**12th General Meeting of the HSPC**

**Sponsored by the American College of Surgeons**

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**Wireless: Network (DCCTR); Password (meeting 2015DC)**

**DAY 1: Identify problems and Areas of Opportunity (Focus and Funding)**

Oscar Diaz: Define HSPC’s Mission of cloud-based data analytics platforms in order to obtain information real-time. Semantic interoperability in order to run information in cloud. (How do we speak?) Sharing of content & knowledge (Intermountain). Support certification to ensure conformance to platform and interoperability. Support collaboration between providers, vendors, and standards development organization. Support commitment of HL7, FHIR, etc. Create a platform of commodity-based delivery. Cerner and AllScripts will be joining HSPC as members. Governance of HSPC is key**.**

**Opening Remarks: Dr. Frank Opelka (No PowerPoint)**

EHR world is frustrating and disconnecting physicians from patients. MACRA system comes along to allow the following to be used in a clinical workflow to improve safety. Allows better leveraging health information. It’s about quality measurement, resource use, meaningful use (ACI), and driving improvement. Registry data is from 1 week to 6 months’ delay. Environment of applications needs directions. This is foundational work.

**ONC Mission and Interoperability: Dr. Vindell Washington, Principal Deputy National Coordinator, ONC, ER Physician (PowerPoint)**

Telemedicine in Haiti (confirmed case of Porphyria). HIT should be an enabler. Inflection point from adoption of info to flow/use of info. Workflow is of top importance. Standards, Culture Change around Access to Info, Business Case for Interoperability (Gov’t can assist and point to federally recognized standards that come from community.) (Note: 800 HER vendors in that space today.) Pointed out HSPC work in HL7 FHIR environment. Strategic Plan includes three goals: plus a ten year interoperability roadmap. Vision for learning Health Data Ecosystem: Bench Research, Consumer Application, Provider EHRs. Research to POCare is till 16 years (Lancet). Pace of discovery increasing, and so how do we make flow easier? Clinical Decision Support should be much closer to discovery: opportunity.

Q/A: Knowledge transfer: Can we coalesce around standards without impeding development via lack of flow.

**Professional Societies—Burning Data Issues: Frank Opelka, Dana, Steve Hasley (No PowerPoint)**

Dana: Struggle for registry data to reach POCare. Semantic data standards. 80-100 registries supported by various medical societies. Variations of EHRs. Advancing from process to clinical measures. Question is: how do we get data, and what are standards that allow clinicians to measure what they want. We require more specific clinical data elements.

Steve: Clarify what value HSPC can bring to this effort as to interoperability. How will we execute this? OB/GYN use case for interoperability: outpatient basis >>> labor >>> data to outside OB and pediatrician. Lay out smaller test cases for interoperability around office of population affairs and their 4,000 offices. Very small data set.

Question (Frank Opelka): 24 surgical specialty groups. Over 100 clinical disciplines. They talk about EPIC and Cerner, and AllScripts. What is the argument that says dealing with these vendor products is best done via HSPC.

Dana: Right now data is in a warehouse model. At some point, that model will sit where the data is generated, and the registry will grab data on-demand (seek data). Cloud-based interoperability.

Do we need to connect NQRN to HSPC and PCPI? Dana says yes. And there will be a workflow transition between EHRs and data registries. (Dana): we need to educate societies about value of interoperability. These gap areas are being worked on by PEW. Used to be siloed. Think collectively about helping clinicians on the fields about understanding use of data.

**Federal Panel—Impact of CMS, FDA, ONC, VA: Aneel, Dr. Julia Skapic (ONC), Dr. Dan Green (CMS/OBGYN), Terrie Reed, Jonathan (PowerPoint)**

Dr. Dan Green (OB/GYN): Qualified Clinical Data Registries (QCDRs). MACRA legislation has combined processes, and are in comments now. By 2018 ½ of payments come from ACOs. Move from passive payer to pay for coordinated and improved care. Proposed Rule: MIPS data submission options (Groups versus Individual). Purpose is to give a “report card” back to the doc. Quality metrics are used for this report card. Adoption and meaningful use of EHR is a requirement for 9 measures. Physicians can get credit/points for quality reporting, which redounds to MIPS score, which relates to reimbursement. 2) Difference between Registries and QCDRs, which drive quality improvement. Main difference. Measures are better considered in QCDRs—benchmarking. Risk adjustment for level of patient health. Report 6 times per year for QCDRs. No personally identifiable data. Data in aggregate.

