

Copy for Fran
Law

99013

Massachusetts Telehealth Access Program (MASSTAP)

Final Evaluation Report

October 18, 2002

Submitted to

**The Technology Opportunities Program
Department of Commerce**

By

**Kathryn E. Lasch, Ph.D.
Donnie McGrath, MD
Joe Cohen, MD
Jennifer Lee, Ph.D.
Therfena Green, BA
Annabel Greenhill, BA**

Award # 25-60-99013

INTRODUCTION

We hereby submit the Final Evaluation Report of the Massachusetts Telehealth Access Project (MASSTAP). MASSTAP was funded by the Technology Opportunities Program of the Department of Commerce (Award # 25-60^{# 99013}99103) from October, 1999 to June 30, 2002. In this report we will report the results and findings to date from the study proposed in our grant application. Our discussion includes an analysis of the extent to which the technology proposed and/or employed in our project contributed to the solution of the specific problem(s) defined in our project's proposal. We also include an analysis of the data on all measures created in our proposal. In addition, we describe a few changes in our evaluation plan and the rationale for such changes. We include in appendices all informed consent forms, user surveys, focus group results, statistical data, slides from presentations, and a list of articles in progress. In so doing, we organize this report in terms of specific aims, methods, to accomplish those aims, data collected, and preliminary results.

Primary Aim: To examine the cost-effectiveness of primary care and specialty clinics to an inmate population using basic Telemedicine technology in a new network involving several correctional facilities, a hub site community hospital and an academic medical center who have existing medical and educational relationships.

Original Hypotheses:

1. Telemedicine will increase health care utilization
2. Telemedicine will reduce 1) hospital admissions, 2) hospital re-admissions for the same illness, 3) in-hospital length of stay
3. Telemedicine will decrease transportation costs
4. Patient and health care provider satisfaction with the provision of healthcare will improve

PHASE 1 METHODS

During Phase 1, we negotiated with the State and County Departments of Corrections to provide clinics to their patients via telemedicine. Because of the vulnerability of the patient population, this was accomplished through various site visits, meetings, and providing prison officials with a document outlining our project, our survey instruments and consent forms. Approval to conduct the study had to come from all agencies—academic medical center, community hospital, Department of Corrections, and particular sites.

We designed this study to be an intervention study comparing telemedicine to standard clinics conducted in person. The care, whether by telemedicine or in person clinics usually were delivered by the same physicians. Ideally we would have randomized patients to telemedicine or control, but this was not feasible given time constraints, logistics and the standard operating procedures of the prisons. To conduct as valid a study as possible we used a prospective quasi-experimental design, comparing

health outcomes and costs of care for patient who received specialty medical services via telemedicine with a control group of inmates who received traditional face-to-face specialty care. Our choice of clinics providing care via telemedicine followed the adequacy of the necessary telemedicine equipment, interests of providers willing to participate, the medical care needs of the inmates, and the willingness of correctional facilities to participate. We started collecting data in the spring of 2000 and by December 12/19/00, the infectious disease clinic had seen 170 patients, dermatology 86, psychiatry 22, and Hep C/GI 4, and we were well on our way to providing care via telemedicine and evaluating its use.

Developing the MASSTAP Health Questionnaire:

Immediately after receiving word of funding, the PI and co-investigators started searching for and retrieving articles on prisoner health, HIV/AIDS, quality of life or health status questionnaires, and studies of the cost-effectiveness of medical care interventions. We started compiling these publications in a bibliographic database, Reference Manager (REFMAN). To date reference manager holds 120 books and articles specifically obtained for the MASSTAP project. Some of the over 5000 articles in this database, however, are also relevant to the MASSTAP project.

In the past decade, the use of health-related quality of life (HRQL) measures in evaluating health care outcomes and for cost-effectiveness analysis has increased dramatically. We soon found that a huge gap in the literature mentioned above was how to measure the quality of life or health status of prisoners, in general, and of those receiving telemedicine in particular. Although health-related quality of life measures have increasingly been used to assess the effectiveness of traditional health care interventions, such assessment was not well developed in studies of inmates in general, and was negligible in studies of telemedicine. Additionally, there were no standard health-related quality of life measures developed specifically for the incarcerated population.

HRQL measures include health profiles, preference-based measures, visual analog scales, and health utility measures. Health profiles report separate scores for each dimension of health being considered. The Medical Outcomes Study 36-item Short Form (SF-36)(1), for example, is one of the most commonly used health profiles. The SF-36 offers a profile of health outcomes including one multi-item scale comprised of eight dimensions assessing: limitations in physical functioning, limitations in social functioning due to physical or emotional problems, limitations in role activities due to physical health problems, bodily pain, general mental health (psychological distress and well-being); limitations in role activities due to emotional, vitality (energy and fatigue), and general health perception. The SF-36 has proven to be a very reliable and valid instrument and has been used with various patient populations with different race, gender, education level, poverty status, diagnosis, and disease severity to assess the impact of medical interventions.(2)

Preference-weighted measures, constructed using measurements of individuals' preference for various health states, result in single scores. For example, the Quality of Well Being Scale (QWB)(3) is a well-defined preference-weighted measure combining four domains: mobility, physical activity, social activity, and a rating of symptomatic complaints that might inhibit function.(4;5) Another often used scale, the visual analog scale (VAS), is based on rating scale methods where participants are asked to rate their current health on a scale that ranges from near death (0) to perfect health (100). The VAS has been described as a "feeling thermometer" whereby the subject places himself at the point on the scale that best describes his current health.(6) p. 260

There are also preference-based utility measures, which use patient judgment to combine and scale health effects over several different dimensions and result in single scores that involve trade-offs between quality and quantity of life. These measures "assess the preferences of individuals for alternative health states or outcomes, whereas generic and disease-specific HRQL approaches concentrate on identifying the presence, absence, severity, frequency, and/or duration of specific symptoms, impairments, or disabilities."(6) p. 254. These measures combine the negative and positive aspects of a given health state yielding a single number as a score. The scaling of utility measures is always made in terms of some absolute reference point (often, "perfect health" and death) and all produce scores ranging from 0 to 1.0 in which 0 is equated with death and 1.0 with optimum function.(7) p.314 Some of the most commonly used utility measures are time trade-off, willingness-to-pay, and standard gamble.(8) Although we were not sure how the inmates would do with the rather complicated structured interview items that are used with these measures, we believed the resultant utility scores could potentially be valuable to compare the utility and cost-utility of telemedicine vs. in person care. In such analyses utility measures can be used to make recommendations regarding the allocation of resources.(6)p 255). A colleague of ours had used utility questions in populations of patients with AIDS/HIV, and for our first draft of these questions we used his questions. Later one of the original co-investigators on this project, Dr. James Stahl, suggested some changes and asked that we include a willingness-to-pay question extending the use of the willingness-to-pay concept to time to be seen by a physician with telemedicine vs. in-person.

The MASSTAP Health Questionnaire (MHQ) is comprised of several questions pertaining to socio-demographic information; patient satisfaction questions; the adapted SF-36, several utility measures--time trade-off, willingness-to-pay, standard gamble--, and visual analog scale. In addition, we asked patients about their perceptions of telemedicine.

During the feasibility phase of our evaluation, we tested the ease of administration, validity, and reliability of these HRQL and utility measures. We chose the SF-36 to be our measure of choice as the QWB had been found to be not correlated as well with the SF-36 in terms of mental health.(9;10) The literature and the team's clinical experience suggested that depression would be relatively prevalent in our patient population.(10-14) The inability to use an adequate measure of depression might bias

results. We decided to test the psychometric properties of the MHQ against those of the QWB. Please see Appendix A for the MHQ.

Informed Consent and Data Safety Monitoring for the Phase 1 Pilot

We submitted an informed consent form and the protocol to the appropriate Internal Revenue Boards and gained approval to conduct our study. As we collected health data, each patient was identified only with a numerical code, the data were put into an excel spreadsheet, and the original data was placed under lock and key. Only the evaluator, research assistant and statistician had access to this data.

Subjects for Pilot Test

57 patients from the public health hospital in the MASSTAP network were recruited for the pilot study. Informed consent was obtained and the MHQ and QWB were administered through in person interviewing by the research assistant. Approximately 2 to three weeks later they were administered again to test for test-retest reliability. We chose participants from this site because of logistics, feasibility, and the belief that they were similar to the incarcerated participants in terms of age, medical conditions (i.e., depression and HIV) and the likelihood of incarceration at some point in their lives. We included both men and women to test the properties of our instrument for both.

Description of the Study Population for Pilot Test:

The mean age of patients was 42 years (range 21-69). 51% were men. 48% were White, 30% Black, 19% Latino. 25% (85) of the patients either had an AIDS diagnosis or tested HIV-positive. 65% (37) had been incarcerated at some point in their lives. The detailed description of the pilot study population is given in Table 1.

Table 1. Sociodemographic Information (N=57)

	Frequency	%
Gender		
Male	29	51
Women	28	49
Age group		
Less than 40	25	44
40 or older	32	56
Ethnic		
White	26	46
Black	25	44
Latino	4	7
Other	2	4

Education		
Grade school	6	11
High school	38	67
College	13	23
Marital Status		
Married	4	7
Other	53	93
Employment		
No	54	95
Yes	3	5
Chronic condition		
No	11	19
HIV	25	44
Depression	5	9
Both	16	28
Incarcerated		
No	20	35
Yes	37	65

Measures

Health-Related Quality of Life Measures

1) Health profile – an adapted SF-36

An adapted Medical Outcomes Survey Short Form (SF-36) which includes 36 items that comprises eight health domains-physical functioning (PF), role-physical (ROLEP), bodily pain (PAIN), general health perception (GHP), vitality (VT), social functioning (SOCIAL), role-emotional (ROLEE), mental health (MHI5) and a single-item question on the perceived change in health compared with one year earlier (HT). We only deleted four items from the original SF-36 because they were found to be **inappropriate for the inmates or showed signs of producing ceiling effects**. These included: climbing one flight of stairs; problems with work or regular activities as a result of physical problems; accomplished less than you would like; and problems with work or regular activities as a result of emotional problems, including accomplishing less than you would like. We also changed the wording of the item about lifting something heavy to read lifting a lock box.

2) Preference-based measures

a. Time trade-off (TTO) – The particular TTO developed in this study was a single measure that ascertains the desirability of living the remainder of one’s life in the current state of health (assumed to be 10 years) versus living less time in excellent health. The TTO ranges from 0.0 to 1.0, the higher the TTO, the better the health-related quality of life.

b. Willingness-to-pay (WTP) – The WTP chosen for this study was direct (not open-ended). Direct pricing involves patients’ explicit statements about how much they would

pay (in this particular study, days of waiting from 0 day to 2 months) to obtain the particular health event (to see a doctor in person Vs telemedicine). The WTP ranges from 0.0 to 1.0, the higher the WTP, the better the health-related quality of life.

c. Standard gamble utility measure (SGM) – a single measure that involves asking a respondent to make trade-offs between a particular health state (10 years in perfect health) and a hypothetical gamble involving some chance of a worse outcome (odds, 0 to 10, out of 10, of death immediately). This utility measure is the only measure we used that involves uncertainty, technically, the true utility measure. The SGM ranges from 0.0 to 1.0, the higher the SGM, the better the health-related quality of life.

d. Visual analogue scale (VAS) – The VAS ranges from 0 to 10 where 0 indicates near death and 10 for perfect health.

e. Quality of Well-Being Scale (QWB) - We included the Quality of Well-Being Scale (QWB) for the purpose of testing the convergent validity of the adapted SF-36. We collected medical record data to test the discriminant validity of the MHQ.

