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Planning and Training for a Telehealth Workforce for Rural Iowa

A Project Conducted by the Child Health Specialty Clinics, Iowa City, Iowa

August 2006

Iowa Department of Public Health Center for Health Workforce Planning
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Planning and Training for a Telehealth Workforce for Rural Iowa Project

Final Report

August 31, 2006

Recommendations, projected health professional needs, and plans to further develop telehealth services based on regular needs assessments as described in Step # 3

Step 1-Assessment

Since 2003, Child Health Specialty Clinics (CHSC) has been using a statewide telehealth/telepsychiatry program as a way to provide care for children with special health needs, especially, although not exclusively, in the area of behavioral health. This was made possible through a grant paid for by the Iowa Department of Human Services through its contract with Magellan Health Services for Iowa Plan for Behavioral Health Medicaid Community Reinvestment funding. This model provides specialty healthcare in rural areas where there has historically been a shortage of specialty providers such as pediatricians and child psychiatrists. To assess this system of care, we have synthesized existing data and added to it, in order to get a more complete picture of how the telehealth program is currently working and to assess the level of satisfaction that both patients and providers have with this service delivery model.

From surveys conducted with families who participated in telehealth sessions, it appears that overall satisfaction, comfort, and willingness to continue using telehealth are high. Some minor technical and educational improvements can be made, but families were generally pleased with the telehealth sessions, and the availability of telehealth saved families from having to wait for an appointment and travel much greater distances to see a specialist. Additionally, telehealth saved parents from missing work, children from missing school, and families from having to spend additional money for childcare. Specific survey data are reported in the “Family Surveys” section included in Progress Report #1.

Providers have also expressed satisfaction with the telehealth model of service delivery. Providers in the regional clinics completed surveys in 2004, and those results were reported in the “Provider Surveys” section included in Progress report #1. During the past months we have interviewed a number of providers who are participating in the telehealth model, and those conversations are summarized in the “Provider Interviews” section included in Progress Report #1. Among interviewees, there is unanimous agreement that the model works well and allows access for families who would otherwise not see a specialist or would have to drive many miles to be seen.

In interviews with physicians who have used telehealth as a means of providing their services, there was a universal belief that there probably are patients who would not be appropriate for the telehealth model. However, none of those interviewed was able to identify any patients they had found to be inappropriate for the model. Initially, it was thought telehealth would be limited in its usefulness; however it has since been proven to be far more effective with a greater number of

patients than they would have believed. The process requires a willingness to move ahead with an open mind and let the process and the families lead practitioners into new uses for the model.

The CHSC telehealth system is operated at a relatively low cost. The system uses existing high-speed internet access with firewalls for security. The cameras were purchased for approximately \$4,000 each and are combined with high-quality television monitors to provide the communication capacity. There are monthly charges for broadband internet services, which vary slightly from community to community.

The Center for Disabilities and Development conducts some telehealth consultations through the use of the ICN, since these sites are readily available in schools and public libraries throughout the state. ICN sessions must be scheduled to begin and end at a specific time, and those time limits are very rigid. Some providers reported appreciating that structure; others find it bothersome.

Reportedly, some hospitals in Iowa are using their high-speed T-1 lines for telehealth consultations. This is similar to the high-speed internet connection, but the quality and the cost are significantly higher, and the T lines are not available in every community.

There are unlimited possibilities for enabling the local community to have access to the expertise at University of Iowa Hospitals and Clinics and/or other medical facilities in the state, without having to make a long and time-consuming trip. Often a family does not need an exam, but they do need information about a disease or condition that is rare and seldom seen by their community practitioners. In other cases, a local practitioner may need advice regarding the management of a serious chronic condition such as asthma or diabetes. In one example, a Huntington's Chorea specialist met through a telehealth session with a foster family and DHS staff and gave them information about the development of the disease. This is a way to facilitate on-going relationships and consultations between University of Iowa Hospitals and Clinics staff and community-based providers across the state.

For a relatively small financial investment, telehealth appears to provide an effective means to increase access to specialty healthcare in underserved rural areas. The cost of medical professionals is actually reduced in some cases, because travel to a remote site is not necessary.

Step 2-Implementation of Training Modules and Expansion of Telehealth

Attached to this report are materials for use in training health professionals in the effective use of telehealth technologies. These materials have been shared with several health professionals currently using the technology and, on August 4, 2006, were piloted with medical providers who will soon begin to use telehealth as a way to provide their services. The pilot training was conducted in a three-hour time period, because of the time limitations of the participants. The training manual is intended as a starting point and can be used in its entirety or as individual modules. Some modules may be relevant to some audiences, but not to others, and details specific to the telehealth situation can be added as appropriate.

Each participant in the pilot training completed a pre and post assessment. Although it was a very small number of participants (n=2), there was significant change in their knowledge and

comfort level from before the training to after the training. There was positive change noted by both participants on every question. Perhaps most noteworthy were the responses to the last four statements on the instrument: “I understand the technology that will be used and I am comfortable that I know how to operate it adequately;” “I understand the differences between a face to face interview and an interview using telecommunications;” “I feel confident about conducting an interview using telecommunications technology;” “I understand the ways in which case coordination can be done following a telehealth session;” “I am aware of several ways to use telehealth as a teaching/consultation tool with other providers.”

