Institutional Federalism Limits Implementation of Telehealth in the United States

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

Telehealth has to be regulated by a country's health care policymaker. In the United States, the healthcare system is unique because there is both public and private insurance. Further, insurance providers have to follow both federal and state regulations. In most other developed countries a universal healthcare system is in place to give everyone access to health services. Typically, these countries only have some form of federal regulation, without varying state regulations (Bodulovic et al., 2020). While telehealth is becoming more popular, implementation in the United States may be more difficult due to our country's unique combination of public and private healthcare insurance plans and federal and state regulatory schemes.

This paper explains the history of telehealth, the infrastructure of United States healthcare, and universal healthcare used in most other developing countries. The "Economic and Political Organization" framework from Mesthene is used to analyze the benefits and consequences surrounding the structure of the United States healthcare system. I discovered that the difficulties regarding the implementation of telehealth in the United States are not due to the fact that the United States does not have universal healthcare, but rather because the United States is founded on federalism.

Part I: Introduction to Telehealth and Explanation of the United States Healthcare System versus Universal Healthcare

Introduction

To understand why telehealth is encountering limitations to being fully implemented, this section provides a brief history of telehealth, an explanation of the United States healthcare system, and an explanation of universal healthcare system using England as an example. Looking at the history of telehealth shows how far telehealth has advanced with the development

of new technology. With this telehealth makes health services more accessible. Next, the explanations of the United States healthcare system and a universal healthcare system provides a background understanding to further decide if it is the system placing limitations on the implementation of telehealth.

The History of Telehealth

Telemedicine and telehealth are often used interchangeably now, but telemedicine predates telehealth. Telemedicine is defined as "the use of electronic information and communications technologies to provide and support health care when distance separates the participants" (Telemedicine & Field, 1996). The first form of telemedicine was when medical professionals would write in the newspaper to deliver medical advice to the general public. In 1844, the telegraph was invented and then in 1876 came the telephone, both of which were used for patients to summon physicians and communication between physicians and physicians and patients (Burg, 2003, p. 6).

The invention of the radio and television inspired the future of telehealth. In 1924, a magazine, *Radio News*, predicted telehealth on its cover by depicting the "radio doctor". The radio-TV was shown broadcasting the physician and the physician and patient could communicate through the radio (Telemedicine & Field, 1996). Hugo Gernsback, was also fascinated with the concept of "telehealth". In 1925, he wrote an issue in the *Science and Invention* magazine describing his futuristic device, the "teledactyl". This device would allow the

Figure 1: "Telemedicine circa 1924--visionary cover of Radio News depicting an imagined "radio doctor: who could see and be seen by his patients" (Telemedicine & Field, 1996)

physician to view their patients through a screen and touch them with a robot arm. Gernsback imagined this device would be ready for practical use in 1975, but there is still no technology like that today (Novak, 2012).

The internet has revolutionized everything about information availability to the masses and both the government and the public were enthusiastic about this development. The government funded the National Information Infrastructure Initiative, which was the plan for a national computing and telecommunications network, and the Advanced Research Projects Agency, the network of computers to help the military keep information secure (Nickelson, 1999, p. 529; Burg, 2003, p. 7). With the increase in high-speed networks, multimedia platforms, and the increased power of the personal computer, telehealth became more widely available to the public (Burg, 2003, p. 13). There is now real-time telemedicine (includes visual examinations, evaluations, and some tests), remote patient monitoring, medical imaging, and "store-and-forward" practices (which is the ability to save useful medical data, such as images and test results, to a patient's health record) ("Types of Telemedicine Services & Technologies for Virtual Care," n.d.).

Everything was revolutionized when the smartphone was invented. Communication, the internet, and telehealth are now accessible right from hand-held smartphones no matter where the user is located. One aspect of telehealth is the development and deployment of mobile

applications for medical purposes. An example is Livongo, a telehealth system that helps patients monitor their blood glucose levels and other physical aspects in connection with monitoring the patient's diabetes. Livongo's smart-touch glucose meter is linked to a mobile application that the patient can use to monitor their health. Livongo has also made certified diabetes educators available to patients to help assist in diabetes management (Cernovi, 2019). Another example of a telehealth application is MoodRing. My capstone team is helping to develop the data pipeline, code that executes steps in lieu of human intervention, to machine learning models for a mobile application, MoodRing, that will be able to predict a patient's depression level. Doctors will have access to their patients' data and patients and doctors will be able to communicate with each other to discuss mental health matters.