Analyses

The purpose of the analysis is to explore the relationship between our health profile and preference-based measures. In addition, we also examined the reliability and validity of the QRHL measures in the MHQ. We assessed the relationship between health-related quality of life measures using the Pearson-product moment correlation coefficient. We applied MAP-R(15) software to assess the psychometric properties of the adapted SF-36. The analysis includes item-completion rate, item-internal consistency, item-discriminant validity, reliability coefficient as well as floor and ceiling effects. Item internal consistency is evaluated by inspecting the correlation between each item and its hypothesized scale. A correlation above 0.4 is considered a high standard of internal consistency.(15) Tests of item discriminant validity focus on the integrity of hypothesized item groupings relative to the health concepts hypothesized. The success rate of item discriminant validity was computed by dividing the total number of successes by the total number of tests performed. Coefficient alpha (Cronbach's alpha), which is the average of all possible split-half reliabilities adjusted to the original number of items, was used to estimate the reliability of the measures. Using the Pearson-product moment and intraclass correlation coefficient, we assessed the test-retest reliability of all measures in the MHQ instrument. The time interval for the test-retest was two to three weeks. An interval of two to four weeks is the usual time period for HRQL measures. (16)

Principal components factor analytic methods were used to develop a composite mental health score (MCS) and a physical health composite score. Physical and mental health factors have been confirmed to account for 80% to 85% of the reliable variance in the eight scales in the US general population, among Medical Outcome Study (MOS) patients, and in general populations in Sweden and the United Kingdom (17)

Results of the Pilot Test

Descriptive statistics for the pilot test using the MCS and PCS are given in Table2. Briefly summarized are results of the pilot test found:

- The MHQ was easy to administer to the inmates.
- The test-retest reliability of the TTO and the VAS was significant at $p=0.01$.
- The MHQ PCS was significantly correlated with the QWB ($r=0.35$, $p=0.03$), but not the MCS (which we expected given that the QWB does not adequately measure depression)
- The PCS was not significantly correlated with the MCS.
- The PCS was significantly correlated with the TTO, VAS, and SGM.
- The MCS was significantly correlated with TTO and VAS but not SGM.
- Overall, the MHQ is a comprehensive measure of health outcomes for inmates in general
- The inmates exhibited considerable variability in their response to the MHQ and in predictable ways.
- The MHQ describes the inmates' health status by several dimensions to account for the heterogeneity across subjects.
- The MHQ was found to be valid, reliable and sensitive to change

Overall, the MHQ proved to be psychometrically sound. While some of the MAP-R results were a little weak, we believed that the results of MAP-R analyses were more the result of our small sample size ($N=57$) and proceeded to use the MHQ as our instrument to compare the outcomes of telemedicine with in-person clinical visits

Phase 2: Testing the Psychometric Properties of the MHQ with N=218 Patients

Upon completion of the data collection phase, during which we collected data on telemedicine and control patients, we once again subjected the MHQ to tests of reliability and validity. These analyses included the 57 men and women from the pilot study and 161 patients from the intervention study. The descriptive statistics for this study population are given in Table 3.

Table 3. Social-demographic Information for 218 Inmates and Pilot Study Patients

	Inmates		Pilot		All	
	N	%	N	%	N	%
Gender						
Male	161	100	29	51	190	87
Women			28	49	28	12
Age group						
less than 40	101	63	25	44	126	58
40 or Older	60	37	32	56	92	42
Ethnic						
White	78	48	26	46	104	48
Black	40	25	25	44	65	30
Latino	40	25	4	7	44	20
Other	3	2	2	4	5	2

Education						
Grade school	16	10	6	11	22	10
High school	109	68	38	67	147	67
College	36	22	13	23	49	22
Marriage Status						
Married	24	15	4	7	28	13
Other	135	85	53	93	188	87
Employment						
No	59	37	54	95	113	52
Yes	102	63	3	5	105	48
Chronic Condition						
No	52	32	7	12	59	27
Depression	14	9	5	9	19	9
HIV	57	35	41	72	98	45
Other	38	24	4	7	42	19
Length of Incarceration						
Less than a year	56	35			56	35
A year or more	105	65			105	65
Length of Sentence						
Less than a year	26	17			26	17
A year or more	124	83			124	83

Phase II Results of Tests of the Properties of MHQ

Briefly summarized, the item internal consistency of the HQRL items on the MHQ was 97% (percent of item to scale correlation); the item-discriminant validity was 95% (percent of item to scale correlations greater than the correlation of the item to other scales); the internal consistency reliability as measured by Cronbach's alpha was 91% and the test-retest reliability ranged from $r=.37$ to $.77$ with p ranging from 0.04 to 0.0001.

Phase II Test-retest Reliability

Test-retest correlation coefficients for the eight health domains and two composite scores range from 0.37 to 0.77 ($p= 0.04$ to 0.0001). The test-retest correlation coefficient is 0.36 ($p=0.01$) for the TTO, 0.18 ($p=0.22$) for the SGM and 0.36 ($p=0.01$) for the VAS.

Phase II Association Between all HRQL Measures

The correlation coefficients between all HRQL measures are given in Table 4. The PCS was significantly correlated with TTO, VAS, SGM and the QWB. The MCS

was significantly correlated with TTO and VAS. However, the MCS on the MHQ was not significantly correlated with the QWB, as would be expected.

Table 4. Association Between Health-Related Outcome Measures

	PCS	MCS	TTO	VAS	SGM	QWB
PCS		-0.03 0.66	0.34 0.0001	0.49 0.0001	0.22 0.0083	0.35 0.03
MCS			0.24 0.0027	0.33 0.0001	0.04 0.60	0.09 0.61
TTO				0.32 0.0001	0.25 0.0025	0.22 0.20
VAS					0.09 0.28	0.26 0.11
SGM						0.16 0.47

Phase II Item Completion Rates and Score Distributions

The item-completion rates and score distributions on the MHQ items are given in Table 5.

Table 5. Sample characteristics - item-completion rate(% missing and score distributions (% floor effects and % ceiling effects)

	K	Intervention			Control			Control			All		
		Miss-ing	Floor	Ceil-ing	Miss-ing	Floor	Ceil-ing	Miss-ing	Floor	Ceil-ing	Miss-ing	Floor	Ceil-ing
Physical Function	9	0.1	1.3	39.0	0.0	0.0	55.6	0.0	0.0	19.6	0.1	0.6	35.0
Role-Physical	3	0.0	18.2	58.4	0.0	22.2	63.0	0.0	28.6	44.6	0.0	22.5	54.4
Bodily Pain	1	1.3	5.2	45.5	0.0	0.0	37.0	1.8	7.1	19.6	1.2	5.0	35.0
General Health	5	1.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.5	0.6	0.0
Vitality	4	1.9	0.0	13.0	0.9	0.0	22.2	0.9	0.0	3.6	1.4	0.0	11.3
Social Functioning	2	0.6	2.6	48.1	0.0	3.7	55.6	0.0	3.6	30.4	0.3	3.1	43.1
Role-Emotional	2	0.6	15.6	70.1	0.0	14.8	77.8	0.0	17.9	51.8	0.3	16.3	65.0
Mental Health	5	1.3	0.0	11.7	0.0	0.0	11.1	0.0	0.0	3.6	0.6	0.0	8.8
Health transition	1	0.0	9.1	27.3	0.0	7.4	22.2	0.0	5.4	28.6	0.0	7.5	26.9
Total	32	0.8	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0

K: Number of items

Phase II Results of the MAP-R Analyses

Table 6 shows the results of the MAP-R Analyses, which indicates the overall performance of the psychometric properties of the MHQ.

Table 6. Overall Performance of the Psychometric Properties

	Intervention		All
		Control	
% of item-scale correlations that are greater than or equal to 0.40	97%	87%	93%
% of item-scale correlations at least 2 standard errors greater than the correlations of the item to other scales	60%	60%	76%
% of item-scale correlations greater than the correlations of the item to other scales	92%	89%	93%
% of scale with Cronbach's Alpha coefficient greater than or equal to 0.70	86%	57%	71%

Phase 2 Quantitative Data Collection and Management

The MHQ interviews were conducted by Therfena Green, the research assistant. Patients attending either telemedicine or in-person clinics were recruited to participate by medical staff at the correctional facilities. The study was explained to them and they

were informed that their participation was voluntary. If they agreed to participate, the RA went over the informed consent form with them, it was signed, and the interview was conducted, usually while other inmates were being seen in the clinic or in other words at the time of the clinic. Please see Appendix B for all informed consent forms used in this study. Participants were interviewed at baseline, one month, and 6-month follow-ups.

In addition, we conducted a survey of patient and staff perceptions of Telemedicine. The evaluator and the RA developed the items, scaled using Likert scaling methods, from open-ended questions suggested in the Institute of Medicine's report on telemedicine.(18) See Appendix C for staff and patient perceptions of telemedicine clinic questionnaires.

To further test the validity of the MHQ and to provide clinical variables as control variables in the analyses designed to answer the questions in our specific aims, medical record data were collected and coded. The data included medications by system, primary diagnosis, number of comorbidities, number of visits to specialty clinics, number of visits in last 12 months, and current lab reports (Hb/HCT, WBC, Plt, ALT(SPGT), Bun, Creatinine, T cell count (T4), and viral load. Again the data was coded and entered into an excel spreadsheet. For a sample of patients with HIV we also collected data on their percentage of routine (no new symptoms/signs, no medication changes) vs. complicated (medication changes and/or new signs and symptoms) visits.

The Administrative Assistant, Virginia McErlane, and the RA also collected utilization and cost data. Early on in the project, Dr. Jamie Stahl, suggested a list of utilization and cost measures. Through team discussion about what data were available and it were feasible to collect, we narrowed down the cost and use measures. The final list included the following: the number of times the inmate was seen in the telemedicine clinic, the length of time the physician spent with the patient in the clinic, the total length of time of the telemedicine clinic, the number of times seen in the hospital, length of stay in the hospital, and transportation costs. We are using mean Medicaid reimbursement for each diagnosis and inpatient and outpatient costs as proxies for true costs. Telecommunication costs, e.g., ISDN lines, are derived from the local telecom provider. Transportation costs for the inmates were calculated following the Texas Technology MEDNET Demonstration Project in Lubbock, Texas.

Data was computerized and stored at the New England Medical Center. Each subject was given a numeric code and no information that could be used to identify participants was stored with the data. A codebook, the MASSTAP Health Questionnaire CodeBook, was developed by the RA and the statistician. We also kept a log of completed MASSTAP interviews by pilot study, intervention sites and control site, and they were graphed and discussed at team meetings. We kept a log of all clinics conducted. All data were first entered into an Excel database and then converted to a SAS database.

Phase 2 Interim and Planned Outcome Analyses

We conducted interim analyses as we proceeded and discussed findings at group meetings scheduled by the PI. In addition, we conducted interim analysis for presentations at annual meetings. Analysis of the psychometric properties of the instruments are as given in Phase 1 Analyses above. Descriptive statistics were obtained on the MHQ items using SAS for the control and intervention groups.

