



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

Supporting Evidence -informed Care Transformation via a National Learning Health System that Achieves the Quadruple Aim

A Roadmap for AHRQ and Other Stakeholders*

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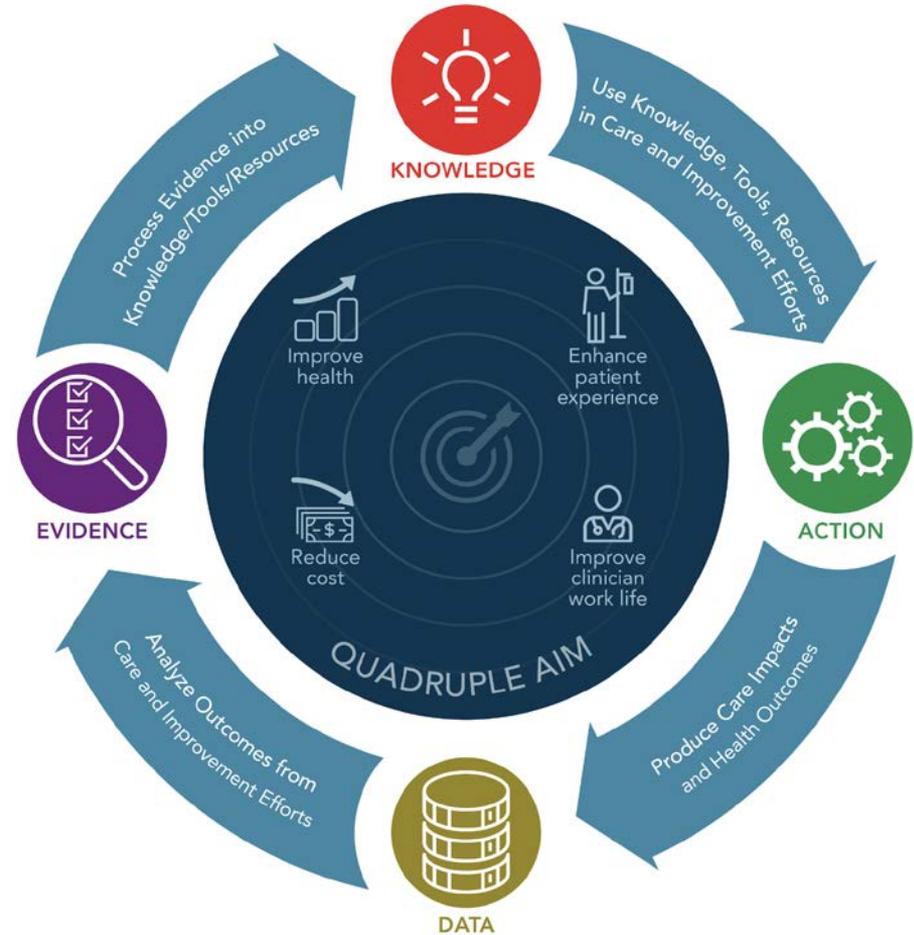
Centers for Disease Control and Prevention

DRAFT

*These slides will be presented to at least 38 organizations for action.

AHRQ evidence -based Care Transformation (ACTS) Initiative

- Roadmap for a National LHS Virtuous Cycle to Achieve the Quadruple Aim
- Improve access to/use of AHRQ and other evidence-informed resources
- Routinely achieve the ‘Decision/Action 5 Rights’



A Framework for Better Supporting Decisions and Actions around the LHS Cycle

Decision/Action 5 Rights* Approach

To optimize decisions, actions, and communications around the LHS cycle to achieve the Quadruple Aim, address these 5 dimensions:



*An [extension of the CDS 5 Rights Framework](#) (Osheroff, 2006 - [recommended by CMS](#) as a healthIT/Quality Improvement (QI) best practice)

ACTS Approach

- Create a **Stakeholder Community** and **workgroups** to produce a **Roadmap** that:
 - Examines **challenges with current state** care delivery and transformation
 - Defines a **shared future vision** for evidence-informed, health IT-enabled care - including better development, dissemination, use of resources from AHRQ/others
 - Defines **stakeholder-driven actions AHRQ/others can take** to achieve the future vision, including considerations of needed:
 - **Standards/infrastructure** to support critical information flows
 - **Marketplaces** to better connect resource suppliers and consumers
 - **Alignment** between stakeholder specific business needs/actions and broader Roadmap goals
 - **Collaborations** to ensure goal is reached (LHS, Decision/Action 5 Rights, Quadruple Aim)
- Have organizations execute Roadmap to **achieve *their goals* and future vision**

