Immunization Information System end-user perceptions of electronic data submission

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Introduction

- Discuss results of a 2008 survey that attempted to assess end-users' experiences with the Philadelphia's KIDS Registry
- Focus on immunization data reporting methods and how results may be used to help improve reporting and customer service.

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KIDS Registry - Background

- Web-based immunization information system that stores vaccination histories for children 0-18 years of age
- Began in 1993, web-based version launched in 2006
- Microsoft SQL Server database; Windows OS
- 530,000 children and more than 6.6 million vaccinations registered in KIDS.

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KIDS Registry – Data Sources

Who reports?

- The Philadelphia Health Code § 6-210 authorizes PDPH to establish immunization requirements for prevention of communicable diseases, including immunization reporting requirements.
- Requirement covers all immunizations administered to children 0-18 years of age in Philadelphia.
- Providers must report doses within 30 days of administration.

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Benefits of KIDS for children

- Consolidates often fragmented shot histories into a single record
  - 40% of children see more than one provider by age 2
- Helps kids stay up to date for immunizations
- Prevents overvaccination
- Provides official records for school, daycare
- All this depends on accurate and timely reporting!

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Survey Objectives: General

- First formal evaluation of KIDS Registry end use
- Program tool to identify and prioritize areas for potential registry improvements and customer service enhancements

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Reporting Methods

- 36% providers report electronically*
  - EMR, data from billing systems
  - Web file repository allows electronic file transmission to secure server
- 64% providers report manually (paper reports)*
  - KIDS logs, vaccine administration records, historical immunization records
  - Data entry by 3 full-time clerks

*according to survey data

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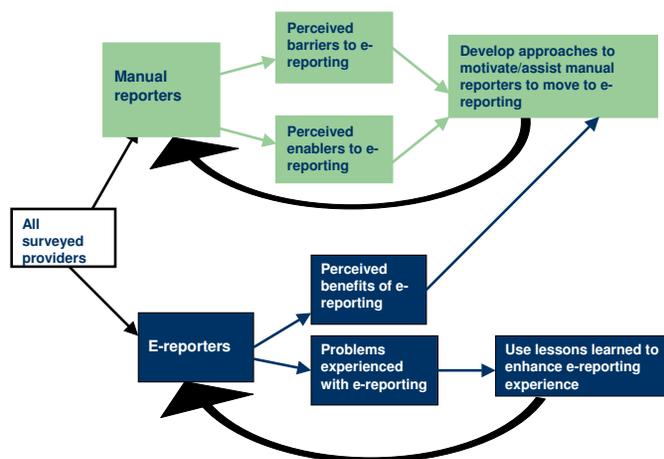## Survey Objectives: Reporting

Manual Reporters:
- Determine barriers/enablers to electronic data submission
- Secondary: develop strategies to motivate manual reporters to take steps to convert to electronic reporting, if possible

E-Reporters:
- Investigate other needs for training/support with data reporting
- Determine satisfaction with current reporting method and identify areas for improvement

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Theoretical Model

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[All surveyed providers]
   → Manual reporters
       → Perceived barriers to e-reporting
       → Perceived enablers to e-reporting
           → Develop approaches to motivate/assist manual reporters to move to e-reporting
   → E-reporters
       → Perceived benefits of e-reporting
       → Problems experienced with e-reporting
           → Use lessons learned to enhance e-reporting experience
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Methods

- Survey development
- Questions focused on patient demographics, KIDS Registry use, and reporting methods
- Draft survey piloted
- Approved by City of Philadelphia IRB

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Methods

- Respondent pool developed from known contacts from Vaccines for Children (VFC) program and registry
- Tried to pre-identify "registry" contact at each site
- Distributed via email, fax, and/or mail to 323 pre-identified sites providing immunizations to patients <19 years (310 final number of valid sites)
- Reminders to non-respondents after 1 and 2 months
- Respondents encouraged to collaborate, return survey through any method
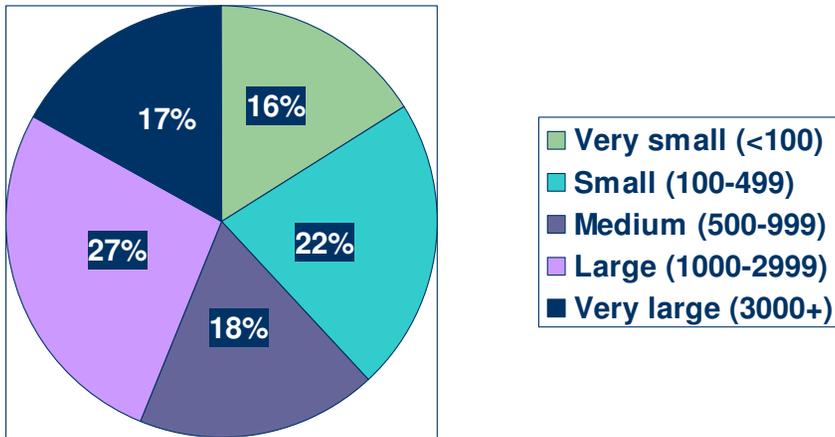- Could respond via survey monkey, fax, or mail

