

Paper to Electronic Reporting: Benefits and Challenges to Public Health



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The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention.



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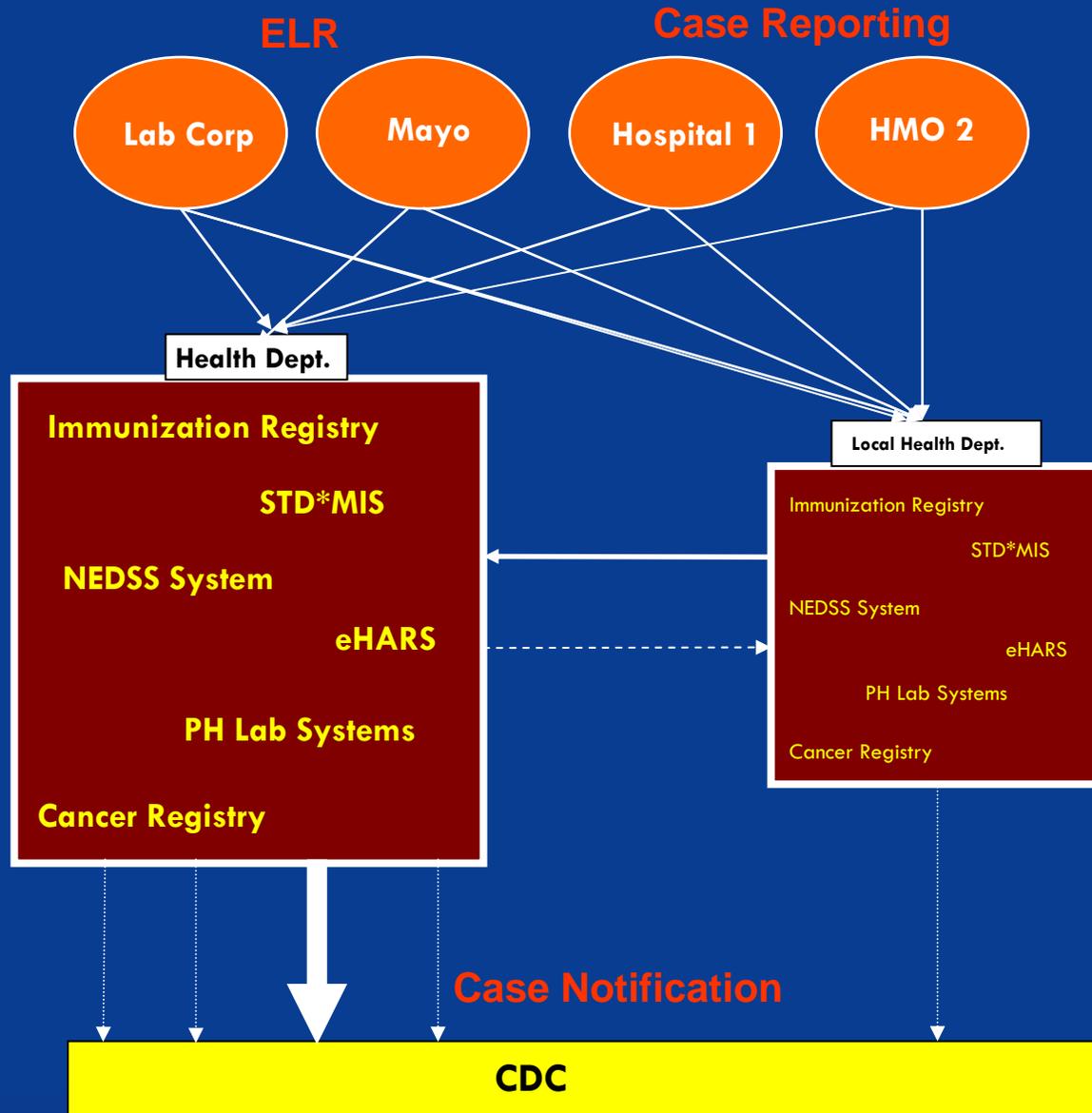
Agenda

- Where the story begins
- ELR arrives
- Payoff for public health
- Emerging standards
- Government drivers
- How far have we come
- **What do we really have** (be careful of what you ask for)
- Issues
- NMS
- Tomorrow's vision

*What is public
health informatics?*



Public Health Surveillance Systems



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Where the story begins: Active vs. Passive

- Active reporting to public health
 - Chart reviews
 - Targeted screening
 - Contact tracing
- **Passive reporting to public health – paper-based**
 - Case reports (CMR)*
 - Laboratory test results suggestive of a notifiable condition



Alabama Lab Report - Salmonella

Bureau of Clinical Laboratories-Montgomery

PO BOX 244018, MONTGOMERY AL 36124-4018
Phone:(334) 260-3400 FAX:(334) 274-9800

Page: 1

Provider:

ST VINCENT EAST
50 MEDICAL PARK EAST DRIVE
BIRMINGHAM, AL,
(205) 838-3000,
UNKNOWN DOCTOR

Accession

8004666

ID:

1148280

Patient:

[REDACTED]

Requisition #: 8004666

Service Area:

CHR #:

Collected: 9/12/2007 @

Received: 9/18/2007 @ 1:02 PM

Reported: 9/27/2007 @ 11:50 AM

D.O.B.: 8/1/1949

Sex: F FEMALE

Phone: (000) 000-0000

SSN: [REDACTED]

Status: Final Report

Test Name

Result

Units

Normal Range

Notes

Report Generated For : UNKNOWN DOCTOR
UNKNOWN
AL

Enteric Bacteriology Results

Salmonella - Shigella Identification

Source: Stool

Culture Results

Organisms

THOMPS

Colony Count

Salmonella serotype Thompson



Vermont Lab Report – 3 Tests

Vermont Health Department

WEEKLY LAB REPORT

RECEIVED OCT 04 2007

Epidemiology Program

Laboratory SOUTHWESTERN MEDICAL CENTER

Week Ending Sept 29, 2007

Person Making Report [Signature]

Positive Test	Specimen Type	Specimen Submitted Y, N*	Date of Collection	Patient Name* *For HIV, report ONLY Patient Unique Identifier, NOT Name	Age and Date of Birth	Sex	Address* *For HIV, Do NOT Report Address - Leave Blank	Attending Physician
<i>Compassionate Lyme</i>	<i>Serum</i>	<i>N</i>	<i>9/20/07</i>			<i>M</i>		<i>[Signature]</i>
<i>Lyme</i>	<i>Blood</i>	<i>N</i>	<i>9/18/07</i>			<i>M</i>		<i>gate, Angela</i>
<i>Enterovirus by PCR</i>	<i>CSF</i>	<i>N</i>	<i>9/26/07</i>			<i>M</i>		<i>[Signature]</i>



New Jersey Lab Report – Lyme

DATE: 08-09-2007

LABORATORY CORPORATION OF AMERICA
STATE REPORTING

PAGE: 1

LAB ADDRESS:

LabCorp Raritan
69 First Avenue
Raritan

NJ 08869-0000

PATIENT NAME/ADDRESS

[REDACTED] PAT. ID 3
[REDACTED]

SPECIMEN NUMBER	SPECIMEN DATE	AGE		SEX	BIRTHDATE	RPT DATE
		YEARS	MONTHS			
[REDACTED]	08-06-2007	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	08/08/2007
TEST NAME		TEST NUM		RESULTS	UNITS	PERFORMING LAB

Lyme IgM WB Interp. 163639 Positive RN
Criteria for positivity are those recommended by CDC/ASTPHLD.
p23=Osp C, p41=flagellin

Lyme IgG WB Interp. 163640 Positive RN

AGENCY ADDRESS:

[REDACTED]

CUSTOMER ADDRESS: ACCT # [REDACTED]

[REDACTED]
PHONE: [REDACTED]
PHYSICIAN: [REDACTED]



Nebraska Lab Report – Hepatitis C

LABORATORY CORPORATION OF AMERICA
STATE REPORTING

DATE: 10-09-2002

PAGE: 1

LAB ADDRESS:

NE

PATIENT NAME/ADDRESS

PAT. ID

LABORP KANSAS CITY
1704 N CORRINGTON AVE
KANSAS CITY MO 64120-0000

SPECIMEN NUMBER	SPECIMEN DATE	AGE YEARS MONTHS	SEX	BIRTHDATE	RPT DATE	PERFORMING LAB
27762001650	10-04-2002	046 01	M	08/30/	10/08/2002	KC
TEST NAME	TEST NUM	RESULT	UNITS			

Hep C Virus Ab

140608 *

KC

Result: REPEATEDLY REACTIVE

*enter hep C Ab
PL*

AGENCY ADDRESS:

CUSTOMER ADDRESS: ACCT # 26409490

COMMUNICABLE DISEASE
NE HHS R&L
P.O. BOX 95007
LINCOLN NE 68509-5007

NE DEPT OF CORRECTIONAL SERV
D & E
3216 W. VAN DORN P.O BOX 22800
LINCOLN NE 68542-2800
PHONE: (402) 479-6333
PHYSICIAN: LE MAR



Alabama Lab Report – Hepatitis B

DATE: 10-23-2007 LABORATORY CORPORATION OF AMERICA PAGE: 1
 STATE REPORTING

LAB ADDRESS: PATIENT NAME/ADDRESS PAT. ID
 LabCorp Birmingham [REDACTED] [253251343]
 1801 First Avenue South [REDACTED] 36863
 Birmingham AL 35233-0000 [REDACTED]

SPECIMEN NUMBER	SPECIMEN DATE	AGE YEARS MONTHS	SEX	BIRTHDATE	PPT DATE	TEST NAME	TEST NUM	RESULTS	UNITS	PERFORMING LAB
29205064240	10-19-2007	043 01	M	08/23/1964	/ /	HBsAg Confirmation	016105	Positive		MB
						Hep B Core Ab. Icm	016881	Positive		MB
						Hep B Core Ab. Icm	016881	Positive		MB

AGENCY ADDRESS:
 ALABAMA DEPT OF PUBLIC HEALTH
 DIVISION OF DISEASE CONTROL
 201 MONROE STREET
 MONTGOMERY AL 36104

CUSTOMER ADDRESS: ACCT # 01130530
 MICHAEL A. GROSSMAN, M.D.
 4505 20th AVENUE
 VALLEY AL 36854
 PHONE: (334) 756-9604
 PHYSICIAN: GROSSMAN



Idaho Lab Report – C. trachomatis

PATHOLOGY ASSOCIATES MEDICAL LABORATORIES
110 W Cliff Ave.
Spokane, Washington 99204

NAME: [REDACTED] AGE: 26Y SEX: F
ACCOUNT NUMBER: [REDACTED] Date of Birth: [REDACTED]
DOCTOR: TREASURE VALLEY LAB
ACCOUNT'S PHONE: (208) 367-8585
CLIENT: Treasure Valley Laboratory ORDERING PHYSICIAN: Tvl

M7S452 COLL: 10/15/2007 17:18 REC: 10/16/2007 00:57 PHYS: TREASURE VALLEY
Req# : [REDACTED]

Results phoned and faxed to Lauren 10/16/2007 14:27 -sp

Chlamydia Trachomatis/GC by Ap

Source Vaginal Flora
C trachomatis by Aptima * Detected (NOTDET) (01)

This is a REPORTABLE DISEASE.
Please contact your
County/State Health
Department.

N. gonorrhoeae by Aptima [NOTDET] (01)

Not Detected
Chlamydia trachomatis and
Neisseria gonorrhoeae testing
by APTIMA is approved for
endocervical, male urethral,
and male and female urine
specimens only.

(01) = Pathology Associates Medical Laboratories, 110 W Cliff Ave,
Spokane, WA 99204



Alabama Lab Report – Batch report from ARUP

ARUP Laboratories
500 Chopeta Way
Salt Lake City, Utah 84108
CLIA# 4600623979

This report contains all the patient demographic information that ARUP was provided.
Contact the client for additional information.

Report Created on: 10/16/2007

BIRTHDATE	SEX	COLL DATE	VERF DATE	ACCN #	TEST NAME	RESULT	UNITS	ORDER DR.	NAME	CLIENT NAME	ADDRESS	CITY	STATE	COUNTY
07/09/1996	F	10/10/2007	10/14/2007	0728402725	C. TRACHOMATIS DNA PROBE	POSITIVE		KITCHENS	JERRY	ST VINCENTS HOSPITAL IF	810 ST. VINCENTS DRIVE	Birmingham	AL	Jefferson
03/30/1975	F	10/08/2007	10/11/2007	0728203866	C. TRACHOMATIS DNA PROBE	POSITIVE		AVERY	KAREN	ST VINCENTS HOSPITAL IF	810 ST. VINCENTS DRIVE	Birmingham	AL	Jefferson
09/28/1974	M	09/26/2007	10/10/2007	0727081033	HCV GENOTYPING BY SEQUENCING	3a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
03/14/1945	M	10/01/2007	10/08/2007	0727681460	HCV GENOTYPING BY SEQUENCING	1b		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
05/12/1956	M	10/08/2007	10/15/2007	0728281646	HCV GENOTYPING BY SEQUENCING	2b		LEE	SANGMIN	U OF AL - BIRMINGHAM	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
04/25/1968	M	10/05/2007	10/12/2007	0727907129	HCV GENOTYPING BY SEQUENCING	1a		WILSON	MARK	ST VINCENTS HOSPITAL IF	619 S.19TH/S299 SPAIN-WAL	Birmingham	AL	Jefferson
10/08/1959	F	10/02/2007	10/12/2007	0727781434	HCV GENOTYPING BY SEQUENCING	1a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	810 ST. VINCENTS DRIVE	Birmingham	AL	Jefferson
03/25/1956	M	10/02/2007	10/12/2007	0727781432	HCV GENOTYPING BY SEQUENCING	1a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
07/05/1961	M	10/03/2007	10/12/2007	0727781394	HCV GENOTYPING BY SEQUENCING	1a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
03/09/1963	M	09/28/2007	10/09/2007	0727561638	HCV GENOTYPING BY SEQUENCING	1a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
05/30/1953	M	10/03/2007	10/12/2007	0727781391	HCV GENOTYPING BY SEQUENCING	1a		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
06/01/1951	M	10/05/2007	10/12/2007	0727981441	HCV GENOTYPING BY SEQUENCING	1b		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
12/03/1945	F	10/10/2007	10/13/2007	0728328194	HEP C RNA Quant Real-Time PCR	5.3	log IU	BOSWELL	DAWSON	SOUTHERN DIAGNOSTIC IF	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
04/20/1969	M	10/12/2007	10/14/2007	0728607469	HEPATITIS C Ab	HIGH POS		FARLEY	JOHN	ST VINCENTS HOSPITAL IF	2732 7TH AVENUE SOUTH	Birmingham	AL	Jefferson
03/10/1963	M	10/11/2007	10/13/2007	0728512561	HEPATITIS C Ab	HIGH POS		KROTHA PAUL	JOHN	ST VINCENTS HOSPITAL IF	810 ST. VINCENTS DRIVE	Birmingham	AL	Jefferson
01/01/1935	M	10/05/2007	10/10/2007	0728121294	HEPATITIS C Ab (RIBA 3.0)	POSITIVE		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	2732 7TH AVENUE SOUTH	Birmingham	AL	Jefferson
07/01/1949	F	10/08/2007	10/11/2007	0728281417	HEPATITIS C RNA QUANT bDNA	5.9	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
01/19/1947	M	10/04/2007	10/11/2007	0727981487	HEPATITIS C RNA QUANT bDNA	6.0	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
08/14/1953	M	10/10/2007	10/13/2007	0728481420	HEPATITIS C RNA QUANT bDNA	6.1	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
04/05/1931	F	10/04/2007	10/11/2007	0727981490	HEPATITIS C RNA QUANT bDNA	6.1	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
05/12/1956	M	10/08/2007	10/11/2007	0728281634	HEPATITIS C RNA QUANT bDNA	6.0	log IU	LEE	SANGMIN	U OF AL - BIRMINGHAM	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
06/30/1955	M	10/09/2007	10/13/2007	0728381334	HEPATITIS C RNA QUANT bDNA	3.9	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	619 S.19TH/S299 SPAIN-WAL	Birmingham	AL	Jefferson
11/15/1945	F	10/08/2007	10/13/2007	0728381332	HEPATITIS C RNA QUANT bDNA	5.2	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
08/28/1956	M	10/08/2007	10/13/2007	0728381333	HEPATITIS C RNA QUANT bDNA	6.5	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
08/17/1954	F	10/11/2007	10/13/2007	0728581392	HEPATITIS C RNA QUANT bDNA	5.6	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
01/22/1961	M	10/08/2007	10/11/2007	0728281576	HEPATITIS C RNA QUANT bDNA	6.0	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
02/13/1953	M	10/09/2007	10/13/2007	0728481434	HEPATITIS C RNA QUANT bDNA	6.2	log IU	DEIERHOI	MARK	U OF AL - BIRMINGHAM	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
12/03/1951	M	10/10/2007	10/13/2007	0728481423	HEPATITIS C RNA QUANT bDNA	6.4	log IU	DEIERHOI	MARK	U OF AL - BIRMINGHAM	619 S.19TH/S299 SPAIN-WAL	Birmingham	AL	Jefferson
12/18/1947	F	10/07/2007	10/13/2007	0728381362	HEPATITIS C RNA QUANT bDNA	6.6	log IU	UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	619 S.19TH/S299 SPAIN-WAL	Birmingham	AL	Jefferson
10/28/1976	M	10/11/2007	10/13/2007	0728581391	HEPATITIS C RNA, Qual by PCR	POSITIVE		UNKNOWN	DOCTOR	UAB - OUTREACH DEPARTMENT	1813 6TH AVENUE SOUTH	Birmingham	AL	Jefferson
01/02/1947	M	10/08/2007	10/11/2007	0728204719	ROCKY MT SPOTTED FEVER, IgM	1.8	IV	ALLEN	LENORE	PROVIDENCE HOSP S2K	6801 AIRPORT BLVE	Mobile	AL	Mobile
02/23/1974	F	10/09/2007	10/11/2007	0728226328	ROCKY MT SPOTTED FEVER, IgG	5.1	IV	ROSA	LENORE	PROVIDENCE HOSP S2K	6801 AIRPORT BLVE	Birmingham	AL	Jefferson
08/10/1954	M	10/08/2007	10/12/2007	0728204723	T.PALLIDUM Ab by MHA(MHA-TP)/MHA	REACTIVE		LITTLES	UNKNOWN	SOUTHERN DIAGNOSTIC IF	2732 7TH AVENUE SOUTH	Birmingham	AL	Jefferson
09/13/1931	M	10/05/2007	10/10/2007	0728102806	T.PALLIDUM Ab, IgG (FTA-ABS)	REACTIVE		DENSON	W.S.	PROVIDENCE HOSP S2K	6801 AIRPORT BLVE	Mobile	AL	Mobile



