



Flagstaff Medical Center
Northern Arizona Healthcare

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

Cover Sheet

Name of Organization (Lead Applicant): Flagstaff Medical Center

Person Completing the Application: Mark Carroll, MD, Director
Population Health Innovation
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Executive Sponsors: William Bradel
President/CEO
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Marilynn Black
Chief Information Officer
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1200 N. Beaver St.
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Date applying to ASET: 11/16/12

Total dollar amount requested: \$98,007

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

Grant Application

1. Project Description and Partner Relationship/Collaborative Structure

This project will plan and implement a regional Health Information Exchange (HIE) between the lead applicant, Flagstaff Medical Center (FMC), and the Indian health system in northern Arizona that refers patients to FMC. The effort addresses the Office of the National Coordinator (ONC) health information exchange priority of facilitating transitions of care by sharing patient care summaries across unaffiliated organizations.

The Indian health system of northern Arizona is a network of healthcare facilities comprised of 32 Indian Health Service (IHS) and Tribal hospitals and ambulatory centers, with a total of 468 inpatient beds. The project benefits patients from communities served by FMC and these Indian health facilities - many patients receive healthcare from multiple providers in the region. The overall project aim is to support inpatient care and transitional care (care of patients after hospitalization at FMC), promoting collaborative care for northern Arizona patients with medical conditions that often lead to higher rates of hospital readmission.

Project Outcome #1: Effective planning will address current health information functionality among project partners (including use of “Direct Project” exchange capabilities), IHS data warehouse development and plans for its use, and FMC’s existing membership in the Health Information Network of Arizona (HINAz). This work will set the stage for informed decisions and timelines on HIE implementation.

Project Outcome #2: Indian health system facilities will join HINAz, allowing secure sharing of, and access to, select patient information (e.g. continuity of care documents, discharge summaries) in a consistent structured format, available for care teams at all participating facilities. Such health information access, at the point of care, will improve patient safety, inpatient care, and transitions of care.

Funding by ASET and all partners for this joint planning/implementation project will support:

- a. Time and travel related to planning and implementation efforts
- b. Consulting fees for interface with IHS data warehouse
- c. Year-One fees for the Indian health system health sites to join HINAz
- d. Testing implementation training of the first two facilities (Chinle Comprehensive Health Care Center and the Hopi Health Care Center)
- e. Training and support for the remaining participating Indian health sites.

This work supports the Center for Medicare and Medicaid (CMS) Partnership for Patient initiative by making patient care safer through the effective, technology-informed care of patients in both the inpatient and care transition setting, and improving inpatient medication safety and medication reconciliation. Inclusion of the entire regional Indian health system allows design of an HIE roadmap in northern Arizona that will guide a high number of care transitions in the region and will optimize the effectiveness of FMC’s current enrollment in HINAz.

Unconnected Healthcare Providers Health Information Exchange Grant Program

Brief organizational descriptions and current use of health information exchange

Lead Applicant

Flagstaff Medical Center (FMC), located 75 miles south of Grand Canyon National Park in Northern Arizona, provides care to over 200,000 residents in Coconino, Navajo, and Apache counties. Founded in 1936, the 25-bed hospital was donated to the community of Flagstaff in 1955. Today, FMC is a 267-bed regional medical center with more than 14,000 annual in-patient visits, and 96,000 annual outpatient visits. Close to 200 physicians on the active medical staff provide care in 50 medical specialties. FMC's mission is: To provide exceptional care to patients while transforming the health of the communities we serve. FMC is located in Coconino County.

FMC's parent company is Northern Arizona Healthcare (NAH), a management corporation with several affiliate sites under its jurisdiction in northern and central Arizona. NAH contracted with HINAz in December 2012 to implement the Axolotl Virtual Health Record for hospital and employed practice use, critical for sharing information between care transitions and for case management needs.

FMC currently has a manual phone, fax and mail workflow to exchange clinical information to other healthcare providers. NAH is currently applying for the Direct Exchange Demonstration Project (Direct Project). Addresses received through the Direct Project will replace the current manual process. Use of HINAz will enable more robust information exchange and secure patient health information availability at the point-of-care. Optimal use of HIE depends on maximizing the number of local and regional facilities and providers utilizing HINAz.

Co-Applicant

The co-applicant on this project is the Indian Health Service (IHS) and Tribal facilities that comprise the Indian health system in Northern Arizona. Facilities in the Indian health system are grouped into the following IHS Service Units: Chinle, Crownpoint (NM), Fort Defiance, Gallup (NM), Kayenta, Sage Memorial, Shiprock (NM), Tuba City, Winslow, Keams Canyon, Colorado River, Whiteriver, and Phoenix. Some of these are located in New Mexico, however, there is no additional cost to include them since the Indian health system uses one central data warehouse and the system will join HINAz as a unit, allowing HIE functionality by all member facilities.

None of these facilities currently have HIE capability through the Direct Project or through HINAz. Exchange of clinical information to other healthcare providers, including FMC, is achieved through manual phone, fax, and/or mail workflow.

Geographic area and demographics of populations served

For the purposes of this application, the collective geographic area includes the four Arizona counties served by FMC and the Indian health system in northern Arizona, covering 53,085 square miles. With Arizona's total square miles at 113,634, this represents 46.7%, nearly half of the state (*2010 U.S. Census Fact Sheets*). This combined population is predominantly rural, Native American (members of the Navajo, Hopi, Hualapai, Havasupai, Kaibab-Paiute, and White Mountain Apache Tribes), and experiences health disparities based on geography, ethnicity, and economic status (Table 1).

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

Table 1: Population Demographics by County

County	Population Density (people/ sq mi)	Percent Native American	Percent Living Below Poverty Level
Apache	6.4	72.9	35.4
Coconino	7.2	27.3	18.0
Mohave	15.0	2.2	17.8
Navajo	10	43.4	27.4
<i>Arizona</i>	<i>56</i>	<i>4.6</i>	<i>16.5</i>
<i>United States</i>	<i>87</i>	<i>0.9</i>	<i>14.3</i>

(Source: 2010 U.S. Census Fact Sheets)

As Table 1 demonstrates, the vast rural geography of the service area, (average population density: 7.8, well below state and national averages), means patients often travel long distances to the nearest healthcare facility.¹ While many two-lane highways are paved, most access roads are not. Winter driving conditions can be dangerous due to poorly maintained surfaces and lack of plowing. Ethnicity also can be a barrier to receiving optimal healthcare. With the average percentage of Native Americans at 47.8%, well above the state average of 4.6% and national average of 0.9%, language and culture may negatively affect accurate and efficient availability of patient records and medical history, particularly when relying on the patient to provide information at registration. Finally, lack of financial resources is evident by the average percentage of those living below poverty level (26.9%), well above state and national averages.

An additional indication of population demographics relevant to the relationship between FMC and the Indian health system is the distance from system facilities to FMC and the annual volume of patients discharged from FMC to system communities. Distance becomes relevant when patients are unnecessarily readmitted to FMC. Travel to Flagstaff can be time/cost-prohibitive and family-members are separated with visitation compromised and possible loss of work and wages. Table 2 shows an average distance of 116 miles from representative system communities to FMC and an average of 494 discharges.

Table 2: Distance to/Discharges from FMC

Partner Site	One-Way Distance (miles) to FMC	# of Discharges from FMC to System Community
Chinle	160	365
Ft. Defiance	144	360
Hopi	100	364
Kayenta	158	350
Tuba City	75	540
Winslow	65	985

(Source: INTELLIMED Provider Profile System, Discharges to FMC from IHS Zip Codes CY11)

In CY2011, 29.53% of discharges from FMC were Native American, representing nearly one third of the total annual inpatient population (Source: INTELLIMED Market Share Profile

¹ This narrative table summary excludes Mohave County based on the fact that county-wide statistics are skewed by demographics for portions of the county outside the scope of this project.

