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Texas Department of State
Health Services

NBS Health Information Technology

**NBS Advisory Committee Update
February 16, 2018**

2017 SPECIMEN AND SUBMITTER VOLUME

743,000 Specimens

- 381,500 1st screens
- 356,500 2nd screens
- 5300 Unsats

> 2100 Submitters

- 300 Hospitals
 - 60% of specimens
 - 100 to 12K specs / yr
- 50 Birthing Centers
- 100 Independent Midwives
- 1650 PCP / Clinics



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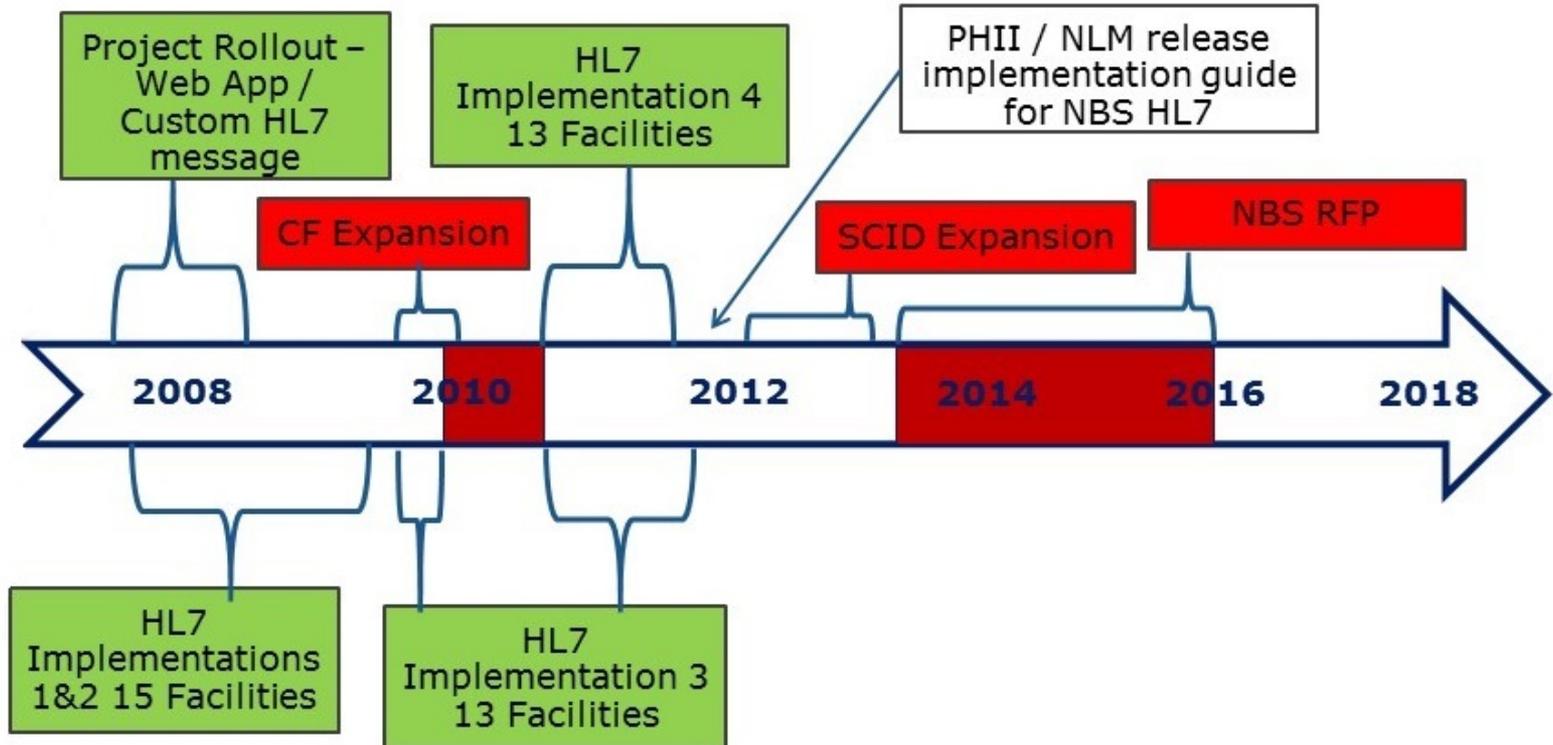
NBS HIT HISTORY



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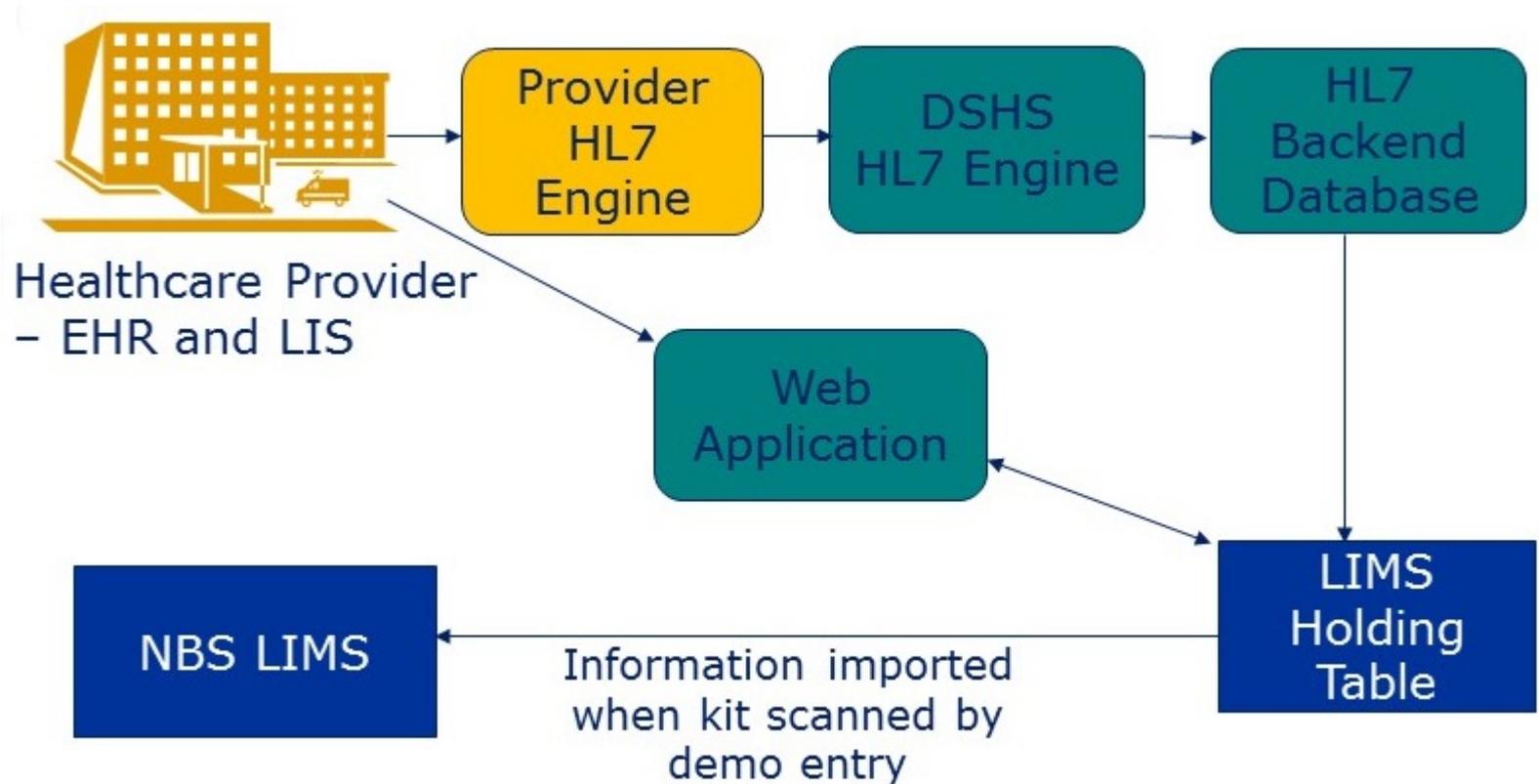
Order / Demographic Receipt



