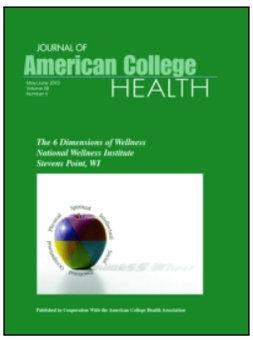

Journal of American College Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/vach20

Bringing student health and Well-Being onto a health system EHR: the benefits of integration in the COVID-19 era

J. Jeffery Reeves , Christopher A. Longhurst , Stacie J. San Miguel , Reina Juarez , Joseph Behymer , Kevin M. Ramotar , Patricia Maysent , Angela L. Scioscia & Marlene Millen

To cite this article: J. Jeffery Reeves , Christopher A. Longhurst , Stacie J. San Miguel , Reina Juarez , Joseph Behymer , Kevin M. Ramotar , Patricia Maysent , Angela L. Scioscia & Marlene Millen (2020): Bringing student health and Well-Being onto a health system EHR: the benefits of integration in the COVID-19 era, Journal of American College Health, DOI: 10.1080/07448481.2020.1843468

To link to this article: https://doi.org/10.1080/07448481.2020.1843468

Published online: 12 Nov 2020.

JOURNAL OF AMERICAN COLLEGE HEALTH
https://doi.org/10.1080/07448481.2020.1843468

Taylor & Francis
Taylor & Francis Group

CASE REPORT

OPEN ACCESS Check for updates

Bringing student health and Well-Being onto a health system EHR: the benefits of integration in the COVID-19 era

J. Jeffery Reeves, MD[a], Christopher A. Longhurst, MD, MS[b], Stacie J. San Miguel, MD[c], Reina Juarez, PhD[d], Joseph Behymer, MD[c], Kevin M. Ramotar, PsyD[d], Patricia Maysent, MPH, MBA[e], Angela L. Scioscia, MD[f], and Marlene Millen, MD[b]

[a]Department of Surgery, University of California, San Diego, La Jolla, California, USA; [b]Department of Medicine, Division of Biomedical Informatics, University of California, San Diego, La Jolla, California, USA; [c]Student Health Services, University of California, San Diego, La Jolla, California, USA; [d]Counseling and Psychological Services, University of California, San Diego, La Jolla, California, USA; [e]University of California, San Diego Health, Office of the CEO, La Jolla, California, USA; [f]Student Health and Well-Being, University of California, San Diego, La Jolla, California, USA

ABSTRACT

Objective: To detail the implementation, benefits and challenges of onboarding campus-based health services onto a health system's electronic health record.

Participants: UC San Diego Student Health and Well-Being offers medical services to over 39,000 students. UC San Diego Health is an academic medical center.

Methods: 20 workstreams and 9 electronic modules, systems, or interfaces were converted to new electronic systems.

Results: 36,023 student-patient medical records were created. EHR-integration increased security while creating visibility to 19,700 shared patient visits and records from 236 health systems across the country over 6 months. Benefits for the COVID-19 response included access to screening tools, decision support, telehealth, patient alerting system, reporting and analytics, COVID-19 dashboard, and increased testing capabilities.

Conclusion: Integration of an interoperable EHR between neighboring campus-based health services and an affiliated academic medical center can streamline case management, improve quality and safety, and increase access to valuable health resources in times of need. Pertinent examples during the COVID-19 pandemic included uninterrupted and safe provision of clinical services through access to existing telehealth platforms and increased testing capacity.

ARTICLE HISTORY
Received 6 July 2020
Revised 8 September 2020
Accepted 18 October 2020

KEYWORDS
Clinical informatics; electronic health record; data-sharing; student health; telehealth

Introduction

Across the United States (US), there are 154 accredited academic medical schools, 637 health systems, and 5,198 unique community hospitals.[1–3] There are also approximately 1,500 university or college campus-based student health and counseling services (CHS) that typically function outside the scope of neighboring healthcare organizations.[4,5] CHS provide over 21 million US college and university students with a wide range of medical and mental health services, including primary, preventative, specialty, and urgent health care.[5,6] Operating in an information silo creates challenges for continuity and coordination of care for student-patients who are shared not only with local health systems, but also with care providers across the country and the world.[7,8] The patient data disconnect between many CHS and local medical centers can delay meaningful data sharing, provider referral and communication, and disrupt care.[9]