Unconnected Healthcare Providers Health Information Exchange Grant Program

System, 10/17/12). In the context of volume on a national scale, FMC has a higher daily census of Native American patients than almost all Tribal/IHS-governed facilities in the nation. These data demonstrate this project will impact a high number of care transitions (~4,500) of a predominantly vulnerable population in northern Arizona, and between the applicant (FMC) and unaffiliated organizations (Indian health system).

Issue and business processes improved with HIE

The issue addressed is the inability of regional Indian health providers and FMC to view accurate and up-to-date clinical histories of patients receiving medical care at any of the sites in the region. The primary conduit for improving patient care is dissemination of relevant clinical information during hospitalization and at transitions of care. The current manual process lacks a defined procedure for information sharing, has increased risk of insecure transmission and confidentiality breach, is time-consuming, and lacks consistency in type and content of information transmitted. While HINAz provides a solution, patient summary information is only as robust as HIE participation of facilities in the region where patients receive care.

HIE will assist with improving these business processes by connecting the regional Indian health system facilities in northern Arizona to HINAz. Since FMC already is a HINAz member, and since there are ~4,500 inpatient care transitions per year from FMC for overall Native American patients in northern Arizona, this plan will significantly improve timely access to vital health information and quality data between and among health care partners in the region. Health information will be available at the point-of-care for all sites participating in HINAz. Examples of available health information will include: medication lists, medication allergies, up-to-date problem lists, and reports for patient testing.

Serving the needs of underserved and low income populations

Table 1 provides evidence this project will serve the needs of the underserved and low income populations. Percent living below poverty ranges from 17.8 to 35.4, all above state and national averages, and 2010 U.S. Census data verify this is a rural, minority population. HIE capability for the Indian health system sites, through joining HINAz, will provide the necessary link to maximize FMC's HIE participation and investment in HINAz.

Fiscal agent

Flagstaff Medical Center will serve as the fiscal agent for this project.

Project lead (CV Attached)

Lead: Mark Carroll, MD, FMC Medical Director, Population Health Innovation

Letters of support from senior leaders of co-applicant

The Indian health system is represented by IHS Phoenix and Navajo Area leadership. Support letters are included from: 1) Keith Longie, CIO, IHS Phoenix Area; 2) Michael Belgarde, CIO, IHS Navajo Area; 3) Ron Tso, CEO, Chinle Service Unit; 4) Frank Armao, CMO, Winslow Indian Health Care Center; 5) Joe Engelken, CEO, Tuba City Regional Health Care Corporation.

2. Project Work Plan

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

The main objective in this project is to implement HIE in northern Arizona by connecting sites in the Indian health system of northern Arizona to HINAz. To accomplish this, FMC will lead the overall planning effort, and will guide negotiations with HINAz and the selected HIE vendor, Optum, Inc., to ensure the Indian health system has successfully joined HINAz by June 30. This includes implementing complete expenditure of all awarded funds by that date. A Go-Live test of HIE functionality at the first two facilities, Chinle and Hopi, will occur at the end of this six-month grant term and the project will then enter the next phase of seeing through HIE functionality at all the Indian health system individual facilities. A timeline and project plan for site participation will be completed by the end of the grant period.

Milestones and expectations

The overall goal of this project is to support quality inpatient care and transitional care (care of patients after hospitalization at FMC), promoting collaborative care for patients with medical conditions that often lead to higher rates of hospital readmission. The main avenue to achieve this is regional participation in HINAz. In addition, processes will be identified and defined to assist clinical care teams in optimum use of the timely and accurate patient information available through HINAz. Expectations include the achievement of the following specific outcomes:

Project Outcome #1: Effective planning will address current health information functionality among project partners (including use of “Direct Project” exchange capabilities), IHS data warehouse development and plans for its use, and FMC’s existing membership in the Health Information Network of Arizona (HINAz). This work will set the stage for informed decisions and timelines on HIE implementation.

Project Outcome #2: Indian health system facilities will join HINAz, allowing secure sharing of and access to select patient information (e.g. continuity of care documents, discharge summaries) in a consistent structured format, available for care teams at all participating facilities. Such health information access, at the point of care, will improve patient safety, inpatient care, and transitions of care.

Milestones in the achievement of these outcomes include: 1) Drafting a comprehensive plan addressing all logistics, strategies, restrictions, timelines, impacts, etc. involved in bringing the Indian health system onto HINAz; 2) Completing all necessary steps to register the Indian health system with HINAz and to pay Year One Fees to Optum; 3) Engage in six weeks of intensive training of Indian health system IT staff by FMC HIE Architect and IT staff on use and functionality of Axolotl Virtual Health Record, with focus on two primary sites (Chinle and Hopi); 4) Engage national and state IHS personnel to develop data-sharing agreement; 5) Consult with Alert® Life Sciences Computing for Tuba City interface; 6) Ensure implementation is activated and conduct functional use test prior to grant completion date of June 30, 2013.

Time –specific objectives

Outcome	Task	Responsible Party	Projected Completion Date	As Measured By
Award notification	From ASET	N/A	12/31/12	N/A
HIE orientation	N/A	N/A	01/15/13	N/A

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

Implementation plan drafted	Weekly meetings	IT staff	02/28/13	<i>Written plan summarizing HIE challenges, solutions*</i>
Grantee meeting	Mid-grant report	Mark Carroll	04/30/13	Report submitted – including summary of new strategic partnerships
Indian health system joins HINAz	<i>Optum/HINAz contracts signed</i>	FMC/Indian health system CEOs	05/01/13	Optum invoice paid
Indian health system poised for implementation	On-site training in Chinle and at Hopi on Axolotl use and functionality	IT staff from FMC/Indian health system	06/15/13	Grant-funded travel/training completed at two primary test facilities
Go-live	HIE implementation	All	06/20/13	<i>Functional use test of exchanging data</i>
Grant program ends	Final report	Mark Carroll	06/30/13	All funds spent

**Italics indicate satisfaction of planning and implementation Final Deliverables minimum requirements listed in section F on pp 10-11 of Program Guidance.*

Secondary project activities will continue beyond June 30 as continued training and functionality efforts are needed at each facility within the Indian health system network. However, having the Indian health system join HINAz as one unit means the requirement to expend all funds and to satisfy the planning and implementation objectives will be met by June 30.

Communications plan

The project communication plan includes use of an email ListServ to enable all participants to view project statuses and milestones, to stay informed of goals and progress, and to be reminded of tasks requiring their engagement. The AtTask application will be the primary project management software to send alerts and reminders to stakeholders.

Staff training, evaluation, system operation, maintenance, and technical support resources

Staff training will include travel by FMC HIE Architect, Steve Lewis, to the Phoenix and Navajo Area IHS administrative headquarters in Phoenix and Window Rock respectively, to work centrally with IT staff on global Indian health system implementation tasks. Additionally, Lewis will travel to regional Indian health system sites, with special focus on the IHS Chinle and Hopi Service Units to train staff and bring the initial two sites onto the HIE. Continuous evaluation will be conducted by Project Lead, Dr. Mark Carroll, through onsite visits and communication with Indian health system site leadership. System operation and maintenance will be addressed by comprehensive IT staff at FMC, centrally at the IHS headquarters, and at each facility. Technical support resources will provide in-kind on an on-going basis by the IT staff at FMC.

Primary project team members

Flagstaff Medical Center

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

- Marilyn Black, CIO
Role: Global Project Oversight
- Mark Carroll, MD, Medical Director, Population Health Innovation
Role: Project Management, Planning Leader
- Steve O. Lewis, Senior HIE Architect
Role: Planning Participant, Implementation Training

IHS Phoenix Area

Keith Longie, CIO

Role: Represent Phoenix Area in all project efforts; Interface with Tribally-governed programs.

IHS Navajo Area

Michael Belgarde, CIO

Role: Represent Navajo Area in all project efforts; Interface with Tribally-governed programs.

In-kind internal and external technical support

As lead applicant, FMC will contribute in-kind technical support valued at \$42,000 through the efforts of its HIE Architect, Steve Lewis.

As co-applicants, Phoenix Area IHS will contribute in-kind staff/travel support valued at \$55,000 and Navajo Area IHS will contribute in-kind staff/travel support valued at \$40,500. Tuba City has indicated an additional facility-level in-kind contribution in staff time valued at \$100,000. None of this support is counted in the required match.