Phase 2: Preliminary Results of the Effectiveness of Telemedicine vs. In-Person Clinic Visits

The descriptive statistics of the MHQ at baseline are presented in Table 6. Overall, the total study population looks less healthy than the norms on the SF-36 for the general US population, especially in the area of mental health and role functioning. The 8 domain scores exhibit considerable variability.

Table 6. Descriptive Analysis of Health-Related Outcome Measures

	Intervention				Control				All			
	Mea	Std	Min	Max	Mea	Std	Min	Max	Mea	Std	Min	Max
Physical Functioning	80	27	0	100	68	25	11	100	76	27	0	100
Role-Physical	70	41	0	100	57	43	0	100	65	42	0	100
Role-Emotional	71	31	0	100	58	30	0	100	66	31	0	100
Mental Health	61	26	0	100	50	25	0	100	57	26	0	100
Vitality	63	29	5	100	46	27	5	100	57	29	5	100
Social Functioning Scale	77	28	0	100	71	26	0	100	75	28	0	100
Bodily Pain	78	37	0	100	67	38	0	100	74	38	0	100
General Health Perceptions	69	25	8	100	60	24	12	100	66	25	8	100
Physical Composite Score	47	12	13	65	42	12	19	64	45	12	13	65
Mental Composite Score	49	13	10	69	44	13	17	67	47	14	10	69
TTO	0.71	0.30	0.00	1.00	0.67	0.27	0.00	1.00	0.70	0.29	0.00	1.00
SGM	0.66	0.31	0.00	1.00	0.72	0.23	0.10	1.00	0.68	0.29	0.00	1.00
VAS	7.00	2.11	2.06	10.0	5.71	2.20	1.37	10.0	6.54	2.23	1.37	10.0

Results of Phase II Preliminary Analyses

We continue to analyze the final results of our quasi-experimental analysis of the effectiveness, cost-effectiveness, and utility effectiveness of prison health care provided through telemedicine vs. in-person clinics. However, preliminary analysis have suggested the following:

- The MHQ is a reliable and valid instrument, which is sensitive to change, to measure the health of inmates and compare health care interventions, particularly telemedicine vs. in-person clinics..
- Overall, patient perceptions of telemedicine are positive and over time became more positive
- There were no significant differences in the health outcomes of inmates who are HIV+ when care is provided via telemedicine for specialty clinics (dermatology, psychiatry, infectious disease, hepatitis C and gastroenterology) vs. in-person care.
- HIV patients and providers express high levels of acceptance and satisfaction with telemedicine clinics.
- HIV patients provided care through telemedicine show increasing positive perceptions toward telemedicine in terms of comfort, acceptance, convenience, and willingness to use telemedicine.
- HIV patients showed increasing concern about privacy issues with telemedicine over time (baseline, 1 month, and 6-month follow-up visits).

Phase II Qualitative Data and Analyses

The RA and the PI took observational notes when they visited sites, conducted focus groups, or interviewed patients or staff. This data also was entered into a software package designed to analyze qualitative data. A coding scheme was developed and this data has been coded. In addition, we decided as the project was nearing completion that we would interview key players, for example, clinicians and corrections administrators, in the implementation of this telemedicine project. We developed an open-ended interview schedule and an informed consent form for this phase of the project and only recently have gained IRB approval. The evaluator will conduct these interviews in the next few months and we will add this data to our qualitative database. We have collected this data to provide clues to the barriers and facilitators of the implementation of a project such as this. See Appendix D for the informed consent form and open-ended questionnaire.

Presentations/ Planned Publications

We had 3 abstracts accepted for presentation at annual meetings. The first was presented at the American Telemedicine Association Annual Meetings in 2001 and won a prize for representing the best science at the meeting. Another was accepted for presentation as a roundtable at the American Public Health Association Annual Meetings in 2001. In addition, we presented at the Telemedicine: Public Health to Telehealth to broaden the community of users in Massachusetts in 2001. See Appendix E for a list of presentations.

Several publications are in different stages of progress. An article discussing the development of the MHQ will go out for publication soon. Other articles we have planned or are in the process of writing-up include:

- Does Providing Inmates Specialty Care Through Telemedicine Improve Their Health?
- The Cost-Effectiveness of Telemedicine vs. In-Person Clinics for Inmates
- Developing a Methodology to Compare Telemedicine vs. Traditional Care for Prisoners
- Does Telemedicine Improve the Health of Co-Infected Prisoners?
- Challenges and Opportunities When Implementing a Telemedicine Program in Massachusetts: A Qualitative Analysis

References

- (1) Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Medical Care* 1992; 30(6):473-483.
- (2) McHorney CA, Ware JE, Lu JFR, Sherbourne CD. The MOS 36-item short-form health survey (SF-36): III. Test of data quality, scaling assumptions, and reliability across diverse patient groups. *Medical Care* 1994; 32(1):40-66.
- (3) Hays RD, Shapiro MF. An overview of generic health-related quality of life measures for HIV research. *Quality of Life Research* 1992; 1(2):91-97.
- (4) Anderson JP, Kaplan RM, Coons SJ, Schneiderman LJ. Comparison of the quality of well-being scale and the SF-36 results among two samples of ill adults: AIDS and other illnesses. *J Clin Epidemiol* 1998; 51(9):755-762.
- (5) McDowell I, Newell C. Pain measurements. *Measuring Health: A Guide to Rating Scales and Questionnaires*. New York: Oxford University Press, 1996: 335-379.
- (6) Bennet KJ, Torrance GW. Measuring Health State Preferences and Utilities: Rating Scale, Time Trade-Off, and Standard Gamble Techniques. In: Spilker B, editor. *Quality of Life and Pharmacoeconomics in Clinical Trials*. Philadelphia: Lippincott-Raven Publishers, 1996: 253-265.
- (7) Kaplan BJ, Anderson JP. *The General Health Policy Model: An Integrated Approach*. In: Spilker B, editor. *Quality of Life and Pharmacoeconomics in Clinical Trials*. New York: Lippincott Williams & Wilkins, 1996: 301-308.
- (8) *Quality of Life and Pharmacoeconomics in Clinical Trials*. 2nd ed. New York: Lippincott Williams & Wilkins, 1996.
- (9) Andresen EM, Rothenberg BM, Kaplan RM. Performance of a self-administered mailed version of the Quality of Well-Being (QWB-SA) questionnaire among older adults. *Med Care* 1998; 36(9):1349-1360.
- (10) Brazier J, Roberts J, Deverill M. The Estimation of a Preference-Based Measure of Health. 2000.
Ref Type: Unpublished Work

- (11) Andersen HS, Sestoft D, Lillebaek T, Gabrielsen G, Kramp P. Prevalence of ICD-10 psychiatric morbidity in random samples of prisoners on remand. *International Journal of Law and Psychiatry* 1996; 19(1):61-74.
- (12) DiCataldo F, Greer A, Profit WE. Screening prison inmates for mental disorder: an examination of the relationship between mental disorder and prison adjustment. *Bull Am Acad Psychiatry Law* 1994; 23(4):573-585.
- (13) Dorman A, O'Connor A, Hardiman E, Freyne A, O'Neill H. Psychiatric Morbidity in Sentenced Segregated HIV-Positive Prisoners. *Br J Psychiatry* 1993; 163:802-805.
- (14) Fido AA, Razik MA, Mizra I, el-Islam MF. Psychitric disorders in prisoners referred for assessment: A preliminaru study. *Can J Psychiatry* 1992; 37(2):100-103.
- (15) MAP-R for Windows: Multitrait/Multi-Item Analysis Program -- Revised User's Guide. Boston, MA: Health Assessment Lab, 1997.
- (16) Bennet KJ, Torrance GW. Measuring Health State Preferences and Utilites: Rating Scale, Time Trade-Off, and Standard Gamble Techniques. In: Spilker B, editor. *Quality of Life and Pharmacoeconomics in Clinical Trials*. New York: Lippincott Williams & Wilkins, 1996: 253-266.
- (17) Ware JE. The SF-36 Health Survey. In: Spilker B, editor. *Quality of Life and Pharmacoeconomics in Clinical Trials*. New York: Lippincott Williams & Wilkins, 1996: 337-346.
- (18) Institute of Medicine (U.S.). *Telemedicine: A Guide to Assessing Telecommunications in Health Care / Committe on Evaluating Clinical Applications of Telemedicine, Division of Health Care Services, Institute of Medicine*. Washington, D.C.: National Academy Press, 1996, 2002.

Appendix A MHQ

CONTINUE

ID# _____

**MASSACHUSETTS TELEHEALTH ACCESS PROJECT
HEALTH QUESTIONNAIRE**

Conducted by:
Tufts University School of Medicine
New England Medical Center
Lemuel Shattuck Hospital
170 Morton Street
Boston, MA 02130

1(617) 522-8110

Joe Bakan, MS
Joseph Cohen, MD
Therfena N. Green, BA
Kathryn E. Lasch, Ph. D.
Virginia McErlane, BA
Donnie McGrath, MD
James Stahl, MD, CM

CONTINUE

5. How long have you been incarcerated so far, for this period of time? (Check one)

0-12months
[1]

1-5 yrs
[2]

5-10 yrs
[3]

10-20 yrs
[4]

20 yrs -life
[5]

6. What is your length of this sentence? (Check one)

0-12 months
[1]

1-5 yrs
[2]

5-10 yrs
[3]

10-20 yrs
[4]

20 yrs -life
[5]

7. Have you been incarcerated before? (Check one)

No
[0]

Yes
[1]

7a. If yes, how many times?

8. Were you employed prior to being incarcerated? (Check one)

No
[0]

Yes
[1]

8a. If yes, what did you do for a job? _____

8b. If no, when were you last employed?

8c. What was your job when you were last employed?

9. What is your **current** marital status (fill in one box)?

Married
[1]

Common Law
Wife
[2]

Separated
[3]

Divorced
[4]

Widowed
[5]

Never been
married
[6]

CONTINUE

Patient Perceptions of Telemedicine Clinic

1a. Have you ever participated in the telemedicine clinic before this period?

1b. If yes, how many times? _____

2a. Have you also seen the telemedicine MD at your site? _____

2b. If yes, how many times? _____

Now we want to ask you some questions about your experience with the telemedicine clinic?

1. How do you rate your physical comfort with the telemedicine clinic?

Not at all
comfortable
[1]

Slightly
comfortable
[2]

Somewhat
comfortable
[3]

Very
comfortable
[4]

Extremely
comfortable
[5]

2. How do you rate your psychological comfort with the telemedicine clinic?

Not at all
comfortable
[1]

Slightly
comfortable
[2]

Somewhat
comfortable
[3]

Very
comfortable
[4]

Extremely
comfortable
[5]

3. How do you rate the convenience of your encounter with the telemedicine service, given your facilities procedures for using the service?

Not at all
convenient
[1]

Slightly
convenient
[2]

Somewhat
convenient
[3]

Very
convenient
[4]

Extremely
convenient
[5]

CONTINUE

4. How do you rate the convenience of the duration of your telemedicine service?

Not at all
convenient
(1)

Slightly
convenient
(2)

Somewhat
convenient
(3)

Very
convenient
(4)

Extremely
convenient
(5)

5. If you have ever been sick, how would you rate the convenience of the availability to see a telemedicine doctor when you were sick?