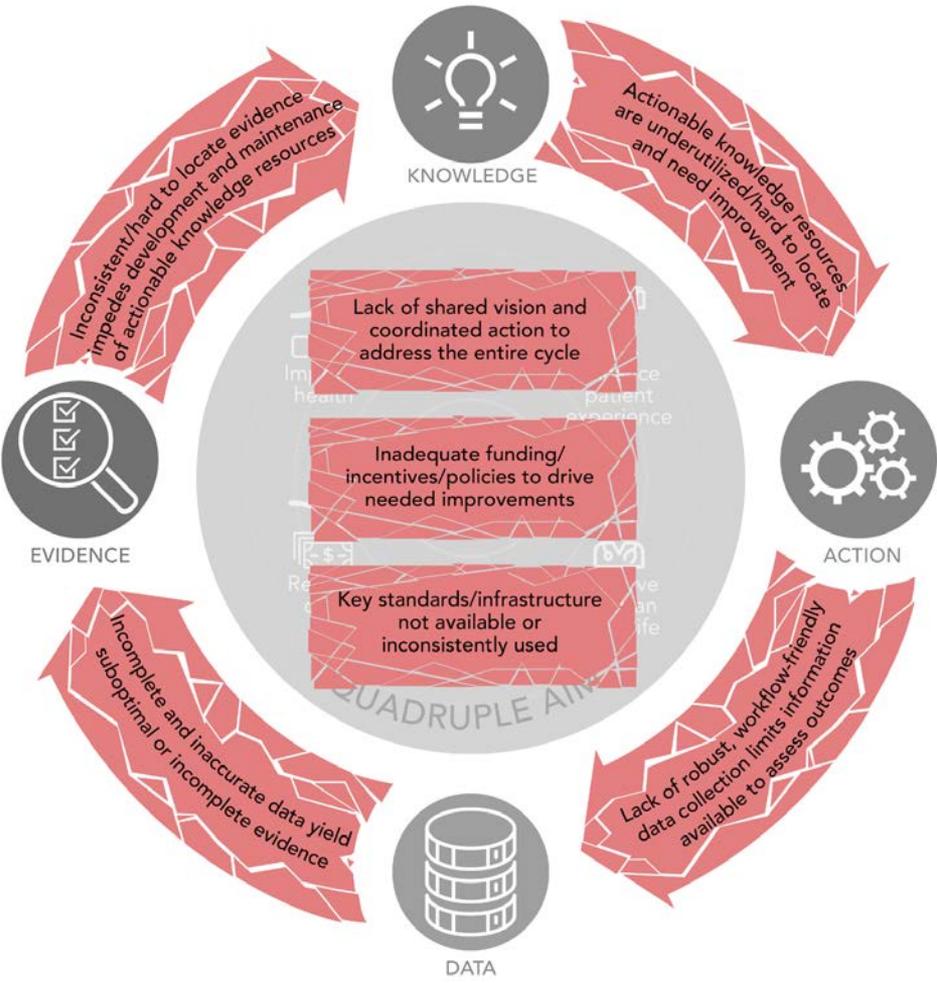
ACTS Stakeholder Community



Scores of individuals from:

- Care Delivery Organizations (CDOs)
- Quality Organizations / Consultants
- Health IT/CDS/EHR Suppliers
- Government Agencies
- Informatics/Researchers
- Speciality Societies
- Other Membership Organizations/Accreditors
- Patient Advocates
- Guideline Developers
- Payers
- AHRQ
- Others groups

The ACTS Project Team, Stakeholder Community, and workgroup members are listed in the [Acknowledgements](#) (currently undergoing validation).



