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INTRODUCTION

This paper is an accompanying document to a webinar delivered on May 16, 2017, for the New Hampshire Citizens Health Initiative (Initiative). As integrated behavioral health efforts in New Hampshire gain traction, clinicians, administrators, payers, and policy makers are looking for additional efficiencies in delivering high quality healthcare. Telehealth and mobile health (mHealth) have the opportunity to help achieve this while delivering a robust, empowered patient experience.

The promise of video-based technology was first made in 1964 as Bell Telephone shared its Picturephone® with the world. This was the first device with audio and video delivered in an integrated technology platform. Fast-forward to today with Skype, FaceTime, and webinar tools being ubiquitous in our personal and business lives, but often slow to be adopted in the delivery of medicine.

Combining technology-savvy consumers with New Hampshire's high rate of electronic health record (EHR) technology adoption, a fairly robust telecommunications infrastructure, and a predominately rural setting, there is strong foundation for telehealth and mHealth expansion in New Hampshire's integrated health continuum.^{3,4}

THE POWER OF TECHNOLOGY

From the most condensed perspective, there are three primary uses for telehealth and mHealth in an integrated behavioral care environment:

- PATIENT-TO-CLINICIAN. Perhaps the most common use, this enhances patient access
 to clinicians and supports patient access preferences (e.g., after hours care delivered via
 telehealth).
- **2. CLINICIAN-TO-CLINICIAN.** Clinicians are using telehealth and mHealth platforms for care coordination, prescribing consultations, and specialty consults.
- **3. PATIENT-TO-PATIENT.** These platforms are used by patients in group therapy sessions and via peer networks for peer support of specific conditions.

DEFINITIONS

TELEHEALTH

"The use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications." (Health Resources and Service Administration, https:// www.healthit.gov/providersprofessionals/faqs/whattelehealth-how-telehealthdifferent-telemedicine)

MHEALTH

"mHealth is the use of mobile and wireless devices to improve health outcomes, healthcare services and health research." (NIH Consensus Group, www.hrsa.gov/healthit/ mhealth.html)

¹ Citizens Health Initiative. Behavioral Health Integration Learning Collaborative 2017. Citizens Health Initiative. https://www.citizenshealthinitiative.org/behavioral-health-integration-learning-collaborative

² Kvedar, J., Coye, M. J., & Everett, W. Connected health: a review of technologies and strategies to improve patient care with telemedicine and telehealth. Health Affairs (Project Hope). 2014;33(2):194-199. doi: 10.1377/hlthaff.2013.0992

³ Office of the National Coordinator U.S. Department of Health and Human Services. Health IT State Summary. https://dashboard.healthit.gov/quickstats/widget/state-summaries/NH.pdf. Updated February 20, 2015.

It can be argued that the time is right for the introduction of these technologies on a broader scale given:

- 1. INCREASED PATIENT AND PROVIDER ACCESS TO TECHNOLOGY. As previously stated, technology is ubiquitous in our lives, and both patients and providers are looking to use familiar communication methods (e.g., texting, smartphones, Skype) in their clinical interactions. The aspect of convenience (e.g., at time of crisis) cannot be overlooked; in a 2017 report from Accenture, 37% of respondents said virtual health was "more convenient than traditional, in-person health services." 5
- 2. SCARCE CLINICAL RESOURCES. As in most of the country, New Hampshire currently has a shortage of clinical resources, with approximately 180 clinical position openings in the Community Mental Health System alone. Mental healthcare Health Professional Shortage Areas (HPSAs) as defined by HRSA result in slightly less than 41% of mental health needs being met with current capacity (Figure 1).^{6,7} With limits to existing clinical capacity, telehealth and mHealth could be used to optimize clinician time, especially filling any empty scheduling slots.

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TABLE 1: SELECTED HRSA MENTAL HEALTH SHORTAGE AREAS (HPSAS)

Location	Percent of Need Met	Practitioners Needed to Remove HPSA Designation
United States	44%	3397
Connecticut	34%	95
Maine	35%	8
Massachusetts	52%	20
New Hampshire	41%	147
Rhode Island	61%	12
Vermont	N/A	N/A

3. PAYER REIMBURSEMENT POLICIES SHIFTING FROM VOLUME TO VALUE.

Alternative payment models are being adopted by Medicare, Medicaid, and commercial payers in an effort to improve quality and reduce costs. Clinical practices will be required to operate more efficiently and effectively to perform well under these new reimbursement policies. Clinicians will need to engage providers outside of traditional clinic walls to enable them to "meet patients where they are," especially in times of crisis when emergency department diversions are the desired outcome.

