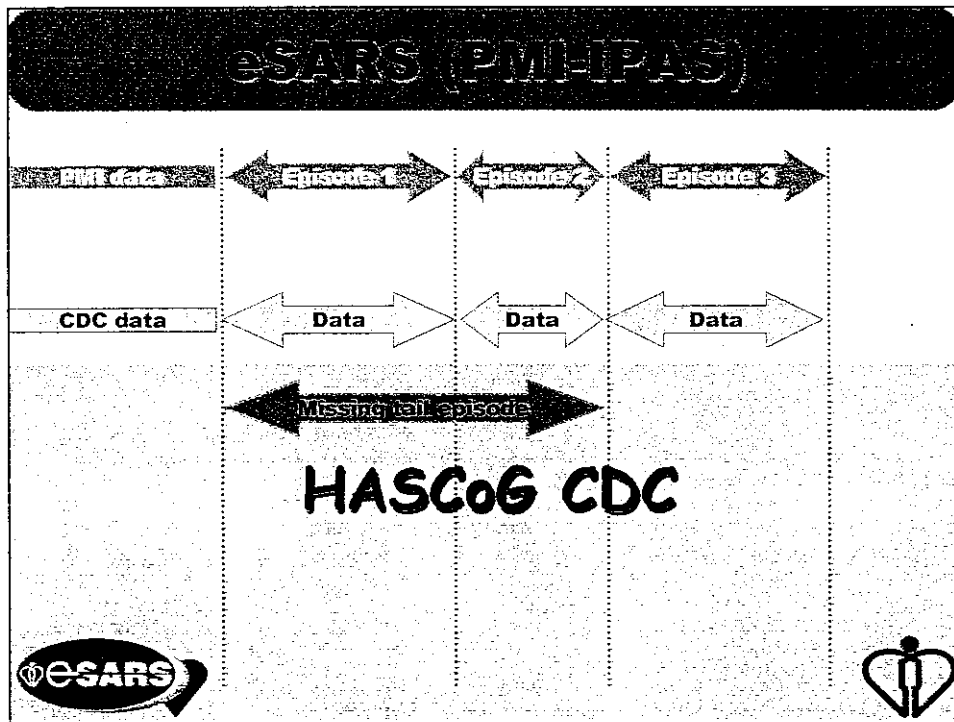
HA SARS Collaborative Clinical Data Collection

HKID: _____		Comorbidity	
Patient name: _____		<input type="checkbox"/> Smoking <input type="checkbox"/> COAD/Asthma <input type="checkbox"/> Ischaemic heart disease <input type="checkbox"/> Cerebrovascular disease <input type="checkbox"/> Cancer <input type="checkbox"/> Diabetes mellitus <input type="checkbox"/> Chronic Renal Failure <input type="checkbox"/> Chronic Liver Disease <input type="checkbox"/> HBsAg	
Hospital: _____		Others (1) specify: _____ Others (2) specify: _____ Others (3) specify: _____ Admission body weight (kg): _____	
Dates			
Contact with SARS (dd/mm): _____			
Fever onset (dd/mm): _____			
Symptom onset (dd/mm): _____			
Date of 1st SARS admission (dd/mm): _____			
Date of Discharge/Death (dd/mm): _____			

Item	Unit	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Item	Unit	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17		
Temp (Peak)	C											Temp (Peak)	C									
Pulse (at Temp Peak)	no/min											Pulse (at Temp Peak)	no/min									
Resp Rate (peak)	no/min											Resp Rate (peak)	no/min									
Bowels open	no/day											Bowels open	no/day									
SaO2	%											SaO2	%									

Item	Unit	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Item	Unit	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17		
FiO2	%											FiO2	%									
BIPAP	Y/N											BIPAP	Y/N									
Mechanical ventilation	Y/N											Mechanical ventilation	Y/N									

