# How to Design a Telemedicine System that Actually Protects Children

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New technology allows us to provide a myriad of services at a great distance. This is a far cry from the days when the distance of the examiner from a patient was limited by the length of stethoscope tubing. Excitement associated with this technology often drives a desire to expand services to new patient populations without first carefully considering the effect on the patient. In general, pediatricians have been slow to embrace virtual assessment because of the importance of the interaction between the physician and the parent/child dyad. This focus is appropriate and should be the driving force behind system design

Electronic system design is easily accomplished by any qualified engineer, and if primary clinical considerations are not addressed, the installed equipment sits unused at the evaluation site, a constant reminder of a waste of precious resources that could have gone toward the care of children. While technology is important in supporting clinical activities, the clinical activities always must be central to the planning, implementation, and operation of a system

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A successful telemedicine program begins with a detailed needs assessment, utilizing an early focus on profiling the target consumer for the program. If the people surrounding the target consumer are unwilling or unable to use the electronic equipment or service, the service will languish. Even if the program is designed for professional quality assurance, the actual and potential impact on the patient still must be considered. A quality assurance program is quite different from one designed to be of direct benefit to the child and his family. It cannot be assumed that families and children, by definition, would rather not travel to a center to be evaluated or that the child will automatically find a virtual experience equal to an in-person encounter. It also cannot be assumed that professional personnel actually will use the equipment if they find it intimidating or intrusive. In brief, the concept of "if you build it, they will come" does not work.

The use of telemedicine in child abuse cases is not new. There are several programs in which "store and forward" technology has been used for consultation with centers of excellence and for quality assurance and peer review. The use of telemedicine technology for real-time evaluations, however, *is* new and offers challenges as well as significant rewards for clinicians and children. In short, it is an effective tool to extend expertise to rural communities, increase the accuracy of diagnosis, reduce unnecessary investigations, and extend the range of multidisciplinary teams. Our three years' experience has convinced us of the effectiveness of this tool in many assessment activities, but also has emphasized the need for careful preplanning.

The design of a child-centered telemedicine program for abuse begins with a careful analysis of the status of children's' examinations in the focus community. The needs assessment must answer several questions.

*Q.* **Do the individuals and programs perceive a problem with quality or access to examinations?**
*A. If neither is true, your program is doomed*

*Q* **Who is going to be working directly with the patient at the distant location?**
*A. If there is a sensitive, committed medical professional who can be trained in all aspects of crisis intervention, AND can learn to act as your hands, AND can be trained to use the equipment, you may succeed*

*Q.* **Is there an adequate patient population to maintain examiners' skills?**
*A. An examiner who sees one patient a month will not maintain adequate skills*

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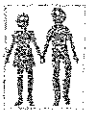

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**Q. Are those responsible for investigation willing to use the facilities and be convinced the results are accurate?**
*A. A telemedicine program must be seen by its users as providing a service that improves their ability to do their job.*

**Q. Is the technology available to me adequate to accurately diagnose the problems I am likely to see?**
*A. Technology for evaluation is dependent on adequate transmission speeds. In some locations, the use of real-time evaluations is impossible.*

**Q. Who is going to assume the long-term costs and personnel commitments for the program?**
*A. A program in which transmission of records for consultation is the norm and consultation is done at leisure requires a small long-term commitment. Real-time assessment, on the other hand, requires a huge commitment of time, personnel, and financial support. Reimbursement issues must be addressed creatively.*

To summarize, when deploying a new telemedicine program, there are two critical elements. First, the community must know in detail about the program, and key players in abuse evaluations must have a sense of participation. Second, all users must receive detailed training and support from the center to develop and maintain a sense of partnership in doing good things for abused kids.