Current Obstacles

to Achieving A National LHS

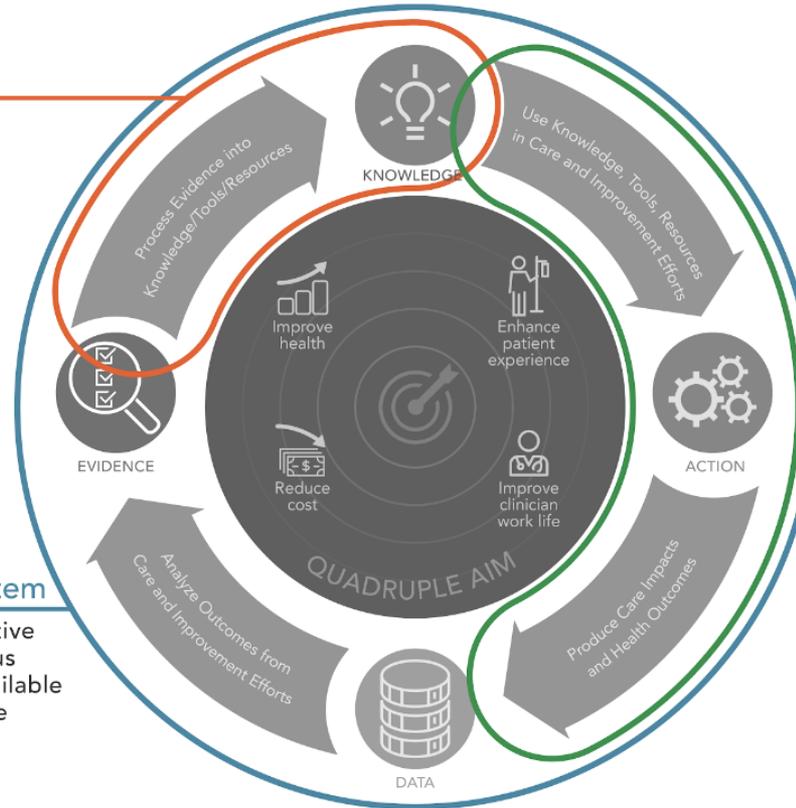
Shared Future Vision for a National LHS: A Virtuous Cycle Without Obstacles/Silos

Resource Developers

Ready access to evidence and information when and how needed; increasingly delivered proactively for resource development, updating

National Learning Health System

Supportive policies/incentives; effective standards, marketplaces, shared focus and efforts on goals. Information available when/where/how needed to optimize decisions/actions/results



Information/Resources are FAIR

Findable, Accessible, Interoperable, Reusable

Care Delivery/Transformation

CARE DELIVERY

Patients/care teams have current tools and resources to develop and implement evidence-informed care plans for all clinical issues, and to address other care needs

CARE TRANSFORMATION (Organization LHS)

Quality Improvement teams use tools/resources informed by best evidence; these address costs, are sensitive to organizational needs, comprehensively support care transformation

Care Delivery Future Vision

- **Care is patient-centered, proactive, and effective** - Quadruple Aim achieved by better use of evidence-informed, health IT-enabled tools to support:
 - **Decisions and actions** (e.g., re: preventive care, self-care, managing acute/chronic conditions)
 - **Communication/coordination** among care team members including patients and their caregivers
- **Information flow, workflow, and outcomes are improved** because Decision/Action 5 Rights better supported. For example:
 - **Information/resource portals** provide user-focused access to needed information, tools, and resources from AHRQ and other sources (see mockup)
 - **Evidence-based care plans** and shared decision-making tools for preventive care and acute/chronic clinical problems support decisions, actions and outcomes across entire care team, individualized for patient goals, preferences, circumstances (see mockup)

Care Delivery Future Vision, cont.

- Tools help **efficiently identify and close care gaps** across populations, support population health management better than today
- Patients use tools that enable them to find clinicians based on **transparent pricing and quality of care metrics** that matter to them
- This **tool-supported approach** (e.g., by applying the [FHIR Guidelines Implementation Guide](#)) is more proactive than reactive, addresses costs, and is optimized at patient/population levels
- Resources tuned to patients needs and health/technology literacy plus a team-based care approach **improve care experience** for both **patients** and **care teams**

Care Delivery Support Tool Mockups

Evidence-informed Resource
Portal & Care Plan Generator

Care Plan Generator provides templates for evidence-informed, patient-centered care plans, integrated across patient's clinical issues and care teams

Care Plan Generator Mockup

Concept Demonstration of Care Plan Generator (in development by EBSCO Health Innovations)

