



# Fax

**To:** Brian Perkins

**From:** Roland Pickens,  
415.206.3528

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**Fax:** 650.375.8270

**Date:** March 2, 2009

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**Phone:** 650.342.0300

**Pages:** 32

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**Re:** FY2010 Appropriations Request

**CC:** [Click here and type name]

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**Urgent**     **For Review**     **Please Comment**     **Please Reply**     **Please Recycle**

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**•Comments:** Per the request of the Honorable Jackie Speier, San Francisco General Hospital and Trauma Center is submitting the attached request.

## FY2010 Appropriations Request Form

Office of Congresswoman Jackie Speier  
211 Cannon House Office Building  
Washington, D.C. 20515  
Phone: 202/225-3531  
Fax: 202/226-4183  
Website: [www.speier.house.gov](http://www.speier.house.gov)

Individuals/Organizations must respond to all questions on the form. Incomplete proposals will not be considered.

All requests will be evaluated before the 12<sup>th</sup> Congressional District's Citizens Oversight Panel. Appointments to appear before the panel must be made through Cookab Hashemi, chief of staff, at 202/225-3531 or [Cookab.Hashemi@mail.house.gov](mailto:Cookab.Hashemi@mail.house.gov). The panel will convene on the following days; Saturday, March 7, Friday, March 13 and Friday, March 20, 2009. All proposals must be submitted by March 2, 2009

**Date Submitted:** March 2, 2009

**Project Name:** San Francisco General Hospital and Trauma Center

**Telemedicine Network to Increase Access to Health Care in Underserved Communities Throughout Northern and Central California**

**Individual/Organization:** *(Is the grantee located in the 12<sup>th</sup> Congressional District?)*

No, physical location in 8<sup>th</sup> Congressional District, but provides services to 12<sup>th</sup> Congressional District constituents predominantly North of CA-Hwy 92.

**Amount Requested** *(if requesting report language, please attach.):*

**IT/Broadband & Project Management Infrastructure Totaling \$7,655,120 over 36 Months Employing 10(x) Direct Staff with a multiplier of 7(x) ancillary support jobs totaling the creation of 70 jobs**

**Appropriations Bill/Account/Relevant Authorization law/bill/status** *(e.g., "Public Law 107-111"; "FY2008 DOD Authorization", "Currently pursuing authorization through Agriculture Committee", "Safe Drinking Water Act" or "Hatch Act"):*

**The Health Information Technology for Economic and Clinical Health Act (HITECH), a component of the American Recovery and Reinvestment Act of 2009**

**Local Contact** (Please provide full contact information, including any relevant phone extensions, and indicate if there is a separate D.C. contact.):

1. Hal F. Yee, Jr., M.D., Ph.D.

Interim Chief of Medical Services, San Francisco General Hospital and Trauma Center  
William and Mary Ann Rice Memorial Distinguished Professor, UCSF  
phone: 415.206.4808  
email: hyee@medsfgh.ucsf.edu

2. Roland Pickens, MHA  
Senior Associate Administrator  
Primary Care, Medical Specialties, Radiology and Telemedicine Services  
San Francisco General Hospital Medical Center  
1001 Potrero Avenue, 2A-5  
San Francisco, CA 94122  
Phone (415) 206-3528, Fax (415) 206-3434  
E-Mail: [roland.pickens@sfgph.org](mailto:roland.pickens@sfgph.org)

**Organization's Main Activities.** (Please limit your response to 250 words and indicate whether it is a public, private, non-profit or private for-profit entity.)

The San Francisco General Hospital and Trauma Center (SFGHTC), a Public Hospital, is an integral part of the San Francisco Department of Public Health (DPH), which includes a very robust Community Oriented Primary Care (COPC) Division and Mental Health Division. The collaboration of these clinical entities, delivers the majority of primary care and specialty health services to underserved in the City and County of San Francisco and to a small population of Northern San Mateo County residents who are unable to access specialty services within San Mateo County. Concurrently, SFGHTC is also the only Level-1 Trauma Center serving Northern San Mateo County ( North of Hwy 92) and San Francisco County. In addition, the DPH has maintained an Affiliation Agreement with the University of California San Francisco (UCSF) for over 135 years to provide physician and other clinical services to the area's underserved communities. Accordingly, our proposal has a Regional scope that extends beyond San Francisco into the greater Bay Area and Central California.

**Please show main items in the project and total cost in a simplified chart form.** (Please include the amount of any Federal/State/Local/Private funds, including any in-kind resources.)

*Project Requested Funds:*

**IT/BROADBAND INFRASTRUCTURE = \$4,475,000**

**PROGRAM MANAGEMENT/OVERSIGHT INFRASTRUCTURE = \$3,180,120**

**In-Kind Contributions:**

**IN-KIND FACILITIES UPGRADES AND STAFF PLANNING = \$1,000,000**

**Other Sources of Funding Secured/Promised:**

**BLUE SHEILD OF CALIFORNIA AND THE COMMONWEALTH FUND = \$550,000**

**Project Description, including a timeline, goals, expected outcomes and specific uses of Federal Funds.** (Your response must focus on the requested funds rather than the organization's mission and general activities. Please limit your response to 250-500 words.)

**Overarching Goal of the Project:** The goal of the San Francisco General Hospital and Trauma Center Telemedicine Network is to develop a sustainable urban telemedicine network that facilitates clinical programs to increase access to primary and specialty care patients with a wide range of chronic illnesses in diverse communities throughout the Bay Area, Northern California and Central California.

