*The **improvement** of **timeliness** and **data quality** of **Notifiable disease reporting** by implementation of an **electronic reporting system***

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Goals

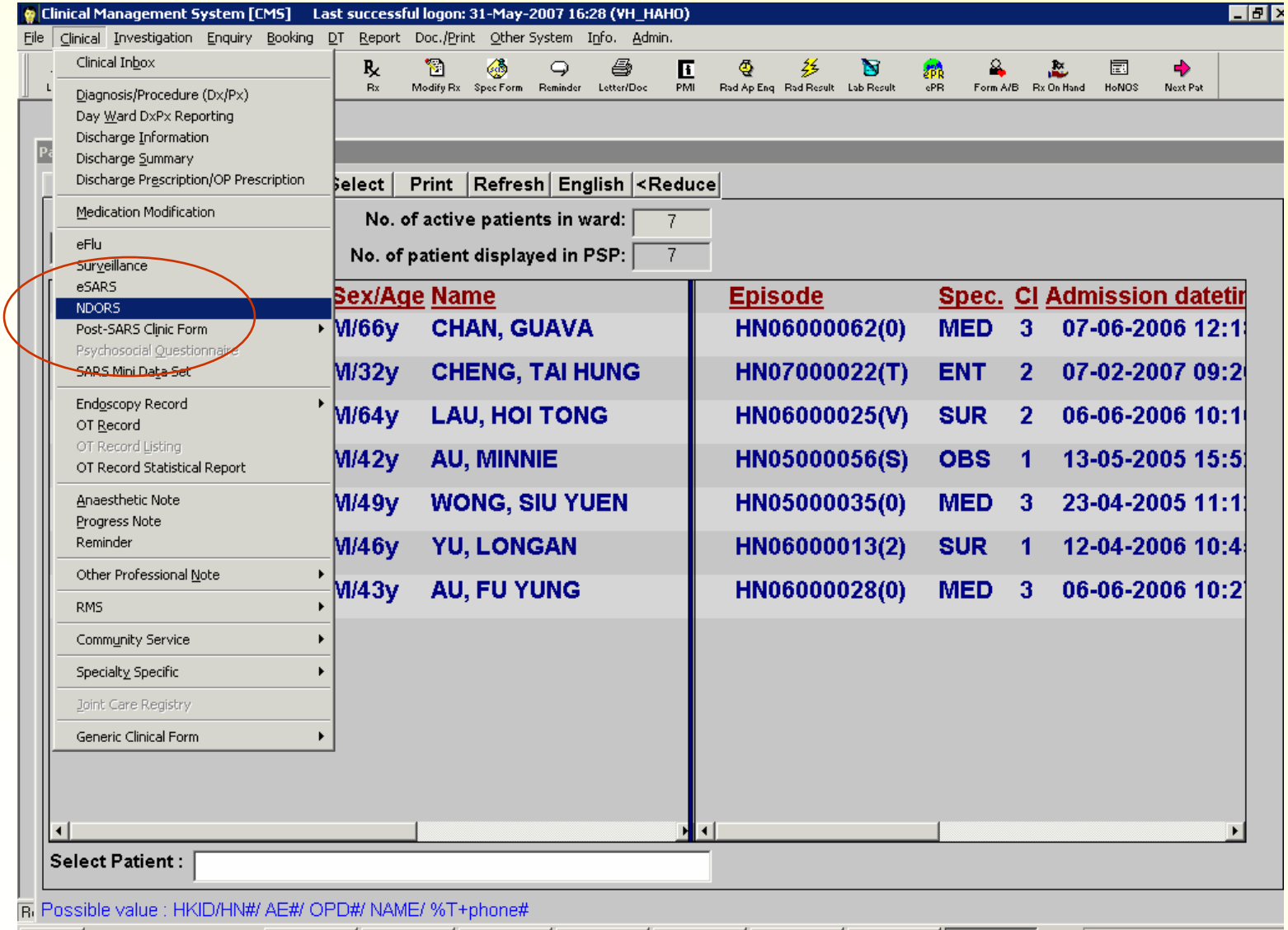
- More **convenient** way of reporting
- **Timely** reporting to relevant parties
- **Accurate** and structured / standardized data
- Real time access & sharing of the most updated data by different group of users
- **Prompt** Outbreak identification and control across Clusters

⇨ Better than paper & fax reporting, both in timeliness and data quality

Functions

- **To report Notifiable Diseases thru' CMS**
- **Electronic data to be sent to CENO of CHP and to be accessed by ICT/CCID of HA in a timely manner**
- **Data can be updated by different parties and updated information can be shared with different users online**
- **Have report functions**
- **To alert different parties on a timely manner**

Notifiable Disease & Outbreak Reporting System



Provision of most updated info about Notifiable Diseases & case reporting history of the patient

All changes are logged.