	Select Conditions	Set Goals	Set Preferences	Set Icons	Schedule	Review CarePlan
	Hypertension	Stage 3 CKD	Osteoarthritis	Depression, possible OUD, loneliness		
Education	<input type="checkbox"/> High blood pressure: What you need to know <input type="checkbox"/> High blood pressure module (video)	<input type="checkbox"/> Chronic kidney disease: What you need to know	<input type="checkbox"/> Osteoarthritis: What you need to know <input type="checkbox"/> Knee injection (video)	<input type="checkbox"/> Depression: What you need to know <input type="checkbox"/> Opioids: Using them safely and wisely to help with pain <input type="checkbox"/> The loss of a loved one: Surviving the storm and finding a new norm		
Lifestyle Actions	<input type="checkbox"/> DASH diet [info] <input type="checkbox"/> Mediterranean diet [info] <input type="checkbox"/> Eat 6 servings of fruit & vegetables a day [info] <input checked="" type="radio"/> View other Diet Actions	<input type="checkbox"/> Avoid a high protein diet [info] <input checked="" type="radio"/> View other Diet Actions	<input type="checkbox"/> Exercise for Osteoarthritis [info] <input type="checkbox"/> Weight Loss for Osteoarthritis [info] <input checked="" type="checkbox"/> Swim 30 minutes 3 times a week [info] <input checked="" type="radio"/> View other Activity Actions	<input type="checkbox"/> Walk 30 minutes 5 times a week [info] <input checked="" type="checkbox"/> Swim 30 minutes 3 times a week [info] <input checked="" type="radio"/> View other Activity Actions		
Prescriptions	<input type="checkbox"/> Stop atenolol [info] <input checked="" type="checkbox"/> Start ACE inhibitor <input type="checkbox"/> lisinopril 20mg 1x per day [info]	<input checked="" type="checkbox"/> Start ACE inhibitor <input type="checkbox"/> lisinopril 20mg 1x per day [info] <input type="checkbox"/> Start statin <input type="checkbox"/> atorvastatin 20mg 1x per day [info]	<input type="checkbox"/> Stop oxycodone [info] <input type="checkbox"/> Start topical NSAID diclofenac gel [info] <input type="checkbox"/> Start duloxetine <input type="checkbox"/> 30mg 1x per day for 1 week then 60mg 1x per day [info] [warning]	<input type="checkbox"/> Stop oxycodone [info] <input type="checkbox"/> Start duloxetine <input type="checkbox"/> 20mg 2x per day for 1 week then 60mg 1x per day [info]		
Messages / Referrals	<input type="checkbox"/> Reminder via patient portal to record blood pressure daily		<input type="checkbox"/> Physical therapy referral [info]	<input type="checkbox"/> Referral to community support group for widows/widowers <input type="checkbox"/> For Depression – Messages/Referrals – Mental Health: Consult for Depression Order Set		
Select Tests	<input checked="" type="checkbox"/> Basic Metabolic Panel now <input checked="" type="checkbox"/> Serum creatine and potassium in 2 weeks	<input checked="" type="checkbox"/> Basic Metabolic Panel now <input checked="" type="checkbox"/> Serum creatine and potassium in 2 weeks				

• For each patient health issue...

• ... integrated care plan produced by Care Plan Generator address key care plan elements

*For illustration/discussion purposes only. Not a proposal/recommendation.

Care Plan Generator Mockup: Getting the Plan

Pressing the ‘Review CarePlan’ button produces a unified plan across the patient’s conditions:

- A collection of clinical evidence-informed, condition-specific recommendations (templates and shared decision-making tools) that can be adapted and customized to patient goals, preferences and circumstances
- Care Plans are proactively updated and improved with input from clinical practice guidelines, quality improvement activities, and health system research
- Integrated within clinical workflow, eliminating need to access multiple systems
- Everyone involved in patient’s care can (with permission) access/modify plan

Care Resource Developer

Current State & Future Vision



Care Resource Developer

Current State

Evidence and related care resource building blocks are difficult to locate and process, which impedes developing and maintaining high-value offerings

