Eligible Hospital (EH) Onboarding Approach for the Meaningful Use (MU) Incentive Program

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INTRODUCTION

- New York City Department of Health and Mental Hygiene (DOHMH) jurisdiction covers five counties (i.e. New York, Kings, Queens, Bronx, & Richmond County)
- NYC Population is over 8,400,000 & ~4,000,000 people commute from neighboring counties [i.e. DOHMH serves ~12,000,000 people]
  - DOHMH currently has 6,650 employees
- Started collecting Syndromic Surveillance (SS) Emergency Department (ED) data in November 2001
  - Required by Article 11 of the NYC Health Code (required variables are: Age, Gender, Date and time of visit, Zip Code, Chief complaint, Diagnosis/Diagnosis code, Discharge Disposition, & A unique identification number)
  - Data Use Agreement with each ED Facility
  - Started sending to BioSense2.0 in December 2013

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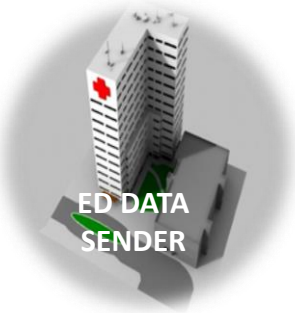
INTRODUCTION CONTINUED

- 51 out of 53 ED sites submit syndromic surveillance data to DOHMH either via flat-file or HL7 standard
  - About 13,000 ED visits daily (231,594 visits were received in December 2014 via the HL7 feed)

