Public Health Briefs

Remote Pediatric Consultation in the Inner City: Television or Telephone?

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Introduction

Consultation via bi-directional television has been suggested as a partial solution to the health services delivery problems of geographically remote rural areas as well as socioeconomically remote inner cities. Telemedicine has been tried in a variety of settings for mental health, medical, and pediatric consultation with varying success.[1-6] Muller, Marshall, et al., have examined cost factors involved in substituting telemedicine for on-site physician coverage.[7]

Rockoff has described the potential role of the telephone.[8] Patients and parents commonly consult with pediatricians by telephone,[9, 10] but while consultation between professionals via telephone is probably equally common, it has not been extensively reported. Moore, Willeman, et al., found that while television consults took longer than telephone consults, they also resulted in fewer hospital referrals and were somewhat more popular with professional staff.[11]

The purpose of this study was to compare the use of television and telephone by pediatric nurse practitioners working in an inner city primary care clinic consulting with pediatricians at a backup medical center. The impact of television consultation in this care setting has been described elsewhere.[6]

Setting

The study setting was a primary care clinic for preschool children in East Harlem which was developed in 1971. The clinic was staffed primarily by four pediatric nurse practitioners (PNPs) treating sick and well children according to written protocols. Initially, consultation for the PNPs was provided by on-site physicians. In 1973, a bi-directional cable television link connecting the clinic and the backup medical center was added for remote physician consultation.

The clinic was equipped with a cart containing a television monitor, microphones, and a television camera. In practice, the cart remained in a single room, and patients were brought into this room for television consultation. Similar equipment was installed in the office of the consulting physicians at the medical center together with a videotape recorder. In July 1974, special telephones were installed connecting each examining room at the clinic directly to the pediatricians' office at the hospital.

Methods

The study was carried out during the four months prior to installation of the telephone system when only the television was available and during eight subsequent months when the nurses could choose either telephone or television for physician consultation. During this latter period, on-site physician coverage of the clinic had been reduced to one morning and four afternoon sessions per week, leaving four mornings a week during which remote physician coverage was the only source of consultation available to the PNPs. Data are drawn from log sheets filled out by the physicians for each remote consultation.

Results

From March 1974 through February 1975, using the system, 21.0 per cent of visits resulted in consultations. Of these, 285 were television consultations, 189 of which occurred during the eight months after the telephones were installed. There were 168 telephone consultations during this eight-month period (Table 1). After installation of telephones, the television consultation rate decreased significantly from 23.3 per cent to 10.8 per cent ($p. < .001$). This decline of television consultations was very nearly balanced by the use of telephone consultations.

In Table 2, consultations are categorized as diagnostic,

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TABLE 1—Off-Site Consultation Rates*, Wagner Project, March 1974–February 1975, Before and After Telephone Installation

Time Period	Number of Clinic Visits	Television Consults		Telephone Consults‡		Total Consults	
		No.	%	No.	%	No.	%
March 1974–June 1974 (before telephone installation)	412	96	23.3	—	—	96	23.3
July 1974–February 1975 (after telephone installation)	1,749	189	10.8	168	9.6	357	20.4
TOTAL March 1974–February 1975	2,161	285	13.2	168	7.8	453	21.0

*Consultation Rate = $\frac{\text{Number of off-site consults}}{\text{Clinic visits during off-site consultation sessions}}$

‡Telephone consults not available March 1974–June 1974.

therapeutic, or mixed. During the period that both television and telephone consultations were available, the vast majority (80.6 per cent) of television consultations involved diagnosis as compared with only 50.4 per cent of the telephone consults. Conversely, only 19.4 per cent of the television consultations were purely therapeutic in nature compared to 49.6 per cent of the telephone consultations. These differences in utilization are highly significant ($p. < .001$).

The mean duration of consultations was 8.3 minutes for television and 4.1 minutes for telephone, confirming the findings of Moore and Willeman[9] that television consults take longer than phone consults. However, the range was large depending on which doctor was consulting with which nurse; for example, using television, one nurse and one doctor averaged 5.0 minutes, while another consulting pair averaged 12.9 minutes. Similarly, the mean duration of telephone consultations varied from 2.0 minutes to 10.0 minutes.

Discussion

The results of this study suggest that nurse practitioners find telephone an acceptable substitute for television for those consultations concerned primarily with therapeutics. However, in the areas of diagnosis and overall patient management, television was generally preferred for several reasons: first, it was thought to be more useful for reassuring patients; second, it was preferred for diagnostic consultations and for orthopedics and psychiatry where the visual component of the remote consultation was considered indispensable; and finally, television consults could be video-

TABLE 2—Reasons for Television and Telephone Consults, Wagner Project, March 1974–February 1975

Time Period	Reasons for Consults	Television Consults		Telephone Consults‡		Total Consults	
		No.	%	No.	%	No.	%
March 1974 to June 1974 (before telephone installation)	Diagnosis	20	20.8	—	—	20	20.8
	Therapy	26	27.1	—	—	26	27.1
	Both Diagnosis and Therapy	50	52.1	—	—	50	52.1
	TOTAL*	96	100.0	—	—	96	100.0
July 1974 to February 1975 (after telephone installation)	Diagnosis	57	32.6	29	20.6	86	27.2
	Therapy	34	19.4	70	49.6	104	32.9
	Both Diagnosis and Therapy	84	48.0	42	29.8	126	39.9
	TOTAL*	175	100.0	141	100.0	316	100.0

*From March 1974 through February 1975, there were also 41 other consults:

	Television	Telephone
Other Reasons	0	14
Unknown Reasons	14	13

‡Telephone consults not available March 1974–June 1974.

taped and subsequently used for quality control, teaching, research, or as part of the patient's medical record. In this series, 35.7 per cent of television consults were taped.

Television may have some disadvantages. It is cumbersome to move about, probably too expensive to have in every examination room, and therefore less convenient to use than a telephone. In addition, it is subject to technical difficulties which occur rarely with telephones in the United States. In this study, almost one-third (31.8 per cent) of all television consults encountered technical difficulties of one kind or another. The staff tolerated these problems very poorly, and their willingness to use the television in spite of these difficulties suggests their appreciation of the value of remote television consultation.

Summary and Conclusions

This was a pilot project and, as such, was accepted as an adjunct to ongoing clinic services. Ideally, the television and telephones would be introduced simultaneously as part of an overall care program. While the reliability and validity of remote television consultation have not been measured, in this study television was preferred to telephone for diagnosis. The relative preference for telephone consults in therapeutic matters seemed to be largely a matter of convenience which might be negated by a more mobile television unit or additional units. The technical difficulties encountered in this project could probably be overcome by the use of better quality hardware. Where on-site consultation is unavailable or uneconomical, our findings suggest that consultation via television may have several advantages over the less expensive telephone. Further studies are needed to confirm this impression and assess the costs and benefits of these modes of off-site physician consultation.

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Prevalence of Sickle Cell Trait and HbC-Trait In Blacks from Low Socioeconomic Conditions

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Introduction

Information concerning the frequency and age-sex differentials of the sickle cell trait (HbAS) and HbC-trait (HbAC) in Black male and female young adults is limited and inconclusive; most of the previous studies have been conducted on hospital-based patients and clinic patients or outpatients. Furthermore, the conclusions from these studies are usually based on findings in older adults (age 35 and over)[1–3] and rely upon less efficient tests[3] for ascertaining the frequency of the two traits.* The present study which

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*Less efficient tests included cellulose acetate electrophoresis only[4] or solubility tests or metabisulfite reduction tests (sickle cell prep).[5]