Now, telehealth is at our fingertips. However, for it to be implemented across entire healthcare systems, these systems need to be understood to know how to best enact change.

The Breakdown of the United States Healthcare System

In the United States, no universal or nationwide healthcare system provides health insurance to all. Instead, there are public and private providers of health insurance. The federal government only started the Medicare and Medicaid programs in 1970. Medicare is an actual insurance program providing coverage to people over age 65, the disabled, or dialysis patients. Currently, people in those categories comprise only about thirteen percent (13%) of the population in the United States (Division (DCD), 2015). Medicare is funded through either a payroll tax during one's working years or payment of a premium once retired or disabled. Funding also comes from general federal government revenue. However, if expenses keep increasing, then the Medicare program may not have enough funding in the future to provide all of the benefits it was established to provide. Medicare only covers acute care and not long-term

nursing home care or outpatient prescription drugs. Due to Medicare having limited coverage, most Medicare participants, approximately sixty-eight percent (68%), have a private health insurance plan as well. Medicare is a poorly funded program that barely covers health necessities, especially in old age, and costs those on Medicare an increasing amount of their income (De Lew et al., 1992, p. 152-153). Medicare previously provided limited reimbursement for telehealth, but, in 2020, President Trump signed an executive order adding sixty services of telehealth to Medicare coverage (Sullivan, 2020) making telehealth more accessible.

Medicaid is different from Medicare in that it is an assistance program serving low-income people, which account for approximately ten percent of the United States population. Medicaid is jointly funded by federal and state governments; the federal government provide funds to state based on average personal-income levels. One receives Medicaid through their state, but the plan is established under the federal guidelines which set what services are provided, the level of payments, and eligibility. States can further define these guidelines (De Lew et al., 1992, p. 153-154). Medicaid coverage of telehealth services varies from state to state.

Most people have a private health insurance provider, usually through a person's employer. Most employers offer health insurance options, but not all do, so some people are required to purchase private health insurance on their own. Private health insurance covers about sixty-one percent (61%) of the population. Each of over one thousand private health insurance companies in the United States has different benefits, premiums, and payment plans (De Lew et al., 1992, p. 152). The federal government now has the Center for Medicare and Medicaid Services (CMS) under the Department of Health and Human Services to review health insurance rates, but most of the regulations for private health insurance come from the states and not the federal government (Rice et al., 2020, p. 83). Employers offer health insurance to their

employees because employers receive tax benefits for employer contributions to health insurance premiums, health insurance is cheaper when a group is buying the insurance, and employees can pay for employer provided health insurance with pre-tax dollars, so they do not have to pay income tax or Social Security tax on the amount paid for health insurance premiums. Even though most people have private health insurance, most are underinsured, meaning they could pay a hefty out-of-pocket cost if they experience a major illness or injury (De Lew et al., 1992, p. 152). Private health insurance plan has different coverages for telehealth services.

If someone is not insured, they can still receive healthcare through public clinics and public hospitals. Public clinics and public hospitals are supported by federal, state, and local governments. Private hospitals and some physicians will sometimes provide charity care, where they subsidize the costs of such care. This is possible because private hospitals and health providers can set their own prices for the care they provide (De Lew et al., 1992, p. 154). Telehealth services are not available to those people who are uninsured, so they would have to pay the full costs of such services.

States regulate healthcare through public health departments, provider licensing boards, and insurance commissions. Local counties and cities also have public health and health and services departments that regulate healthcare and healthcare providers. There are also private regulators, like the American Medical Association and Joint Commission. “The United States has 50 state-level public health agencies. Also, many of the more than 3000 counties and 15,000 municipalities have some type of local health department or have their public health regulations” (Rice et al., 2020, p. 92). The complexity of the United States healthcare system makes it hard for healthcare reform. Disparities between private and public healthcare insurances and different regulations across states make healthcare reform, including the adoption of telehealth, difficult

because each state has its own set of rules regarding same, instead of having to follow one set of rules issued by the federal government. Universal healthcare has a different approach.