Not at all
convenient
(1)

Slightly
convenient
(2)

Somewhat
convenient
(3)

Very
convenient
(4)

Extremely
convenient
(5)

6. How do you rate the skills of the telemedicine doctor?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

7. How do you rate the skills of the attending personnel at your site?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

8. How do you rate the personal manner of the telemedicine doctor?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

CONTINUE

9. How do you rate the personal manner of the attending personnel at your site?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all acceptable | Slightly acceptable | Somewhat acceptable | Very acceptable | Extremely acceptable |
| [1] | [2] | [3] | [4] | [5] |

10. How acceptable to you was the lack of direct physical contact with the distant telemedicine doctor?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all acceptable | Slightly acceptable | Somewhat acceptable | Very acceptable | Extremely acceptable |
| [1] | [2] | [3] | [4] | [5] |

11. How do you rate the explanations of your health problems provided by the telemedicine doctor?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all acceptable | Slightly acceptable | Somewhat acceptable | Very acceptable | Extremely acceptable |
| [1] | [2] | [3] | [4] | [5] |

12. How acceptable to you were the recommendations provided by the telemedicine doctor?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all acceptable | Slightly acceptable | Somewhat acceptable | Very acceptable | Extremely acceptable |
| [1] | [2] | [3] | [4] | [5] |

CONTINUE

13. Do you have more concerns seeing a telemedicine doctor about the protection of the privacy of your personal medical information being violated than when you see an MD on site?

Not at all
concern
[1]

Slightly
concern
[2]

Somewhat
concern
[3]

Very
concern
[4]

Extremely
concern
[5]

14. How willing would you be to use the telemedicine service again?

Not at all
willing
[1]

Slightly
willing
[2]

Somewhat
willing
[3]

Very
willing
[4]

Extremely
willing
[5]

15. Overall, how satisfied are you with the telemedicine services received?

CONTINUE

THE SHORT FORM SF-36 SURVEY

YOUR HEALTH

1. In general, would you say your health is:

Excellent
[1]

Very good
[2]

Good
[3]

Fair
[4]

Poor
[5]

2. Compared to one year ago, how would you rate your health in general now?

Much better
now than
1 year ago
[1]

Somewhat
better now than
1 year ago
[2]

About the same
as 1 year ago
[3]

Somewhat
worse now than
1 year ago
[4]

Much worse
now than
1 year ago
[5]

PHYSICAL ACTIVITY LIMITATIONS

3. The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

	[1] Yes, limited a lot	[2] Yes, limited a little	[3] No, not limited at all
a. Vigorous activities , such as running, lifting heavy objects, participating in strenuous sports like handball or basketball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Moderate activities , such as moving a table, taking a walk around the court yard or basketball court	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Lifting or carrying a property box, bucket, or pail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Climbing flights of stairs several times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Bending, kneeling, or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Walking more than a mile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Walking several blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CONTINUE

- h. Walking **one block**
- i. Bathing or dressing yourself

4. During the **past 4 weeks**, have you had any of the following problems with your work or regular daily activities **as a result of your physical health**?

- | | (1)
Yes | (2)
No |
|--|--------------------------|--------------------------|
| a. Cut down the amount of time you spent on work or other activities | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Were limited in the kind of work or other activities | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Had difficulty performing the work or other activities (for example, it took extra effort) | <input type="checkbox"/> | <input type="checkbox"/> |

5. During the **past 4 weeks**, have you had any of the following problems with your work or regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

- | | (1)
Yes | (2)
No |
|---|--------------------------|--------------------------|
| a. Cut down the amount of time you spent on work or other activities | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Didn't do work or other activities as carefully as usual | <input type="checkbox"/> | <input type="checkbox"/> |

6. During the **past 4 weeks**, to what extent has your **physical health** or **emotional problems** interfered with your normal social activities with other inmates, acquaintances, or friends

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all | Slightly | Moderately | Quite a bit | Extremely |
| (1) | (2) | (3) | (4) | (5) |

7. How much **bodily** pain have you had during the **past 4 weeks**?

-

CONTINUE

None
[1]

Very mild
[2]

Mild
[3]

Moderate
[4]

Severe
[5]

Very severe
[6]

8. During the **past 4 weeks**, how much did **pain** interfere with your normal job or duties (Skip this question if you do not have one)?

Not at all
[1]

A little bit
[2]

Moderately
[3]

Quite a bit
[4]

Extremely
[5]

9. During the **past 4 weeks**, how much of the time have your **physical health or emotional problems** interfered with your social activities (like playing cards, chess, dominos, etc.)?

All of
the time
[1]

Most of
the time
[2]

Some of
the time
[3]

A little of
the time
[4]

None of
the time
[5]

CONTINUE

10. These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks**...

	[1]	[2]	[3]	[4]	[5]	[6]
	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a. Did you feel full of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have you been a very nervous person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have you felt so down in the dumps that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Have you felt calm and peaceful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Did you have a lot of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Have you felt downhearted and blue?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Did you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Have you been a happy person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Did you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CONTINUE

11. How TRUE or FALSE is each of the following statements for you?

	[1] Definitely true	[2] Mostly true	[3] Don't know	[4] Mostly false	[5] Definitely false
a. I seem to get sick a little easier than other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I am as healthy as anybody I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I expect my health to get worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My health is excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Has a doctor ever told you that you had:	[1] Yes	[2] No
a. Hypertension or high blood pressure	<input type="checkbox"/>	<input type="checkbox"/>
b. Angina pectoris or coronary artery disease	<input type="checkbox"/>	<input type="checkbox"/>
c. Congestive heart failure	<input type="checkbox"/>	<input type="checkbox"/>
d. A myocardial infarction or heart attack	<input type="checkbox"/>	<input type="checkbox"/>
e. Other heart conditions, such as problems with heart valves or the rhythm of your heart beat	<input type="checkbox"/>	<input type="checkbox"/>
f. A stroke	<input type="checkbox"/>	<input type="checkbox"/>
g. Emphysema, or asthma, or COPD (Chronic Obstructive Pulmonary Disease)	<input type="checkbox"/>	<input type="checkbox"/>
h. Diabetes	<input type="checkbox"/>	<input type="checkbox"/>
i. Osteoarthritis, DJD, or Rheumatoid Arthritis	<input type="checkbox"/>	<input type="checkbox"/>
j. Any cancer (other than skin cancer)	<input type="checkbox"/>	<input type="checkbox"/>

CONTINUE

- | | [1]
Yes | [2]
No |
|--|--------------------------|--------------------------|
| 13. Do you NOW have any of the following conditions?: | | |
| a. Chronic allergies or sinus trouble | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Arthritis of any kind or rheumatism | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Sciatica or chronic back problems | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Blindness or other trouble seeing with one or both eyes,
even when wearing glasses | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Chronic lung disease (like chronic bronchitis, asthma, or
emphysema) | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Dermatitis or other chronic skin rash | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Deafness or other trouble hearing with one or both ears | <input type="checkbox"/> | <input type="checkbox"/> |
| h. Limitation in the use of an arm or leg (missing,
paralyzed or weakness) | <input type="checkbox"/> | <input type="checkbox"/> |
| i. Do you have any other chronic medical condition that is
affecting what you do or how you feel? If yes, what are
the names of the conditions that bother you most? | <input type="checkbox"/> | <input type="checkbox"/> |

Write in the names of up to four conditions that bother you most.

Condition #1 _____

Condition #2 _____

Condition #3 _____

Condition #4 _____

CONTINUE

14. How much of the time during the **past 4 weeks**...

	[1]	[2]	[3]	[4]	[5]	[6]
	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a. Were you frustrated about your health, not health care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Was your general health a worry in your life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Were you discouraged by any health problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Did you feel weighed down by any health problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. In the **past year**, have you had **2 weeks** or more during which you felt sad, blue or depressed; or when you lost interest or pleasure in things that you usually cared about or enjoyed?

- | | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| Yes | No |
| [1] | [2] |

16. Have you ever had **2 years or more** in your life when you felt depressed or sad most days, even if you felt okay sometimes?

- | | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| Yes | No |
| [1] | [2] |

17. In the **past year**, have you felt depressed or sad much of the time?

- | | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| Yes | No |
| [1] | [2] |

CONTINUE

Patient Preferences:

Section 1

Where would you put your current health on this scale?

■
■
10
Perfect
Health

■
■
0
Death

CONTINUE

Section 2

In the next 7 questions, we want you to think about what you would prefer if you had a choice between having your current health for a given number of years before dying or having perfect health for a given number of years before dying. These questions do not mean that anyone knows how long you will live. We simply want to know what you would prefer if you had such a choice.

1. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (go to Q2) [1]
- b. Perfect health for 5 years (go to Q5) [2]
- c. No preference because these seem about the same to me (Go to next section) [3]

2. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (go to Q3) [1]
- b. Perfect health for 7 years (Go to Q8) [2]
- c. No preference because these seem about the same to me (Go to next section) [3]

3. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (go to Q4) [1]
- b. Perfect health for 9 years (Go to Q8) [2]
- c. No preference because these seem about the same to me (Go to next section) [3]

4. Which of the following would you prefer? (Check corresponding box)

CONTINUE

- a. Your current health for 10 years (Go to Q8) (1)
- b. Perfect health for 10 years (Go to Q8) (2)
- c. No preference because these seem about the same to me (Go to next section) (3)

5. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (Go to Q8) (1)
- b. Perfect health for 3 years (Go to Q6) (2)
- c. No preference because these seem about the same to me (Go to next section) (3)

6. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (Go to Q8) (1)
- b. Perfect health for 1 years (Go to Q7) (2)
- c. No preference because these seem about the same to me (Go to next section) (3)

7. Which of the following would you prefer? (Check corresponding box)

- a. Your current health for 10 years (Go to Q8) (1)
- b. Perfect health for 1 month (Go to Q8) (2)
- c. No preference because these seem about the same to me (Go to next section) (3)

Section 2.1

CONTINUE

[If all questions are answered A or B at the end ask]

8. If any of the options were close for you where would you have the greatest difficulty choosing between the two?

a. Your current health for **10 Years**

b. Perfect health for **1 month, 1, 3, 5, 7, 9, 10** _____

Section 3

Let's assume you have 10 years to live.

1. If I had a pill that you could take once that would give you perfect health for 10 years after which it would kill you immediately would you take it?

Yes
[1]

No
[2]

Unsure
[3]

2. If I had a pill that you could take once that would give you perfect health for 10 years but 1 time out of 10 it would kill you immediately would you take it?

Yes
[1]

No
[2]

Unsure
[3]

If answer is no, skip to Q6

3. If I had a pill that you could take once that would give you perfect health for 10 years but 8 time out of 10 it would kill you immediately would you take it?

CONTINUE

Yes
[1]

No
[2]

Unsure
[3]

If answer is no, skip Q6

4. If I had a pill that you could take once that would give you perfect health for 10 years but 3 time out of 10 it would kill you immediately would you take it?

Yes
[1]

No
[2]

Unsure
[3]

If answer is no, skip to Q6

5. If I had a pill that you could take once that would give you perfect health for 10 years but 5 time out of 10 it would kill you immediately would you take it?

Yes
[1]

No
[2]

Unsure
[3]

If answer is no, skip to Q6

6. If I had a pill that you could take once that would give you perfect health for 10 years what odds out of 10 of it killing you immediately would it make you unsure of taking it?

