



^{PAUL}
Coverdell
NATIONAL ACUTE STROKE REGISTRY

Data Driven Improvements to Reduce Stroke Readmissions

Sallyann Coleman King MD, MSc

Division for Heart Disease and Stroke Prevention

National Center for Chronic Disease and Public Health Prevention

Jason Bonander

Director of Informatics

National Center for Chronic Disease and Public Health Prevention

February 25, 2016

National Center for Chronic Disease Prevention and Health Promotion

Division for Heart Disease and Stroke Prevention



Bottom line

One American dies
from stroke every



on average

Improve the ease of

- Post-hospital data collection
- Secure sharing of data with health departments and CDC

Learn → Act → Improve



Epidemiology of Stroke

- 5th leading cause of death
- 1 in every 20 deaths
- 75% of stroke victims survive
- Risk increases with age
- ~\$33 billion annually

One American dies
from stroke every



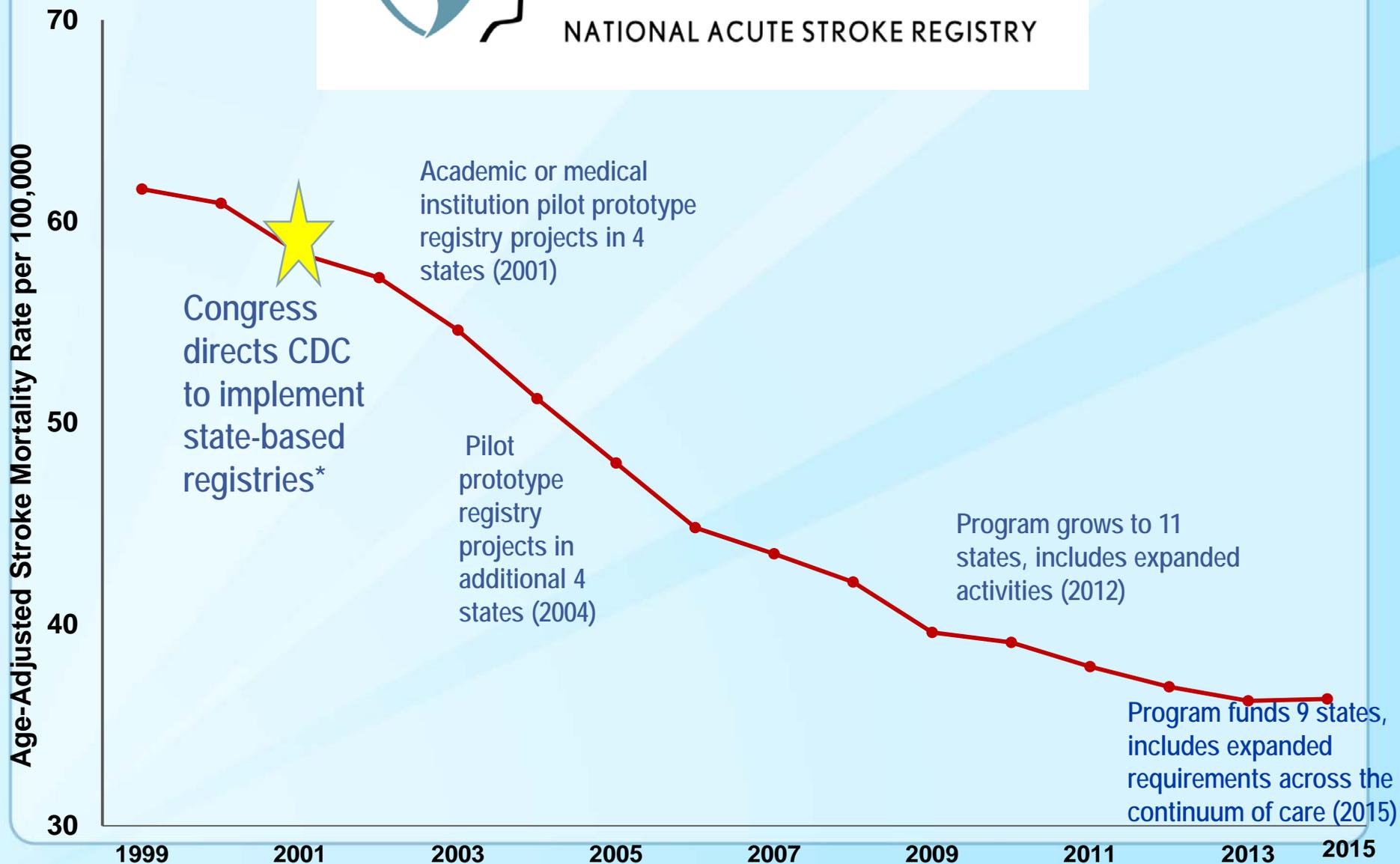
on average

