AIRA
AMERICAN IMMUNIZATION REGISTRY ASSOCIATION
Immunization Information Systems for a New Era

CDC-ENDORSED DATA ELEMENTS

AIRA Discovery Session
November 27, 2017, 4pm Eastern

OVERVIEW

Presentations

- Changes Within the Newly-Published CDC-Endorsed Data Elements for 2018-2023
- Considerations for Adding Data Elements: One Jurisdiction's Perspective
- The Process of Updating the Elements List, and What Comes Next

Questions, Comments and Discussion

TODAY'S SPEAKERS:

Jan Hicks-Thomson – CDC IIS Support Branch

Amy Metroka – NYC Citywide Immunization Registry Director

Eric Larson – AIRA Senior Technical Project Manager

PLEASE SAVE QUESTIONS/COMMENTS UNTIL THE END…

CDC Endorsed Data Elements

Jan Hicks-Thomson, MSW, MPA, A&W
Public Health Analyst
Immunization Information Systems Support Branch
Centers for Disease Control and Prevention

AIRA Discovery Session
November 27, 2017

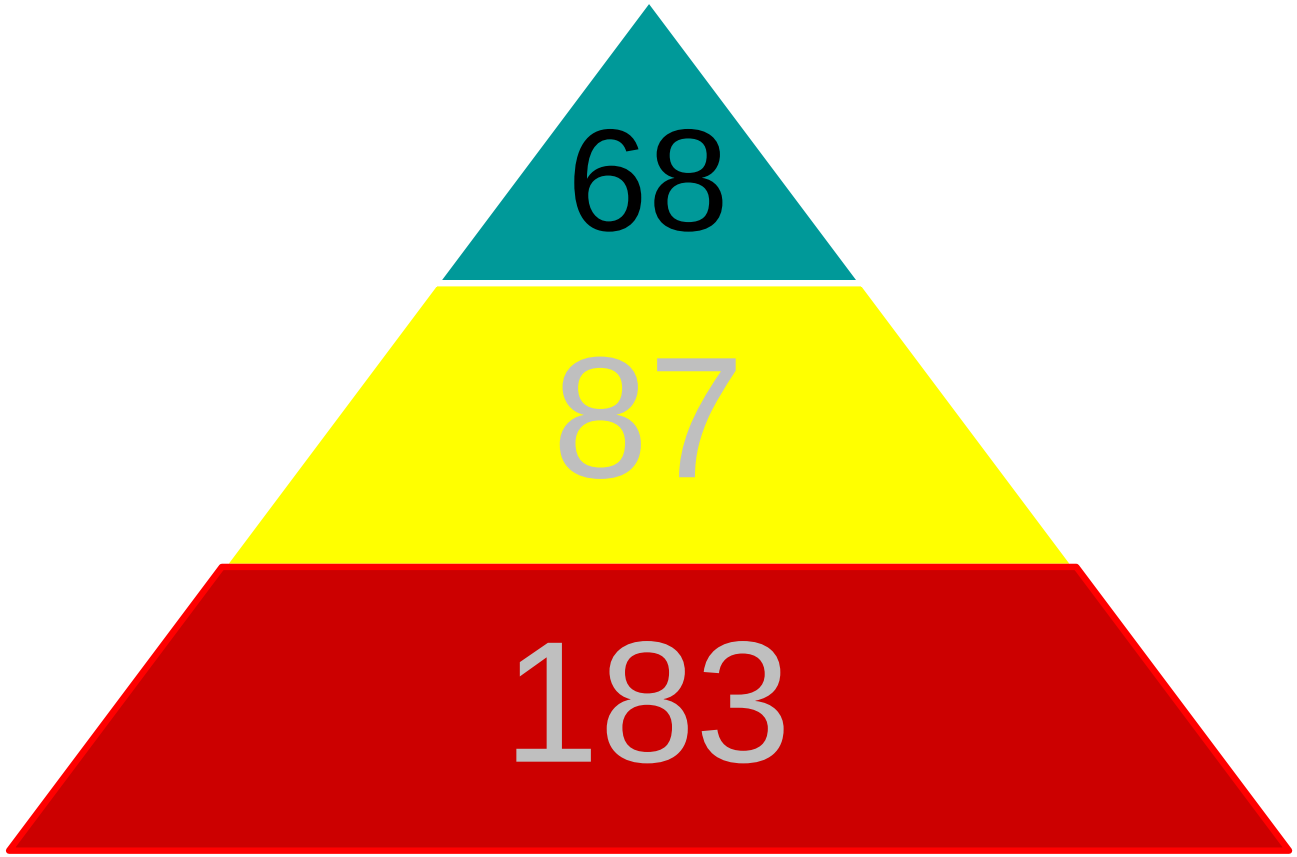
Purpose of the Discovery Session

- Share how the CDC Endorsed Data Elements were identified
- Discuss changes from 2013 – 2017
- Highlight how the data elements are used
- State perspective: what the data elements mean for the IIS
- Describe the role of the subject matter experts in the process
- Describe possible next steps