Care Resource Developer Current State

- Resource developers provide/consume disparate tools/info (knowledge artifacts [KAs]) scattered across many databases/ websites creating **findability, access, cost, and applicability challenges**
- Many KAs are not **evidence- or guideline-based** (eminence-based or unknown quality), **and raw data/evidence isn't typically in a form where it can easily be processed** by resource developers, compounding challenges
- Often **long delay from new knowledge discovery to integration** in care support resources
 - **Very little if any “push”** of new information seamlessly into systems (since CPG's/evidence often not structured/updated as needed)

Care Resource Developer Future Vision

- When searching KAs, developers can find the *right* KAs, all the *right* KAs, and nothing but the *right* KAs
- In the short-term vision, many of the KAs will be manually discovered and assembled using search portals
- KA tagging will enable resources pertinent to
 - The resource developer's role/need to be retrieved (e.g., [PICO](#) specification, quality of evidence/strength of the recommendation)
 - Compatibility with local requirements (e.g., certification status, formulary availability)
 - Preferred format (e.g., PDF, links, executable code)
- In the longer term vision, the search and retrieval process will be more automated, leveraging increasingly smaller component handling with granular resource tagging (PICO/other) as technology develops (AI, ML, NLP)

Care Resource Developer Future Vision, cont.

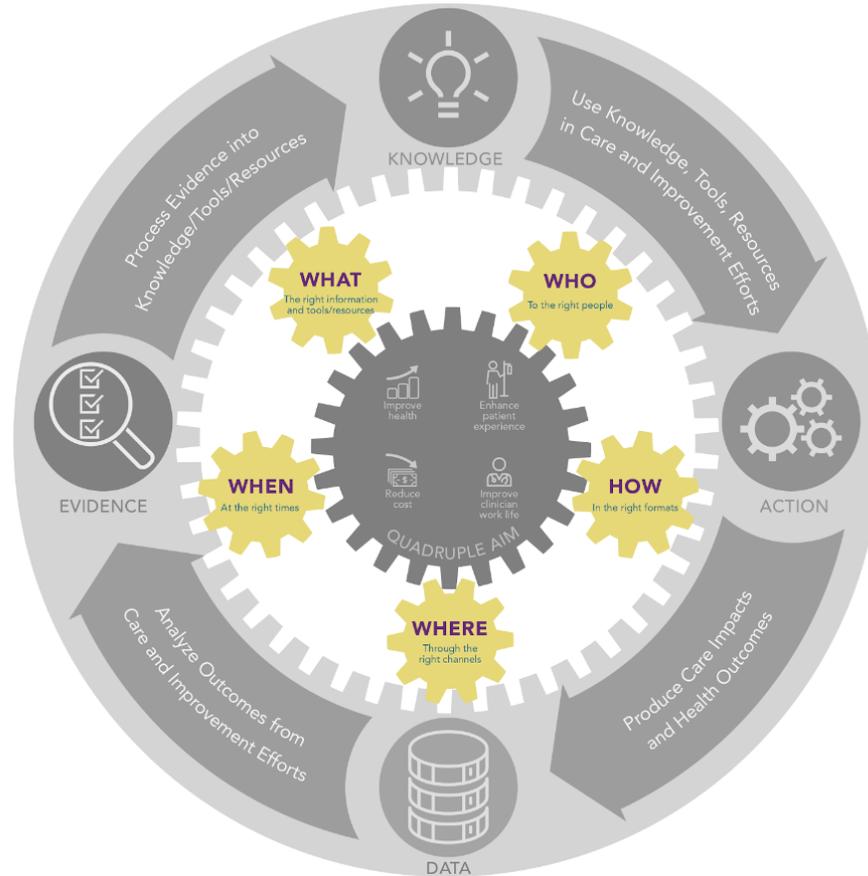
- APIs will help tool developers and end users efficiently identify and access KAs (including “push” notifications for emergent public health threats and knowledge/evidence updates)
- Solutions will provide highly context-sensitive support for user needs with auto-population of resources in appropriate contexts, enhancing discovery and access
- An approval process will govern inclusion of knowledge assets in marketplaces for validated tools
 - Trusted experts, authorities, and processes have confirmed the accuracy of these factors

National LHS Future Vision

National LHS approaches will:

- Be guided by [LHS Core Values](#)
- **Harmonize policies and incentives** from payers, regulatory bodies and others to support an LHS virtuous cycle without silos/fragmentation of effort and information/tools/resources
- Be a **national healthcare priority** for policymakers, collaborative agencies and federal and foundational funders, and result in **achieving the Quadruple Aim**
- Prioritize inter- and intraorganizational **continuous learning and improvement as a workforce imperative**
- Facilitate **easy access to curated, actionable tools/resources/data for continuous learning and improvement** that are **adaptable/customizable, aligned with harmonized regulatory and professional expectations**, and **optimized for use when, where, and how they are needed** to support LHS work

5 Roadmap Goals to Achieve Future Vision



A Roadmap for Making the Cycle work to Achieve the Quadruple Aim

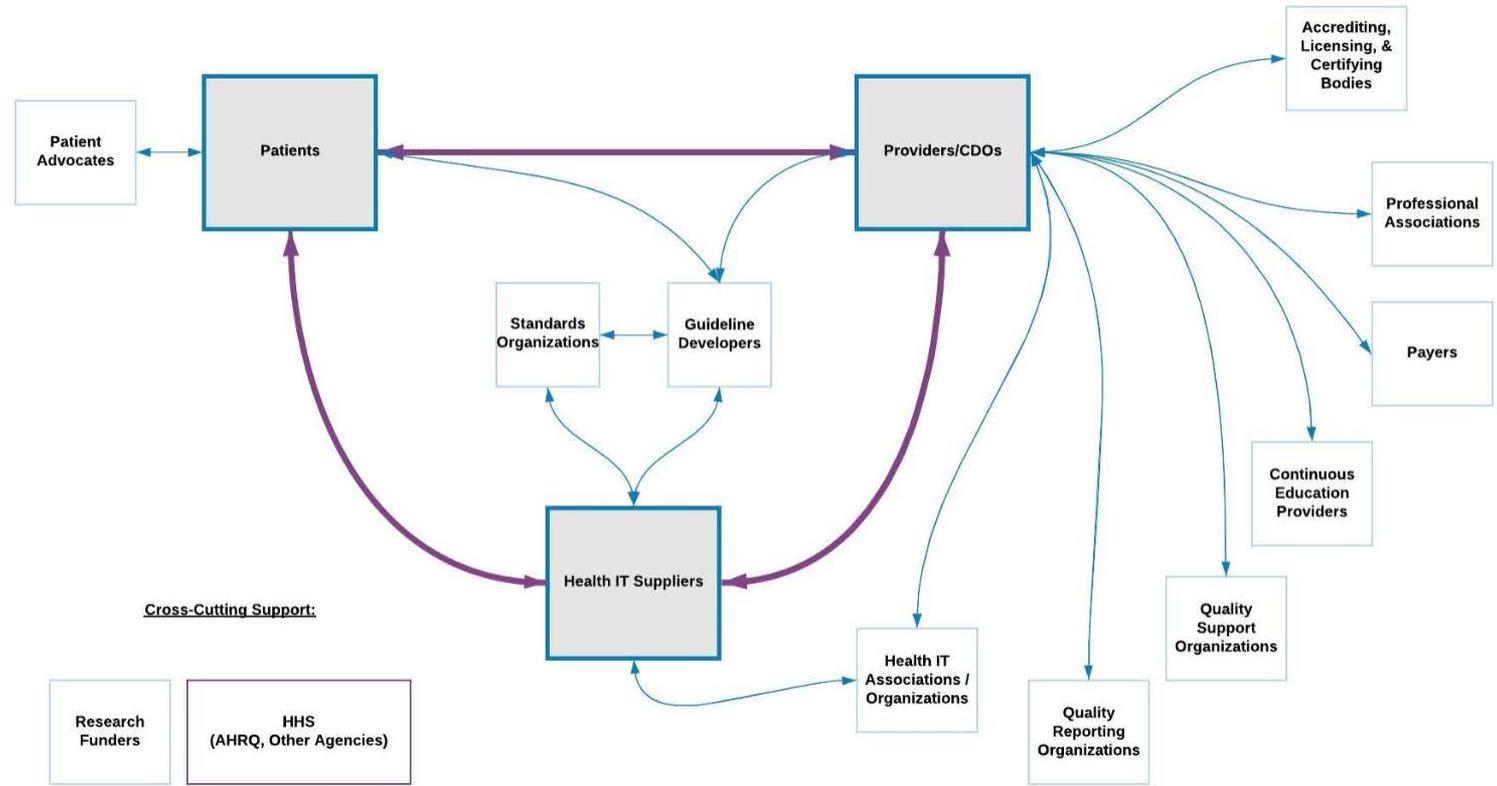
1. **Shared vision and collaborative approach** used to build the National LHS
2. **Portals and marketplaces** enable discovery, access and implementation for evidence-based LHS content
3. **Standards and interoperability infrastructure** support seamless information flow for the LHS cycle
4. **LHS tools, expertise and best practices** are part of routine training and care delivery for patients, clinicians, and systems
5. **Payments, incentives and policies** encourage LHS and drive care transformation toward quadruple aim