3. Line Item Budget

Item	Cost	Request to ASET	Cash from FMC	Inkind from FMC
Salary and Fringe	\$42,000	\$0	\$0	\$42,000
Travel/Lodging	\$11,077	\$6,007	\$5,070	\$0
HINAz Participation Fees	\$86,000	\$86,000	\$0	\$0
Equipment/Supplies	\$2,000	\$0	\$2,000	\$0
Consultants	\$6,000	\$6,000	\$0	\$0
	Totals:	\$98,007	\$7,070	\$42,000

4. Budget Narrative

Request to ASET: \$98,007

Year 1 HINAz participation fees: \$86,000

Year one fees quoted by HINAz at \$86,000 for connection to IHS central data warehouse. This rate includes: One-time interface fee and set up fee to Optum of \$32,000; Quarterly (\$6,000 x 4) technology infrastructure fee to Optum of \$24,000; Quarterly (\$7,500 x 4) operations fee to HINAz of \$30,000. *Source: Kalyanraman Bharathan, HINAz, 11/16/12.*

**Unconnected Healthcare Providers
Health Information Exchange Grant Program**

Travel: \$6,007

Out-of state travel: IHS representatives traveling from Washington DC to Arizona to meet with Navajo/Phoenix-Area IHS to develop and finalize data-sharing agreement for IHS federal sites in northern Arizona. Cost covers 2 individual, 2 trips, at \$600/RT ticket for \$2,400, plus 2 nights lodging in Phoenix at \$141/night/person/trip for \$1,128, plus per diem meals at \$54/day for two days/person/trip for \$432. In-state travel includes 2,175 miles at 44.5 cents/mile for travel between Phoenix, Window Rock, all northern Arizona sites, by IHS personnel (and not covered by in-kind contributions), for \$967, plus 20 per diem meals at \$54/day for \$1,080. *All costs in this section per State of Arizona Travel Policy, Section II-D-V-I.*

Consultants: \$6,000

Comprised of one external consultant at \$6,000: Alert[®] Life Sciences Computing. Calculated at \$428.58/day for 15 days of consulting to Tuba City on custom interface needed to connect Tuba City to the IHS data warehouse. Alert was selected because it is the electronic health record vendor currently being used by Tuba City.

In-kind match contributed by lead applicant (FMC): \$42,000

Salary and Fringe: \$42,000: FMC HIE Architect (Steve Lewis), 27% of time on project. Activities include intensive involvement in project planning, training partner IT staff on HIE functionality and interface with HINAz, and development of clinical flows/processes. Project Lead (Mark Carroll) will contribute additional staff time on project management. This time and value has not been quantified, but will consist of the level needed to ensure project success.

Cash match contributed by lead applicant (FMC): \$7,070

Travel: \$5,070: Projected at \$2,220 for travel between Flagstaff and Phoenix and between Flagstaff and Window Rock for planning and training of central partner IT staff. Travel also occurs between Flagstaff and the two initial service units: Chinle and Hopi. FMC has a \$37/day (unlimited miles) contract with Enterprise Car Rentals. The \$2,220 projection reflects 60 one-day care rentals at \$37/day. Lodging at 30 nights at a rate of \$95/night for a total of \$2,850.

Equipment/Supplies: \$2,000: Portable projector and screen estimated at \$1,000, used during HIE training sessions in Phoenix, Window Rock and at Indian health system facilities. Supplies projected at \$1,000 and include flip/whiteboards, markers, other office supplies used during HIE training sessions in Phoenix, Window Rock and at Indian health system facilities.

Amount contributed by FMC toward required match: \$49,070

FMC in-kind match of \$42,000 + FMC cash match of \$7,070 = FMC Total Match of \$49,070. This exceeds 50% of the request to ASET, which = \$49,003.50 (50% of \$98,007).

Additional in-kind match from partners (not counted toward requirement): \$96,000

IHS Phoenix Area: \$55,500 and IHS Navajo Area: \$40,500 for a total of \$96,000.

5. **Letters of Support from Collaborators:** Five letters Attached.



Flagstaff Medical Center
Northern Arizona Healthcare

1200 North Beaver Street
Flagstaff, Arizona 86001
928-779-3366
www.nahealth.com

November 14, 2012

Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

Re: Lead Applicant CEO/CIO Letter of Support

Dear Funding Committee Members:

This letter supports the application submitted to ASET by Flagstaff Medical Center (FMC). This application requests funds to improve regional health quality and care coordination through the secure electronic exchange of health information (HIE) among FMC and several Indian Health Service and Tribal healthcare facilities in Northern Arizona.

Since 1936, FMC, a member of Northern Arizona Healthcare, has provided high quality healthcare services to the residents of and visitors to Northern Arizona. We are dedicated to patient-centered care with a personal touch. FMC is accredited by DNV Healthcare and is licensed by the State of Arizona.

HIE plays a critical role in FMC's mission to transform the health of our communities. Nearly a third of our patient population consists of Native Americans residing in communities across several counties in Northern Arizona. This results in daily collaboration with a variety of IHS and Tribally-operated medical homes in the region.

In support of this collaboration, and to assist our commitment to our patients and our regional partners, we have created a new position at FMC dedicated to Population Health Innovation. Dr. Carroll's role as Medical Director for this initiative, combined with his twenty of service to the IHS and Native American health in Northern Arizona, make him the ideal candidate to lead this project.

Thank you for your consideration of this proposal and please feel free to contact either of us anytime with questions or concerns.

Sincerely,

William T. Bradel, FACHE
President/Chief Executive Officer

Marilynn Black
Chief Information Officer



Chinle Service Unit
Navajo Area Indian Health Service
P.O. Box PH
Chinle, Arizona 86503
928-674-7011

October 12, 2012

Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

Re: Letter of Support

Dear Funding Committee Members:

This letter supports the application submitted to ASET by Flagstaff Medical Center, connecting several healthcare agencies in Northern Arizona through the secure electronic exchange of health information (HIE) to improve quality and coordination of care.

Chinle Service Unit, Navajo Area Indian Health Service, provides comprehensive health care services to almost 35,000 people in the central region of the Navajo Nation in northeastern Arizona. The organization has a 60 bed hospital and ambulatory care center in Chinle, Arizona, and ambulatory health centers in Pinon and Tsaile, Arizona. Although Chinle Service Unit is the only health care services provider in the central region of the Navajo Nation, our patients are often admitted to Flagstaff Medical Center (FMC) and other regional hospitals.

To assure a successful collaboration, we are committed to participating in HIE planning discussions. Additionally, we will provide needed infrastructure and local expertise for HIE implementation, including members of our Information Technology staff, and those directly involved with discharges and care transitions.

We understand that grant funding will only support identified costs in the budget in the first year. This letter verifies that we will assume responsibility for all costs thereafter relative to our continued participation in the HIE through the Health Information Network of Arizona (HINAz).

Secure exchange of health information between Chinle and FMC, as well as with other health care organizations in the region, would support our efforts to improve quality and coordination of patient care during hospitalization and after hospital discharge.

We appreciate this opportunity. Please feel free to contact me anytime with questions at 928-674-7011.

Sincerely,

Ron Tso, MPH
Chief Executive Officer
Chinle Service Unit



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Navajo Area Office
Indian Health Service
P.O. Box 9020
Window Rock, AZ 86515

To: Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

From: CDR Michael J. Belgarde
Chief Information Officer (CIO)
Navajo Area Indian Health Service

Date: November 15, 2012

Re: Letter of Support

I am pleased to provide this letter of support for the Flagstaff Medical Center (FMC) Unconnected Healthcare Providers Grant Program application submitted to ASET. We believe that connecting the community of healthcare agencies in Northern Arizona through the secure electronic exchange of health information (HIE) will improve the quality and coordination of care.

As a regional provider of primary health care, the Navajo Area Indian Health Service, a federal agency of the Department of Health and Human Services, operates the Chinle Comprehensive Healthcare Facility and Kayenta Health Care Center utilizing the Flagstaff Medical Center extensively for advanced testing and secondary care of our patients.