<http://millionhearts.hhs.gov/learn-prevent/risks.html>



PAUL Coverdell

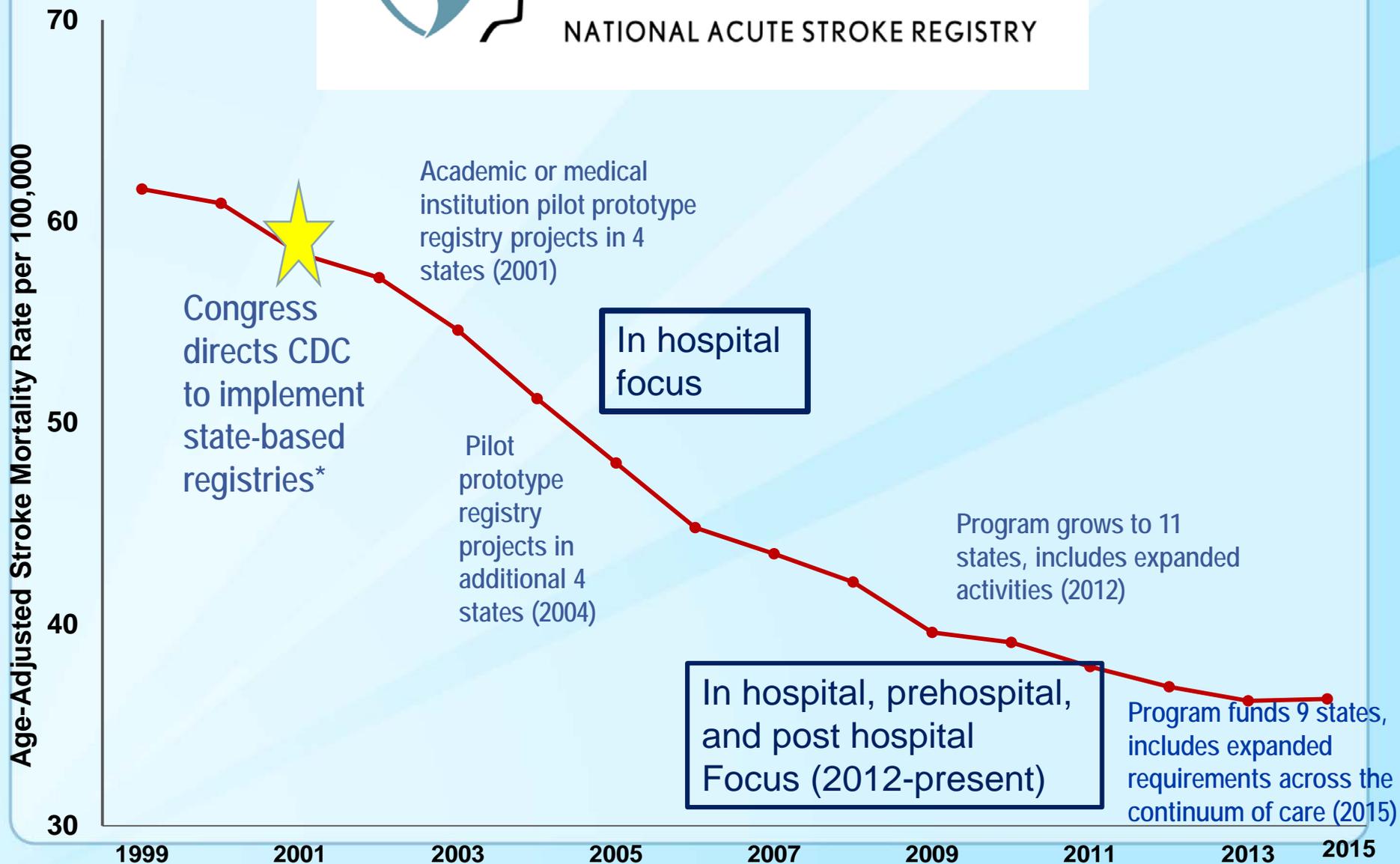
NATIONAL ACUTE STROKE REGISTRY





PAUL Coverdell

NATIONAL ACUTE STROKE REGISTRY



Data Landscape

Pre-hospital



Pre-notification
Last known well

In hospital



Hospital stroke care QI

Post hospital



Readmissions
Complications

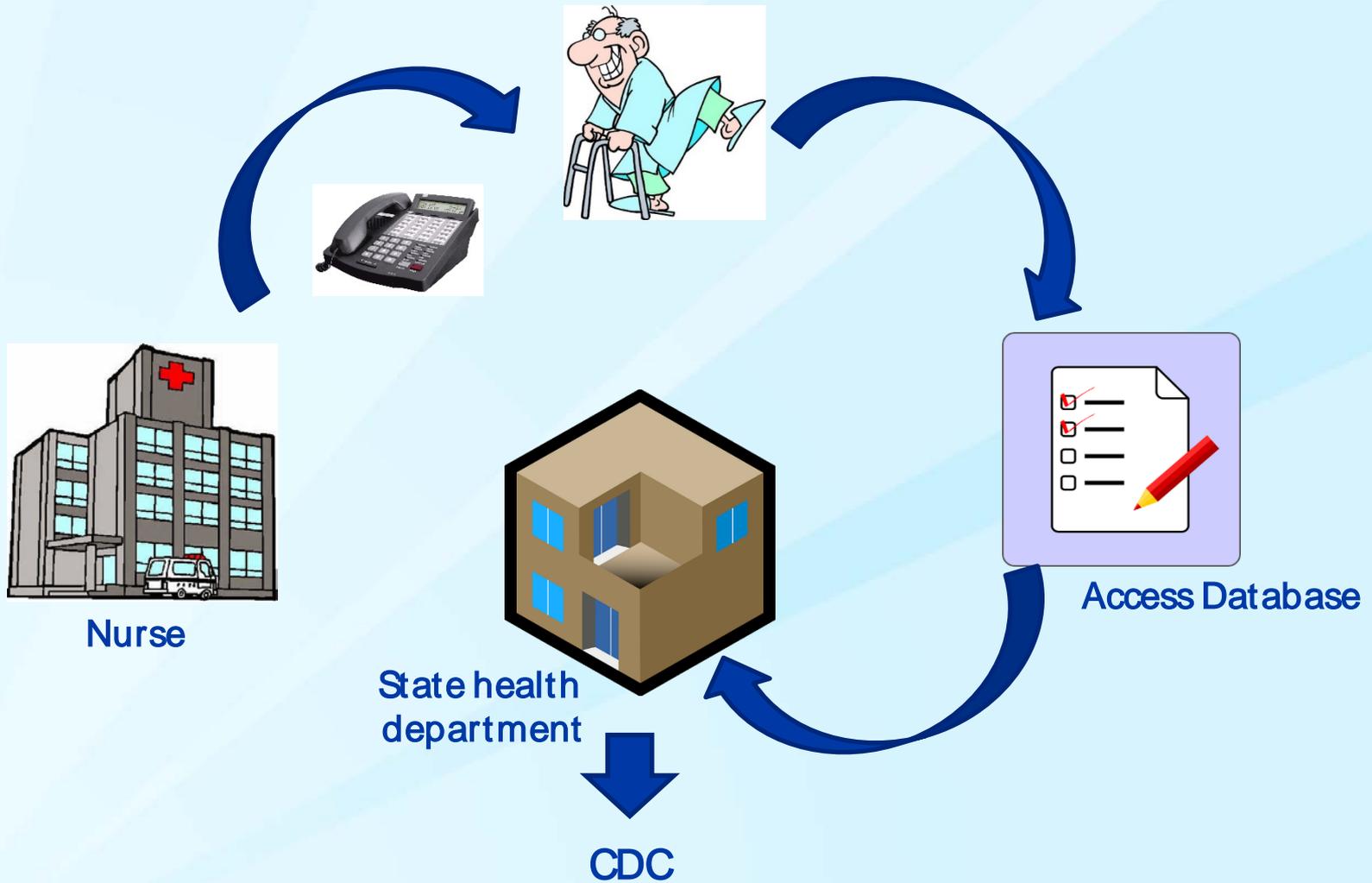


Current In-hospital Data Collection

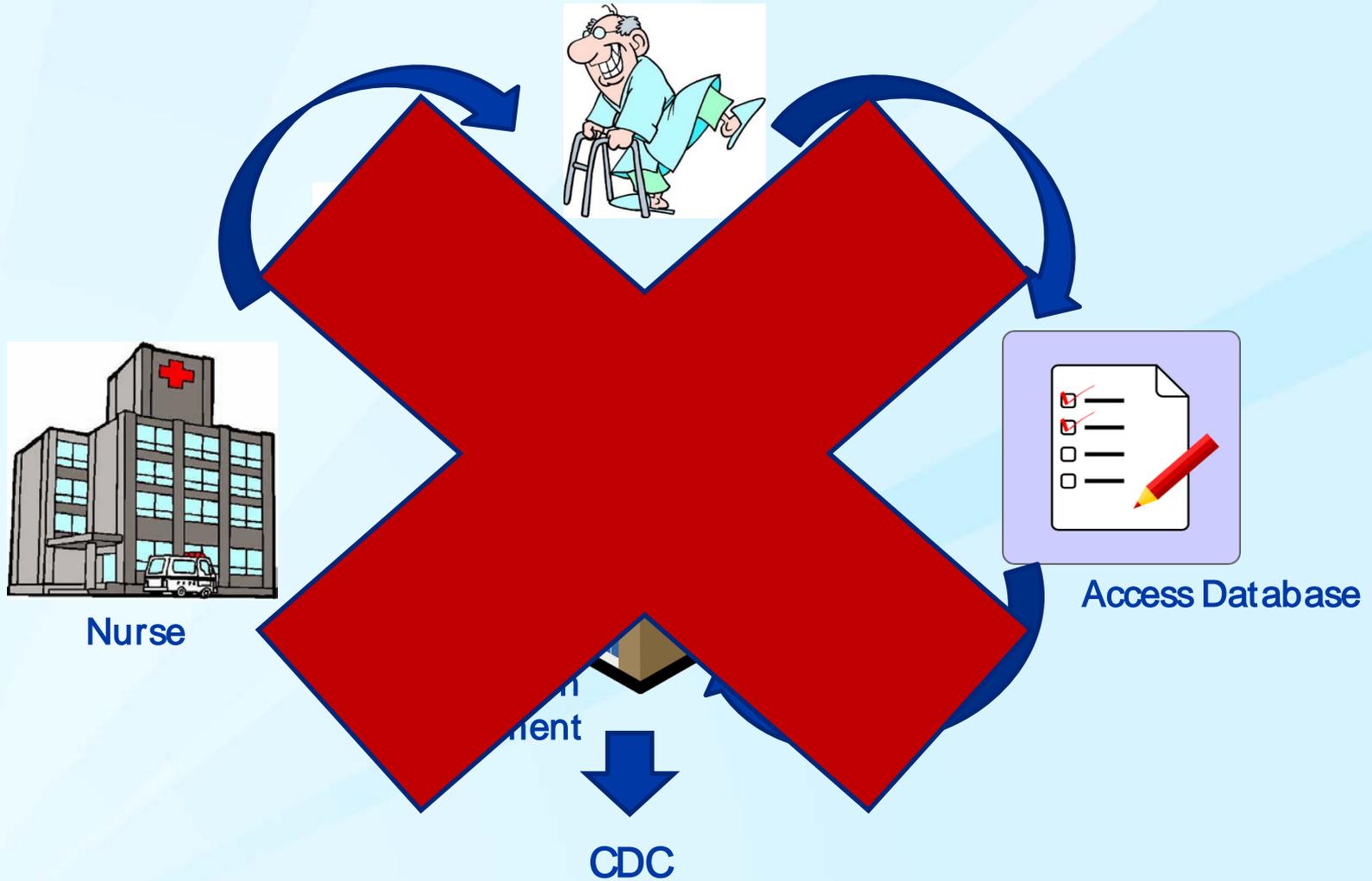
- **Tool: Get with the Guidelines**
- **Challenges:**
 - Flexibility: Difficult to make changes quickly
 - Expensive
 - Data destination and ownership



Current Post Hospital Data Collection



Current Post Hospital Data Collection



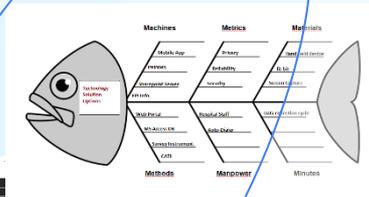
Goals

- **Offer a common tool that states could adopt to collect post-hospital data**
- **Make it easy to use and secure**
- **Keep it inexpensive**
- **If feasible, build the outcome as an option into the upcoming FOA**

