BRIEF REPORT

LEVERAGING PRIMARY CARE, PUBLIC HEALTH AND SOCIAL CONTEXT DURING THE COVID-19 RESPONSE WITHIN A UNIVERSITY SETTING: CONSIDERATIONS FOR THE OSTEOPATHIC FAMILY PHYSICIAN

Anne C. Jones, DO, MPH[1]; Kanad Mukherjee, DO, MPH, CAQSM[1]; Todd Schachter, DO, FAOCP[1]

[1] Rowan University School of Osteopathic Medicine - Family Medicine, Stratford, NJ

KEYWORDS:

COVID-19 pandemic

Osteopathic philosophy

Primary care

Public health

Social determinants of health

The COVID-19 pandemic placed a spotlight on both the successes and the needs across the spectrum of the healthcare system. The trusting, enduring relationships developed within the primary care setting served as an important foundation on which to build response strategies throughout the pandemic. Early detection and testing, implementation of telehealth, delivery of continuous comprehensive care, and vaccine education and administration are all key areas where primary care and public health systems successfully served patients and community. Emerging national research from the COVID-19 pandemic experience has also demonstrated the reduction in COVID-19 infection and death rates through the synergy between primary care, public health and social factors, emphasizing once again the critical role these services play and the importance of developing integration strategies for the future. In particular, the COVID-19 experience within the university setting served as a key example of this integration and synergy in action. As osteopathic family physicians, these experiences can serve as lessons learned toward embracing the opportunity afforded by our unique training, expertise and commitment to the osteopathic philosophy.

During the 2-year span of the COVID-19 pandemic, the efforts and impacts of healthcare professionals at the emergency front lines who responded to the urgent surges of disease and death have been appropriately recognized and applauded. However, as peaks and nadirs of illness continue to evolve over time, we have seen a shift—both inside and outside the healthcare system—from emergency and crisis management toward a renewed focus on preventive community health interventions. Throughout this time, osteopathic family physicians responded as we always do: by adapting to the needs of our patients and communities, quickly determining where gaps existed in the systems and swiftly implementing protocols and services to address the holistic needs of our patients and communities. Many have highlighted the intensity of the emergency response, but how did the pandemic impact the practice of and experience within the world of primary care?

As we transition into the next phases of the COVID-19 pandemic, it is crucial to understand and appreciate the components of our systems that contributed to success in order to build upon these elements in the future. This paper places a spotlight on the role of the primary care system during the COVID-19 pandemic. Using a combination of practical experience within the university-based health center, review of leading and emerging literature, we will highlight the success of community partnerships between primary care and public health, the importance of continued focus on health equity and the social determinants of health, and the opportunity they present for osteopathic family physicians in the future.

CORRESPONDENCE:
Anne C. Jones, DO, MPH | jonesan@rowan.edu

Copyright© 2022 by the American College of Osteopathic Family Physicians. All rights reserved. Print ISSN: 1877-573X
doi:10.33181/13084

THE ROLE OF PRIMARY CARE

We know from practice that primary care is the foundation of our healthcare systems and communities. Decades of research prior to the pandemic have shown that primary care is the most equitable, efficient and cost-effective way of enhancing the health of populations.[1–2] Recent studies have demonstrated that key public health measures—including symptomatic and asymptomatic testing, vaccine delivery, and patient counseling and education, among others—are routinely delivered within primary care practices.[3] These hallmarks of the primary care system are proving vital to the delivery of health care during the COVID-19 pandemic,[4] and were outlined in real time through surveys of primary care clinicians as the pandemic unfolded.[5–6] With a recent Doximity survey revealing that 60% of polled

another pandemic is possible within this lifetime, the importance of primary care clinicians cannot be understated.[7]

Early detection and testing

When the pandemic began in early 2020, primary care clinics were among the first to detect infection and disease. Within university-based health centers, for example, COVID-19's beginning coincided with the start of the 2020 spring semester when students were returning to campus from around the world. In January 2020, COVID-19, a novel virus associated with a market in a small village in Asia evolved into a potential infectious disease outbreak on a residential college campus in the northeastern United States. Students were learning while in transit back to college that they might have been exposed. Calls to our local public health departments during a weekend clinic jump-started the testing procedures in our health centers, setting off a firestorm of activity within our local community. As students who returned to campus sought treatment for respiratory illnesses in January and February 2020, the clinical presentations seemed different from what we would expect during the normal flu season but testing for the novel coronavirus was restricted.

