UCSF/Presidio Graduate School
Telemedicine Project

Fall 2011

Eric Cetnarski, Joey Christiano, Greg Kandankulam, Carrie Staller, Inna Volynskaya
Overview

Who/When:
• Five Presidio Graduate School MBA students
• Semester-long finance project, fall 2011

What/Where:
• Calculating the cost/benefit of UCSF providing pharmacy and nutrition consultations via telemedicine to HIV-patients at SF clinics
Why

• HIV-patients need and deserve the pharmacy and nutrition consultations to improve health outcomes

• Caring for HIV-patients benefits the greater community and reduces overall care costs

• UCSF strives to provide a world-class patient experience
Objective

• To help **determine** the financial, social and environmental **costs** and **benefits** of the UCSF program that provides pharmacy and nutrition consultation via **telemedicine** to HIV-positive patients at San Francisco clinics.
Three Scenarios

**Telemedicine**
Care provided via telemedicine from Parnassus to patients at SF Clinics

**UCSF Travels**
UCSF specialists travel to SF Clinics to provide care in-person

**Patient Travels**
Patients travel from SF Clinics to Parnassus to receive care in-person
Three Scenarios

Telemedicine
positives:
- 69% patients served
- Scalable
- No travel time
- High-tech care
- Quality care

negatives:
- Difficult insurance reimbursement

UCSF Travels
positives:
- 69% patients served
- Quality care
- Easier insurance reimbursement

negatives:
- Not scalable
- Higher cost
- UCSF travel time

Patient Travels
positives:
- 5% patients served
- Quality care
- Easier insurance reimbursement

negatives:
- Not serving population
- Lowest cost
- Patient travel time
# Telemedicine Recommended

<table>
<thead>
<tr>
<th>Metric per year</th>
<th>Telemedicine</th>
<th>UCSF Travels</th>
<th>Patients Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients Served</td>
<td>69%</td>
<td>69%</td>
<td>5%</td>
</tr>
<tr>
<td>Annual Cost to UCSF</td>
<td>$225,000</td>
<td>$245,000</td>
<td>$178,000</td>
</tr>
<tr>
<td>GHG Travel Emissions</td>
<td>0</td>
<td>0.22 MtCO2e</td>
<td>0.16 MtCO2e</td>
</tr>
<tr>
<td>Hours Spent Traveling</td>
<td>0</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Hourly Wage Foregone</td>
<td>0</td>
<td>$77</td>
<td>$15</td>
</tr>
<tr>
<td>Cost of Travel</td>
<td>0</td>
<td>$2,300</td>
<td>$300</td>
</tr>
<tr>
<td>Estimated Savings Due to Enhanced Care</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Total: Cost / Served</strong></td>
<td>$225,000 / 69%</td>
<td>$247,300 / 69%</td>
<td>$178,400 / 5%</td>
</tr>
</tbody>
</table>

MtCO2e = metric tons of CO2 equivalent
Conclusions

• Telemedicine is most scalable
• Telemedicine is the less-expensive, more-effective method
• It would be helpful to have data on healthcare cost savings due to nutrition and pharmacy consultations
• If telemedicine is scaled, it will benefit UCSF and the SF Clinics if they can streamline communication and transfer of medical records
Additional Slides
Suggested Additional Data Points

• To help quantify the benefit and potential revenue streams for telemedicine, the following information may be helpful to collect the following information on HIV-positive patients who participate and don’t participate in the telemedicine program:
  • Insurance information
  • Annual cost to health system (in hospital bills and medication)
## Cost of Telemedicine FY2010

<table>
<thead>
<tr>
<th>Description</th>
<th>Annual Salary/Cost</th>
<th>Percentage of time spent on Telemed</th>
<th>Cost associated with Telemedicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Provider</td>
<td>$218,250</td>
<td>20%</td>
<td>$43,650</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>$153,070</td>
<td>10%</td>
<td>$15,307</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>$91,240</td>
<td>10%</td>
<td>$9,124</td>
</tr>
<tr>
<td>Telemedicine Coordinator</td>
<td>$127,250</td>
<td>20%</td>
<td>$25,450</td>
</tr>
<tr>
<td>Community Health Program Representative</td>
<td>$36,685</td>
<td>100%</td>
<td>$36,685</td>
</tr>
<tr>
<td>Administrative Assistant II</td>
<td>$73,633</td>
<td>100%</td>
<td>$73,633</td>
</tr>
<tr>
<td>Telemedicine Operating Costs</td>
<td>$20,837</td>
<td>100%</td>
<td>$20,837</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$224,686</strong></td>
</tr>
</tbody>
</table>
Scenario: Telemedicine

- 69% of patients show up for their visits
- Increased flexibility for UCSF nutritionists and pharmacists and minimized travel time
- Patients forego costly, time-consuming travel
- Cost is competitive with UCSF travel scenario
- Cost decreases as number of sites scale
- Gives UCSF experience providing high-tech, world-class care
Scenario: UCSF Travels to Clinics

- 69% of patients show up for their visits
- UCSF nutritionists and pharmacists burdened with time-consuming travel
- Patients forego costly, time-consuming travel
- Cost is competitive with UCSF telemedicine when there are five or fewer sites
- Cost increases as services provided scale
Scenario: Patient Travels to UCSF

- 5% of patients show up for their visits
- Increased flexibility for UCSF nutritionists and pharmacists and minimized travel time
- Patients burdened with time-consuming travel
- Cost is competitive with UCSF travel scenario
- Cost is minimized yet patients are underserved
Assumptions

• The percentage of patients served is based on data from 360 Positive Care for 10/20/10 – 10/20/11.
• Annual costs for providing each service are based on data from 360 Positive Care Fiscal Year 2011.
• GHG emissions: Patients and UCSF specialists travel by car, and get 29 miles per gallon. Emissions were calculated based on gallons of gas burned, using http://www.epa.gov/cleanenergy/energy-resources/calculator.html
• Hourly wage was estimated at $77 for UCSF specialists based on average hourly compensation for medical providers, nutritionists and pharmacists prorated based on a 40-hour work week.
• Hourly wage was estimated at $15 for patients as it is assumed they are in a lower income bracket because they utilize clinics for care.