Decision Matrix

Evaluation Criteria		Alternative Solutions								
		Low Cost			Moderate Cost			Higher Cost		
Criterion	Weight	Survey Tool Freeware, Epi- Info	Epi Info Web- Enabled Product Suite	Sharepoint Form	Basic Mobile Hardware Solution	Access DB	Web portal	Integrated Web Portal	Autodialer integration, aka CATI	
Table Stakes	Collect 30-day follow-up data	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Telephone Interviews	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Secure Data Transmission	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Data Privacy	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Role-Based Security	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Recoverability	n/a	✓	✓	✓	✓	✓	✓	✓	✓
	Must-Have Differentiators	Implementation cost	14.9%	10	8	7.5	2.5	5	5	2.5
O&M costs		16.5%	10	8.5	2.5	7.5	7.5	7.5	5	5
Usability		13.3%	5	7.5	5	7.5	5	5	7.5	10
Reliability		10.2%	10	10	10	10	7.5	7.5	7.5	7.5
Scalability		8.5%	7.5	10	7.5	2.5	2.5	10	10	10
Option Confidence		18.1%	10	7.5	5	5	5	7.5	7.5	7.5
Easy to deliver upgrades		9.0%	5	10	5	10	2.5	10	10	10
Nice-to-Have Differentiators	Backwards Compatibility	3.2%	7.5	8	5	5	5	5	5	10
	Speed of data delivery	1.4%	5	10	10	10	7.5	10	10	10
	Standards-Based Trans.	0.5%	2.5	7.5	2.5	7.5	7.5	7.5	7.5	10
	Analytics Integration	1.5%	5	10	2.5	2.5	0	0	10	0
	Auto-dialer integration	2.7%	0	0	0	0	0	0	0	10
	Weighted Score		8.1	8.4	5.6	6.0	5.1	6.9	6.6	7.2
	** Scores on 0-10 scale, where 10 is highest and 0 is lowest									

Activities



Functional Requirements
 Final Government National Acute Stroke Registry 30 day Follow-up Data Collection

1. Identification
2. Scope of the Functional Requirements Statement
3. Purpose
4. Assumptions
5. Constraints
6. Stakeholders
7. Goals
8. Requirements
9. Acceptance Criteria
10. Reporting Requirements
11. Security Requirements
12. Interoperability Requirements
13. Performance Requirements
14. Availability Requirements
15. Privacy Requirements
16. Data Retention Requirements
17. Data Archiving Requirements
18. Data Backup Requirements
19. Data Recovery Requirements
20. Data Migration Requirements
21. Data Integration Requirements
22. Data Export Requirements
23. Data Import Requirements
24. Data Validation Requirements
25. Data Quality Requirements
26. Data Accuracy Requirements
27. Data Completeness Requirements
28. Data Consistency Requirements
29. Data Timeliness Requirements
30. Data Reliability Requirements
31. Data Security Requirements
32. Data Confidentiality Requirements
33. Data Integrity Requirements
34. Data Availability Requirements
35. Data Accessibility Requirements
36. Data Usability Requirements
37. Data Portability Requirements
38. Data Interchangeability Requirements
39. Data Compatibility Requirements
40. Data Interoperability Requirements
41. Data Integration Requirements
42. Data Migration Requirements
43. Data Backup Requirements
44. Data Recovery Requirements
45. Data Archiving Requirements
46. Data Export Requirements
47. Data Import Requirements
48. Data Validation Requirements
49. Data Quality Requirements
50. Data Accuracy Requirements
51. Data Completeness Requirements
52. Data Consistency Requirements
53. Data Timeliness Requirements
54. Data Reliability Requirements
55. Data Security Requirements
56. Data Confidentiality Requirements
57. Data Integrity Requirements
58. Data Availability Requirements
59. Data Accessibility Requirements
60. Data Usability Requirements
61. Data Portability Requirements
62. Data Interchangeability Requirements
63. Data Compatibility Requirements
64. Data Interoperability Requirements

Component 1: Build Capacity for Collection of 30 Day follow-up data on stroke continuity of care to reduce stroke readmissions

Expected Outcomes for the Project Period

Short-term outcomes:

- Increase data usage and data sharing to drive decision-making and system changes (all)
- Increase efficiencies and effectiveness of pre-hospital discharge stroke care practices (all)
- Improve adherence to evidence-based care for stroke patients (all)
- Improve receipt and understanding of ongoing post-stroke care (in-hospital, post-hospital)
- Improve adherence to secondary prevention in the transition of care (post-hospital)

Long-term outcomes:

- Improve transition of care from hospital to rehabilitation, home and primary care provider, or long-term care facility
- Reduce readmissions for complications after stroke