- This presentation will focus on the technical approach used to onboard EHs

ED DATA ACTION FLOW

PATIENT VISITS ED UNIT

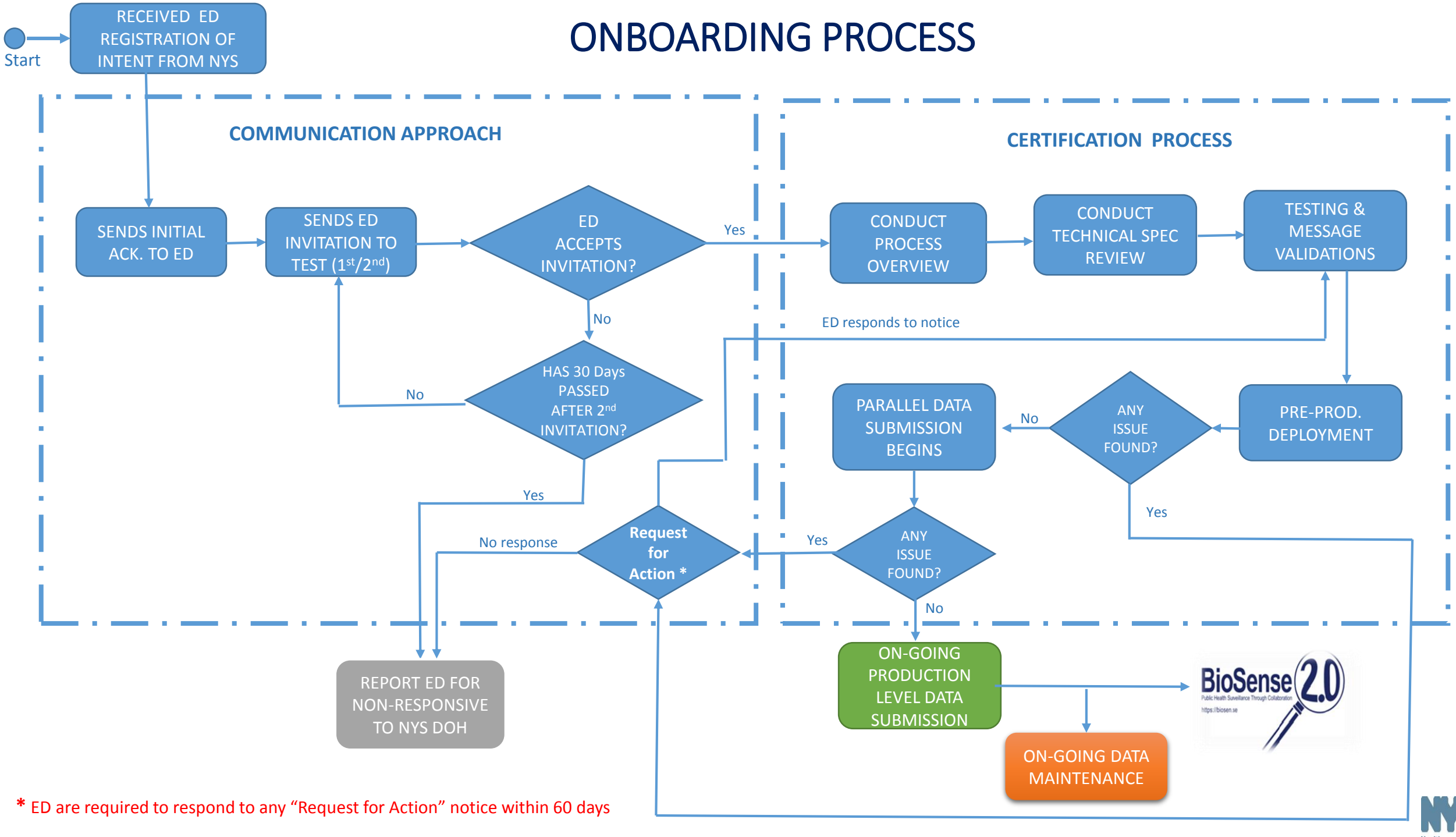


SENDS SYNDROMIC DATA

SENDS PATIENT VISIT LEVEL SYNDROMIC DATA

BioSense 2.0
Public Health Surveillance Through Collaboration
https://biosen.se

ONBOARDING PROCESS



* ED are required to respond to any "Request for Action" notice within 60 days

CERTIFICATION PROCESS

- ❑ Process Overview
  - DOHMH SS team explains the entire certification process to the EH's MU Director/Coordinator (Conference call is highly recommended)

- ❑ Technical Spec Review
  - PHIN & DOHMH Message guide review
    - ADT_01 & ADT_03 Message Structure
    - Required Message Types: A01, A04, A08 & A03
  - DOHMH data element review per Article 11 of the NYC Health Code
  - Data Transmission protocol: current transport application is the Universal Public Health Node (UPHN)
  - Message Profile, Validation process, and Date Element Report
  - Weekly, Bi-weekly conference call is recommended

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CERTIFICATION PROCESS CONTINUED

- ❑ HL7 Message Testing & Validation
  - Message Type Level Data Validation
  - Visit Level Required Data Elements Validation

- ❑ Pre-Production Deployment
  - EH sends production level ED data to DOHMH staging environment. This usually last for 3 to 7 days

- ❑ Parallel Data Submission
  - EH transmits ED data using their certified EHR (HL7 2.5.1) feed every 6 hours and Legacy (flat-file) feed every 24 hours – this could last anywhere from 30 days to 90 days depending on EH's/ vendor and the quality of the new feed
  - DOHMH performs data analysis based on timeliness, completeness and data quality

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PRODUCTION LEVEL DATA SUBMISSION

- ❑ DOHMH provides ED site with parallel submission QA report
  - Completeness of key variables such as chief complaint, age, gender, zip code, discharge dispositions, ICD-9/ICD-10, discharge date time, vital signs, etc.
  - 1-to-1 data match between HL7 feed vs Legacy feed
  - Data Accuracy/Discrepancies of overall syndrome counts
  - Submission Timeliness

- ❑ DOHMH notifies hospital team to discontinue the submissions via legacy feed

- ❑ Hospital submits all ED data via HL7 2.5.1 format

- ❑ Maintenance
  - ED sites provides contact information of key staffs for on-going monitoring and maintenance

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KEY DEFINITIONS

- R – Required, must always be populated by the Sender, and if not present, message will be rejected

- RE – Required, but may be empty (no value). If the Sender has data, it must be sent. The element may be missing from the message, but must be sent by sending application if the relevant data is available.

- O – Optional, highly recommended to populate data if available, but message will be accepted if empty.

- A required field in an RE/O segment means that if the segment is present, the required fields/ components/sub- components within that segment must be populated.

ADT_01 MESSAGE STRUCTURE

SIMPLE MESSAGE STRUCTURE: A01, A04, AND A08				
SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
MSH	Message Header	Information explaining how to parse and process the message Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
{OBX}	Observation / Result	Information regarding the age, temperature, and other information	R	[1..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

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ADT_03 MESSAGE STRUCTURE

SIMPLE MESSAGE STRUCTURE: A01, A04, AND A08				
SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
MSH	Message Header	Information explaining how to parse and process the message Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
{OBX}	Observation / Result	Information regarding the age, temperature, and other information	R	[1..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

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DOHMH-REQUIRED DATA ELEMENTS

Data Element	Segment	Position	Description
Hospital Name	EVN	7.1	Full name of the facility where ED data originates
Hospital NPI	EVN	7.2	National provider Identifier for the ED facility or main hospital
Unique Patient Identifier	PID	3.1	Alphanumeric digits that uniquely identify a patient with the facility
Patient's DOB	PID	7	Patient's date of birth
Gender	PID	8	Administrative Sex
Patient's Race	PID	10	
Patient's Current Address Zip code	PID	11.5	
Patient's Ethnic Group	PID	22	
Patient Birth Place	PID	23	This is an optional data element
DateTime of Death	PID	29	
Patient Death Indicator	PID	30	
Admit Source Code	PV1	14	http://phinvads.cdc.gov/vads/ViewValueSet.action?id=09D34BBC-617F-DD11-B38D-00188B398520#
Visit Number	PV1	19	
Discharge Disposition	PV1	36	
Admission Date/ Date Time of Visit	PV1	44	Admission Date
Discharge Date/Time	PV1	45	