CHS utilize a variety of electronic health record (EHR) systems with a range of reported user satisfaction.[10] Many modern EHRs are interoperable – able to exchange and make use of information with other electronic systems. Interoperability and the resultant integration of systems and data among healthcare organizations offers the potential for improved continuity of care and significant benefit to the student-patient.[11] Improving access to and communication with specialty mental health care providers is of particular importance among college students.[12] The COVID-19 pandemic has further emphasized the importance of having timely access to local healthcare resources and valuable patient information across the continuum of care, including existing telehealth platforms, lab and imaging results, and provider notes across multiple geographic locations.[13] However, technical and logistical barriers, privacy concerns, and strict federal regulations contribute to a perception that sharing a health system EHR is a complex and daunting task for CHS to undertake.

On August 19, 2019, the University of California, San Diego's (UCSD) Student Health and Well-Being (SHW), which includes Student Health Services (SHS), Counseling

CONTACT Marlene Millen mmillen@health.ucsd.edu University of California, San Diego, 9300 Campus Point Drive, MC7400 La Jolla, CA, 92037-7400 USA

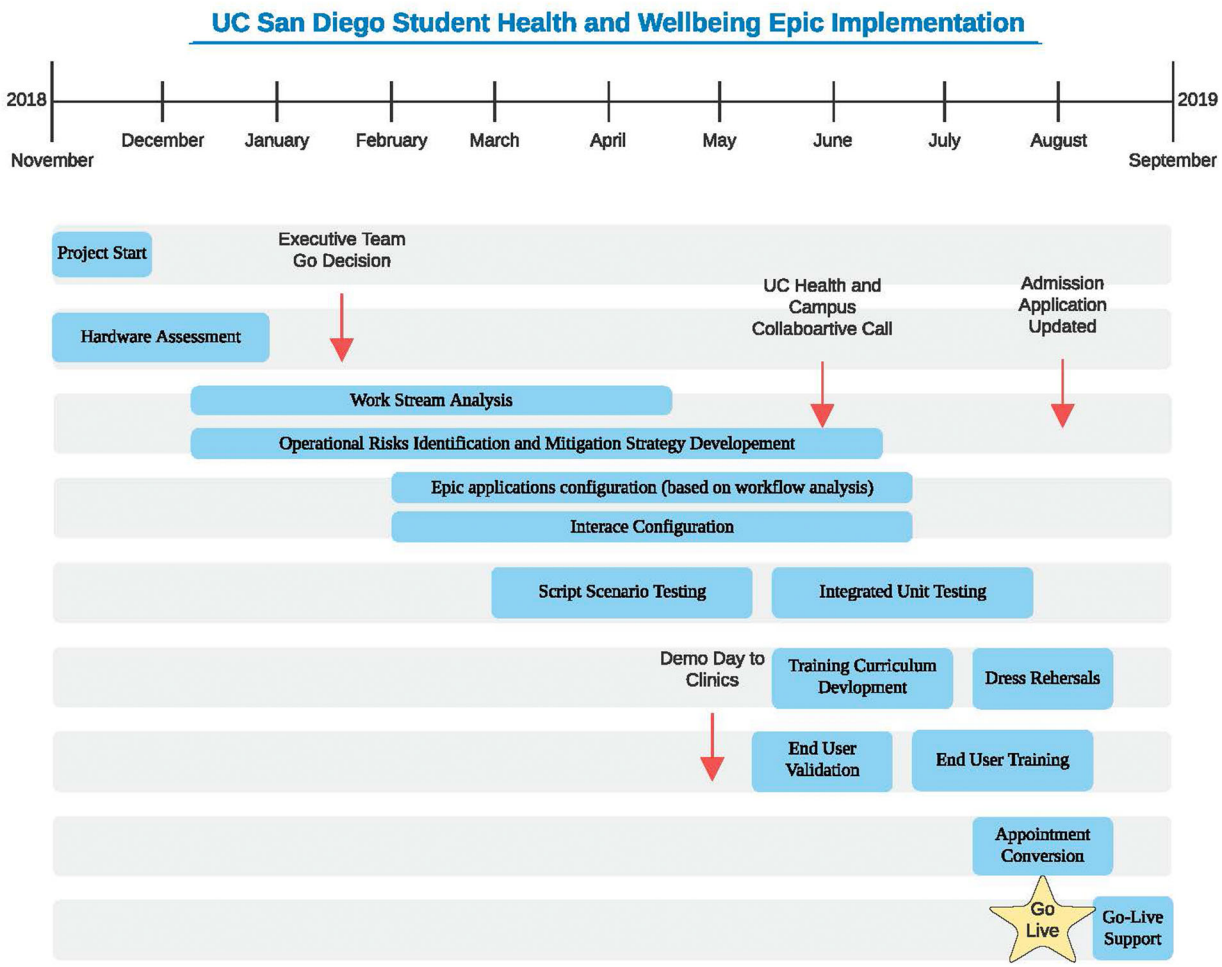

Figure 1. This graphic outlines the implementation timeline for the Epic Implementation within the UC San Diego Student Health and Well-Being Center. Abbreviations: UC – University of California.

and Psychological Services (CAPS), and Health Promotion Services became the first CHS in California, and among the first in the nation, to share an integrated and interoperable EHR with its affiliated health system, UC San Diego Health (UCSDH).[14] This transition was made to improve access to the valuable resources of the academic medical center, enhance care management, and increase the availability of medical records for the student-patient and their providers. The objective of this article is to describe the implementation of this integrated and interoperable EHR, report the impact on data sharing and associated outcomes, outline the value of this strategy in response to the COVID-19 pandemic, and relay the challenges other CHS and health systems might face when considering a similar transition.

Methods – implementation

Population and setting

