

The Implementation of LOINC/SNOMED in Electronic Laboratory Reporting System

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BACKGROUND

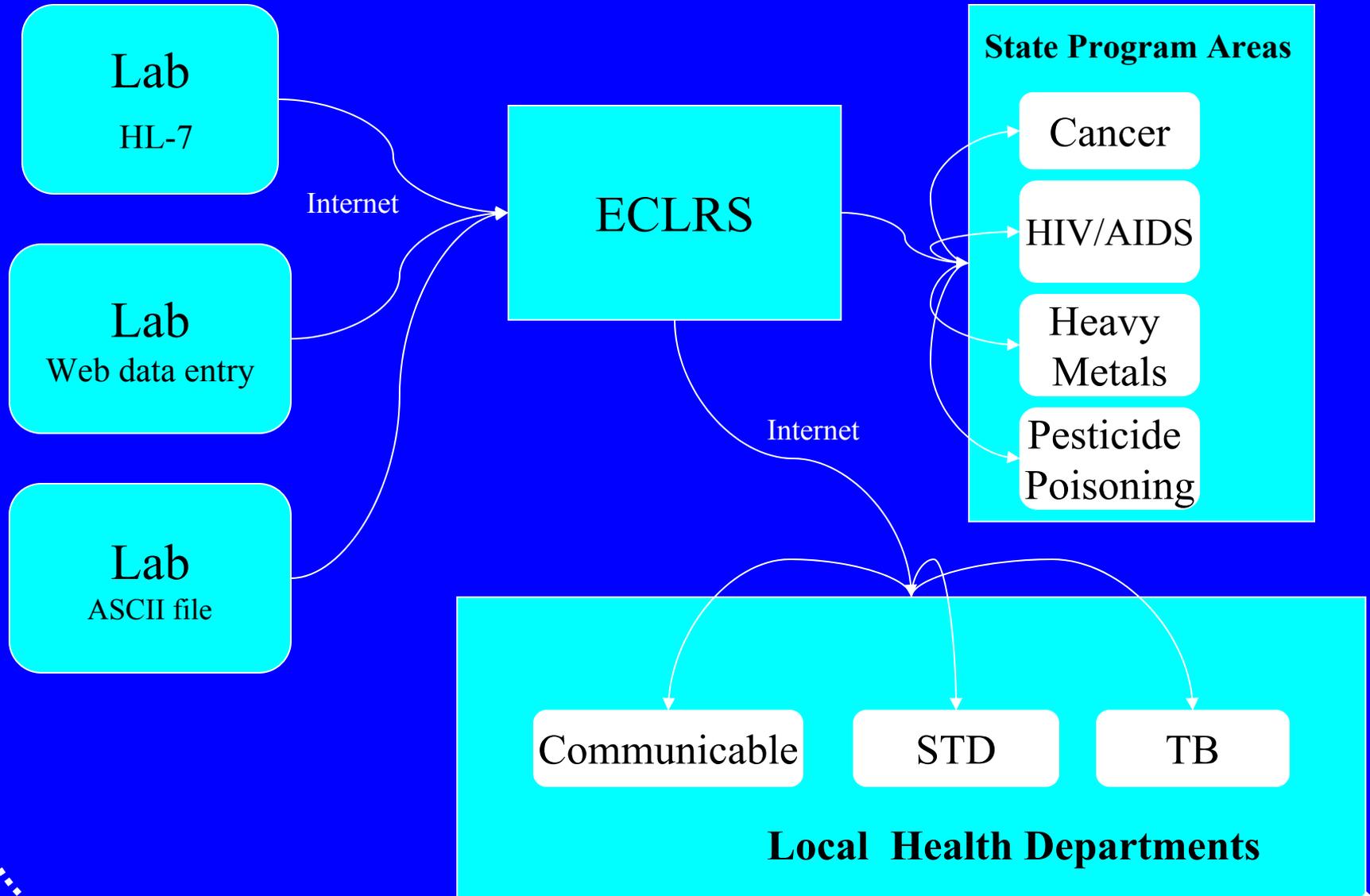
- **New York State has implemented an Electronic Clinical Laboratory Reporting System (ECLRS) that allows laboratories to report test results to public health electronically rather than on paper**
- **The ECLRS was implemented in July 2001**
- **All 57 local health departments and New York City Health Department are using the system**