All responses before the training were either, “Not at all,” or “Somewhat.” Following the training, all responses were either, “Adequately,” or “Very Well,” and both participants indicated a much higher level of trust and confidence that telehealth would be a successful means of providing their services to rural families. It is important to note that this training assessment was to measure immediate change in knowledge, comfort level, etc. Important long-term changes have not yet been possible to assess.

Following this training, the Metabolics Clinic at the University of Iowa Hospitals and Clinics will begin providing their services to families via the telehealth system provided by CHSC. Beginning within the next month, metabolic follow-ups will be done across the state using the CHSC telehealth system. Dr. Sara Copeland and Judy Miller, Nurse Practitioner, University of Iowa Hospitals and Clinics, Dept. of Genetics, will be available to families across the state by means of the telehealth system. Follow-up services will also include a nutritionist and a social worker, when appropriate. Families who have children with metabolic issues will be able to access these services from their regional CHSC clinic in a community close to their home. One family in particular in the Ottumwa area will benefit from this expanded use of telehealth. They have several children with PKU, and, because they are Amish, they do not own a motor vehicle. Every trip to the University requires finding transportation and making a time-consuming trip. They have expressed to the CHSC clinic staff a great sense of relief to be able to receive the services in their own community and to be able to have their familiar and trusted community provider in the telehealth session.

The training manual lends itself to the addition of detail relative to the setting where telehealth will be done. This manual has much of the basics, but each setting will have different technology, different billing and dictation processes, different local providers, etc. The modules can be tailored to fit the varied settings where it might be used.

Step 3-Evaluation and Reporting

It has been very difficult to ascertain the amount of telehealth that is being done in the state of Iowa at this time. We have contacted Shannon Strickler, the Director of Government Relations for the Iowa Hospital Association. She reported that, although anecdotally there are reports of some hospitals using telehealth, IHA does not have any specific data regarding which hospitals are utilizing telemedicine and for what patients or specialties. Several calls to specific hospitals resulted in very little information. Getting accurate information about this would require a major surveillance effort, but it might be necessary in order to understand the current picture of telemedicine in the state of Iowa.

In order for telehealth to continue to be sustainable and effective, there needs to be a commitment on the part of the state of Iowa that this is a viable and valued method for addressing the shortage of subspecialty physical and behavioral health professionals in rural parts of the state. This commitment can come in the form of appropriations to support the technology infrastructure and in assurances that third party payments will continue to be available for medical services provided in this way. A billing issue that might be addressed is the inability to bill for both the physician at one telehealth site and the nurse or nurse practitioner who must be at the remote site with the patient. Under current policies, there is no way to bill for the time of the nurse who is present with the patient.

As a means of educating legislators regarding the potential of telehealth, the Chair and the Ranking Member of the Human Service Appropriations Committee were invited to see for themselves the ways in which telehealth is currently being used to increase access to rural parts of the state. On Monday August 21, 2006, Rep. Dave Heaton and Rep. Ro Foege visited the Ottumwa Regional Center of Child Health Specialty Clinics (CHSC) to observe telehealth sessions and to discuss telehealth activities. The agenda for the day included the following:

- 9:00-9:45 Observation of a web cam psychiatric evaluation with Dr Chris Okiishi
- 9:45-10:30 Observation of a web cam behavior evaluation with Dr. Dave Wacker
- 10:30-11:00 Discussion of Metabolic Clinic with Dr. Sara Copeland and Judy Miller, ARNP
- 11:00-11:30 Discussion with Sue Baker regarding autism services
- 11:30-12:00 Discussion with Jody Kealey regarding nutrition services

The legislators were able to observe actual evaluations of children. During these evaluations, community based providers were also present, including staff from CHSC, AEA, and a community pediatrician. The legislators commented on the value they saw to the families of having the presence of these local providers during the evaluation.

The legislators also had the opportunity to discuss the clinicians experience with telehealth and their thoughts and observations regarding this method of delivery of services. Legislators had

questions regarding the technology used, the cost of the system, what providers saw as the pros and cons of the service, and numbers of children served. They indicated that the information they obtained during the visit will be of value to them as they look at policy and funding issues during the legislative session.

Due to statewide professional shortages, securing the services of pediatricians, especially child psychiatrists, presents a special challenge in Iowa. Another important area for continued investigation is the distribution of medical specialists across the state. The Iowa Department of Public Health, in collaboration with other medical organizations, maintains data on the number and location of medical practitioners in the state. This data should be analyzed on a regular basis in order to determine the need for increased telehealth services. Regional CHSC clinics also keep data on the patients they serve and the types of services they provide. A regular analysis of this information will make it possible to identify areas of need and plan for appropriate additions or enhancements of telehealth services in those areas.

In order for the telehealth system to be successful, it is important to have participating providers available on a stable, regular schedule with sufficient availability. This will require recruitment and incentives on the part of the state. Medical schools should be encouraged to include telehealth information and training opportunities in their courses of study.