⁵ Accenture. Voting for Virtual Health: Why 21st Century Consumers Want More than 20th Century Healthcare. https://www.accenture.com/t20170216T205948 w /us-en/acnmedia/PDF-43/Accenture-Health-Voting-for-Virtual-Health.pdf. Published 2017.

⁶ New Hampshire Community Behavioral Health Association. Presentation delivered at the NH Behavioral Health Summit, Portsmouth, New Hampshire. December 2016.

⁷ Mental Health Care Health Professional Shortage Areas. Kaiser Family Foundation Web site. http://www.kff.org/other/state-indicator/mental-health-care-health-professional-shortage-areas-hpsas/?currentTimeframe=0&sortModel=%7B%22colld%22:%22Location%22;%22asc%22%7D. Published December 31, 2016.

FIGURE 2: PROBLEMS SOLVED WITH TELEHEALTH AND MHEALTH

Patient and Provider Access (timeliness; early intervention; ED, admission and readmission avoidance)

Communication (patient-to-provider; clinician-to-clinician; patient-to-patient)

Clinical Consistency (evidence-based practices; specialty consultations; outcomes)

Cost Savings (patient cost-sharing; carriers; providers)

Patient Preference and Empowerment (convenience; social connectedness; patient satisfaction)

The industry has struggled to develop quality and operational standards that would allow patients and healthcare providers to better select telehealth and mHealth solutions.

- 4. INCREASING REQUIREMENTS FOR OUTCOMES MEASUREMENT. Whether for research purposes, measuring the outcomes of evidence-based practices, or meeting requirements of alternative payment models, mHealth platforms have the potential to provide real-time clinical feedback on patient mood and behavior, behavioral and physical health conditions, and medication adherence, as well as to provide researchers with fitness, geolocation, and other parameters useful in clinical studies.
- 5. PAYER AND PROVIDER INNOVATION AND LEADERSHIP. In New Hampshire, some payers and providers are currently working with these innovative technologies and demonstrating leadership. Examples include: clinics with multiple locations using video consultations to reduce clinician and patient travel time; payers working with third-party vendors (e.g., Teladoc, Doctor on Demand) to offer convenient, low-cost e-visits; and payers reimbursing for mHealth apps targeting substance use disorder and eating disorders.⁹

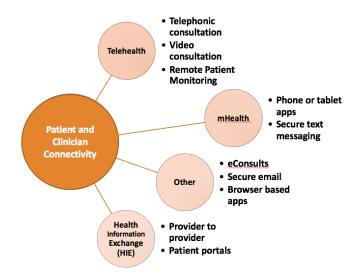
Before technology is applied in an integrated health setting, it is important for clinicians to consider which challenges these technologies are capable of solving effectively. Figure 2 provides an overview of five key problems including: patient and provider access, communication, clinical consistency, cost savings, and patient preferences and empowerment.

As a whole, the industry has struggled to develop quality and operational standards that would allow patients and healthcare providers to better select telehealth and mHealth solutions. In July 2017, the ClearHealth Quality Institute (CHQI) announced the formation of a Telehealth Accreditation Standards Committee. "The 15-member panel, comprised of a wide range of independent experts representing industry, clinical and consumer perspectives, is tasked with crafting a set of robust but workable standards to ensure safety, quality and

value in the rapidly growing telemedicine field...CHQI expects to launch its Telemedicine Accreditation Program by the end of the year." This work is an extension of previous standards developed by the American Telemedicine Association, and is initially focused on accrediting online healthcare services to "enhance the fidelity of virtual connections between patient and providers."

Telehealth and mHealth cover a broad universe of technology solutions.

FIGURE 3: UNIVERSE OF TELEHEALTH AND MHEALTH TECHNOLOGIES



TELEHEALTH AND MHEALTH FUNCTIONALITY

Telehealth and mHealth cover a broad universe of technology solutions (Figure 3). In the realm of integrated behavioral health, four of these are believed to hold the most promise for clinicians and patients in the short-term:

- VIDEO CONSULTATION. Delivered in an office on a smartphone or tablet, integrated video and audio provide real-time clinical interactions with patients. This may be supplemented with diagnostic equipment as well.
- 2. **SECURE TEXT MESSAGING.** A phone, PC, or tablet-based application that can host a secure text messaging application for both clinical (e.g., preventive services reminders, refill management, emergent services) and administrative (e.g., refill reminders, appointment reminders) purposes.¹² These applications can easily be secured.
- **3. ECONSULTS.** These are typically used for primary care to efficiently access specialists for clinical consultation and for patients to seek second opinions of specialists. Providers, payers, and employers are all leveraging eConsult technologies.