ELR arrives

- Data sources entice public health
- Source systems highly variable
- Rapidly growing number of requests for ELR
- Rapidly growing number of specifications for ELR
- Absence of model for reducing variability
- National leadership challenges



Stats from States on Electronic Lab Reporting (ELR)

- Nebraska
 - Reporting time reduced from 24 days to 3 days
 - 3 fold increase in reporting
- Indiana
 - 8 day improvement in reporting
 - 4.3 fold increase in reporting
- Florida
 - \$800,000 cost avoidance for 6 months in STD program area alone



Emerging Standards

- Hospital/medical industry adopts HL7
- CAP develops SNOMED
- LOINC emerges
- HIMs and LIMs vendors begin adopting these standards
- HL7.org emerges as an international force



SNOMED Clinical Terms First Release January 2002

- Contains approximately 325,000 concepts linked to clinical knowledge to enable accurate recording of data without ambiguity
- The terminology's content also includes more than 800,000 descriptions or synonyms relating to clinical concepts
- More than 950,000 links, known as semantic relationships, between clinical concepts



Federal Health IT Report Recognizes SNOMED CT June 3, 2005

A June 3 report from the Department of Health and Human Services, the HHS identifies SNOMED CT along with seven other medical coding and terminology systems that respondents recommended for a master list of standards that would provide a national baseline for electronic data exchange. The report notes that standards on the master list could function as "the bridge between custom implementations of other standards, where translations to/from the master set would facilitate health information exchange among health applications."



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Logical Observation Identifiers Names and Codes (LOINC®)



The purpose of the LOINC® database is to facilitate the exchange and pooling of results, such as blood hemoglobin, serum potassium, or vital signs, for clinical care, outcomes management, and research. Currently, most laboratories and other diagnostic services use HL7 to send their results electronically from their reporting systems to their care systems. However, most laboratories and other diagnostic care services identify tests in these messages by means of their internal and idiosyncratic code values. Thus, the care system cannot fully "understand" and properly file the results they receive unless they either adopt the producer's laboratory codes (which is impossible if they receive results from multiple sources), or invest in the work to map each result producer's code system to their internal code system. LOINC codes are universal identifiers for laboratory and other clinical observations that solve this problem.

Regenstrief Institute has Expanded!



[find out more here...](#)

The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology; as well as categories for drugs and the cell counts you would find reported on a complete blood count or a cerebrospinal fluid cell count. Antibiotic susceptibilities are a separate category. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations.

The Regenstrief Institute, Inc (www.regenstrief.org) maintains the LOINC database and its supporting documentation. Regenstrief also maintains the Unified Code for Units of Measure (UCUM) code system, a related standard that includes units of measures being contemporarily used in international science, engineering, and business.



LOINC Code Example

"23767-7"	"Porcine circovirus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"Immune stain"	"MICRO"	"JTC"	"2000
"23768-5"	"Porcine influenza virus A Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"HAI"	"MICRO"	"JTC"	"2001
"23769-3"	"Porcine influenza virus A Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"Immune stain"	"MICRO"	"JTC"	
"2377-0"	"Glutathione peroxidase"	"CCnc"	"Pt"	"RBC"	"Qn"		"CHEM"	"AF"	"A20820"
"23770-1"	"Porcine parvovirus Ab"	"Titr"	"Pt"	"Ser"	"Qn"		"MICRO"	"JTC"	"20010103"
"23771-9"	"Porcine parvovirus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"IF"	"MICRO"	"JTC"	"20000113"
"23772-7"	"Porcine reproductive and respiratory syndrome virus Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"IF"	"PRRS"	"MICRO"	"JTC"
"23773-5"	"Porcine rotavirus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"IF"	"MICRO"	"JTC"	"20000113"
"23774-3"	"Pseudorabies virus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"IF"	"AUJEZSKYS DISEASE"	"MICRO"	"JTC"
"23775-0"	"Rhodococcus equi Ab"	"Titr"	"Pt"	"Ser"	"Qn"		"MICRO"	"JTC"	"20010103"
"23776-8"	"Rickettsia spotted fever group Ab"	"ACnc"	"Pt"	"Ser"	"Ord"	"IF"	"ROCKY MOUNTAIN SPOTTED FEVER"	"MICRO"	"JTC"
"23777-6"	"Salmonella pullorum Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Aggl"	"MICRO"	"JTC"	"2001
"23778-4"	"Salmonella typhimurium Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Aggl"	"MICRO"	"JTC"	"2001
"23779-2"	"Selenium"	"MCnc"	"Pt"	"XXX"	"Qn"	"SE"	"DRUG/TOX"	"JTC"	"20020403"
"237-8"	"Erythromycin+sulfisoxazole"	"Susc"	"Pt"	"Isolate"	"OrdQn"	"MIC"	"CO-ERYNSULFISOX FOR ORAL SUSPENSION; ERYZOLE;		
"23780-0"	"Strychnine"	"MCnc"	"Pt"	"XXX"	"Qn"		"DRUG/TOX"	"JTC"	"20020403"
"23781-8"	"Swine influenza virus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"IF"	"MICRO"	"JTC"	"2000
"23782-6"	"Swine influenza virus Ag"	"ACnc"	"Pt"	"Tiss"	"Ord"	"Immune stain"	"MICRO"	"JTC"	
"23783-4"	"Taylorella equigenitalis Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Comp fix"	"CONTAGIOUS EQUINE METRITIS;CEM"	"MICR	
"23784-2"	"Toxoplasma gondii Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"HA"	"MICRO"	"JTC"	"20020328"
"23785-9"	"Trypanosoma cruzi Ab"	"ACnc"	"Pt"	"Ser"	"Ord"		"MICRO"	"JTC"	"20000113"
"23786-7"	"Urea"	"MCnc"	"Pt"	"XXX"	"Qn"		"CHEM"	"JTC"	"20000113"
"23787-5"	"Venezuelan equine encephalitis virus Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Comp fix"	"VEE"	"MICRO"	"JTC"
"2378-8"	"Glutathione reductase"	"CCnc"	"Pt"	"RBC"	"Qn"		"CHEM"	"AF"	"A02350"
"23788-3"	"Vesicular stomatitis virus Indiana Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Comp fix"	"VS"	"MICRO"	"JTC"
"23789-1"	"Vesicular stomatitis virus Indiana Ab"	"Titr"	"Pt"	"Ser"	"Qn"	"Neut"	"vs"	"MICRO"	"JTC"