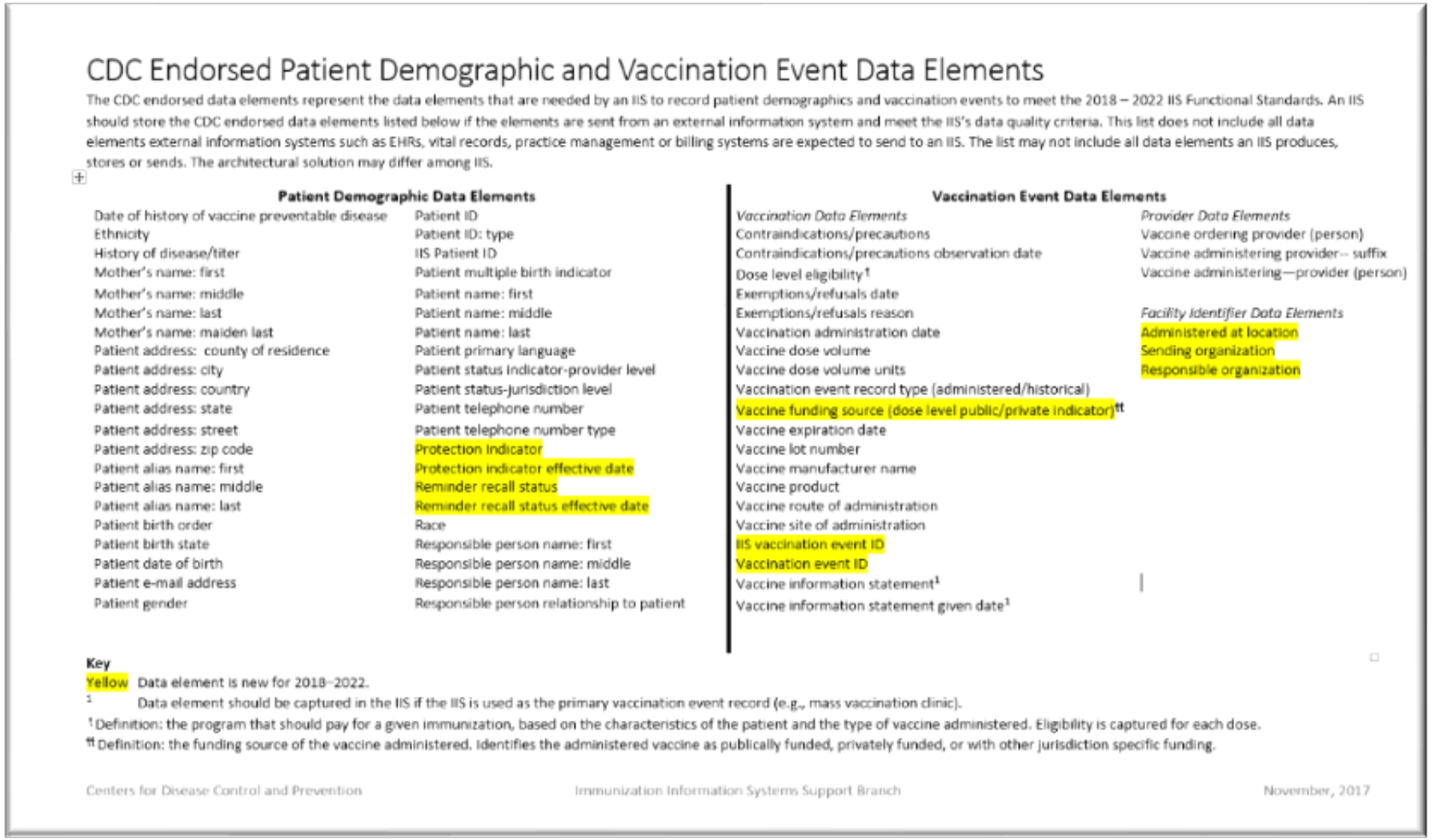
Where did they come from?

Where did they come from?

CDC Endorsed Data Elements



CDC Endorsed Data Elements



CDC Endorsed Patient Demographic and Vaccination Event Data Elements

The CDC endorsed data elements represent the data elements that are needed by an IIS to record patient demographics and vaccination events to meet the 2018 – 2022 IIS Functional Standards. An IIS should store the CDC endorsed data elements listed below if the elements are sent from an external information system and meet the IIS's data quality criteria. This list does not include all data elements external information systems such as EHRs, vital records, practice management or billing systems are expected to send to an IIS. The list may not include all data elements an IIS produces, stores or sends. The architectural solution may differ among IIS.