2 out of
10
[2]

4 out of
10
[4]

7 out of
10
[7]

What other odds
out of 10 ?
0,1,3,5,6,8,9,10
[]

CONTINUE

Section 4

1. If you had a choice between seeing the physician in person today or via telemedicine which would choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

2. If you had to wait 1 day to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

3. If you had to wait 2 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

4. If you had to wait 3 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

5. If you had to wait 4 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

CONTINUE

6. If you had to wait 5 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

7. If you had to wait 6 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

8. If you had to wait 7 days to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

9. If you had to wait 2 weeks to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

10. If you had to wait 3 week to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

11. If you had to wait 4 weeks to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

CONTINUE

12. If you had to wait 2 months to see the MD in person versus seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

Unsure
[3]

13. Would you wait longer than 2 months to see the MD rather than seeing them immediately via telemedicine which would you choose?

In Person
[1]

Telemedicine
[2]

13a. If in person how long would you be willing to wait?

_____ months _____ years

Life Orientation Test

How well would you say you agree with the following statements?

1. I usually expect the best out of life.

Strongly disagree
[1]

Disagree
[2]

Neutral
[3]

Agree
[4]

Strongly agree
[5]

2. It's easy for me to relax.

Strongly disagree
[1]

Disagree
[2]

Neutral
[3]

Agree
[4]

Strongly agree
[5]

CONTINUE

3. If something can go wrong for me, it will.

None of
the time

[1]

A little bit of
the time

[2]

Some of
the time

[3]

Most of
the time

[4]

All of
the time

[5]

4. I'm always optimistic about my future.

None of
the time

[1]

A little bit of
the time

[2]

Some of
the time

[3]

Most of
the time

[4]

All of
the time

[5]

5. I enjoy my acquaintances a lot.

Strongly
disagree

[1]

Disagree

[2]

Neutral

[3]

Agree

[4]

Strongly
agree

[5]

6. It's important for me to keep busy.

Strongly
disagree

[1]

Disagree

[2]

Neutral

[3]

Agree

[4]

Strongly
agree

[5]

7. I **hardly** ever expect things to go my way.

None of
the time

[1]

A little bit of
the time

[2]

Some of
the time

[3]

Most of
the time

[4]

All of
the time

[5]

CONTINUE

8. I don't get upset too easily.

Strongly
disagree
[1]

Disagree
[2]

Neutral
[3]

Agree
[4]

Strongly
agree
[5]

9. I rarely count on good things happening to me.

None of
the time
[1]

A little bit of
the time
[2]

Some of
the time
[3]

Most of
the time
[4]

All of
the time
[5]

10. Overall, I expect more good things to happen to me than bad.

Strongly
disagree
[1]

Disagree
[2]

Neutral
[3]

Agree
[4]

Strongly
agree
[5]

Adherence Item

1. How often do you follow the directions that your doctor gives you, since you have been incarcerated?

Never
[1]

Seldom
[2]

Fairly Often
[3]

Usually
[4]

Always
[5]

CONTINUE

Appendix B

Consents

FULL STUDY

Lemuel Shattuck Hospital / Tufts University School of Medicine Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form (For participating patients)

Purpose of the study: Telemedicine is the use of televisions, telephones and computers to bring patients and physicians together when time or distance separates them. We would like to determine how possible, how acceptable, and how effective telemedicine might be in bringing more health care to the inmate population. In order to do this, we will evaluate your health using a health status questionnaire developed for assessing the health of patients who may have difficulty accessing proper health care in a timely fashion. There are no trick questions, we are only interested in your opinion about your own health. These questions have been used in many studies to determine the health of a patient or person ranging from the very healthy to the very sick.

Procedures: If you choose to volunteer in this study you will be asked to be interviewed by Dr. Lasch or her Research Assistant, Therfena Green at your outpatient visit. The interview will consist of questions that ask you some demographic information about yourself, for example, your age; some questions about how your health may (or may not) interfere with your normal activities; and some questions about how you value different states of health. We will also review your medical records for pertinent medical information such as your diagnosis.

Your questionnaire will be given an identification number for computerized analysis, but the confidentiality and anonymity of your data will be maintained. The questionnaire will take about 15-20 minutes to answer. At the time of the visit, the researcher will interview you in a room away from the clinic. Four weeks after your first interview you will be asked again to fill out a questionnaire about your health and health care and one final time 5 months later. Participants will be provided follow-up examination or care after the end of this project. Adequate provision will be made for such examination or care. You will still be able to see the consultant physicians in the traditional prison clinics or hospital outpatient clinics.

Risks: There is a possible risk that a patient seen in the telemedicine clinic first might experience some delay in going to hospital when going straight to hospital might have been the best thing to do. Of course it is also possible that the same patient may receive more care and see their doctor more quickly and more often than usual.

Benefits: The possible benefits of participating in this study are that you may see your doctor more quickly and more often than usual. Your participation will have no effect on your parole. It is also possible that there will be no direct benefits to you.

Contact person: Any questions or problems that develop during the course of this study may be addressed to the prison infirmary staff who will relay all questions to the principal investigator Dr. Joseph Cohen or Dr. Donnie McGrath.

PARTICIPANTS STATEMENT (For patients)

I have read this consent form and have discussed with Dr. _____ or his/her representative the procedures described above. I have been given the opportunity to ask questions, which have been answered to my satisfaction. I understand that any questions that I have might have will be answered verbally or, if I prefer, with a written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my participation is voluntary. I understand that I may refuse to participate in this study or not answer particular questions that I do not wish to respond to. I also understand that if, for any reason, I wish to discontinue my participation in this study at any time, I will be free to do so without penalty.

I understand that in the event that I become ill or injured as a result of my participation in this study, medical care will be provided to me by the Lemuel Shattuck Hospital.

I have been fully informed of the study in the attached document and of its risk and benefits, and I hereby consent to the procedures set forth in that document. I have received a copy of this signed consent form.

I understand that as a participant in this study my identity and my study records and data relating to this research will be kept confidential, except as required by law and except for inspection by the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the purpose of the study described in the attached document and the risks that are involved in its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form
(For participating control patients)

Purpose of the study: Telemedicine is the use of televisions, telephones and computers to bring patients and physicians together when time or distance separates them. We would like to determine how possible, how acceptable, and how effective telemedicine might be in bringing more health care to the inmate population. Telemedicine clinics have been established in other prisons to study these issues. In order to fully understand the effectiveness of telemedicine clinics we need study patients who do not have access to telemedicine clinics at this time.

Procedures: If you choose to volunteer in this study you will be asked to fill out a short form with some questions about your health and health care. This form will be filled out whenever you are transferred to hospital for admission, are seen at a hospital outpatient clinic, or seen in the prison clinic by an outside specialist.

Risks: There are no risks associated with participating in this study as you will continue to receive all the traditional medical care available within the prison system at present.

Benefits: There are unlikely to be any direct benefits to you from this study. However your participation may help in the development of improved ways of providing better health care for inmates in the future. You will not have access to telemedicine clinics at this time but telemedicine may be extended to other prisons in the future.

Contact person: Any questions or problems that develop during the course of this study may be addressed to the prison infirmary staff who will relay all questions to the principal investigator Dr. Joseph Cohen or Dr. Donnie McGrath (Telephone 617-522-8110).

PARTICIPANTS STATEMENT
(For control patients)

I have read this consent form and have discussed with Dr. _____ or his/her representative the procedures described above. I have been given the opportunity to ask questions, which have been answered to my satisfaction. I understand that any questions that I have might have will be answered verbally or, if I prefer, with a written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my participation is voluntary. I understand that I may refuse to participate in this study. I also understand that if, for any reason, I wish to discontinue my participation in this study at any time, I will be free to do so without penalty.

I understand that in the event that I become ill or injured as a result of my participation in this study, medical care will continue to be provided to me by the (tick one only):

1) Massachusetts Department of Corrections

OR

2) _____ County Correctional Facility _____

I have been fully informed of the study in the attached document and of its risk and benefits, and I hereby consent to the procedures set forth in that document. I have received a copy of this signed consent form.

I understand that as a participant in this study my identity and my study records and data relating to this research will be kept confidential, except as required by law and except for inspection by the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the purpose of the study described in the attached document and the risks that are involved in its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

PILOT STUDY

Lemuel Shattuck Hospital / Tufts University School of Medicine Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form

(For participating patients in testing of the
Massachusetts Telehealth Access Project Health Questionnaire -MHQ)

Purpose of the study: The purpose of this study is to evaluate a health status questionnaire developed for assessing the health of patients who may have difficulty assessing proper health care in a timely fashion.

Procedures: We need to determine if the questionnaire we have developed for the MASSTAP Project, is an appropriate way to measure health status. If you choose to volunteer in this study you will be asked to be interviewed by Dr. Lasch or her Research Assistant, Therfena Green at your outpatient visit. The interview will consist of questions that ask you some demographic information about yourself, for example, your age; some questions about how your health may or (or may not) interfere with your normal activities; and some questions about how you value different states of health. We will also review your medical records for pertinent medical information such as your diagnosis to help us test our questionnaire. Your questionnaire will be given an identification number for computerized analysis, but the confidentiality and anonymity of your data will be maintained. The questionnaire will take about 10-15 minutes to answer. At the time of the visit, the researcher will interview you in a room away from the clinic. Two weeks after your first interview you will be asked again to fill out a questionnaire about your health and health care and one final time 6 months later. We may also ask you to fill out a similar health status questionnaire.

Risks: You understand that we do not foresee any discomfort or risk to your participation in this study except possibly some inconvenience in your time commitments.

Benefits: Although you may not directly benefit from the study, your responses will help us to determine the quality and accuracy of this health status questionnaire.

Contact person: Any questions or problems that develop during the course of this study may be addressed to the Lemuel Shattuck Hospital staff who will relay all questions to the principal investigator Dr. Joseph Cohen or Dr. Donnie McGrath.

GENERAL TELEMEDICINE CONSENT FORM FOR INMATES

Telemedicine Informed Consent form

Purpose of Telemedicine

Telemedicine is the use of television, telephones and computers to bring patients and health care providers together when time or distance separates them. Telemedicine clinics have been introduced in order to increase the access to health care professionals.

Procedures

When you consent to partaking in a telemedicine clinic, you will be brought into a room equipped with a camera and a screen. You will be able to see, hear and speak with the medical professional on the screen, and s/he will be able to do the same. Your examination will be conducted using specialized versions of common medical equipment. The readings received during the use of this equipment will be transmitted to the medical professional on the screen.

Risks

The only part of a normal physical evaluation that cannot be completed by the medical professional on the screen is touch. There is therefore a possible risk of missing an abnormal finding in your examination. If it appears from your personal history that this part of the examination is imperative, you will be advised to receive a direct examination.

Benefits

The benefits of this system are that you will be able to facilitate wider access to specialists when needed, without traveling.

Statement of Approval and Consent

I have been given the opportunity to ask questions which have been answered to my satisfaction. My participation in telemedicine clinics is voluntary.

I hereby consent to participating in telemedicine clinics and retain the right to refuse to participate at any point in the future. I understand that this consent form will be kept in my medical record.

Signature

Name Printed

Date

Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form

(For prison health care provider participants)

Purpose of the study: Telemedicine is the use of telecommunications technology to bring patients and physicians together when time or distance separates them. The impact of increasing health care access through telemedicine has not been formally evaluated. We would like to determine how acceptable, feasible and effective telemedicine is in the providing health care to the inmate population.

Procedures: If you choose to volunteer in this study you will be offered the opportunity to consult with consultant physicians about inmate health care using telecommunications and telemedicine equipment. After each use of the telemedicine equipment you will be asked to fill out a short form with questions relating to your satisfaction with the health care interaction. All participants will be followed at 1 and 6 months after their first encounter with another short questionnaire and asked about their current satisfaction with telemedicine. If you choose not to volunteer there will be no cost of penalty to you or your patients.