As a project collaborator and federal partner, we will provide the necessary staffing at our organization to participate in HIE planning discussions. Additionally, we will provide needed infrastructure and local expertise for HIE implementation, including members of our Information Technology staff, and those directly involved with discharges and care transitions.

Position	Rate	Hours	Total Contribution
Senior Manager	\$100	70	\$7,000
Project Manager	\$75	100	\$7,500
Project Coordinator	\$65	200	\$13,000
Site Manager	\$65	100	\$6,500
Facility Coordinator	\$60	75	\$4,500
Travel			\$2,000
Total	\$365	545	\$40,500

Recognizing that grant funding only will support identified costs in the budget in the first year, this letter verifies we will assume responsibility for all costs thereafter relative to our continued participation in the HIE through the Health Information Network of Arizona (HINAz).

The success of the health information exchange project will provide continuity of patient care which is essential in meeting our patient care goals. In addition to contributing to improved patient care this would also reduce costs through elimination of duplicate tests and over-prescription of drugs.

Thank you for your consideration of this proposal and please feel free to contact me anytime with questions. My contact information is CDR Michael J. Belgarde, Michael.belgarde@ihs.gov, 928-871-1416.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael J. Belgarde". The signature is written in a cursive style with a large, sweeping flourish at the end.

CDR Michael J. Belgarde
Navajo Area Indian Health Services (NAIHS)



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Phoenix Area Indian Health Service
Two Renaissance Square
40 North Central Avenue
Phoenix, Arizona 85004

November 5, 2012

Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

Re: Letter of Support

Dear Funding Committee Members:

I am pleased to provide this letter of support for the Flagstaff Medical Center (FMC) Unconnected Healthcare Providers Grant Program application submitted to ASET. We believe that connecting the community of healthcare agencies in Northern Arizona through the secure electronic exchange of health information (HIE) will improve the quality and coordination of care.

As a regional provider of primary health care, the Phoenix Area Indian Health Service, a federal agency of the Department of Health and Human Services, operates the Hopi Health Care Center and the Peach Springs Health Clinic and utilizes the Flagstaff Medical Center extensively for advanced testing and secondary care of our patients. We understand that the Navajo Area federally operated hospitals and clinics, as well as the tribally operated health care facilities, also are significant users of FMC.

As a project collaborator and federal partner, we will provide the necessary staffing at our organization to participate in HIE planning discussions. Additionally, we will provide needed infrastructure and local expertise for HIE implementation, including members of our Information Technology staff, and those directly involved with discharges and care transitions.

Federal In-Kind Contribution:

Position	Rate	Hours	Total Contribution
Senior Manager	\$ 100	70	\$ 7,000
Project Manager	\$ 75	100	\$ 7,500
Software Engineer	\$ 75	200	\$ 15,000
Project Coordinator	\$ 65	200	\$ 13,000
Site Manager	\$ 65	100	\$ 6,500
Facility Coordinator	\$ 60	75	\$ 4,500
Travel			\$ 2,000
Total	\$ 440	745	\$ 55,500

Recognizing that grant funding only will support identified costs in the budget in the first year, this letter verifies we will assume responsibility for all costs thereafter relative to our continued participation in the HIE through the Health Information Network of Arizona (HINAZ).

The success of the health information exchange project will provide continuity of patient care which is essential in meeting our patient care goals. In addition to contributing to improved patient care this would also reduce costs through elimination of duplicate tests and over-prescription of drugs.

Thank you for your consideration of this proposal and please feel free to contact me anytime with questions. My contact information is Keith Longie, keith.longie@ihs.gov, 602-364-5080.

Sincerely,

A handwritten signature in black ink, appearing to read 'Keith Longie', with a large, stylized flourish at the end.

Keith Longie
Chief Information Officer



TUBA CITY REGIONAL HEALTH CARE CORPORATION

167 North Main Street, P.O. Box 600
Tuba City, Arizona 86045-0600
(928) 283.2501

Date: November 16, 2012

Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

Re: Letter of Support

Dear Funding Committee Members:

This letter supports the application submitted to ASET by Flagstaff Medical Center, connecting several healthcare agencies in Northern Arizona through the secure electronic exchange of health information (HIE) to improve quality and coordination of care.

Tuba City Regional Health Care Corporation is Regional Health Care Corporation (TCRHCC) located in Tuba City, AZ on the Navajo Reservation. TCRHCC is a not for profit 638 Tribal Organization serving Navajo, Hopi and Southern San Juan Paiute Native Americans as a Title V contracted entity with the Indian Health Service.

We provide both inpatient and outpatient Primary Care and selected Specialized Care which includes Orthopedics, ENT, and Advanced Podiatry which includes Limb Salvage and Wound Care, General Surgery, Pediatric Dentistry, Oral Surgery, Ophthalmology and Optometry and Women's Health. Our diagnostic services include Diagnostic Radiology including CT, MRI, Ultrasound, Echocardiography and Nuclear Medicine Stress Testing services.

In addition, we are a Level 4 (American College of Surgeons) Trauma Center and are presently applying for a Level 3 designation.

Our patients suffer from a disproportionate prevalence of Diabetes along with its attendant cardiovascular, ophthalmologic, peripheral vascular and renal complications.

As a project collaborator, we will provide the necessary staffing at our organization to participate in HIE planning discussions. Additionally, we will provide needed infrastructure and local expertise for HIE implementation, including members of our Information Technology staff, and those directly involved with discharges and care transitions.

Our present IT Staff along with our Chief Medical Information Officer will be able to provide in kind services valued at \$100,000

Recognizing that grant funding only will support identified costs in the budget in the first year, this letter verifies we will assume responsibility for all costs thereafter relative to our continued participation in the HIE through the Health Information Network of Arizona (HINAz).

Because we need to refer patients for tertiary services both emergency and non-emergency care especially those provided by Flag Staff Medical Center and our need for specialized services in the greater Phoenix area often for Pediatrics, Transplant and Level 1 Trauma Services and including the Maricopa Burn Center we often refer patients to these healthcare facilities. It is requisite upon us to provide their ongoing record of medical care. In addition, the patients return to the reservation for follow-up care and on-going services we provide we also need access to pertinent medical information.

As a Regional Center on the reservation we also receive referrals from other 638 Tribal Facilities and IHS Facilities with the same needs.

Finally, our patients often seek or need care off reservation dependent on their circumstances. This often means both the treating organization and TCRHCC in follow up need access to their record of care so as to coordinate activities and to avoid duplication of services.

Thank you for your consideration of this proposal and please feel free to contact me anytime with questions.

Joseph Engelken, MPA
Chief Executive Officer
E-Mail
Joseph.Engelken@TCHEALTH.ORG

Alan B. Spacone, MD, MBA
Chief Medical Officer
E-Mail
Alan.Spacone@TCHEALTH.ORG

Address: 167 N. Main St.
P.O. Box 600
Tuba City, AZ 86045

Phone: 928-283-2507

Sincerely,



Joseph Engelken, MPA
Chief Executive Officer

Sincerely,



Alan B. Spacone, MD, MBA
Chief Medical Officer



Winslow Indian Health
Care Center



500 North Indiana Avenue
Winslow, Arizona 86047

11/15/12

Arizona Strategic Enterprise Technology (ASET)
Unconnected Healthcare Providers Grant Program
Health Information Exchange

Re: Letter of Support

Dear Funding Committee Members:

The Winslow Indian Health Care Center (WIHCC) supports the application submitted to ASET by Flagstaff Medical Center. The purpose of this project is to connect several Indian Health Service and Tribal healthcare organizations in Northern Arizona through the secure electronic exchange of health information (HIE) to improve quality and coordination of care.

WIHCC is an ambulatory facility in Winslow, AZ, providing primary care and specialty services to a population of approximately 16,000 Native Americans living primarily in Navajo and Coconino counties. We have our main facility in Winslow, but also operate two field clinics on the Navajo Reservation, serving more remote communities there. We maintain close organizational ties and referral relationships with Flagstaff Medical Center, as well as with the other IHS facilities involved in the project.