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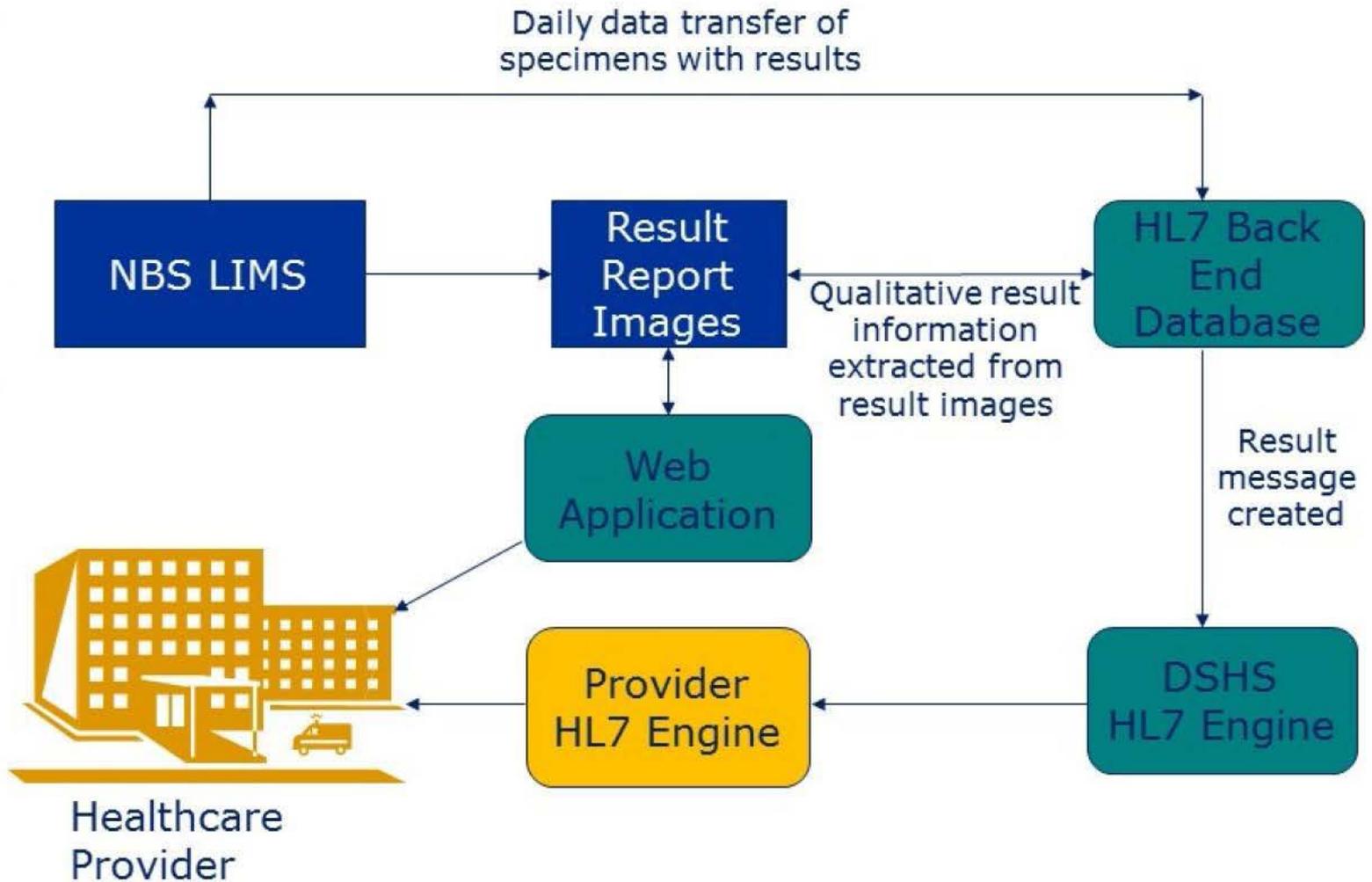
Result Reporting



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HIT STATUS – 2016

ORDERS / DEMOGRAPHICS

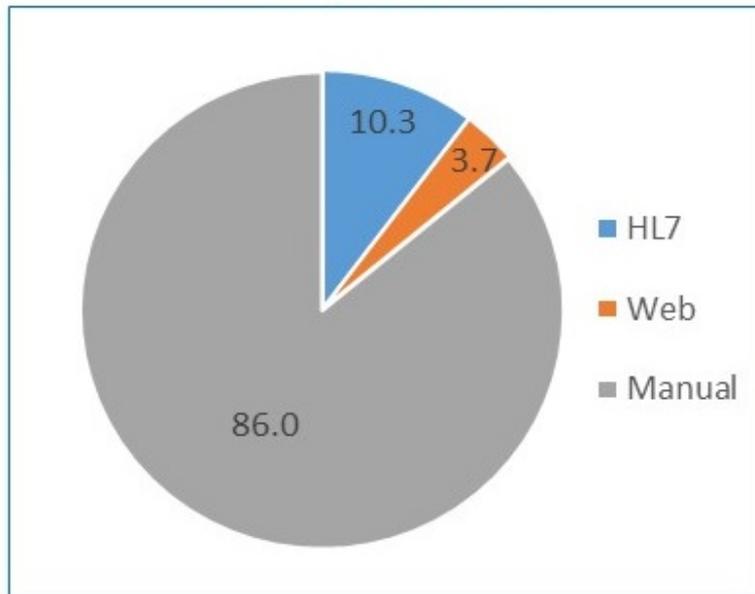


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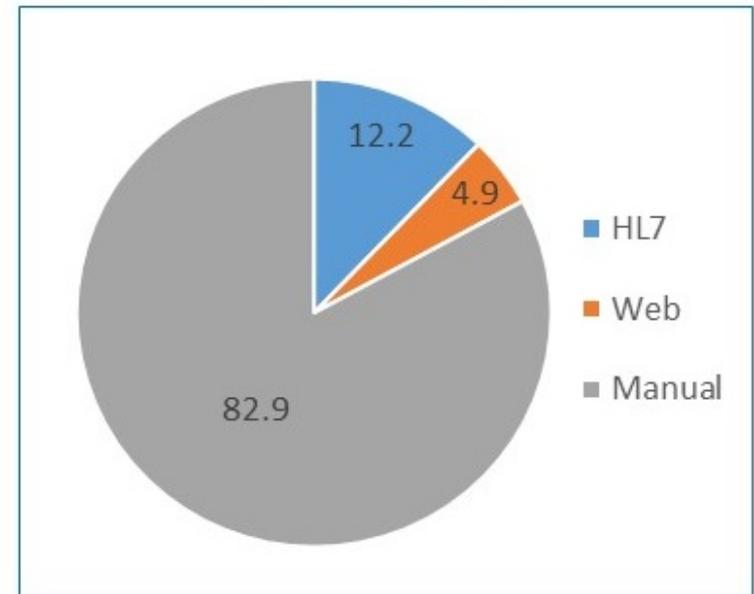
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All Specimens



109,500 - Remote Entered
80,500 - HL7 Resulted

1st Screens



68,000 - Remote Entered
48,600 - HL7 Resulted

HIT STATUS - 2016

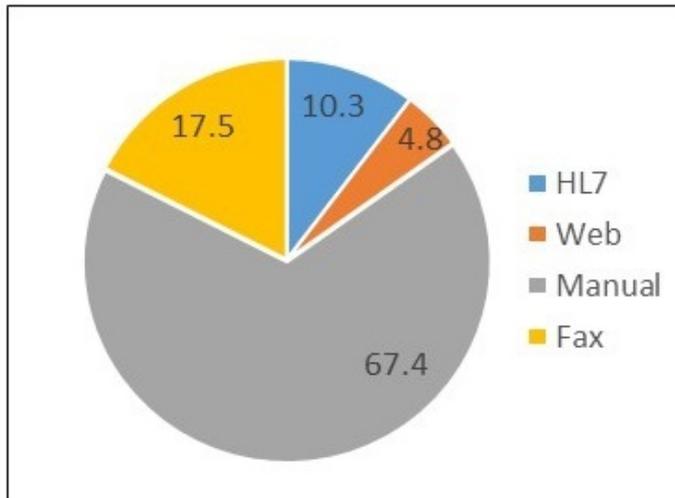
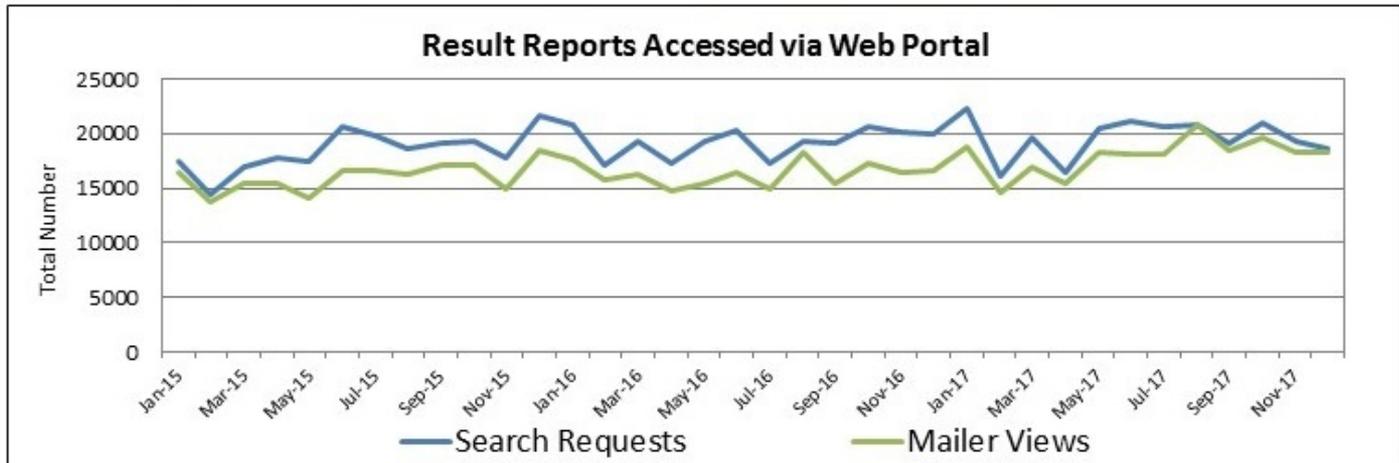
RESULTS