LOINC to Condition Table

NNDSS Code	Condition	LOINC code	LOINC test name
10660	Yellow fever	8056-4	Yellow fever virus Ab.IgM : ACnc : Pt : Ser : Qn : EIA
12010	Babesiosis	21089-8	Babesia microti DNA : ACnc : Pt : Bld : Ord : Probe.Amp.Tar
10040	Diphtheria	16676-9	Corynebacterium diphtheriae identified : ACnc : Pt : xxx : Ord : Organism specific culture

The LOINC to Condition table maps LOINC codes to notifiable conditions. This table contains the LOINC codes that are indicative of notifiable conditions.

SNOMED to Condition Table

NNDSS Code	Condition	SNOMED code	SNOMED organism name
10660	Yellow fever	L-32301	Yellow fever virus
12010	Babesiosis	L-52B02	Babesia microti
10040	Diphtheria	L-14401	Corynebacterium diphtheriae



Organism List	SNOMED Name	SNOMED ID	SNOMED Code
Mycobacterium tuberculosis list	Mycobacterium africanum	51320008	L-21804
Mycobacterium tuberculosis list	Mycobacterium tuberculosis	113861009	L-21907
Mycobacterium tuberculosis list	Mycobacterium tuberculosis African I variant	243372002	L-2180D
Mycobacterium tuberculosis list	Mycobacterium tuberculosis African II variant	243373007	L-2180E
Mycobacterium tuberculosis list	Mycobacterium tuberculosis Asian variant	243371009	L-2180C
Mycobacterium tuberculosis list	Mycobacterium tuberculosis classical variant	243370005	L-2180B
Mycobacterium tuberculosis list	Mycobacterium tuberculosis complex	113858008	L-21904
Mycobacterium tuberculosis list	Mycobacterium tuberculosis hominis	36354002	L-21801
Neisseria gonorrhoeae list	Cephalosporin-resistant Neisseria gonorrhoeae	277503000	L-2220D
Neisseria gonorrhoeae list	Neisseria gonorrhoeae	68704007	L-22201
Neisseria gonorrhoeae list	Penicillinase-producing Neisseria gonorrhoeae	277501003	L-2220B
Neisseria gonorrhoeae list	Spectinomycin-resistant Neisseria gonorrhoeae	277504006	L-2220E
Neisseria gonorrhoeae list	Tetracycline-resistant Neisseria gonorrhoeae	277502005	L-2220C



Streptococcus pneumoniae list	Streptococcus penumoniae 3	103497003	L-25203
Streptococcus pneumoniae list	Streptococcus penumoniae, serotype 29	131363003	L-25296
Streptococcus pneumoniae list	Streptococcus pneumoniae	9861002	L-25116
Streptococcus pneumoniae list	Streptococcus pneumoniae 14	103498008	L-25214
Streptococcus pneumoniae list	Streptococcus pneumoniae 7F	103499000	L-2527F
Streptococcus pneumoniae list	Streptococcus pneumoniae 9N	103500009	L-25291
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 11	363768008	L-25298
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 12	116500005	L-25292
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 16	131362008	L-25295
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 17	131361001	L-25294
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 19	127541006	L-25293
Streptococcus pneumoniae list	Streptococcus pneumoniae, serotype 22	363767003	L-25297



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Vermont Lab Report – 3 Tests

Vermont Health Department

WEEKLY LAB REPORT

RECEIVED OCT 04 2007

Epidemiology Program

Laboratory SOUTHWESTERN MEDICAL CENTER

Week Ending Sept 29, 2007

Person Making Report [Signature]

Positive Test	Specimen Type	Specimen Submitted Y, N*	Date of Collection	Patient Name* *For HIV, report ONLY Patient Unique Identifier, NOT Name	Age and Date of Birth	Sex	Address* *For HIV, Do NOT Report Address - Leave Blank	Attending Physician
<i>Compassionate Lyme</i>	<i>Blood</i>	<i>N</i>	<i>9/20/07</i>			<i>M</i>		<i>[Signature]</i> gate, Angela
<i>Enterovirus by PCR</i>	<i>CSF</i>	<i>N</i>	<i>9/26/07</i>			<i>M</i>		<i>[Signature]</i>



Government drivers

- NEDSS standards
- PHIN standards
- CDC/CSTE standards
- AHIC standards



NEDSS Elements

- Integrated data repository
- Standards-based
- Electronic laboratory reporting (ELR)
- Industry compliant web browser security
- Analysis, visualization, reporting
- Data derived from the PHCDM
- Transportable business logic
- Public health directory adopted



PHIN 2.0 REQUIREMENTS: FUNCTIONS OF ELECTRONIC INFORMATION SYSTEMS

CDC requires that each state or local health department—or its agent—

1. be able to compose electronic messages using standard protocols, formats, and terminologies.
2. be able to securely send to one or more recipients electronic messages composed using standard protocols, formats and terminologies.
3. be able to securely receive, process, and interpret electronic messages sent using standard protocols, formats, and terminologies.
4. be able to electronically enter, edit, and retrieve identifying and other information about persons, organizations, or other entities from an electronic directory that adheres to standard directory protocols, formats, and terminologies, and to which the department has authorized access.
5. ensure that its electronic information systems that support PHIN requirements are secure and have the appropriate level of availability and the information contained is only accessed or used by authorized users for authorized purposes.



06-EC-02

Committee: Executive

Title: Establishing the standard of Health Level 7 version 2.5 (HL7 v2.5) for public health electronic reporting by January 1, 2008.

Statement of the desired action(s) to be taken:

The proposal is to establish HL7 v2.5 by January 1, 2008, as the national standard for public health entities to receive electronic messages.

In essence this proposal would require all public health entities to be able to accept HL7 v2.5 by January 1, 2008, but would not mandate that all reporting entities use HL7 v2.5 by that date. Since HL7 v2.5 is capable of receiving prior HL7 versions (backward compatibility), reporting entities could still use earlier functional systems. However, establishing HL7 v2.5 will benefit all parties by allowing informed planning for implementing future public health electronic information exchange and encourage reporting entities to invest in HL7 messaging with the assurance that it is accepted as a national standard. It is acknowledged that HL7 v2.5 should be considered as a temporary standard that will change at some point beyond 2008 as technological advances occur. Considerable work with later HL7 versions is already ongoing and will undoubtedly be of benefit in the future.

CSTE supports a goal of attaining a HL7 version 3.0 XML standard in the future.



Executive Order: Promoting Quality and Efficient Health Care in Federal Government Administered or Sponsored Health Care Programs

1) For Federal Agencies. As each agency implements, acquires, or upgrades health information technology systems used for the direct exchange of health information between agencies and with non-Federal entities, it shall utilize, where available, health information technology systems and products that meet recognized interoperability standards.