Dr. Julia Skapic (Internist): Advancing Registries Through Common Data Elements. Centralizing and harmonizing feature in a chaotic data landscape. Common data elements (e.g., Meaningful Use, Patient Centered Outcomes). Data exchange requires redundant processes and new versions, different terminology. ONC is looking at pathways to harmonize data capture and use. Common data elements should work across all use-cases: Research, Clinical Decision Support, Reporting, Measurement Analytics. Need a central point of inflection, which is CDEs. Need to define data elements. ONC wants clinicians to define and curate CDEs.

Terrie Reed, MS (FDA Center for Devices and Radiological Health): Device Ecosystem. Three 2017 priorities: 1) Establish national eval system for devices; 2) and 3) 606,000 device identification record numbers in database. This is link to real-world evidence.

Dr. Jonathan Nebeker (Deputy CMIO at VA): VHA Registry Perspectives and Strategies. Mandated registries (11). Issues: Stand-alone solutions, data separate from workflows, bad information representation. Need to simplify workflows and IT, and focus on quality of system: minimize technical platforms and data interchanges. Registries are cohort management. Need to account for experimental data. Need one set of solutions.

VA trying to improve analytical workflow and clinical workflow. eHMP: take workflow, add widgets, and go from panel view to patient view and cohort-level orders, as well. HSPC provides the only level of standards specifications to allow reliable interpretation of data across different settings. Want technical solutions. Data exchange, which will yield more web-based exchange that is standardized.

Aneel Question: What is the one thing from agency perspective that you’d like to see HSPC solve in order to improve quality and strengthen link.

Terrie: Device ID has been left out.

Julia: Ways to advance interoperability with registries working together in cross-multiple systems. Better semantics.

Jonathan: Integrated cohort registry management program with all vendors.

Dan: Need better datasets with CDEs to reduce burden/barrier to participation. Need to ensure CDEs and process is done in a usable way by those reporting information. Information is not actionable by physician. Make sure standards are accessible and equally sophisticated.

**Where does this leave us? Wayne Wilbright and Oscar Diaz + Panel. (PowerPoint)**

(Wayne): Value in highly available clinical data can provide a solution to low rating of LA’s state of affairs with regard to health ranking. Use cases can provide drivers to solutions, and leverage foundations to address an infinite amount of use cases in the future. Need to avoid one-off solutions with slow progress at high cost. Need to achieve solutions at ecosystem level. Where is the union of those use cases? This will help us drive architecture forward.

Challenging for us is the envisioning future where health and healthcare is optimized. Clinical data ecosystem is a great concept. Current paradigm is not working, regardless of how we define it. Model is the data informatics principles that can “get us there.”

Paradigm is not working because of limitations of market forces that create a strange slope of development curve. Healthcare innovation curve. Y axis is cost; X axis is time. Two additional curves: current and desired slopes of innovation. The AOC (green curve) is the cost of unrealized healthcare improvement. Three questions for panel.

(Oscar): Can impact outcomes in health at the workflow level. Create common models. Make it available: commoditize it via common semantics. 40% of data needed for outcomes sits in white space in EHRs. Create horizontal—not vertical—workflows.

(Stan Huff): Technical dimension of FHIR, etc. But there is gov’t dimension. Organizational dimension. Medical specialty dimension. Vendor aspects. How do we collaborate in a cross-dimension fashion? Medical devices in hospitals. Approach is to collaborate with provider organizations and vendor community. Create a reference architecture. Don’t create standards, but do want to leverage what is available.

(Mark): Provider versus data ecosystem. Vendors are trying to help clients to migrate from wide terminologic bases to something more standardized. That is necessary but not sufficient. FHIR is helping as a data model, but we have 2 sides of a platform, which include services and events. App development may create long road to creating a tight understanding/use versus knowledge-based framework and platform.

(Doug): Have been in the business of informatics for 30 years. Lots of this discussion is not, therefore, new. But we’re still having the same conversations. Less of a tech problem, but why are we struggling to incorporate innovations into practice? So, what really are the barriers? 1) Lack of economic incentive. 2) Lack of collaboration because we do not have frameworks around which to collaborate. Need to showcase technologies and standards. Focus more on the “politics” of it.

(Oscar): Mentioned incentives and quality information. Need to engineer methods of improvement.