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Reporting Type	Specimens
HL7	80500
Web	37500
Fax	136500
Manual	525500

HIT – Challenges

1. Staffing

2. Pre – implementation Guide Design
3. Complexity of Result Validations
4. Competing Projects
5. Integrating into overall lab and agency HIT systems



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HL7 – Challenges

1. Staffing
- 2. Pre – implementation Guide Design**
 - a. Custom Message**
 - b. Built for our current LIMS**
 - c. Limits flexibility of NBS program**
 - d. Difficult for partner maintenance**
3. Complexity of Result Validations
4. Competing Projects
5. Integrating into overall lab and agency HIT systems



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HL7 – Challenges

1. Staffing
2. Pre – Implementation Guide Message
- 3. Complexity of Result Validations**
4. Competing Projects
5. Integrating into overall lab and agency HIT systems



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Complexity of Result Validations / Configuration

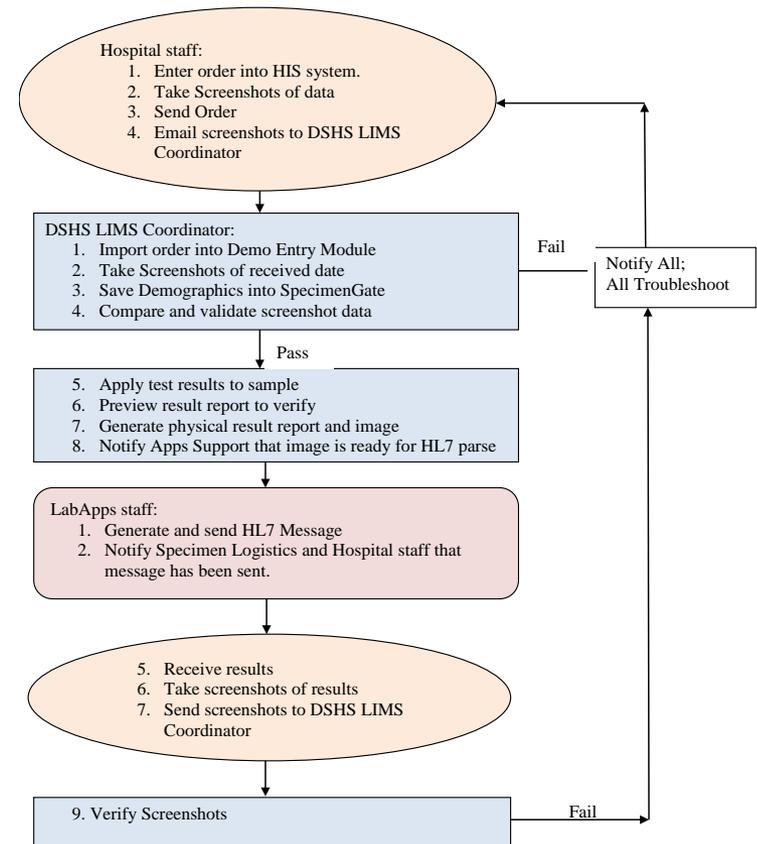


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- 10 disorder categories
- >50 analytes
- >75 discrete results per specimen
- >100 test scenarios



HL7 – Challenges

1. Staffing
2. Pre – Implementation Guide Message
3. Complexity of Result Validations
- 4. Competing Projects**
5. Integrating into overall lab and agency HIT systems



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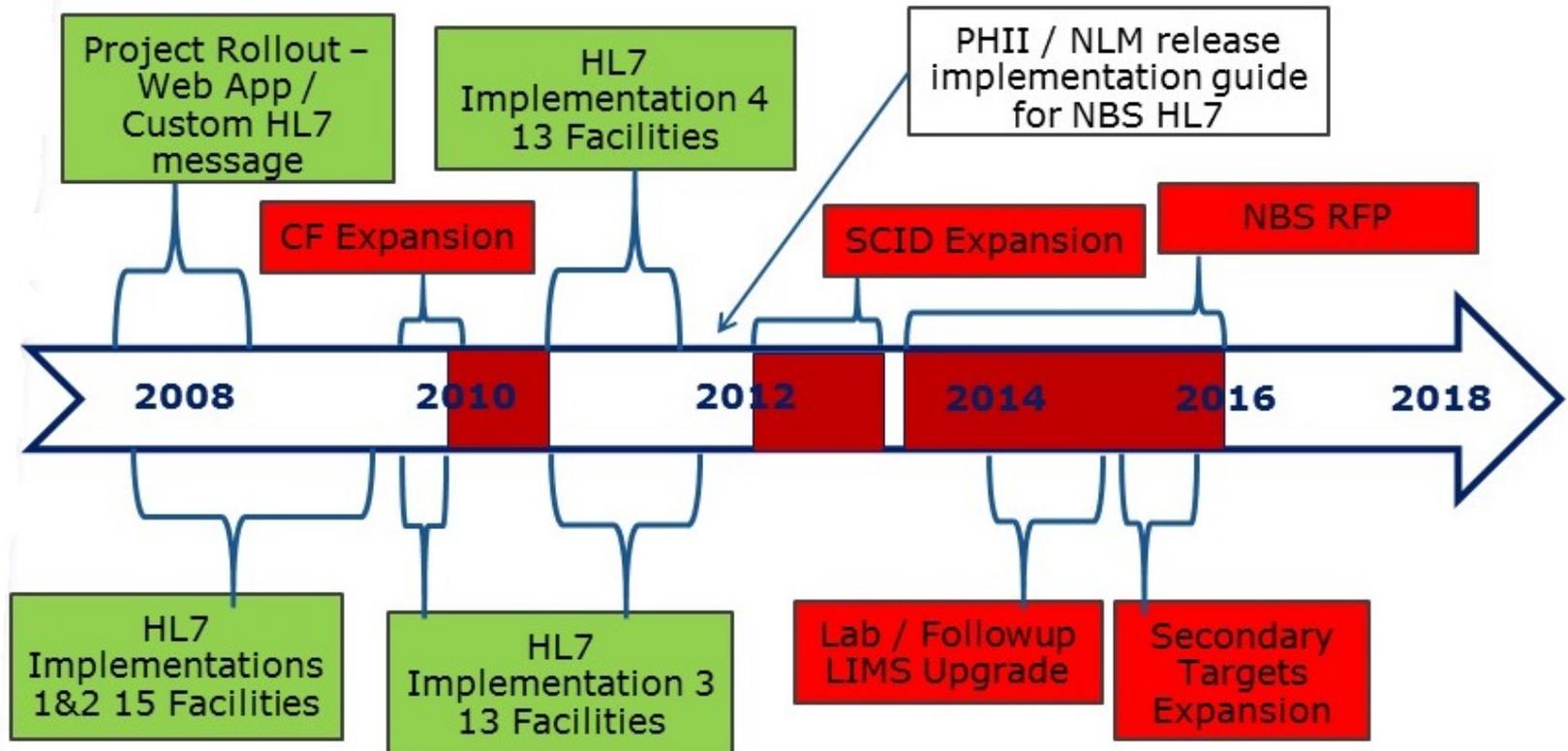
COMPETING PROJECTS



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HL7 – Challenges

1. Staffing
2. Pre – Implementation Guide Message
3. Competing Projects
4. Complexity of Result Validations
- 5. Integrating into overall lab and agency HIT systems**