### 3. Detailed Work Plan (3 Years)

Activity	Person/Team Responsible	Date Completed
Receive federal funds and execute agreement with SFGH Foundation & UCSF	Project Director Project Management and Administrative Oversight Team	Month 1 – Month 2
Management Oversight and Administrative Plans: a.) Establishing an administrative and management plan, b.) Coordinating Telemedicine partnerships, c.) Establishing policies and procedures, d.) Developing and executing contracts with partner organizations e.) Hire Staff with Federal Funds	Project Director Project Management and Administrative Oversight Team	Month 1 – Month 2
Finalization of detailed network construction/equipment installation plans for submission to OSPHD for review.	Project Management and Administrative Oversight Team	Month 2
Business planning and protocol development process; completion of compliance and other documentation requirements for remote clinics.	Project Management and Administrative Oversight Team Clinical Directors at SFGH & UCSF	Month 3 – Month 5
Anticipated OSHPD approval for equipment; bid process begins	Technical project manager	Month 6 – Month 7
Develop a core technology	Technical project manager	Month 3 – Month 8

<p>team to manage the technology operations and support of the telemedicine network.</p> <p>Construction, Installation and Testing of Equipment at Clinic Sites, including:</p> <ul style="list-style-type: none"> <li>a) Design, Architect and Implement the various complex components of telemedicine – such as store and forward, directory, scheduling, broadcasting, etc.</li> <li>b) Develop standards for extending the program to other institutions that would like to opt into our network with plug-in level of ease.</li> <li>c) Develop inter-operability standards to enable electronic exchange of patient information between sites.</li> <li>d) Develop the concept and vision of “TelePort”™ – as the Web Portal.</li> </ul>	<p>Technical consultant</p>	<p>Month 9 – Month 14</p>
<p>Develop clinical protocols specific to each facilities.</p> <ul style="list-style-type: none"> <li>a. Establish protocols for patient populations to enroll in telemedicine.</li> <li>b. Develop mechanism for adoption of telemedicine by other clinicians.</li> </ul> <p>Establish Clinical, Training and Instruction:</p> <ul style="list-style-type: none"> <li>a. Managing and insuring the instruction of faculty in Telemedicine,</li> <li>b. Establish the centralized scheduling call-in center, and</li> <li>c. Developing a</li> </ul>	<p>Primary Care MD &amp; Medical/Surgical Specialty MD Clinical Directors</p> <p>Project Director</p> <p>Clinical Directors at SFGH &amp; UCSF Technical Consultant</p>	<p>Month 8 – Month 14</p> <p>Month 14 – Month 17</p>

Telemedicine training component for PRIME-US students.		
Initial implementation, pilot testing of telemedicine visits	Clinical Director at SFGH & UCSF  Physician Leaders	Month 15 – Month 17
Financial and Evaluation Protocols Established and Implemented: a. Refining financial systems to optimize sustainability and reimbursement mechanisms, b. Developing evaluation tools and survey instruments to distribute throughout all sites, and	Project Director  Project Management and Administrative Oversight Team  Primary Care MD & Medical/Surgical Specialty MD Clinical Directors	Month 17 – Month 22
Full implementation of telemedicine visits and services	Physician Leaders  Technical project manager  Primary Care MD & Medical/Surgical Specialty MD Clinical Directors	Month 19
Follow-up and advanced training for providers in Telemedicine applications.	Technical project manager  Clinical Director at SFGH & UCSF	Month 19 – Month 24
Evaluation and Dissemination of Data & Replication at other requested sites: a. collection, analyze surveys of patients and providers b. utilize the data to assist in formulation of a business case c. report on the challenges, outcomes, and successes of the Telemedicine network d. Prepare final report with dissemination plan for replication to other sites	Technical project manager  Primary Care MD & Medical/Surgical Specialty MD Clinical Directors	Month 20 – Month 36

**How will this earmark serve to expand the capacity of your organization and how will your organization sustain this work beyond the federal funding? (Your response must focus on the impact of the requested funds rather than the organization's long-term goals.)**

### **1. Capacity Expansion:**

Some of the exciting prospects we anticipate even in the early stages of telemedicine are:

- The ability to pre-screen and/or treat a variety of specialty concerns at primary care clinics throughout Northern and Central California where UCSF is a clinical partner in the delivery of health care services
- The ability to pre-screen (and when appropriate divert) Psychiatric Emergency Department admissions at SFGH
- The ability to provide a variety of specialty care services to incarcerated individuals – forestalling the need and delays associated with law enforcement chaperones.
- The ability to conduct non-emergency psychiatric and substance abuse consults at primary care clinics
- The ability to conduct pharmacy, nutrition, and rehabilitation medicine consultations with and for patients on a number of medication regimes and treatment protocols.

### Measurable Impact and Outcome:

Based on our preliminary research, we estimate that between 5 percent and 10 percent of the approximately 327,500 patient visits at SSFGH for San Francisco and Northern San Mateo County Residents can be served via telemedicine, either for specialty consultation or language services. Conservatively, we expect to serve approximately 3,500 patients within the first year of service and approximately 10,000 patients annually via telemedicine once the three-year implementation is completed.