There have been many attempts at using telehealth across the state, and a survey of a few of those projects, some but not all of which are still operating, gives us information about the factors that appear to be critical to the sustainability and continued success of telehealth projects in general. The first characteristic of the successful projects is that they were able to obtain the financial resources necessary to purchase or enhance their telecommunications infrastructure and to put the organizational processes in place to support the system. The most successful systems appear to be fairly self-contained, which gives them a great deal of control over record-keeping processes and billing processes. They have an organizational structure in place to assure that best practices are followed, and their system has the means to assure that providers have a high level of expertise in their subspecialty area. CHSC is an example of this type of system that has the capacity and the expertise to provide telehealth services on a state-wide basis.

One of the factors cited again and again by telehealth providers was the importance of the relationships between the subspecialty providers and the medical providers in the local communities. Providers indicated that a high level of trust was critical to their ability to assure the patients and their families that this was a viable way of getting the care they needed. In most cases these provider-to-provider relationships were established prior to participation in the telehealth process. If not already established, these relationships must be a critical part of the preparation for using telehealth. These relationships can be established and nurtured by face-to-face conversations or by the use of telecommunications. It is important that each provider's expectations and responsibilities are clarified before any patients are seen. Especially during the initial telehealth sessions it is important to allow time for providers to process with one another what they liked or did not like about the session, so that adjustments can be made quickly. One way to build relationships and trust is to have the telehealth physician provide training, either in person or by telecommunications, to the other medical providers that will be assisting from the other end of the telehealth session. This offers the professionals an opportunity to get to know

one another and gives the physician the chance to emphasize particular techniques or information that he or she feels are critical.

Telehealth is affordable and effective, according to all surveys and reports from professionals who have used it. There are certainly costs associated with the technology required for this model of care, but there are also enormous benefits, including monetary ones. Prior to the use of this telehealth model a pediatrician was making regular trips by air from Iowa City to the regional clinic in Spencer in order to see children with special healthcare needs. Each flight cost \$1600-1800 as well as the cost of additional hours for the doctor. With the use of telehealth the cost of these consultations has decreased significantly.

Telehealth also offers rich possibilities for professional development opportunities in rural communities across the state. University of Iowa Hospitals and Clinics pediatricians, child psychiatrists and others have been able to use the telehealth infrastructure to offer lectures on many health and behavioral health issues, in order to build the capacity of local providers to support the on-going needs of children with special health needs and their families.

A Plan to Move Telehealth Forward

In order to move the telehealth system forward in the state of Iowa, several strategic steps are necessary. First, there are a set of general recommendations for the state:

- 1) It would be useful to undertake a surveillance effort to determine the current use of telemedicine and the numbers and types of patients being seen in this way should be implemented and monitored over time to see where these efforts are working and being sustained. This will be challenging, since we could find no evidence that this is currently being tracked, but it is necessary to determine capacity for expansion into additional areas.
- 2) There could also be a surveillance effort to determine the capacity across the state for telecommunications infrastructure that could support telemedicine, i.e. availability of ICN sites, availability of adequate high-speed internet access or T-1 lines.
- 3) Continued monitoring of the distribution of medical providers across the state is critical. The areas in the state where there are shortages of medical specialties should be assisted in exploring ways in which telehealth systems might be used to address those needs.
- 4) State policy makers should be given information about the uses of telehealth and given opportunities to talk with providers and consumers who are using it. They should be encouraged to consider policies that provide incentives for physicians willing to learn and practice in this modality as a way of expanding services to children with special physical and behavioral healthcare needs in the rural areas of the state.
- 5) Medical schools should be encouraged and assisted in developing training and practice opportunities for students who have an interest in using telemedicine in their practices.

In addition to these general recommendations, several strategic steps are necessary in order to advance telehealth and, specifically, to create a statewide system of specialty services available to rural populations through telecommunications technology. We are recommending a regional pilot approach, which could then lead, region by region, to the development of a statewide system:

1. Using a variety of population data, including the data included in this report, regarding location of pediatricians and child psychiatrists relative to child population, we would suggest the identification of a group of counties where there is an obvious need, an identified region to use as a pilot universe for the development of a telehealth system. Need would be based on the population and provider data, and on the distance from specialty providers. Geomapping of child population and physicians would be particularly helpful in this process.
2. Within that region information would be gathered in more specific ways, by interviews or focus groups with local providers to identify priority needs. This information should include data about the incidence of special health needs, with behavioral health being one of those. It would be important to get information from local schools and other human service providers, as well as the medical community.
3. Because most areas of the state have a Child Health Specialty Clinic, and because these clinics have some experience with telehealth and have relationships with local providers, CHSC would be the logical entity to provide technical assistance, training and support in enhancing current systems and adding new telehealth systems.
4. From the data gathered in the region, one could project whether there is a critical need for pediatric services and/or child psychiatry services and/or other specialties, and approximately how much of each.
5. An assessment could then be made of the technology capability in the region. It is worth noting that not every community has access to internet bandwidth adequate for this type of use. On the other hand, hospitals already have T-1 lines in place and may be willing to collaborate with other entities in the use of these.
6. There are then several possibilities for expanding telehealth locations in the region. The CHSC clinic may be able and willing to increase the number of telehealth sessions. There may be a pediatric or family practice office that is able and willing to create a telehealth “studio” where their patients and their office staff could participate in specialty consultations. This would enable the rural practitioners to participate directly in the consultations they request for their patients. There may be a hospital that already has the necessary equipment and would be willing to partner in providing telehealth consultations for the community.
7. Obviously, the other necessary step is the recruitment and hiring of the required specialty providers who now reside and practice in urban settings and in tertiary facilities. They would have to be encouraged to practice in this new way and would need opportunities for training and practice, as well as time to build these new relationships across the state.

