INTEROPERABILITY SHOWCASE™

HIMSS

Use Case Title: Advance Directives - The Patient's Voice

Short Description: *Emmanuel has designated his daughter, Katrina, as his healthcare agent in his durable medical power of attorney. Emmanuel has moved to be closer to where his daughter lives and at his Annual Wellness Visit with his new doctor, a review of his advance directive and advance care plan is performed, to discuss risks and benefits of his choices. About six months later, Emmanuel becomes ill. He visits his physician and returns home. Later, his condition worsens, and he calls 911. He is transported by ambulance and is admitted to the emergency department unable to communicate with the medical team. The emergency department team is unable to retrieve health information or access his digital advance directive and personal advance care plan via the EHR. To address this gap, intelligent process automation, and patient-focused care coordination solutions are engaged to enable Katrina to share Emmanuel's latest health information and AD documents to guide care delivery. Emmanuel is transferred to the ICU but is not intubated per his wishes.*

Patients rightly expect that care will be aligned to their personal values and wishes, yet far too often their voice isn't heard or understood completely. Over the past two years, this disparity has become significant as many patients have come to the emergency room alone and unresponsive, only to receive undesired critical care. A patient's advance directive or advance care plan can provide valuable information needed to guide the care team in their activities; however, only 37% of the US population have either, and the availability and detail vary dramatically. This leaves medical practitioners relying on a combination of family input (if available) and their best clinical judgment to deliver the best care possible. Given these information gaps, even the best-intentioned clinical actions may lead to unwanted care and even patient harm ("wrongful life"). In this demonstration, participants highlight the use of standards-based interoperable technology and intelligent process automation within an Emergency Department setting. Providing the patient's healthcare wishes in context and enabling the delivery of goal-aligned care for all patients anytime and anywhere. This patient-centric, state of the art interoperable solution focuses on the orchestration of a patient's advance directives through the implementation of data (HL7® FHIR®), knowledge (CDS Hooks/CQL), and process (BPM+ Health) standards to:

- Empower seamless data exchange and accessibility, process management, and other burden reduction tools to deconflict clinical workflows while ensuring the patient's goals of care are met.
- Leverage data automation to remedy the crippling, Health IT inefficiencies cluttering clinical workflows.
- Increase velocity and accessibility; decrease burden across the full cycle of clinical interoperability.

Participating Vendors: ADVault Inc, Cerner, HealthFlow, Red Hat, Trisotech

Scenario	Vendor	Products	Standards
INTRODUCTION			
Emmanuel is a 76-year-old widower who lives alone. Katrina, his daughter, is a 48-year-old woman who lives about a half-hour from her father and visits him as often as she can. Katrina is Emmanuel's healthcare agent and his durable medical power of attorney. Emmanuel is a proud man who has been employed most of his life and prefers to carry his own burdens. He doesn't want to "bother" his children with his health problems and is not forthcoming with his health condition. Katrina and her father talk every day or two via video chat on a tablet she bought him during COVID to ease his isolation, and she feels she has a close relationship with her father. When Emmanuel created his personal advance care plan and the state advance directive a year ago and shared them with her, she discussed his goals, preferences, and priorities with him during the course of a few video conversations. Although it was hard for her father to have these conversations with her, because he didn't find the topic comfortable, she says it resulted in a meaningful deepening of their relationship.			
PRIMARY CARE PHYSICIAN OFFICE (PCP)			
Emmanuel has recently moved from Toledo OH into a 55+ community in Detroit MI to be closer to his daughter and visits his new community PCP for his Annual Wellness Visit. At his physician's urging, he creates a MI state advance directive and personal advance care plan (ADV patient invitation through clinical app). During that AWV they review these documents together (ADV Clinical app). (ADVault) His physician codes the ACP review and consultation with CPT codes 99497 and 99498 with a special modifier on the claim to ensure he is reimbursed for both the AWV and ACP consultation with no copay due from Emmanuel.	ADVault	MyDirective for Clinicians	FHIR
Emmanuel agrees to share access to his digital advance directive and personal advance care plan with Katrina and his new doctor's practice.	HealthFlow	HealthFlow PHR	FHIR, BPMN