As a collaborator in this project, our in-kind contributions will consist of devoting the necessary staff time at our facility to participate in HIE planning discussions. Additionally, we will provide needed infrastructure and local expertise for HIE implementation, including members of our Information Technology staff, and those directly involved with discharge planning and care coordination.

We acknowledge that grant funding will only support identified costs in the budget in the first year, and that WIHCC will assume responsibility for all costs thereafter relative to our continued participation in the HIE through the Health Information Network of Arizona (HINAZ).

WIHCC is enthusiastic about the prospects for improving patient care through this coordinated effort. Currently our health information sharing is limited to using the Direct system of secure file transfer. Participation in this grant application will hopefully provide necessary funds to further regional progress in HIE across multiple health care networks. HIE with Flagstaff Medical Center and the other Indian Health facilities is an important link to enhancing patient care.

Thank you for your consideration of this proposal and please feel free to contact either me or our Clinical Applications Coordinator, Peter Vermilyea with any questions. Our email addresses are: frank.armao@wihcc.org; and peter.vermilyea@wihcc.org.

Sincerely,

Frank Armao, MD
Chief Medical Officer, WIHCC

CURRICULUM VITAE

Mark FB Carroll, MD



Personal Information

Born in Philadelphia, 1959
Married for 21 years, with two wonderful daughters
Enjoy writing, music, and the outdoors
Committed to creative change in health care delivery

Education

The Stanford University Film and Video Production Program	1989-1990
Dartmouth Medical School	1981-1985
Dartmouth College	1977-1981

Professional Training

Fellowship: The Robert Wood Johnson Clinical Scholars Program, Stanford University School of Medicine	1989-1992
Pediatrics Internship and Residency: The Children's Hospital of Philadelphia	1986-1989
General Surgery Internship: The Presbyterian-University of Pennsylvania Medical Center	1985-1986

Professional Appointments and Experience

Medical Director, Population Health Innovation: Flagstaff Medical Center	2012-pres
National Coordinator and Clinical Consultant: Indian Health Service (IHS) Telehealth Services	2004-2012
Director: Native American Cardiology Program	2007-2012
Pediatrician (part-time): Hopi Health Care Center	2009-pres
Director, Telehealth Initiative: Phoenix Area Indian Health Service	2008-2010
Clinical Informatics Consultant: Navajo Area Indian Health Service	2004-2005
Chief Medical Officer: Tuba City Regional Health Care Corporation	2003-2004
Chief Information Officer, Tuba City Indian Medical Center, Navajo Area Indian Health Service	2001-2003
Telemedicine Chief Clinical Consultant, Navajo Area Indian Health Service	2001-2004
Director, Telehealth Services, Tuba City Indian Medical Center	1999-2004
Director, Adolescent Health Program, Tuba City Indian Medical Center	1998-2001

Physician, Dinnebito Field Clinic, Tuba City Indian Medical Center Family physician and clinic administrative duties	1994-2001
Pediatrician, Mountain View Pediatrics: Private practice in Flagstaff, Arizona	1997-1998
Pediatrician, Children's Health Center: Northern Arizona Children's Rehabilitative Services	1998-2000
Preventive Medicine Officer: Tuba City Indian Medical Center, Navajo Area IHS, Indian Health Service (IHS)	1992-1997
Clinical Instructor in Pediatrics, Staff Physician: Stanford University School of Medicine, Pediatric Critical Care Transport Service; Lucile Salter Packard Children's Hospital at Stanford	1991-1992
Additional Clinical Experience: The Santa Clara Kaiser-Permanente Medical Center; Neonatal ICU Physician	1989-1992
Altos Pediatrics; Los Altos, CA.; Private Practice Pediatrician	1989-1991
Medical Staff, Department of Emergency Services, The Children's Hospital of Oakland	1991
Instructor, the University of Pennsylvania School of Medicine	1986-1989

Special Projects and Activities

Telehealth Centers of Excellence: Project development for multiple regional and national Indian health centers of telehealth consultation/service delivery	2004-pres
IHS National Clinical Rounds: Coordinator of national CE series on innovation and health care quality in Indian health care delivery	2011-pres
Collaborative Project Development, "Care Beyond Walls and Wires"; an mHealth initiative for improved heart failure management of patients in northern AZ, led by Flagstaff Medical Center	2010-pres
Improving Blood Pressure Control for Patients with Diabetes: an mHealth initiative with the IHS Improving Patient Care Program	2010-pres
National Templated Agreements for Telehealth Credentialing and Privileging: Developed with the Office of General Counsel	2011
Board of Directors, American Telemedicine Association	2007-2011
Successful Collaborations in northern AZ for Supplemental Grant Funding: USDA Rural Utilities Service, Mtn States Genetics Regional Collaborative Center	2011
Northern Arizona Quality Healthcare Collaborative: Steering Committee member during formative phase of Clinical Integration	2011-2012
An Indian Health Telehealth Services Network: Extensive development of proposal for national network supporting access to quality care using telehealth innovation	2010
Business Case for Medicaid reimbursement: National workgroup surveying existing telehealth reimbursement policy and identifying business models for Medicaid reimbursement of telehealth services	2009-2010

Center for Telehealth Services, IHS Phoenix Area: Planning and development	2009-2010
Innovation Learning Network: "Weaver" and representative for the Indian Health Service	2008-pres
Southwest Telehealth Access Grid: Co-Chair, Clinical Services Committee	2008-2009
Coordinator, the IHS VistA Imaging Project: For planning and implementation of the Veteran's Administration VistA Imaging platform within the Indian health system	2005-2008
The IHS Southwest Telehealth Consortium: Facilitation for development and support of a regional consortium of IHS Areas collaborating on telehealth service delivery projects	2004-2010
Telehealth Care, Electronic Health Record and VistA Imaging in the IHS: Assistance with planning and implementation of integrated information technology system platform	2004-pres
Indian Health Telehealth Directory: Resource listing of current and developing telehealth projects and activities within IHS and Tribal programs/facilities	2004-2005
Telehealth Care to the Community: Outreach project to local communities on the western Navajo Reservation via telemedicine technologies	2000-2004
The Navajo Area IHS Telehealth Network: Assisted with design and deployment of broadband, redundant network for teleradiology and other telehealth activities for all Navajo Area IHS	2000-2002
Co-Coordinator; The Tuba City High School "Teen Wellness Series": Experiential-based curriculum for health class, developed in collaboration with health promotion staff and Project Adventure	1999-2001
Co-Founder, Founding Coordinator: "The Tuba City-Moencopi Family Wellness Center": A community-based non-profit effort at collaborative project planning and implementation for family wellness	1994-1997
Co-Founder, Founding Director; <i>M.O.V.E. for Children!</i> (<i>Mobile Outreach Vaccinations for East Palo Alto Children</i>): Collaborative outreach program integrating university, public health department, and community resources for improved health care delivery underserved children/families in northern California	1990-1992
Director, Co-Founder, "C.H.O.P. VHS": The Children's Hospital of Philadelphia Video Health Service: Weekly video segments produced for Grand Rounds and other settings	1988-1989

Publications and Presentations

Hundreds of presentations within Indian health to IHS leadership/program/medical/IT groups and Tribal health boards/community groups regarding telehealth innovation, information technology, and health care quality. Additional facilitation of & assistance with planning, meeting moderation, and program facilitation for national meetings.