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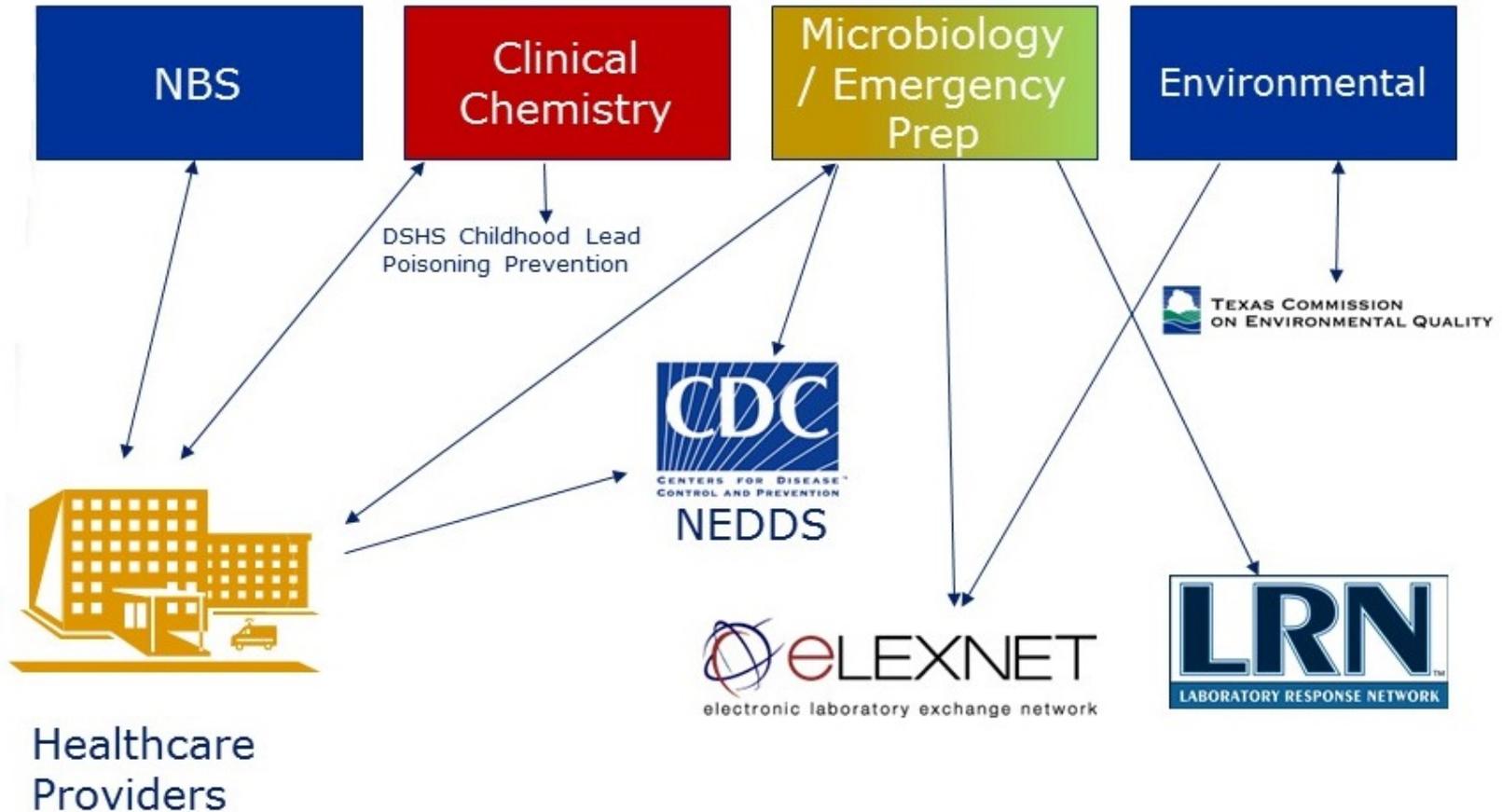
Integrating into Lab / Agency HIT



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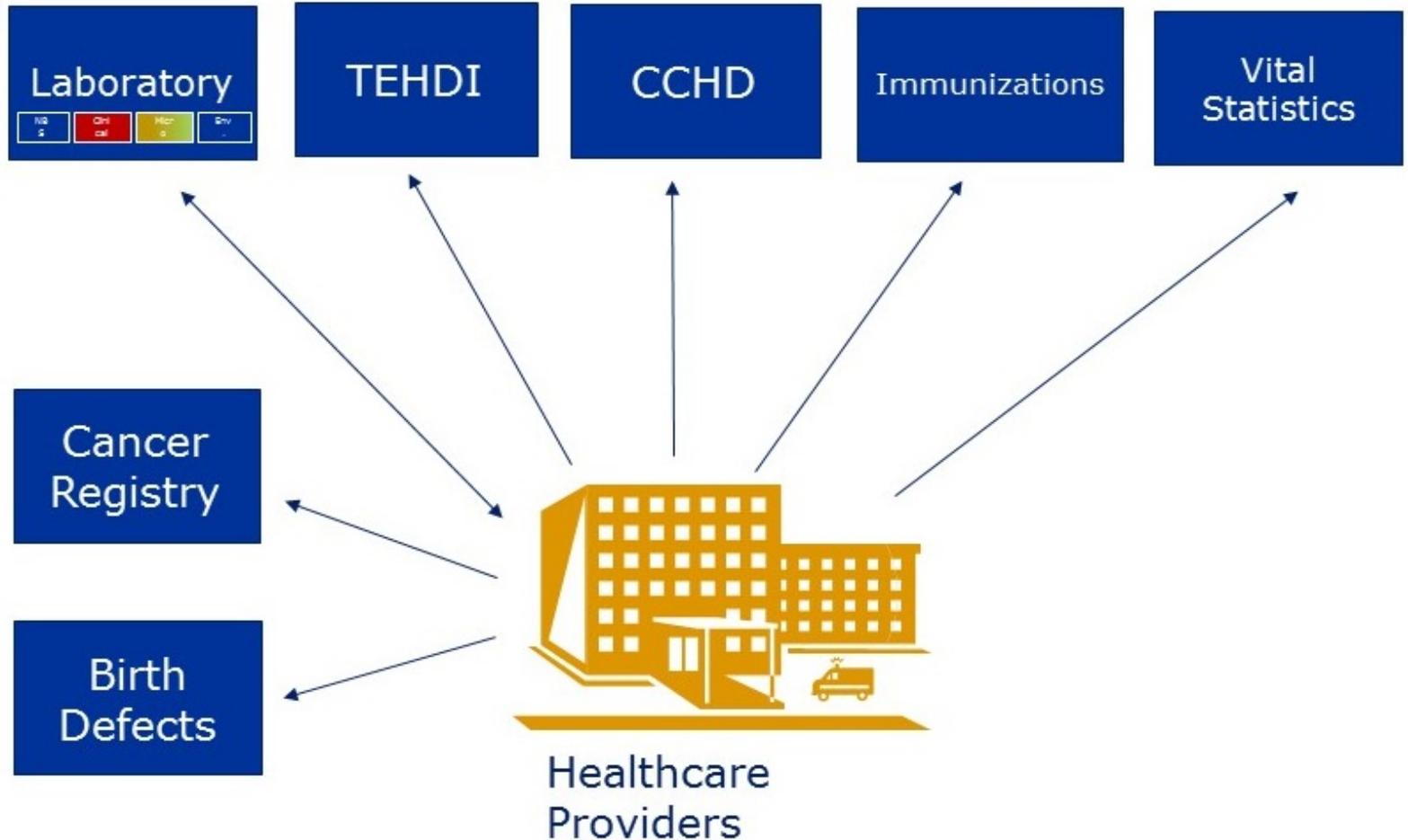
Integrating into Lab / Agency HIT



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HL7 – Challenges

1. Staffing
2. Pre – Implementation Guide Message
3. Competing Projects
4. Complexity of Result Validations
5. Integrating into overall lab and agency HIT systems