Hopefully, one part of their telehealth practice would be providing education to the local practitioners who are caring for these patients with special health care needs, through modeling and through professional development, which will ultimately build the capacity of the local providers to deal with these issues.

A Scenario for Behavioral Health

We have gathered some data regarding child population and location of specialty providers in the state of Iowa. (*See Exhibit A.*) It is important to note that this is only a part of the data that would be needed to determine the ways in which to move telehealth forward. Other means of gathering additional information are mentioned above. The data in the matrix can be somewhat misleading without other information from community providers. For instance, although this data shows a child psychiatrist in Spencer, local providers report that this is actually an adult psychiatrist who occasionally sees children. This is very different from having a full-time child psychiatrist in the community. A child psychiatrist in Cherokee sees only in-patients at the Mental Health Institute, so is not a resource to the rest of the community.

However, given these significant restraints, if we were to look at this information to determine the number of professionals needed to meet behavioral health needs across the state, we could make some very rough estimates. Once we have established the child population, we can then make some projections based on the Iowa Household Health Survey, which suggests that approximately 17% of all children have some type of special healthcare need. This might be asthma, diabetes, or any number of other health issues, but we also can estimate that a portion, approximately a third, of those, or 5% of the total number of children, will have behavioral health issues that might require the services of a child psychiatrist. Using the matrix in Exhibit A, we can see that 33,687 children in Iowa might need these services, and only 31 child psychiatrists are available in the entire state. Although we were only able to determine via *professional opinion* that a recommended caseload for a child psychiatrist is approximately 500 children, we can see that there is a severe shortage of this specialty, particularly in the rural parts of the state. By using this approach for each county, or for a group of counties, one begins to see the significance of the shortages. Geomapping of child population would be even more helpful, because it would show the geographic distance of certain populations of children from a child psychiatrist.

The next step would be to project that the state would need to recruit a significant number of child psychiatrists and other behavioral health professionals to the state and offer some kind of incentives, along with training and support, to adequately serve our rural populations through the use of telehealth systems. The professionals would then have the option of living in the urban centers and, if they wanted, but would still be able to serve children in rural areas. Telehealth makes it possible for a provider to live anywhere and be able to serve children in many parts of the state.

In addition to the child psychiatrists, nurses or nurse practitioners would have to be available, preferably in the child's community to assist during the telehealth session and to provide the care coordination prior to and following the session. CHSC estimates that it requires approximately

90-120 minutes per patient, outside of the clinic time, to provide care coordination for each patient seen by telehealth.

Therefore, based on the information we have, we might predict that the state of Iowa could add 5 child psychiatrists in order to serve an additional 2,500 patients, and 20 nurses would be needed to provide necessary services, including care coordination for those additional patients. The cost is approximately \$125 per child psychiatry hour and \$75 for a nurse to be available for that hour and two additional hours for care coordination. In other words, approximately \$200 would be the cost for each additional hour of child psychiatry service, including care coordination, for a patient. Using this scenario, it would take approximately \$325 to see each of those additional patients one time, or approximately \$2,000 for six visits per patient. However, when compared to the cost of an emergency room visit or in-patient stay for a child needing this service, and not receiving it, the cost is justified.

Technology costs can vary significantly, depending on whether the technology is already available or must be purchased. An adequate webcam and monitor will cost approximately \$5,000, plus the monthly cost of the broadband technology which varies anywhere from \$50 - \$250 per month depending on location and speed. There may also be costs related to modifying a space to be a suitable room in which to hold a telehealth session. Technology needs and costs are very difficult to predict because of the constant changes.

Because of the many variables, it is impossible to recommend an exact number of professionals the state will ultimately need to expand the use of telehealth. That is why we are recommending a regional pilot as an approach to begin this expansion, using the steps outlined above. An effective statewide system could be developed, adding a region at a time.

Summary

A nurse practitioner in a regional CHSC clinic said, “Telehealth is a way of providing the services that we have always provided in a way that makes them so much more accessible for families.” That was her way of saying that telehealth, or telemedicine as it is sometimes called is not a service in itself; rather, it is a delivery model that makes specialty medical services easily accessible, or in some cases the only option for accessibility to children and families in rural areas.

There are families in Iowa that travel many miles in order to obtain specialty medical services for their children. This means a very long day, but it also means much more than that. For many families, it means the loss of a day’s pay, as well as the escalating expense of gasoline for their car. Sometimes it means asking extended family or friends to help with transportation or with childcare for the other children in the family. Often it means postponing needed care until it is absolutely necessary. And, sometimes, it means going without needed care because it is simply not possible to make the trip.

