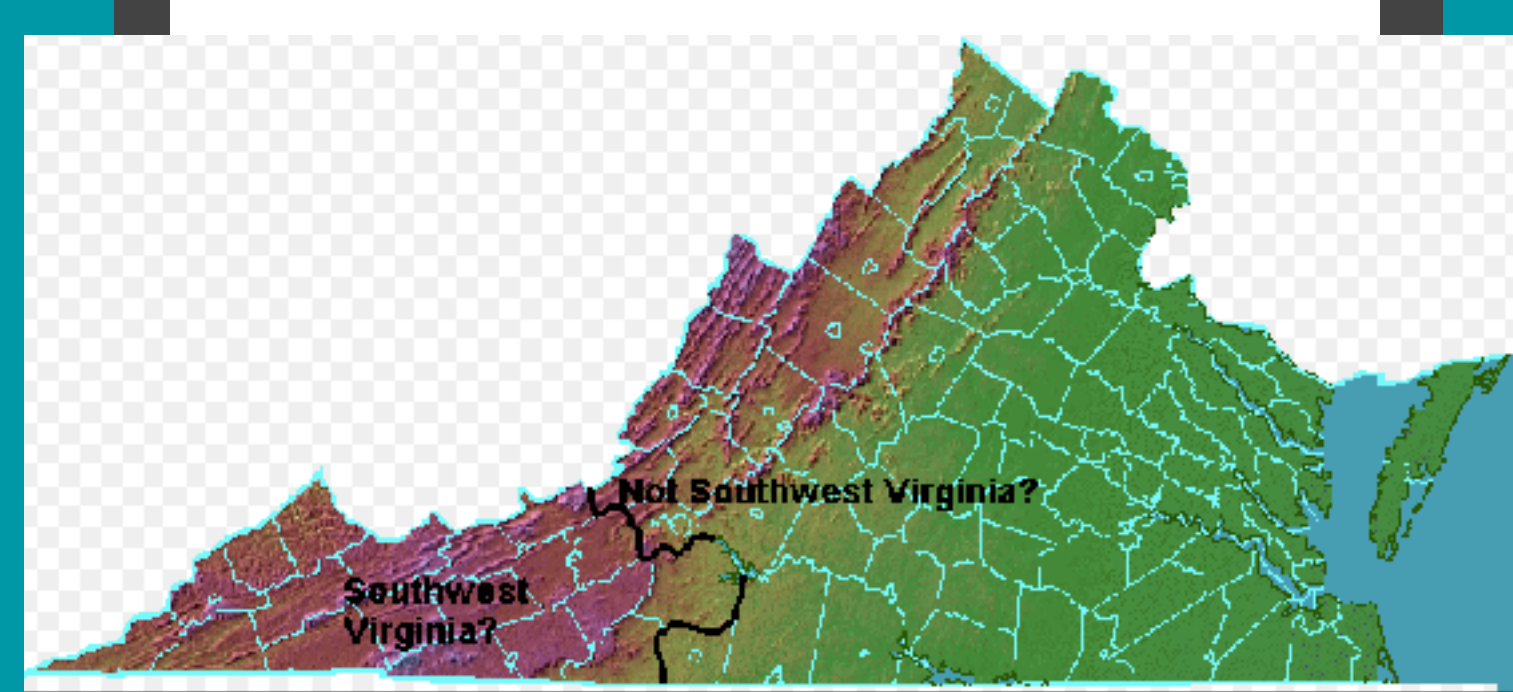


e-BACKPAC: Analysis of Challenges in Implementing School-based Telehealth in Southwest Virginia

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Introduction

Since 2016, a dedicated team of health and IT professionals have been committed to making **e-BACKPAC (electronic-Better Health and Care for Kids, Parents, and Communities)** become a reality for K-12 students in three school systems located in southwest Virginia. Initially, the goal was to create a program that could be replicated among school systems that offered a cost-effective, sustainable model that incorporated best practices of school-based telehealth. A number of challenges, however, have resulted in delays in program implementation and varied success among sites. While achieving a sustainable model continues to guide program implementation efforts, each community is unique, and thus, any new initiative must attend to this uniqueness to achieve successful program outcomes. The purpose of this poster is to present a review of the literature examining variables that impact school-based telehealth programs. It is hoped this review will increase understanding of the challenges that lie ahead for **e-BACKPAC**.