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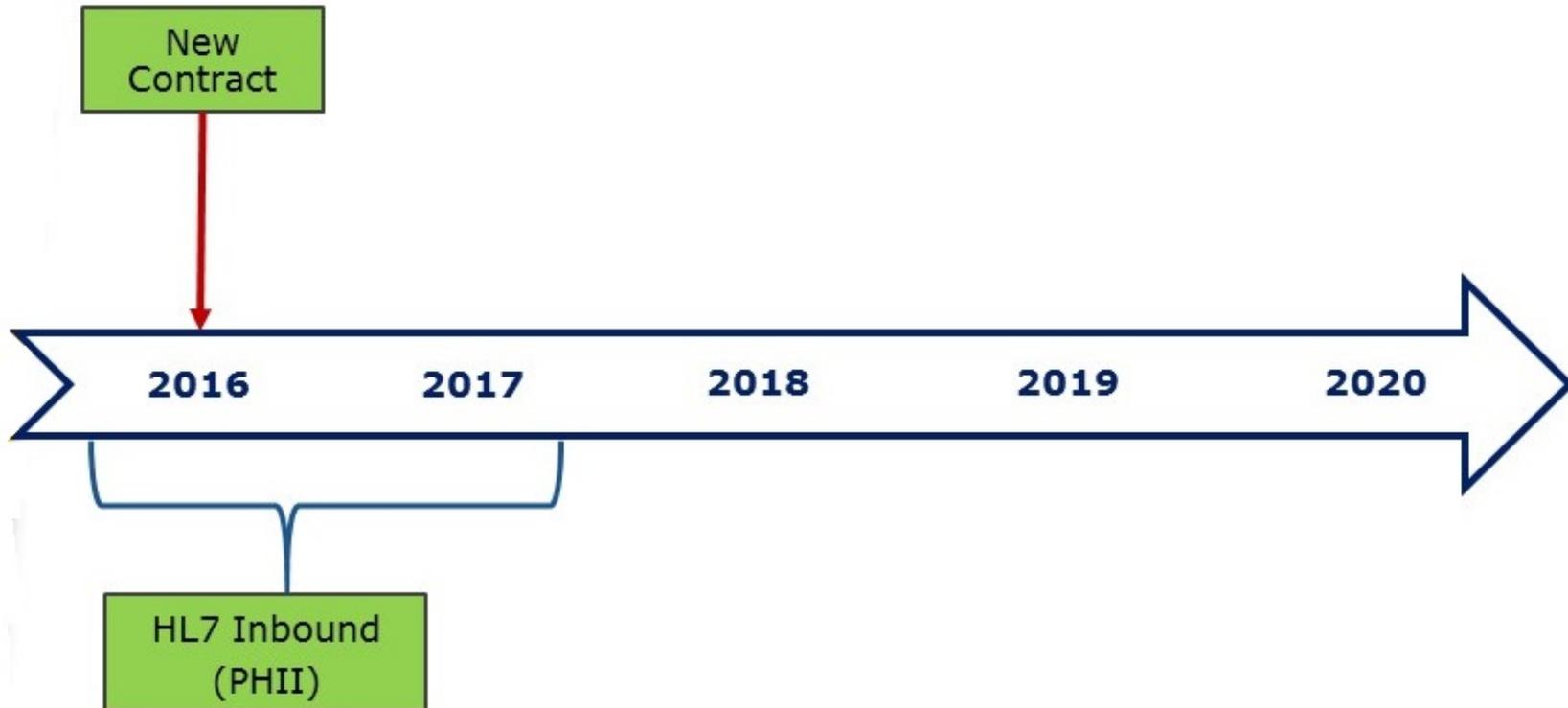
HIT – Moving Forward



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HL7 Inbound – PHII



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Activity	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	
Specifications Development				█	█	█	█	█	█													
Engineering								█	█	█	█	█	█	█	█	█						
Validation and Implementation															█	█	█	█	█	█	█	█
NewSTEPs 360 / OZ Systems	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

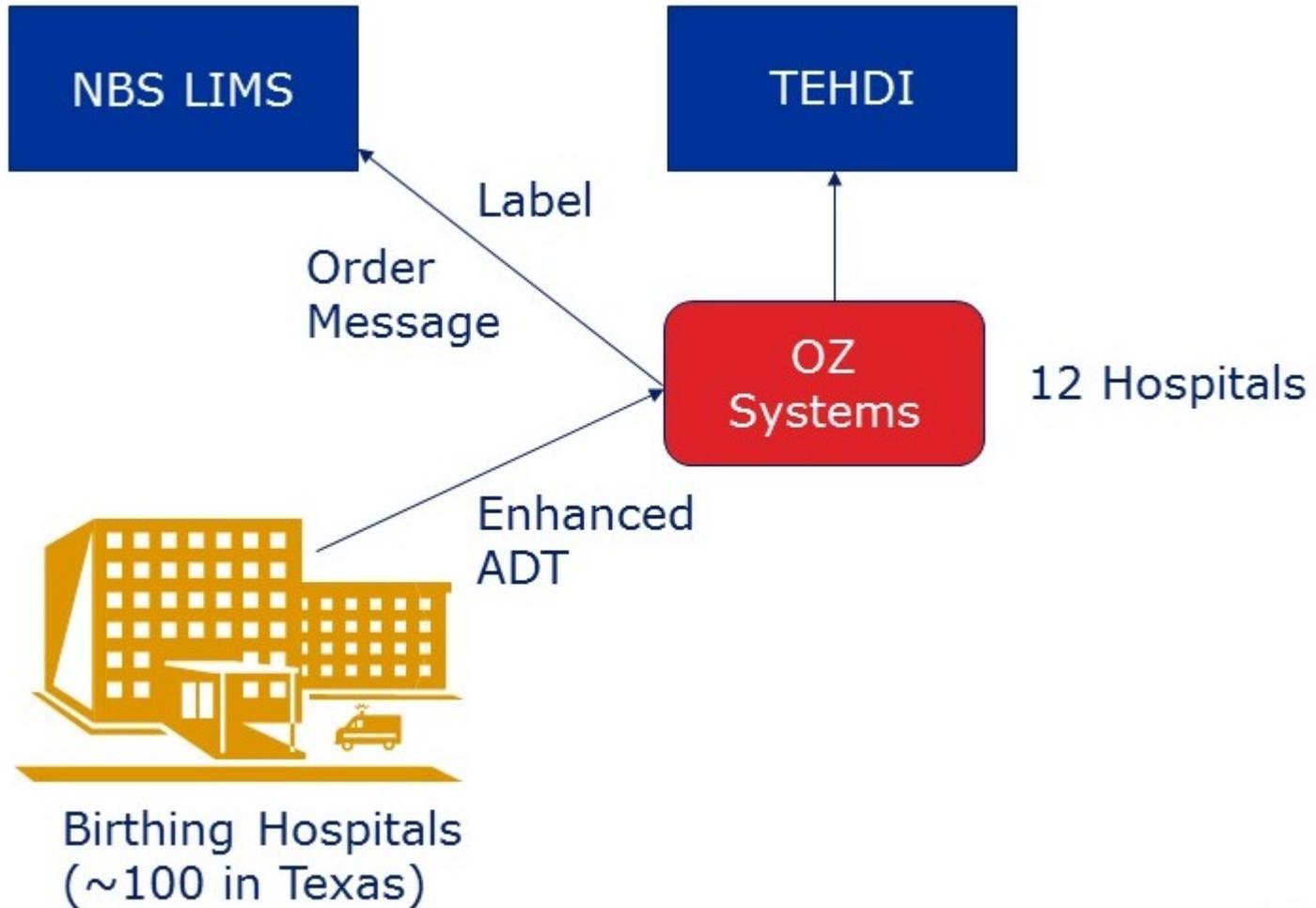


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NewSTEPS 360 Grant



HIT STATUS – 2017 Q2 & Q3

ORDERS / DEMOGRAPHICS

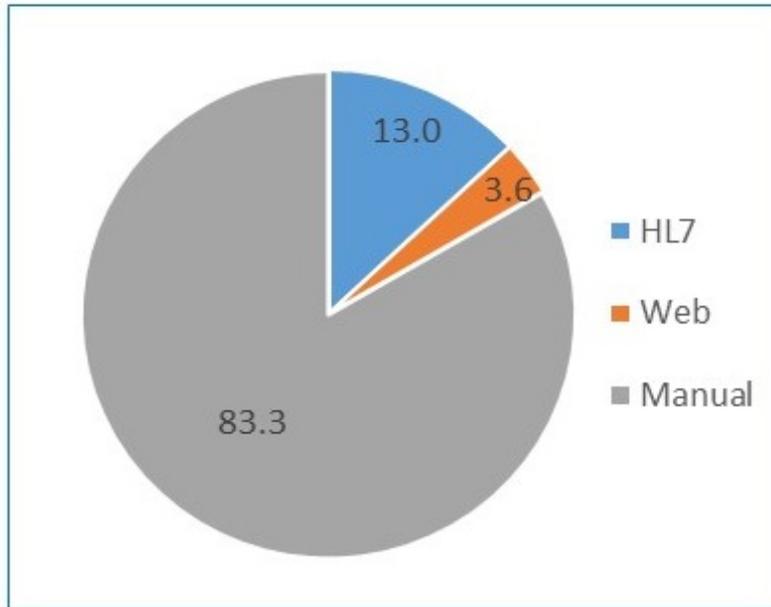


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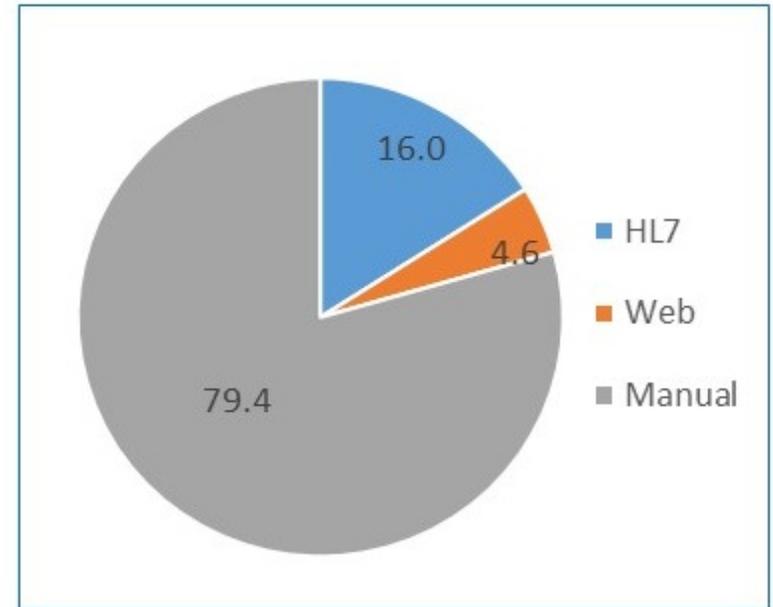
All Specimens