(Wayne): We need alignment that creates value for all parties in the market space that can be facilitated by the right characteristics that can enable value for all parties. We need a common long-term vision.

**ACC Registry Programs—How registries and clinical workflow are “married”: Dr. James Tcheng. (PowerPoint)**

Context is set of registries at Am Coll of Cardiology.

Everyone wants data. ACC is data-rich environment. Cardio mortality has dropped 20% in 20 years. Creation of metrics via discovery in ACC. EX: National Device Evaluation. Pinnacle registry applying for QCDR status. National Cardiovascular Data Registry: 20 years, outcomes-based data repository (largest on globe), 10 registries.

Contributed 6 measures for meaningful use to federal gov’t. Pinnacle has 6,000 providers with 36,000,000 records. NCDR is global. 600 tables, 8500 columns. ACC has built this themselves so they are in control. Site-Level Dashboards. Physician Dashboards. Public Reporting. Benchmarking facilitates Quality Indicators/Improvement. Cath PCI Dashboard for physician level as to how you’re doing relative to everyone else (20,000,000 records). Data Quality Program: Pre-Data Capture; Data Submission; Post-Data Submission. New way is Data Capture and integrate it into workflow processes.

Registries now include retro/prospective research infrastructure. NCDR is not standardized. Structured reporting is a philosophy about data aggregation. Need: Vocabulary/Interoperability, Best Practices Workflows, Clinical Standards, IT Systems. ACC is standardizing cardiac lexicons. What do you want ACC physicians to report? How does this fit with EHR? Expected benefits. Challenges. Implementation by vendor community is paramount.

**The Canadian Solution: Jim Forbes**

UHN: 300 databases in environment. How can we deliver meaningful info to physicians to enhance outcomes? Improving learning with knowledge management. From Health Systems to Learning Health Systems. Legacy approach versus Learning Health System. Platform for innovation: Liberate Data, Integrate New Information Services, Create New Tools.

Created Clinical Data Repository---federated approach. Reusable components to app development (300 apps at UHN). 5mil became 100mil to connect 777 organizations. Apps need to be secure and reflect privacy practices. Have set up a “test sandbox” to test products against traditional ESB. Initial implementation is minimalistic. SOA migration to platform as a service model: 3000 lines of code became 300. Community cloud and the concept of the internet of things means we have to find one solution.

Platform for innovation: set tone and show physicians how to build. Two types of knowledge: Explicit and Tactical. All apps sourced internally. Gov’t apprehensive about making this look too UHN-centric. Has to provide bi-lingual (French) services. Hoping province will drive agenda. Learning plays a role at the infrastructure and strategy level.

**Demonstrations of Current Implementations (PowerPoint)**

**Cognitive: Dr. Emory Fry, Cognitive Medical Systems (SanFran)** HSPC Collaborators: CORA, CareWeb and others. Standards in Demo: HL7 and Fast Healthcare Interoperability resources (FHIR), SNOMED, LOINC.

**Blood Pressure Waveform**

**Patient Care Management Tools (Josh Dees):** Devices that coordinate care. Health Ally. Mobile devices for patients. Intervention messaging. Use case is patient and doctor connecting.

**VA CART Program (Steve Bradley):** 79 Cath labs in VA. Continuity of Care apps/tabs within application. National device surveillance program for VA.

**Roundtable, Practical Deployments**

**Am Coll of Surgeons (Frank Opelka):** How to establish common data elements for specific use-cases? This relates to implantable devices? 1st Step is for NQRN to connect to data elements. What will the protocols be? Start with smaller processes and programs: narrow scope, collaborate, technical specification, how do we talk about problem (all levels are translation steps) in order to acquire change management. Need to connect levels and layers (vertically and horizontally).

**ACOG (Steve Hasley):** What do we take back to clinical orgs re: why do we need HSPC? EHRs are the number 1 driver of physician dissatisfaction right now. Intellectual property needs to move from .pdf to the bedside. How to get applications in front of docs’ faces.

**C4MI (Center for Medical Interoperability) Ed Cantwell:** Approach is architecture-based. Drive strategy. Get away from silo adoptions. EX: 900,000 beds in US, only 25% have luxury of a connected device platform. Not a technical issue. Healthcare needs to act like a system instead of a portfolio of silos.

**PCPI (Marjorie Rollins):** NQRN function is a good place to begin to bring individuals together. Because NQRN cuts across all medical disciplines. Really about changing culture in the midst of capabilities.