(2) For Contracting Purposes. Each agency shall require in contracts or agreements with health care providers, health plans, or health insurance issuers that as each provider, plan, or issuer implements, acquires, or upgrades health information technology systems, it shall utilize, where available, health information technology systems and products that meet recognized interoperability standards.

Sec. 4. Implementation Date. Agencies shall comply with the requirements of this order by January 1, 2007.



AHIC

The American Health Information Community (AHIC), a 2005 federally-chartered commission made up of leaders from public and private health sectors, was formed to provide recommendations on how to make health records digital and interoperable, and assure that the privacy and security of those records are protected. At the same time, HHS, through the Office of the National Coordinator for Health IT (ONC) awarded contracts to 1) identify interoperability standards to facilitate the exchange of patient data (HITSP), 2) define a process for certifying that health IT products comply with appropriate standards (CCHIT), and 3) develop a series of prototypes to establish the requirements of a nationwide health information network (NHIN). These activities share the goal of widespread adoption of interoperable electronic health records within 10 years through public-private collaboration.



How far have we come



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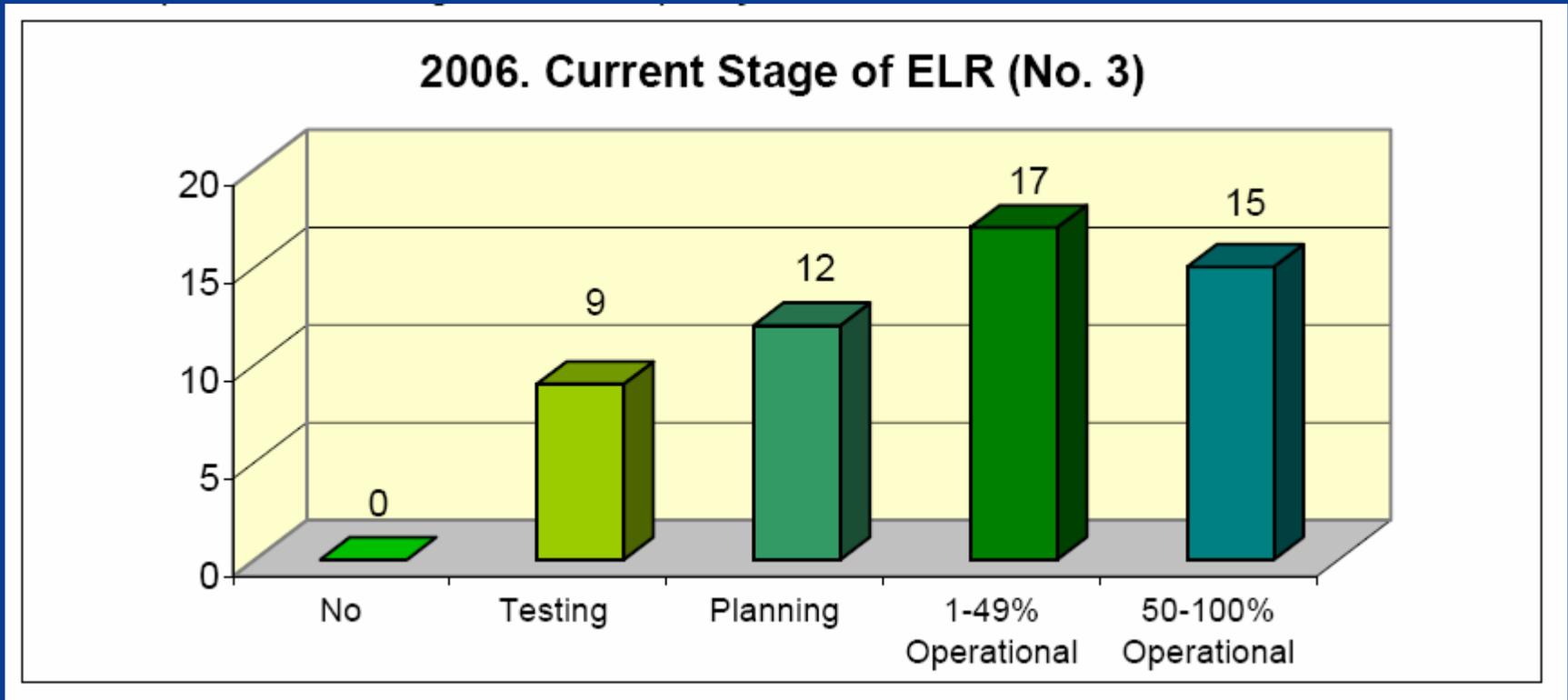


NEDSS Status in US

	11/2004	11/2005	11/2006	11/2007
Integrated Data Repository	17	23	36	43
Electronic Lab Result (ELR) Messaging	15	19	35	38
Web-browser Based Software	21	28	37	43
Standards-based Electronic Messaging	10	13	16	16



Electronic Messaging Capability *



* 2006 ELR Survey Report conducted by J.A. Magnuson, Oregon

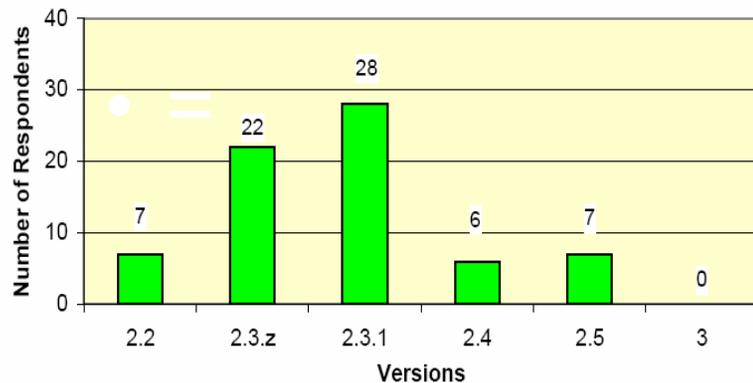


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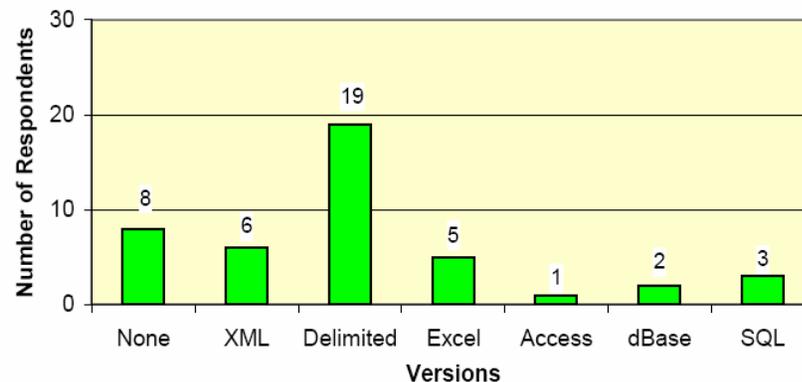


2006 ELR Survey*

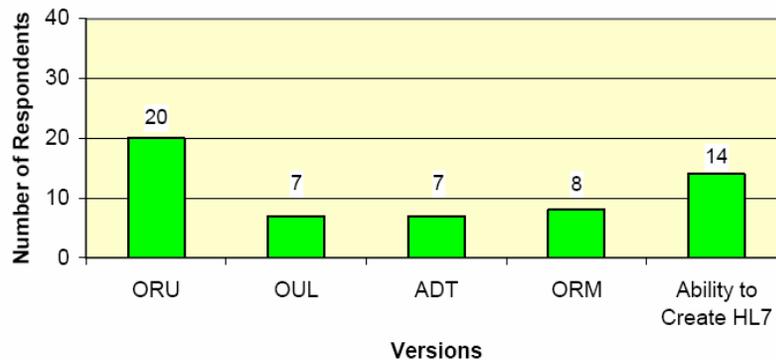
2006. HL7 Versions Accepted (No. 13)