Patient Demographic Data Elements

Date of history of vaccine preventable disease	Patient ID
Ethnicity	Patient ID: type
History of disease/titer	IIS Patient ID
Mother's name: first	Patient multiple birth indicator
Mother's name: middle	Patient name: first
Mother's name: last	Patient name: middle
Mother's name: maiden last	Patient name: last
Patient address: county of residence	Patient primary language
Patient address: city	Patient status indicator-provider level
Patient address: country	Patient status-jurisdiction level
Patient address: state	Patient telephone number
Patient address: street	Patient telephone number type
Patient address: zip code	Protection Indicator
Patient alias name: first	Protection indicator effective date
Patient alias name: middle	Reminder recall status
Patient alias name: last	Reminder recall status effective date
Patient birth order	Race
Patient birth state	Responsible person name: first
Patient date of birth	Responsible person name: middle
Patient e-mail address	Responsible person name: last
Patient gender	Responsible person relationship to patient

Vaccination Event Data Elements

Vaccination Data Elements	*Provider Data Elements*
Contraindications/precautions	Vaccine ordering provider (person)
Contraindications/precautions observation date	Vaccine administering provider– suffix
Dose level eligibility[†]	Vaccine administering—provider (person)
Exemptions/refusals date	
Exemptions/refusals reason	*Facility Identifier Data Elements*
Vaccination administration date	Administered at location
Vaccine dose volume	Sending organization
Vaccine dose volume units	Responsible organization
Vaccination event record type (administered/historical)	
Vaccine funding source (dose level public/private indicator)[††]	
Vaccine expiration date	
Vaccine lot number	
Vaccine manufacturer name	
Vaccine product	
Vaccine route of administration	
Vaccine site of administration	
IIS vaccination event ID	
Vaccination event ID	
Vaccine information statement[1]	
Vaccine information statement given date[1]	

Key

Yellow Data element is new for 2018–2022.

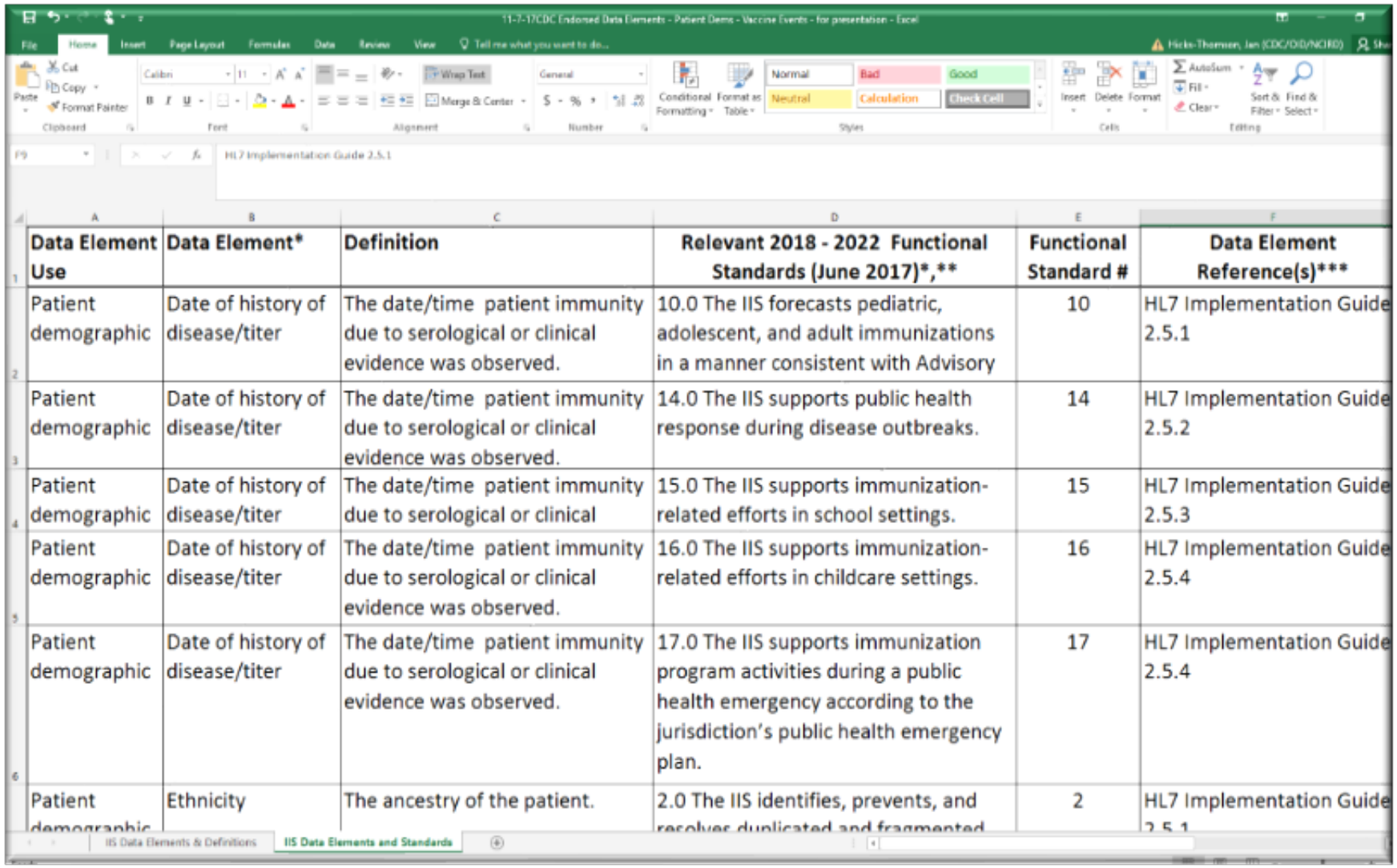
[1] Data element should be captured in the IIS if the IIS is used as the primary vaccination event record (e.g., mass vaccination clinic).