NDORS -- 網頁對話

Report History of Viral Hepatitis of YU, LONGAN — CENO Notification No.: 06001147 Received Time: 05/07/2006 14:51

Action Date	Type	Done By	Report Date	Case	Work Place	Doctor	Doctor Phone	Confirm / Suspected
05/07/2006 14:50	New	@CMSIT	05/07/2006 14:50	HN060000132		CMS, IT MED MO	2300 0000	S 26/06/20
05/07/2006 14:59	Update	@CMSIT	05/07/2006 14:50	HN060000132	ABC Company	CMS, IT MED MO	2300 0000	C 30/06/20

Close

Clinical Management System [CMS] Last successful logon: 31-May-2007 16:28 (VH_HAHO)

File Clinical Investigation Enquiry Booking DT Report Doc./Print Other System Info. Admin.

Logoff Close PSP Disc Info Disc Sum Rx Modify Rx Spec Form Reminder Letter/Doc PMI Rad Ap Enq Rad Result Lab Result ePR

NDORS

MKC | Details | Alert

俞龍眼 YU, LONGAN

M | 46y | DOB: 20-Apr-1961 | M766408(2) | SUR | 5A-20 | Adm: 12-Apr-2006 | HN06000013(2)

Report Date	Edit	Print	Disease	Reported by	Last Updated	Pat.Spec	Hosp	
* 03/07/2006 15:18			Tuberculosis (Denotified)	CMS, IT	03/07/2006 15:35	SUR	VH	Log
* 03/07/2006 14:07			Tuberculosis	CMS, IT	16/08/2006 12:11	SUR	VH	Log
* 30/06/2006 13:54			Viral Hepatitis	CMS, IT	03/07/2006 15:46	SUR	VH	Log

Patient's Reporting History

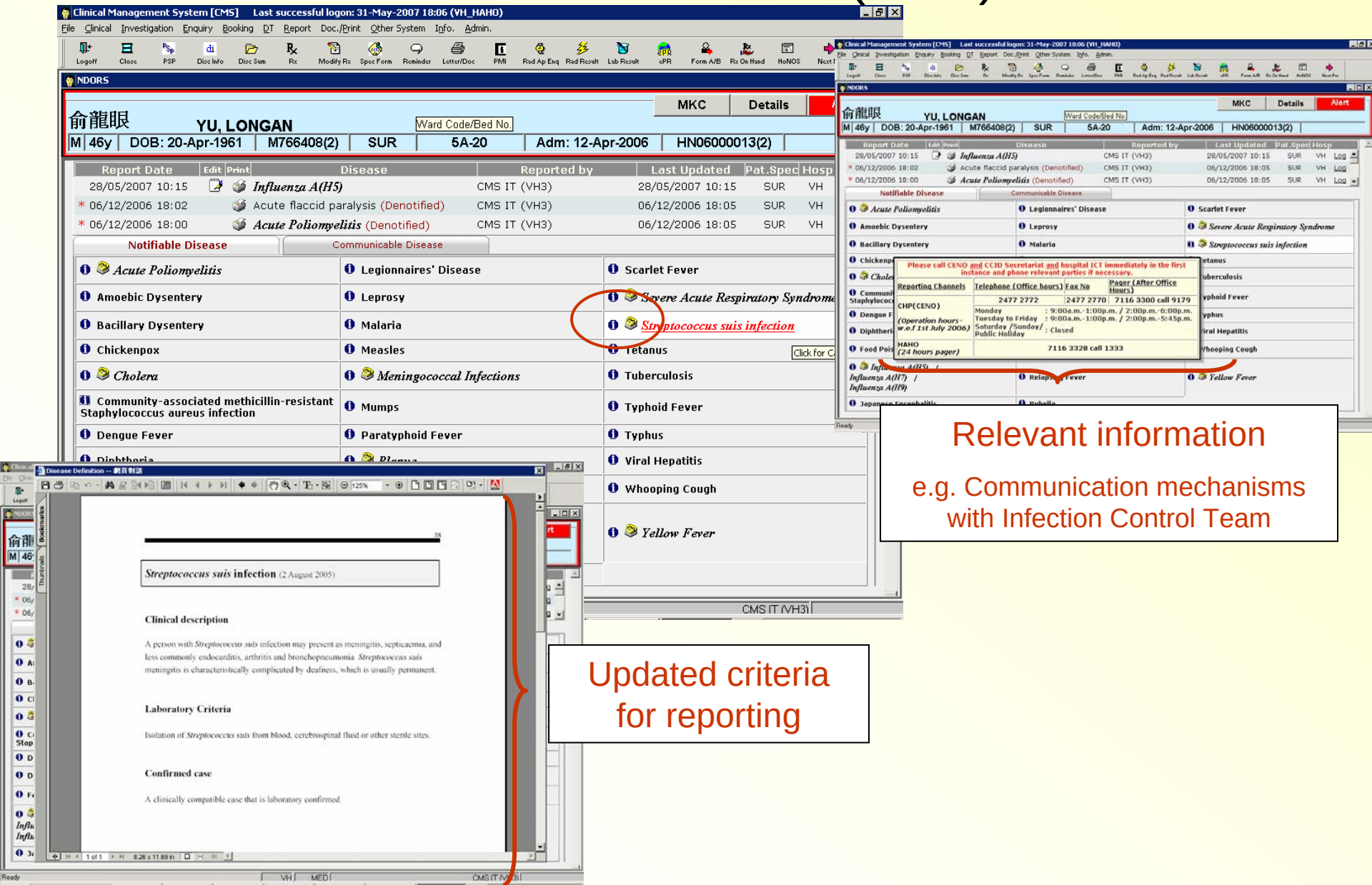
Notifiable Disease | Communicable Disease