These are common struggles in a state where much of the population live a significant distance away from specialty medical services. Iowa has some of the best medical services in the world, but this is meaningless to a family that lives in a rural area and is not able to access those

services. Telehealth is a way to bring specialty medical services to the communities where these families live or can easily reach. According to the families and the providers who have participated in this model of care, telehealth is a way to bring valued services and expertise directly into a rural community.

Through this project we have been able to increase our understanding of the benefits of telehealth and some of the barriers to its expansion. We have developed some training materials to support medical providers who are ready to participate in the use of this technology. We are able to offer the following recommendations regarding the use of telehealth as a way of enhancing access to subspecialty physical and behavioral health professionals by children and families in rural Iowa

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Respectfully submitted,

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Child Health Specialty Clinics

Exhibit A

	Source = Iowa Data Center, State of Iowa as of July 1, 2005			Source = Office of Statewide Clinical Education Programs, UI Carver College of Medicine as of Aug 7, 2006					
	Total Population of Children under 18 in the State of Iowa				Children per Pediatrician			Children per Child Psychiatrist*	
County	Total	17% with Special Healthcare Needs	5% with Special Emotional & Behavioral Healthcare Needs	Pediatricians in the State of Iowa	Total	17% with Special Healthcare Needs per Pediatrician	Child Psychiatrists in the State of Iowa*	Total	5% with Special Emotional & Behavioral Healthcare Needs per Child Psychiatrist
Adair	1,564	266	78						
Adams	889	151	44						
Allamakee	3,273	556	164						
Appanoose	5,868	998	293						
Audubon	1,426	242	71						
Benton	6,298	1,071	315						
Black Hawk	25,902	4,403	1,295	14	1,850	315	1	25,902	1,295
Boone	5,833	992	292						
Bremer	4,824	820	241						
Buchanan	5,352	910	268	1	5,352	910			
Buena Vista	4,718	802	236						
Butler	3,146	535	157						
Calhoun	1,995	339	100						
Carroll	4,823	820	241						
Cass	2,907	494	145						
Cedar	3,949	671	197						
Cerro Gordo	9,467	1,609	473	7	1,352	230			
Cherokee	2,547	433	127				1	2,547	127
Chickasaw	2,858	486	143						
Clarke	2,156	367	108						
Clay	3,672	624	184				1	3,672	184

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Clayton	3,989	678	199						
Clinton	11,213	1,906	561	4	2,803	477			
Crawford	4,078	693	204						
Dallas	12,202	2,074	610	2	6,101	1,037			
Davis	2,109	359	105						
Decatur	1,662	283	83						
Delaware	4,323	735	216						
Des Moines	9,187	1,562	459	4	2,297	391			
Dickinson	3,197	543	160						
Dubuque	21,207	3,605	1,060	12	1,767	300	1	21,207	1,060
Emmet	2,317	394	116						
Fayette	4,548	773	227						
Floyd	3,627	617	181						
Franklin	2,347	399	117						
Fremont	1,719	292	86						
Greene	2,161	367	108						
Grundy	2,621	446	131						
Guthrie	2,456	418	123						
Hamilton	3,627	617	181	1	3,672	617			
Hancock	2,565	436	128						
Hardin	3,940	670	197						
Harrison	3,592	611	180						
Henry	4,314	733	216						

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Howard	2,201	374	110						
Humboldt	2,087	355	104						
Ida	1,569	267	78						
Iowa	3,739	636	187						
Jackson	4,504	766	225						
Jasper	8,326	1,415	416	1	8,326	1,415			
Jefferson	3,115	530	156						
Johnson	21,214	3,606	1,061	35	606	103	9	2,357	118
Jones	4,196	713	210						
Keokuk	2,553	434	128						
Kossuth	3,477	591	174						
Lee	7,945	1,351	397	4	1,986	338			
Linn	47,495	8,074	2,375	22	2,159		3	15,832	792
Louisa	2,937	499	147						
Lucas	2,170	369	109						
Lyon	2,971	505	149						
Madison	3,616	615	181	1	3,616	615			
Mahaska	5,124	871	256	2	2,562	436			
Marion	7,305	1,242	365						
Marshall	9,309	1,583	465	4	2,327	396	1	9,309	465
Mills	3,594	611	180	1	3,594	611			
Mitchell	2,557	435	128						
Monona	1,950	332	98						

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Monroe	1,786	304	89						
Montgomery	2,550	434	128						
Muscatine	10,523	1,789	526	3	3,508	596			
O'Brien	3,035	516	152						
Osceola	1,514	257	76						
Page	3,395	577	170						
Palo Alto	2,038	346	102						
Plymouth	6,020	1,023	301	1	6,020	1,023			
Pocahontas	1,644	280	82						
Polk	98,938	16,819	4,947	67	1,477	251	8	12,367	618
Pottawattamie	21,334	3,627	1,067	5	4,267	725	1	21,334	1,067
Poweshiek	3,702	629	185						
Ringgold	1,108	188	55						
Sac	2,254	383	113						
Scott	39,085	6,644	1,954	14	2,792	475	1	39,085	1,954
Shelby	2,799	476	140						
Sioux	7,746	1,317	387						
Story	12,607	2,143	630	8	1,576	268	1	12,607	630
Tama	4,348	739	217						
Taylor	1,398	238	70						
Union	2,541	432	127						
Van Buren	1,684	286	84						
Wapello	8,026	1,364	401	8	1,003	171	1	8,026	401