Examples of presentations and publications include:

"A Difficult Crossing: The Diffusion of Telehealth Innovation":

- Institute of Medicine Workshop on the Role of Telehealth in an Evolving Health Care Environment*; Washington, DC Aug, 2012
- "Telehealth and Indian Health Care: Moving to Scale and Sustainability":
Invited presentation at University of Michigan Symposium on *Sustaining and Realizing the Promise of Telemedicine*; Ann Arbor, MI May, 2012
- Invited paper for special edition of *Telemedicine and eHealth* journal, in press
- "When Do I Get to See the Provider: VA and IHS Expansion of Behavioral Health Care for Native American Communities":
Moderator, Discussion Panel selected for the *16th Annual Meeting and Exposition, American Telemedicine Association*; with JShore, PStuart, CFore; San Jose, CA May, 2012
- Senate Committee on Indian Affairs hearing:
"Internet Infrastructure in Native Communities: Equal Access to E-Commerce, Jobs, and the Global Marketplace"; Lead author of IHS testimony on innovation in health care and its effect on community health and economic development Oct, 2011
- "Telehealth/mHealth: Innovations in Improving Access to Care"
IHS National Combined Council Meeting; with MHerne, MHorton, LIgnace July, 2011
- "Telehealth and Emerging Systems of Care":
Panelist, *IHS National Medical Providers' Best Practices and GPRM Measures Conference*; Sacramento, CA May, 2011
- "Innovation in Indian Healthcare: Using Health Information Technology to Achieve Health Equity for American Indian and Alaska Native Populations";
Carroll et al. *Perspectives in Health Information Management*; Winter, 2011 Feb, 2011
- "New Frontiers in Telehealth: Mobile Applications in the Healthcare Continuum":
Institute for Health Technology Transformation Summit; Phoenix, AZ Jan, 2011
- "An Update on Telehealth Reimbursement Policy":
National IHS Chief Medical Officer Rounds; with MHorton Jan, 2011
- "mHealth and Patient-Centered Care: Perspectives from U.S. Indian Health Care":
Presentation of poster selected for the national mHealth Summit; Wash, DC Nov, 2010
- "An Update on Telehealth Innovation in Indian Health Care":
Reducing Barriers to Mobile Technology Usage in Behavioral and Social Science Research; National Institutes of Health mHealth workshop; Bethesda, MD Jun, 2010
- "Telemedicine: Assessing the Promise, Exploring the Future":
Invited Panelist for *The Institute of Federal Health Care Roundtable*; Wash, DC May, 2010
- "Culture and Value in Health Service Innovation: A Decade of Experience with Telehealth in Indian Health Care":
Moderator, Presentation Panel selected for the *15th Annual Meeting and Exposition, American Telemedicine Association*; with SFerguson, PStuart, JShore; Tampa, FL May, 2010
- "Medicaid Programs and Telemedicine Reimbursement: A 50 State Review of Policy, Plans, and Economic Use Cases":
Moderator, Presentation Panel selected for the *15th Annual Meeting and Exposition, American Telemedicine Association*; with KRheuban, BBritton, GCapistrant; May, 2010
- "Practical Uses of Telehealth Tools in Primary Care:"
Advances in Indian Health National Conference; Albuq, NM Apr, 2010
- "Innovation Networks for Improving Access and Quality Across the Healthcare Ecosystem":
Carroll MF, James JA, Lardiere MR, Proser M, Rhee K, Sayre MH, and Shore JH;
Telemedicine and eHealth, January/February 2010, 16(1): 107-111 Feb, 2010

- "Remote Patient Monitoring and Next Gen Telemedicine":
Panelist; *Institute for Health Technology Transformation*, 2010 Winter Health Information Technology Summit; Phoenix AZ Feb, 2010
- "Telehealth Service in Indian Health Care":
Special Panel on Telemedicine and Health Disparities:
Office of Minority Health; Washington DC Feb, 2010
- "Nicholas Christakis' *Connected* and its Implications for Patient Self-Management And Online Communities: Reaction and Comment by a Blue-Ribbon Respondents Panel":
Panelist, *Partners Healthcare 6th Annual Connected Health Symposium - "Up From Crisis: Overhauling Healthcare Information, Payment, and Delivery in Extraordinary Times"*; Boston, MA Oct, 2009
- "New Tools for Health Care: The Case for Telehealth":
Healthcare Information and Management Systems Society, AZ Chapter Oct, 2009
- "Innovation through Telehealth: Opportunities for Pediatric Specialty Care":
Grand Rounds, Phoenix Children's Hospital Oct, 2009
- "Telehealth: Moving Innovation from Possible to Practical":
Skill Building Workshop at the 2009 national *Indian Health Summit* July, 2009
- "Innovation Networks for Improving Access and Quality Across the Health Care Ecosystem: The IHS Perspective":
Future of Telehealth: Essential Tools and Technologies for Clinical Research and Care; National Center for Research Resources/NIH June, 2009
- "Medicaid Reimbursement for Remote Healthcare":
Discussion panel selected for the *Annual Meeting and Exposition, American Telemedicine Association*; Las Vegas, NV April, 2009
- "Emerging Innovative Telehealth Technologies in the Next Five Years":
Discussion panel selected for the *Annual Meeting and Exposition, American Telemedicine Association*; Las Vegas, NV April, 2009
- "Innovation in Indian Health":
Health and Health Care Crises - Interdisciplinary Definitions And Solutions; Northern Arizona University April, 2009
- "Innovation in Health Service Delivery: New Tools for Health Promotion and Obesity Prevention/Intervention":
IHS Obesity Strategic Planning Workshop Aug, 2008
- "Telehealth Care in Indian Health":
National Open Door Forum on Health Initiatives in the IHS July, 2008
- "Innovation and Telehealth Care":
2008 US Public Health Service Scientific and Training Symposium June, 2008
- "Telebehavioral Health in Indian Country: An Overview and Discussion of Possibilities":
MCarroll, PStuart; 2008 *Indian Health Service National Combined Council Meeting*, San Diego, CA Feb, 2008
- "The Indian Health Service Telehealth Program: New Tools for Public Health Service Delivery":
Preventive Medicine Grand Rounds, Johns Hopkins Bloomberg School Of Public Health; Baltimore, MD Dec, 2007

- "The IHS Telehealth Program: Innovation and ROI":
The Northwest Regional Telehealth Resource Center Annual Meeting Nov, 2007
- "Population Health in the Indian Health Service":
Navigating American Health Care: How Information Technology Can Foster Health Care Improvement: The Center for American Progress; Washington, DC June, 2007
- "Telehealth Care in the Indian Health Service":
American Telemedicine Association 8th Annual December Industry Briefing; Washington, DC Dec, 2006
- "Telehealth in the IHS":
Medical Provider Best Practices and GPRA Measures Conference; Sacramento, CA Nov, 2006
- "Distance Education: Promising Practices to Enhance Native American Health Professions";
KBaldwin, MHolcomb, TTaylor, MCarroll; *Pathways into Health Professional Development Conference;* Denver, CO Sept, 2006
- "Telehealth and Vista Imaging: An Update on Architecture and Directions";
MCarroll, TTaylor; *2006 Indian Health Service Technology Conference* plenary session; national meeting in Albuquerque, NM. June, 2006
- "An Update on Telehealth in Indian Health Care":
Veterans Health Administration Care Coordination and Leadership Forum; National meeting in Salt Lake City, UT. June, 2006
- "Telehealth in Indian Health Care: Innovation and Collaboration";
MCarroll, TTaylor; *11th Annual Meeting and Exposition, American Telemedicine Association;* San Diego, CA May, 2006
- "Telehealth in Indian Health Care: Toward an Integrated Personal Health Record";
MHorton, MCarroll; *American Medical Informatics Association Spring Congress;* Phoenix, AZ. May, 2006
- "Telehealth in Indian Health Care: Innovation and Collaboration";
First Annual Summit on Improving Native American Health Through Telehealth and Emerging Technologies; Washington, DC. May, 2006
- "Point-of-Care Technologies, Telehealth, and Indian Health Care";
NIBIB/NHLBI/NSF Workshop on *Improving Health Care Accessibility Through Point-of-Care Technologies;* Washington, DC. April, 2006
- "Telehealth Care in Indian Health";
United South and Eastern Tribes, Inc. IMPACT meeting; Alexandria, VA. Feb, 2006
- "Telehealth as a Disease Management Tool";
MCarroll, TTaylor, EPacheco; workshop at the *Indian Health Service Annual Combined National Council Meeting;* Phoenix, AZ. Jan, 2006
- "Using Health Informatics, Specifically Telehealth Care, to Improve Health Care Delivery to American Indian and Alaska Native People";
American Public Health Association Annual Meeting; Philadelphia, Pa. Dec, 2005
- "A Usability Evaluation of an Office-Based Health Information e-Kiosk for Patients in an Indian Health Setting"; M Carroll, M Suagee-Beaudey, IHS Kiosk Team; *American Public Health Association Annual Meeting;* Philadelphia, Pa. Dec, 2005