⁹ Ashwood J, Mehrotra A, Cowling D, Uscher-Pines L. Direct-to-consumer telehealth may increase access to care but does not decrease spending. Health Affairs. 2017;36(3):485-491. doi: 10.1377/hlthaff.2016.1130.

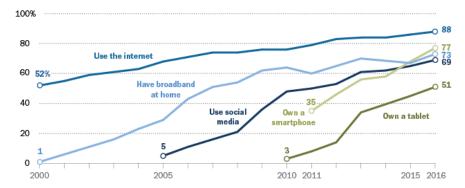
¹⁰ Gilroy A, Lewis W. ClearHealth Quality Institute Forms Telemedicine Accreditation Standards Committee Web site. https://chqi.com/clearhe-alth-quality-institute-forms-telemedicine-accreditation-standards-committee/. Published July 26, 2017.

¹¹ ClearHealth Quality Institute Telemedicine Accreditation Web site. http://www.telemedicineaccreditation.com/. Updated 2017. Accessed July 26, 2017.

FIGURE 4: SMARTPHONE AND TABLET ADOPTION RATES

The evolution of technology adoption and usage

% of U.S. adults who ...



Source: Surveys conducted 2000–2016. Internet use figures based on pooled analysis of all surveys conducted during each calendar year.

PEW RESEARCH CENTER

4. PHONE OR TABLET APPS. Given the increasing prevalence of smartphones and tablets (Figure 4), the use of mHealth apps -- both remotely and in provider offices for clinical care and research --is logical, but there needs to be assurance that these apps can demonstrate clinical efficacy for adoption rates to increase.¹³

proving to enhance both healthcare delivery and clinical outcomes for patients.

These technologies are

EXAMPLES IN ACTION

The promising news about telehealth and mHealth is that there are numerous examples, many in New Hampshire, where these technologies are proving to enhance both healthcare delivery and clinical outcomes for patients. This section describes three telehealth and three mHealth examples.

TELEHEALTH

- **A. DIRECT-TO-CONSUMER INTERACTIVE VIDEO CONSULTATIONS.** The major carriers in the New Hampshire insurance market all have relationships with companies (e.g., LiveHealthOnline, MDLive, Doctor on Demand, Teladoc) that offer primary care and behavioral health visits via a telehealth platform. Some of these services also offer phone consultations and behavioral health assessments.
- **B. BRIGHT HEART HEALTH (BHH).** BHH is a video-consultation platform focused on treating patients with opioid disorders, substance abuse and addiction, and eating disorders. Additionally, it includes support groups for individuals and families. It is reimbursed by many national and regional carriers.

¹³ The Evolution of Technology Adoption and Usage. Pew Research Center Web site. http://www.pewresearch.org/fact-tank/2017/01/12/evolution-of-technology/ft_17-01-10_internetfactsheets/. Published January 11, 2017.

c. MENTAL HEALTH CENTER OF GREATER MANCHESTER (MHCGM). MHCGM partnered with Genoa Telepsychiatry to use Genoa's telehealth platform to provide clinical visits with MHCGM clinicians (oral communication, April 2017). These clinicians reside outside the country for part of each year. MHCGM has a dedicated Medical Assistant to provide continuity both to the patients and the clinicians. MHCGM plans to expand this system in the coming year to more patients and local providers.

Each clinical situation will be unique...and will need to assess the return-oninvestment potential of telehealth and mHealth technologies.

MHEALTH

- A. SUBSTANCE USE DISORDER APP. Harvard Pilgrim Health Care, via its United Behavioral Health carve out, is currently piloting a phone-based app for patients with substance use disorder. It uses geolocation technology to trigger messaging to the patient and authorized supporters when the patient visits locations that might have a negative impact on the patient's substance use disorder (e.g., a neighborhood, a bar).
- **B. STANFORD RECOVERY RECORD.** Stanford Recovery Record is an evidence-based app focused on treatment for eating disorders. It provides patient-specific goals, coping tactics, and meal plans. It combines a secure messaging platform to support patient and clinician interaction. Researchers at Stanford, Duke, and UNC Chapel Hill are contributing to the evidence base.
- C. TEXTING APPS. These apps are designed to replace administrative phone calls, augment face-to-face clinical interactions, support patient engagement strategies, and support crisis services. The apps are ideally integrated with a provider's scheduling and clinical systems to support appointment reminders, preventive and chronic care clinical reminders, prescription refills, and clinical support. Multiple vendors provide technology platforms and integration services and market them to providers, health plans, Medicaid programs, and pharmacies.