As testing technology and availability ramped up within the state and nation, our protocols changed and adjusted as often as several times per day. Quickly recognizing the exponential increase in work to be done, we in primary care continually found ways to work with public health agencies that made us more efficient and effective. For example, testing could initially only be done with the approval of the local public health authorities, which necessitated a call to a public health nurse each time we needed to administer a test. Over time, we worked with the public health departments to develop testing protocols that eliminated the need for these repetitive calls. This protocol evolved to include a daily briefing call between the health department and our health center to debrief the day's events and plan for the next situation or developing issue. This partnership was critical to our collective ability to stay vigilant for our shared community.

Telehealth

When the U.S. Centers for Disease Control and Prevention shifted to a pandemic operations model, outpatient practices were forced into a reality of strict building entry protocols, PPE assignments and stay-at-home orders.[8] Primary care practices quickly leveraged telehealth technologies, implementing software and platforms within days to ensure that patients' acute and chronic care needs would be met.[9] During this time, emergency departments and acute care centers were overwhelmed—not only by volume, but also by the risk of exposure.[10] As osteopathic family physicians, we considered the risk/benefit ratio of bringing our patients in for care compared to treating empirically through telehealth.[10]

Within the university setting, using telehealth resulted in improved access to care for students on our residential campuses. In mid-March 2020, as universities across the country closed and sent students home, we worked diligently to continue to care for patients' needs via telehealth. Many primary care practices throughout the country launched these programs even before formal payment models developed billing and coding procedures.[10–13] These actions represent key factors for the solidification and strengthening of trust in the primary care system. Our patients knew they could depend on our practices and on us as physicians to meet them where they were: in their homes during the lockdown phase of the pandemic.[14]

Continuous & comprehensive care

At a time when many specialty services were forced to shut down or restrict services, the primary care field continued to communicate the importance of holistic care. We knew from experience, from our commitment to the osteopathic philosophy and from knowing our patients, that the inability to treat one part of the system would affect a whole person's health. For example, the importance of continued screening, testing, vaccination and mental health care were recognized and emphasized throughout the pandemic. This meant that many family physicians were managing complex and complicated clinical scenarios over telehealth, with or without the benefit of quick access to specialty care.

On university campuses, where the strain of student burnout and concerns of campus climate led to mental health challenges, university health centers also needed to retain a holistic approach to care. When COVID-19 surged, staff were redeployed into COVID-19 testing, positive case investigations, isolation and quarantine functions, while temporarily reducing services for general primary care. After COVID-19 surges resolved, the needs for general primary care subsequently surged in response. Over time, it became essential to ensure that basic primary care, screening, testing and access to holistic services, especially related to mental health, remained consistently available.[11,12] In community medicine and primary care practices alike, our practices remained essential locations for continuous, holistic care, hallmarks of the osteopathic philosophy that rang true throughout the pandemic.[10]

The combination of these experiences also revealed one of the true joys of primary care and osteopathic family medicine—the continuity that results from trust and shared ownership of health care. Due to the establishment of trusting relationships with their providers and teams, patients continued to rely on the primary care system for many of their questions about both COVID-19 and their holistic health.[13]

Vaccine education & administration

Vaccine education, as part of a comprehensive health maintenance plan, rests squarely within the scope of primary care.[15] Due to the holistic and trusting relationships built within primary care practices, many patients seek the opinion of their family physician, pediatrician or primary care provider regarding issues of vaccine hesitancy or safety.[15] The COVID-19 pandemic proved no different, with primary care offices being a key location for patients to receive answers to their vaccine questions as well as vaccine administration.[16]

