

# Virtual Health Care

An Evidence-Informed Synopsis of  
Current Trends and Innovations

**Focus on Medication Safety**

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Institute for Safe Medication Practices (ISMP) Canada

Medication Safety Related Excerpts from the full report prepared by: Brendalynn Ens, RN, MN CCN(c)

The COVID-19 pandemic was a catalyst for exponential growth and innovation for many virtual health care (VHC) modalities. This aligned with a recent increase in publications 2018-present. Many decision makers and clinicians sought clarity on the true clinical and cost-effectiveness of these modalities as well as patient safety aspects and VHC's impact on specific populations. This synopsis was prepared to provide a high-level synopsis on the state of research and documented experiences on several VHC considerations with a medication management focus and the question:

- *How has VHC impacted medication safety practices?*
- From all sources, several next-step opportunities were identified:
  - Opportunity: Identify a list of common issues and gaps similar across clinical specialties that could be solved safely and effectively through VHC, if standardized and aligned consistently across health services (e.g., medication reconciliation, patient education, post-op follow-up, [5 questions to ask](#)).
  - Opportunity: ISMP Canada share safety recommendations for [best practices related to virtual medication history interviews](#) and conducted by telephone, video communication, or email and [how consumers can prepare for a virtual care appointment](#)
  - Opportunity: ISMP Canada safety recommendations for [safer telephone orders](#)
  - Opportunity: ISMP Canada safety recommendations for [opioid agonist therapy virtual assessment and monitoring](#)
  - Opportunity: How can we make virtual care medication renewal appointments safer?

**Research Question:**

**How has VHC impacted patient safety and medication safety practices?**

- Smaller studies reflected on how VHC had aided prompt identification of high-risk medication errors, facilitated safer anticoagulation monitoring with patients, provided protected time for education/training with patients, facilitating more consistent and longer-term connectivity for conversations with patients about their health issues (*Afreen 2021, Al Ammari 2021, Grandizio 2020, Taylor 2018; Rangachari 2019*).
- Several studies additionally suggested that medication reconciliation routine processes were easily and efficiently managed virtually with fewer missed appointments with patients (*Jones 2020; Afreen 2021; Marchese 2021 and Taylor 2018*).
- Anecdotally, HCPs felt that appointments were less rushed and offered more time to emphasize safety considerations including sharing of medication information (*Taylor 2018; Marchese 2021*).

**APPENDIX A** provides an overview of described patient and/or medication safety practices as they pertain to virtual health care (VHC). From all references the following key emerging themes were worth emphasizing:

- Not all care requirements for patients could be safely managed by virtual visits alone (*Afreen, 2021*). This was emphasized by Ontario, Alberta and Manitoba Pharmacist Associations in recently prepared policy and standards for Pharmacist conduct of virtual e-visits.
- **Safety Affected by Health Care Delays and Wait List Issues:** *Falk (2021)* raised safety concerns surrounding increasing waitlists for non-COVID patients with stable, chronic diseases seemingly “...falling through the cracks” and noted between 40-70% of routine specialty care had been cancelled in Canada by early 2021. His task group emphasized that waiting for care by any patient (stable or otherwise) was deemed a risk to patient safety. To try and mitigate chronic care management, some health systems rapidly adopted platforms, software, virtual devices and programs to try and maintain contact with chronic patients, creating a “wild west” of software opportunity. In turn, this inadvertently led to interoperability/ incompatibility issues across software and hardware platforms in some settings. Lost or siloed health information occurred in some instances. Along with adoption of non-vetted software platforms, altered service provision due to pandemic shutdowns had inadvertently compounded fragmented care and safety risks for stable and urgent patients awaiting non-COVID procedures.
- **Safety Impacted by HCP Education and Confidence in Virtual Platforms:** The importance of having dedicated and well-trained HCP staff to manage virtual platforms efficiently was reinforced by Bettger (2020). Safety risks arose from “Work-arounds” without a defined framework or process for HCPs to follow as noted by *Lafferty (2021) and Bhatia (2021)*. Variability among conduct of e-visits by HCPs in terms of their approach led to administrative errors, confidentiality breaches, inappropriate referrals and in some cases misdiagnoses and repeat follow-up appointments (*Bhatia 2021; Chivilgina 2021*); new ways of learning by HCPs to interact with patients was key. Frustrations, attitude or platform confusion for operation by HCPs seen directly by patients negatively impacted patient perceptions on safety and value of virtual modalities (*Smithson 2021*). *Shaw (2021)* reinforced the importance of “Webside Manner” respecting cultural norms to build confidence, trust and acceptance.
- *Rangachari (2019) and Falk (2021)* both cited **patient digital literacy issues** as potentially having a negative impact on patient safety. Patient age/generational factors may limit operational knowledge of complex apps or even basic access to virtual platforms.
- **Safety Impacted by Lack of Guidelines Frameworks or Policies:** Pharmacy and Medical associations and other organizations have taken steps to address virtual medication practice issues and set standards.
- **Safety Risk Reliance on Artificial Intelligence (AI) Algorithms for diagnosis:** *Hardcastle (2020)* summarized concerns from many studies in over-reliance on AI algorithms for diagnostic purposes.