PROVIDER CONSIDERATIONS

Each clinical situation will be unique (e.g., family medicine, internal medicine, behavioral health clinic, rural health clinic) and will need to assess the return-on-investment (ROI) potential of telehealth and mHealth technologies. To assess ROI, multiple questions need to be examined together:

- **A. MARKETING.** Does the technology serve as a product differentiator, contribute to the organization's marketing strategy, and serve to attract new or retain existing patients?
- **B. EFFICIENCY.** Can the technology be used to increase productivity by filling no-show appointment slots or unscheduled clinician time?
- **C. FINANCIAL.** Do these platforms benefit provider financial performance under capitation arrangements by requiring fewer staff touch points, ultimately contributing to decreased ED admissions and hospital readmissions?

- D. CLINICIAN SATISFACTION. Can the technology reduce clinician travel time between office locations, provide clinician scheduling flexibility, provide a clinician recruitment opportunity, and increase clinician satisfaction?
- **E. CLINICAL WORKFLOW.** Does the technology support the clinical workflow, or does it require "extra clicks" which could impact clinical adoption rates?

Additionally, when choosing mHealth apps and ultimately prescribing mHealth apps to patients, the clinical community will want to understand the clinical evidence base of each and its applicable research studies. The Anxiety and Depression Association of America (ADAA) has a set of criteria for rating apps: ease of use, effectiveness, personalization, interactive/feedback, and research evidence.¹⁷ While not all apps are rated by the ADAA, their criteria can be utilized freely.

Key opportunities for the Initiative to promote the use of telehealth and mHealth in integrated care work stream are in research, policy, and pilot programs.

THE INITIATIVE'S OPPORTUNITY

While this paper does not explicitly make recommendations, there are three key opportunities that emerge for consideration as the Initiative considers its role in promoting the use of telehealth and mHealth in its integrated care work stream: research, policy, and pilot programs. Research, policy, and pilot programs have been at the core of the Initiative's work in the past twelve years, and opportunities for each of these with telehealth and mHealth are described below. Several potential opportunities are either cascading or synergistic and should be examined as such. It is important to note that policy may be either in a regulatory form (e.g., Legislative, Board of Medicine, etc.) or through voluntary collaboration across sectors, as is more often the case in New Hampshire.

1. RESEARCH OPPORTUNITIES

- **A. ASSESS PROVIDER COMMUNITY NEEDS AND CURRENT CAPACITY.** The Initiative has historically participated in work that has assessed needs and capacity as a way to develop a baseline and set statewide strategies and goals. This is true for both ePrescribing and Health Information Exchange (HIE).
- **B. DETERMINE ANY LICENSURE BARRIERS. AN INITIAL REVIEW OF NEW HAMPSHIRE'S LICENSING REQUIREMENTS** was conducted by the American Telemedicine Association in their report State Telemedicine Gaps Analysis, Physician Practice Standards and Legislation.¹⁸ Confirming the findings and identifying any gaps would be a starting point.
- **C. GAP ANALYSIS OF PAYMENT POLICIES.** A gap analysis by the US Government Accounting Office in April 2017,¹⁹ an initial review of New Hampshire Medicaid's policies, and research into New Hampshire payer policies have indicated gaps in payment policy in both governmental and commercial sectors. Developing a definitive document outlining synergies and gaps could be used to address policy changes.

¹⁷ Anxiety and Depression Society of America Web site. https://www.adaa.org/finding-help/mobile-apps. Updated 2016. Accessed March 23, 2017.

¹⁸ American Telemedicine Association Web site. http://www.americantelemed.org/policy-page/state-telemedicine-gaps-reports. Updated 2016. Accessed May 9, 2017.

2. POLICY OPPORTUNITIES

A. PAYMENT POLICY TO ADDRESS CONSISTENCY ACROSS PAYER TYPES. Based on item 1.C. above, the Initiative could develop recommendations for policy changes to align payers and reduce confusion and frustration in the provider community. This would ideally include New Hampshire Medicaid, Medicare, and commercial payers.

Policies and best practices could be adopted to promote the sharing of clinician notes post-visit that promote medical record integrity.