Acute Poliomyelitis	Legionnaires' Disease	Scarlet Fever
Amoebic Dysentery	Leprosy	*Severe Acute Respiratory Syndrome*
Bacillary Dysentery	Malaria	*Streptococcus suis infection*
Chickenpox	Measles	Tetanus
Cholera	*Meningococcal Infections*	Tuberculosis
Community-associated methicillin-resistant Staphylococcus aureus infection	Mumps	Typhoid Fever
Dengue Fever	Paratyphoid Fever	Typhus
Diphtheria	*Plague*	Viral Hepatitis
Food Poisoning	*Rabies*	Whooping Cough
Influenza A(H5) / Influenza A(H7) / Influenza A(H9)	Relapsing Fever	*Yellow Fever*
Japanese Encephalitis	Rubella	

Most updated list of Notifiable Diseases

Ready | VH | MED | CMS IT (VH3)

Provision of most updated info about Notifiable Diseases (cont')

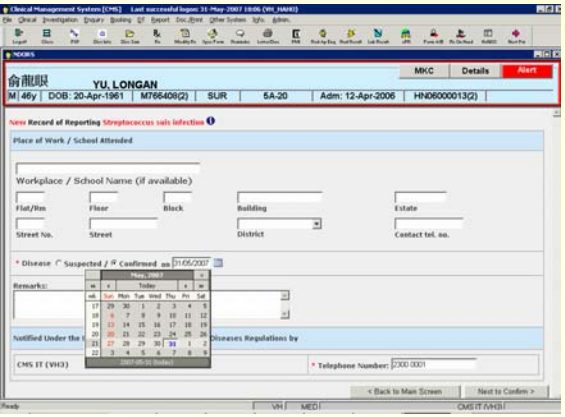


Relevant information

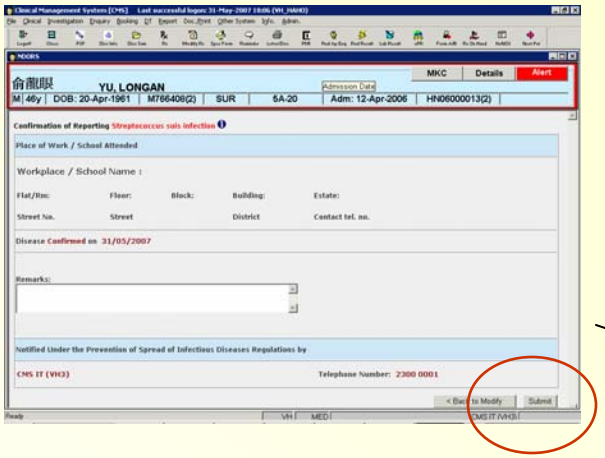
e.g. Communication mechanisms with Infection Control Team

