

Final Paper:
**Technology and Public Administration Lessons Applied to Patient-centered, Technology-based
Social Care Community Resource and Referral Platforms**

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Introduction

To best demonstrate how I have been able to apply the lessons learned in this course, I will provide an overview of a current challenge in healthcare technology. I will then demonstrate how applying the lessons learned can best inform solutions to effectively connect patients to social care services to address all associated social determinants of health (SDOH). While it is broadly understood that SDOH is a significant contributor to a person's health, connection to and utilization of social care services that address those needs have been ineffective. To successfully address the social care needs of patients, health care will need to leverage technology and improve collaboration with government and publicly-funded community-based organizations.

Background

Healthcare costs in the United States outpace costs in other developed countries and are expected to increase by an annual rate of 5.4 percent. (Keehan et al., 2020). Over half of the healthcare expenditures in the United States are paid for by federally funded programs such as Medicaid and Medicare. (Cochran, Mayer, Carr, Cayer, & McKenzie, 2015) However, research indicates that clinical care represents only a tiny fraction of the factors that affect health outcomes; the other factors include genetics, environment, behaviors, and social circumstances. (Magnan, 2017) Commonly referred to as the SDOH, current research emphasizes that SDOH contributes to 80-90% of health outcomes compared to the 10-20% of clinical care contributes (Magnan, 2017). SDOH are defined as the conditions in which people are born, live, work, play, and learn that affect health inequity, health disparities, health outcomes, and life expectancy (Foundation, 2021). With such a significant percentage of health outcomes driven by SDOH, it is critical to address SDOH to reduce healthcare costs and improve patient outcomes.

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Driven by federal regulations, addressing SDOH is imperative as healthcare financing models move from reimbursement contracts to value-based care models. (Preda & Voigt, 2015) Value-based care contracts reimburse providers based on patient outcomes. Providing superior health outcomes for patients efficiently at the lowest cost in a value-based payment contract allows providers to generate healthcare savings. Therefore, as healthcare costs continue to escalate, public health administrators must seek to identify strategies to improve outcomes and reduce costs.

Problem Statement

To reduce healthcare costs and achieve improved health outcomes, the US government, healthcare payers, and providers have grappled with strategies to migrate towards value-based care (Mold, 2017). Unlike traditional reimbursement arrangements between healthcare payers and providers, value-based care payment models incentivize healthcare providers, including hospitals, for increased quality of care; improved health outcomes; and reduced cost of care (Mold, 2017).

One strategy healthcare has explored to address SDOH is establishing collaborations and workflows that enable medical providers to access and leverage community-based social care services. The key challenges have included non-patient-centered technology-based referral systems, limited capacity among community-based organizations (CBOs), a lack of coordinated resource and referral networks, and low adoption rates among patients and providers. (Gray, 2018) As a country, the US has failed to create an integrated system that seamlessly serves its residents in a comprehensive manner, addressing medical, social, and behavioral factors concurrently; this has led to poor health, social, educational, and economic outcomes. As a result, health disparities have widened and have disproportionately affected communities of color.

There is no single solution to the issue of health inequity; however, by creating incentives for providers to create healthier communities by sharing the risk through value-based care and the use of

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technology to increase the capacity and coordination of CBOs, the US healthcare system can move from a 'sick-care' system to a 'health care' or preventative system. (Carey, Crammond, & Keast, 2014) The combined efforts of value-based care models and the effective use of technology to integrate social care into the existing healthcare system is a win-win proposition; it is simply a matter of identifying a model that works and then scaling and replicating it.

Technology and Public Administration Lessons Applied to Health Care

As outlined in a study by (Khalimon, Sycheva, & Obradović, 2022), the author states that "the role of the state and executive authorities is being completely rethought. They are transforming themselves into "digital governments," IT platforms, and forming their own digital structures with a list of services that are necessary for the population." (Khalimon et al., 2022) As the public sector continues to improve the services offered to the public, it is clear that technology plays an essential role. Health care is equally leveraging technology to improve the health and well-being of its patients. Driven in part by recently passed federal legislation (House, 2021), healthcare has fully adopted the use of electronic health records (EHRs), patient portals (PP), Artificial Intelligence (AI)-based diagnostic tools, and telemedicine platforms.