STUDY OBJECTIVES

- **Evaluate the implementation of Public Health Information Network Standards in data transmission and data vocabulary**
- **Study the effectiveness of using LOINC/SNOMED coding for reporting communicable diseases**

Electronic Clinical Laboratory Reporting System (ECLRS)

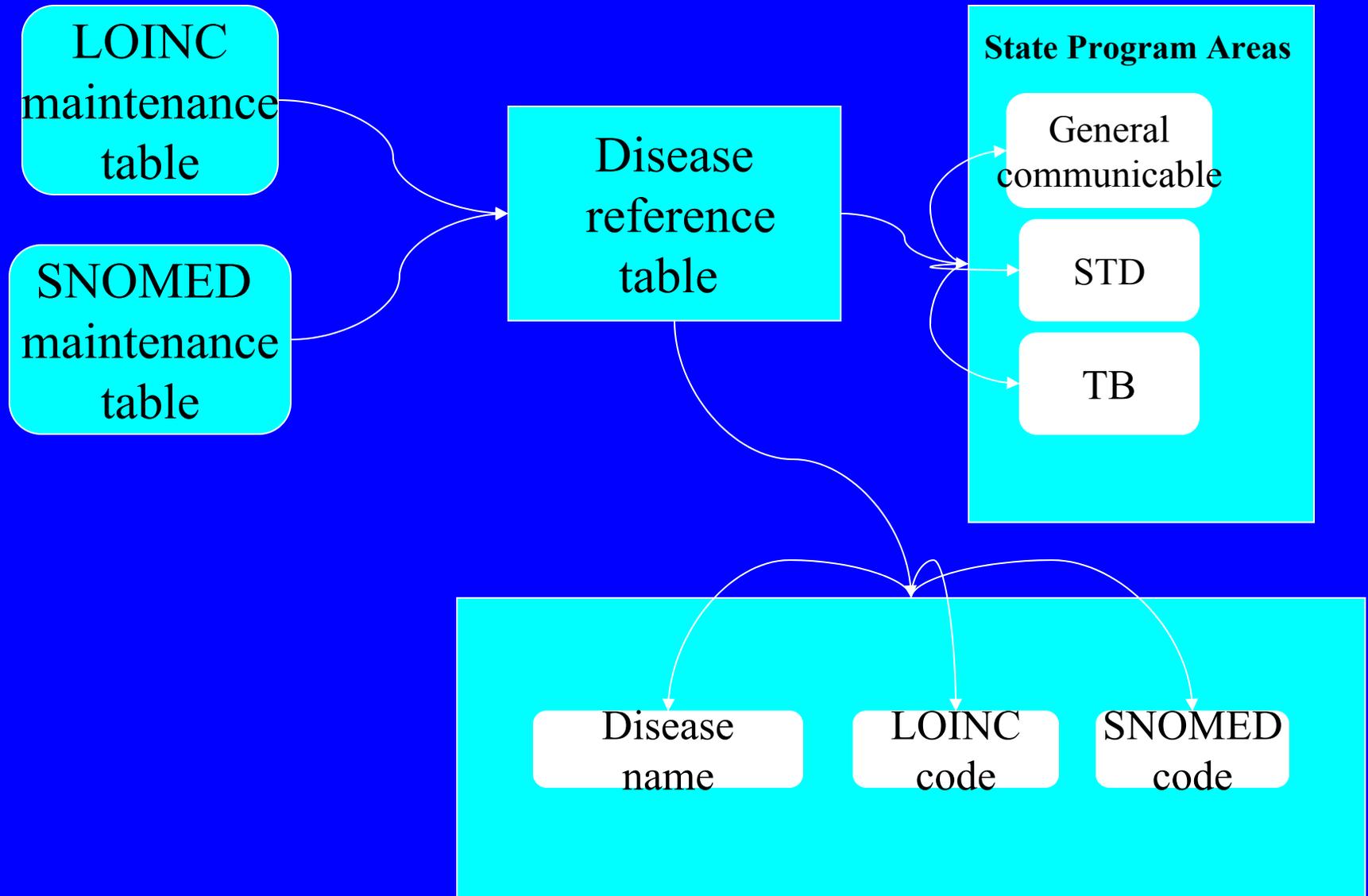
Health Provider Network



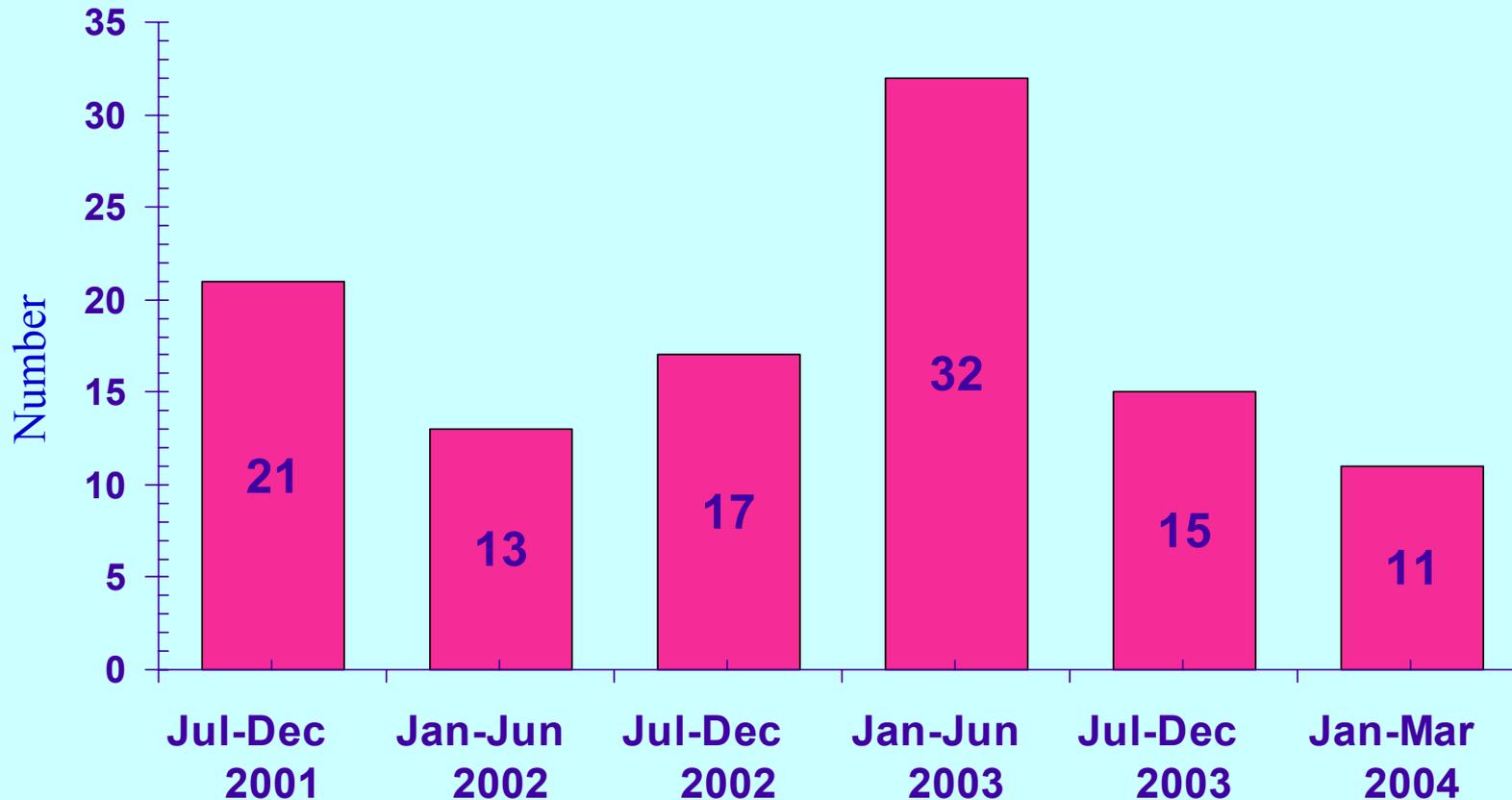
Electronic Clinical Laboratory Reporting System