[†] Definition: the program that should pay for a given immunization, based on the characteristics of the patient and the type of vaccine administered. Eligibility is captured for each dose.

[††] Definition: the funding source of the vaccine administered. Identifies the administered vaccine as publically funded, privately funded, or with other jurisdiction specific funding.

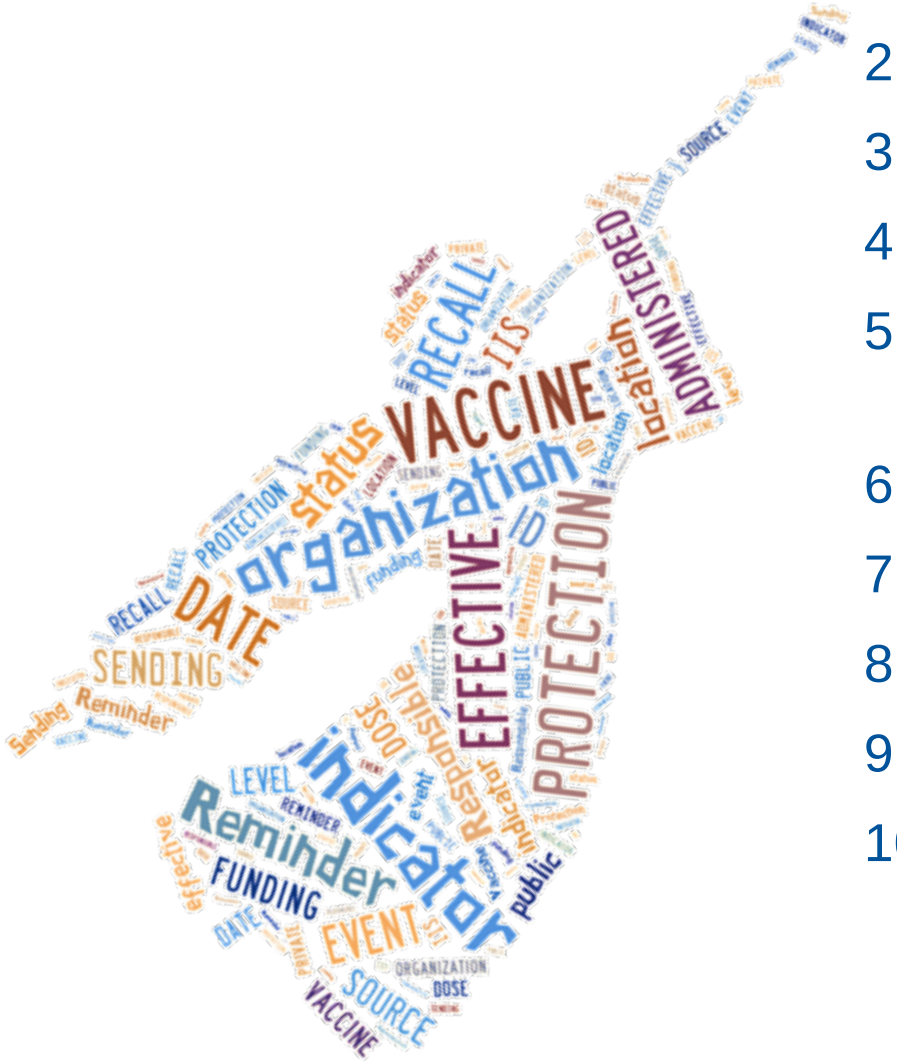
Centers for Disease Control and Prevention Immunization Information Systems Support Branch November, 2017