**BOTTOM LINE:** Telehealth was reported to be a safe-supporting entity along with a variety of other conclusions for other modalities, including remote monitoring. Most articles felt virtual care added to patient safety during pandemic as well as supported **medication management and reconciliation processes**. **Anticoagulation clinics** could be successfully run via VHC platforms. Concerns arising from various studies pointed to equity and accessibility to VH options, interoperability across programs, digital literacy, AI usage for diagnosis, educational need for managing platforms, “work-arounds”, and the need for frameworks and policies. Future research focused on patient reported outcomes and specific safety considerations is needed.

## APPENDIX A: Medication Safety References

**Note:** References have been divided in this chart to differentiate Scholarly Sources from Experience/Insight Sources. Citations from Experience/Insight sources are in *italics*. Key conclusion phrases have been bolded for ease of reference.

Modality	Safety Aspect	Conclusions
Tele pharmacy	Medication Safety – High risk meds	<ul style="list-style-type: none"> <li>• <b>High risk medication errors</b> can be identified effectively through a web-based survey tool but virtual cannot aid physical assessment requirements of consultations. Quality and efficiencies were realized during medication history collection by pharmacy technicians. Tele-pharmacy stimulated safety discussions by Pharmacists with patients (<i>Afreen 2021</i>).</li> </ul>
Tele-pharmacy	Medication Safety – Anticoagulation	<ul style="list-style-type: none"> <li>• Tele-Pharmacy interventions were established to maintain connectivity with patients on anticoagulation therapy. Results <b>included increased contact and connections with clinical pharmacist longer-term and significant time-saving consultations</b>. Early potential medication risks flagged earlier and <b>prevented anticoagulation complications</b>. (<i>Al Ammari 2021</i>).</li> </ul>
Virtual visits; e-health	Indirect reference to medication safety	<ul style="list-style-type: none"> <li>• Risk of HCP “<b>click-fatigue</b>” from <b>back-to-back appointments, complex documentation or online tracking processes</b> could lead to risk of <b>incorrect medical or medication information being documented, and lack of continuity of care; missed follow-ups, inconsistent processes</b> for virtual visits followed all relating to medication management (<i>Bhatia 2021</i>).</li> </ul>
Tele-pharmacy	Medication Safety – oncology	<ul style="list-style-type: none"> <li>• Oncology pharmacists demonstrated that <b>clinical pharmacy support service levels could be maintained by incorporating remote delivery approaches without significant investment in resources</b>. Not all patients readily accepting of virtual services; lack of access to appropriate technologies (<i>Marchese 2021</i>).</li> </ul>
Practitioner perspectives on med rec	Patient safety – MedRec	<ul style="list-style-type: none"> <li>• Good care coordination, better patient education, patient ownership of clinical issues and 1:1 attention highlighted but <b>socio-technical issues for some patients (no access, digital literacy problems)</b>. Inconsistency in how electronic med rec processes were conducted as HCPs changed shifts or on-call schedules. Workarounds occurred in some instances (<i>Rangachari 2019</i>).</li> </ul>
Telehealth	Pharmacist Led Medication Safety	<ul style="list-style-type: none"> <li>• Videoconference Med reviews add-on service <b>effective to fill gaps with onsite counselling services. Great potential to reach underserved populations and potential to prevent medication complications</b> in residential care (<i>Taylor 2018</i>).</li> </ul>
Virtual Care Consultation - GUIDELINES (example)	Pharmacist Led Virtual Care Delivery	<ul style="list-style-type: none"> <li>• Alberta College of Pharmacists (ACP) published <b>new guidelines</b> for providing virtual care to patients, recognizing the necessity for rapidly changing practices and patient needs and to <b>ensure professional relationships, privacy, consent and assessment were upheld</b>. They emphasized that Technology in any form has its limitations and safety risks and there may be times when an in-person visit is absolutely required: <a href="https://abpharmacy.ca/sites/default/files/Guidelines_VirtualCare.pdf">https://abpharmacy.ca/sites/default/files/Guidelines_VirtualCare.pdf</a></li> </ul>
Virtual Care Consultation - STANDARDS (example)	Pharmacist Led Virtual Care Delivery	<ul style="list-style-type: none"> <li>• College of Pharmacists of Manitoba: Good medical and pharmacy care defined as a blended model of in-person and virtual care. Virtual care should be used to optimize and complement in-person patient care, <b>not fully replace it</b>. The <b>importance of maintaining privacy, confidentiality, and ensuring a safe and appropriate environment</b> as part of determination if virtual care should be considered.</li> <li>• Draft Standards: <a href="https://cpsm.mb.ca/assets/Consultations/VirtualMedicine/SoP%20Virtual%20Medicine%20Consultation.pdf">https://cpsm.mb.ca/assets/Consultations/VirtualMedicine/SoP%20Virtual%20Medicine%20Consultation.pdf</a></li> </ul>

