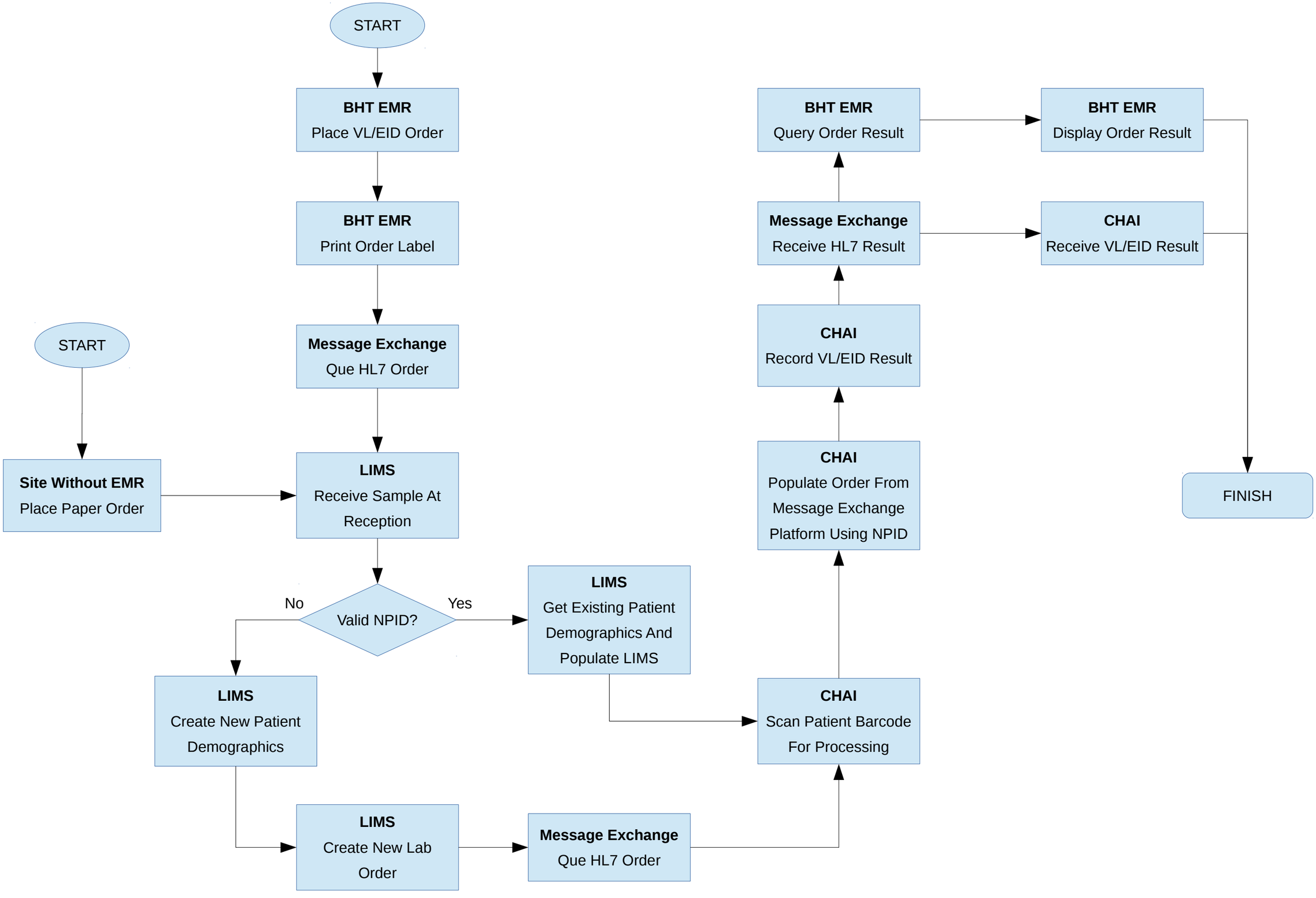
BHT – CHAI LIMS/EMR Integration Architecture



BHT – CHAI LIMS/EMR Data Exchange Document Format


```
{
	"_id":"KCH1512000001",
	"patient":{
		"national_patient_id":"P170000000031",
		"first_name":"Test",
		"middle_name":"N/A",
		"last_name":"Patient",
		"date_of_birth":"19930701",
		"gender":"F"
	},
	"sample_type":"",
	"who_order_test":"",
	"date_time":"",
	"sending_facility":"KCH",
	"receiving_facility":"KCH",
	"reason_for_test":"",
	"test_type":"",
	"status":"Drawn",
	"results":{
		"2324-2":{
			"test_name":"Gamma glutamyl transferase",
			"result":"",
			"units":"",
			"reference_range":"",
			"entered_by":"User Super (1)",
			"location_entered":"Ward 4B",
			"date_time":"20150226182838",
			"rejection_reason":"Bad Sample",
			"remark":"N/A"
		}
	}
}
```