Definitions, Relation to Functional Standards, Source



Data Element Use	Data Element*	Definition	Relevant 2018 - 2022 Functional Standards (June 2017)*,**	Functional Standard #	Data Element Reference(s)***
Patient demographic	Date of history of disease/titer	The date/time patient immunity due to serological or clinical evidence was observed.	10.0 The IIS forecasts pediatric, adolescent, and adult immunizations in a manner consistent with Advisory	10	HL7 Implementation Guide 2.5.1
Patient demographic	Date of history of disease/titer	The date/time patient immunity due to serological or clinical evidence was observed.	14.0 The IIS supports public health response during disease outbreaks.	14	HL7 Implementation Guide 2.5.2
Patient demographic	Date of history of disease/titer	The date/time patient immunity due to serological or clinical	15.0 The IIS supports immunization-related efforts in school settings.	15	HL7 Implementation Guide 2.5.3
Patient demographic	Date of history of disease/titer	The date/time patient immunity due to serological or clinical evidence was observed.	16.0 The IIS supports immunization-related efforts in childcare settings.	16	HL7 Implementation Guide 2.5.4
Patient demographic	Date of history of disease/titer	The date/time patient immunity due to serological or clinical evidence was observed.	17.0 The IIS supports immunization program activities during a public health emergency according to the jurisdiction's public health emergency plan.	17	HL7 Implementation Guide 2.5.4
Patient demographic	Ethnicity	The ancestry of the patient.	2.0 The IIS identifies, prevents, and resolves duplicated and fragmented	2	HL7 Implementation Guide 2.5.1

What's New from 2013 - 2017?



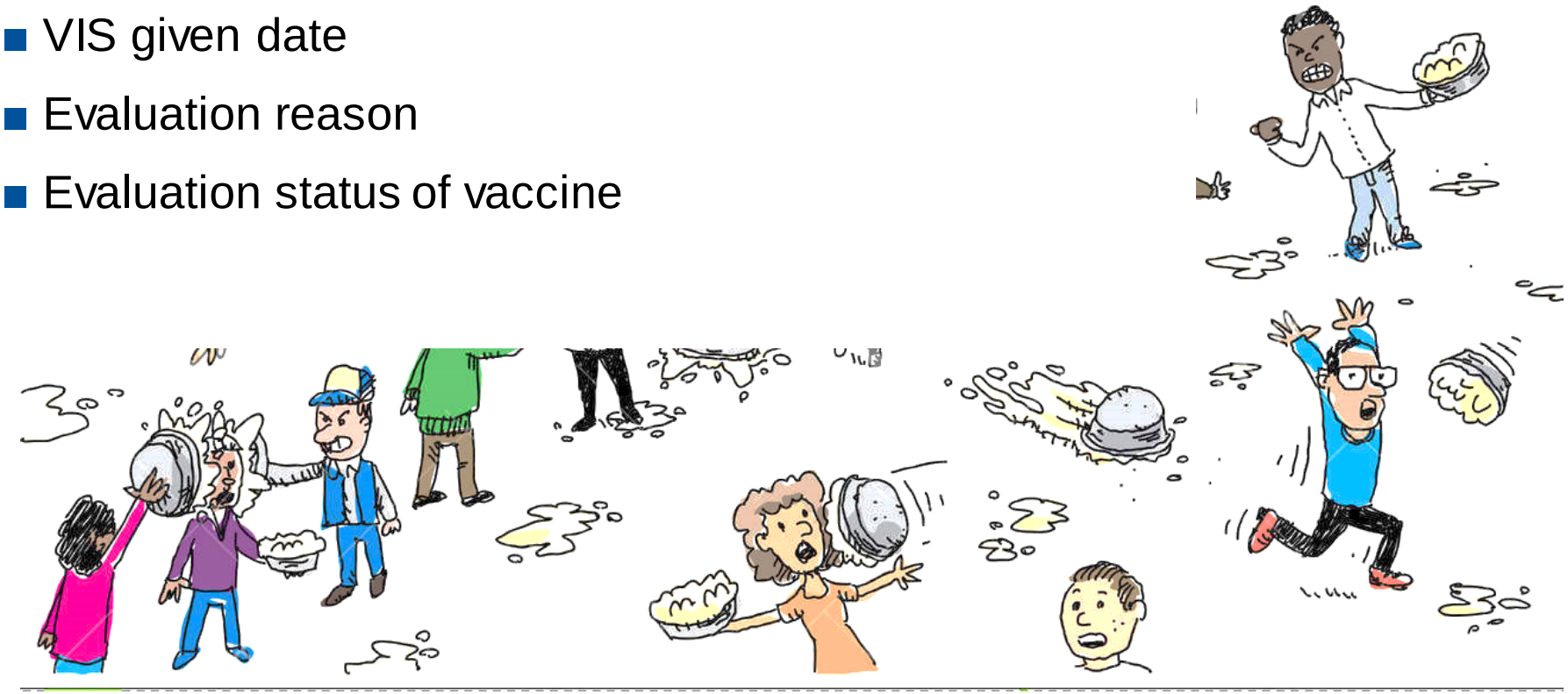
1. Protection indicator
2. Protection indicator effective date
3. Reminder recall status
4. Reminder recall status effective date
5. Vaccine fund source (dose level public/private indicator)
6. IIS vaccination event ID
7. Vaccination event ID
8. Administered at location
9. Sending organization
10. Responsible organization

What's MOGED from 2013 - 2017?

- Vaccine reactions
- Birthing facility name

What was Heavily Debated?

- VIS publication date
- VIS given date
- Evaluation reason
- Evaluation status of vaccine



How are the Data Elements Used?