UCSDH is a large regional academic health system which includes two acute care hospitals, multiple ambulatory primary and specialty medical, surgical and psychiatric care clinics, and emergency patient care. UCSDH utilizes the Epic systems EHR (Verona, WI) and hosts two sister campuses in UC Irvine and UC Riverside as well as over 300 affiliate physicians across 10 medical groups on the same EHR instance. The neighboring UCSD Student Health and Well-Being (SHW) offers campus-based health services to over 39,000 enrolled students and an annual volume of approximately 85,000 visits including primary, preventative and urgent medical care, behavioral and mental health care, optometry, vaccinations, travel clinic, radiology, as well as laboratory and pharmacy services. SHW previously utilized the Point and Click Solutions EHR (Burlington, MA).

EHR integration

The transition of SHW onto the UCSDH instance of the Epic EHR was executed with standard project management principles including thorough scoping, analysis, development/configuration, implementation and post-go-live support. The project occurred over the course of 10 months from November 2018 to August 2019 (Figure 1). An executive committee was formed comprised of administrative, clinical, and health information services leaders that oversaw steering committees charged with clinical, analytic, and technical implementations. Twenty unique workstreams were identified and nine existing electronic modules, systems, or interfaces required conversion to new electronic systems Table 1.

Table 1. Electronic systems requiring conversion for an integrated and interoperable EHR.

Legacy System	New System
Point and Click EHR	Epic Systems EHR
Radiology (PNC)	Radiant (Epic)
- Read by TeleRadiology	*- Read by UCSDH Radiologists*
Viztek PACS	Agfa IMPAX
Optometry (PNC)	Kaleidoscope (Epic)
ProPharm	Willow Ambulatory Module (Epic)
Dragon Voice Recognition	mModal Voice Recognition (Epic-integrated)
Interfaces	
Lab Interface - Orchard Harvest & Quest (existing)	
Lab Interface - UCSDH Lab (new - Covid-19 to Soft)	
Penn State CCAPS Questionnaire - P:2	
Additional System Changes	
Registrar and Bursar Interfaces manual upload transitioned to automatic data upload	
EHR-based eCheck-In with alert to provider without registration staff	
Online student-patient portal enrollment with single-sign-on	
Immunization module for student self-report immunizations	
Integration with mobile devices to enable TeleHealth video visits	

SHS/CAPS = Student Health Services/Counseling and Psychological Services; UCSDH = University of California, San Diego Health; EHR = Electronic Heath Record; PNC = Point and Click Solutions; PACS = Picture archiving and communication system; IMPAX = Afga Healthcare's integrate Radiology Information System/Picture archiving and communication system.