Though large-scale vaccine distribution sites comprised the early volume of vaccine delivery, this mode of administration soon

proved to be cumbersome and of unclear overall value given the investment of staff time and resources. Nevertheless, primary care professionals continued to contribute to the public health effort by volunteering their time or resources to community vaccine pop-ups, in addition to obtaining and administering vaccines within the practice setting as soon as a supply became available.[16] After vaccination centers began to close, family physicians were able to smoothly transition vaccinations from a large-scale clinic location to local family medicine offices within the local community. The ability to have direct conversations with vaccine-hesitant patients, with instantaneous access to the vaccine, allowed for the delivery of comprehensive preventive care the outpatient setting.

In some demographic regions adjacent to schools of osteopathic medicine, physical campuses became key sites for state-designated large vaccination centers. As family physicians, we served as the lead onsite physicians, which required up-to-date knowledge of vaccine product specifics, relative and absolute contraindications, and current vaccination guidelines. In addition, we were responsible for leading the response to vaccine urgencies or emergencies and training volunteer resident or specialist physicians in response strategies. We were also called upon by the local community and the media to represent the vaccination effort and the evolution of the COVID-19 pandemic.

This critical relationship and trust built between these partners allowed vaccination centers the flexibility to institute pop-up sites for special populations, including the local community, as well as the university campus itself. During these events, thousands of doses were administered to undergraduate and graduate students in addition to any interested party in the surrounding community. Within university settings, vaccine delivery was also a critical example of how shared resources, time and staffing enabled widespread vaccination on residential campuses.[17] In this setting, the trusting relationships became increasingly reciprocal. When students and community members experienced their health center staff contributing to a large-scale vaccine effort, it helped improve trust in the health systems around them as well as in the public health system as a whole.[17]

THE IMPACT OF SYNERGY BETWEEN PRIMARY CARE, PUBLIC HEALTH AND SOCIAL DETERMINANTS OF HEALTH

In October 2021, the Primary Care Collaborative and the Graham Center published the report Primary Care and COVID-19: It's Complicated—Leveraging Primary Care, Public Health and Social Assets.[3] The goal of this research was to examine each of these entities—primary care, public health and social drivers—as a group, looking for synergistic effects of their efforts in combination, rather than as related siloes.[3] Its findings demonstrate that communities with the combination of the most robust primary care, strongest public health infrastructure and fewest social vulnerabilities had lower COVID-19 infection and death rates as compared to communities without the combination of these factors.[3] These results validate existing literature indicating that the integration of primary care systems with public health infrastructure, while using a guiding set of principles in social justice, can improve the health of patients and communities.[18–22]

Health care delivered in university settings is a key example of this synergy in action. Residential college campuses have a unique responsibility for the protection from harm and safety of students who choose to study during these unprecedented times. For example, students infected with or exposed to COVID-19 required access to safe isolation and quarantine locations, including access to necessities such as meals, bathroom facilities and the healthcare system for both basic health questions and coordination of care in the event of severe illness.

Our experience throughout the pandemic was that many public health systems were already overwhelmed, making partnerships and shared protocols essential. Without them, duplication of work would cause delays and mistakes. Using shared commitment to patient wellbeing and keen process improvement strategies, we worked together to eliminate waste, reduce redundancies and enhance efficiency for deployment of testing, contact tracing, and isolation and quarantine protocols to the community by medical services partnering with laboratory personnel, as well as necessary social service organizations, such as housing, transportation and informational technology.[23] In each of our university practices, we are fortunate that no severe morbidity or incidents of mortality were reported or experienced among students.