2006. Non-HL7 Message Types Accepted (No. 14)



2006. HL7 Message Types Accepted (No. 13)



* 2006 ELR Survey Report conducted by J.A. Magnuson, Oregon



What we really have?
(Be careful of what you ask for)



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Hepatitis B Results

MSH|^~\&|RD|MAYO CLINIC DEPT. OF LAB MED AND
PATHOLOGY^24D0404292^CLIA|XXDOH|XX|200703280430||ORU^R01|20070328043021065227|P|2.3.1
PID|1||17492270806^^^^PI^MAYO CLINIC DPT OF LAB MED PATHOLOGY SUPERIOR DR&24D1040592&CLIA~314276560^^^^PT^PARKLAND
MEMORIAL HSP||D829272379^FIRSTNAME^MIDDLE||19820119|F||U^HL7 005^^L|STREET1^STREET2^CITY^^ZIPCODE^COUNTRY^^^COUNTY
NK1|1|NEXT OF KIN|||^^^^^^
ORC|1|PARKLAND MEMORIAL HSP|5201 HARRY HINES BLVD^^DALLAS^TX^75235|^214^5905822|5201 HARRY
HINES BLVD^^DALLAS^TX^75235
OBR|1||D829272379|^82416^HEPATITIS B VIRAL DNA, QN, S^L|||200703231045|||BRANCHED-CHAIN DNA (BDNA)
ASSAY|200703240333|BLD|004339^CUTHBERT^^^^|^200703271409|||F
OBX|1|SK(29900-8^H^PATITIS B VIRUS DNA^LN^23695^HEPATITIS B VIRAL DNA, QN,
S^L|>^17857143|IU/ML|||F|||20070327020900|24D1040592^MAYO CLINIC DPT OF LAB MED PATHOLOGY SUPERIOR DR
NTE|1|C|DYNAMIC RANGE OF THIS ASSAY IS 357 IU/ML TO
NTE|2|C|17,857,143 IU/ML.
NTE|3|C
NTE|4|C|TESTING WAS DONE BY BRANCHED-DNA METHOD.

□



Simple Microbiology Test with Reflex Susceptibilities

MSH|^~\&|LABCORP-CORP|LABCORP^34D0655059^CLIA|LD0H|AL|200603020044||ORU^R01|20060302015834571077|P|2.3.1|||||
PID|1|01844|05540205540^^^^^LabCorp|XXXXXXXX^X||196011092025|F||U|||||XXXXXXXXX|||||
NK1|1|||||
ORC|||||Coosa Valley Medical Center|315 West Hickory St.^SyLacauga^AL^35150|^^^^^256^2495780|315
West Hickory St.^SyLacauga^AL^35150
OBR|1||05540205540|^^^080186^Result^L|||200602241455|||200602250137|^BRENTNALL|^256^2495780|||F|||||
||||
OBX|1|CE|11475-1^MICROORGANISM IDENTIFIED^LN^080187^RSLT#1^L|1|^HAEMIN^Haemophilus
influenzae^L||||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||
OBR|2||05540205540|11475-1^MICROORGANISM IDENTIFIED^LN^080187^Result
1^L|||200602241455|||200602250137|^BRENTNALL|^256^2495780|||F||11475-1^MICROORGANISM
IDENTIFIED&LN&080187&RSLT#1&L^1^&&HAEMIN&Haemophilus influenzae&L|||^05540205540|||||
OBX|1|CE|28-1^AMPICILLIN^LN^998002^Ampicillin^L|1|G-
D460^RESISTANT^SNM^R^RESISTANT^L||R||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|2|C|184-4^CEFACLOR^LN^99053^Cefaclor^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|3|CE|80-2^CEFIXIME^LN^998055^Cefixime^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|3|CE|80-2^CEFIXIME^LN^998055^Cefixime^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|4|CE|141-2^CEFTRIAZONE^LN^998012^Ceftriaxone^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|5|CE|145-3^CEFUROXIME . PARENTERAL^LN^998014^Cefuroxime^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|6|CE|173-5^CHLORAMPHENICOL^LN^998016^Chloramphenicol^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|7|CE|6652-2^MEROPENEM^LN^998045^Meropenem^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|8|CE|496-0^TETRACYCLINE^LN^998033^Tetracycline^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC
OBX|9|CE|516-5^TRIMETHOPRIM+SULFAMETHOXAZOLE^LN^998037^Trimethoprim/Sulfa^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L||S||F|||20060301|01D0301471^LabCorp Birmingham^CLIA||MIC



Complex Message – General Lab and Microbiology Test with Reflex Susceptibilities – Page 2

NTE|1|L|Salmonella enteritidis |
OBR|4||25799012340|6463-4^MICROORGANISM IDENTIFIED^LN^997141^Result
1^L|||200709140100|||200709141108|||^^^336^4368281|||F|6463-4&MICROORGANISM
IDENTIFIED&LN&997141&RSLT#1&L^1^L-18128&Salmonella enteritidis&SNM&SALMEN&Salmonella enteritidis&L|||^25799012340|
|||||
OBX|1|CE|12-5^AMIKACIN^LN^997890^Amikacin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|2|CE|28-1^AMPICILLIN^LN^997891^Ampicillin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|3|CE|44-8^AZTREONAM^LN^997931^Aztreonam^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|4|CE|76-0^CEFAZOLIN^LN^997919^Cefazolin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|5|CE|108-1^CEFOTAXIME^LN^997914^Cefotaxime^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|6|CE|116-4^CEFOXITIN^LN^997894^Cefoxitin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|7|CE|133-9^CEFTAZIDIME^LN^997929^Ceftazidime^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|8|CE|137-0^CEFTIZOXIME^LN^997726^Ceftizoxime (ANA)^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|9|CE|185-9^CIPROFLOXACIN^LN^997933^Ciprofloxacin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|10|CE|267-5^GENTAMICIN^LN^997897^Gentamicin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|11|CE|279-0^IMIPENEM^LN^997926^Imipenem^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|12|CE|363-2^NITROFURANTOIN^LN^997943^Nitrofurantoin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|13|CE|408-5^PIPERACILLIN^LN^997949^Piperacillin (Enterobact.)^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|14|CE|408-5^PIPERACILLIN^LN^997950^Piperacillin (Pseudomonas)^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|15|CE|504-1^TICARCILLIN+CLAVULANATE^LN^997953^Ticarcillin/CA (Enterobact.)^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?|||00000000|||20070914131624|TESTING^LabCorp Information Systems^CLIA|



Complex Message – General Lab and Microbiology Test with Reflex Susceptibilities – Page 3

OBX|16|CE|504-1^TICARCILLIN+CLAVULANATE^LN^997954^Ticarcillin/CA (Pseudomonas)^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?||00000000||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBX|17|CE|508-2^TOBRAMYCIN^LN^997899^Tobramycin^L|1|G-
D450^SENSITIVE^SNM^S^SENSITIVE^L|||?||00000000||20070914131624|TESTING^LabCorp Information Systems^CLIA|
OBR|5||25799012340|^008144^Stool Culture^L||200709140100|||200709141108||^336^4368281|||F|||
|||||
OBX|1|CE|21262-1^ESCHERICHIA COLI SHIGA-LIKE^LN^180935^E coli Shiga Toxin
EIA^L|1|^P^Positive^L||Negative|A||F||20070914130951|TESTING^LabCorp Information Systems^CLIA||
NTE|1|L|Positive |
OBR|6||25799012340|^550420^RNA, Real Time PCR
(Graph)^L||200709140100|||200709141108||^336^4368281|||F|||
OBX|1|SN|25836-8^HIV 1 RNA^LN^550421^HIV-1 RNA by
PCR^L|1|^12310.0000|copies/mL||A||F||20070914110852|TESTING^LabCorp Information Systems^CLIA||PROBE.AMP.TAR
NTE|1|L| . |
NTE|2|L|The reportable range for this assay is 48 to 10,000,000 |
NTE|3|L|copies HIV-1 RNA/mL. |
NTE|4|L| . |
OBX|2|SN|29541-0^HIV 1 RNA^LN^550424^log10 HIV-1
RNA^L|1|^12.333|log10copy/mL||A||F||20070914110852|TESTING^LabCorp Information Systems^CLIA||PROBE.AMP.TAR
OBR|7||25799012340|^012005^RPR, Rfx Qn RPR/Confirm TP-
PA^L||200709140100|||200709141108||^336^4368281|||F|||
OBX|1|CE|5292-8^REAGIN AB^LN^006072^RPR^L|^REA^Reactive^L||Non Reactive|A||F||20070914130506|TESTING^LabCorp
Information Systems^CLIA||FLOC
NTE|1|L|Reactive |
OBR|8||25799012340|^012021^RPR Qn+TP-
PA^L||200709140100|||200709141108||^336^4368281|||F|006072|||
OBX|1|SN|11084-1^REAGIN AB^LN^006464^RPR, Quant.^L|1|^1:^256||Non Rea=9.9) confirm positive |
NTE|3|L|(95%), but



