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Providers' perspectives on electronic data-sharing with patients: A qualitative exploratory study in rural primary care

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Introduction
Evidence & Rationale

- As a part of provider-patient communication, *data sharing* can lead to
  - more accurate diagnoses and improved providers' understanding of their patient's health. [1]
  - improved patient understanding, adherence, and satisfaction with treatment.[2]
- Virtual delivery of health care increased dramatically during C-19 pandemic and created both challenges and opportunities for data sharing both synchronously, though telephone and video-conferencing, and asynchronously (e.g, secure messaging).[3]
- Inconsistent or limited internet connectivity in rural areas was identified by primary care providers as barriers to virtual care visits.[4]
- Little known about what data is shared and how virtual care delivery options can change the sharing of patient-generated health data

Study Aim & Objectives

Aim: To examine rural primary healthcare providers' current data-sharing practices, perceptions, and experiences

OBJECTIVES	1. Understand the types of patient-generated data used in patient care
	2. Explore the features, tools, and processes used in data sharing
	3. Describe the barriers and facilitators to data sharing

Study Design

Part of a larger mixed-methods study examining data sharing and personal health record technology in primary care clinics in rural British Columbia, Canada

- **Qualitative Exploratory Study**
  - Naturalistic inquiry approach to better understand human behavior in natural settings
- **Data Collection**
  - online survey about length of clinical practice, comfort with technology use, data-sharing platforms used, and provider characteristics
  - Zoom video conference focus groups at clinic Nov - Dec 2020, using semi-structured guide
- **Data Analysis**
  - Audio recordings of focus groups were transcribed then analyzed thematically
  - Followed Consolidated Criteria for Reporting Qualitative Health Research (COREQ)

Results

- **Participants**
  - **5 rural and 2 remote clinics participated in 6 focus groups, with 1 – 4 providers in each focus group**

Nurse Practitioner (n=1)

Midwife (n=1)

Clinic Staff (n=3)

Physicians (n=9)

Table 1: Digital Tool Maturity

Providers varied in data-sharing practices and how it changed during COVID-19; this primarily reflected in their digital-tool-use maturity levels

	Nascent		Emergent				Advanced
	[P20]	[P21, P22]	[P23, P24, P25]	[P10]	[P09, P11]	[P01, P02, P03]	[P07, P08]
Phone (synchronous)	Regular Use	Regular Use	Regular Use	Regular Use	Regular Use	Regular Use	Occasional Use
Video Appts. (synchronous)		Rare Use	Occasional Use	Rare Use	Rare Use	Occasional Use	Regular Use
Email - secure (asynchronous)				Occasional Use			Regular Use
Email - not secure (asynchronous)		Occasional Use	Occasional Use	Occasional Use	Occasional Use	Occasional Use	
Texting one-way (asynchronous)	Occasional Use				Occasional Use		Regular Use
Texting two-way (asynchronous)						Occasional Use	
Online Booking							Regular Use

Table 2: Barriers and Facilitators to Electronic Data Sharing

Barrier/Facilitator	Sub-theme	Quote
Digital Infrastructure	Connectivity	*"I've got patients that don't have cell coverage and can only do Internet... one has to drive down the road and use her phone when she wants to talk to me…So, a lot of information doesn't get transferred… It's not in every patient's capacity to send it in."* [P24]
	Equipment	*"I use Zoom and I use [EMR], [laptop] has a video thing built within it. So, I started using that whenever possible now that we have it."* [P10]
	Security	*"I think the biggest thing for my end is people wanting things emailed to them and we're not supposed to be emailing. So having to get permission from the client before I email them personal information, whether it's test results, because they're not hooked up to the portal... It's always a challenge with what to send and how to get authorization from them to actually do that."* [P03]

Table 2: Barriers and Facilitators to Electronic Data Sharing

Barrier/Facilitator	Sub-theme	Quote
Cost	Cost of functions	*"the cost would have to come down significantly because there's no real incentive at this point to make it work better"* [P01]
	Provider time	*"the extra time commitments of having, you know, working a video or that sort of thing, if I have to set it up or log in or that sort of thing, that's a limiting factor on my part."* [P21]

Barrier/Facilitator	Sub-theme	Quote
Patient Factors	Elderly or Resistant	*"I think we don't because our population is fairly older. I've got lots of patients who don't have computers and don't have availability of technology or not that savvy to use them."* [P21]

Table 2: Barriers and Facilitators to Electronic Data Sharing

Barrier/Facilitator	Sub-theme	Quote
Provider Capacity	Volume of virtual visits	*"I'm actually still seeing about 50 percent of my patients in person because of the nature of my practice…I do a lot of prenatal and child care and IUD insertions and things that just really are not very amenable to virtual care."* [P20]
	Experience with digital options	*"And if it's an emergency, then … how fast can I get back to people and how many people are going to start texting me and how often I have to check my phone, I mean, that kind of stuff. I haven't decided whether there are some really nice things you can address with text very quickly, and we do get paid for it. There is a billing code for texting, but I haven't quite gone there yet."* [P21]
	Workload	*"I'm particularly terrible at boundaries. And then if people could text message me whenever they felt like it …I'm really worried that whatever small fragment of not working I have right now would disappear. And what is my responsibility to monitor and reply to those messages?"* [P10]
	Team composition	*"There's a lot of that stuff that I just don't do myself. We have a community paramedic that is tracking a lot of people for congestive heart failure or diabetes and he visits them…weekly or biweekly. And if there's any concern or any changes, then he will let me know. So, I'm not following people for that directly. I just get involved when something's gone wrong."* [P22]

Concluding Remarks

- Rural primary-care providers' electronic data-sharing practices with their patients varied greatly and reflected their digital-tool-use maturity levels, connectivity, uncertainties, and whether those digital tools were interconnected within their EMR
- Trade-offs between provider capacity (e.g., workload, workflow, care team composition) and clinic digital infrastructure (type and level of sophistication of digital health tools and technologies) influenced data-sharing practices
- It would be valuable to the ongoing evolution of electronic data-sharing practices in healthcare to reexamine data-sharing practices and identify best practices in our post-pandemic world

Strengths & Limitations

- Included a range of rural providers from various types of clinical practices (e.g., walk-in, family practice) and with various levels of technology adoption, thus enhancing the transferability of the findings
- May not have represented the data-sharing practices of providers who had not adopted technology
- Data were gathered during the pandemic. Whether these practices persist over time or evolve would be a fruitful area of study.

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Thank You

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