	Source = Iowa Data Center, State of Iowa as of July 1, 2005			Source = Office of Statewide Clinical Education Programs, UI Carver College of Medicine as of Aug 7, 2006					
	Total Population of Children under 18 in the State of Iowa				Children per Pediatrician			Children per Child Psychiatrist*	
County	Total	17% with Special Healthcare Needs	5% with Special Emotional & Behavioral Healthcare Needs	Pediatricians in the State of Iowa	Total	17% with Special Healthcare Needs per Pediatrician	Child Psychiatrists in the State of Iowa*	Total	5% with Special Emotional & Behavioral Healthcare Needs per Child Psychiatrist
Warren	9,857	1,676	493						
Washington	5,109	869	255						
Wayne	1,395	237	70						
Webster	8,804	1,497	440	3	2,935	499			
Winnebago	2,385	405	119						
Winneshiek	3,934	669	197						
Woodbury	27,090	4,605	1,355	7	3,870	658	2	13,545	677
Worth	1,628	277	81						
Wright	3,036	516	152						
			Number of children who could benefit from seeing a Child Psychiatrist			Average per Pediatrician		Number of children with access to a Child Psychiatrist	Average # of children per Child Psychiatrist*
TOTAL	673,735	114,536	33,687	231	2,917	496	31	21,733	1,087

* It should be noted that the average caseload for a fulltime Child Psychiatrist, based upon professional opinion, is approximately 500 children. Many of the Child Psychiatrists located in the state are not full time. The Child Psychiatrists in Iowa City who are employed fulltime at the University of Iowa Hospitals and Clinics are not full-time clinicians and only spend about half their time seeing patients, the remainder of the time they are engaged in teaching and research.

Child Health Specialty Clinics
Telehealth Training Manual

Module 1: Technology and environmental options for the use of a telehealth

Learning Objectives:

1.1 Learners will be able to identify some types of technology that can be used successfully for implementation of a telehealth model.

1.2 Learners will be able to set up an exam/consultation room in a way that facilitates the use of the telehealth model.

1.1 Content

High quality and reliability of the telecommunications infrastructure is critical when using a telehealth model for seeing patients. Reduction in the quality of technology can result in sound delays or breakdowns, which can be damaging to the interactions and thus to the relationships being developed.

Some telehealth is being done successfully using the ICN system in the state of Iowa. ICN sites are available in every school and every public library, as well as in a number of other public settings. ICN sessions must be scheduled to begin and end at a specific time, and those time limits are very rigid. Some providers have reported appreciating those limits; others find them bothersome. Most ICN sites are able to accommodate a fairly large group of people, making it possible for a school or community team of providers to participate in all or some part of the session. A complaint about this system is that it requires an individual to press a lever on a microphone in order to talk. This can make the conversation seem a little stilted at times. Other complaints about the ICN are that it often has technical problems that take time to resolve. In spite of these concerns, the ICN is a viable alternative for telehealth and one that is currently being provided and supported by the State of Iowa.

Telehealth is being conducted at CHSC through the use of high-speed internet connections. Each site has a monitor and a web cam. This technology lends itself to a smaller setting than the ICN sites, and the time limitations are not as rigid. This system can utilize a microphone that picks up sound throughout the room without being turned on and off each time a person wants to talk. This makes for a more normal speed and rhythm of conversation and seems to be much less intimidating to patients and families. It is important to remember that with this arrangement the microphone picks up ALL sounds in the room, so the surroundings must be relatively quiet.

Some hospitals are using their high-speed T-1 lines for telehealth consultations. This is similar to the high-speed internet connection, but the quality is higher and the cost is higher. With these connections there is less likely to be an interruption or a delay in the signal. This type of

technology is not always available in the rural sites, although all hospitals do have this technology available.

Depending on the type of technology being used, there may be times of the day when there is more or less traffic on the system, so it is worth exploring which times provide the best quality. A crowded system can cause some delays in the responses, which tends to decrease the quality of the interaction between the two sites.

A larger monitor screen is easier to see and makes the person at another site seem more lifelike. The “picture in a picture” feature is very attractive to children, because they enjoy seeing themselves on the screen.

Each physician or other medical provider must become comfortable with manipulating the equipment in order to get a closer look at the patient or to focus on a particular part of the patient’s body, for instance to look at skin quality or the shape of the head. Using this technique the provider can even take a still photo of the patient to use for a particular consult or just to keep in chart for future reference.

1.1 Practice

Learners will be given an opportunity to peruse manuals and use the equipment that will be available to them. There will be a remote site online in order to practice using the equipment and interacting with the other sites.

1.2 Content

When setting up the space to be used for the telehealth process, one should consider carefully the need for privacy and for quality of sound and picture. The ideal room would be just large enough to accommodate all participants comfortably, but without a great deal of extra, empty space. The room should be soundproof, if possible, with adequate lighting. Lighting is particularly important, so that the physician or other medical provider can see the patient in adequate detail. Seating should be arranged so that everyone in the room can see the monitor and be seen by the camera.