Virtual Care Consultation – POLICY (example)	Pharmacist Led Virtual Care Delivery	<ul style="list-style-type: none"> <li>• <b>Virtual Care Policy</b> – Ontario College of Pharmacists to guide members as to the provision of virtual care to patients, emphasized the <b>importance of informed consent, safeguarding of personal health information, assessment of appropriateness for virtual care to be delivered, and safety as well as privacy/confidentiality expectations.</b></li> <li>• Policy: <a href="https://www.ocpinfo.com/regulations-standards/practice-policies-guidelines/virtual-care-policy/">https://www.ocpinfo.com/regulations-standards/practice-policies-guidelines/virtual-care-policy/</a></li> </ul>
Virtual Best Possible Medication History (BPMH) and Telephone	Virtual BPMH and Discharge Education	<ul style="list-style-type: none"> <li>• ISMP Canada recommends that medication history interviews and discharge patient education be conducted by telephone, video communication, or email, with the dual goals of reducing the number of non-essential entries into patients’ rooms (and the associated risk of viral transmission) and conserving personal protective equipment (PPE) during a pandemic.</li> <li>• <b>Discharge Education from hospital:</b></li> <li>• Communicate with the patient’s primary care provider. • Confirm the primary care provider’s name, contact information, and accessibility. • Include an updated medication list with the discharge summary that is sent to the primary care provider using a secure fax line or electronic method. • Ensure that patients know when and how to follow up with their primary care provider.</li> <li>• Communicate with the patient’s community pharmacy. • Confirm the name of the patient’s community pharmacy and contact information. • With permission from the patient: - send the discharge prescription and current medication regimen to the patient’s community pharmacy by fax [fax template example] or secure electronic method and <b>request a confirmation of receipt;</b> and - inquire about and request delivery of prescriptions to the patient’s residence. If the pharmacy does not offer a delivery service, consider the safest alternative to limit exposure in the pharmacy.</li> <li>• <a href="https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i2-VirtualBPMHDischargeEducation.pdf">https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i2-VirtualBPMHDischargeEducation.pdf</a></li> </ul>
Strategies for Safer Telephone and Other Verbal Orders in Defined Circumstances	Telephone orders	<ul style="list-style-type: none"> <li>• Practitioners who are prescribing medication • Allow sufficient time to state the order clearly and for the person receiving it to read it back. • State your name, licence number, and contact information. • Say and then spell out the patient’s name and provide a second identifier (e.g., address, birth date). • Incorporate all the elements of a complete medication order, including drug name, dosage form, dose and strength (if applicable), route of administration, directions for use, and quantity to be dispensed and/or duration of therapy; for prescriptions that are given to community pharmacies, also provide the number of refills and/or the refill interval. - Communicate drug names by first saying and then spelling them out. Provide both the generic and brand names, especially for recognized look-alike, sound-alike medication pairs. 11 It may be helpful to use a phonetic alphabet to distinguish between sound-alike letters (e.g., “m” as in Mary or “n” as in Nancy).</li> <li>• <a href="https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i4-TelephoneOrders.pdf">https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i4-TelephoneOrders.pdf</a></li> </ul>
Delivery of Opioid Agonist Treatment	Virtual medication administration	<ul style="list-style-type: none"> <li>• This bulletin focuses on developing robust OAT-related delivery processes to support patients during the pandemic, limiting the exposure of pharmacy staff to COVID-19 by implementing virtual communication, and managing the risks for medication errors.</li> <li>• <a href="https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i6-Opioid-Agonist-Therapy.pdf">https://www.ismp-canada.org/download/safetyBulletins/2020/ISMPCSB2020-i6-Opioid-Agonist-Therapy.pdf</a></li> </ul>