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DOHMH-REQUIRED DATA ELEMENTS CONTINUED

Data Element	Segment	Position	Description
Admit Reason	PV2	3	
Chief Complaint	OBX	5	
Age	OBX	5	
Patient's Vital Sign measurements	OBX	5	i.e. Temperature, BP etc
Diagnoses ICD-9/ICD-10 Code	DG1	3.1	
Diagnoses Text	DG1	3.2	
Diagnoses DateTime	DG1	5	
Diagnoses Type	DG1	6	Use literal values: "A" for Admitting diagnosis, "W" for Working diagnosis or "F" for Final diagnosis
Insurance Plan ID	IN1	2	
Insurance Company ID	IN1	3	
Insurance Plan type	IN1	15	e.g. Self-pay, Private, HMO, Medicaid etc.

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DOHMH SAMPLE GUIDE

MESSAGE HEADER SEGMENT (MSH) *(see page 33; Table 3-6A PHIN Messaging Guide for SS Release 1.1; August 20012)*					Required				Header
Field Separator	1	Char	1	[1..1]	R	R	R	R	Default Value "|" (ASCII 124).
Encoding Characters	2	String	4	[1..1]	R	R	R	R	Default Values "^~\&" (ASCII 94,126, 92, and 38).
Sending Application	3	String	50	[1..1]	R	R	R	R	
Sending Facility	4	String	200	[1..1]	R	R	R	R	Field that uniquely identifies the facility associated with the application that sends the message
Sending Facility Namespace ID	4.1	String	160	[1..1]	R	R	R	R	Full Name of the Sending Facility
Universal ID	4.2	String	20	[1..1]	R	R	R	R	'National Provider ID of the Sending Facility
Universal ID Type	4.3	String	20	[1..1]	R	R	R	R	NPI
Receiving Application	5	String	50	[1..1]	R	R	R	R	Value-=HL7SERV
Receiving Facility	6	String	200	[1..1]	R	R	R	R	Value= NYC DOHMH
Date/Time of Message	7	Date Time	14	[1..1]	R	R	R	R	Format = YYYYMMDDHHMMSS
Security	8	Unsupported							
Message Type	9	String	15	[1..1]	R	R	R	R	All messages will be Admit-Discharge-Transfer (ADT) message types. Values are: Inpatient Admission = ADT^A01^ADT_A01, ED Registration = ADT^A04^ADT_A01, Update(s) = ADT^A08^ADT_A01, or End Visit/ Discharge = ADT^A03^ADT_A03
Message Code	9.1	String	3	[1..1]	R	R	R	R	Literal Value "ADT"
Trigger Event	9.2	String	3	[1..1]	R	R	R	R	One of the following literal values: "A01", "A03", "A04", or "A08"
Message Structure	9.3	String	7	[1..1]	R	R	R	R	Trigger events A01, A04, & A08 share the same "ADT_A01" Message Structure One of the following literal values: "ADT_A01" or "ADT_A03"
Message Control ID	10	String	50	[1..1]	R	R	R	R	This field is a number or other identifier that uniquely identifies the message; prefix with event facility abbreviation.
Processing ID	11	Char	1	[1..1]	R	R	R	R	'Values= "P" for Production, "D" for Debug/Testing or "T" for Training/Testing.
Version ID	12	String	5	[1..1]	R	R	R	R	'Note: HL7 version number used to interpret format and content of the message. Acceptable Value =2.5.1
MHS-13 to Sequence Number : Alternate Character Set Handling Scheme	13 : 20	unsupported							
Message Profile Identifier	21	String	100	[0..1]	O	O	O	O	

CURRENT ONBOARDING STATUS

- 49 ED sites currently registered Intent to pursue MU attestation
  - 7 Submitting Production Level Data
  - 23 Parallel Data Submission phase
  - 13 Testing & Validation phase
  - 6 pending responds to Invitation to Test

- 3 Pending Registration of Intent

CHALLENGES

- Understanding Patient “Walk-Out” procedure for each ED site
- ED/Vendors inability to transmit ED-to-Inpatients / Inpatients-to-ED Transfers
- Visit Duplication Issues Affect:
  - ED baseline calculation
  - Daily visit counts
  - Chief complaint count
  - Other data elements count
- Poor ED action work-flow
- End visit/discharge issues
  - Lack timely automatic discharge system
  - Delay in diagnosis ICD-9 coding process

LESSONS LEARNED

- Data Element Report has become essential for ED internal QA and audit process
- Parallel Comparison helped DOHMH determine an appropriate baseline for each ED site

REQUEST FROM ED/VENDOR

- To accept other ADT Messages Types, such as:
  - A02 – Patient Transfer
  - A12 – Cancel Transfer
  - A18 – Merge Patient Info

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QUESTIONS ?