The Analysis of a Country with Universal Healthcare - England

The Commonwealth Fund conducted a study in 2017 comparing eleven different countries' healthcare systems based on care process, access, administrative efficiency, equity, and health care outcomes. The United States ranked eleventh and the United Kingdom ranked first (Schneider et al., 2017). Most of the countries in the study offer universal healthcare. To understand the flaws of the United States healthcare system, the aspects of universal healthcare must also be understood.

Universal healthcare is defined as follows: "a system that provides quality medical services to all citizens. The federal government offers it to everyone regardless of their ability to pay" (Amadeo, 2020). England, which is part of the United Kingdom, is an example of a country that has universal healthcare. In 1948, England's National Health Service (NHS) was created to provide free comprehensive health services to everyone. Residents of England are automatically entitled to NHS care, which is still mostly free. Non-residents who have a European Health Insurance Card are also entitled to the same NHS care. For visitors or undocumented immigrants, emergencies and treatment of infectious diseases are free. Private health insurance is still offered in the United Kingdom, but only around ten percent (10%) of the population use private health insurance (Tikkanen et al., 2020).

Parliament, the Secretary of State, and the Department of Health are all responsible for regulation and policies regarding healthcare in England, as seen in figure 1. The NHS England, a government-funded program, controls the day-to-day actions of the NHS such as handling the budget, overseeing commissions of hospitals, and working towards objectives set by the Secretary of State. The English government owns hospitals and providers of NHS, known as NHS Trust. The Care Quality Commission regulates standards of safety and quality by registering providers and achieving the standards. The National Institute for Health and Care Excellence sets guidelines for treatments and evaluates new technologies on efficacy and cost-effectiveness (Tikkanen et al., 2020). Figure 1 demonstrates that, in England, universal healthcare has a more comprehensive regulatory framework. With most people in England being provided healthcare through the NHS, telehealth would only have to be regulated through the Quality Care Commission and the NHS Improvement.

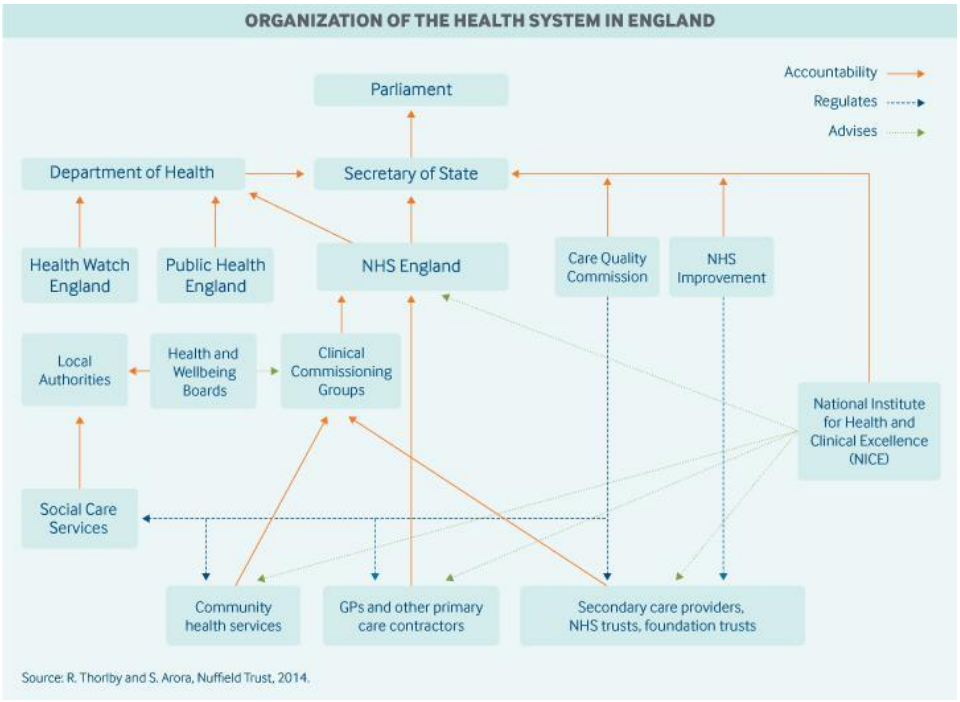

Figure 2: Structure of England's Healthcare Regulation (Tikkanen et al., 2020)

Universal Versus United States Healthcare

After understanding the differences between universal and the United States healthcare systems, it is clear that universal healthcare still as complicated as the United States healthcare system. The next sections will explain that the limitations of telehealth implementation is not the system itself.