- "Telehealth Options in Diabetes Prevention and Treatment"; *2nd Annual Arizona-American Indian Health Conference: Stopping the Diabetes Epidemic in Indian Country*"; Mesa, AZ Nov, 2005
- "New Opportunities for Health Service Delivery in Indian Health Service"; K Simpson, M Carroll; *National Conference on mobile-Health and Electronic Order Entry*; San Diego, CA Dec, 2005
- "Vista Imaging, the Master Person Index, and Telehealth Care"; *2005 Indian Health Service Technology Conference*; Scottsdale, AZ. June, 2005
- "Telehealth Care and the EHR"; *Toward an Electronic Patient Record*; Annual meeting of the Medical Records Institute; Salt Lake City, UT May, 2005
- "Telehealth Care in the Indian Health Service"; *New Mexico Telehealth Alliance Conference*; via videoconference to Albq, NM May, 2005
- "Telehealth Care: Opportunities for Indian Health Care"; Mini-plenary session at the *International Meeting on Inuit and Native American Child Health: Innovations in Clinical Care and Research and the 17th Annual IHS Research Conference*; Seattle, WA Apr, 2005
- "Telehealth Care in Indian Health Care"; Workshop session at the *International Meeting on Inuit and Native American Child Health: Innovations in Clinical Care and Research and the 17th Annual IHS Research Conference*; Seattle, WA Apr, 2005
- "Walking the Talk: Telehealth and the IHS-VHA Partnership"; *Veterans Health Administration Care Coordination and Leadership Forum*; Salt Lake City, UT Apr, 2005
- "Implementing Strategies for Success: Telehealth in Indian Health Care"; *Veterans Health Administration Care Coordination and Leadership Forum*; national meeting in Salt Lake City, UT Apr, 2005
- "Telehealth in Indian Health Care: An Overview"; *AHRQ/CMS Telemedicine Workshop: The Integration of Telemedicine into the Health Care System to Improve Quality and Access*; Rockville, MD. Mar, 2005
- "Telehealth Update from the Indian Health Service"; *Four Corners Telehealth Consortium Planning Conference*; Salt Lake City, UT Feb, 2005
- "Health Information Technology for Indian Health Care"; *American Telemedicine Association 6th Annual Strategic Business Opportunities for Telemedicine meeting*; Arlington VA. Dec, 2004
- "Telemedicine: Is the Picture Still Fuzzy?"; *Indian Health Service Technology Conference*; Scottsdale, AZ. Aug, 2004
- "Telehealth Care in the Indian Health Service: Successes and Challenges"; *Four Corners Telehealth Consortium Planning Conference*; Tucson, AZ. Aug, 2004
- "Telehealth Care and Electronic Health Records: Integrating Quality Initiatives"; presentation via DVD for the *International Telehealth Conference*; Anchorage, Alaska Mar, 2004
- "Wireless Services and Indian Health Care"; presentation for US Medicine Institute for Health Studies forum entitled "*PDAs, Bluetooth, and Wi-Fi: Beaming Healthcare into the Future*"; Washington, DC. Dec, 2003

- "Telehealth Care: A Quality Initiative"; with M Horton, MD; 109th Annual Meeting of the *Association of Military Surgeons of the United States (AMSUS)*; San Antonio, Texas Nov, 2003
- "Teens, Telepsychiatry, and School-based Care: From Principles to Practice"; M Carroll, J Oski; *American Academy of Pediatrics' 2003 National Conference and Exhibition*; New Orleans, LA Oct, 2003
- "Telehealth Care: Service to the Point of Need"; workshop presentation at the *Annual Navajo Area Health Board Conference* June, 2003
- "Integrating Telemedicine into Daily Health Care: A Rural Perspective"; M Carroll, S John, L Bedonie, E Coffey; *8th Annual Meeting and Exposition, American Telemedicine Association* April, 2003
- "Real-time Telemammography Interpretation: Meeting a Critical Need"; M Carroll, B Draudt, D Hu, T Taylor, M Thomas; *8th Annual Meeting and Exposition, American Telemedicine Association* April, 2003
- "Telehealth for Indian Health Care"; workshop presentation with M Horton and R Hall at the annual *Indian Health Service Combined National Council mtg* Feb, 2003
- "Telehealth Care in Context: Evaluation and Possibilities"; presentation at the annual *Indian Health Service Information Technology Conference* July, 2002
- "Telehealth Care and the Navajo Area Indian Health Service"; half-day workshop for the annual *Indian Health Service Information Technology Conference* July, 2002
- "Teleradiology Driving Network Experience: Recent Experience on the Navajo Reservation", M Carroll, K McNeill, H Yazzie, M Holcomb; *7th Annual Meeting and Exposition, American Telemedicine Association* June, 2002
- "Telemedicine and Culture: How Does Diversity in Belief Influence the Success of New Telemedicine Programs"; S John, M Carroll; *7th Annual Meeting and Exposition, American Telemedicine Association* June, 2002
- "Telehealth Care: Successes and Challenges"; plenary session presentation at the annual *Indian Health Service Combined National Council mtg* Jan, 2002
- "Consent and Confidentiality in Adolescent Health Care"; Adolescent Health Rounds presented over the Arizona Telemedicine Network Nov, 2000
- "Adolescent Health: Consent, Confidentiality, Communication, and Culture"; with S Dodge; workshop at the *2000 Indian Health Service/American College of Ob-Gyn Postgraduate Course in Obstetric, Neonatal, and Gynecologic Care*; Denver, CO Sept, 2000
- "An Experiential-based Health Curriculum Promoting Healthy Behavior Change Among Adolescents"; C Hill, M Archuleta, M Carroll; *Type II Diabetes in American Indian Youth: An Emerging Epidemic*; Gallup, NM Aug, 2000
- Carroll, ME. "The Truth about Proof"; Letter from the Southwest; *Western Journal of Medicine*; Vol. 173, no. 2; pg 142 Aug, 2000
- "An Update on Chlamydia: Epidemiology and Testing"; CME presentation at the *Tuba City Indian Medical Center* July, 2000
- Carroll, MF. "Sensing a Purpose"; Speaker's Corner; *Western Journal of Medicine*; Vol. 172, no. 6; pg 419 June, 2000
- Carroll, MF. "Let the Buyer Beware"; Speaker's Corner; *Western Journal of Medicine*; Vol. 172, no. 5; pg 347 May, 2000

Carroll, MF. "Our Just Desserts"; Letter from the Southwest, *Western Journal of Medicine*; Vol. 172, no. 4; pg 281 April, 2000

Carroll, MF. "A Declaration of Interdependence"; Letter from the Southwest; *Western Journal of Medicine*; Vol. 172, no. 1; pg 66 Jan, 2000

Carroll, MF. "Steamrolling the Tentorium"; Letter from the Southwest; *Western Journal of Medicine*; Vol. 171, no. 3; pg 212 Sept, 1999

Carroll, MF. "Making Our Differences"; Letter from the Southwest; *Western Journal of Medicine*; Vol. 171, no. 2; pg 136 Aug, 1999

Carroll, MF. "A Medicine Man and a Lesson Learned"; Letter from the Southwest; *Western Journal of Medicine*; Vol. 170, no. 6; pg 384 June, 1999

"A Self-Efficacy Analysis of the Neonatal Resuscitation Program Training"; consultant presentation (with EW Maibach) to the Steering Committee of the American Academy of Pediatrics Neonatal Resuscitation Program; San Francisco, CA Oct, 1998

"New Therapies in Health Care. Science, Medicine, and Popular Culture"; CME presentation on "unconventional" medicine and the scientific method; *Tuba City Indian Medical Center* May, 1996