The measurable impacts include:

- Reduced waiting times for specialist appointments at SFGH and remote clinics.
- Elimination of unnecessary referrals by providing higher level of care at primary care clinics.
- Increased participation by community clinicians in continuing education activities.

Although specific evaluation metrics will be devised by the program team, results could be gauged by such factors as physician and patient acceptance of telemedicine, utilization rates, and compliance with follow-up care. Our goal is to demonstrate a model for urban telemedicine that can be replicated not only throughout California but in other states, as well.

Ultimately, this program should be able to reduce chronic diseases, especially diabetes and other conditions common among the urban underserved. By creating a program which simplifies the process for patients to seek medical attention, we in essence could intervene at the early stages to prevent the burden of a much higher costs of medical attention while at the same time giving the patient a better quality of life. Telemedicine has shown to be an excellent education tool for clinicians working in the field. Instead of referring patients to seek specialty care, Telemedicine

not only gives immediate access to the patient but also allows the clinician to learn from the visit by attending the consultation with his/her patient. The clinician could present his patient, answer any questions based on past history of the patient and also ask direct questions of the specialist relating to the diagnosis as well as treatment recommendations.

## **2. Sustainability Plan**

The on-going program operation (excluding start-up funding for staff and infrastructure) will be phased into the normal operating processes and annual budget of our Clinical Enterprise over a 36 month period. The program has at its core the elimination of unnecessary referrals for specialty care with enhanced continuing education to local health care providers from the UCSF Specialists. Accordingly, we anticipate systems efficiencies from cost avoidance to fund on-going program operations.

### **What is the local significance of this project?**

The measurable impacts include:

- Reduced waiting times for specialist appointments at SFGH.
- Elimination of unnecessary referrals by providing higher level of care at primary care clinics.
- Increased participation by community clinicians in continuing education activities.

**How many residents of the 12<sup>th</sup> CD will benefit from this project?** (i.e. jobs created, services rendered to, how many people, etc.)

- 70 jobs created over a 36 month period

- We expect to serve approximately 3,500 patients within the first year of service and approximately 10,000 patients annually via telemedicine once the three-year implementation is completed.

**List any other organizations or state/local elected officials who have expressed support for the project in writing.** (Please submit copies of support letters along with the proposal.)

Letters not available at time of application submission on March 2, 2009, but will be provided upon further request:

The California Endowment  
The California Health Care Foundation  
The Safety Net Institute of the California Association of Hospitals and Health Systems

**Does the organization have any other funding requests for this project? (Federal, State, Local or private pending?)**

Yes, CA State Proposition 1-D Funding

Yes, Federal Communications Commission via the California TeleHealth Network Project

**Has this organization previously received Federal funds for this project? (Please list any funds received [by fiscal year] and briefly describe how those funds were spend.)**

None Received

**Please attach a list of your organization's staff and board members (if any).**

- Gene Marie O'Connell  
Chief Executive Officer  
San Francisco General Hospital and Trauma Center

- See attached organizational chart

**Please attach any additional relevant materials.**

- Please see attached comprehensive proposal

## **Proposal/ Request for Funding**

### **San Francisco General Hospital and Trauma Center Telemedicine Network to Increase Access to Health Care in Underserved Communities**

### **IT/Broadband & Project Management Infrastructure Totaling \$7,655,120 over 36 Months**

### **Employing 10(x) Direct Staff with a multiplier of 7(x) ancillary support jobs totaling the creation of 70 jobs**

#### **Overview:**

The San Francisco General Hospital and Trauma Center (SFGHTC), is an integral part of the San Francisco Department of Public Health (DPH), which includes a very robust Community Oriented Primary Care (COPC) Division and Mental Health Division. The collaboration of these clinical entities, delivers the majority of health services to the urban underserved in the City and County of San Francisco and to a small population of Northern San Mateo County residents who are unable to access specialty services within San Mateo County. Concurrently, SFGHTC is also the only Level-1 Trauma Center serving Northern San Mateo County ( North of Hwy 92) and San Francisco County. In addition, the DPH has maintained an Affiliation Agreement with the University of California San Francisco (UCSF) for over 135 years to provide physician and other clinical services to the area's underserved communities. Accordingly, our proposal has a Regional scope that extends beyond San Francisco into the greater Bay Area and Central California.

This proposal is aligned with the following categories targeted by the Federal Stimulus Plan:

- 1.) Technology improvements for Safety Net providers,
- 2.) Medical education programs in underserved communities, and
- 3.) Health care IT initiatives designed to promote patient safety and improve health care delivery.

**Overarching Goal of the Project:** The goal of the San Francisco General Hospital and Trauma Center Telemedicine Network is to develop a sustainable urban telemedicine network that facilitates clinical programs to increase access to primary and specialty care patients with a wide range of chronic illnesses in diverse communities throughout the Bay Area, Northern California and Central California.

**Project Components:** As the literature supports, and our real-world experience has proven in other successful health technology initiatives, in order to effectuate a permanent and sustained use of health technology, there must be a core level of project management support to facilitate adoption of the health technology into the clinical setting. Accordingly, in addition to the IT/Broadband Infrastructure required to establish a robust telemedicine program, this proposal also includes the equally important program management and oversight infrastructure necessary to implement and sustain a lasting adoption of this health technology innovation.