- In the HL7 Implementation Guide, required to be sent to the IIS
- Support business processes and clinical decisions

IISAR Questions:

- **50:** My IIS stored or derived all CDC-endorsed data elements. Yes/No

- Record completeness for specific data elements.

Data Elements Measured for Completeness - IISAR

- Vaccine Product Type Administered
- Vaccination Administration Date
- Vaccine Manufacturer Name
- Vaccine Lot Number
- VFC/Awardee Program Vaccine Eligibility at Dose Level
- Patient First Name
- Patient Last Name
- Patient Date of Birth
- Patient Gender
- Patient Telephone Number
- Address – Street
- Address – City
- Address – State
- Address – Zip
- Mother's First Name
- Mother's Last Name

Logic Guidance for IISAR Measures

Example:

- **48:** Mother's Name: Logic guidance: If Mother's Name can be determined from Responsible Person Name elements, do so and consider it having Mother's First and/or Last Name field/s present. Count any Responsible Person Name information for mothers toward Mother's Name fields.

2016 IISAR Measures: Completeness

2016 IISAR Data -- All IIS Reporting		
Field Present	Complete	Data Element
100%	100%	Vaccine Product Type Administered
100%	100%	Vaccination Administration Date
100%	86%	Vaccine Manufacturer Name
100%	84%	Vaccine Lot Number
91%	85%	VFC/Awardee Program Vaccine Eligibility at Dose Level
100%	100%	Patient First Name
100%	100%	Patient Last Name
100%	100%	Patient Date of Birth
100%	99%	Patient Gender
100%	74%	Patient Telephone Number
100%	96%	Address – Street
100%	96%	Address – City
100%	92%	Address – State
100%	91%	Address – Zip
96%	70%	Mother's First Name
93%	61%	Mother's Last Name
73%	N/A	Patient Telephone Number Type

Thanks to the SMEs

The SME Workgroup	IISSB Team
Therese Hoyle	Warren Williams
Mary Beth Kurilo	Laura Pabst
Eric Larson	Janet Fath
Elaine Lowery	Stuart Myerburg
Craig Newman	David Lyalin
Rob Savage	Loren Rodgers
	Lauren Shaw

CDC-ENDORSED DATA ELEMENTS: NEW YORK CITY PERSPECTIVE

OVERVIEW

Response to Full List of Data Elements and Supporting Document

Status of NYC Capture of Data Elements

New Data Elements: Value Added

Steps to Add Data Elements

Challenges

RESPONSE TO LIST OF DATA ELEMENTS

Reducing to 68 is helpful – agree most are useful to program

Highlighting of new data elements for 2018 -2022 is helpful

- Suggest specifying the 2 that were removed (adverse events; birthing facility) – IIS may need to stop plans to add them

Raises question: Of those we do not currently include in our IIS, which ones must we add and by when?

- Which data elements must be added for us to adhere to national standards?
- Many IIS may not have resources to add all data elements – must prioritize

Some data elements may not be useful to IIS

- e.g., Vaccine route and site of administration

RESPONSE TO SUPPORTING DOCUMENT

Definitions, crosswalk to Functional Standards, and Data Element References is helpful

References are important because definitions and Functional Standards are often general

- Programs will need specifics on each data element not currently included
- Specifics necessary to guide discussions on whether to add or not, and when

STATUS OF NYC CAPTURE OF DATA ELEMENTS

NYC's IIS currently includes fields in for 56 of 68 data elements (82%)

Highly complete for most patient and responsible person demographics, basic vaccination event information, and VFC eligibility at dose level

- We do not currently include contraindications; vaccine dose volume and units
  - We may add but must consider implications for vaccine forecasting and query response

Plans underway to add several data elements

- Seeking 90/10 Medicaid funding

Example of field in our IIS but incomplete: patient email address (5%)

NEW DATA ELEMENTS: VALUE ADDED

Protection indicator - documents patient consent to share information

- NYS requires patient consent for reporting of adult immunizations
- NYC did not collect consent until recently – now collecting it because 1) vendors following national standards are sending it; and 2) a hospital network sent large number of adult immunizations without consent, requiring labor-intensive clean-up

Protection indicator effective date - patient can change consent – decision with most recent date is applied

Reminder recall status - documents parent or patient agreement to receive reminder or recall messages

- NYC uses it only for text message recall sent by provider or NYC DOHMH

Reminder recall status effective date - parent or patient can change agreement – decision with most recent date is applied

NEW DATA ELEMENTS: VALUE ADDED, CONT.