**How Can HSPC Help? Oscar Diaz, Jonathan, Stan, Mark, and Ed Cantwell**

Next Steps: We are a collaboration agent. What value can we transform? How do we share Content and Knowledge?

* Need Common Terminology as basis of conceptual models.
* Not a funding issue.
* How do we catch the headline?
* Get use-cases and demos into registries
* Begin with a few healthcare systems (Intermountain)
* Continue to add professional societies.
* Cerner could be a great partner, because it has a federal presence.
* EX: Skin and wound assessment with HL& and FHIR profiles. Broad relevance.
* Need clear HSPC website with story.
* Articulate conceptual gaps with relation to use-cases.
* What are services and tools at the intelligence layer—workflow.
* Need health systems to invest in this area. Center of Excellence to enact 5 dimensions of interoperability model.
* We have LSU Initiative, VA, Ontario Initiative (laboratories).
* Vendors are enablers, not deciders.
* Database versus API. Avoid data conversion. Not all APIs are used internally.

**DAY 2**

**Healthcare Community Cloud Panel: Jim Forbes (UHN), Shahid Shah (Netspective), Emory Fry (Cognitive Medical Sciences), Keith Touissaint**

Need to discuss with an active group (no longer in the abstract), which includes LSU, ASU, Harmonics, and others regarding a service-oriented architecture.

Keith’s presentation establishes foundation:

* CLOUD: Private, Community, Hybrid, Public deployment models. Multi-tenant infrastructure that is specific to an industry or collection of orgs that have similar interests.
* NEED: create specific set of resources and capabilities that meet this community’s needs.
* HSPC ADVANTAGE: Standard way to curate data, cohort definition, population health services, etc.
* EXAMPLES: VMWare, IBM Federal Comm Cloud, Miscosoft Azure US Gov Cloud, AWSGov Cloud: well-established set of requirements and services with continual validation.
* STATE of AFFAIRS: Many clouds (majority vendor-specific), most are SaaS model and preclude middleware, few cloud services meet the NIST Essential Characteristics

**(Shahid):** True procurement intention. Example: procurement pathway back into VA (buyer). No buyers of open-source community cloud large enough to move a market. EX: Max.gov (authentication and identity of services, first used at OMB with 150,000 users in first few years). EX: Cloud.gov (New, digital services team at GSA ($80 bil of tech/year, quasi-competitive) created a Gov community to be used by internal gov employees/contractors). We need to clearly identify who is intending to buy these services and take into consideration the regulatory burden.

**Developer experience.** Create, host, install, maintain, manage, support. EX: FedIFM (Integrated Facilities Management, equivalent to HSPC on hospital side, funded by OMB and Defense Health Architecture). Accustomed to AWS (limitation/barrier).

**Business Initiative Interoperability.** Causes friction. Decisions need to be made, for ex, by Senior Executives. Need clear direction about what is possible and what is not. Many problems can be resolved with “stroke of pen”, which requires business initiative. EX: Mayo will work with Intermountain.

**(Jim):** Voluntary partnership with other healthcare providers in Toronto, which led to governance and procurement issues. After 8 years, they dissolved partnerships. Service provider (UHN) felt burden disproportionately. Did most of the analytics, which was burdensome.

Later, began with $5mil in Ontario, which mitigated above risks. Educating executives with adoption. Set agreement templates, such as security, which were barriers. Followed change management practices.

Identified knowledge gaps with smaller IT “shops”. Fear that cloud will eliminate “my” job. Must know patterns and data flow. Focused on internal application development over those 8 years. Can turn around new products quickly, which allows focus on strategic elements.

Procurement: challenge pertains to strict laws. OPS/PPS layers.

**(Emory):** Expects to see (capabilities) in cloud:

* Secure access to federated data sources, with good access, reinforced by policy.
* Ability to deploy standardized semantics, canonical data management
* Ability to work with services that have well-described boundaries to monitor and execute workflow
* Access to technologies for reasoning that go beyond rule engines, decision trees or embedded workflows
* Ability to apply different architectural patterns besides SOA that address performance and scalability, for example (nuanced applications)
* Ability to re-integrate applications back into UX.