## **A. IT/BROADBAND INFRASTRUCTURE = \$4,475,000**

### **I. Strategic Infrastructure / Bandwidth Linkages Between the Hospital and Community Clinics**

This proposal calls for securing fiber optic links between San Francisco General Hospital campus and eleven (11) Department of Public Health community-based clinics – including jail clinics at the Hall of Justice and Youth Guidance Center. The upgrade would also entail installing the necessary data ports in all exam rooms and associated improvements to the data closets. **(\$1,158,000)**

At San Francisco General Hospital and Trauma Center, the majority of the specialty clinics are located in the M Building of the main hospital. The proposal also calls for installing the necessary data ports in the exam and procedure rooms in 3M, 4M, 5M and 6M. **(\$1,282,000)**

### **II. Basic Videoconference Equipment to Initiate Telemedicine Practice**

Since 2005, SFGH has been providing interpreter services via remote, real-time videoconferencing to the bulk of the primary care clinics. The proposal calls for an additional 25 mobile videoconference units to remotely link the Interpreter Service Call Center to all of the DPH community health centers and the remaining specialty care clinics on the hospital campus.

In addition, the proposal includes establishing 30 specialized telemedicine suites (15 at community and jail based clinics and 15 on SFGH campus). Each telemedicine suite would be equipped with videoconference units capable of connecting four parties in real-time video and/or displaying “store forward” data (e.g., a patient and primary care provider at a community Health Center, a specialty provider at the Hospital, an interpreter if needed, and relevant clinical data)

The design includes the necessary conference routing and scheduling equipment to establish a telemedicine call center at SFGH. The purpose would be to centralize the technical and logistical requirements necessary to place providers “into conference” in an “easy and seamless” process. **(\$1,285,000)**

### **III. Information Technology (IT) and Clinical Systems Design (\$750,000)**

Employ a design team of IT and Clinical Systems Engineers to develop the IT and Clinical Business rules of a Telemedicine Network. The Design Teams' efforts will focus on the following:

Define End User Requirements - What is Telemed (Education and Clinical)

Business Analysis and Rules

Define What Clinical Devices and Software are to be utilized

Specialized Applications

Application Software

Define What IT Hardware, Connectivity and Space Requirements

Servers

Network/Connectivity

**TOTAL IT/BROADBAND INFRASTRUCTURE = \$4,475,000**

### **Background and Functional Basis For the Proposal**

This proposal will create a strong bandwidth foundation upon which to build extensive telemedicine applications in the future.

The proposal also calls for initiating four or five pilot projects linking specialty services at SFGH campus to primary care providers and patients at community Health Centers. Preliminary discussions have resulted in commitments to participate from Dermatology, Cardiology and Podiatry. Discussions with other specialty services located at SFGH campus are ongoing. In addition to medical and surgical specialties, one of the pilot projects will be with the Department of Psychiatry.

Due to the fact that San Francisco is a comparatively compact and small city, the initial applications of "urban telemedicine" will concentrate on "pre-screening" services – many of the initial consultations to determine if and when a patient should be scheduled at a specialty clinic can be done via telemedicine. This can result in a significant savings, not only on provider resources, but also on the logistical and travel burden placed upon patients.

Some of the exciting prospects we anticipate even in the early stages of telemedicine are:

- The ability to pre-screen and/or treat a variety of specialty concerns at primary care clinics
- The ability to pre-screen (and when appropriate divert) Psychiatric Emergency Department admissions at SFGH
- The ability to provide a variety of specialty care services to incarcerated individuals – forestalling the need and delays associated with law enforcement chaperones.
- The ability to conduct non-emergency psychiatric and substance abuse consults at primary care clinics
- The ability to conduct pharmacy consultations with and for patients on a number of medication regimes

Considering the fact that this project will usher in the routine use of telemedicine at SFGH and the Department of Public Health, the implementation plan is to carefully prepare and stage the four or five pilot projects over a period of 18-24 months in order to ensure a measurable restructuring of services and effectiveness.

**Telemedicine  
Proposed IT/Broadband Infrastructure Project Budget**

<b>Item</b>	<b>Item Cost</b>	<b>Total Cost</b>
<b>Linkages to Community Clinics</b>		<b>\$1,158,000</b>
<ul style="list-style-type: none"> <li>• Fiber Optic Links to 11 venues</li> <li>• Data Port Installation (\$400 x 60)</li> <li>• Installation for Telemedicine Suites x 11</li> <li>• Upgrades to Data Closets (\$50,000 x 9)</li> </ul>	<ul style="list-style-type: none"> <li>\$ 664,000</li> <li>\$ 24,000</li> <li>\$ 20,000</li> <li>\$ 450,000</li> </ul>	
<b>Wiring Upgrades at SFGH – M Suites</b>	<b>\$1,282,000</b>	<b>\$1,282,000</b>
<b>Videoconferencing Equipment</b>		<b>\$1,285,000</b>
<ul style="list-style-type: none"> <li>• Mobile Videoconference units (\$4,990 x 25)</li> <li>• Video Equipment for Telemedicine Suites (4-way video units and digital / video cameras x 30)</li> <li>• Equipment to set up the Telemedicine Call Center</li> </ul>	<ul style="list-style-type: none"> <li>\$ 125,000</li> <li>\$ 578,000</li> <li>\$ 582,000</li> </ul>	
<b>Total Infrastructure Project Budget</b>		<b>\$3,725,000</b>

**B. PROGRAM MANAGEMENT/OVERSIGHT INFRASTRUCTURE = \$3,180,120**Activities:

The funds being sought would support the following central activities at the DPH, SFGH and UCSF that are necessary for successful implementation of the Telemedicine Network:

1. **Administrative management and oversight:**
  - a. Establish workflow practices, documentation, training courses and compliance activities.
  - b. Develop a communications system for coordination among collaborators, clinical team and partners through monthly meetings.
  - c. Develop a program evaluation instrument, administer and write-up.
  - d. Develop business case and financial sustainability model.
2. **Clinical practice and oversight:**
  - a. SFGH and UCSF Medical Center faculty team to serve as telemedicine clinical directors with collaboration of management team through monthly meetings.
  - b. Develop clinical protocols and review training and implementation plans.
  - c. Enroll clinical colleagues in the program through outreach in the community.
3. **Physician leaders:**
  - a. Develop clinical protocols specific to each facilities.
  - b. Establish protocols for patient populations to enroll in telemedicine.
  - c. Develop mechanism for adoption of telemedicine by other clinicians.

4. **Technology management and oversight:**
- a. **Develop a core technology team to manage the technology operations and support of the telemedicine network.**
  - b. **Design, Architect and Implement the various complex components of telemedicine – such as store and forward, directory, scheduling, broadcasting, etc.**
  - c. **Develop standards for extending the program to other institutions that would like to opt into our network with plug-in level of ease.**
  - d. **Develop inter-operability standards to enable electronic exchange of patient information.**
  - e. **Develop the concept and vision of “TelePort”™ – as the Web Portal where Telemedicine users congregate to securely view, exchange and track consultation related information.**

**Key Services Provided:**

Over the past 18 months, the public health experts, IT professionals, clinicians and administrators of DPH and UCSF collaborated to learn about existing and prior experiences with telemedicine technology to extend patient care to the underserved and to identify opportunities to best use capital that might become available for telemedicine innovations. This process identified significant opportunities to apply telemedicine technology to reduce health care barriers among the underserved. The approach was to apply telemedicine technology to improve the management of chronic diseases among the underserved, primarily inner city, populations both by enabling remote specialist consultations and by providing

improved access to language interpreter services. Consequently, the following criteria were established:

- Expand specialty medical services to an underserved population;
- Improve patient care at primary care clinics by providing skilled medical interpreter services to reduce language and cultural barriers.
- Connect UCSF faculty with both community public health practitioners and UCSF trainees who are learning the unique unmet medical needs of the urban underserved.

Based on this model, DPH-SFGH and UCSF have designed both a core network and a technology platform that will enable specific clinical services to be provided via telemedicine. In the first phase, the Network will extend the existing SFGH interpreter services to approximately 10 safety net primary care clinics throughout San Francisco and 15 ambulatory care clinics at SFGH. In addition, the following pilot programs are among those being planned for implementation within the first three years of operation:

1. Video medical interpreter services to the city's primary care clinics. Nearly 40 percent of all patients seen at these clinics need language assistance. The network will link clinics to the existing staff of interpreters at SFGH, typically available within 3-5 minutes of being requested.
2. Provide eye screenings to diabetes patients as part of routine medical visits, using cameras to record a patient's retinal image that is then reviewed by a specialist at SFGH. Diabetic retinopathy is one of the most prevalent forms of preventable blindness, yet few inner city patients get this.

3. Allow patients with chronic diseases, such as HIV services (nutrition, mental health, pharmacy) for Highly Active Antiretroviral Therapy (HAART), to discuss their medication regimens or other concerns with both their primary care physician and a specialist at the same time.
4. Enable rapid response, live video conferences among scientific and public health experts in case of a public health emergency, such as an earthquake or bioterrorism incident.
5. Provide the capability for physicians and others at remote clinics to participate in or observe grand rounds or other educational activities originating from UCSF or SFGH.

Network Design and Participants:

The UCSF Telemedicine Network is based on a decentralized model and designed to support Telemedicine in a variety of hub locations within SFGH and UCSF Medical Center which will connect to 50+ spoke sites. The topologies consist of Fiber optics, T-1, Multi Protocol Label Switching (MPLS), ISDN and wireless technologies from Central California to near the Oregon border. This matrix of broadband network topologies will allow hospitals and clinics to receive high quality medical care for their patients via live Telemedicine video conferencing and education programs for medical students, clinicians, and patients.

DPH/SFGH and UCSF have designed an inner city network that addresses the specific needs of our community. There will be fiber-optic connections between city clinics and the

telemedicine clinical hub at SFGH and the technology infrastructure that will facilitate both scheduled and ad-hoc telemedicine consultations.

Measurable Impact and Outcome:

Based on our preliminary research, we estimate that between 5 percent and 10 percent of the approximately 327,500 patient visits within San Francisco's Community Health Network can be served via telemedicine, either for specialty consultation or language services.

Conservatively, we expect to serve approximately 3,500 patients within the first year of service and approximately 10,000 patients annually via telemedicine once the three-year implementation is completed.

The measurable impacts include:

- Reduced waiting times for specialist appointments at SFGH and remote clinics.
- Elimination of unnecessary referrals by providing higher level of care at primary care clinics.
- Increased participation by community clinicians in continuing education activities.
- Reduce length of appointment time by eliminating travel time to SFGH from the Safety Net Clinics.

Although specific evaluation metrics will be devised by the program team, results could be gauged by such factors as physician and patient acceptance of telemedicine, utilization rates, and compliance with follow-up care. Our goal is to demonstrate a model for urban telemedicine that can be replicated not only throughout California but in other states, as well.