As this and other courses have covered, public service values are essential to designing and implementing any publicly offered, technology-based solution. (STEFAN G. VERHULST, 2022) The public service values of transparency, accountability, and equality are most relevant to technology. Each of these public service values directly applies to technology in health care. According to (DeRosia, 2010), "transparency in public administration is to ensure citizens the availability of information which is deemed public." (DeRosia, 2010) As presented in this course, transparency directly correlates to public confidence, especially concerning technology. In no other area of public service is confidence more critical than in health care. In previous lessons presented in this course, we

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learned that providing transparency while maintaining privacy, proper data sharing, and cybersecurity are essential considerations. (Preis & Susskind, 2022)

Accountability is another public service value essential to using technology in health care. The patient could not access their medical records for far too long and could not participate in their care coordination. This created many challenges, including inaccurate documentation and a lack of patient engagement. Using technologies such as EHRs and patient portals helps hold health care accountable. As with all publicly funded services, healthcare must ensure the highest levels of accountability are maintained. Technology has proven an effective, cost-efficient way to ensure accountability. (Tanwar, Parekh, & Evans, 2020)

The last, and arguably the most essential, public service value in developing and implementing technology-based healthcare solutions is equity. As (Timmermans & Kaufman, 2020) explains, "Health technologies aim to improve individual and population health, but they may also exacerbate health disparities." (Timmermans & Kaufman, 2020) As we learned in our Coded Bias (Kantayya, 2021), The Digital Divide, and AI Localism (Verhulst, Young, & Sloane, 2021) lessons, equity must be considered at all stages of technology development and utilization. In many publicly implemented technologies presented in this course, such as facial recognition, blood oxygen monitors, and broadband internet access, the impact inequities can have on disparate populations is clear. Lessons from this course have demonstrated the importance of ensuring that public service values are a vital consideration in using publicly delivered, technology-based services.

Current Technology Applications

Many technology-based solutions are being developed and offered to screen, identify, and connect patients to resources needing social care services. These include community resource and referral platforms (CRRPs) such as NowPow (NowPow, 2022), Unite Us (Us, 2022), and Aunt Bertha

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(Bertha, 2022). Often funded by the public sector, these technology-based platforms aim to build a resource network of community-based social care providers, including electronic patient referrals. The idea is that a clinical provider can utilize a technology-based platform to screen patients or leverage existing EHR-based patient data to identify a patient's social care needs. Once the patient's social care needs are identified, an electronic referral is placed on behalf of the patient to the most appropriate CBO through a shared platform. Initial research has demonstrated that these technology-based CRRPs hold promise, but substantial opportunities for improvement exist. According to a study by (Lindau, 2019), one of the creators of NowPow, "to achieve this goal, public health scientists along with health care professionals and community practitioners must adopt interoperable digital workflows and a surveillance strategy that precisely tracks all the health-promoting community assets, what they do, whom they serve, and, ultimately, how they perform." (Lindau, 2019)

Challenges to the Current Technology Applications

While CRRPs have demonstrated promising results, many challenges remain. The first challenge concerns the capacity of the CBOs that provide social care services. These CBOs are primarily small non-profits with limited funding, most commonly offered by federal, state, and local grants. In addition, grant-funded CBOs often need more infrastructure and have extensive grant-mandated reporting requirements. This limits a CBOs capacity to operate and maintain an additional system, such as a CRRP, and limits the number of referrals the CBO can accept. These challenges have made the initial adoption of CRRPs by CBOs lower than initially expected. (Sleiter, Letamendi, Dannefer, & Pierre, 2018)

The second challenge related to adopting CRRPs is the effective transition from in-person service delivery to technology-based solutions. The challenge of adopting technology-based solutions has two parts. The first part refers to technology access barriers among patients. Multiple lessons this

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semester have demonstrated the inequities related to technology access and utilization, with broadband access now being considered an SDOH. (Perzynski et al., 2017) Also, contributing to the limited adoption of CRRPs is related to public confidence. As lessons in this course have demonstrated, the lack of public confidence in CRRPs may be caused by a lack of transparency and minimal consideration for equity. (Gray, 2018)