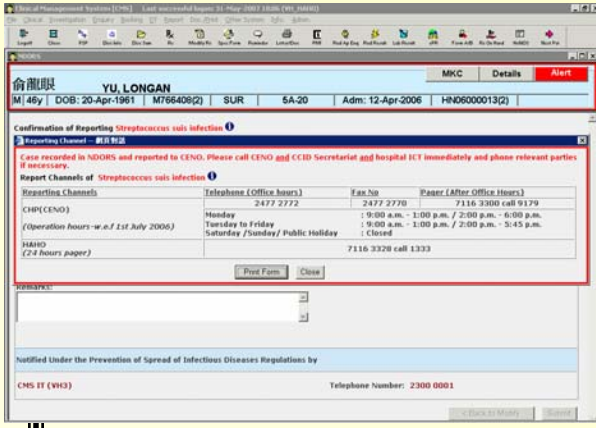
Updated criteria for reporting

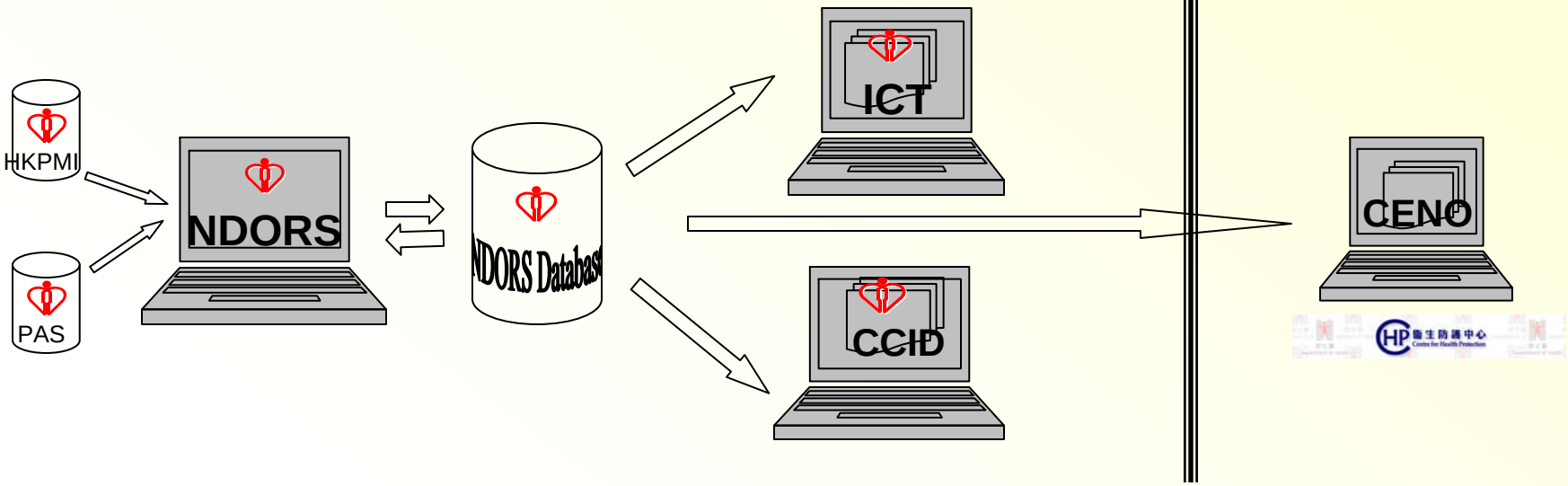
Just a "Click" → case reporting information is accessed by Infection Control Teams within HA & other government department in a timely way



Structured scope and data format







Management Reports

NDORS - Management Reports - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cs1-ndors-dev1/ndorsweb/forms/frm_reports.aspx

Notifiable Disease and Outbreak Reporting System — Welcome, CORP \NDORSCCID Logout

Management Reports

Pending | Accepted | Rejected | Reports

Patient Listing

Print

Date: 13/12/2005 to 13/12/2005 Hospital: ALL Disease: ALL
Review Status: ALL Format: Printout

Daily Summary

Date: 13/12/2005 Format: Printout

Notifiable Diseases — Click for Report Generation | Communicable Disease

Monthly Summary

Notifiable Diseases | Communicable Disease

javascript:__doPostBack('lnkDaiNoti','')