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Respondent characteristics

- 145 respondents (47% response rate)
- 22% see a primarily adolescent pediatric population
- 36% report electronically
- 80% are "KIDS users"
- More than half of providers see patient populations with >60% VFC-eligible (only 3% did not see any VFC-eligible patients)

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Respondents – patient population

Pie chart:
- 16% Very small (<100)
- 22% Small (100-499)
- 18% Medium (500-999)
- 27% Large (1000-2999)
- 17% Very large (3000+)

Legend:
- Very small (<100)
- Small (100-499)
- Medium (500-999)
- Large (1000-2999)
- Very large (3000+)

What does a typical e-reporter look like?

- Larger patient population
  - 71% of e-reporters have >=1000 patients ('large' or 'very large'), compared to 28% of manual reporters.
- Primarily younger pediatric population
- Billing company more likely to handle reporting

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What does a typical manual reporter look like?

- Primarily smaller patient population (72% of manual reporters are very small to medium)
- More likely to see primarily adolescents
- Clinician or other health care provider more likely to be responsible for reporting
- VFC eligible % did not seem to differ between manual and electronic reporters

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Perceived benefits of e-reporting by e-reporters

Data more accurate and complete	73%
Saves staff time	63%
Improves vaccination coverage rates	37%

(multiple answers permitted)

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Perceived barriers to e-reporting by manual reporters

Didn't know it was an option	**39%**
Unsure how to extract data from system	**26%**
Too much staff time/cost	**31%**
Lack billing or EMR software	24%
Billing company doesn't allow	18%
Don't have computers/internet connection	10%
Confidentiality concerns/accuracy concerns	7%

(multiple answers permitted)

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Enablers for manual reporters to move to e-reporting

Assistance in setting up e-data retrieval	**52%**
Acquiring/upgrading computers/internet	22%
Acquiring/upgrading billing/clinical software	21%
Billing company providing the option	14%
Legal advice to address confidentiality concerns	9%

(multiple answers permitted)

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Future technology plans (manual)

- Acquiring internet connection/computers: 13%*
- Acquiring/changing billing software: 17%*
  - 22% of manual reporters are planning for at least one of these changes
  - 8% are planning for both

* Future technology plans in the next 2 years

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Results in action – working with providers

- Use individual survey data + profile results
- Focus on manual reporters: low-hanging fruit
- Work within provider technological capabilities
  - 40% of providers with billing/clinical management software or "EMR" do not e-report!

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Results in action, cont.

- Reality: majority of providers are small and not 'networked.'
- However, results indicate many manual providers making tech changes that will facilitate e-reporting
  - 7 manual reporters have converted to electronic since survey was conducted
- Intervene when providers obtaining or upgrading new technology - may not understand capabilities for reporting
- Survey identified common billing and/or clinic management software between practices

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Results in action, cont.

- Top "enabler" cited by half of manual reporters was assistance in extracting data from current systems
- Top 3 perceived barriers to e-reporting related to provider education/training:
  - Didn't know it was an option
  - Unsure how to extract data from system
  - Too much staff time/cost
- Confidentiality concerns low all-around

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Challenges to e-reporting

- Provider electronic medical records (EMR) are still the exception in Philadelphia
- Many providers have no functional electronic system with which to store or extract data
- KIDS staff must work with a myriad of billing software vendors to exchange vaccination data

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Survey Limitations

- Some respondents did not characterize their reporting method correctly; did not give option for 'direct entry'
  - May not have reached most appropriate respondent within a provider office.
- Technology affects survey response too
  - While 40% of all reporting providers (not just survey respondents) are electronic, 60% of them responded.
  - While 60% of all reporting providers report manually, 42% of them responded.

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Future Plans – registry

- Currently adding H1N1 doses reported (all ages)
- Adult immunizations now reportable
- Bi-directional data exchange with EMRs
- Considering new registry software to allow more custom reports, interface with vaccine ordering software, and more useful programmatic tools.

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Thank You!

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