What it means for the physician (provider experience):

* Shifting from pattern recognition to rules-based elements, talking to nurse, using 4 or 5 technologies, assigning tasks to nurses/interns, classification algorithms
* We cannot impose set of rigid IT technologies. Nuance is that you cannot bombard physician with rules-based alerts, for example.
* Degrades physician’s value in care application and information use. How do we create value? Cloud allows assembly of data: ordering, translation, data access, etc. Developers now have a palette of “clinical colors” they can now use.
* Advantage of community conversation: fundamentally create new class of applications: knowledge-based, which demand a new way of building applications that is now foreign. We cannot afford to keep building applications limited by individual use-cases.
* Task management discussions are needed to create boundaries for services into the cloud. Will allow separation of plumbing infrastructure from optimization [main knowledge >> clinical (stable) and operational (tactical and fluid) knowledge].

What it means to support accountability versus responsibility. Delegating a responsibility, but he is still accountable. Transition of care becomes an issue of managing accountability and responsibility. If we build a community cloud, it should deploy services that raise the level of conversation about how Health IT promotes both of those constructs. (Oscar): establish a fabric of what it is a health care provider really does.

**Questions:**

* Will there will be many clouds, and this is the evolution of systems with services? If so, we need to enable services to adhere to cloud principles.
* Is the Cloud merely a re-platforming?
* How could a cloud-based platform allow decision-making to be drilled down to the individual unit/clinician? There is a de-structuring of the problem. Need to make distinction between immutable clinical knowledge and operational knowledge.

**ALLscripts, NIH 3rd Party Demos: Future of an Open Healthcare Platform (Stanley Crane)**

* What does success look like? Re-sheduling app in 30 hours. How many appts did doc’s office fill. Add-on to existing platform.
* API Problems are not technical. They are: how do we borrow from existing industries. This includes business, marketing assistance.
* Social aspects of change within and outside of company. 4,000 developers.
* Dedicated to open APIs
* Partner support. Developer portal/community with sample code. Sample licenses.
* Become the platform, not the deliverer.
* Application Store.
* API/FHIR Roadmap (Jeff Danford)---EX: Unity (API with over 500 discrete calls)
* Resources are mostly new products. APIs released with MU compliances.
* Biggest issue with delivery is the client.

**Park Street Solutions Demo: Building portable, Interoperable Applications**

* FHIR abstraction, Semantic Transformation, and Extension.
* Differences between Cerner and EPIC
* Variation we see today is likely to get worse than better. Vendors do not have motivation to address lack of commonality.
* (Davide): Servers need to “catch up” with implementation.
* (Oscar): Opportunity for HSPC to help harmonize and standardize FHIR profiles, services, and resources. Need to take action: summit in New Orleans with ASU/LSU and others in order to acquire real-world examples of how this works.
* (Mark): Corollary is that Cerner implementation of FHIR is awkward and in evolution over next year or two. Nuances of differences are not recognized.

**HSPC Online Support** (**Rick)**

* Takeaways are that this sandbox is an HSPC implementation representation.
* Want curricula and connect-a-thons to teach how to build health apps. (Oscar): think about different levels of sandbox support.
* Gallery: current state. Site creation for “real/live” display of tools and models. For developers. For physicians (looking for a solution in gallery).
* Discussion of composite applications to avoid shifting from vertical to horizontal navigation systems.

**EHR Integration Working Session (Davide Sottara)**

* Which perspective? Provider needs should be a main goal.
* Capability to support registries is another goal.
* Roadmaps (capabilities, commonalities, and timelines)
* Main discussion involved profiles:
* (Cerner) At one level, we need population health platform, and at another a single patient that fits an ICD registry.
* (Cerner) Interaction pattern regarding data flows
* Standardization: client-to-client, NIH is expecting “dirty data”
* Data access capability:
* FHIR focus at present is meaningful use. Need to define what users want without creating dozens of profiles. Query and extension elements of profile. Need governance (or at least consensus).
* Semantic interoperability
* Cohort-centric registry that aggregates data over time and is longitudinal: not single-source for the sake of creating a long-term context
* Data On Demand
* What kind of semantics can we expect on the data?
* Notification paradigms
* Filtering and aggregation (enable system to allow user to make that choice)
* Base level: query functionality, and endpoints FHIR-based + statement of capability
* Action Items
	+ - * Detailed review of what services should be able to provide and get consensus
			* Best practices
			* Have to work with transactional systems that have few FHIR implementations. Need to guide industry about standards that get to meaningful data extraction for clinician’s workflow.