This synergy was also at work during outbreak investigations, where understanding social connections between student groups was crucial to controlling surges in infection. As we learned about positive cases, we used outbreak identification technology to create social networks and web-diagrams, a standard rubric from public health practice. However, it was health center staff's partnerships with campus leaders, advisors to student groups and academic staff that helped us identify connections between students based on social factors. These connections allowed us to find exposure points or risk factors—such as shared study locations, social gatherings or areas within residence halls—where environmental infection controls could be strengthened. This became an iterative process of identifying opportunities for engagement through potential or discovered surges, delivering community prevention education and collaborating with public health entities to ensure coordinated efforts.[24]

Local communities surrounding universities also benefitted from the early and ongoing engagement of family physicians, especially where osteopathic medical schools were located. Lead family physicians were often called upon by public health entities to engage with specific communities, especially those with risk factors related to social determinants of health, to learn about specific challenges, provide education and risk mitigation interventions, improve safety, and enhance overall health. While university-based health centers across the nation vary in scope, size, service population and resources, re-opening of institutions of higher education has required organizational commitment to these key mitigation and treatment strategies, including early detection, testing, vaccination, contact tracing, and isolation and quarantine procedures.[25] In our experience, osteopathic family physicians, together with interprofessional colleagues within primary care and public health, continue to discover creative solutions to providing this level of service given the challenges to scope, services and resources within community and university-based settings.

The COVID-19 pandemic tested our societal and organizational systems and connections, and yet as we collectively process our experiences in the primary care system, public health sector and social community, we must continue our future work in an integrated way, capitalizing on our shared success. The osteopathic oath itself calls us to "be ever vigilant in aiding in the general welfare of the community" in addition to "preserv[ing] the health and the life of [our] patients," and to "work in accord with… colleagues in a spirit of progressive cooperation."[26] As osteopathic family physicians, we have the opportunity to build bridges and take responsibility for creating these connections.

In practice, it often can be difficult to identify whose responsibility it should be to initiate these synergies, but our experience from the COVID-19 pandemic teaches us that these first steps can come from any of these three stakeholders: primary care, public health and the social community. Successful strategies exist at multiple levels, from the perspective of the individual physician to the scope of the organization or health system to facilitate these connections (Table 1). While these strategies do take time and initial investment in energy and buy-in, our experience has demonstrated that successful partnerships can lead to a decrease in wasted time and effort, enhanced efficiency and improved care for patients overall.

As the emergency preparedness adage says, "Disaster is the wrong time to exchange business cards."[27] Despite the demands on our time and energy, and in the face of increased levels of burnout and mental health concerns in our profession, we encourage colleagues to consider these approaches as opportunities to share and expand upon the successes that emerged during the pandemic.

TABLE 1:

Strategies at the level of the individual physician, the physician practice and the organization or health system that would create synergy between primary care, public health and social assets

FOR THE PHYSICIAN	Connect with your local public health department outside of times of crisis, looking for low-stakes opportunities to work on shared projects or goals
	Reach out to public health organizations to coordinate care with patients around reportable infectious diseases
	Consider volunteering for a public health distribution event (eg, vaccine pop-ups)
	Consider serving on a committee or board of directors to create connections with leadership and influence protocols and infrastructure. If osteopathic physicians are not represented on committees or boards within your community, consider serving as a representative.
FOR THE PRACTICE	Facilitate connections between professionals in your office with similarly trained professionals within the public health system (eg, social worker, registered nurses, front desk staff)
	Create protocols for public health processes that decrease the necessity for lengthy calls and approvals (eg, testing, treatment, isolation, quarantine)
	Consider partnerships with organizations whose needs relate to key social determinants of health and connect to osteopathic philosophy (eg, group homes, nursing homes, integrated mental health centers) to assist with decision-making at the intersection of clinical medicine and public health (eg, testing, quarantine, isolation protocols for shared residential spaces and related staff members)
FOR THE ORGANIZATION OR HEALTH SYSTEM	Develop models to share staff, cross-train or jointly deploy resources to higher need areas during surges in activity
	Explore models for shared savings or payment incentives for shared partnerships and programs

CONCLUSION

The continued COVID-19 pandemic reinforces the importance of appropriate systems within primary care, demonstrated the necessity of infrastructure for public health, and reveals the impact of health disparities related to social determinants of health. As osteopathic family physicians, we are existing through an incredibly challenging time that has required adjustment, flexibility, and continual adaptation to the ever-changing landscape in healthcare and public health.[28] As we evaluate the successes and lessons learned from these experiences, may we celebrate the ways in which we served our communities and heed the newfound opportunities to continue to serve, develop and improve ourselves, our patients and our communities.