- B. NEW HAMPSHIRE MEDICAID AND NEW HAMPSHIRE HOSPITAL. New Hampshire Medicaid has opportunities both within its more traditional fee-for-service coverage and via its Managed Care Organization (MCO) contracts to address payment policies and the use of telehealth and mHealth. Similarly, New Hampshire Hospital, operated by the NH DHHS, may have similar opportunities for exploration.
- C. ENSURE MEDICAL RECORD CONTINUITY. Telehealth and mHealth run the risk of disintermediating the clinical record, either through payer-supported direct-to-consumer applications (e.g., Teladoc, Doctor on Demand) or through mHealth apps. There may be policies and best practices that could be adopted to promote the sharing of clinician notes post-visit that promote medical record integrity.
- D. HEDIS 2018 MEASURES. NCQA's HEDIS 2018 Measures have been modified to include multiple opportunities for telehealth.²⁰ Measures with relevance to integrated behavioral care include: Follow-Up Care for Children Prescribed ADHD Medication (ADD), Follow-Up After Emergency Department Visit for Mental Illness (FUM), Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence (FUA), Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET), Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP), Identification of Alcohol and Other Drug Services (IAD), Mental Health Utilization (MPT), and Follow-Up After Hospitalization for Mental Illness (FUH). Ultimately these measures will be publicly reported across Medicare, Medicaid, and Commercial payers, and will likely aid in informing the policy narrative.

3. PILOT OPPORTUNITIES

- **A. TEXTING APPLICATIONS.** The New Hampshire Health Information Organization (NHHIO) has conducted a review of texting application providers and developed preferred vendor pricing arrangements with Tiger Text and Imprivata.²¹ The Initiative could explore opportunities with NHHIO to bring texting applications into the integrated behavioral health setting.
- **B. PSYCHIATRIST "HUB."** Similar in concept to the Massachusetts Child Psychiatry Access Project (MCPAP) and several teleradiology practices based in New Hampshire, the Initiative could develop a business model to centralize consulting psychiatrists (prescribers) for access by primary care clinicians and their patients.²²

^{20 2018} Measures Summary Table of Measures, Product Lines and Changes. National Committee for Quality Assurance Web site. https://www.ncqa.org/hedis-quality-measurement/hedis-measures/hedis-2018. Published 2017. Accessed July 17, 2017.

- **C. PRACTICE SUPPORT** via the Northern New England Practice Transformation Network (PTN). The PTN sites would likely provide ideal pilot sites for telehealth and mHealth, given their focus on integrated behavioral health.²³
- D. OPERATIONAL AND CLINICAL OUTCOMES MEASUREMENT (E.G., SPECIFIC APPS). While perhaps less defined, research is occurring in New Hampshire via organizations such as Dartmouth-Hitchcock and the Mental Health Center of Greater Manchester. Pilots could include mHealth apps in these research activities. A study published in Lancet Psychiatry in 2016 focused on the effectiveness of telehealth services for depression, the specific condition the Initiative focused on in its work with integrated behavioral health payment models.²⁴

Moving forward expediently with telehealth and mHealth in the Granite State appears advantageous for multiple stakeholders.

CONCLUSION

Given the rapid changes in technology and consumer trends, moving forward expediently with telehealth and mHealth in the Granite State appears advantageous for multiple stakeholders. The Initiative's Leadership Advisory Board and Clinical Committee, funders, and participants will have choices to make regarding the Initiative's role in telehealth and mHealth as it relates to integrated behavioral health. The author foresees a coordinated "road map" for New Hampshire as a viable outcome of the Initiative's work moving forward.

RESOURCES

The following list of resources are intended for a broad audience, but primarily for clinicians and providers:

OVERVIEW OF INTEGRATED HEALTH AND MOBILE TECHNOLOGY ADOPTION:

- 2016 Beacon Health Options White Paper, http://beaconlens.com/wp-content/uploads/2016/02/Beacon-Whitepaper-FINAL.pdf
- Centerstone Research Institute's APPIMPACT: Framework for Mobile Technology in Behavioral Healthcare, http://centerstoneresearch.org/wp-content/uploads/2012/10/Final-applmpact-Framework.pdf

POLICY AND TECHNICAL ASSISTANCE:

- American Telemedicine Association, http://www.americantelemed.org
- Northeast Telehealth Resource Center, http://netrc.org
- SAMHSA Core Competencies for Integrated Care, http://www.integration.samhsa.gov/workforce/core-competencies-for-integrated-care
- SAMHSA Core Competencies for Integrated Care Telehbehavioral Health Training and Training Assistance, http://www.integration.samhsa.gov/operations-administration/telebehavioral-health

TECHNOLOGY POLICY:

- HealthIT.gov Privacy and Security Mobile Devices, https://www.healthit.gov/providers-professionals/your-mobile-device-and-health-information-privacy-and-security
- Food and Drug Administration Digital Health and Federal Trade Commission (FTC) Mobile Health Apps Interactive Tool, https://www.fda.gov/MedicalDevices/ DigitalHealth/