HL7 RIM: An Incoherent Standard

Barry Smith^{a,b,c,1} and Werner Ceusters^c

^a *Department of Philosophy, University at Buffalo, Buffalo NY, USA*

^b *Institute for Formal Ontology and Medical Information Science, Saarbrücken, Germany*

^c *Center of Excellence in Bioinformatics and Life Sciences and National Center for Biomedical Ontology, University at Buffalo, Buffalo NY, USA*

Abstract. The Health Level 7 Reference Information Model (HL7 RIM) is lauded by its authors as ‘the foundation of healthcare interoperability’. Yet even after some 10 years of development work, the RIM is still subject to a variety of logical and ontological flaws, which has placed severe obstacles in the way of those who are called upon to develop implementations. We offer evidence that these obstacles are insurmountable and that the time has come to abandon an unworkable paradigm.

Keywords: HL7, RIM, standardization, ontology, realism

Smith B, Ceusters W. [HL7 RIM: An Incoherent Standard](#), *Stud Health Technol Inform.* 2006; in press. (To be presented at Medical Informatics Europe 2006)



HL7 V3 Messages Need a Critical Midcourse Correction

Wes Rishel

The adoption of Health Level Seven (HL7) Version 3 (V3) messages has been slow, in part because the style of using XML is verbose and intractable for business analysts and programmers who are not expert in the Reference Information Model (RIM). Efforts are under way to create a midcourse correction in the XML style. HL7 must emphasize this activity during the next year.



“What I liked LEAST about the application (Rhapsody) was ... Underlying complexity of the vast messaging formats – nothing due to Rhapsody. It appears to do a great job simplifying a very complex arena.”

Course evaluation comment from a state-based technical staff person about the Rhapsody class they had just attended



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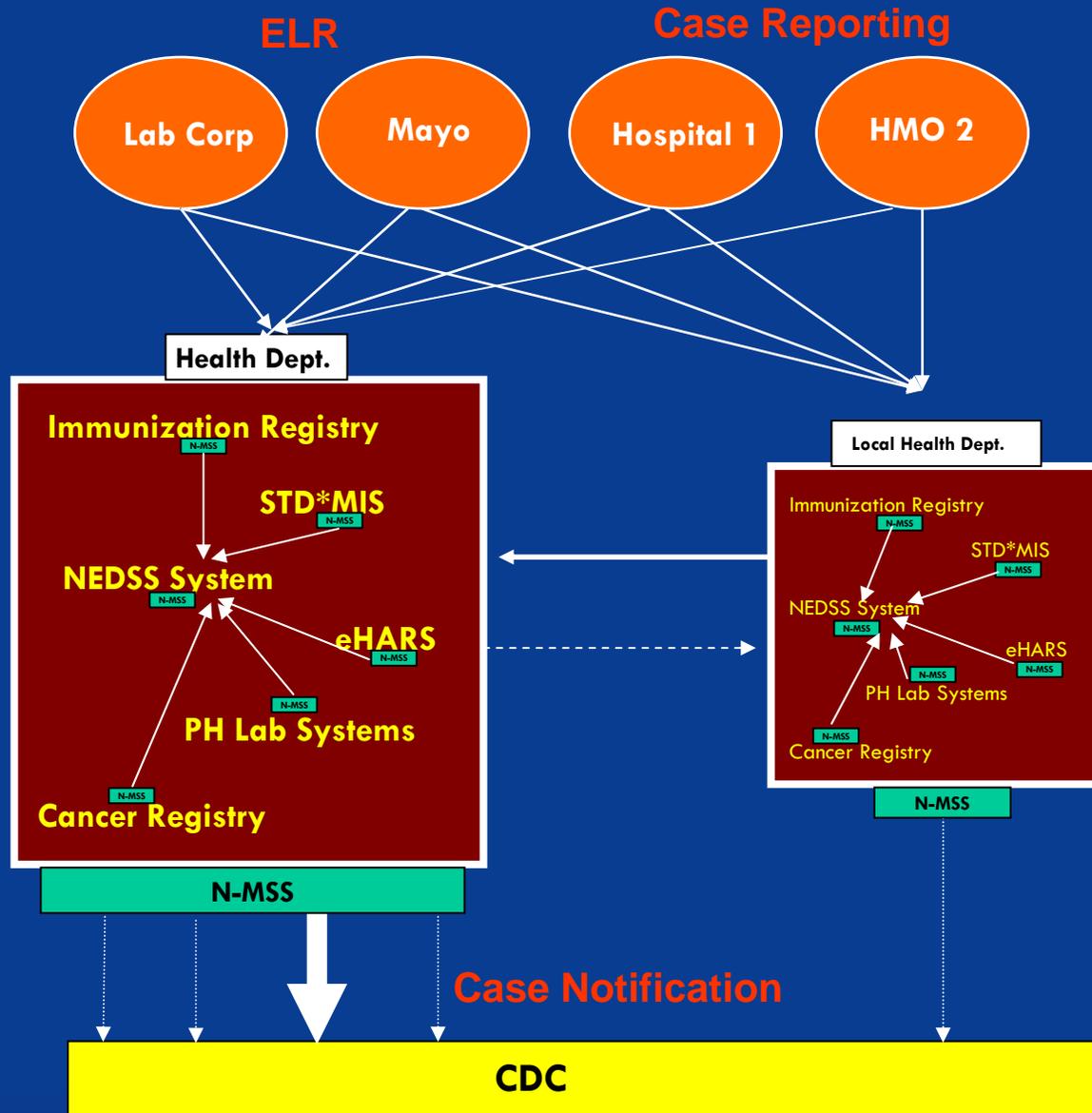
Issues

- Multiple data formats to support
- Multiple interfaces to maintain
- Messages Issues
 - Completeness
 - Granularity
 - Purpose
- Adherence to Implementation Guides & Standards
- Hardware Requirements for Brokering
- Resources, resources, resources!