Part II: Applying Mesthene's Private Firms and Public Goods Model to the United States Healthcare System

In chapter three, "Economic and Political Organization", of his book *Technology and Culture,* Emmanuel Mesthene (1969) criticizes the current relationship between public and private organizations and their role in technological innovation, claiming that there needs to be a change in the system so that social needs are the priority instead of economic gains. Mesthene presents a framework for analyzing a proper economic and political organization in response to his argument that the development of new technology has been dominated by private corporations without the influence of the government. He argues that "the shift in demand in favor of public good, therefore, raises serious questions about the traditional roles of business and government in our society" (p. 71). I apply this to the analysis of telehealth implementation in a healthcare system with only a public sector for healthcare insurance (universal healthcare) versus a system with both private and public sectors for healthcare insurance (the United States).

Describing Mesthene's Model for Analyzing Private Firms and Public Goods

Mesthene has provided a framework for analyzing the current design of economic and political organizations. One must look at how the public and private sectors work together and see if the benefits of this relationship are working to provide for the social good or merely for economic gain.

Mesthene starts by defining "the political" as encompassing "all of the decision making structures and procedures that have to do with the allocation and distribution of wealth and

power in society" (p. 63). He identifies "the political" as a "bridging concept" between public and private organizations. He argues that new technologies increase society's complexity and, therefore, push decisions from private to public giving examples such as "education, medicine, population policy, as well as the conduct of science and technology" (p. 66). However, Mesthene later talks about how in the United States this push to public decisions became overridden by mixing private and public institutions. Capitalism plays a big role in the production of wants for the consumer and the government wants to meet the demand of the consumer. The problem with this move to private companies creating new technologies is that they are not concerned with the good of the public. Therefore, the United States has pushed more social needs such as healthcare to private instead of public creating a gap between providing social needs and profiting.

The corporate system in America has benefited many aspects of our needs such as "feeding, clothing, and sheltering our population and raising our standard of living" (p. 73), because many of these necessities were pushed heavily into private goods and services. Mesthene talks about how exploring new technologies used to include government agencies, which would allow the public's goal to be considered. This mix of public and private organizations working together has its benefits, but Mesthene argues that this organization of mix of private and public is not considering the social costs of technology or considering what the public wants. The United States has been so focused on capitalism that most social goods are not being met because the private companies are not providing the right solutions.

Mesthene proposes a framework, shown in figure 2, that provides a balance for technological innovation in which a new technology strives to be in the middle of the following three considerations, widely available, low cost, and high quality. Unfortunately, technological innovation cannot be all three. Public entities usually are widely available and low cost but not high quality, and private entities are usually widely available and high quality but at a high cost. Mesthene calls for "institutional innovation" to have a "reversal of our traditional priorities" (p. 74-75). The current set up of private and public organizations only cares about the economic benefits of technological innovation. Mesthene argues that the current forms of organizations may not be "adequate for marshaling technology to social purposes" (p. 76). The need is for a widely available system because it needs to reach the entire public. In the United States, this cannot happen in healthcare because there are too many differences in regulation between states and overall federal regulation.