Ultimately, this program should be able to reduce chronic diseases, especially diabetes and other conditions common among the urban underserved. By creating a program which simplifies the process for patients to seek medical attention, we in essence could intervene at the early stages to prevent the burden of a much higher costs of medical attention while at the same time giving the patient a better quality of life. Telemedicine has shown to be an excellent education tool for clinicians working in the field. Instead of referring patients to seek specialty care, Telemedicine not only gives immediate access to the patient but also allows the clinician to learn from the visit by attending the consultation with his/her patient. The clinician could present his patient, answer any questions based on past history of the patient and also ask direct questions of the specialist relating to the diagnosis as well as treatment recommendations.

**Key Considerations:**

1. Community served by the organization, including geographic, racial and ethnic communities.

The Telemedicine Network will initially focus on primary care clinics operated by the City and County of SFDPH, which most recently served on an annual basis 67,024 individuals in 327,543 visits at 19 clinical facilities. The majority (66.3 percent) of patients are enrolled in Medi-Cal, Medicare or other public health programs; 32 percent are uninsured, and 1.1 percent have commercial insurance coverage. The patients are ethnically diverse, and nearly four out of every 10 require language assistance, having one of more than 32 languages other than English as their primary language. While having clinic staff who speak Cantonese or Spanish is generally possible, it is far more difficult to position trained interpreters in the clinics when patients who speak languages like Farsi, Laotian, Portuguese or Samoan need medical attention.

The Telemedicine Network will ultimately have the capacity of connecting virtually any telemedicine-equipped health care provider in California to a UCSF specialist when a consultation is needed. Our faculty collaborations include the following six counties (San Francisco, Alameda, Fresno, Mendocino, Humboldt, Del Norte). In the second phase, the program will target the urban underserved in Alameda Counties, and the rural regions of the Central Valley (Fresno County) and North Coast (Mendocino, Humboldt and Del Norte Counties). Through the Telemedicine Network, Telemedicine will be utilized to offer primary care and specialty health care services to patients between UCSF and UCSF-Fresno to more than 50 community sites and two regional Telemedicine centers in Eureka and Fresno.

## 2. Proposed amount and use of funds for Program Management/Oversight Infrastructure

We are requesting \$3,180,120 for this purpose. Funding will support the initial implementation of the urban telemedicine program over three years, and creation of a telemedicine network that can serve a diverse population in up to six California counties. Funding will support a core administrative staff consisting of one Project Manager to manage the business operations of the telemedicine network, including training, protocol development, and program evaluation. An Administrative analyst position will support the telemedicine management team. In addition, two Clinical Directors, one in Primary Care and the other in Medical/Surgical Specialty will oversee the clinical operations, protocols and evaluation. Finally, Physician Leaders will be given some dedicated time to develop protocols specific to their facilities and patient populations and to serve as advocates to encourage adoption of telemedicine by other clinicians.

### 3. Community need for the project to be funded

Despite San Francisco's compact geography and high ratio of medical specialists per capita, tens of thousands of people go without adequate medical care in San Francisco every year. Economic factors, insurance status and language are among the major barriers that keep inner city San Franciscans from accessing the excellent care that is available within the city's health system. Even though San Francisco is a small city -- only about seven miles across -- the gap between UCSF specialists at SFGH and many inner city patients might as well be 70 miles or more. Many of these people cannot take time away from their jobs to seek proper medical attention, or they are coping with disabilities (mental and physical), or they lack the language skills necessary to navigate their way across town or through the medical system, or combinations of all three challenges. These barriers are among the many reasons why the

"missed appointment" rate at SFGH hovers around 25 percent, and a substantial number of patients fail to follow-up as directed even if they make it to the first specialist visit.

Community organizations in 6 California counties participated in a needs assessment in conjunction with State wide telemedicine planning and evaluation efforts. The purpose of the assessment was to identify the highest-level services needed for their patients and clients, and identify the technology and infrastructure requirements necessary to participate in the Telemedicine program. These organizations will be active partners in the Telemedicine Network and will contribute to the planning, implementation and evaluation phases of this program. (see attached list of partners).

#### 4. Anticipated impact of project and potential for sustainability

Our overall goal is to develop a sustainable urban Network of Telemedicine programs which includes diverse healthcare and community organizations across the state with the goal to increase access to primary and specialty care for underserved populations. To assist in communicating the outcome of the pilot project, DPH-SFGH and UCSF will conduct a comprehensive evaluation. Upon this evaluation, DPH-SFGH and UCSF will prepare a final report and business case which will address the sustainability of urban Telemedicine, the reimbursement mechanisms (including gaps), key lessons learned, and the impact of introducing a Telemedicine program to increase patient access to specialty services. DPH-SFGH and UCSF will plan to present and/or publish the telemedicine findings at telemedicine conferences nationwide.

Currently, we project the Telemedicine Network will be sustained through a variety of approaches. This program will be able to leverage many sources of funding and builds upon recent federal, state and city initiatives. The San Francisco City Public Health Department has already contributed an additional \$1,000,000 to this project in-kind facilities upgrades and staff planning time. An additional \$550,000 in start-up costs has been committed from Blue Shield of California Foundation and the Commonwealth Fund for specific projects focused on HIV/AIDS using convergent technology. UCSF continues to provide staff leadership and technical resources to the project.