Carpet in the room makes a big difference in the quality of sound, and curtains not only improve sound quality, but may also offer some options for adjustment of light. There are some environmental issues specific to pediatrics. For instance, all equipment must be positioned in such a way that children cannot reach it.

1.2 Practice

Learners will be given a room description or asked to picture a room with which they are familiar and then will discuss possible modifications that would make the room suitable for use as a telehealth site.

Module 2: Using telehealth as a model for service delivery

Learning Objectives:

- 2.1. Learners will understand the preparation necessary for providers prior to using the telehealth model.*
- 2.2. Learners will be comfortable preparing a family to participate in the telehealth model.*
- 2.3. Learners will understand and be able to use processing and interviewing techniques that enhance the telehealth experience.*

2.1 Content

There are many important lessons that have been learned from experienced providers who have used the telehealth model. Many of these suggest that there is important work to be done prior to the first telehealth session. The collaborative and mutual development of clinical evaluation protocols is essential to the success of this model. In addition, having a specific, agreed-upon agenda for the telehealth consultation prepared in advance insures quality. It is important that local community-based professionals have had some training with telehealth procedures.

This process seems to work best when there is a previous relationship between providers, so that there is a knowledge base and trust before starting. One way to build this relationship and this trust is to have the telehealth physician provide training, either in person or by telecommunications, to the other medical providers that will be assisting from the other end of the telehealth session. This offers the professionals an opportunity to get to know one another and gives the physician the chance to emphasize particular techniques or information that he or she feels are critical.

2.1 Practice

Learners will have an opportunity to discuss the telehealth process with providers who have prior experience. They will then develop a plan for working with the relevant community providers.

2.2 Content

The initial steps of the session are more critical in a telehealth process, because, while the setting becomes very comfortable as the visit progresses, it does not provide the entire array of non-verbal communications and cues that are available in a face-to-face setting.

Before beginning the session, families should be told who will be present at both telehealth sites. It is imperative for medical staff, such as a nurse or nurse practitioner, to be present with the patient and the patient's family or authorized representative. It is sometimes appropriate to have other interested parties involved in all or some part of the session. These might include local community providers, such as school personnel, who may be responsible for providing follow-through of behavioral plans or medication administration.

Depending on the technology, explain to everyone in the room any “quirks” inherent in the process, such as a need to allow a moment between speakers, in order not to cut off the end of a sentence. This is more or less of a problem, depending on the type and quality of the technology being used.

As with any procedure, the patient and family should be made aware of the potential risks and consequences as well as the likely benefits of receiving the medical consultation through the use of telecommunications. There is always a risk of technical problems that could disrupt the session or end the session prematurely. The benefits include less travel time, availability of a specialist at a local clinic, and the availability of a nurse and/or other providers for added support between visits. It may be helpful to give families the option of trying it out and assuring them if they are not comfortable that other options can be explored.

It is also important to explain how the equipment helps to maintain the patient’s privacy. The family can be assured that the session will not be videotaped. The technology has also been installed so that the messages sent electronically are encrypted (*encryption* is a process that prevents unauthorized receivers from seeing and hearing information transmitted between two web cam sites; the information is rearranged so that it is unrecognizable). Someone can explain to the family that no one will be able to see them on the camera until someone dials the other site. Explain that everyone will be introduced at the beginning of the session. In addition, before the actual consultation begins, someone might help the families get used to seeing themselves on camera by turning the camera on and showing the family what it will look like. There are typically some kinds of time limitations because of web cam scheduling. If this is the case, the family and all other participants should be made aware of the expected time frame.

2.2 Practice

Learners will be given a typical scenario and assigned “roles” and will be given an opportunity to role play the various roles. Each learner should get a chance to be the “patient” or family, and should have a chance to be the provider. Again, a remote site will be available to provide a realistic opportunity to practice these skills.

2.3 Content

Eye contact is very important in any conversation, and the use of telehealth offers a specific challenge. Although it seems most natural to look directly at the screen, it works best if participants can alternate eye contact between the camera and the monitor. There is a tendency to look just at the monitor, but direct eye contact with the patient or family is achieved by looking directly at the camera. Rapid movement can be distracting or even disruptive, so it is best if movement is slower, with verbal cues given before significant movement, such as standing up or changing chairs, is initiated.

The medical exam itself does not necessarily have to be conducted by the doctor, if there is another trusted medical provider (nurse or nurse practitioner) who can do the exam before or during the telehealth session. It is very important that a trusting relationship be established between the primary physician performing the web cam consultation and the medical provider

who is present with the patient. This can initially feel awkward for the doctor who is unable to touch the patient during the telehealth session. It is critical that the doctor is able to trust and to communicate effectively with the provider present with the family on the other end of the telehealth session. Experience has shown us that families have far less difficulty with this than physicians.

Actual interviewing techniques are not very different in person or in a telehealth session. Providers have reported that history-taking may even be more complete in telehealth, because one is truly using the interview, rather than making assumptions based on visual cues, and one is less likely to get distracted from the history-taking process in telehealth.