Background

Since the late 1990s technologies have been placed in schools to promote access to health care services for students, particularly for schools located in more isolated and rural communities. Today, school-based telehealth programs provide increased access to primary care, mental health resources, chronic care and specialty care services for rural and urban populations (Burke, Bynum, Hall-Barrow, Ott, & Albright, 2008; Izquierdo et al., 2009; McConnochie, Wood, & Herendeen et al., 2009; Reynolds & Maughan, 2015). Among the outcomes of these programs are reduced emergency department (ED) utilization rates from acute illness (McConnochie et al., 2009), improved diabetes care with reduced hospitalizations and ED visits (Izquierdo et al., 2009); decreased absences from child care centers and schools (McConnochie, Wood, Kitzman et al., 2005; Reynolds & Maughan, 2015); improved symptoms and reduced health care utilization among children with persistent asthma (Haltermann et al., 2018); and preventing contagious outbreaks among school-age children (Zettler-Greeley, 2018).

Though the numbers of school-based telehealth programs are increasing, along with evidence that these programs can positively impact child health, school-based telehealth programs are uncommon across the majority of public and private schools (Zettler-Greeley, 2018) and programs report unequal utilization among school sites (Cook et al., 2002). The most critical questions surrounding these programs today are not **if** they should be supported, but **when, under what circumstances, and for whom** (Comer & Meyers, 2016). Careful examination of factors that both facilitate and impede successful school-based telehealth programs is critical.

Program Description. In 2016, the first school-based telehealth initiatives were launched in Virginia. The **e-BACKPAC** initiative targets the three counties of Bland County, Martinsville City, and Patrick County. A description of these programs is presented in Table 1.

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Background (cont.)

TABLE 1. e-BACKPAC Program Description

Site Descriptors	Bland County School System	Martinsville City Public Schools	Patrick County School System
Setting: Rural/Urban	Rural	Rural/Urban	Rural
Staffing	<ul style="list-style-type: none"> • RN— .75 FTE @ Bland Elementary • CNA— .75 FTE @ Bland High School • Employees of Bland County Medical Center with offices at the schools 	<ul style="list-style-type: none"> • LPN—up to .75 FTEs with 1/2 time at Albert Harris Elementary School & 1/2 time at Martinsville High School • Employee of the school system 	<ul style="list-style-type: none"> • RN—1.0 FTE • Nurse Asst.—1.0 FTE • Employee of the school system
Service Focus	Well child care, primary care/sick care, mental/behavioral health	Mental/behavioral health	Well child care, primary care/sick care, mental/behavioral health
Number of Sites	2 school sites (100% of Bland County schools)	2 of 5 schools	1 of 7 schools
Partner Organizations	<p>Community based: Mt Rogers Community Services Board; Bland County Medical Center</p> <p>External: UVA Child and Family Psychiatric Health; UVA Teen and Young Adult Health Center; Virginia Institute of Autism</p>	<p>Community based: Piedmont Community Services Board; Martinsville Henry Coalition for Health and Wellness</p> <p>External: UVA Child and Family Psychiatric Health; UVA Teen and Young Adult Health; Virginia Institute of Autism; Boys & Girls Club</p>	<p>Community based: Piedmont Community Services Board; Martinsville Henry Coalition for Health and Wellness</p> <p>External: UVA Child and Family Psychiatric Health; UVA Teen and Young Adult Health; Virginia Institute of Autism</p>

Program Outcomes. As of 02/28/2019, there have been **105 e-BACKPAC visits** in Bland County schools with 71% of visits providing urgent, or sick care visits, 14% mental health access, and 12% well child care. Both teachers and students participate in the program. Parents of participating children report high satisfaction with the **e-BACKPAC** program. There has been more limited success with program implementation in Martinsville City schools. Over 30 months of planning has not yet resulted in a telehealth visit. However, planning for this program triggered interest in a neighboring county and expansion to a third site, Patrick County High School. After 8 months of planning, **e-BACKPAC** is now launched in Patrick County with an initial visit conducted for ongoing mental health counseling within the first year.