Roadmap Goals and Strategies/Objectives*

Goals	Strategies/Objectives
1. Shared vision and collaborative approach used to build the LHS	<ul style="list-style-type: none"> ● Build on ACTS and other efforts to catalog, enhance, and cross-fertilize initiatives working to define and realize a shared future LHS vision ● Establish public/private partnership to drive robust, collaborative efforts to execute Roadmap
2. Portals and marketplaces enable discovery, access and implementation for evidence-based LHS content	<ul style="list-style-type: none"> ● Build on ACTS Marketplaces WG and other efforts to define, leverage, test, and scale indexes, taxonomies, portals, APIs, marketplaces, repositories, sandboxes, trusted curation, etc. to create a “Knowledge Network” that makes content and resources from AHRQ and others FAIR
3. Standards and interoperability infrastructure support seamless information flow for the LHS cycle	<ul style="list-style-type: none"> ● Build on ACTS Standards WG landscape analysis to drive industry consensus and adoption around standards for content representation, interoperability, and consumption needed to achieve future vision
4. LHS tools, expertise and best practices are part of routine training and care delivery for clinicians and systems	<ul style="list-style-type: none"> ● Develop mechanism to share examples of future vision elements realized as models to accelerate best practice spread and refinement ● Build on current tools and initiatives to create Care Plan Generators and Care Transformation Support tools to make the right thing easy ● Expand and coordinate training to support broad LHS implementation
5. Payments, incentives, policies encourage LHS, drive care transformation to Quadruple Aim	<ul style="list-style-type: none"> ● Coordinate/accelerate efforts around LHS policies, incentives, contracts especially with regard to achieving the future vision and other roadmap elements ● Support research to quantify and enhance value from LHS efforts

*RFIs and pilots are key mechanisms for addressing the objectives.

Stakeholder Groups for Executing Roadmap



Sample Stakeholder Concerns and Actions*

Stakeholder	Critical Business Need/Concern	Actions to Address Needs (and Execute Roadmap)
AHRQ	Support care delivery (evidence, CDS)/QI; ROI on resources; FAIR; Quadruple Aim	Develop/demonstrate/pilot/scale: more computable content (e.g., care plan generator/transformation support toolkit); knowledge network/federal marketplace to make resources FAIR
HHS	ROI on taxpayers investments; value-based care, reduce health disparities; interoperability	Coordinate decision/action support; Expand Health IT certification / ONC standards; Comprehensive data dictionary; Lean training
CDOs	Accountability; Cost /outcomes; QI; Tool/data optimization; Patient/community wellness	LHS community; Data sharing activities; Align quality measures / clinical decision support
Guideline Developers	Evidence-informed, transparent guidance; Desired practice changes and outcomes	Engage user community in digital guideline development; Support development of tools that help users implement guideline recommendations; Address vulnerable populations
Health IT Suppliers	Patient-centered offerings; workflow, information flow; Desired outcomes	Technology capabilities; Usability; Content sharing; Interoperability and integration of multiple data streams and users
Standards Organizations	Participation of clinicians and implementers; development and maturation of standards	Ensure broad use cases, stakeholder participation, better engagement of regulatory agencies, and adequate resources
Quality Support Organizations	Improve care processes and outcomes	Provide tools / data streams; Employ evidence-based resources; Continuous learning

*this and next slide are placeholder only - undergoing revision to more clearly define win-win-win actions for each stakeholder group. Comments welcome

Sample Stakeholder Concerns and Actions, cont.