Item	Unit	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Item	Unit	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17		
Raciphan IV	Y/N											Raciphan IV	Y/N									
Tazocin	Y/N											Tazocin	Y/N									
Clarithromycin	Y/N											Clarithromycin	Y/N									
Levofloxacin	Y/N											Levofloxacin	Y/N									
Amoxicillin	Y/N											Amoxicillin	Y/N									
Azithromycin	Y/N											Azithromycin	Y/N									



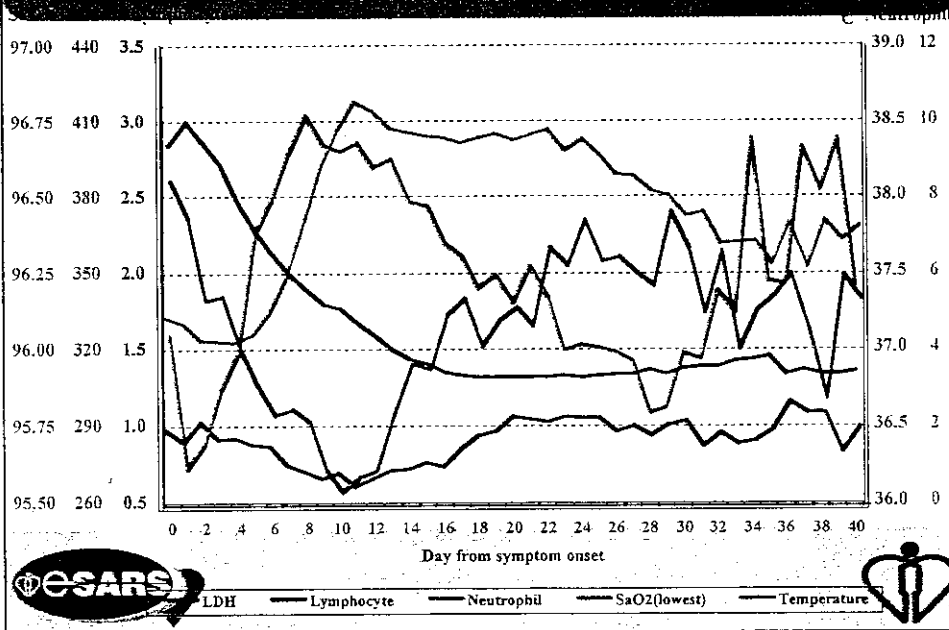
First Vs. Last Acute Hospital

1755 SARS Patients

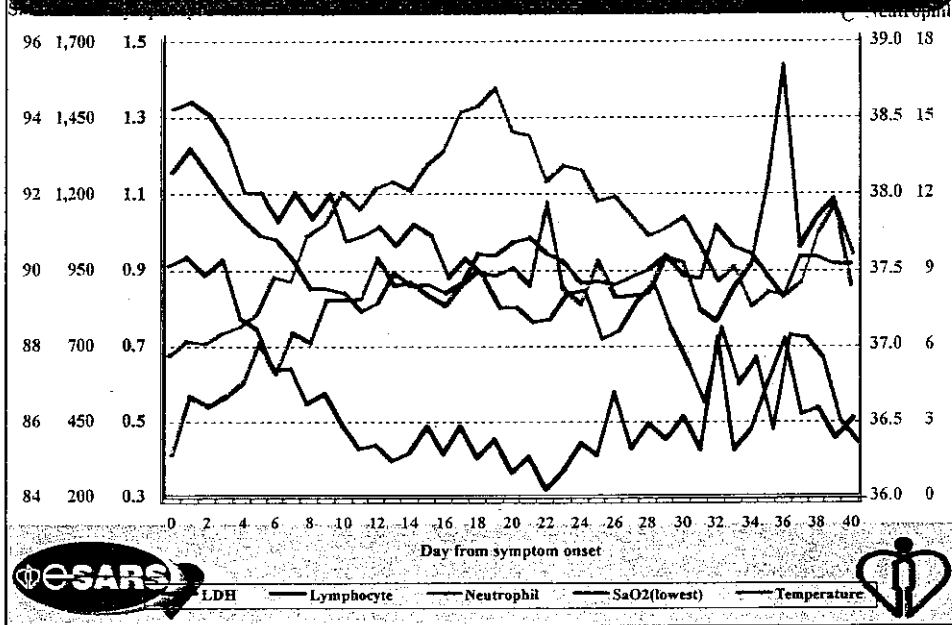
First Acute Hosp	Last Acute Hosp															Total
	AHN	CMC	KWH	NDH	PMH	PWH	PYN	QEH	QMH	RH	TKO	TMH	TPH	UCH		
AHN	3	77		1	1	11	22						16		128	
CMC			27			9									36	
KWH				82		1						1			84	
NDH		11			3	8	22	1				1	5		51	
PMH						527	2	5	2	12		3			551	
PWH		4					287						4		296	
PYN								83		1					85	
QEH					4				123		1				128	
QMH						1				36					37	
RH											5				5	
TKO					2	1						51			55	
TMH			1		1	1						83			86	
TPH		4			1	3							14		22	
UCH		1			4	2	3			5		3		171	189	
Total	3	97	28	83	4	568	341	92	125	53	6	55	88	173	1755	