Monthly Summary of Notifications of Infectious Diseases Received by HAHO
(01/04/2007 00:00:00 to 30/04/2007 23:59:59)

		HKEC					HKWC							KCC					KEC			KWC							NTEC							NTWC				
		CCH	PYNEH	RHTSK	SJH	TWEH	WCH	DKH	FYKH	GH	MMRC	QMH	TWH	TYH	BTS/RCC	HKBH	HKEH	KH	QEH	HHH	TKOH	UCH	CMC	KCH	KWH	OLMH	PMH	WTSH	YCH	AHNH	BBH	NDH	PWH	SCH	SH	TPH	CPH	POH	SLH	TMH	Total
Acute Poliomyelitis																																									0
Amoebic Dysentery																																								1	1
Bacillary Dysentery												1						2											2			1	4							2	12
CA-MRSA Infection			1									2						1									2		2			1									9
Chickenpox			14	5	3							6	1					20		16	32		53		19	13	21		23	17		21	26					11		33	334
Cholera																									1															1	2
Dengue Fever	Confirmed			1																							1														2
	Suspected																																								0
Diphtheria																																									0
Food Poisoning																																									0
Influenza A(H5)	Confirmed																																								0
	Suspected																																2								2
Influenza A(H7)																																									0
Influenza A(H9)																																									0
Japanese Encephalitis	Confirmed																																								0
	Suspected																																								0
Legionnaires' Disease																																									0
Leprosy																																									0
Malaria																																	1								1
Measles																					1									1									1	3
Meningococcal Infections	Confirmed											1																												1
	Suspected																																								0
Mumps			2	1														1			1		3			1				1		1	2					3		2	18

Remark: Figures in the table may be changed daily upon the confirmation of the case status.
* NDORS is not available in this moment
Page 1

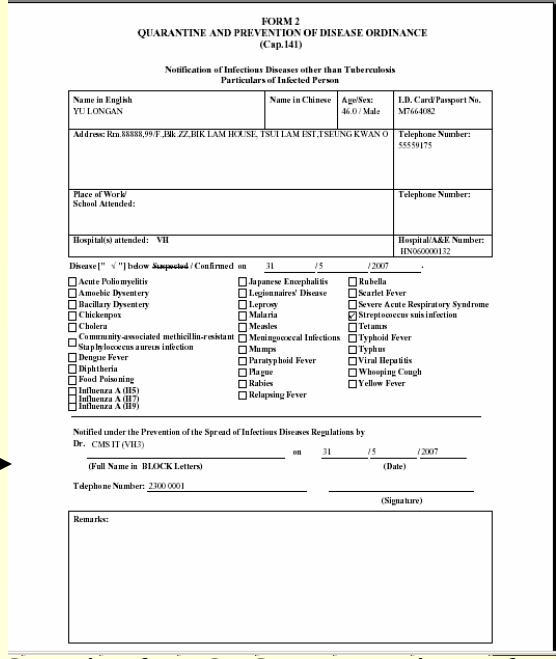
Printing Time : 01/06/2007 12:21

Evaluation Study

- A 4-month pilot study of NDORS implementation was carried out in 3 public hospitals and 3 GOPCs in March 2006.
- After pilot evaluation, full roll-out to all HA hospitals and clinics in July 2006

Results

- For the first 3-month full roll-out period of NDORS (in parallel with paper and fax reporting)
  - 2330 cases (i.e. 95%) reported via NDORS
  - 1059 clinicians used NDORS to report the Notifiable diseases
  - The average time interval taken between a doctor submitting a case and receiving the CENO system reply was 35 sec (2 sec to 4min18 sec)
  - About 15 cases (1 %) of the NDORS reported cases were sent to CENO system via **auto fax**
    - due to server or network problems and non-compliance with validation rules set for electronic data transfer between the two systems
  - Positive feedbacks were received from different levels of users including
    - convenience
    - timeliness
    - data quality (both for the completeness of data and the **decrease of duplication of case reports**) of case reporting with NDORS
    - improved efficiency of infection disease management works



FORM 2
QUARANTINE AND PREVENTION OF DISEASE ORDINANCE
(Cap.141)

Notification of Infectious Diseases other than Tuberculosis
Particulars of Infected Person

Name in English	Name in Chinese	Age/Sex:	I.D. Card/Passport No.
YU LONGAN		46.0 / Male	M766408(2)
Address: Rm.88888,99/F,Blk ZZ,BIK LAM HOUSE, TSUI LAM EST,TSEUNG KWAN O			Telephone Number: 55550175
Place of Work/ School Attended:			Telephone Number:
Hospital(s) attended: VH			Hospital/A&E Number: HN06000132

Disease [" √ "] below ~~Suspected~~ / Confirmed on 31 /5 /2007 .