- **415 laboratories have been contacted**
- **180 laboratories are using ECLRS and 109 of them report communicable diseases**
- **81 laboratories are preparing to use ECLRS**
- **98 laboratories are on hold or declined**
- **6 laboratories are using Public Health Information Network Messaging System (PHINMS)**

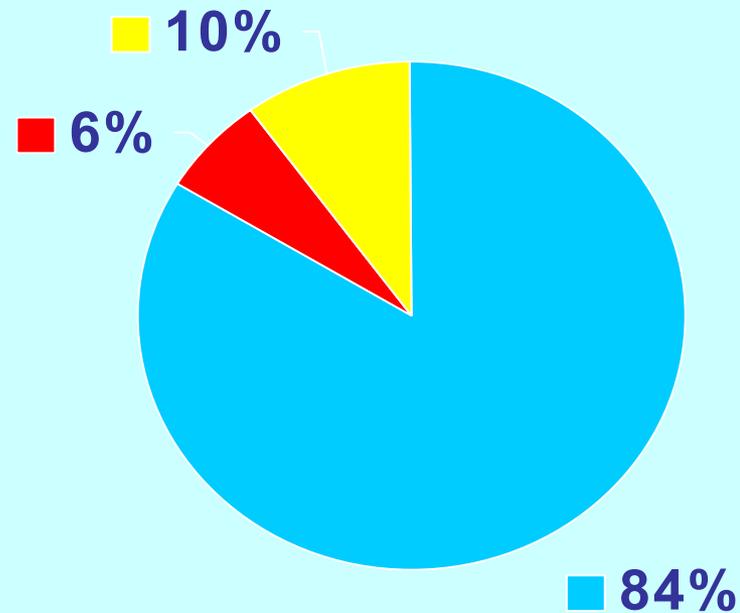
Electronic Clinical Laboratory Reporting System (ECLRS)



Number of Laboratories Submitting Test Results through ECLRS, New York, 7/1/01 - 03/31/04



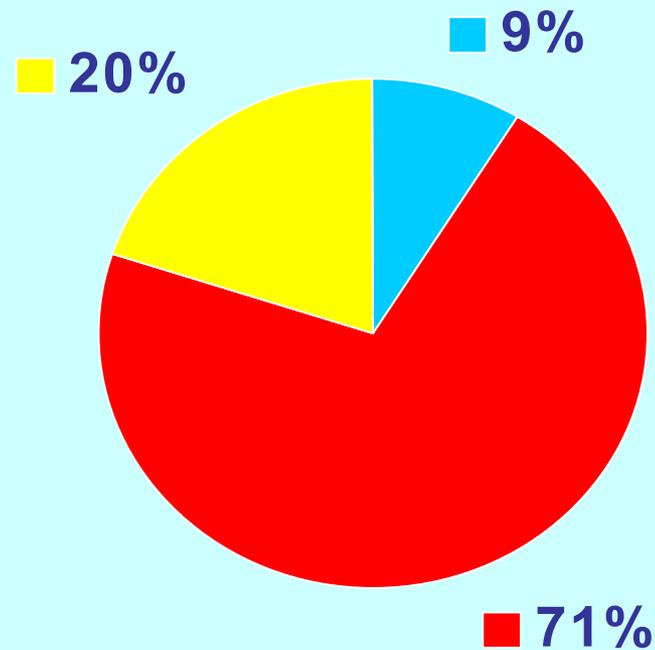
Proportion of Laboratories using ECLRS by Data Format, New York, 1/01/2002 - 3/31/2004