Risks: There exists a potential risk that a physician or nurse might use telemedicine instead of referring a patient directly to hospital when going to hospital might have been more appropriate. In theory, there is a possibility that such a patient might not receive the care they need or their care could be delayed. It is also possible that the consulting physician may not be able to advise about the patient's health care management in as complete a manner as with a traditional outpatient consultation. Liability complaints to date have been rare and none have been successful.

Benefits: The benefits of participating in this study are that you may be able to provide more access to health care for your patients and develop new skills.

Contact person: Any questions or problems that develop during the course of this study may be addressed by contacting the principal investigator Dr. Joseph Cohen at 617 522 8400 or by paging Dr. Donnie McGrath at 781 532 6884.

PARTICIPANTS STATEMENT
(For prison health care provider)

I have read this consent form and have discussed with Dr. _____ or his/her representative the procedures described above. I have been given the opportunity to ask questions, which have been answered to my satisfaction. I understand that any questions that I have might have will be answered verbally or, if I prefer, with a written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my participation is voluntary. I understand that I may refuse to participate in this study. I also understand that if, for any reason, I wish to discontinue my participation in this study at any time, I will be free to do so without penalty.

I have been fully informed of the study in the attached document and of its risk and benefits, and I hereby consent to the procedures set forth in that document. I have received a copy of this signed consent form.

I understand that as a participant in this study my identity and data relating to this research will be kept confidential, except as required by law and except for inspection by the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the purpose of the study described in the attached document and the risks that are involved in its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form

(For health care provider focus group participants)

Purpose of the study: Telemedicine is the use of telecommunications technology to bring patients and physicians together when time or distance separates them. The impact of increasing health care access through telemedicine has not been formally evaluated. We would like to determine how acceptable, feasible and effective telemedicine is in providing health care to the inmate population. To do this we first need to understand what would make telemedicine acceptable to those who provide health care to the inmate population.

Procedures: If you agree to participate in this study you will be asked to participate in a discussion group with your peers after you have had some experience of the telemedicine equipment and its use in medicine. Discussion topics will include: How do you rate your physical and psychological comfort with the interaction? How do you rate the convenience, duration and timeliness of the interaction? Was the lack of physical contact with the distant physician acceptable? Etc. All participants will be expected to participate in two separate meetings of their focus groups. These are anticipated to take about one hour. We will use audiotapes to record all discussions. The tapes will only be analyzed by the principal investigator and co-investigators listed above. The audiotapes will be placed in sealed envelopes until transcribed. All information identifying individuals will be removed on transcription. All information will be used to develop questionnaires. At the conclusion of the study all audiotapes will be erased.

Risks: You will be exposed to no personal risk by participating in this study.

Benefits: You will derive no personal benefit from participating in this study. However your participation will help contribute to the development of a practical tool to help bring increased health care access to the prison population.

Contact person: Any questions or problems that develop during the course of this study may be addressed by contacting the principal investigator Dr. Joseph Cohen at 617 522 8400 or by paging Dr. Donnie McGrath at 781 532 6884.

PARTICIPANTS STATEMENT
(For health care provider focus group participant)

I have read this consent form and have discussed with
Dr. _____ or his/her representative the procedures described
above. I have been given the opportunity to ask questions, which have been answered to
my satisfaction. I understand that any questions that I have might have will be answered
verbally or, if I prefer, with as written statement.

I understand that my participation is voluntary. I understand that I may refuse to
participate in this study. I also understand that if, for any reason, I wish to discontinue my
participation in this study at any time, I will be free to do so without penalty.

I have been fully informed of the study in the attached document and of its risk and
benefits, and I hereby consent to the procedures set forth in that document. I have
received a copy of this signed consent form.

I understand that as a participant in this study my identity and data relating to this
research will be kept confidential, except as required by law and except for inspection by
the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the
purpose of the study described in the attached document and the risks that are involved in
its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form

(For consultant health care provider participants)

Purpose of the study: telemedicine is the use of telecommunications technology to bring patients and physicians together when time or distance separates them. The impact of increasing health care access through telemedicine has not been formally evaluated. We would like to determine how acceptable, feasible and effective it is in the practice of health care in the inmate population.

Procedures: If you choose to volunteer in this study you will be offered the opportunity to talk with patients and prison physicians or other health care personnel using telecommunications and telemedicine equipment. After each use of the telemedicine equipment you will be asked to fill out a short form with questions relating to your satisfaction with the health care interaction. All participants will be followed at 1 and 6 months after their first encounter with another short questionnaire and asked about their current satisfaction with telemedicine. If you choose not to volunteer there will be no cost of penalty to you or your patients.

Risks: There exists a potential risk that a physician or nurse might use telemedicine instead of referring a patient directly to hospital when going to hospital might have been more appropriate. In theory, there is a possibility that such a patient might not receive the care they need or their care could be delayed. It is also possible that you will be providing more care more quickly to prison patients than you are currently able to do. Liability complaints to date have been rare and none have been successful.

Benefits: The benefits of participating in this study are that you may be able to provide more access to health care for prison patients and develop new skills.

Contact person: Any questions or problems that develop during the course of this study may be addressed by contacting the principal investigator Dr. Joseph Cohen at 617 522 8400 or by paging Dr. Donnie McGrath at 781 532 6884.

PARTICIPANTS STATEMENT
(For consultant health care provider)

I have read this consent form and have discussed with Dr. _____ or his/her representative the procedures described above. I have been given the opportunity to ask questions, which have been answered to my satisfaction. I understand that any questions that I have might have will be answered verbally or, if I prefer, with a written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my participation is voluntary. I understand that I may refuse to participate in this study. I also understand that if, for any reason, I wish to discontinue my participation in this study at any time, I will be free to do so without penalty.

I have been fully informed of the study in the attached document and of its risk and benefits, and I hereby consent to the procedures set forth in that document. I have received a copy of this signed consent form.

I understand that as a participant in this study my identity and data relating to this research will be kept confidential, except as required by law and except for inspection by the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the purpose of the study described in the attached document and the risks that are involved in its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch

Consent Form

(For health care provider in-depth interview participants)

Purpose of the study: Telemedicine is the use of telecommunications technology to bring patients and physicians together when time or distance separates them. The impact of increasing health care access through telemedicine has not been formally evaluated. *We would like to further determine the quality, acceptability, and accessibility of telemedicine in providing health care to the inmate population. To do this we need to understand providers' perceptions of the impact of using the telemedicine service to deliver quality health care to the inmate population.*

Procedures: If you agree to participate in this study you will be asked to participate in an in-depth interview for approximately 45-60 minutes. After you have had some experience with telemedicine. Discussion topics will include: How do you think the telemedicine clinics made a difference in the appropriateness of services offered to patients? What was telemedicine's impact on patients' knowledge of their health status, care options, and compliance? What were the benefits/drawbacks to the use of telemedicine? Etc. We will use audiotapes to record all interviews where permission has been obtained. The tapes will only be analyzed by the principal investigator and co-investigators listed above. The audiotapes will be placed in sealed envelopes until transcribed. All information identifying individuals will be removed on transcription. At the conclusion of the study all audiotapes will be erased.

Risks: You will be exposed to no personal risk by participating in this study.

Benefits: You will derive no personal benefit from participating in this study. However your participation will help contribute to the further understanding of the use of telemedicine.

Contact person: Any questions or problems that develop during the course of this study may be addressed by contacting the principal investigator Dr. Joseph Cohen at 617 971-3414 or by contacting Dr. Donnie McGrath at 617-636-2336.

**Lemuel Shattuck Hospital / Tufts University School of Medicine
Telemedicine Networks: from Correctional Health Care to Community Users**

Principal Investigator: Dr. Joseph Cohen
Co-Investigators: Dr. Donnie McGrath
Dr Kathy Lasch
Dr. James Stahl

Consent Form
(For inmate focus group participants)

Purpose of the study: telemedicine is the use of televisions, telephones and computers to bring patients and physicians together when time and distance separates them. We would like to determine how possible, how acceptable and how effective telemedicine might be in bringing more health care to the inmate population. We first need to understand what things do and do not make television, telephones and computers in the clinic visit acceptable.

Procedures: If you agree to participate in this research study you will be asked to participate in a discussion group with other inmates after you have had some experience with the telemedicine equipment and its use in medicine. Only volunteers may participate. The final group will be chosen at random from all inmates who have experience in the telemedicine clinics and who volunteer. Discussion topics will include: How comfortable were you with visiting with your doctor through television? How easy and comfortable was it for you compared to going to hospital? Was the television visit too short or too long? Were you able to see a doctor more quickly or quickly enough with it? Was the fact that you were not in the same room important? Etc. All participants will be expected to participate in two separate meetings of their focus groups. These are anticipated to take about one hour. We will use audiotapes to record all discussions. Only the principal investigator and co-investigators listed above will analyze the tapes. The audiotapes will be placed in sealed envelopes until transcribed. All information *identifying individuals will be removed from on transcription. All information will be used to develop questionnaires. At the conclusion of the study all audiotapes will be erased.*

Risks: You will be exposed to no personal risk by participating in this study. There will be no penalty for not participating.

Benefits: You will not be paid for participating in this study. You may not directly benefit from participating however your participation may help in the development of a better way to bring health care to the inmate population.

Contact person: Any questions or problems that develop during the course of this study should be addressed to the prison infirmary staff who will contact the principal investigator Dr. Joseph Cohen or Dr. Donnie McGrath (telephone: 617-522-8110).

PARTICIPANTS STATEMENT
(For inmate focus group participant)

I have read this consent form and have discussed with Dr. _____ or his/her representative the procedures described above. I have been given the opportunity to ask questions, which have been answered to my satisfaction. I understand that any questions that I have might have will be answered verbally or, if I prefer, with as written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my participation is voluntary. I understand that I may refuse to participate in this study. I also understand that if, for any reason, I wish to discontinue my participation in this study at any time, I will be free to do so without penalty.

I understand that in the event that I become ill or injured as a result of my participation in this study, medical care will be provided to me by the (tick one only):

2) Massachusetts Department of Corrections

OR

2) _____
County Correctional Facility

I have been fully informed of the study in the attached document and of its risk and benefits, and I hereby consent to the procedures set forth in that document. I have received a copy of this signed consent form.

I understand that as a participant in this study my identity and my study records and data relating to this research will be kept confidential, except as required by law and except for inspection by the study sponsors, the Department of Commerce.

Date

Participant Signature

I have fully explained to _____ the nature and the purpose of the study described in the attached document and the risks that are involved in its performance. I have answered all questions the best of my ability.

Principal Investigator or representative

Witness

Date

Appendix C

Questionnaires

ID# _____

Staff Perceptions of Telemedicine Equipment

Date _____

Clinic Type _____ Site _____ Clinic duration _____

Now we want to ask you some questions about your experience with the telemedicine equipment?