Vaccine funding source - indicates whether vaccine dose reported was from public or private stock

- NYC uses it for automatic decrementing of VFC vaccine inventory
  - Vaccines purchased with public and private funds can have same lot number
  - NYC requires VFC providers to use the Vaccine Inventory Management (VIM) module in our Web-based IIS user interface to order and account for VFC vaccines

Administered at location/Sending organization/Responsible organization

- Enables program to track vaccine administered to each site (physical location) within a network of sites reporting through a hub
  - NYC uses these data elements to assess vaccination coverage and produce VFC doses administered reports by site

STEPS TO ADD DATA ELEMENTS

Develop new business rules for IIS processing of data elements

Add data elements to IIS database

Add data elements to IIS interface for each method of reporting:

- HL7 Web Service (~70% of data submitted)
- Web-based IIS user interface
- Flat file

Revise local HL7 Implementation Guide

Outreach to inform providers and EHR vendors

In some cases, re -onboard provider sites (e.g., protection indicator)

CHALLENGES

Requires time and expense to develop requirements and specifications, business rules, programming, testing

- Need funding for IIS vendor
- Must allocate significant staff time

To get timely and complete reporting of data elements:

- EHR vendors may need to add data elements and change their interface
  - Involves costs – may want to wait for one big release with many changes
- Users in provider offices must enter data elements
  - Challenge to get email addresses and mobile phone numbers
  - Will providers take time to ask parents or patients if they agree to receive reminder or recall messages?

THE SME PROCESS, AND WHAT COMES NEXT

GUIDING PRINCIPLES FOR SMES SUPPORTING THE PROCESS

Reference Existing Documents/ Standards

- HL7 Implementation Guide
- MIROW Chapters

Be Iterative

- Review all SME comments
- Reflect
- Fine-Tune

Be Consistent

- Ensure Elements are Distinct
- Keep Language Uniform

WHAT COMES NEXT?

As defined, the data elements are good, but…

Are they defined well enough to ensure consistent implementation by all IIS?

What about by all external systems who are submitting these data elements?

A NON-IMMUNIZATION EXAMPLE

What if "Bolt" was a data element?

- Would it be consistently implemented by all?
- Is there a way to further reduce ambiguity?

2018 DATA ELEMENTS NOW HAVE A DEFINITION

Definition of BOLT

1 **a** : a shaft or missile designed to be shot from a crossbow or catapult; *especially* : a short stout usually blunt-headed arrow
b : a lightning stroke; *also* : THUNDERBOLT

2 **a** : a wood or metal bar or rod used to fasten a door
b : the part of a lock that is shot or withdrawn by the key

3 : a roll of cloth or wallpaper of specified length

4 : a metal rod or pin for fastening objects together that usually has a head at one end and a screw thread at the other and is secured by a nut

5 **a** : a block of timber to be sawed or cut
b : a short round section of a log

6 : a metal cylinder that drives the cartridge into the chamber of a firearm, locks the breech, and usually contains the firing pin and extractor

BUT THAT'S NOT ENOUGH

Data Element	Definition
Responsible Person: First	The first name of the person responsible for the patient
Responsible Person: Middle	The middle name of the person responsible for the patient
Responsible Person: Last	The last name of the person responsible for the patient
Responsible Person Relationship to Patient	The actual personal relationship that the person has to the patient

What constitutes a "Responsible" person?

- The person "responsible" for paying the bill?
- The person "responsible" for making clinical decisions?
- The person "responsible" if nobody else is available (e.g. emergency contact)?

What types of responsible people are the IIS interested in? Why?
What types of responsible people are the IIS not interested in? Why?