Results HL7 Query

```
MSH|^~\&|||||||QRY^R02||P|2.2
QRD|YYYYMMDDHHmmss|R|I|ACC_NUM|||1^RD|ACC_NUM|RES
```

Results HL7 Query Response

```
MSH|^~\&|||||||ORF^R04||P|2.2
QRD|YYYYMMDDHHmmss|R|I|ACC_NUM|||1^RD|ACC_NUM|RES
PID|1||0123456-1||Nordstein^Peter^H|||||||9821111
OBR|1|43215^OE|98765^EKG|93000^EKG REPORT|R|200801111000|200801111330|||RMT||||200801111330|-|P030||||||..
OBX|1|ST|93000.1^VENTRICULAR RATE(EKG)||91|/MIN|60-100
OBX|2|ST|93000.2^ATRIAL RATE(EKG)||/MIN|60-100
OBX|3|ST|93000.3^PR INTERVAL||0|/MSEC|1.06-.10
```

Results HL7 Update Message

```
MSH|^~\&|TESTAPP^2.16.840.1.114222.4.3.2.1..^ISO|Haiti^2.16.840.1.114222.4.1.^ISO|||||OML^O21^OMLO21||P^T|2.5
PID|1||0123456-1||Nordstein^Peter^H|||||||9821111
OBR|1|43215^OE|98765^EKG|93000^EKG REPORT|R|200801111000|200801111330|||RMT||||200801111330|-|P030||||||..
OBX|1|ST|93000.1^VENTRICULAR RATE(EKG)||91|/MIN|60-100
```

Bibliography:

[1] http://www.ringholm.de/docs/00300_en.htm (accessed on 3 December, 2015)

BHT – CHAI LIMS/EMR Proposed Universal Accession Number Format

Jan	→	1
Feb	→	2
Mar	→	3
Apr	→	4
May	→	5
Jun	→	6
Jul	→	7
Aug	→	8
Sep	→	9
Oct	→	A
Nov	→	B
Dec	→	C

KCH - YY - M - D - XXX

1	→	1	17	→	H
2	→	2	18	→	J
3	→	3	19	→	K
4	→	4	20	→	M
5	→	5	21	→	N
6	→	6	22	→	P
7	→	7	23	→	Q
8	→	8	24	→	R
9	→	9	25	→	T
10	→	A	26	→	U
11	→	B	27	→	V
12	→	C	28	→	W
13	→	D	29	→	X
14	→	E	30	→	Y
15	→	F	31	→	Z
16	→	G			

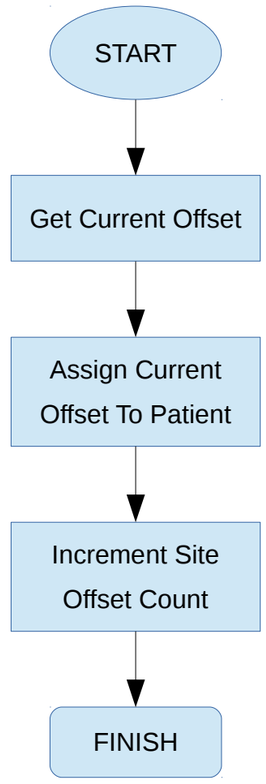
Legend

KCH	3 character site code
M	Hexadecimal value for month
D	Base 30-like value for month
XXX	3 position incremental number per day

BHT – CHAI LIMS/EMR Proposed Central Repository Functions/Methods

Method	Input	Output
create_order [POST]	JSON Object *	Accession Number
query_order [GET]	Accession Number	JSON Object *
update_order [POST]	JSON Object *	Processing Status
query_by_npid [GET]	Patient National ID	Array of JSON Objects *

Note: ** Based on the* ***BHT – CHAI LIMS/EMR Data Exchange Document Format***

BHT – CHAI LIMS/EMR Site Specific Accession Number Count Tracking Document Format And Assignment Logic

```
{
    “_id”: “SITE_CODE”,
    “YYYYMMDD”: {
        “offset”: “1”
    }
}
```