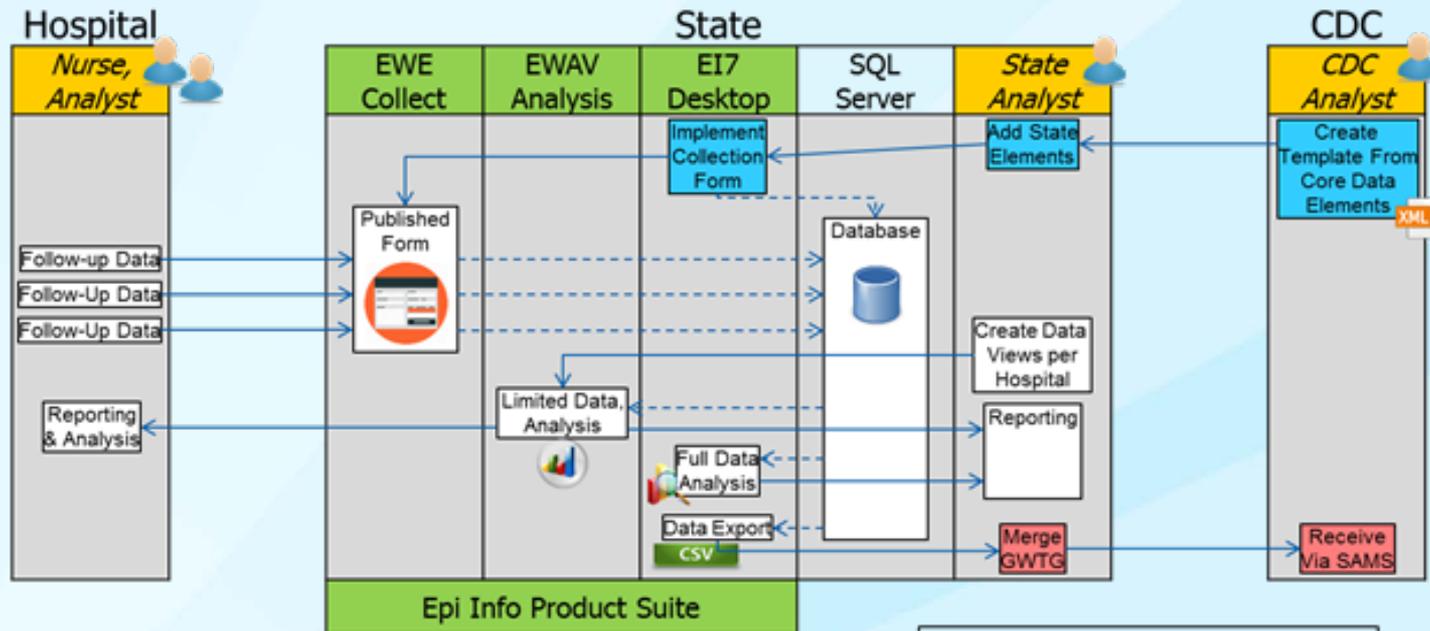
Program Strategies	Annual Performance Measure	Minimum Reportable Data Elements
<p>Strategy 1. Develop a survey instrument to collect 30 day follow-up data from stroke patients.</p> <ul style="list-style-type: none"> • Establish and implement a survey instrument that will include all of the data elements listed in the requirements guidance document (_____) that supports this FOA. • Survey Instrument must be: 1) designed to be administered by hospital staff; 2) allow easy integration with data already captured as part of routine continuity of care. • Survey Administration Guide should be developed to explain how the survey is implemented and used. • Survey Analysis Plan should outline the questions to be answered with the data collected, and unambiguous standard coding for questions and responses for use in analysis. 	(Outcome)	<ul style="list-style-type: none"> • Survey instrument. • Survey Administration Guide
<p>Strategy 2. Design and implement a technology solution to collect 30 day follow-up data from stroke patients.</p> <ul style="list-style-type: none"> • Design and implement a technology solution that will: 1) collect 30-day follow-up data from stroke patients using the survey instrument in Strategy 1; 2) store and deliver data to state health departments in a secure format utilizing protocols such as HTTPS and SSL; 3) be scalable, extensible and recoverable; 4) aim to be usable with limited required technical training in data management; 5) provide basic reporting to hospitals 	(Process)	<ul style="list-style-type: none"> • Objectives planned for Technology solution • Activities planned and completed for technology solution

Journey's stopping point



Epi Info™ 7

Architecture



Epi Info™ 7

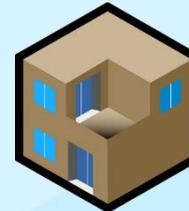
Information for grantees

- **Epi-Info Suite demonstration for grantees at program kick-off**
- **Epi-Info documentation**
- **Program specific documentation**
 - DHDSP Surveillance Project Implementation Plan
 - Coverdell 3-30 Day Follow-Up Web Data Collection & Analysis User Manual