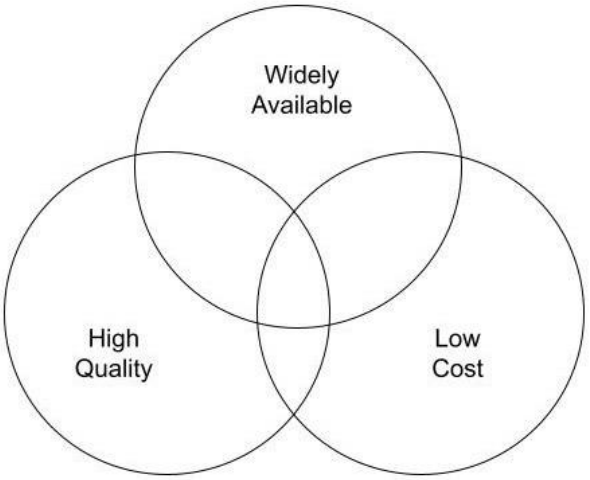

Figure 3: Mesthene's Framework Depiction

Applying Mesthene's Method to the United States Healthcare System

Mesthene points out that most needs that are in high demand are usually pushed from the private to public sector. However, the United States still has a combination of public and private sectors providing healthcare needs. Telehealth is a technological innovation that is seeing an increase in demand, but so far there has only been technological progress in that area by private companies. There are companies such as Teladoc, MeMD, iCliniq, Amwell, MDlive, Doctor on Demand, LiveHealth Online, Virtuwell, PlushCare, and HealthTap that are providing telehealth

and producing new technological innovations with respect to healthcare needs (Potter & Roland, 2020). The services provided by these companies are only covered under certain insurance plans. Further, private insurance plans are covering an increasing amount of telehealth services compared to the government insurance plans, Medicare and Medicaid (Tuckson et al., 2017).

This discrepancy between what is covered by different insurance plans, whether public or private, highlights Mesthene's argument that our current organization is not benefiting the social needs of the public. Medicare and Medicaid are widely available to the public and usually at a lower cost, but the services under those plans typically provide lower quality, including limited access to telehealth services. Whereas private insurance plans offer widely available services and high quality but for a much higher cost to be able to cover everything they offer.

Mesthene's framework for analyzing economic and political organization brings into question the organization of the healthcare system in the United States. The complexity of a system involving private and public healthcare insurers and varying state healthcare regulations and schemes have all worked to constrain access to reasonable and affordable healthcare for much of the public.

Part III: Analysis of Barriers Show Real Reason for Lack of Implementation of Telehealth in the United States

As developed previously, the concept of economic and political organization has disrupted our perception of the United States healthcare system. Figuring out the best way to implement telehealth into healthcare reforms is a difficult task and Mesthene's framework on private firms and public goods give insight into the flaws of the United States healthcare system. The United States Constitution does not explicitly address the universal right to healthcare. Without a federal government mandate to provide healthcare to the public, capitalism took over the healthcare system resulting in a system that is not affordable to everyone, inequitable, and

only concerned with profits. Concerns over public needs are undermined by the corporate world trying to obtain as much profit as possible. Analyzing the different barriers for telehealth entry will help understand whether the adoption of telehealth will be easier in the United States or a country with universal healthcare.

Barrier 1: Reimbursement

Reimbursements are one of the biggest barriers to telehealth implementation in the United States because hospitals and physicians are typically for-profit organizations. For-profit hospitals and physicians can set their prices to whatever the market will bear (Gajarawala & Pelkowski, 2021, p. 220). This is another conclusion about Mesthene's argument is that hospitals are not always about the public needs, they are more about making a profit. However, "government programs like Medicare and Medicaid pay hospitals less than the cost of caring for the beneficiaries these programs cover; insurance companies negotiate deep discounts with hospitals, and many people who are uninsured pay little or nothing at all" (*Hospital Billing Explained | AHA*, 2017). Hospitals need to collect money to pay their bills, including salaries of doctors and nurses, and obtaining reimbursements from public and private insurance plans is key to that. The process for obtaining reimbursements from public and private insurers is cumbersome, is prone to errors by the reimbursement processing departments in hospitals and there are many loopholes patients can negotiate.

To obtain those reimbursements, hospitals have to deal with over a thousand different insurers, each having different coverages and reimbursement policies (Gajarawala & Pelkowski, 2021, p. 220). Medicaid regulations, which vary from state to state, also limit the adoption of telehealth. It seems that telehealth under private companies can be reimbursed through private

insurers and the different state regulations, but it is Medicare and Medicaid that would have the issue of dealing with multistate legislation.

In most of the countries that provide universal healthcare, there are no varying regulations in different parts of the country affecting reimbursement matters (Bodulovic et al., 2020). Also, hospitals are mostly publicly owned, so the price for services is not under the control of for-profit organizations or physicians. This allows an easier path to develop a reimbursement plan with respect to telehealth services.