Mean Readings - discharged cases



Mean readings... death cases



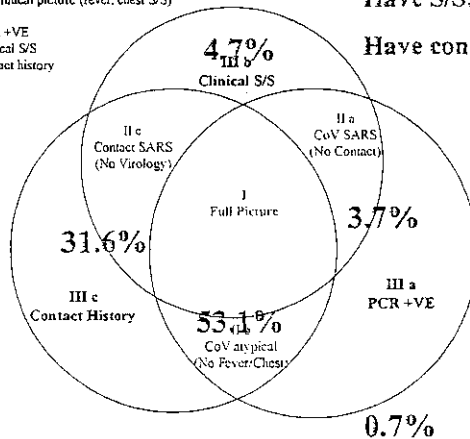
Categorisation of Clinical SARS

- I Full picture
- II a. no contact history
- b. atypical clinical picture (fever, chest S/S)
- c. PCR +VE
- III a. only PCR +VE
- b. only clinical S/S
- c. only contact history

PCR +ve: 64%

Have S/S: 93%

Have contact history: 91%



CFR of the 1755 SARS Patients by Age Group by Sero Conversion

Age Group		Sero Conversion				Total
		POS	NEG	Pending	Nil	
0-24	Deaths	0	0	0	0	0
	Patients	178	29	31	10	248
	CFR	0.00%	0.00%	0.00%	0.00%	0.00%
25-44	Deaths	24	0	8	14	46
	Patients	587	39	106	50	782
	CFR	4.09%	0.00%	7.55%	28.00%	5.88%
45-64	Deaths	29	0	15	22	66
	Patients	276	18	68	37	399
	CFR	10.51%	0.00%	22.06%	59.46%	16.54%
65-74	Deaths	23	1	27	19	70
	Patients	72	12	42	23	149
	CFR	31.94%	8.33%	64.29%	82.61%	46.98%
75+	Deaths	22	5	23	65	115
	Patients	54	13	37	73	177
	CFR	40.74%	38.48%	62.16%	89.04%	64.97%
All Age	Deaths	98	6	73	120	297
	Patients	1167	111	284	193	1755
	CFR	8.40%	5.41%	25.70%	62.18%	16.92%