**Data Federation Working Session (Dr. Aneel Advani)**

* Registry use-case: getting data reporting, clinically intervening.
* Opportunity for HSPC to address a new community of standards platforms: specialty societies.
* Context---Advising CMS and ONC on setting up architecture for registries: need to formulate these areas via use cases. Medicine profit is 30%, EHR vendors have tried to address MIPS
* 2017 beginning of measurement year.
* MIPS is like PQRS.
* 6-9 measures.
* Reporting on claims.
* Clinical practice improvement activity.
* Advancing use of health IT.
* HSPC might impact medicine via the MIPS program and reporting under MACRA
* Define services for reporting
* Real-time versus persistent sources
* Population/collective data and FHIR paradigm
* Semantic services
* Query standards
* Deployment architectures
* Discussion
* Data warehouse and analytics functions may be outside the scope of HSPC
* What is not already being engineered? Coordination of Care.
* What is the market looking for now? EHRs do a good job within environments, and a bad job across environments.
* How do we achieve what MACRA requires, which will maintain or increase reimbursement.
* Constraint rules dictating how data should be used. Without that, pipeline is hindered. So, a redaction service and a security labeling service, and a publication/content invention. Division of functional capabilities. Perhaps we can virtualize medical records so ownership of data belongs to patient, hospital, or actual EHR.
* Data maintainers in Canada defined as ‘custodian’. This facilitates discussions around secondary and primary use.
* SAMHSA has consent to share. We have protective laws for mental health, not physical health.
* Legislation being proposed in a Senate subcommittee: no data blocking.
* Requiring multiple sources for obtaining data precludes centralization.
* If it remains a patient-control issue, that precludes quality clinical metrics.
* De-centralized solution precludes mass hacking
* Population health artifact versus HIE model
* De-identification of data—default, de-identified
* Fragmenting data across multiple servers with encryption codes
* New models besides client-server. More like currency where movement of data in hubs is possible. Security concerns. Public keys.
* New technologies need proof-of-concepts. Let’s set desired requirements and postpone technological implementations until later.

(Oscar) Comments: There are known models of federation (UHN, for example). Full federation, allow for total extraction. Need real-world deployment and ability to test. Do we want to enlist ideas that create ways for patients to “own” their aggregate data?

**DAY 3**

**NEXT STEPS**

**Goals For Architecture Realm**

Conversation sets “tone” for next HSPC meeting, HSPC Summit regarding Deployment Strategy, which “feeds back” to terminology and standards-based modeling: Quarterly HSPC in NOV, Salt Lake

* Stakeholders for future registry work:
* Include CDC’s perspective on registry space
* HCOs to address integration needs to occur
* DoD: people from IPO, need incentives, (were at HIMSS)
* Barry Dickman and HIMSS
* NIH -- NLM: Strategic Planning Process to coordinate, for example
* Precision Medicine and possibly play coordinating role. Opportunity to create registry and data libraries to extend into repositories. Funding external to NIH dollars
* Patty Brennan (Chair of NLM) R.N., Ph.D. (engineering)
* HSPC beginning process to compose MOUs in order to define good demarcation related to provisions and needs
* (Davide): Distinction between mutual awareness versus daily collaboration. Cross-pollination of services modeling, for example, is a deeper level of engagement. Collaborations that lead to artifacts with details framed by high-level strategic discussion.
* (Aneel question): HSPC will push standards with a reference model and certification. Ensuring adherence.
* List appears to be US-heavy. Include Australia/UK/Canada/Italy. HSPC met with HealthInfoNet related to terminology and standards.
* Where can we have most impact in the “laboratory”? Generated by real-world elements. LSU is moving in that direction. Use ecosystem to test infrastructure. But do “we” expand beyond HSPC with vendors, providers, and ensure ownership by community. Set guiding principles for ecosystem replication. (Aneel): regional ecologies of apps/standards yield a question about allowing Google to create an app in LA. If LA HIE effort becomes a model of data aggregator, could the HSPC app store idea be superimposed on that?
* Real-time workflow and data liquidity with certifiable standards, whether they are deployed as stores, registries, etc
* Create view of how knowledge can be shared. (Example: plug-‘n-play capacity is missing). HSPC wants to be able to replicate in less than 13 years…
* Do we need sets of “different eyes” in order to construct common goals?
* Need to be careful that HSPC’s contribution is focused. Unique thing we can do is defining open standards. A struggle, perhaps, with an enterprise view. We would like to think that we can create a set of standards and knowledge that can address community and enterprise. Cerner is focused on the enterprise versus community view. Then there is the issue of user interoperability (e.g., smart app coordinate into workflow). Appears to be a large chasm, also.
* Standards should be “trialed” for validation and utility. View through focus of the “blind man” analogy such that HSPC is an organization that can vet standards.
* (Ken): Pressure to articulate how VA intersects with private clinicians/members. Need roadmap for community effort. (Care Coordination is in existence.) Can it be adopted to HSPC? Example of how we need active engagement.

