



Use Case Title: Comprehensive Kidney Care

Short Description: Jack has End-Stage Renal Disease (ESRD), which requires life-sustaining treatments. ESRD is complex to treat, and patients with ESRD may have multiple comorbidities. These can lead to higher rates of hospital admissions and readmissions, as well as higher mortality rates among these patients than of the general population. Interoperability services can improve Jack’s outcomes by engaging him in a variety of ways, including pain management, preventative care and direct reporting of outcomes.

Scheduled times: This demonstration occurs 45 minutes past the hour.

Participants: Care Evolution, Dell Boomi, DevCool, Meehealth, NantHealth

| Scenario | Vendor | Products | Standards |
|--|--------------|-------------------------|---|
| Jack meets his primary care provider (PCP) with concerns regarding pain symptoms. Using the DevCool PCP Dashboard, the physician orders lab tests that confirm reduced kidney function. Jack is put on medications by his PCP as part of a long term care regimen for his condition. | DevCool/Dell | PCP Dashboard HiPaaS | HL7 |
| After some time, Jack reaches out to his PCP through a chat function on the DevCool patient care app to report worsening symptoms, which prompts his PCP to increase dosage of medications (triggered from chat) and refer Jack to a nephrologist. | DevCool/Dell | Patient app for chat | HIPAA Compliant Chat AES Encryption |

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|---|---------------|----------------------------|--|
| <p>Genomics tests are ordered and confirm Fabry disease.</p> <ul style="list-style-type: none"> • DNA testing is offered and performed for Jack, and genetic markers for Fabry disease are identified. • Genomics comparison is performed on chromosomal DNA on other family members to check for markers for similar kidney related issues (mentioned in summary, if at all). | DevCool/Dell | PCP Dashboard/HiPaaS | |
| <p>Jack uses a PHR on his phone that aggregates information from his PCP and other health care providers. His updated information along with his activity and other device data is accessible using his personal health record App. As his care unfolds, he has access to view and add to all of the documentation and findings related to his care.</p> | CareEvolution | myFHR | FHIR, HL7, SMART on FHIR, BlueButton 2.0 |
| <p>The Dashboard/EMR allows the physician to track Jack's Diabetes and Hypertension using the results of regular tests. After some time, Jack's condition is not improving and he is put on a dialysis regimen. Dashboard allows the nephrologist to track the results of regular blood tests to check the efficiency of the dialysis. The nephrologist assesses Jack's condition and refers him to the donor waiting list.</p> | DevCool/Dell | Nephrologist EMR/Dashboard | HL7, FHIR |
| <p>Jack's dialysis device data, through his sessions during his donor waiting period, are automatically saved in his record and sent to a research database through the use of NantHealth's DeviceConX. NantHealth's HBox, a fanless PC that runs the DeviceConX software, is physically connected to the medical devices with the appropriate communication cable and NantHealth's Shuttle, a medical grade RS232 to USB converter.</p> | NantHealth | DeviceConX | HL7 |
| <p>Jack receives a donor match and is assigned an ICU bed. The ICIS system will connect with bedside equipment, the data of monitoring devices will be collected and all changes of vital signs will be recorded during his treatment in ICU. The patient flow is mainly composed of 7 steps, including entrance, evaluation, medical orders, nursing, scoring, documents, quality control, and department discharge.</p> | Meehealth | ICIS/Dashboard | HL7 |
| <p>Colleagues of Jack's nephrologist are running a study on pain management for transplant patients and Jack agrees to participate. Jack agrees to join the study and completes the consent process —right from his phone in his PHR App. Jack's medical history (already in his PHR), activity data from connected devices is supplemented by the study specific surveys. This information can be made available to his physicians and family as well.</p> | CareEvolution | myFHR | FHIR, HL7, SMART on FHIR, BlueButton 2.0 |

HIMSS19 Interoperability Showcase Use Case

Data exchange standards:

| Vendor | Product | Category | Protocol | Interop Body | Interop Profile | Interop Actor | Interop Message | Send or Receive | Transaction Description |
|---------------|------------|----------------------------|----------------|--------------|-------------------|--|-----------------|------------------|--|
| Dell/DevCool | | | HL7, FHIR, CDA | HL7 | ADT ORM ORU | N/A | N/A | Send and Receive | Registration, Genomics, Lab Order, Order results |
| CareEvolution | HIEBus | Mobile Health Data | HL7 | HL7 | SIU, ORU | N/A | N/A | N/A | Scheduling & Results |
| | | | FHIR | HL7 | N/A | N/A | N/A | N/A | Retrieve data |
| NantHealth | DeviceConX | Medical Device Integration | HL7 | IHE DEC | PCD | Device Observation Consumer, Device Observation Reporter | PCD-01 | Receive, Send | Observation Results Communication |
| meehealth | ICIS | Electronic Health Records | HL7 | IHE DEC | PCD | Device Observation Consumer | PCD-01 | Receive | Observation Results Store & Display |