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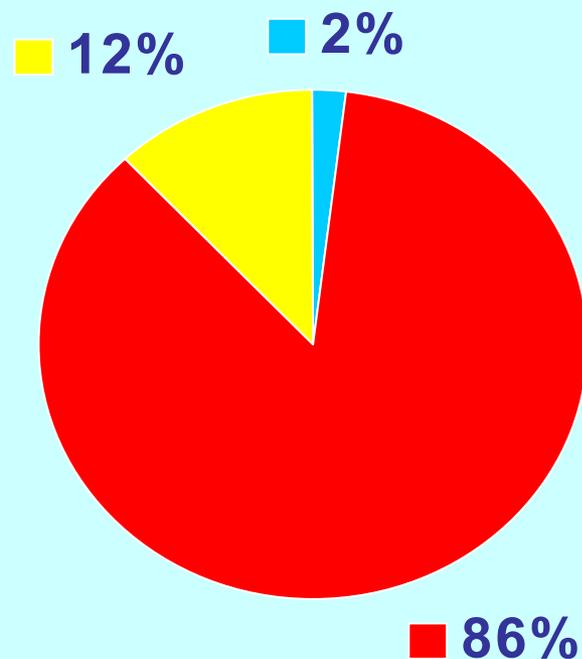
Proportion of ECLRS Reports by Data Format

New York, 7/01/2001 - 3/31/2004



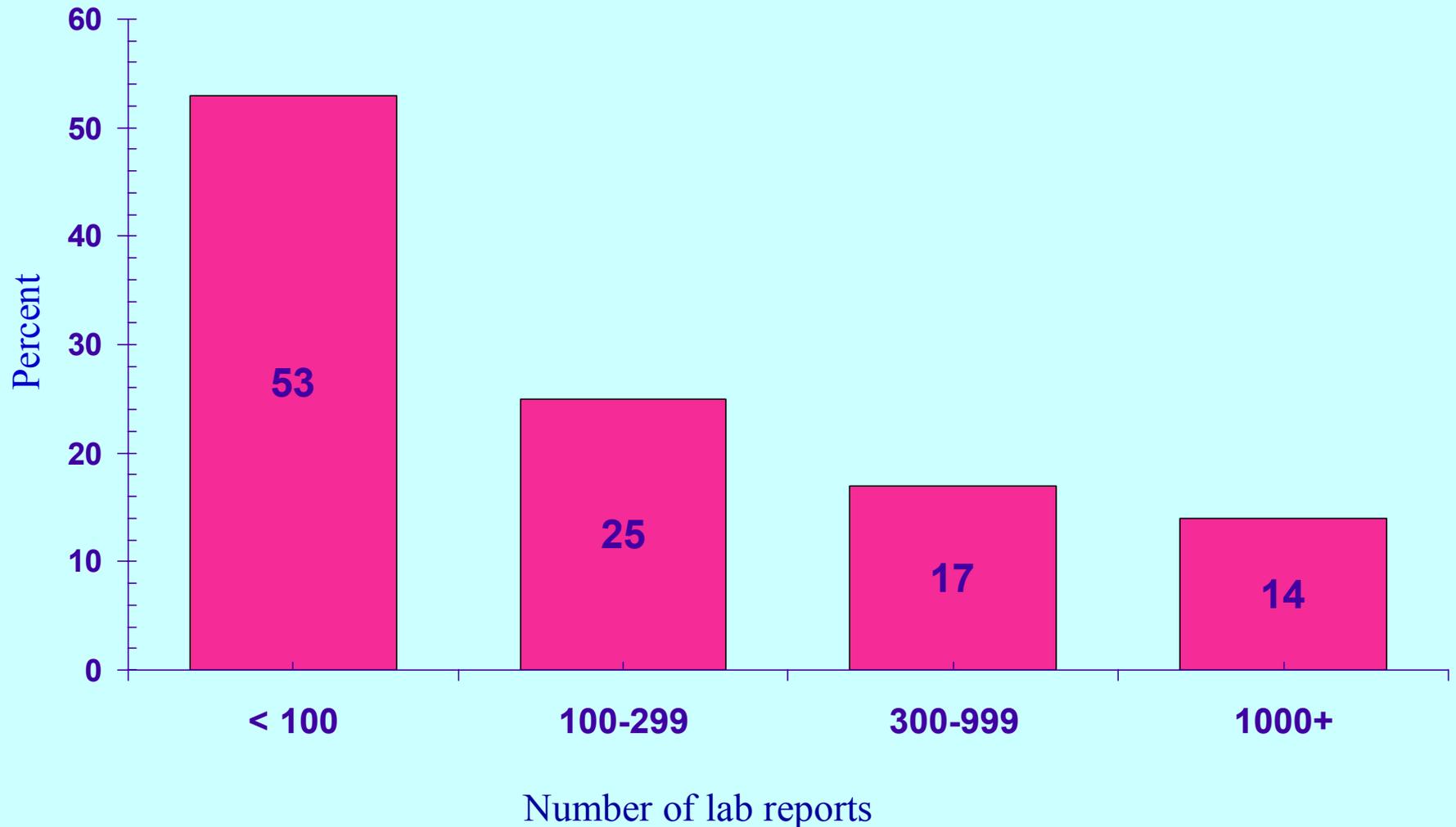
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Proportion of ECLRS Laboratories Using Standard LOINC and SNOMED Code Schemes , New York 1/01/2002 - 3/31/2004