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How to Prepare for a Virtual Meeting with Your Health Care Provider	Safemedicationuse.ca	<ul style="list-style-type: none"> <li>• <a href="https://safemedicationuse.ca/newsletter/virtual-health-meetings.html">https://safemedicationuse.ca/newsletter/virtual-health-meetings.html</a></li> </ul>																														
Virtual Care PlayBook for Patients and HCPS	Canada Health Infoway	<ul style="list-style-type: none"> <li>• <a href="https://www.cma.ca/sites/default/files/pdf/Virtual-Care-Playbook_mar2020_E.pdf">https://www.cma.ca/sites/default/files/pdf/Virtual-Care-Playbook_mar2020_E.pdf</a></li> <li>• <a href="https://www.cma.ca/sites/default/files/pdf/Patient-Virtual-Care-Guide-E.pdf">https://www.cma.ca/sites/default/files/pdf/Patient-Virtual-Care-Guide-E.pdf</a></li> </ul>																														
Medication Renewals are an appropriate use case for virtual care	Women’s College Hospital – Primary Care Study	<table border="1"> <thead> <tr> <th>Appropriate Use Cases</th> <th>Mixed Perceptions on Appropriateness</th> <th>Inappropriate Use Cases</th> </tr> </thead> <tbody> <tr> <td>Lab results</td> <td></td> <td></td> </tr> <tr> <td>Medication renewals</td> <td></td> <td>Initial consult with a new patient</td> </tr> <tr> <td>Follow-up on previous diagnosis</td> <td></td> <td>Cases where physical examination was needed</td> </tr> <tr> <td>Specialist referral</td> <td>Mental health follow-up</td> <td>Urgent care</td> </tr> <tr> <td>Non-urgent concerns (e.g., rash or cold)</td> <td>Palliative care</td> <td>Providing “bad news” via asynchronous messaging</td> </tr> <tr> <td>Chronic disease management</td> <td>New diagnosis</td> <td>Managing patients with severe mental health symptoms or addictions</td> </tr> <tr> <td>Providing care to new mothers</td> <td>Providing care to infants/pediatric patients</td> <td>Prescribing narcotics</td> </tr> <tr> <td>Routine check-ins</td> <td></td> <td></td> </tr> <tr> <td>Assessment of visual symptoms (e.g. cellulitis, conjunctivitis, rash)</td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• How can we make medication renewals safer? <a href="#">eapc-evaluation-report.pdf (otn.ca)</a></li> </ul>	Appropriate Use Cases	Mixed Perceptions on Appropriateness	Inappropriate Use Cases	Lab results			Medication renewals		Initial consult with a new patient	Follow-up on previous diagnosis		Cases where physical examination was needed	Specialist referral	Mental health follow-up	Urgent care	Non-urgent concerns (e.g., rash or cold)	Palliative care	Providing “bad news” via asynchronous messaging	Chronic disease management	New diagnosis	Managing patients with severe mental health symptoms or addictions	Providing care to new mothers	Providing care to infants/pediatric patients	Prescribing narcotics	Routine check-ins			Assessment of visual symptoms (e.g. cellulitis, conjunctivitis, rash)		
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