5. Observations on how and to what extent learning from the project can be replicated:

Throughout the process of developing this network of Telemedicine programs there will an immeasurable amount of knowledge and wisdom gained to assist in replicating a successful sustainable model focused in an urban setting and using specialists at two major tertiary care centers. Developing a model to engage specialist to provide care to underserved patients will dramatically improve health care delivery statewide.

One of the key challenges in Telemedicine including specialty care, is building a business case for a sustainable model. This project will do a great deal of work in this area to develop a sustainable model. We will be able to pass these findings to others in the Telemedicine field, particularly with the four UC medical schools who have also received State telemedicine funding, the regional telemedicine networks throughout California, to funders and state public health agencies interested in ehealth, the California Telemedicine and eHealth Center, among others.

### 1. Detailed Budget Narrative:

A total of \$3,180,120 in funding is requested to directly support the following personnel and consultant expenses for program management and oversight functions.

- a.) **Project Management and Oversight:** A core administrative staff consisting of 1.0 FTE project manager will manage the business operations of the telemedicine network, including training, protocol development, and program evaluation. (salary plus benefits = 131,625/year).
- b.) **Administrative and Clerical Support:** 1.0 FTE administrative analyst position to support the management team and MSO. (salary plus benefits = \$65,648/year).
- c.) **Clinical Directors and Oversight:** One Primary Care Physician and one Medical/Surgical Specialty Physician will serve as telemedicine clinical directors, 100% percent of their time dedicated to telemedicine activities. (salary plus benefits = \$420,000/year for 2.0 FTE)
- d.) **Physician Leaders:** Successful implementation requires physicians in each clinical unit to have some dedicated time to develop protocols specific to their facilities and patient populations and to serve as advocates to encourage adoption of telemedicine by other clinicians. We envision buying approximately 20 percent of each of 5 physicians' time for this purpose. (salary plus benefits = \$180,000/year)
- e.) **Technical Project Manager and Oversight:** To oversee the Telemedicine program development, including managing the technical consultant to implement the Telemedicine Network design, train faculty and clinicians to utilize the coordinated systems, and conduct an evaluation. (Independent Contractor @ \$80/hour = \$166,400)

**Total = \$3,180,120**

**2. Detailed Three-Year Budget (See narrative for description of positions and responsibilities):**

	Year 1	Year 2	Year 3	Total
<b><u>Personnel: Salaries &amp; Benefits:</u></b>				
Project Management Services Officer (1.0 FTE)	131,625	131,625	131,625	394,875
Administrative Analyst (1.0 FTE)	65,648	65,648	65,648	196,944
Clinical Directors (2 SFGH/UCSF @1.0 ea.)	420,000	420,000	420,000	1,260,000
Physician Leaders (.20x5 = 1.0)	180,000	180,000	180,000	540,000
<b><u>Consultants:</u></b>				
Technical consultant (.25 FTE)	166,400	166,400	166,400	499,200
<b><u>Indirect Costs (SFGH Foundation @10%):</u></b>	96,367	96,367	96,367	289,101
<b><u>Grant Total:</u></b>	<b>1,060,040</b>	<b>1,060,040</b>	<b>1,060,040</b>	<b>3,180,120</b>

**Other Funding Commitments:**

1. The Blue Shield of California Foundation awarded 360-UCSF a \$250,000 operational grant to support the project for HIV telemedicine services and training in 3 clinic sites.
2. The Commonwealth Fund awarded PHP \$300,000 to pilot and evaluate the use of convergent technologies between SFGH Positive Health Program and community clinics.
3. The City of San Francisco, Department of Public Health has committed an estimated \$1,000,000 in staff, facilities upgrades and other resources over the past three years to support the project through technology implementation and management oversight.

### 3. Detailed Work Plan (3 Years)

Activity	Person/Team Responsible	Date Completed
Receive federal funds and execute agreement with SFGH Foundation & UCSF	Project Director  Project Management and Administrative Oversight Team	Month 1 – Month 2
Management Oversight and Administrative Plans: a.) Establishing an administrative and management plan, b.) Coordinating Telemedicine partnerships, c.) Establishing policies and procedures, d.) Developing and executing contracts with partner organizations e.) Hire Staff with Federal Funds	Project Director  Project Management and Administrative Oversight Team	Month 1 – Month 2
Finalization of detailed network construction/equipment installation plans for submission to OSPHD for review.	Project Management and Administrative Oversight Team	Month 2
Business planning and protocol development process; completion of compliance and other documentation requirements for remote clinics.	Project Management and Administrative Oversight Team  Clinical Directors at SFGH & UCSF	Month 3 – Month 5
Anticipated OSHPD approval for equipment; bid process begins	Technical project manager	Month 6 – Month 7
Develop a core technology team to manage the technology operations and support of the telemedicine network.	Technical project manager	Month 3 – Month 8
Construction, Installation and	Technical consultant	Month 9 – Month