125,000 Orders / yr

>2 FTEs

1st Screens



80,000 Orders / yr

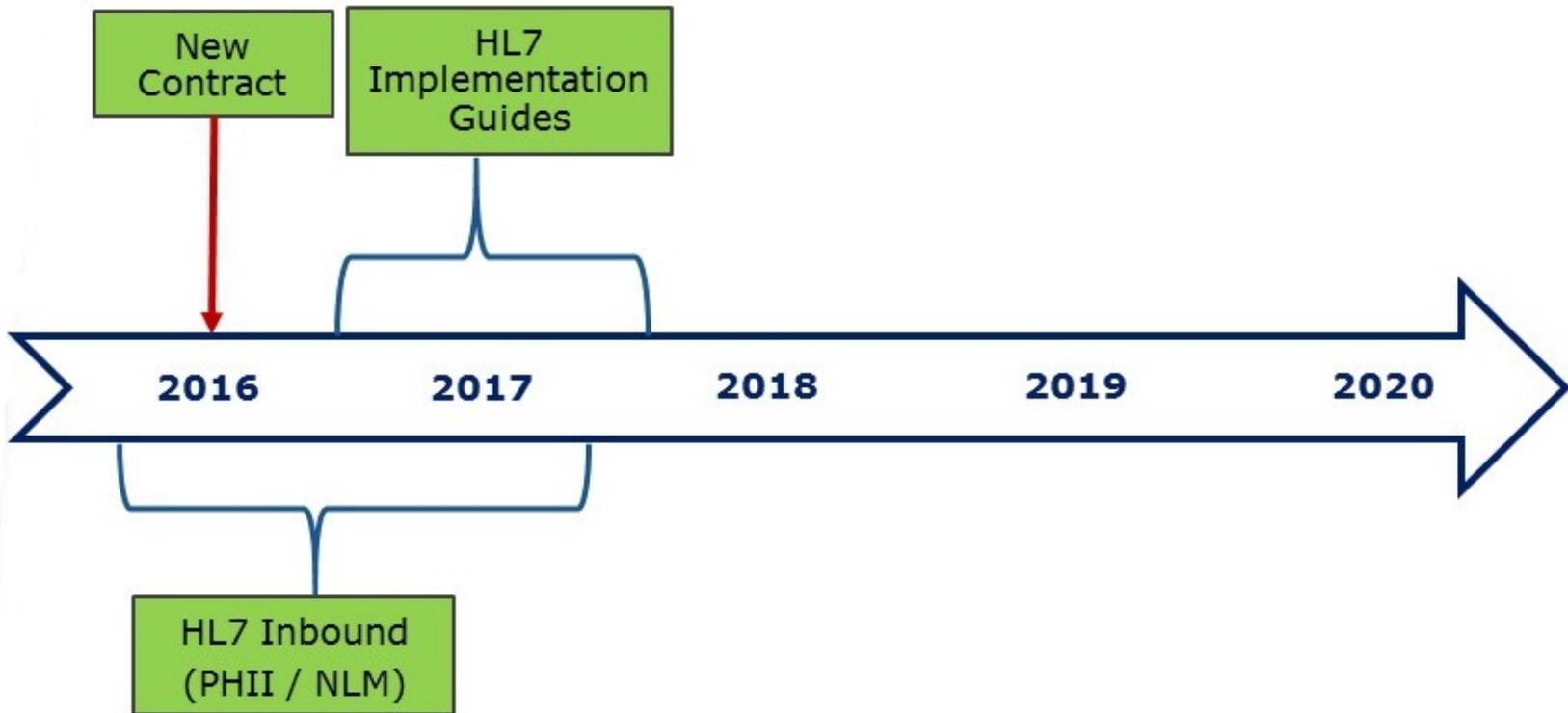
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HL7 Implementation Guides

Activity	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17
Laboratory Results Interface																	
Laboratory Orders Interface																	
Building Blocks Implementation Guide																	

Laboratory Orders Interface



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Newborn Screening SELF-PAY

TEXAS DEPARTMENT OF STATE HEALTH SERVICES LABORATORY SERVICES BIRTH/CLINICAL/COMMUNITY
FORM 5854-4 Rev. 11/13 Expires 12/31/15. Version 8 (2013) (2015) ed. 1.15E

MOTHER INFORMATION

Mother's Last Name: TEST Mother's First Name: MOM DSHS Lab No. For Texas DSHS Use Only

Mother's Birth Date: MM/DD/YYYY Social Security #: XXXXXXXXXX

Mother's Address: XXXXXXXXXX City: XXXXXXXXXX State: XX Zip Code: XXXXXX

BABY'S PRIMARY CARE PHYSICIAN INFORMATION

Physician Name (Last, First): XXXXXXXXXX M.D. No.: XXXXXXXXXX

Physician Address: XXXXXXXXXX City: XXXXXXXXXX State: XX Zip Code: XXXXXX

Phone No.: XXXXXXXXXX Fax No.: XXXXXXXXXX

NEWBORN INFORMATION

Newborn's Last Name: TEST First Name/Last A or B: XXXXXXXXXX

Medical Record No.: XXXXXXXXXX Birth Order (1-6, if Multiple): 1 Birth Date: MM/DD/YYYY Birth Time: XX:XX

Birthweight (grams): XXXXXXXXXX Physician Signature (Serial Number): XXXXXXXXXX Collection Date: MM/DD/YYYY Collection Time: XX:XX

SEX, ETHNICITY, STATUS, AND AGE

1. Male <input type="checkbox"/>	1. White <input type="checkbox"/>	3. Normal <input type="checkbox"/>	Baby's Age at Time of Collection (Yr)
2. Female <input type="checkbox"/>	2. At Amer. <input type="checkbox"/>	4. Sick/Perinatal <input type="checkbox"/>	1. Less than 7 days old <input type="checkbox"/>
3. Unknown <input type="checkbox"/>	3. Hispanic <input type="checkbox"/>	5. On Medications <input type="checkbox"/>	2. 7 days or older <input type="checkbox"/>
4. Transferred <input type="checkbox"/>	4. Asian <input type="checkbox"/>	6. Birth 1 & 2 <input type="checkbox"/>	3. Physical Appointment Enter Texas DSHS Laboratory No. <u>XXXXXXXXXX</u>
5. Transferred <input type="checkbox"/>	5. Am. Indian <input type="checkbox"/>	7. Birth 1 & 3 <input type="checkbox"/>	
6. Other <input type="checkbox"/>	6. Other <input type="checkbox"/>	8. Birth 2 & 3 <input type="checkbox"/>	
		9. At 1-3 <input type="checkbox"/>	

SUGAR TEST INFORMATION

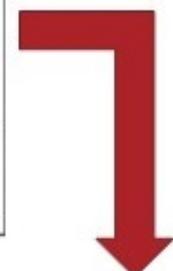
MSH ID No. XXXXXXXXXX / MFI No. XXXXXXXXXX

Name: XXXXXXXXXX Address: XXXXXXXXXX City: XXXXXXXXXX TX Zip Code: XXXXXX

Check to verify parent information & decision form distributed

TX 13-2000001 X P DSHS Copy

13-2000001



```
MSH|^~\&|NBS|DSHS TEST UAT FACILITY^05723062^|||20170719152202||OML^O21^OML_Q21|2F719C80-9372-4D26-A7AF-8280D34C0072|P|2.5.1|
PID|1|5858045|M111114^^^^DSHS TEST UAT FACILITY&05723062&^MR||Black^Sirius||20170701120300|M||1002-5^American Indian^HL70005^American Indian|||||||||Y|1|
NK1|1|Black^Walburga|MTH|12 Grimmauld Place^^CEDAR PARK^TX^78613^|^PH^^^402^4955652||||||
||19760514|||||||||123456^^^^MA~^^^^SS||||
OBR|1||20170710085000|54089-8^Newborn screening panel AHIC^LN|||20170710085000|||||
|20170710085000||05723062|||||F|
ORC|NW|||||||||DSHS TEST UAT FACILITY^^^^^^^^^05723062|123 Street^Suite
ABC^Austin^TX^74321^^^^^^^^^^^PH^555^555555^|
OBX|1|ST|57716-3^State printed on filter paper card [Identifier] in NBS card^LN|1|TX|||||O
OBX|2|ST|57723-9^Unique bar code number of Current sample^LN||169105199|||||F|||20170719152202|
OBX|3|CE|57721-3^Reason for lab test in Dried blood spot^LN||LA12425-7^Screen - required by law^LN|||||F|||20170719152202|
OBX|4|ST|57711-4^Unique bar code number of Initial sample^LN||160105174|||||F|||20170719152202|
```