Lessons Learned 1



outpatient

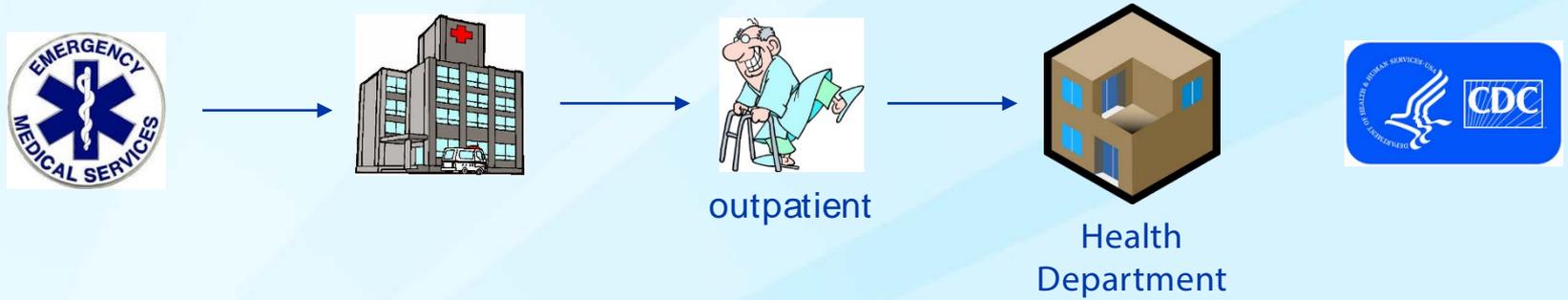


Health
Department



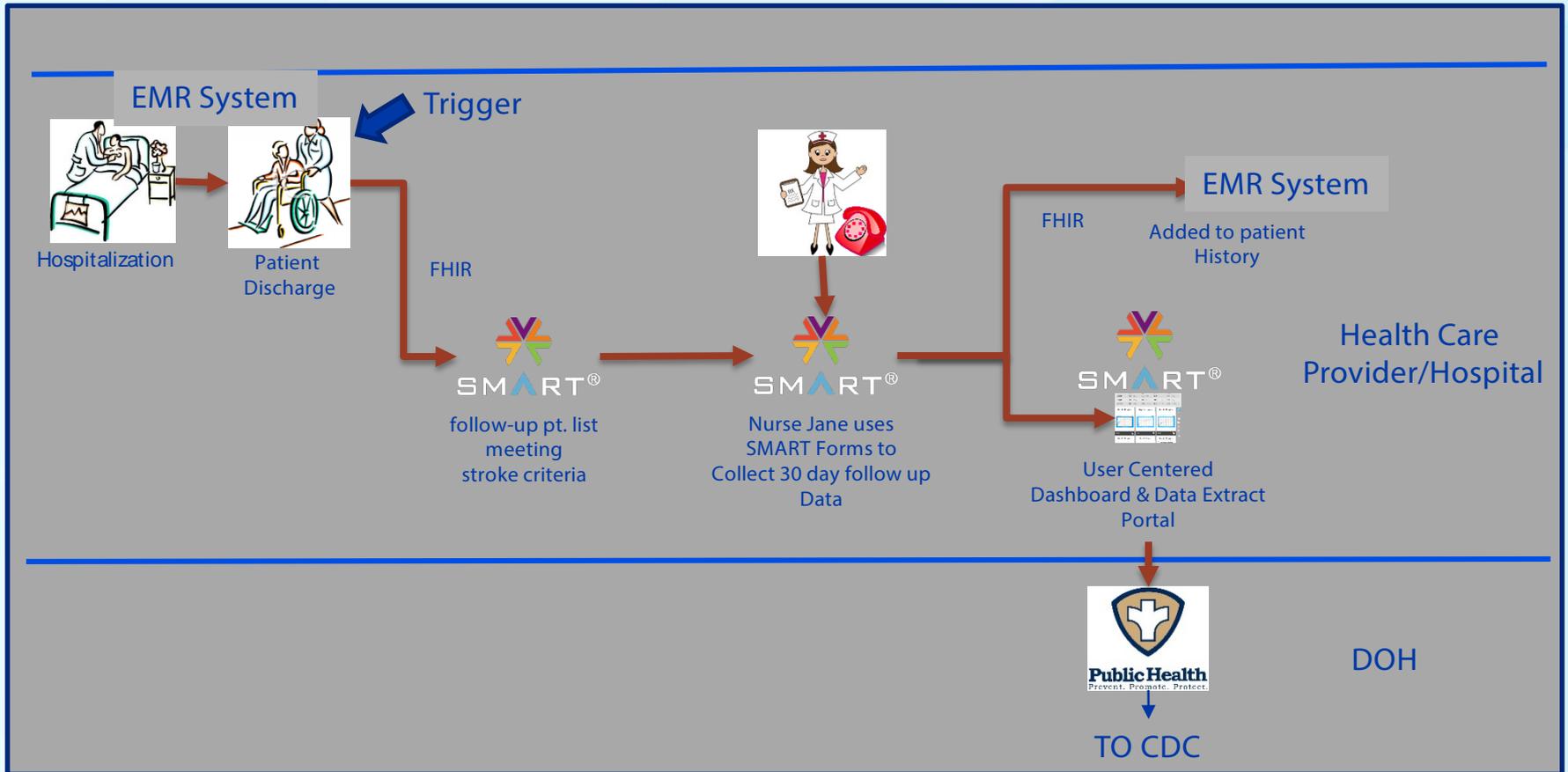
Lessons Learned 2

Opportunities for linkage methods



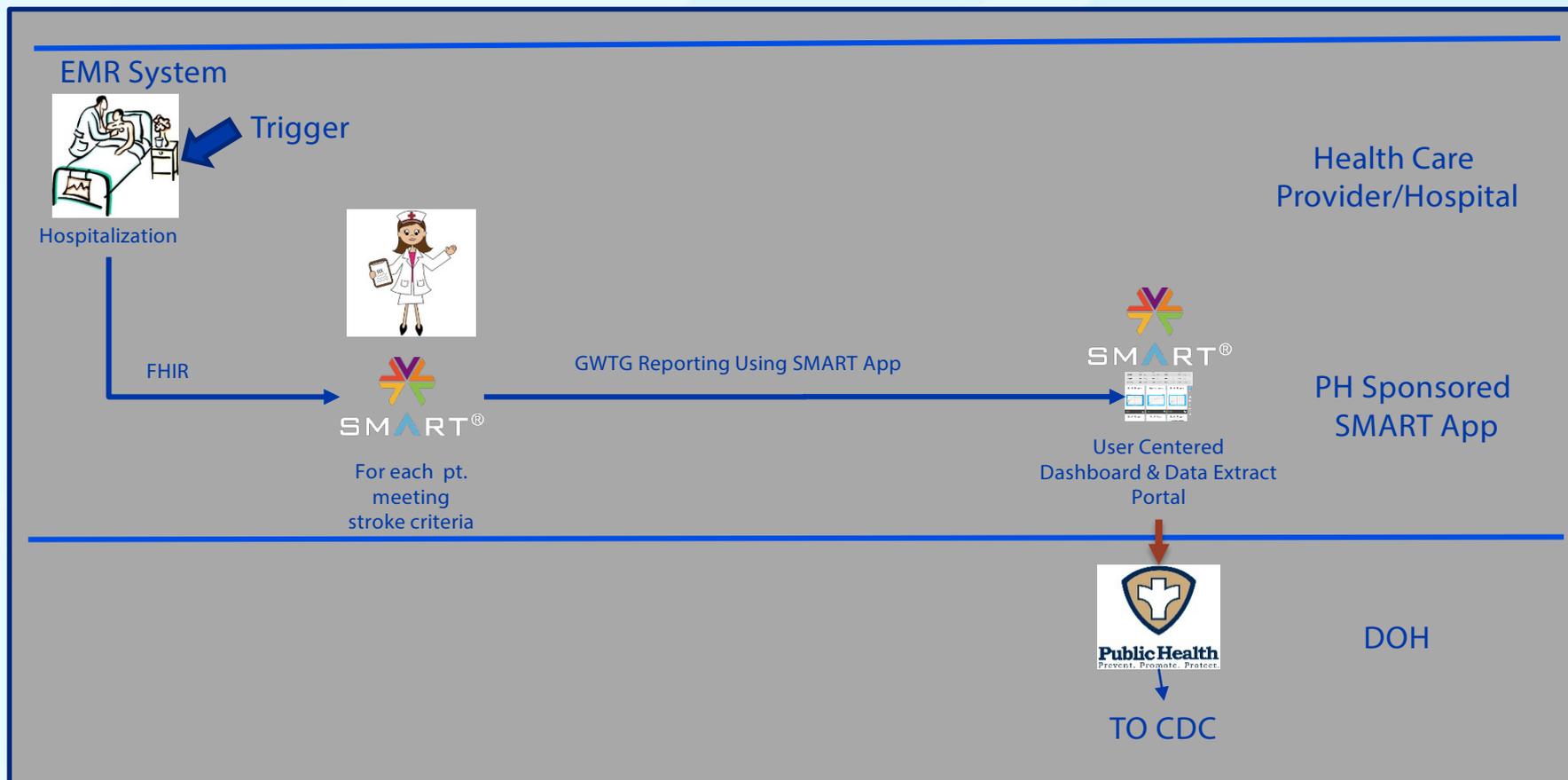
Lessons Learned 3

Coverdell- SMART on FHIR – Post Discharge



Lessons Learned 3

Coverdell- SMART on FHIR – GWTG Reporting



Thank you!

Sallyann Coleman King
scolemanking@cdc.gov

Jason Bonander
jbonander@cdc.gov

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