AUTHOR DISCLOSURES: No relevant financial affiliations or conflicts of interest. The authors did not use any personal details or images of patients or research subjects. This work was not supported by any outside funding.

ACKNOWLEDGEMENTS: The authors thank Lisa M. Price, MSLIS, Research Support Librarian, RowanSOM Health Sciences Library for manuscript editorial review.

REFERENCES

1. Cash-Gibson L; World Health Organization. Technical series on primary health care: Integrating health services. https://www.who.int/docs/default-source/primary-health-care-conference/linkages.pdf. Published October 2018. Accessed November 10, 2021.

2. Basu S, Berkowitz SA, Phillips RL, Bitton A, Landon BE, Phillips RS. Association of primary care physician supply with population mortality in the United States, 2005–2015. *JAMA Intern Med*. 2019;179(4):506–514. doi:10.1001/jamainternmed.2018.7624

3. Jabbarpour Y, Jetty A, Westfall JM, Greiner A; Primary Care Collaborative. Primary care and COVID-19: It's complicated—leveraging primary care, public health, and social assets. https://www.pcpcc.org/sites/default/files/resources/PCC_Primary_Care_COVID-19_Its_Complicated.pdf. Published October 2021. Accessed November 10, 2021.

4. Organisation for Economic Co-operation and Development. Strengthening the frontline: How primary health care helps health systems adapt during the COVID 19 pandemic. https://read.oecd-ilibrary.org/view/?ref=1060_1060243-snyxeld1ii&title=Strengthening-the-frontline-How-primary-health-care-helps-health-systems-adapt-during-the-COVID-19-pandemic&_ga=2.96832031.186426067.1637170388-2022271645.1637170388. Published February 10, 2021. Accessed November 17, 2021.

5. Primary Care Collaborative. Primary care & COVID-19: Round 25 survey. https://www.pcpcc.org/2021/02/01/primary-care-covid-19-round-25-survey. Published February 10, 2021. Accessed November 17, 2021.

6. Primary Care Collaborative. Primary care & COVID-19: Round 27 survey. https://www.pcpcc.org/2021/03/22/primary-care-covid-19-round-27-survey. Published March 29, 2021. Accessed November 17, 2021.

7. Abraham K, Novinson D. Even if the COVID-19 pandemic were nearing its end, most clinicians say prepare for another one. Op-Med: Voices from the Doximity Network. https://www.doximity.com/articles/ab19d048-d2a1-48a1-960f-7c7048dc2a93. Published November 8, 2021. Accessed November 11, 2021.

8. Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases, Division of Healthcare Quality Promotion. Guide to infection prevention in outpatient settings: Minimum expectations for safe care, version 2.3. https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf. Published September 2016. Accessed November 17, 2021.

9. Primary Care Collaborative. Primary care & COVID-19: Week 2 survey. https://www.pcpcc.org/2020/03/26/primary-care-covid-19-week-2-survey. Published March 26, 2020. Accessed November 17, 2021.

10. Primary Care Collaborative. Primary care & COVID-19: Week 4 survey. https://www.pcpcc.org/2020/04/08/primary-care-covid-19-week-4-survey. Published April 9, 2020. Accessed November 17, 2021.

11. Primary Care Collaborative. Primary care & COVID-19: Week 8 survey. https://www.pcpcc.org/2020/05/06/primary-care-covid-19-week-8-survey. Published May 6, 2020. Accessed November 17, 2021.

12. Primary Care Collaborative. Primary care & COVID-19: Week 11 survey. https://www.pcpcc.org/2020/05/26/primary-care-covid-19-week-11-surveys. Published May 27, 2020. Accessed November 17, 2021.