Analysis of CFR By Hospitals

	First treated acute hospital (Incl. TPH)			Acute hospital assigned by rule			Last treated acute hospital (Incl. TPH)			
	No. of cases	No. of death	CFR	No. of cases	No. of death	CFR	No. of cases	No. of death	CFR	
HKE Cluster	PYN	85	4	4.7%	85	4	4.7%	92	5	5.4%
	RH	5	0	0.0%	5	0	0.0%	6	0	0.0%
	Total	90	4	4.4%	92	4	4.3%	98	5	5.1%
HKW Cluster	QMH	37	4	10.8%	44	6	13.6%	53	6	11.3%
KC Cluster	QEH	128	20	15.6%	125	19	15.2%	125	19	15.2%
KE Cluster	TKO	55	8	14.5%	54	9	16.7%	55	8	14.5%
	UCH	189	38	20.1%	180	36	20.0%	173	36	20.8%
	Total	244	46	18.9%	234	45	19.2%	228	44	19.3%
KW Cluster	CMC	36	8	22.2%	29	7	24.1%	28	7	25.0%
	KWH	84	16	19.0%	82	16	19.5%	83	16	19.3%
	PMH	551	60	10.9%	580	63	10.9%	588	62	10.9%
	Total	671	84	12.5%	691	86	12.4%	679	85	12.5%
NTE Cluster	AHN	128	42	32.8%	101	34	33.7%	97	34	35.1%
	NDH	51	14	27.5%	15	8	53.3%	4	3	75.0%
	PWH	295	38	12.9%	334	47	14.1%	341	51	15.0%
	TPH	22	20	90.9%	29	23	79.3%	39	24	61.5%
	Total	496	114	23.0%	479	112	23.4%	481	112	23.3%
NTW Cluster	TMH	86	25	29.1%	87	25	28.7%	88	26	29.5%
Unknown		3	0	0.0%	3	0	0.0%	3	0	0.0%
Overall HA		1755	297	16.9%	1755	297	16.9%	1755	297	16.9%



death in NDH was not reported in the 1755 SARS patient list



PCR Vs. Outcome

Based on e-SARS Registry status as at 27/6

	Death	Discharged	Staying	Total
PCR +ve	176 (79.3%)	680 (59.8%)	24 (64.9%)	880 (63.0%)
PCR -ve	46 (20.7%)	458 (40.2%)	13 (35.1%)	517 (37.0%)

Crude OR of death = 2.6 (p<0.0001)

No. of SARS patients without PCR result = 336



So what next...



**HA Clinical Systems...
strong foundation**

**Web-based...
real-time information sharing**



HONG
KONG



Critics are like eunuchs in a harem...

They know how it's done,
they've seen it done every day.
They just can't do it themselves.



The original problem

- ☛ Large influx of suspects
- ☛ Across many hospitals
- ☛ eSARS provided...
 - ☑ standardized registry at all entry points
 - ☑ daily monitoring of activities

Not a *management* system !



Needs

- ☛ Continuing tracking of SARS cases
 - ☑ Rehab
 - ☑ Long-term Follow up
- ☛ Internal contact tracking
- ☛ Future SARS case alerting
 - ☑ Other infectious diseases ?



SARS & Infectious Diseases...

- Step-down period
- The next outbreak (other related issues!)

Provide "systems" support to the frontline...

- Surveillance... Registry vs. management
- Dedicated vs. Generic
- Within vs. all encompassing...
- The community aspects.



Strategies

- Prevention
- Surveillance
 - Elderly homes, Primary Care, Outpatient Centers, Hospitals...
- "Registry" -notifications
 - Mobile or fixed
- Management
 - Communications



Possibilities...

Continue to run eSARS

Integrate "eSARS" into CMS mainstream

Generic Notifiable Disease Portal



Einstein

*Not everything that can be counted counts,
and not everything that counts can be
counted.*

...attributed





Settings

- ☛ Surveillance...
 - ☑ GOPC, Fever Clinics, OAHs
- ☛ Isolation... 536 rooms
 - ☑ Rate of Admission
- ☛ Temporary Isolation...
 - ☑ containers / neighboring areas
- ☛ Nosocomial infection
- ☛ Staff Sick-leave survey