1. How do you rate the visual quality of the telemedicine system today?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
acceptable | Slightly
acceptable | Somewhat
acceptable | Very
acceptable | Extremely
acceptable |
| [1] | [2] | [3] | [4] | [5] |

2. How do you rate the audio quality of telemedicine system today?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
acceptable | Slightly
acceptable | Somewhat
acceptable | Very
acceptable | Extremely
acceptable |
| [1] | [2] | [3] | [4] | [5] |

3. Was relevant clinical information available at time of telemedicine clinic?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Strongly
Disagree | Disagree | Somewhat
disagree | Agree | Strongly
agree |
| [1] | [2] | [3] | [4] | [5] |

4. How do you rate the quality of the communication with patients?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
acceptable | Slightly
acceptable | Somewhat
acceptable | Very
acceptable | Extremely
acceptable |
| [1] | [2] | [3] | [4] | [5] |

5. Do you believe the telemedicine clinic made a positive contribution to your patient's care?

Strongly
Disagree
[1]

Disagree
[2]

Somewhat
disagree
[3]

Agree
[4]

Strongly
agree
[5]

6. Overall, how satisfied are you with the technical quality of the telemedicine service?

Patient Perceptions of Telemedicine Clinic

1a. Have you ever participated in the telemedicine clinic before this period? _____

1b. If yes, how many times? _____

2a. Have you also seen the telemedicine MD at your site? _____

2b. If yes, how many times? _____

Now we want to ask you some questions about your experience with the telemedicine clinic?

1. How do you rate your physical comfort with the telemedicine clinic?

Not at all
comfortable
[1]

Slightly
comfortable
[2]

Somewhat
comfortable
[3]

Very
comfortable
[4]

Extremely
comfortable
[5]

1. How do you rate your psychological comfort with the telemedicine clinic?

Not at all
comfortable
[1]

Slightly
comfortable
[2]

Somewhat
comfortable
[3]

Very
comfortable
[4]

Extremely
comfortable
[5]

3. How do you rate the convenience of your encounter with the telemedicine service, given your facilities procedures for using the service?

Not at all
convenient
[1]

Slightly
convenient
[2]

Somewhat
convenient
[3]

Very
convenient
[4]

Extremely
convenient
[5]

4. How do you rate the convenience of the duration of your telemedicine service?

Not at all
convenient

Slightly
convenient

Somewhat
convenient

Very
convenient

Extremely
convenient

[1]

[2]

[3]

[4]

[5]

5. If you have ever been sick, how would you rate the convenience of the availability to see a telemedicine doctor when you were sick?

Not at all
convenient
[1]

Slightly
convenient
[2]

Somewhat
convenient
[3]

Very
convenient
[4]

Extremely
convenient
[5]

6. How do you rate the skills of the telemedicine doctor?

Not at all
acceptable
[1]

Slightly
acceptable
[2]

Somewhat
acceptable
[3]

Very
acceptable
[4]

Extremely
acceptable
[5]

6. How do you rate the skills of the attending personnel at your site?

Not at all
acceptable
[1]

Slightly
acceptable
[2]

Somewhat
acceptable
[3]

Very
acceptable
[4]

Extremely
acceptable
[5]

8. How do you rate the personal manner of the telemedicine doctor?

Not at all
acceptable
[1]

Slightly
acceptable
[2]

Somewhat
acceptable
[3]

Very
acceptable
[4]

Extremely
acceptable
[5]

9. How do you rate the personal manner of the attending personnel at your site?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

10. How acceptable to you was the lack of direct physical contact with the distant telemedicine doctor?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

11. How do you rate the explanations of your health problems provided by the telemedicine doctor?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

12. How acceptable to you were the recommendations provided by the telemedicine doctor?

Not at all
acceptable
(1)

Slightly
acceptable
(2)

Somewhat
acceptable
(3)

Very
acceptable
(4)

Extremely
acceptable
(5)

13. Do you have more concerns seeing a telemedicine doctor about the protection of the privacy of your personal medical information being violated than when you see an MD on site?

Not at all
concern
(1)

Slightly
concern
(2)

Somewhat
concern
(3)

Very
concern
(4)

Extremely
concern
(5)

14. How willing would you be to use the telemedicine service again?

Not at all
willing
[1]

Slightly
willing
[2]

Somewhat
willing
[3]

Very
willing
[4]

Extremely
willing
[5]

15. Overall, how satisfied are you with the telemedicine services received?

Staff Perceptions of Telemedicine Clinic

Now we want to ask you some questions about your experience with the telemedicine clinic?

1. How do you rate the comfort with telemedicine equipment and procedures?

- | | | | | |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not at all
Comfortable | Slightly
comfortable | Somewhat
comfortable | Very
comfortable | Extremely
comfortable |
| [1] | [2] | [3] | [4] | [5] |

1. How do you rate the overall convenience of telemedicine (in terms of scheduling)?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
convenient | Slightly
convenient | Somewhat
convenient | Very
convenient | Extremely
convenient |
| [1] | [2] | [3] | [4] | [5] |

3. How do you rate the overall convenience of telemedicine (in terms of physical arrangements)?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
Convenient | Slightly
convenient | Somewhat
convenient | Very
convenient | Extremely
convenient |
| [1] | [2] | [3] | [4] | [5] |

4. How do you rate the overall convenience of telemedicine (in terms of location)?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| Not at all
Convenient | Slightly
convenient | Somewhat
convenient | Very
convenient | Extremely
convenient |
| [1] | [2] | [3] | [4] | [5] |

5. How do you rate the technical quality of the service?

Not at all
Acceptable
[1]

Slightly
acceptable
[2]

Somewhat
acceptable
[3]

Very
acceptable
[4]

Extremely
acceptable
[5]

6. How do you rate the quality of communications with patients?

Not at all
acceptable
[1]

Slightly
acceptable
[2]

Somewhat
acceptable
[3]

Very
acceptable
[4]

Extremely
acceptable
[5]

6. Were you concerned about maintaining the confidentiality of your patients' personal medical information and protecting his privacy?

Not at all
concern
[1]

Slightly
concern
[2]

Somewhat
concern
[3]

Very
concern
[4]

Extremely
concern
[5]

8. Do you believe the telemedicine clinic made a positive contribution to your patient's care?

Strongly
Disagree
[1]

Disagree
[2]

Somewhat
disagree
[3]

Agree
[4]

Strongly
agree
[5]

9. Would you be willing to use the telemedicine services again?

Not at all
willing
[1]

Slightly
willing
[2]

Somewhat
willing
[3]

Quite a bit
willing
[4]

Extremely
willing
[5]

10. Overall, how satisfied were you with the telemedicine service?

Appendix D
Presentations / Abstracts

Slide Presentations

1. HIV Care for Inmates: A Comparison of Telemedicine and Face to Face Clinics, presented at the American Telemedicine Association Annual Meeting, Ft. Lauderdale, FL., June 4, 2001
2. Developing an Instrument to Assess the Health Outcomes of Telemedicine Patients in Correctional Facilities”, presented at the 6th American Telemedicine Association Annual Meeting, Ft. Lauderdale Fl., June 5, 2001
3. “Does Telemedicine Improve the Health Outcomes of Prisoners with HIV Infections?, selected for Roundtable presentation at the 129th Annual American Public Health Association Annual Meeting in Atlanta, Georgia

Does Telemedicine Improve the Health Outcomes of Prisoners with HIV Disease?

Kathryn E. Lasch, Ph.D.

Jennifer C. Lee, Ph.D.

Therfena N. Green, BA

Donnie McGrath, MD

Joseph Cohen, MD

James Stahl, MD, CM

Joseph D. Bakan, MS11

Frederic D. Glazer, BS

Virginia McErlane, BA

This project was funded by the Technology Opportunities Program of the Department of Commerce Award # 25-60-99013

Overview of Presentation

Describe the Massachusetts Telehealth Access Project (MASSTAP)

Describe the development of the MASSTAP health questionnaire (MHQ)

Present the preliminary health outcomes of subgroup of inmates who are HIV positive

Why Telemedicine for Patients in Correctional Facilities ?

- || *Increasing number, average age, length of incarceration of inmates*
- || *Increasing chronic disease incidence and prevalence*
- || *Increasing outpatient visits*
- || *Increasing costs*
- || *Inadequate access to specialists*

Why Telemedicine for HIV Patients in Correctional Facilities ?

- || *The national prevalence of HIV is 0.6%*
- || *2.3% (24607) of state prison inmates, 0.9% (1150) of Federal prison inmates, and 1.7% (8615) of local jail inmates were known to be infected with HIV*
- || *1.6% of the US population are IDU (at high risk for HIV infection)*
- || *75% IDU in correctional facilities*

The Massachusetts Telehealth Access Project (MASSTAP)

1) *Develop, implement, and evaluate the cost-effectiveness of specialty clinics via telemedicine*

- *Correctional facilities*
- *A hub site community hospital*
- *Academic medical center*

Health and Quality of Life of Inmates

1) *No standard health outcomes instrument*

2) *Extant telemedicine research on medical education, consultation services, patient and end-user satisfaction, and cost-benefit analysis*

Developing the MASSTAP Health Questionnaire (MHQ)

MHQ developed through focus group methods with 11 inmates

Think Aloud interview:

- Identify questions that pose problems for the respondent*
- Determine the nature and source of the problem to find appropriate solutions*
- Ascertain the overall reaction to the survey experience*

Interpreter

MHQ

Patients' socio-demographic information, perceptions and satisfaction with telemedicine clinic

MHQ quality of life measure (QOL)

MHQ Visual Analogue Scale (VAS)

MHQ health utilities measures - Time Tradeoff (TTO), Standard Gamble (SGM)

MHQ

Quality of Life Measure (QOL)

An adapted form of the Medical Outcomes Survey Short-Form (SF-36)

Comprised of eight health domains

- Physical functioning, role-physical, bodily pain, general health perceptions, vitality, social functioning, role-emotional, and mental health*
- Physical composite score (PCS) and mental composite score (MCS)*
- Excluded three items due to inapplicability to the inmate population*

Psychometric Properties of the QOL

Item internal consistency

- Percent of item-scale correlation, 97%*

Item discriminant validity

- Percent of item-scale correlation greater than the correlation of the item to other scales - 95%*

Scales' reliability

- Overall Cronbach's alpha coefficient, 91%*

Test-retest reliability

- ($r = 0.37 \sim 0.77$, $p = 0.04 \sim 0.0001$)*

QOL Cross-validation with other Instrument

- || *Quality of Well-Being Scale (QWB) is a well-defined preference-weighted single measure combining four domains: mobility, physical activity, social activity, and a rating of symptomatic complaints that might inhibit function*
- || *The PCS was significantly correlated with the QWB ($r=0.35$, $p=0.03$), but not MCS*

MHQ Visual Analogue Scale (VAS)

- || *Ranging from 10 (perfect health) to 0 (death)*
- || *Test-retest reliability ($r=0.36$, $p=0.01$)*

MHQ Health Utility Measure - Time Tradeoff Method (TTO)

- || A single measure that ascertains the patients' preference for a longer life with their current health or a shorter life with perfect health*
- || Range 0.0 to 1.0*
- || Significantly correlated with PCS ($p=0.0001$) and MCS ($p=0.003$)*
- || Test-retest reliability ($r=0.36$, $p=0.01$)*

The Ability of MHQ to Classify HIV Patients (N=154)

- || Can classify adult patients with chronic health states in general population*
- || The area under the receiving operating characteristic curve (AUC)*

Study Design

Inmates with similar characteristics

- *Telemedicine - 3 correctional facilities*
- *Onsite clinics - 1 state facility*

Exclusion criteria

- *Not receiving medical care*
- *Leaving within 6 months*
- *Prison procedures preclude*
- *Refused*

(M)