13. Primary Care Collaborative. Primary care & COVID-19: Week 12 survey. https://www.pcpcc.org/2020/06/03/primary-care-covid-19-week-12-survey. Published June 3, 2020. Accessed November 17, 2021.

14. Lefkowitz M. Cornell expands telehealth to 'meet students where they are'. Cornell Chronicle. https://news.cornell.edu/stories/2020/04/cornell-expands-telehealth-meet-students-where-they-are. Published April 16, 2020. Accessed November 17, 2021.

15. Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger J. Vaccine hesitancy: An overview. *Hum Vaccin Immunother*. 2013;9(8):1763–1773. doi:10.4161/hv.24657

16. Wilkinson E, Jetty A, Petterson S, Jabbarpour Y, Westfall JM. Primary care's historic role in vaccination and potential role in COVID-19 immunization programs. *Ann Fam Med*. 2021;19(4):351–355. doi:10.1370/afm.2679

17. Dean, J. Campus clinic eases student access to COVID-19 vaccine. Cornell Chronicle. https://news.cornell.edu/stories/2021/04/campus-clinic-eases-student-access-covid-19-vaccine. Published April 27, 2021. Accessed November 17, 2021.

18. Wynn A, Moore K. Integration of primary health care and public health during a public health emergency. *Am J Public Health*. 2012;102(11): e9–e12. doi:10.2105/AJPH.2012.300957

19. Institute of Medicine, National Academy of Sciences. Primary care and public health: Exploring integration to improve population health. https://www.nap.edu/read/13381/chapter/1. Published 2012. Accessed November 17, 2021.

20. American Academy of Family Physicians. Integration of primary care and public health (Position paper). https://www.aafp.org/about/policies/all/integration-primary-care.html. 2015 COD, December 2020 BOD. Accessed November 10, 2021.

21. Centers for Disease Control and Prevention. Public health and clinical care integration. https://www.cdc.gov/publichealthgateway/program/resources/public.html. Reviewed November 9, 2015. Accessed November 10, 2021.

22. Kinder K, Bazemore A, Taylor M, *et al*. Integrating primary care and public health to enhance response to a pandemic [Online]. Cambridge University Press; June 10, 2021. https://www.cambridge.org/core/journals/primary-health-care-research-and-development/article/integrating-primary-care-and-public-health-to-enhance-response-to-a-pandemic/EB28DE52ADDFDB7107A71C38A2D65763. Accessed November 10, 2021.

23. Ramanujan M. Community effort propels Cornell past millionth test. Cornell Chronicle. https://news.cornell.edu/stories/2021/04/community-effort-propels-cornell-past-millionth-test. Published April 30, 2021. Accessed November 17, 2021.

24. Lefkowitz, M. 'Adaptive testing' quickly IDs infections within social circles. Cornell Chronicle, September 3, 2020. https://news.cornell.edu/stories/2020/09/adaptive-testing-quickly-ids-infections-within-social-circles.

25. Updated COVID-19 Considerations for Institutions of Higher Education. American College Health Association. December 6, 2021. Accessed March 22, 2022.

26. American Osteopathic Association. Oath affirms dedication to osteopathic principles and practice. https://osteopathic.org/about/leadership/aoa-governance-documents/osteopathic-oath/. Adopted 1954. Accessed November 10, 2021.

27. Disaster is the wrong time to exchange business cards. New York Times Twitter. https://twitter.com/nytimes/status/1258125933191614465. Published May 6, 2020. Accessed November 17, 2021.

28. Corlette S, Berenson R, Wengle E, Lucia K, Thomas T. Impact of the COVID-19 pandemic on primary care practices. In: *U.S. Health Reform - Monitoring and Impact*. Robert Wood Johnson Foundation, Urban Institute. https://www.rwjf.org/en/library/research/2021/02/impact-of-the-covid-19-pandemic-on-primary-care-practices.html. Published February 3, 2021. Accessed November 17, 2021.