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HL7 IG Advantages

- HL7 Certified
- All types of laboratory orders / results
- Standard Codes
- Uniform nationwide
 - Hospitals
 - NBS Laboratories
 - Other laboratories

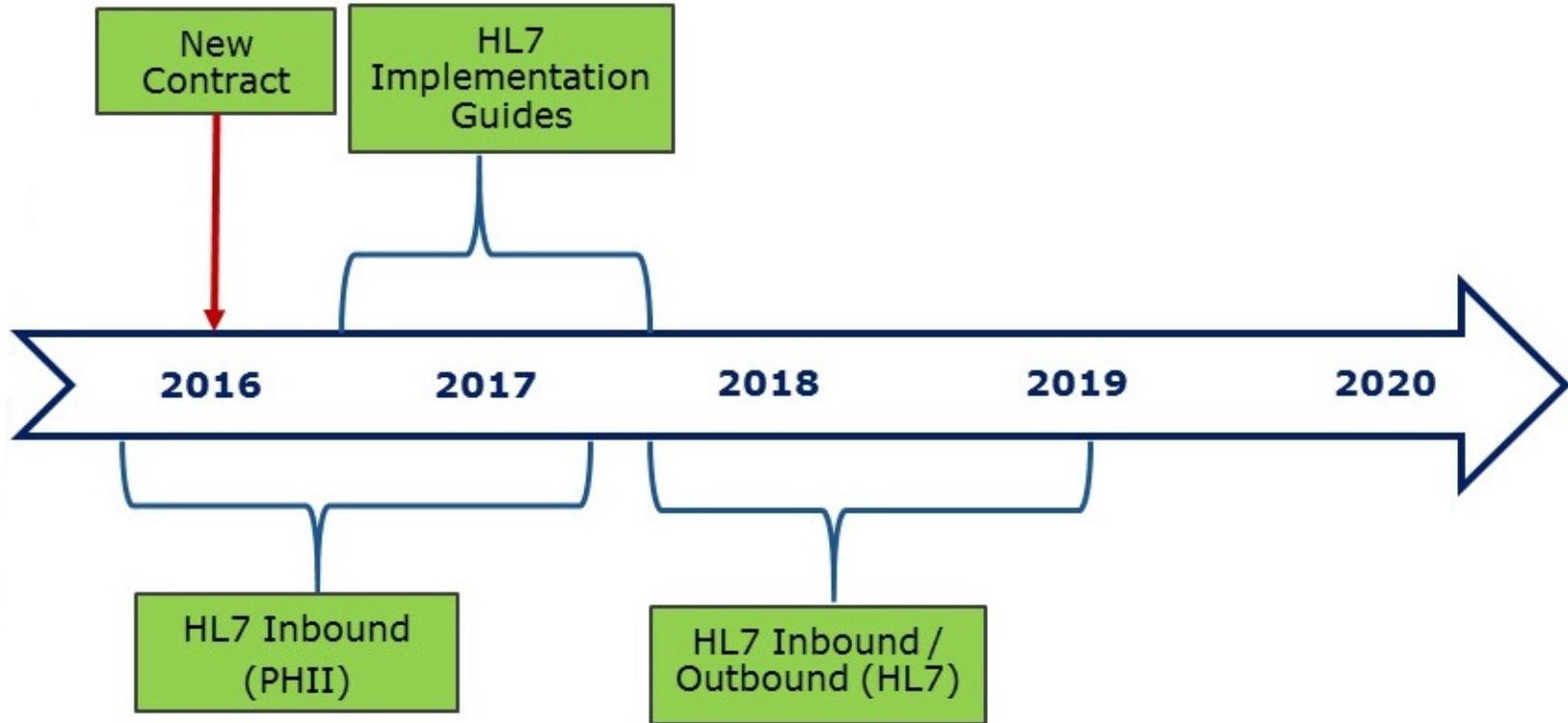
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Activity	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-16	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Simplified Results															

SIMPLIFIED RESULTS

ABNORMAL SCREEN		Physician's Name:	DOCTOR NAME
		Physician's Telephone:	(512) 555 - 1111
Disorder *	Screening Result	Analyte	Analyte Result
Amino Acid Disorders	Normal		
Fatty Acid Disorders	Abnormal: See Note 1	C0 C3+C16	Low Low
Organic Acid Disorders	Normal		
Galactosemia	Normal		
Biotinidase Deficiency	Normal		
Hypothyroidism	Abnormal: See Note 2	T4	T4 Low
CAH	Normal		
Hemoglobinopathies	Normal		
Cystic Fibrosis	Normal		
SCID	Normal		

Screening Result Notes:

1. Possible CUD. Place baby on carnitine immediately and repeat the newborn screen in one week.
2. Possible Hypothyroidism. If this is the second screen, please follow recommendations received from Clinical



ABNORMAL SCREEN		Physician's Name:	DOCTOR NAME
		Physician's Telephone:	(512) 555 - 1111
Disorder *	Screening Result		
Amino Acid Disorders	Normal		
Fatty Acid Disorders	Abnormal: See Note 1		
Organic Acid Disorders	Normal		
Galactosemia	Normal		
Biotinidase Deficiency	Normal		
Hypothyroidism	Abnormal: See Note 2		
CAH	Normal		
Hemoglobinopathies	Normal		
Cystic Fibrosis	Normal		
SCID	Normal		

Screening Result Notes:

1. Possible CUD. Place baby on carnitine immediately and repeat the newborn screen in one week. C0 and C3+16 analyzed to determine this result.
2. Possible Hypothyroidism. T4 is low. If this is the second screen, please follow recommendations received from Clinical Care Coordination. Otherwise, please repeat the newborn screen.

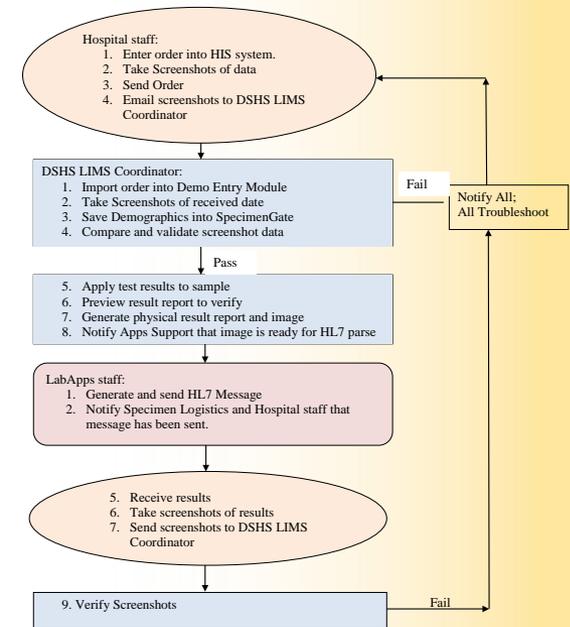


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SIMPLIFIED RESULTS

- Qualitative analytes not supported by standard
- Reduces discrete results (75 to 25)
- Eases hospital implementation
- Drastically reduces validation time
- Saves space on current reports
- Reduces costs



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Activity	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Simplified Results	Green	Green	Green	Green	Green	Black	Black								
Outbound Specifications	Green	Green	Green	Green	Green	Black	Black								
Current Partner Gap Analysis			Green	Green											
Revised Inbound Specifications					Green	Black	Black								
TX Inbound Implementation Guide				Green	Green	Black	Black								
TX Outbound Implementation Guide						Black	Black	Black	Black						

TX IMPLEMENTATION GUIDES

- Conforms to HL7 guides
- Allows partner conformance to HL7 guide
- Flexible for partner needs

PID: PATIENT IDENTIFIER SEGMENT

The Patient Identifier segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information.