	Telemedicine		Onsite clinic		All	
	N	%	N	%	N	%
Age group						
less than 40	28	60	6	46	34	57
40 or older	19	40	7	54	26	43
Ethnic						
White	17	36	5	38	22	37
Black	9	19	6	46	15	25
Latino	20	43	2	15	22	37
Other	1	2	0	0	1	2
Education						
Grade school	5	11	2	15	7	12
High school	34	72	7	54	41	69
College	8	17	4	31	12	20
Marriage Status						
Married	9	20	1	8	10	17
Other	37	80	11	92	48	83
Employment						
No	23	49	7	54	30	50
Yes	24	51	6	46	30	50
Length of Incarceration						
Less than a year	26	55	1	7.7	27	45
A year or more	21	45	12	92	33	55
Length of Sentence						
Less than a year	14	34	0	0	14	26
A year or more	27	66	13	100	40	74

	Visit					
	1			2		
	N	Mean	Std	N	Mean	Std
PCS						
Telemedicine	46	45	12	33	43	12
Onsite clinic	13	49	10	12	46	13
All	59	46	12	45	43	12
MCS						
Telemedicine	46	46	13	33	46	13
Onsite clinic	13	48	13	12	48	15
All	59	47	13	45	46	12
VAS						
Telemedicine	45	3.5	2.4	33	4.1	2.1
Onsite clinic	13	3.0	1.6	12	2.9	2.0
All	58	3.4	2.3	45	3.8	2.1
TTO						
Telemedicine	43	0.7	0.3	31	0.7	0.3
Onsite clinic	13	0.5	0.3	10	0.8	0.2
All	56	0.7	0.3	41	0.7	0.3
SGM						
Telemedicine	52	0.6	0.3	22	0.7	0.3
Onsite clinic	8	0.5	0.3	7	0.8	0.2
All	40	0.6	0.3	29	0.8	0.3

Perceptions	Visit									
	1					2				
	N	Mean	Std	Min	Max	N	Mean	Std	Min	Max
Comfortable (2)										
Telemedicine	45	56	28	0	100	31	62*	21	0	100
Onsite Clinic	13	49	31	0	88	12	58*	27	0	100
Acceptable (5)										
Telemedicine	45	67	20	25	100	31	68	15	38	100
Onsite Clinic	13	59	18	25	85	12	59	23	30	95
Convenient (3)										
Telemedicine**	45	62	22	0	100	31	67*	18	25	100
Onsite Clinic	13	45	30	0	88	12	53*	21	25	88
Willing (1)										
Telemedicine	45	61	27	0	100	30	66	26	0	100
Onsite Clinic										
Concern (1)										
Telemedicine	45	27	33	0	100	31	48*	37	0	100
Onsite Clinic										

*Significant difference as compared to visit 1

** Significant difference as compared to onsite clinic

Summary

- 1) *The MHQ is a comprehensive measure of health outcomes for inmates in general. It describes health status by several dimensions to account for heterogeneity across subjects. It is valid, reliable, and sensitive to change.*
- 2) *No difference in health outcome between telemedicine and onsite clinics*
- 3) *Patients satisfaction toward telemedicine improved overtime*

Abstracts

ATA 2001

HIV care for inmates: a comparison of telemedicine and face-to-face clinics

Background: Infectious disease care is a common application of telemedicine in the US. However data describing the nature or effectiveness of this application is limited. We compared HIV telemedicine clinics in 3 Massachusetts prisons with traditional onsite face-to-face clinics over a two-year period. In order to increase access to specialist care and potentially decrease costs associated with physician and inmate transport a correctional telemedicine program was introduced in Massachusetts in late 1998. Clinics are performed via interactive videoconferencing over ISDN lines (384kbs).

Methods: Clinical and technical data was prospectively collected about telemedicine clinics using a structured data collection instrument. Patients and providers were interviewed to assess satisfaction and acceptance. Clinical data was prospectively collected about face-to-face clinics.

Results: We collected data on 50 telemedicine clinics and 15 onsite clinics. There were no significant differences in average consultation time, percentage of routine visits (*no new symptoms/signs, no medication changes*) or complicated visits (*involved medication changes and / or involved new symptoms / signs*). Patient and provider satisfaction rates were high with the telemedicine clinics compared to controls.

Conclusion: HIV patient management using telemedicine is similar to traditional care. In addition both patients and providers express high levels of acceptance and satisfaction with telemedicine clinics.

Does Telemedicine Improve the Health Outcomes of Prisoners with HIV Infection?

Objectives: Participants will be able to discuss the development of a quality of life questionnaire for inmates and the effectiveness of telemedicine vs. traditional health care delivery for inmates with HIV.

Abstract Text: HIV care is a common application of telemedicine in the US for patient, provider, and institutional reasons. Studies to date, however, rarely assess the health-related quality of life of HIV+ prisoners who receive their care through telemedicine relative to those who receive care through traditional means. The goal of the Massachusetts Telehealth Access Project (MASSTAP), initiated in 1999, is to examine the cost effectiveness of primary care and specialty clinics delivered to inmates using telemedicine technology. MASSTAP involves several correctional facilities in Massachusetts, a hub site community hospital, and an academic medical center. Using a quasi-experimental design, we assessed the health status of inmates in treatment sites (receiving telemedicine) and a control site (receiving traditional care) at baseline, 1 month, and 6 months. Through focus group methods MASSTAP adapted for inmates the Medical Outcome Survey Short-Form (SF-36), a valid, reliable, and widely used health status questionnaire. Upon pilot testing the MASSTAP Health Questionnaire (MHQ) was found to be valid and reliable. This paper will present the MASSTAP telemedicine model, the process used to develop the MHQ, the results of the pilot test, and preliminary findings comparing the intervention and control sites.

APHA 2001

Massachusetts Telehealth Access Project: Improving Access to Care and Outcomes for Prison Inmates

Description of Project: *Telemedicine has been identified as having an important role in controlling the cost of prison health care. In addition, telemedicine may improve access to care for the prison population and the health outcomes from that care. Telemedicine is the use of televisions, telephones, and computers to bring patients and physicians together for medical diagnostic, monitoring, and therapeutic purposes when time or distance separates them. Because modern computer and communications technology has the ability to capture and quickly transmit textual, audio, and video information, many have advocated its use to improve health care in rural areas, in the home, and in other places where medical personnel are not readily available. However, it has been widely cited that a significant barrier to the deployment of telemedicine is the lack of solid evaluative data regarding its cost, quality, and access. In 1999 the Department of Commerce funded the Massachusetts Telehealth Access Project to examine the feasibility and effectiveness of telemedicine to provide care to the inmate population.*

Using a network of educational and medical facilities with prior relationships and the Massachusetts state and county prison system, a telemedicine program for HIV, psychiatry, and dermatology patients was developed and implemented. To evaluate this project a prospective quasi-experimental design, comparing the costs and outcomes of 3 telemedicine sites with a control site where patients received traditional in-person clinic visits.

Purpose of Project: *The purpose of this project was to improve the health and healthcare of the prison population, and to reduce the costs and safety issues that arise when prisoners have to be escorted to medical care facilities. The prison population in the United States is more than 1.3 million and has been increasing steadily over the past three decades. Jail and prison inmates present with a wide array of health problems, some of which have higher incidence and prevalence in correctional institutions. Of particular concern is that number of prisoners with intravenous drug abuse related problems and those needing immediate medical treatment after incarceration is on the rise and the aging of the prison population. Aging and longer mandatory prison sentences are associated with higher rates of chronic illnesses such as HIV/AIDS, Hepatitis C, hypertension, diabetes, and coronary artery disease. Health care costs in the federal prison system increased 91% from 1990 to 1994. Outpatient visits increased 90% between 1993 and 1994 and 49% between 1994 and 1995. The cost of medical guard escorts increased 166% between 1990 and 1994.*

Technical Solutions: A network of telemedicine sites has been established with basic videoconferencing units and diagnostic peripherals. The network operates over ISDN lines and all units use the H.320 video standard, which allows the system to be open to special consultation or conferences from outside the network as needed. A trained

technician for delivery and set up on location was hired for the expansion of the network and the development and evaluation of a mobile equipment model.

Outcomes of MASSTAP: Health outcomes have most commonly been measured using self-report instruments such as the SF-36, the General Health Questionnaire, and the Quality of Well Being Scale for a variety of health conditions and patient populations. There is, however no standard health instrument developed specifically for the incarcerated population. Therefore, we addressed the effectiveness issue by developing a health status questionnaire, the “Massachusetts Telehealth Access Project (MASSTAP) Questionnaire (MHQ)”. To date, telemedicine studies in prisons have conducted research only on medical education, consultation services, patient and end-user satisfaction, and cost benefit analyses. The MHQ is comprised of several questions pertaining to socio-demographic information; an adapted form of utility analysis questions, patient satisfaction questions, and the SF-36. The Institutional Research Board from all participating sites received and approved the study and assessment instruments. In addition, each patient provided informed consent prior to any data collection. In order to evaluate the inmate’s health status, we adapted the Medical Outcomes Study Short-Form 36 Survey (SF-36), a widely used quality of life instrument with tested reliability and validity. The MASSTAP Health Questionnaire (MHQ) was adapted through focus group methods with 11 inmates. The MHQ was then pilot tested at a public health hospital on 57 patients with similar socio-demographic characteristics to the inmate population. The MHQ to date has been administered to 102 at the telemedicine sites and 42 at the control sites. Preliminary findings suggest that the MHQ is valid, reliable, and sensitive to change. Data will be presented comparing the health outcomes, costs, and patient satisfaction of control and telemedicine patients. In addition, data will be presented of provider satisfaction for the telemedicine sites.

Clinical and technical data were also prospectively collected from telemedicine and face-to-face clinics. To date pilot data were collected on 50 telemedicine clinics and 15 onsite clinics to determine the case mix of the control and intervention sites. There were no significant differences in average consultation time, percentage of routine (no symptoms/signs, no medication changes) or complicated (involved medication changes and/or involved no symptoms/signs) between telemedicine and control site patients. Results will be presented on all patients assessed by the end of November, 2001 and will use an improved case mix methodology.

ATA 2002

Dermatology clinical outcomes: a case-control study comparing telemedicine with face-to-face clinics in the correctional setting.

Donnie McGrath MD, Shala Asvadi MD, Kathy Lasch PhD, Therfena Green BA, Virginia McErlane BA, Fred Glazer BSc, Joseph Bakan MA, Joseph Cohen MD.

Telemedicine has been widely applied in the correctional setting in the USA. However there continues to be little controlled data indicating the clinical benefits or risks of embracing telemedicine. As part of a wider study aimed at investigating the cost-effectiveness of specialist telemedical clinics in the Massachusetts Correctional system, we performed a prospective case control study comparing clinical outcomes of patients seen via telemedicine with those of patients who were seen in traditional face-to-face clinics. In particular we were concerned that patients seen via telemedicine would be more likely to be referred for biopsy due to clinicians concerns over not physically being able to touch the patient / lesions.

Between October 1999 and September 2001, 163 patients were seen via telemedicine for dermatological consultations. Patients were followed to determine the clinical outcome for their initial complaint. We prospectively analyzed similar clinical outcomes data on 150 consecutive male patients who were seen in the hospital outpatient dermatology clinic. There were no significant differences in the patient demographics. Our findings indicate that there were no significant differences in the clinical outcomes between the two groups. A similar percentage of patients in each group were referred for biopsies. In the correctional setting teledermatology seems to provide similar outcomes to traditional face-to-face clinics.