Barrier 2: Privacy

Under both the United States healthcare system and a universal healthcare system privacy regarding personal health information presents a potential barrier to the provision of telehealth services. Everyone wants their personal information to remain safe and secure. Adding more technology makes people's information more vulnerable to being hacked, stolen or disclosed. Therefore, for the continued advancement of telehealth services to be successful, data security technology need to be very advanced and appropriate regulations and laws need to be issued by the government with respect to such matters (Gajarawala & Pelkowski, 2021, p. 219). However, the United States will again likely have to deal with varying state regulations, unless Congress can adopt sweeping federal legislation in the area, and universal healthcare countries will have uniform regulations for the entire country.

Barrier 1: Regulatory barriers

The United States, as discussed earlier, has varying policies from state to state about what medical conduct is allowed. In some states, an in-person visit before a physician can prescribe medications is required, but other states allow for telehealth meetings to prescribe some medications. Physicians are also only licensed to practice in one state usually, which would limit

the geographic scope of their provision of services. The Medical Licensure Compact makes it easier to become licensed in different states. Telehealth companies must make sure that they are up to date on each state's licensing requirements with respect to physicians and the services they provide (Gajarawala & Pelkowski, 2021, p. 219). Varying state regulations make implementing telehealth over the entire United States more difficult.

A country with universal healthcare, such as England, does not have different regulations as all regulations are issued by the Care Quality Commission and NHS Improvement (Tikkanen et al., 2020). While some countries, including England, have not yet issues regulations with respect to telehealth services, having one organizational system to issue such regulations makes it much easier to do so.

Federalism: Limitation to Implementation of Telehealth

A common theme regarding all of the different barriers to implementing telehealth in the United States is the varying state regulation. In addition to the earlier analysis regarding the United States' healthcare system being a combination of private and public organizations and how that is problematic given Mesthene's framework for economic and political organizations, federalism is another reason why telehealth is struggling to be implemented more widely across the United States. The United States is built on the foundation of federalism which is, as defined by the Commonwealth Fund, "the allocation of governing responsibilities between federal and state governments" (Collins & Lambrew, 2019). Under this doctrine, individual states have the right to govern and issue laws with respect to their citizens and activities unless federal law preempts such governance and laws. Without a national law governing the provision of telehealth services and related matters, telehealth providers will have to deal with the laws and

regulations of each state in the United States. This may be the ultimate barrier to entry for telehealth.

The implementation of telehealth services would be less difficult in England, where laws and regulations are issued under the governmental system described earlier. British Parliament reigns supreme as the legislative body with different organizations under it to help make laws and regulations that apply to all of England.

However, there are countries with similar governmental systems to the United States that have implemented universal healthcare. Canada is an example. It has a universal healthcare system but it also has thirteen different provinces. Each of these thirteen provinces has its own insurance plan but receives funding from the federal government. While these provinces have to abide by the five pillars of the Canada Health Act (publicly administered, comprehensive in coverage conditions, universal, portable across provinces, and accessible), each province is able to vary the benefits and delivery of its healthcare services. The regulations regarding healthcare insurance providers can vary across provinces but there is consistency in regulating the practice of medicine (Tikkanen et al., 2020). Telehealth is regulated differently province to province because each province's health insurance plan covers different services. While Canada has struggled to address telehealth in major national healthcare reform legislation, telehealth services are widely available and the differing provincial regulations regarding some have not been as limiting as in the United States.

In conclusion, implementation of telehealth does not require a universal healthcare system but to make it easier having one form of government regulate healthcare will help speed up the process of implementation.

Conclusion

The implementation of widespread access to telehealth in the United States is facing limitations. The results of using Mesthene's economic and political organization framework show that the limitations are not due to the fact that the United States does not have universal healthcare, but rather the United States' foundation on federalism. With both public and private healthcare providers and the mixed regulations between states, the United States does not serve societal needs in the most efficient way. Design of economic and political framework should work together to provide the needs of the public by being widespread, affordable, and easily accessible.

In this paper, I went into depth about how the political framework of the United States is a limitation to the implementation of telehealth. Mesthene's framework also includes analyzing the economic framework, this side also must be acknowledged and could be developed more. The United States being a capitalist country places emphasis on the profit of private companies. This allows the goals of for-profit healthcare providers and hospitals to not align with the societal needs of widespread, affordable, and accessible healthcare services. This provides another limitation to the implementation other than federalism.

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