Stakeholder	Critical Business Need/Concern	Actions to Address Needs (and Execute Roadmap)
Payers	Better value	Accelerate transition to integrated value-based payment models that focus on desired outcomes and processes that support them (e.g., team-based care); Provide data streams to CDOs to facilitate QI
Research Funders	Greatest benefit knowledge	Target informatics; Encourage digital datasets; Computable, actionable knowledge dissemination; Nontraditional support mechanisms for research
Professional Associations	Professional needs/challenges	Support training, mentorship; build content; Develop and maintain standards-based, easily updatable guidelines
Patients & Advocates	Processes and tools; Pertinent data; EHR integration	Provide feedback to resource developers; Partner in care transformation efforts; Advocate for underrepresented populations
HIEs and Data Organizations	Real-time data	Utilize API; Provide quality metrics; Maintain data use agreements; Provide feedback on data quality and sharing barriers to CDOs
Quality Reporting Organizations	Gathering/reporting quality information	Coordinate and enhance reporting/use of quality measures across CMS, states, payers, specialty societies, quality support organizations
Accrediting, Licensing & Certifying Bodies	Set evidence-informed performance expectations	Collaborate with all stakeholders; Engage learning professionals

Roadmap Actions —AHRQ* (Model for Others)

- **Portals/Marketplaces/Knowledge Network to Improve Information Access**
 - Fund development/pilots to make AHRQ/HHS/other resources ‘FAIR’ (Federal/Free Marketplace)
 - Seed initiative to collaboratively develop Knowledge Network that includes support for vendor subscription services
- **Support for Routine Use of Best Tools/Resources/Practices**
 - Foster demos/pilots/scaling of Care Plan Generator and Care Transformation Support Toolkit
- **Standards/Infrastructure to Support Interoperability**
 - Support follow-on work to vet and implement consensus standards recs re: above items
- **Shared vision/Collaboration to Build LHS**
 - Leverage ACTS Roadmap-related stakeholder engagement to drive next steps outlined above
- **Payments/Incentives/Policies to Drive Transformation**
 - Support studies to define value from LHS efforts

Organizations Receiving This Roadmap

Participants in Roadmap development will present it to their organizations to trigger discussion/action on steps to achieve organization and Roadmap goals

Goal is to generate action toward broadly realizing the shared future vision as an immediate byproduct of Roadmap development and vetting

Organizations Receiving Roadmap Presentations

Federal Agencies (6)	Care Delivery Organizations (13)	Health IT Vendors (9)	Specialty Societies/Associations (3)	Other (10)
AHRQ	Hennepin Healthcare	EBSCO	ACEP	IPRO
NIH (NIDDK)	Rutgers/RWJBarnabas Health	IMO	AAFP	PCCDS Learning Network
CDC	University of Chicago	Microsoft	American Hospital Assn	HSPC
Veterans Health Admin	University of Connecticut	Cognitive Medical Systems		Health Information Alliance Inc - CT HIE Agency
ONC	UT Southwestern	Healthwise, Incorporated		Accreditation Council for Continuing Medical Education (ACCME)
NLM	Intermountain Healthcare	Apervita		OMG/BPM+ Health
	Ochsner Health System	Cerner		MCBK Steering Committee
	Northwestern Medicine	Wolters Kluwer		BlueCross Blue Shield CA
	City of Hope National Med Center	Epic		NCQA
	4 Virginia Ambulatory Care Outcomes Research Network (ACORN) practices: VCU Health System practices; Fairfax Family Practice Centers; Tidewater Physicians Group; Carilion Health System practices			Cochrane US Network

Q&A/Discussion and
potential next steps

Discussion

Next Steps

Discussion Questions

- To what extent is the Future Vision aligned with where we're trying to go? What additions/modifications would increase this alignment?
- Are we involved in any activities that could represent major steps toward addressing the Roadmap goals/strategies for broadly achieving the future vision? If so, how can these synergies be cultivated?
- Likewise, are there activities outlined in the Roadmap that could support our care transformation efforts? If so, which ones, and how might these synergies be cultivated?

Next Steps

- Who needs to make decisions; how do we proceed?
- What actions make most sense for our organization to pursue?
- What will it take to make these things happen?
- Synergies with others engaged in Roadmap execution?