**Identify specific issues/use-cases or principles (one or two)**

That needs to be part of the strategic plan/logic model.

* Goal>>>Logic Model>>>Inputs
* Context diagram with ID of service to 4 or 5 communities which creates a potentially useful “Phase I”.
* No mis-alignment on mission, vision, and objectives.
* Concrete use case, to date, involves implementation of portable applications.
* Gap can be served by creativity of developers.
* Have much more innovation other than SMART/FHIR: we do not need to necessarily see crystallization of use case diagrams. We can devise robust use cases (e.g., LA and diabetes). We need to be careful about preserving care coordination efforts.
* Distinction between what has been “blessed” by HSPC versus community members’ contribution of code. Have they been harmonized? What will HSPC pay for versus partnerships they will facilitate?
* How to support standardization for building registries (in OB/GYN, for example). The issue of which use case is best is less germane than the assistance of reporting requirements.
* Perhaps there is an argument for having multiple use cases. HSPC board needs a definition.
* What is definition of ‘use case’? Registries? Implementation? Building?
* HSPC has articulated a mission to support healthcare.
* Re-focus on discussion of Use Case: Solution for facilitation of the beginning of that construction (roadmap)
* What are requirements (arch, process, and data exchange) we need to offer vendors to create an HSPC-compliant registry? 1) Technical interchange of data; 2) processes that need to occur to create cohort management registry.
* Need to define the core conceptual model (manual or automated) of what a registry is: Has this been defined. Then a transfer within a transactional system (clinical decision support, for example). Secondary uses of data. So is the objective the creation of architecture to operationalize secondary-use elements. (Additional step is transfer of data.) Starting “small” requires supporting current processes and infrastructure.

**MODEL EXAMPLE of HIERARCHY (not a linear model/example)**

Composed of **1)** Functional components/behaviors and **2)** Process Requirements, which require capacity for architecture re-configuration

* **Data Input:**
* Capture Form (manual or digitalize)
* Automatic Aggregation for Reconciliation: Services and components for database extraction: system supports logical model; source system can be queried for data elements; transform and recombine; workflow consideration
* Insert Relevant Data Elements, which will populate the database

*(SIDEBAR: Concern is that there may not be a way to get to a platform through shared use cases, though they may not yet have been well-socialized.*

*We can obtain platform behavior does not presuppose overly robust rules engines.)*

*(SIDEBAR: We already may have a template for the above. However, we need buy-in from alternative groups.)*

* **Transport: Relates to data federation (avoids central warehouse); results of query; physical movement versus accessibility:**
* Point-of-Care Access and Consumption: Definition: Query-based; Event-based. Leads to question of Federation (and perhaps latency, which relates to frequency or speed for real-time intervention). Small-packet information or bulk?
* Categories of Registries:

Retrospective

Real-Time data or close (which may require granularity for patient care as opposed to population management), which is transactional. Registry is not taking the “place” of the EHR. However, utility and structure (to identify weaknesses) are paramount, and a no-cost benefit.

Registries need to provide enrichment (completing what is needed but physically missing). What are minimum common requirements? This leads to a cognitive function of registry, which allows for quick assimilation of data into real-time clinical care via “snapshot”.

Cannot derive a set of use cases from an architectural element.

What is within scope (example HIE) and outside of scope. Need to decide what purpose is and how it will be “architected” in order for additional use.

*(SIDEBAR related to NIH and specific data collection, as opposed to problem-based focus data that can address specific tasks. Do not want to aggregate data from EHRs for purposes of research.)*

Common data elements for population, and for each patient, from which sources does that data emanate? May be present in more than one source. (Example was ejection fraction within ECHO report. Other issue is the way it is measured.)