The use of an interpreter, although not impossible, carries with it additional challenges in this telehealth model. It is very helpful to have a discussion with any new interpreter, so that agreement is reached regarding the physical placement of the interpreter and the general guidelines to be following in providing interpretive services.

At the end of the session, it is important to take a few minutes to follow up with the family and see if they have additional questions, concerns, or other feedback to help the process improve.

2.3 Practice

Learners will be given a typical scenario and assigned “roles” and will be given an opportunity to role play the various roles. Each learner should get a chance to be the “patient” or family, and should have a chance to be the provider. Again, a remote site will be available to provide a realistic opportunity to practice these skills.

Module 3: Care Coordination and follow-up

Learning Objective:

3.1. Learners will be able to identify appropriate processes to assure that follow-up is done in a timely and effective manner.

3.1 Content

Telehealth is a way to access medical expertise in rural areas that otherwise would not have such expertise available. When a family travels to a city miles away from their community to see a specialist, the community providers do not typically have an opportunity to ask questions or to provide important information to the specialist in the same way.

Rural providers report that care coordination is much easier and more effective with the telehealth process, because the family stays with providers in the community, and the plan can be developed as a team. Often, community providers who will be responsible for the follow-through are present when the plan is developed. They are able to commit to the plan or to suggest alternatives to a physician who may not be familiar with the resources available in each

community. This kind of multi-disciplinary team process requires give and take to determine the best plan and is dependent on respect and trust among the participants. Discussion of recommendations for treatments, and even demonstration of evaluation or treatment procedures during the telemedicine session is a way to assure that all participants understand the plan and will offer their full support to assure a successful outcome.

Staff in clinics where this process has been used have found that family members and providers who use a community-based approach and are full participants in developing an individual plan for the patient, are much more committed to making the plan work. Telehealth also provides a relatively easy method for getting the team members back together quickly to provide feedback and make adjustments when needed.

3.1 Practice

Learners will be given a case scenario and will have an opportunity for small group work developing a follow-up plan for a patient and family.

Module 4: Paperwork and Record-keeping

Learning Objective:

4.1. Learners will be familiar with the record keeping and billing processes relative to the telehealth model in their setting.

4.1 Content

Doctors should establish what they want to know prior to the telehealth meeting. Medical records and any additional information are gathered and reviewed by community-based medical providers and then relevant information is forwarded to the specialty service provider so that he/she can review it prior to the telehealth conference. It may take some practice and relationship building to determine what information each particular doctor likes to have prior to the telehealth session. It is useful for all participating providers to have discussion about this prior to beginning to use this model, but it is also to be expected that feedback sessions should be held frequently, especially when this modality is first instituted, so that providers can discuss what went well and what they would like to do differently.

4.1 Practice

Learners will have an opportunity to see the various forms used by CHSC and will complete a set of forms based on a patient scenario.

Module 5: Appropriate uses for the telehealth system

Learning Objectives:

5.1 Learners will develop an understanding of the types of patients that can be seen using telehealth and determine any contraindications.

5.2 Learners will be able to identify other ways the telehealth model can be used to enhance the system of care.

5.1 Content

Experience has shown that, with adequate preparation, doctors can see the same patients by web as they would see in person. Sometimes the telehealth session serves as an initial screening, during which time the physician determines which specialists the patient needs to see and what tests can be done ahead of time. If a family does need to travel to Iowa City for a particular specialty, necessary lab work can often be done locally, and then the UI Hospitals & Clinics courier can deliver samples prior to the patient's visit, saving time and frustration for the family and the medical providers.

In interviews with physicians who have used telehealth as a means of providing their services, there was a universal belief that there probably are patients who would not be appropriate for the telehealth model. However, none of those interviewed was able to identify any patients they had found to be inappropriate for the model. There seemed to be a pattern of initially thinking that telehealth would be very limited in its usefulness, and then discovering that it was far more effective with far more patients than they would have believed. The process requires a willingness to move ahead with an open mind and let the process and the families lead practitioners into new uses for the model.

5.1 Practice

Learners will discuss patient scenarios to determine which ones are most or least appropriate for telehealth consultation.

5.2 Content

There are unlimited possibilities for enabling the local community to have access to the expertise at University of Iowa Hospitals and Clinics or other medical facilities in the state, without having to make a long and time-consuming trip. Often a family does not need an exam, but they do need information about a disease or condition that is rare and seldom seen by their community practitioners. In other cases, a local practitioner may need advice regarding the management of a serious chronic condition such as asthma. In one example, a Huntington's Chorea specialist met through a telehealth session with a foster family and DHS staff and gave them information about the development of the disease. This is a way to facilitate on-going relationships and consultations between UI Hospitals staff and community-based providers across the state.

Telehealth offers rich possibilities for professional development opportunities in rural communities across the state. University of Iowa pediatricians, child psychiatrists and others have been able to use the telehealth infrastructure to offer lectures on many health and behavioral health issues, in order to build the capacity of local providers to support the on-going needs of children with special health needs and their families.

5.2 Practice

Learners will discuss possible professional development opportunities in their field of specialty or in their communities.