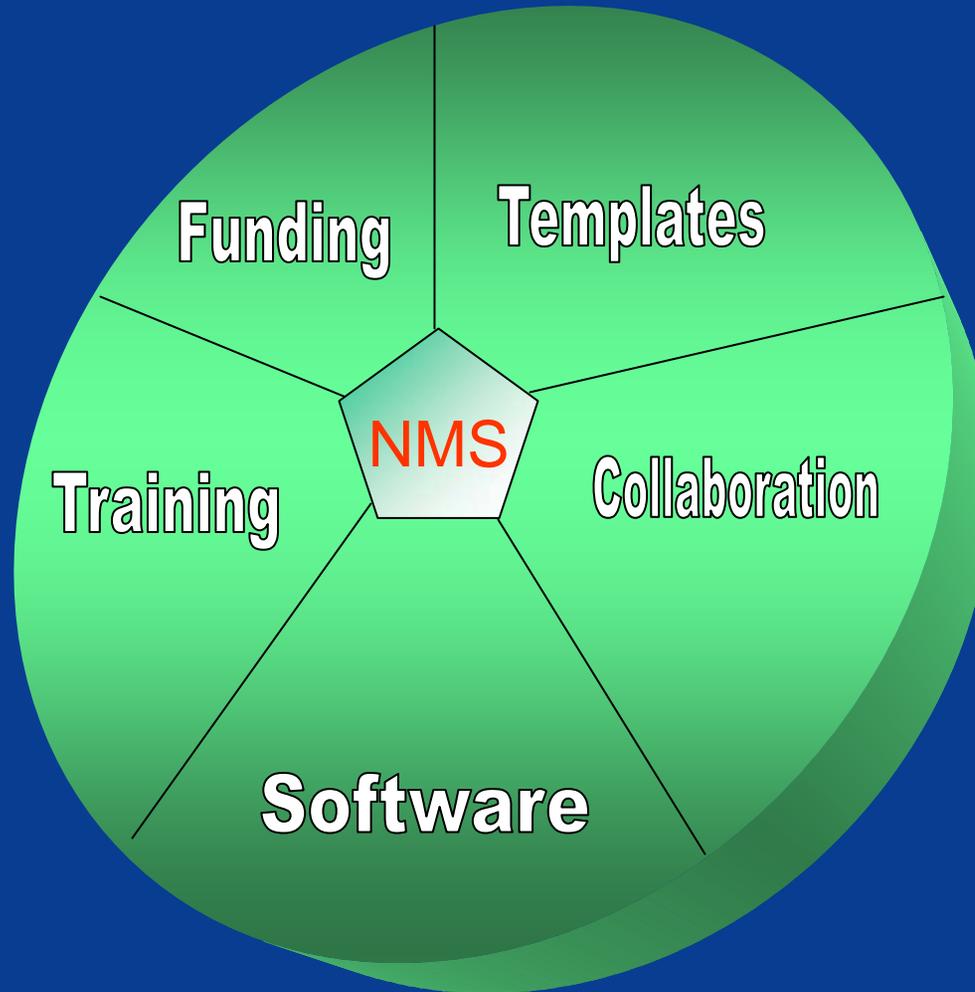
*This is public
health informatics*



Public Health Surveillance Systems



NEDSS Messaging Solution (NMS)



NMS Mission

Establish a self-sustaining national support network that builds capacity among public health stakeholders to support electronic message exchange between stakeholders



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NEDSS Messaging Solution (NMS)

- Software
- Funding
- Template Solution
- Collaboration
- Training

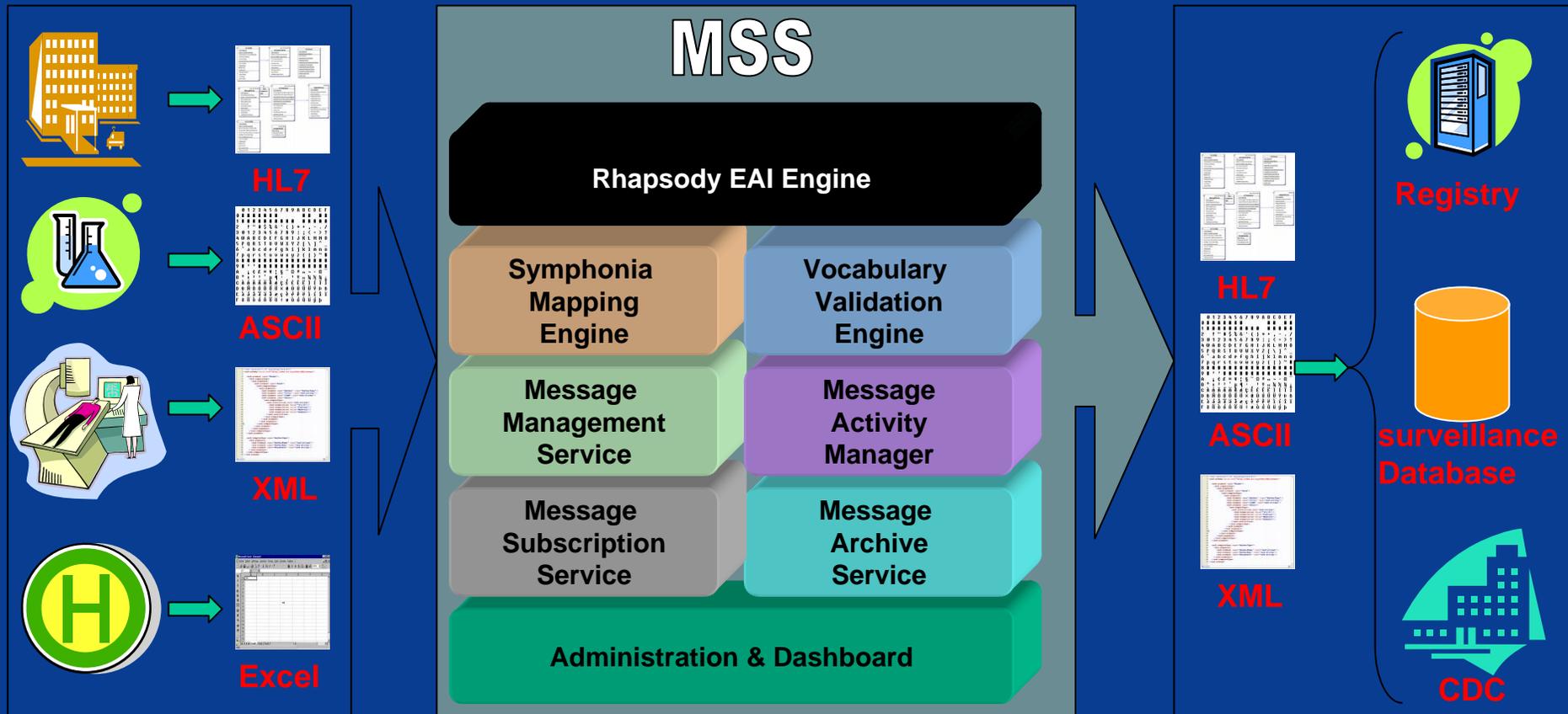


NEDSS Messaging Solution (NMS)

- **Software (Message Subscription Service)**
 - Orion Rhapsody
 - NEDSS Brokering Tool (NBT)
 - PHIN VADS
- Funding
- Template solution
- Collaboration
- Training



NEDSS- Message Subscription Service



NEDSS Messaging Solution (NMS)

- Software
- **Funding**
 - Provide Funding to States to advance ELR through ELC corporate agreement
 - 2006 NEDSS ELC funding: \$8,600,000
 - 2007 NEDSS ELC funding: \$9,700,000
 - 2007 NEDSS ELC supplemental funding: \$300,000
 - 2008 NEDSS ELC funding: \$11,000,000 (approx.)
- Template Solution
- Collaboration
- Training



NEDSS Messaging Solution (NMS)

- Software
- Funding
- **Template Solutions**
 - For national lab's Messaging Definition and Mapping
 - Examples to modify and filter messages
- Collaboration
- Training



NEDSS Messaging Solution (NMS)

- Software
- Funding
- Template solution
- **Collaboration**
 - Bi-weekly NMUG call
 - Collaboration sitiescape website:
MSS User Group
- Training



NEDSS Messaging Solution (NMS)

- Software
- Funding
- Template solution
- Collaboration
- **Training**
 - Free Monthly Rhapsody - NBT Training







Rhapsody License Deployments

As of November 15, 2007

Rhapsody	
■Alabama	■Nebraska
■California	■New Jersey
■Connecticut	■New Mexico
■Hawaii	■North Carolina
■Idaho	■North Dakota
■Iowa	■Ohio
■Louisiana	■Oregon
■Maryland	■Rhode Island
■Massachusetts	■South Carolina
■Michigan	■Vermont
■Minnesota	■Washington
■Mississippi	■Wisconsin
■Montana	■Wyoming
■Tennessee	■Oklahoma

	Rhapsody
Deployed	29
Currently Available	0
Total	29



Tomorrow's vision

- Data source conformance to standards
- SDOs continue to address public health requirements
- System developers increasingly develop ELR capacity
- Public health jurisdictions establish and sustain technical capacity to support ELR
- Shared efforts and stakeholder collaboration becomes the cornerstone of success
- CDC continues to support this effort (NMS)