■ LOINC&SNOMED ■ Web entry ■ LOINC

Proportion of Laboratories by Annual Number of Reports through ECLRS, 7/1/01 - 3/31/04



Electronic Clinical Laboratory Reporting System

- **15 laboratories use LOINC coding scheme**
- **28 reportable conditions were identified**
- **Number of LOINC codes used range from 1 to 15 per reportable condition**
- **Chlamydia, Hepatitis B, Hepatitis C, and Syphilis had most LOINC codes**

An Example from ECLRS Disease Table

ECLRS - Disease XRef Maintenance - 04/27/2004 - Netscape 6

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https://commerce.health.state.ny.us/hpr/doh2/applinks/elhupost/

Search

Disease XRef Maintenance

04/27/2004

* denotes required field

Disease*	LOINC Code	SNOMED Code	
HEPATITIS A	13950-1		DELETE
HEPATITIS A	5181-3		DELETE
HEPATITIS A	5182-1		DELETE

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Electronic Clinical Laboratory Reporting System

- **2 laboratories use LOINC/SNOMED coding scheme**
- **13 additional reportable conditions are identified**
- **184 LOINC/SNOMED combination codes were used to identify 9 reportable conditions and 146(79%) of them had LOINC code 11475-1 and 18 (10%) had other generic LOINC codes**

An Example from ECLRS Disease Table

ECLRS - Disease XRef Maintenance - 04/27/2004 - Netscape 6

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Disease XRef Maintenance

04/27/2004

* denotes required field

Disease*	LOINC Code	SNOMED Code	
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E400	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E403	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E404	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E407	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E408	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E413	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E415	DELETE
YERSINIOSIS (NON-PLAGUE)	11475-1	L-1E418	DELETE

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Conclusion

- **6% of participating laboratories used HL7 data format for reporting, emphasizing the need for resources to implement PHIN standards**
- **Six laboratories used PHINMS for unattended transmission**
- **The wide range number of LOINC codes used to identify a reportable condition demonstrates the difficulty in implementing vocabulary standards**

Conclusion

- **Not all reportable conditions can be identified by LOINC alone, illustrating the need for LOINC/SNOMED combination codes**
- **89% of LOINC from LOINC/SNOMED combination are generic, demonstrating an easy way to implement the PHIN standard**
- **National standardization of laboratory coding is a long term process**

Recommendation

- **Public health should allow flexibility in file format**
- **Public health should assist in using LOINC/SNOMED codes to promote electronic laboratory reporting**
- **The experience needs to be shared**