<p>Testing of Equipment at Clinic Sites, including:</p> <ul style="list-style-type: none"> <li>a) Design, Architect and Implement the various complex components of telemedicine – such as store and forward, directory, scheduling, broadcasting, etc.</li> <li>b) Develop standards for extending the program to other institutions that would like to opt into our network with plug-in level of ease.</li> <li>c) Develop inter-operability standards to enable electronic exchange of patient information between sites.</li> <li>d) Develop the concept and vision of “TelePort”™ – as the Web Portal.</li> </ul>		14
<p>Develop clinical protocols specific to each facilities.</p> <ul style="list-style-type: none"> <li>a. Establish protocols for patient populations to enroll in telemedicine.</li> <li>b. Develop mechanism for adoption of telemedicine by other clinicians.</li> </ul> <p>Establish Clinical, Training and Instruction:</p> <ul style="list-style-type: none"> <li>a. Managing and insuring the instruction of faculty in Telemedicine,</li> <li>b. Establish the centralized scheduling call-in center, and</li> <li>c. Developing a Telemedicine training component for PRIME-US students.</li> </ul>	<p>Primary Care MD &amp; Medical/Surgical Specialty MD Clinical Directors</p> <p>Project Director</p> <p>Clinical Directors at SFGH &amp; UCSF Technical Consultant</p>	<p>Month 8 – Month 14</p> <p>Month 14 – Month 17</p>
<p>Initial implementation, pilot testing of telemedicine visits</p>	<p>Clinical Director at SFGH &amp; UCSF</p>	<p>Month 15 – Month 17</p>

	<b>Physician Leaders</b>	
<b>Financial and Evaluation Protocols Established and Implemented:</b> a. Refining financial systems to optimize sustainability and reimbursement mechanisms, b. Developing evaluation tools and survey instruments to distribute throughout all sites, and	<b>Project Director</b>  <b>Project Management and Administrative Oversight Team</b>  <b>Primary Care MD &amp; Medical/Surgical Specialty MD Clinical Directors</b>	<b>Month 17 – Month 22</b>
<b>Full implementation of telemedicine visits and services</b>	<b>Physician Leaders</b>  <b>Technical project manager</b>  <b>Primary Care MD &amp; Medical/Surgical Specialty MD Clinical Directors</b>	<b>Month 19</b>
<b>Follow-up and advanced training for providers in Telemedicine applications.</b>	<b>Technical project manager</b>  <b>Clinical Director at SFGH &amp; UCSF</b>	<b>Month 19 – Month 24</b>
<b>Evaluation and Dissemination of Data &amp; Replication at other requested sites:</b> a. collection, analyze surveys of patients and providers b. utilize the data to assist in formulation of a business case c. report on the challenges, outcomes, and successes of the Telemedicine network d. Prepare final report with dissemination plan for replication to other sites	<b>Technical project manager</b>  <b>Primary Care MD &amp; Medical/Surgical Specialty MD Clinical Directors</b>	<b>Month 20 – Month 36</b>

#### 4. Project Management, Clinical and Technical Team:

Roland Pickens Co-Project Director. City and County of San Francisco, Department of Public Health. San Francisco General Hospital Medical Center, Senior Associate Hospital Administrator, Primary Care, Medical Specialties, Diagnostic and Telemedicine Services. - SFGH

Douglas A. Levy Co-Project Director.: Special Assistant to the Dean, UCSF School of Medicine, Director of Communications UCSF School of Medicine – UCSF

Bruce Occena: Health Technology Consultant, Health Access Foundation

Project management and administrative oversight team.

Gloria Garcia Orme, RN, MS: Project management and administrative oversight team.

Operations & Nursing Director, Primary Care, Medical Specialties, Urgent Care Language Services, VMI - SFGH

Malcolm D. John, M.D., MPH: Clinical director at UCSF Medical Center/Parnassus. Director, 360

Director, Men of Color Program – UCSF

John Applegarth, IT Network Architect, City and County of San Francisco, Department of Public Health.

Opinder Bawa, Technical Project Director, Director of the Information Systems Unit at the School of Medicine at UCSF. UCSF School of Medicine

Hal Yee, M.D., Ph.D: Professor of Medicine, Director Center for Specialty Access and Quality in the Safety Net. Project management and administrative oversight team.

#### Active Faculty/Physician Leaders:

Michael Drennan, Director, Community Oriented Primary Care, City and County of San Francisco, Department of Public Health

Hali Hammer, M.D., Medical Director, UCSF at San Francisco General Hospital Family Health Center

Dean Schillinger, M.D., Associate Professor of Clinical Medicine, UCSF at San Francisco General Hospital General Medicine Clinic

#### 8. Community Sites Which Would Access the Telemedicine Network

- San Francisco Department of Public Health Clinics, San Francisco (10 clinics)
- San Francisco Community Clinic Consortium, San Francisco (10 clinics)
- San Mateo County Medical Center
- San Mateo County Department of Public Health
- Black Coalition on AIDS, San Francisco
- Leland House, San Francisco
- UCSF-Fresno Medical Education Center
- Children's Hospital Central California (Fresno)

- Community Regional Medical Center, Fresno
- Central Valley Health Network (consortium of clinics) (10 clinics) (Fresno and Merced Counties)
- Open Door Community Health Centers (10 clinics) (Humboldt and Del Norte Counties)
- Hoopa Valley Health Centers (dental clinic) (Del Norte County)
- San Francisco County Jail
- Laguna Honda Hospital (San Francisco)
- Asian Health Services in Oakland (3 clinics) (Alameda County)
- Richmond Health Center (Alameda County)
- Berkeley Primary Care Access (Alameda County)
- West Berkeley Family Practice (Alameda County)
- La Clinica del La Raza (Alameda County)
- East Bay AIDS Center (Alameda County)