Promising Research

While many challenges related to the effective utilization of CRRPs remain, multiple studies have shown promising improvements to address these challenges. One study related to the transition from in-person to technology-based social care services (Singh et al., 2022) suggests that “while in-person engagement remains crucial...to build trust with vulnerable communities, mobile and digital health tools additionally serve as a promising modality for outreach.” (Singh et al., 2022)

Concerning the challenges of limited adoption of CRRPs, a study completed in NJ by (Cutts & Gunderson, 2020), which compared two different model programs, suggests that “the Camden Coalition team looked through the eyes of computers, while the Memphis and North Carolina teams looked through the eyes of people of faith. All teams saw the same rich complexity (including needs and assets) of our most vulnerable and marginalized persons. That vision inspires us to tenaciously and thoughtfully evaluate our work of integrating medical and community-based care so that the field moves forward and, more importantly, improves the health and well-being of people in need within an equity and justice framework.” (Cutts & Gunderson, 2020)

Proposed Solutions

As healthcare improves on technology-based CRRPs, multiple considerations and solutions must be considered. First, the public sector must not only leverage value-based care models to improve outcomes and reduce costs, but it must also use the newly created cost reductions to reallocate funding.

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The reduced healthcare costs incurred by the government should be redirected to CBOs providing essential social care services. This increased funding can be used to serve more patients and build the infrastructure and capacity of the CBOs. This increased funding can be provided through additional grants, value-based cost-sharing arrangements between hospitals and CBOs, or claims-based Medicaid and Medicare reimbursement for CBOs.

The second solution for increased utilization and effectiveness of CRRPs is to create technology-based platforms that utilize a patient-centered model. Where existing CRRPs use a provider-centered model, future models can benefit from a patient-centered model. Utilizing a patient-centered model will effectively apply three main concepts learned during this course. A patient-centered model will ensure transparency through active participation and access to patient care information. This transparency will improve EHR accuracy and empower patients to participate actively in care coordination. Focusing on transparency through a patient-centered model will also increase confidence and adoption rates among patients, exceedingly in disparate populations. A transparent, patient-centered CRRP will also increase the accountability of healthcare providers. Lastly, the use of a patient-centered model as compared to a provider-centered model will also alleviate barriers related to CBO capacity. Instead of relying on CBOs to operate and manage the technology-based CRRP, a patient-centered design will allow patients to coordinate their care using the available technologies. By empowering patients to manage their care, the utilization of available social care services will increase, and outcomes will improve. (Laine & Davidoff, 1996)

Conclusion

According to Jason Szczuka, Chief Digital Officer at Bon Secours Mercy Health, “The way I view the promise of digital health and where, as a society, we have not optimized it yet, is the extension of the actual delivery of great care in the more convenient, connected and consistent forums, so that all

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participants can be greater contributors and greater receivers of the benefits of this new forum. And that will require that we connect at the nexus of virtual care and in-person care. Only by doing that will we begin to fulfill the digital health promise.” (Adams, 2021)

This course has provided clear evidence that while technology can not solve the challenges of the public sector alone, it is an essential part of the solution. The technological solutions must also include critical public service values, specifically transparency, accountability, and equity. While these crucial public service values are included in the course's lessons, the lessons on Coded Bias, Data Sharing, AI Localism, Cybersecurity, and Cloud-based Technologies are the most impactful. As part of the additional research conducted during this course, the concept of Public Interest Technology by the Stanford Social Innovation Review combines many of the presented concepts from this course into a single strategy. As explained by (Sweeney, 2022), "Public interest technology is an interdisciplinary approach that demands technology be designed, deployed, and regulated responsibly and equitably. That's why public interest technologists—engineers, scientists, community organizers, activists—explicitly center the experiences of historically marginalized groups who have been both targeted and neglected by technology." (Sweeney, 2022) Applying a public interest technology approach to a patient-centered technology-based community resource and referral platform will improve the effective utilization of social care services to address the social determinants of health, reducing health care costs and improving patient outcomes.

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