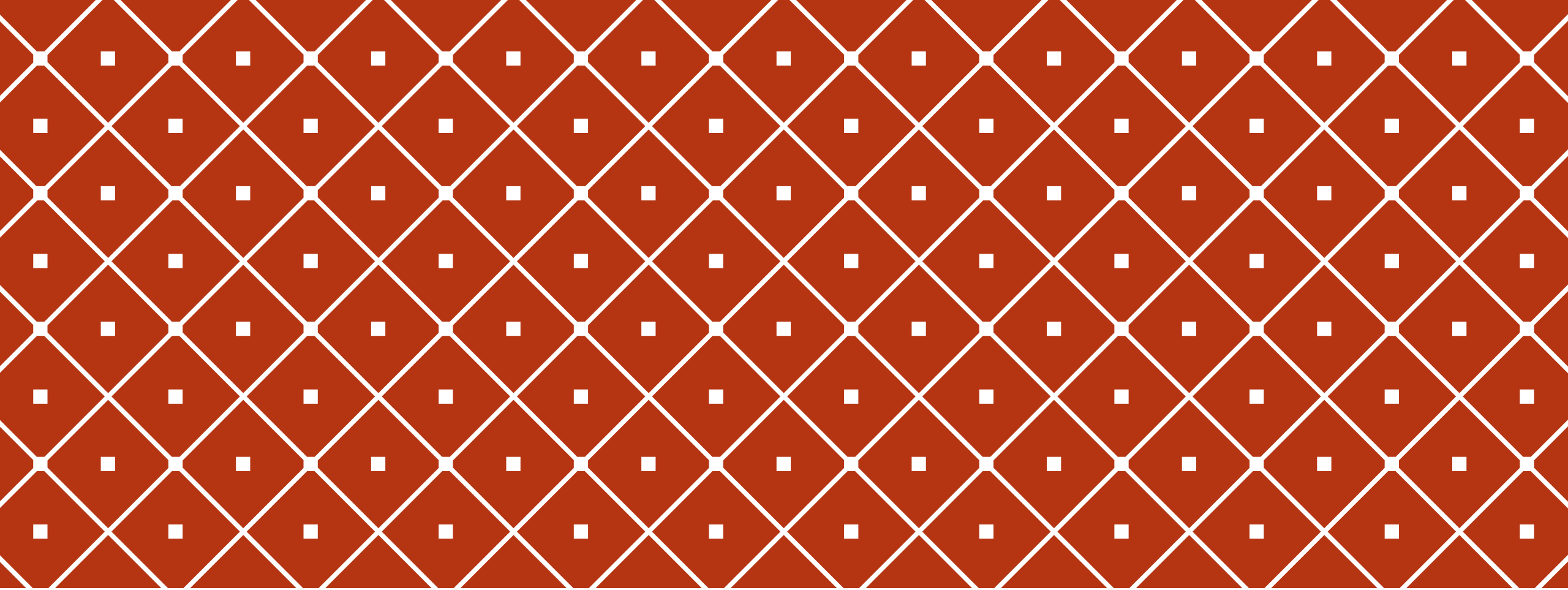
OTHER POSSIBLE WAYS TO REDUCE AMBIGUITY

One high-level Model (e.g., Domain, Fact, Information) built from the data elements

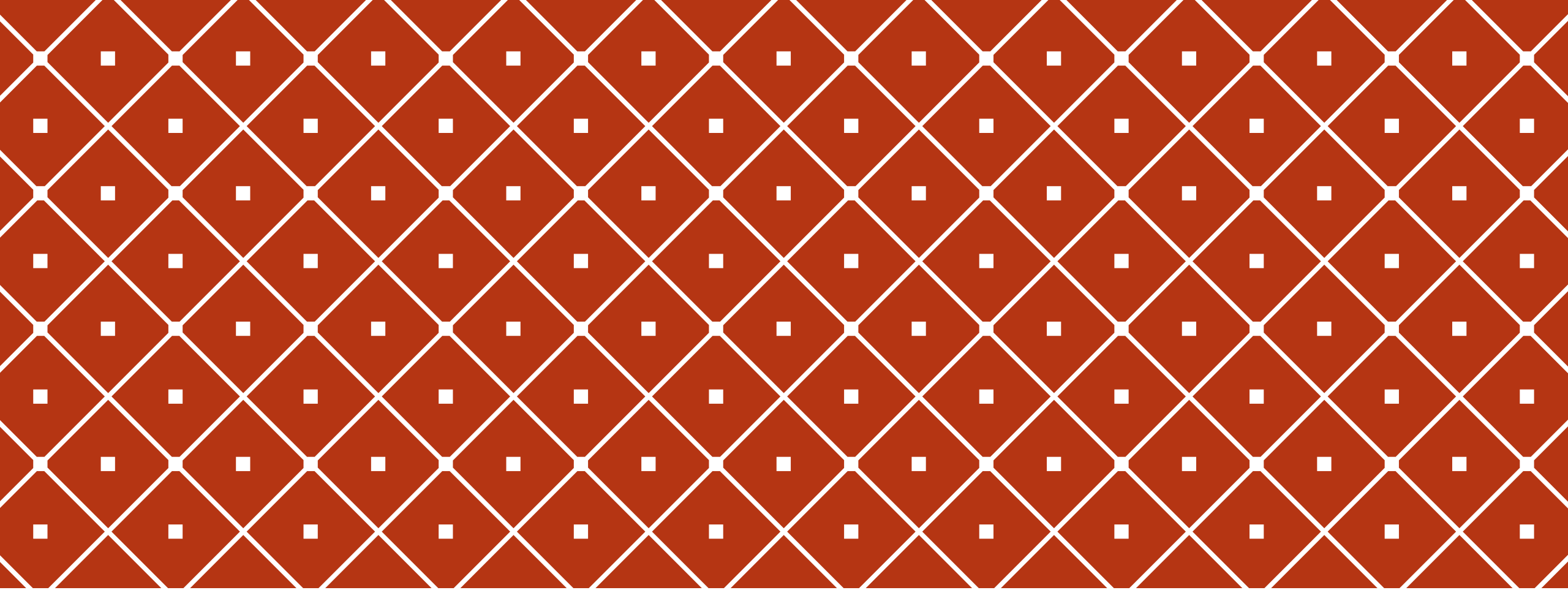
- This model could be used as a starting point for many projects ranging from MIROW to Functional Guides to Data Quality to HL7 Implementation Guide.

Clear definition on which data elements

- Could have more than one (e.g., patients with more than one address)
- Could/should have a change history over time (e.g., vaccination event changes over time)
- Are just for certain situations (e.g., patient age, provider type)



QUESTIONS, COMMENTS, DISCUSSION?



THANKS SO MUCH!