Maibach EW, Scheiber RA, Carroll MF. "Self-Efficacy in Pediatric Resuscitation: Implications for Education and Performance"; *Pediatrics*, Vol. 97, No 1; p. 94-99 Jan, 1996

"An Update on Human Hantaviral Infections"; presentation at the 1994 *Arizona Rural Health Conference*; Tucson, AZ July, 1994

Carroll MF, Cheek JM, and Craig AS. "Hantavirus Pulmonary Syndrome: Interim Guidelines for Healthcare Providers"; *The Indian Health Service Primary Care Provider*, Vol. 19, no. 4; p. 61-65 April, 1994

"Options for Treatment: The Case of Ribavirin"; Plenary session presentation for 1994 *IHS Research Conference plenary session* (Hantaviral Pulmonary Syndrome: Investigations in the First Year of an Epidemic); Tucson, AZ April, 1994

"Clinical Presentation of Hantaviral Infections"; Arizona Dept of Health Services Special Conference - *Hantavirus in the Southwestern United States: Epidemiology of an Emerging Pathogen*; Flagstaff, AZ Oct, 1993

CDC et al. "Update: Outbreak of Hantavirus Infection- Southwestern United States, 1993". *MMWR* 1993; 42: 477-9 June 25, 1993

CDC et al. "Update. Outbreak of Hantavirus Infection- Southwestern United States, 1993". *MMWR* 1993; 42: 441-3 June 18, 1993

"The M.O.V.E. for Children! Project of East Palo Alto: Ethics and Experience in a Volunteer Community Outreach Program"; Biomedical Ethics Seminar Presentation for the Stanford University Center for Biomedical Ethics; Stanford, CA June, 1992

Carroll, MF and Merrill, RE. "Immunizations and Medico-legal Responsibilities"; *Journal of Pediatrics*, 117; 674 Oct, 1990

"Infection, Violence, and Exposure in Acute Care: Reducing Personal Risk": Workshop, *Annual Meeting of the Society for Pediatric Research and Ambulatory Pediatric Association*; Washington, D.C. May, 1989

1989 Resident Research Day: Presenter, *Pediatric Grand Rounds*, The Children's Hospital of Philadelphia May, 1989

Co-Coordinator, The Children's Hospital of Philadelphia
 Pediatric Transport Conference Series

1988-1989

Committees, Consultancy, and Other Appointments

Co-Chair, New Technology and Innovation Workgroup; IHS and Veterans Health Administration (VHA) MOU Collaboration	2011-2012
Reviewer, CMS Objective Review Committee, Health Insurance Exchanges	2011
Reviewer, VHA Office of Rural Health Innovation Proposals	2011
Participant, HHS Technical Expert Panel for "Understanding the Impact of Health IT in Underserved Communities and Those with Health Disparities"	2011
Member, HHS Text4Health Taskforce; Co-chair, Health Disparities Workgroup	2010-2011
Chair, Indian Health Service Telehealth & mHealth Workgroup	2010-2012
IHS Representative, VA Rural Native Telemental Health Advisory Committee	2010-2012
Reviewer, <i>Telehealth and eHealth Journal</i>	2010-pres
Member, Federal Telehealth Workgroup; Chair, Access Workgroup	2010-2012
Member, HHS mHealth Collaborative Workgroup	2010-2012
Member, HRSA Text4Baby Advisory Group	2010-2012
IHS Representative, Four Corners Telehealth Consortium	2006-2012
IHS Representative, AZ Telemedicine Council	2004-2012
Project Officer, HRSA-IHS IAA for Telehealth Technology Assessment Ctr	2009-2012
IHS Representative, AZ Health Care Cost Containment System Telehealth Workgroup	2009-2012
Board of Directors, American Telemedicine Association	2007-2011
Reviewer, American Telemedicine Association Annual Meeting abstracts	2009-2011
Reviewer, IHS Special Diabetes Program for Indians Community-Directed Grant	2009
Member, Planning Committee, Indian Health Summit	2009
Reviewer, HRSA Telehealth Network Grant Program	2007
Clinical Lecturer, University of Arizona	2005-2010
Member, Indian Health Service Information Systems Advisory Council	2003-2004
Chair, Health Council, United Way of Northern Arizona	2001-2002
Member, Long Range Planning Committee, United Way of Northern Arizona	2000-2001
Member, Allocations Committee, United Way of Northern Arizona	2000-2001
Member, Navajo Area IHS Communicable Disease Committee	1994
Member, Navajo Area IHS Hantavirus Task Force	1993-1995
Member, National Institutes of Health Working Group for the Study of Therapeutic Agents against Hantavirus	1993-1996
Member, CDC Hantavirus Working Group	1993-1995
Instructor, Pediatric Advanced Life Support (PALS)	1993-1998
Consultant, The Stanford University Center for Biomedical Ethics	1990-1992
Coordinator, Medical Writing Workshop: The Journal of Pediatrics	Aug, 1990
Consultant, Walt Disney Imagineering; Disneyland, CA.	Jan, 1990

Board Membership

School Board Member, BASIS Flagstaff	2012-pres
Board of Directors, United Way of Northern Arizona	2011-pres
Health Advisory Board, Native Americans for Community Action	2011-pres
Advisory Board Member, Further Shore, Inc.	2011-pres

Member, Coconino County Health Board 1996-1998

Film and Video Production Experience

"Returning to Wellness": A sixteen minute video for the Mental Health Department of the Navajo Area IHS; Director/co-writer/editor 1994-1995

Tuba City Health News Network (HNN): Community cable television and hospital-based video program providing general health information and promoting healthy lifestyles 1992-1994

"Prescription for Change": Extensive research and preparation for documentary considering role and responsibility in preventive health care delivery 1990-1992

Stanford University Film and Video Production Program: Extensive cinematography/production experience 1989-1990

"Father's Day": 16mm documentary on paralytic polio and modern preventable disease; screened at the 1990 Northern California Disability Media Fair; writer/director/producer/editor 1990

"Extensive Care": Educational videotape on living wills and the durable power of attorney for health care; writer/director 1990

"Oceanfloor Legacy.- A Critical juncture": 29 minute documentary video; sound recordist/production assistant 1990

"Children In Pain: A Look From The Inside": Thirteen minute videotape produced under Children's Hospital of Philadelphia resident research grant; writer/director/editor 1989

Health-Related Awards and Honors

Director's Merit Award: Tucson Area Indian Health Service; To the Native American Cardiology Program 2008

Exceptional Performance Award: Nashville Area Indian Health Service 2006

Director's Award for Excellence: Navajo Area Indian Health Service 2002

Outstanding Medical Director: Arizona Telemedicine Program 2001

Director's Award for Outstanding Health Care Provider: Navajo Area IHS 2001

Medical staff employee of the month: Tuba City Indian Medical Center Mar, 2001

Excellence in Service Leadership Award: Arizona Hospital Association 1995

Exceptional Performance Award: Navajo Area Indian Health Service 1994

Director's Award for Excellence: Navajo Area Indian Health Service 1994

Santa Clara County Medical Society 1993 Honorable Mention for Outstanding Community Service: Santa Clara, CA. 1993

The Freda M. Ritter Clinician Award, The Children's Hospital of Philadelphia: "For Excellence in the Role of Clinician - Combining Skills of Empathy, Cognitive Knowledge, Judgement, and Interpersonal Skills" 1989

The Jarrett Memorial Prize, Dartmouth Medical School: "In Recognition of Academic Excellence and of Scholarly, Cultural, and Humanitarian Achievement Outside of the Medical Curriculum" 1985

Honors Graduate, Dartmouth Medical School 1985

William Goldman Foundation Scholar, Dartmouth Medical School 1984-1985

Professional Licensure and Membership

Fellow, the American Academy of Pediatrics

Certified, American Board of Pediatrics; Oct, 1989; Oct, 1996; Dec, 2003; Dec 2010

Member, American Telemedicine Association

Member, Healthcare Information and Management Systems Society

Physician and Surgeon, Arizona Board of Medical Examiners