Telemedicine Can Reduce Correctional Health Care Costs:

An Evaluation of a Prison Telemedicine Network

Executive Summary

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Between September 1996 and December 1996, a leased telemedicine network was installed to serve four Federal prisons. One suite, located in the penitentiary, served inmates at both the United States Penitentiary and the Federal Correctional Institution in Allenwood, Pennsylvania; another served inmates at the United States Penitentiary in Lewisburg, Pennsylvania; and a third served inmates at the Federal Medical Center (a prison health care facility) in Lexington, Kentucky. All of these sites were networked for telemedicine with the Department of Veterans Affairs Medical Center, also in Lexington. The VA and Federal Medical Centers in Lexington served as the hubs in this network, providing specialist physicians and other health care practitioners for remote (telemedical) consultations with prisoners in the three Pennsylvania prisons. These telemedical consultations were conducted during the period September 1996 through December 1997.

The purpose of this demonstration was to test the feasibility of remote telemedical consultations in prisons and to estimate the financial impacts of implementing telemedicine in other prison systems. Abt Associates Inc. was contracted to evaluate the demonstration and estimate the costs and savings associated with the use of telemedicine in these selected prisons.

As in most Federal prisons, medical care in the Pennsylvania prisons was traditionally delivered through a combination of four types of providers:

- Routine primary care was largely the responsibility of prison employees. Telemedicine was not intended to substitute for any of these encounters.
- Specialty care was provided in regularly scheduled, in-person clinics for which the prisons entered into annual contracts with local specialists.
- Inmates requiring other less common specialties or hospital care were transported outside the prison to nearby health care facilities (usually hospitals).
- Some inmates who needed more extensive care were transported to a Bureau of Prisons (BOP) Federal Medical Center—by air charter, if necessary.

During the demonstration, a fifth mode of care—remote encounters with specialists via telemedicine—was added to determine whether the prisons could use telemedicine to overcome local problems in accessing needed specialists and improve security by averting travel outside the prison walls. The demonstration was also designed to supply data on costs and utilization to support a decision about whether and where to implement telemedicine in other prisons.

To evaluate this demonstration, Abt Associates staff analyzed data extracted from BOP management information and accounting systems, data collected by telemedicine site coordinators, additional cost data developed by the Bureau and by the telemedicine prime contractor (Tracor Systems Technologies, Inc.), and anecdotal data collected by interviews with health services administrators and clinicians involved in the demonstration. Analysis revealed that:

- Telemedicine was adopted quickly and used frequently in several medical specialty areas. By the end of the demonstration, 1,321 teleconsultations had been conducted.
Physicians reported that telemedical consultations were effective substitutes for direct, in-person consultations in some specialties (e.g., psychiatry and dermatology), but less than adequate in others (e.g., cardiology and orthopedics). Consequently, a nearly complete substitution of telemedicine for in-person psychiatric care took place quickly. Telemedical consultations were also used routinely for dermatology and orthopedics, although conventional consultations in these specialties continued. Telemedical consultations were used with several other types of specialties, but relatively infrequently.

About 35 trips to local specialists were avoided by the use of telemedicine during the entire demonstration. Because most trips to local specialists are for care that includes invasive tests and procedures or specialized equipment that cannot be brought into the prison, telemedical consultations were rarely seen as appropriate substitutes for such trips.

The use of telemedicine averted 13–14 transfers by air charter to a Federal Medical Center. Nearly all of these transfers would have been for psychiatric reasons. The availability and skill levels of prison psychiatrists at FMC-Lexington contributed to better management of psychiatric patients at the demonstration prisons. These prisoners would have been transferred to the psychiatric wards at MCFP-Springfield had telemedical services not been available.

The projected total costs and savings of an operational telemedicine system were estimated using the experience on costs and utilization patterns gained in the demonstration. We applied these data to assumptions about purchase and installation costs of a purchased, rather than leased, system (as was used in this demonstration) and found telemedicine much less costly than conventional BOP practice. The average cost of a telemedicine consultation would be $71 if slightly different telemedicine equipment were purchased rather than leased, if the telemedicine coordinators’ tasks were taken over by BOP employees, if Integrated Services Digital Network (ISDN) lines replaced the switch 56 service used in the demonstration, if the two Lexington hubs were consolidated into one, and if the number of air transfers and local trips out were averted as observed in the demonstration. Even if part-time telemedical coordinator staff were added, the average cost of a teleconsultation in these conditions would be about the same as a conventional, in-prison consultation.

In an operational telemedicine system so designed, the savings generated by approximately 1,544 encounters would equal the purchase cost of the telemedicine equipment. The demonstration produced about 100 encounters per month; therefore, the initial cost of equipment would be recovered in approximately 15 months, with monthly savings of about $14,200 thereafter. If all capital costs are included, the time to recover the costs is still less than 2 years.

If telemedical systems were deployed to prisons that experience at least as many air transfers to Federal Medical Centers and trips out to local specialists as were observed in the demonstration prisons, and if the systems were similar to the one described above, telemedicine could reap substantial savings. In prisons that lack such numbers of air transfers and trips out, the average cost of telemedicine
would be approximately equivalent to conventional, in-prison consultations.

Telemedicine also improved some indicators of the quality of care available to prisoners. The time between a prisoner's referral to a specialist and an actual consultation with the specialist declined in the demonstration prisons; probably specialists were more frequently available by telemedicine. The enhanced communications system also enabled the Pennsylvania prisons to obtain services in at least one specialty not available locally: infectious disease expertise for the care of HIV-positive prisoners. Even in fields in which specialists were locally available, telemedicine provided access to doctors with more experience in the treatment of prisoners.

Prison administrators in the project hypothesized that the prisons were calmer, with fewer incidents of violence because of the improved psychiatric care available through telemedicine. There were fewer assaults at FCI-Allenwood and USP-Allenwood after the demonstration began than in the previous year. However, we are unable to draw any consistent conclusions about the value of telemedicine in improving the social climate of the demonstration prisons.

We conclude that savings are most likely to result when frequent, individual transfers via air charter are avoided and when in-prison consultations are replaced by telemedicine consultations. Cost savings from trips averted to nearby medical facilities are more modest.