*(SIDEBAR: De-identifying data. Physician-provider needs identified data. Identification comes into play if one wants to view data across sources.)*

*(SIDEBAR: Perhaps too much focus on the term ‘document’.)*

*(SIDEBAR: Registry versus source system and possible gaps that require addressing.)*

* **Enhancement: Data needs to be normalized (reshape), enrichment (add elements not in data), validation (is this data measuring the question)**
* Minimum enhancements of data, which assume we have criteria quality that allows for consumption
* Instrumentation of workflow. Capacity to create apps (FHIR). Question: does Cerner contain all elements of clinical flow guidelines, or if not, how do we collect data from a clinical workflow perspective?
* Leads to the idea that data collection should be model-driven. Need delivery configuration specification.

*(SIDEBAR: Technologist/product developers should not enforce elements not relevant to clinical consumer; hence, we may create an impedance mis-match. Creates cognitive disjoining within native environment. Clinical clients trying and abandoning apps. User interface needs to interface with physician/clinical workflow. Best practices for minimally intrusive data collection should have a methodology.*

*Who would capture that concept of a Best Practices Methodology?)*

* How, With Whom, When, and Where does data interaction occur?
* **Identification: (To be discussed)**
* **Use: Analytics, Cohort Management (To be discussed)**
* **Governance: Immutability, de-identification (To be discussed)**

**FUTURE Task Group**

* **HSPC will “steward” future connections/communications**
* **How do we create and maintain a clinical and architectural task group between now and October**
* Commit 4-8 hours between now and interim deliverable for feedback on draft design and implementation architecture for ACOG registries use case in the context of a candidate implementation (funded project): Davide, Aneel, Josh, Bruce, Keith, Ken, Peter, Steve, Brian
* Commit, Josh, Mark, 2 hours per week for 6-8 weeks in order to create weekly telecom to discuss architecture and work on artifacts for the ACOG registry project use case: Keith Peter, Aneel, Steve, Brian
* Commit 1-2 hours per week in order to develop HSPC Roadmap with specific milestones: Initial version by October (use Wiki): Ken, Bruce, Bob, Laura, Emory, Mark, Aneel, Brian
* **Steve Hasley (ACOG Use Case); Coordinate between concept modeling and architecture groups. Present in a meeting to deliver a set of recommendations and architectural patterns**

**Modeling and Terminology Report-Out: Stanley Huff, MD**

* Create models that show true interoperability in FHIR services.
* Process of creating models within Office of Population Affairs data collection project, for example.
* Will create a style guide and ways of categorizing process.
* Reviewed SOLOR:

**NEXT STEPS:**

* Need a terminology server (establish SOLOR) for CIMI and HSPC—near term.
* Continue development of data elements for Office of Population Affairs (OPA) that administers Title X funding for family planning. They want a data set of 34 data elements.
* Partner with larger community to develop an approval process for FHIR profiles for true interoperability: HSPC, PCPI, NQRN, HL7, Clinical Interoperability Council, Center for Medical Interoperability
* Convene next Tooling Summit
* We want to be project-driven and take an Agile approach to create models for testing of specificity, physician use, data population. Successful models will be implemented.

**HSPC Efforts in the Future**

* JIRA for communication
* Status updates are critical: Wiki Use
* Need commitment from someone to keep site up to date about meetings/agendas, and to “turn off” inactive HSPC sites
* Need technical writer to enhance Confluence landing page
* Need to address message about uniqueness of HSPC (Dr. Frank Opelka can assist.)
* Would benefit from written MOUs (HL7, for example), and possibility CMI and SMART Group, CommonWell Group, Sequoia
* Need to review: 1) messaging; and 2) relationships
* Help societies and professional organizations connect to HSPC and this Registry Group
* Possible Consumers’ Forum or another mechanism wherein visitors/participants can respond with searchable history. Posting answer on Wiki does not offer context.
* We need consistency—unlike developers’ forums with justification as to why “this is the right answer or not”. Solution may be to: Establish Credibility, Tooling Question, Content Curation
* Seminar Series
* Next General Meeting in Salt Lake City, NOVEMBER 2-4
* Summit Plan for Louisiana, OCTOBER
* Need a Tooling Summit

**Comments About This Meeting**

* Great site (ACS)
* Future sites
* Interactive parts are most useful; perhaps less presentation
* Later start on 1st Day
* Slide presentations might include slides with less text, which will bring out the salient elements of the slide’s main message