Scenario	Vendor	Products	Standards
Fast forward 6 months. One day Emmanuel begins to feel ill and goes to see his PCP. He is diagnosed with COVID-19, but his symptoms are mild, and he is sent home for bedrest and remote monitoring (& patient data capture), with advice to go to the ER if his condition worsens. There is a hospital close to Emmanuel's new community, but he hasn't needed to go there yet as he's been relatively healthy, and his PCP doesn't currently share records with the hospital. Within 2 days, Emmanuel's symptoms worsen significantly, and he contacts his daughter Katrina to let her know, prior to calling 911 for transport to the emergency department at the nearby hospital.	HealthFlow	HealthFlow CCE	FHIR, BPMN
AMBULANCE			
While in the ambulance Emmanuel begins to drift in and out of consciousness as his health continues to decline and become unstable. EMS reports to Dispatch, "77-year-old male Covid-19 case with a GCS score of 12 (low), Oxygen Saturation (SaO2) 83% on non-rebreather, Heart Rate 120, and Respiratory Rate 36. He is unstable and declining rapidly." The paramedics notify the destination hospital's ED primary nurse and registration that they are on the way with Emmanuel as they provide an update on his health status.			
HOSPITAL REGISTRATION OFFICE			
As the registrar is opening a record in the EHR (Cerner) for Emmanuel to prepare for his arrival in the ED, the registrar searches the EHR for any advance healthcare decision documents or health information that may already be on file. Although the hospital's EHR is connected to the state HIE, none of Emmanuel's health information nor his AD/ACP documents from his new PCP's clinical record are available due to data sharing challenges between the PCP and hospital.	Cerner	ED Launchpoint, Care Notification	FHIR, x.509 message
Emmanuel's registration status generates a secure Care Notification message which is picked up by the HealthFlow CCE client at the PCP office, and Emmanuel's daughter Katrina is notified via her HealthFlow app. This notification kicks off process automation that collects Emmanuel's latest health information and AD documents (which were already shared with her by Emmanuel) and forwards the whole data set to his healthcare agent, Katrina for her review and action prior to her leaving for the hospital to be with her father.	HealthFlow	HealthFlow CCE, HealthFlow PHR	FHIR, BPMN

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HOSPITAL EMERGENCY DEPARTMENT			
Prior to the ambulance's arrival at the ED, Emmanuel's existing AD/ACP documents and health information have been validated and shared by Katrina with the hospital, informing the ED staff that Emmanuel has specified his decision to receive limited treatment. He does not want full life-sustaining measures, but he has documented that he wants more than just comfort measures, and they are able to respond in concordance with his wishes.	Cerner	ED Launchpoint	FHIR
	Trisotech	Digital Enterprise Suite	BPMN, DMN
Upon arrival at the ED, Emmanuel is assessed, and the ED staff immediately place Emmanuel on BiPAP with a face mask (non-invasive ventilation) in accordance with his wishes. Upon her arrival at the hospital, the ED nurse speaks with Emmanuel's daughter Katrina, to discuss treatment options and how to align her father's needed treatment with his wishes. Katrina agrees that avoiding the intubation was consistent with her dad's decisions, and further agrees with his admission to ICU while the team monitors his health status. She and the nurse have a good conversation and she is told she can see him briefly, so she joins Emmanuel in the room.	ADVault	ADVault Exchange	FHIR
	HealthFlow	HealthFlow PHR	FHIR
HOSPITAL ICU			
The ED transfers Emmanuel to the ICU due to his health status but with the guidelines provided through his advance directive & advance care plan. Emmanuel's primary care physician is electronically notified of the transfer.	Cerner	Cerner Workflow mPages, Care Notification	TBD, x509 Secure Message
	HealthFlow	HealthFlow CCE & PHR	FHIR

References:

Emmanuel has a low Glasgow Coma Scale (GCS) score of 12 (15 is normal) due to:

- eye opening response- his eyes open to verbal command, speech, or shout = 3
- verbal response - he utters inappropriate responses, but words are discernible = 3
- motor response- he obeys commands for movement = 6

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