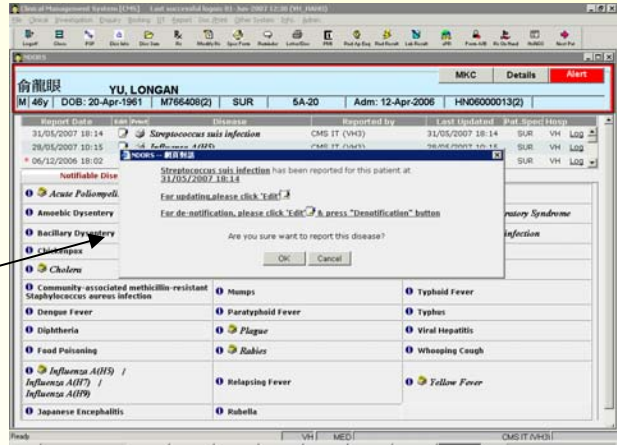
- ☐ Acute Poliomyelitis
- ☐ Amoebic Dysentery
- ☐ Bacillary Dysentery
- ☐ Chickenpox
- ☐ Cholera
- ☐ Community-associated methicillin-resistant Staphylococcus aureus infection
- ☐ Dengue Fever
- ☐ Diphtheria
- ☐ Food Poisoning
- ☐ Influenza A (H5)
- ☐ Influenza A (H7)
- ☐ Influenza A (H9)
- ☐ Japanese Encephalitis
- ☐ Legionnaires' Disease
- ☐ Leprosy
- ☐ Malaria
- ☐ Measles
- ☐ Meningococcal Infections
- ☐ Mumps
- ☐ Paratyphoid Fever
- ☐ Plague
- ☐ Rabies
- ☐ Relapsing Fever
- ☐ Rubella
- ☐ Scarlet Fever
- ☐ Severe Acute Respiratory Syndrome
- ☑ Streptococcus suis infection
- ☐ Tetanus
- ☐ Typhoid Fever
- ☐ Typhus
- ☐ Viral Hepatitis
- ☐ Whooping Cough
- ☐ Yellow Fever

Notified under the Prevention of the Spread of Infectious Diseases Regulations by
Dr. CMS IT (VH3) on 31 /5 /2007
(Full Name in BLOCK Letters) (Date)
Telephone Number: 2300 0001
(Signature)

Remarks:

Sample of NDORS generated auto-fax

Duplication check



Comparison of Paper & Fax Reporting and NDORS

Paper & Fax Reporting	NDORS	Benefits
Filling paper form	▪ Clinicians report case via all the CMS workstation during their clinical care of the patients ▪ Interfacing with patient master index demographic data ▪ Electronic forms with structured data fields with different checking rules	▪ Improve timeliness of case reporting by providing a more convenient way of reporting which is integrated with clinical workflow ▪ Decrease time used for reporting ▪ Improve data quality
Fax to Hospital ICTs, CCID of HAHO & CENO of CHP	▪ Submission of case reports to Hospital ICTs, CCID of HAHO & CENO of CHP simultaneously by clicking the "submit" button ▪ Updated information can be accessed +/- sent to 3 different parties via auto fax	▪ Decrease works used for reporting ▪ Prevent discrepancy of data among the 3 different parties
Loss of paper forms	▪ All case reporting records are stored in and viewed by clinical staff via NDORS	▪ Better history tracking for notifiable disease reporting records ▪ Decrease duplication of case reporting (by providing case report history view and checking rules of case report duplication) ▪ Records can be edited & updated via NDORS and updated information can be accessed +/- sent to 3 different parties via NDORS ▪ Online management reports for infection control management, surveillance and research
Reporting with reference to different sources of criteria for reporting (paper records, CHP website)	▪ Information provided on the updated list of notifiable diseases to be reported, the updated criteria of reporting & the updated contact details of different parties	▪ Improve data quality ▪ Decrease works for reporting ▪ Improve communication among different users

Thank you

Please send your comments and suggestions to Dr Anna Tong

tongyh@ha.org.hk