Example:

```
PID|1||123456^^^&12345678&L^MR||Last^First|Last^First|201101140245|F^Female^HL7001||20
28-9^Asian^HL70005~2106-3^White^HL70005|123 Main St.^Apt. 223^Austin^TX^78888-
2345^US^P^^TX453~^^^TX^^US^BDL|||||ABCD1234^^^&12345678&L^AN|||223456^^^&12345
678&L^MR|H^Hispanic or Latino^HL70189^22345678^txdshslab|Y|1
```

Table 43. Patient Identifier Segment (PID)

SEQ	Element Name	Data Type	DSHS Laboratory Usage	LOI Usage	Cardinality	Value Set
1	Set ID – PID	SI	R	R	[1..1]	
2	Patient ID		X	X		
3	Patient Identifier List	CX_02	R	R	[1..1]	
4	Alternate Patient ID	PIR	X	X	[1..1]	



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Activity	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Simplified Results	Green	Green	Green	Green	Green	Black	Black								
Outbound Specifications	Green	Green	Green	Green	Green	Black	Black								
Current Partner Gap Analysis			Green	Green											
Revised Inbound Specifications					Green	Black	Black								
TX Inbound Implementation Guide				Green	Green										
TX Outbound Implementation Guide						Black	Black	Black	Black						
Partner Agreements			Green	Green	Green	Black	Black	Black	Black	Black					
Implementation Packet / Onboarding Process					Green	Black	Black	Black	Black	Black	Black				
Engineering						Black									
Validation and Implementation							Black								

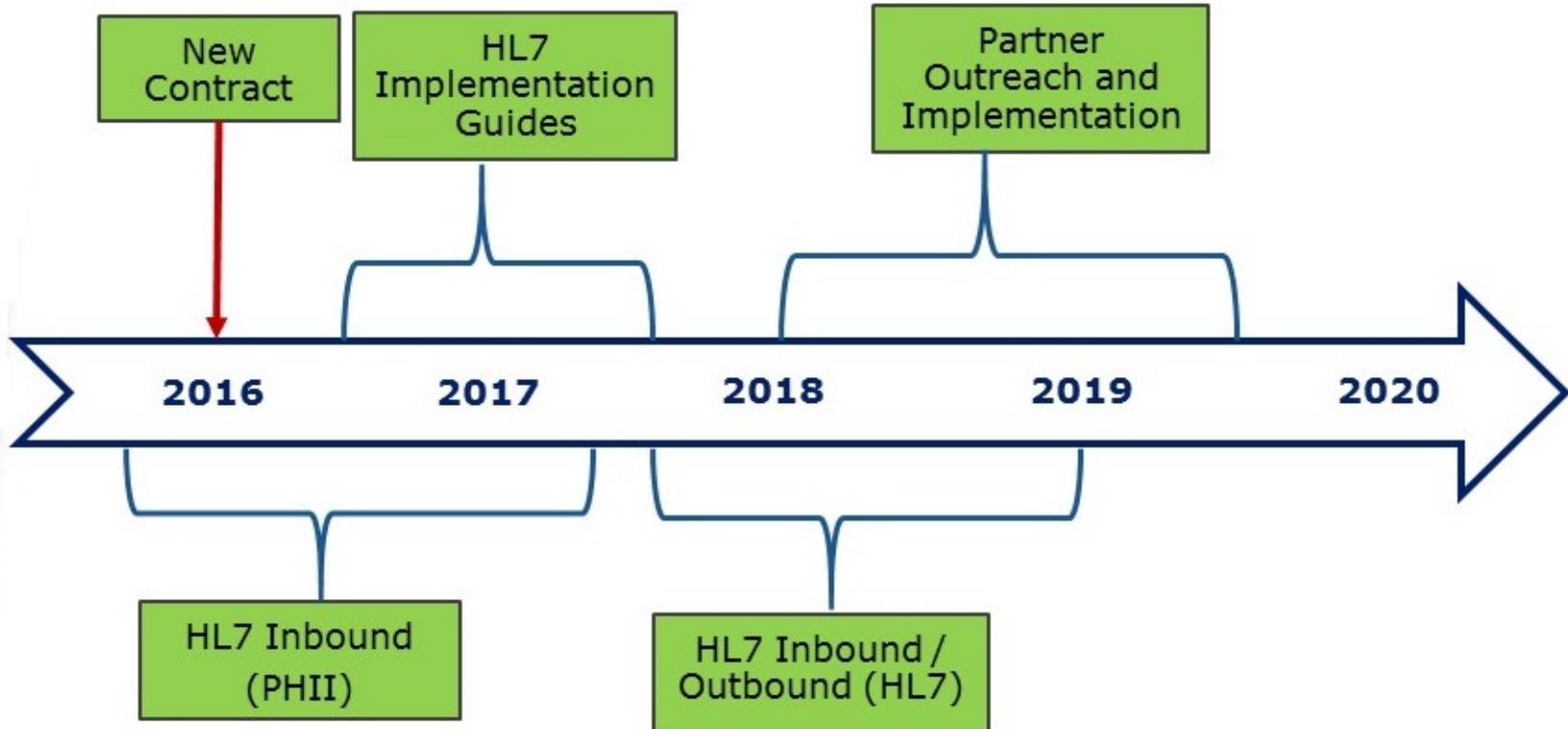
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Activity	Jan-18	Feb-18	Mar-16	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-16	Apr-19	May-19	Jun-19
Transition of Current Partners																		
New Partner Implementations																		

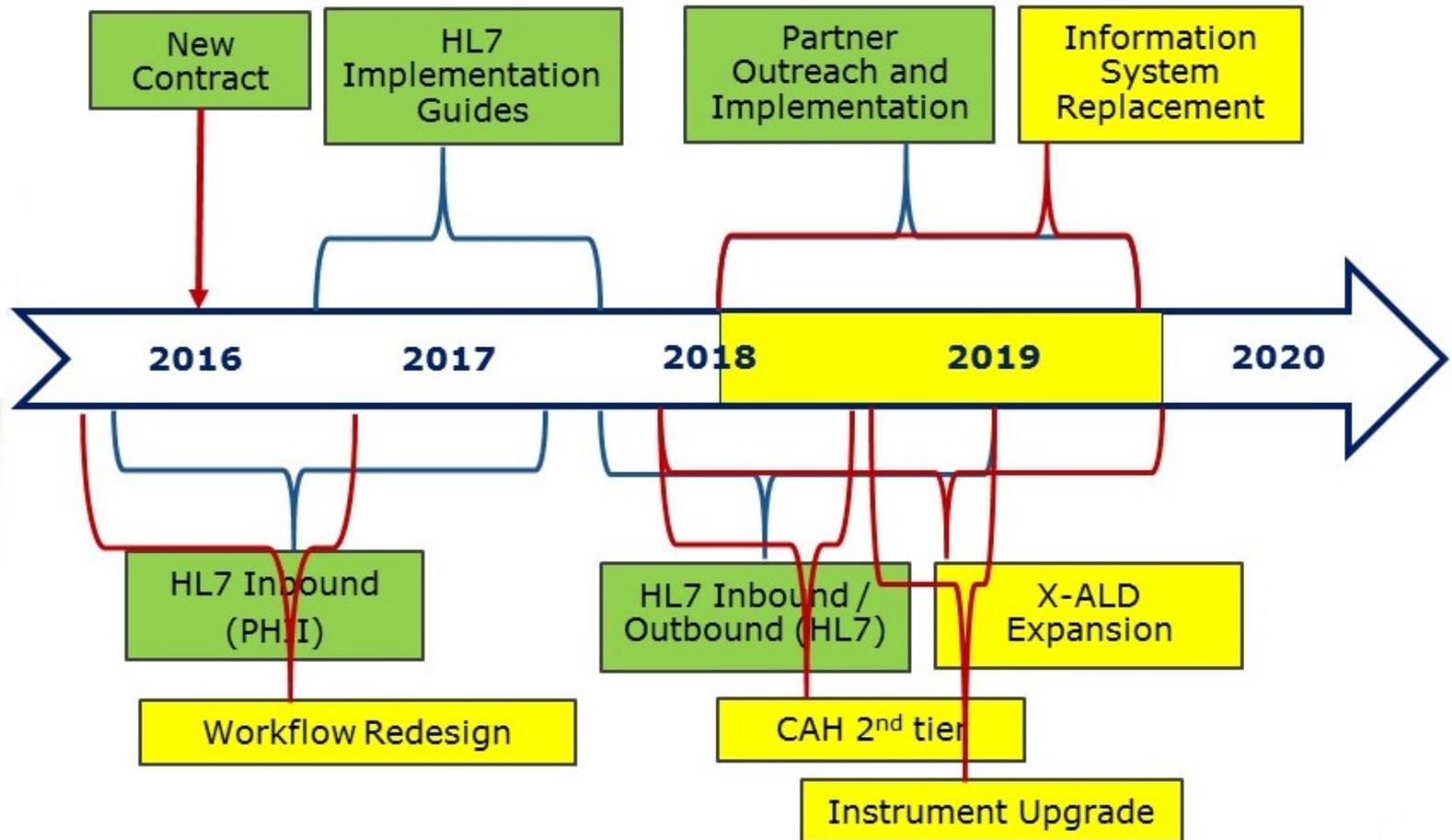
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Thank you

Brendan Reilly

Program Specialist

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