Review of Literature

A number of studies provides a list of factors that influence the use of telehealth services. Results between studies offer conflicting evidence as to which factors have a positive or negative influence. Lau et al. (2016) provide a conceptual framework that documents causes of the “evidence to practice gap,” or why and how complex interventions fail to be implemented in the primary care setting. According to the authors, these causes can be categorized into four areas: **external context, organization, professionals, and intervention** and are applicable to e-health technology. Table 2 identifies the themes within these areas.

Table 2. Themes on Causes of Evidence to Practice Gap

AREAS	THEMES	AREAS	THEMES
External Context	<ul style="list-style-type: none"> • Policy & Legislation • Clear incentivisation structures, e.g. public recognition, access to training, financial • Financial incentives • Commonly held set of values & beliefs • Buy-in by internal & external stakeholders • Infrastructure support • Economics & financing • Advances in technology • Public Awareness 	Professionals	<ul style="list-style-type: none"> • Perceptions of professionalism—sense of self-efficacy, authority/influence • Underlying philosophy of care—perceived fit between the intervention and style of clinical practice • Attitudes to change, prior experience, motivation and workload • Competencies—adequate training
Organization	<ul style="list-style-type: none"> • Positive Culture • Strong and consistent internal and external leadership • Organizational Readiness • Available resource • Processes and Systems • Relationships between professionals & patients • Skill mix issues, clarity of role & responsibility • Involvement—support from team members & management 	Intervention	<ul style="list-style-type: none"> • Nature and characteristics of the intervention—complexity; evidence of benefit, applicability, and relevance; cost and cost-effectiveness; clarity; practicality and utility of intervention; customization of internet and IT compatibility • Implementability—complexity of implementation process benefit and harm of implementation; resource requirement • Safety and data privacy

Adapted from: “Achieving change in primary care—causes of the evidence to practice gap: systematic review of reviews” by R. Lau et al. 2016, *Implementation Science*, 11, p. 31.

Discussion

The literature identifies a number of factors that influence use of telehealth services with no single factor consistently present (Park, Erikson, Han, & Iyer, 2018; Walker & Whelton, 2002; Mackert & Whitten, 2007; Lau et al., 2016; Reynolds & Maughan, 2015). Lau et al. (2016) note the importance of fit between the intervention and the different areas and themes identified from their review of the literature. They further suggest that the relationships between these factors are dynamic and change over time (Lau et al., 2106).

The most successful implementation of **e-BACKPAC** has been in Bland County, the most isolated community with the least number of resources; the least successful program is currently Martinsville City, the community with arguably the greatest number of resources. The site characteristics in Table 2 reflect differences and similarities between schools. The literature has consistently supported the role of nurses in promoting telehealth services (Fathi, Modin, Scott, 2017; Lessard & Knox, 1997; National Association of School Nurses, 2017; Whitten, Kingsley, Cook, Swirczynski, & Doolittle, 2001). In each **e-BACKPAC** community, the staffing and duties of the telehealth presenter differ and have changed since first launched. Initially in two of the three sites, the telehealth presenter has NOT been the school nurse; however, a shift in this direction has occurred in Bland County.

Conclusion

Implementing change in any complex system is difficult. Implementing a school-based telehealth program is further complicated by linking at least two different organizational systems and cultures. Traditionally, the primary focus of schools has been on academic performance, not health care concerns. Only recently, has more attention been given to the relationship between academic success and health. To date, no national survey has been conducted of (a) factors that influence schools in successfully implementing a school-based telehealth program, and (b) nurses' knowledge and perceptions of school-based telehealth programs. Future research to capture these data and gain insight into the critical factors that influence change is essential in promoting successful school-based telehealth programs.

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