Protecting Student-Patient privacy

Sharing protected health information (PHI) between healthcare organizations is a complex process that becomes even more challenging for the student-patient. Considered educational records, student PHI is regulated by both the Family Educational Rights and Privacy Act (FERPA) of 1974 and the Healthcare Insurance Portability and Accountability Act (HIPAA) of 1996. HIPPA privacy rules restrict allowable use and disclosure of PHI but allow sharing between healthcare providers if directly related to patient care.[15] However, FERPA limits the sharing of information even between healthcare providers unless expressed written consent is obtained.[16] These well intentioned and important privacy regulations unfortunately contribute to the information silo seen within CHS across the country.[17] To protect privacy while enabling data-sharing, health and campus information services partnered to configure the EHR with an opt-in security class following the well-established HIPPA-compliant practices of UCSDH.

Implementation strategies

Important strategies included thorough in-depth analyses of existing clinical workflows with gap analyses, individualized approaches for each unique workstream, and assignment of clinical leads. In parallel with the configuration of the EHR, ongoing provider/staff change management was essential. Early demonstrations for each unique workstream were utilized for creation of a team environment, identification of issues, and rapid mitigation. During the initial go-live, a command center with technical ground support and a virtual help desk was established at Student Health Services with outreach to the various Counseling and Psychological Services clinics located throughout the campus. Following go-live, ongoing education and tutorial videos were made available, and executive oversight continued.

Results

During the EHR-integration between UCSDH and SHW, 36,023 student-patient medical records were created. Two weeks following the go-live date, 1,194 out of 1,230 (97%) student-patient encounters were successfully completed and closed and 971 student prescriptions were processed, indicating functionality and timely end-user usability. As of June 1, 2020, 19,509 students had enrolled in the online patient portal. The time from completed radiology exam to final read decreased from mean time of 98 minutes pre-integration to 27 minutes post-integration (Figure 2). Six months following EHR integration, SHW student patients were seen 19,700 times at various healthcare organizations across the region Table 2.

Discussion – benefits of an integrated and interoperable EHR

The current report is to our knowledge the first description of integrating a CHS EHR system within a neighboring academic medical center's interoperable EHR. In the following discussion, we detail the many benefits this integration offered our patient population.

Sharing meaningful data and improving care continuum

CHS provide the most commonly needed healthcare services for college students and facilitate referral to outside health providers for specialty care.[12,18] However, care transitions between community healthcare organizations and CHS can be disjointed, referrals delayed, and valuable medical records lost or unseen.[19,20] Local emergency departments frequently have no access to student-patient medical histories significantly hindering acute care. Given the wide prevalence of Epic's EHR, which serves > 50% of the US population, onboarding student-patients to an existing network of healthcare organizations resulted in immediate connections between medical centers in the region and 262 health

systems across the country (Figure 3).[21] Bidirectional sharing of medical records with outside ambulatory clinics, emergency departments, urgent cares, or acute care hospitals helped to alleviate our information silo. Over the course of 6 months, 248,241 unique documents were shared (Table 3). Data-sharing enabled timely review of medical history in the acute care setting and allowed high-quality post-acute or specialty referral follow-up. Access to prior mental health records and the ability to confirm transitions of care was particularly useful for out-of-state students. The new visibility of this large volume of shared information simplified case management and enhanced the quality and safety of shared patient care.

Impact on response to COVID-19 pandemic

In what proved to be a well-timed project, the integration offered additional health resources to a campus striving to maintain a safe environment in the era of COVID-19. There were significant benefits of sharing an EHR with a major health system including access to newly designed screening tools, continuously updated clinical decision support, enhanced telehealth, an automated patient alerting system, improved reporting and analytics, the UCSDH COVID-19 dashboard, and substantially increased testing capabilities.[13]

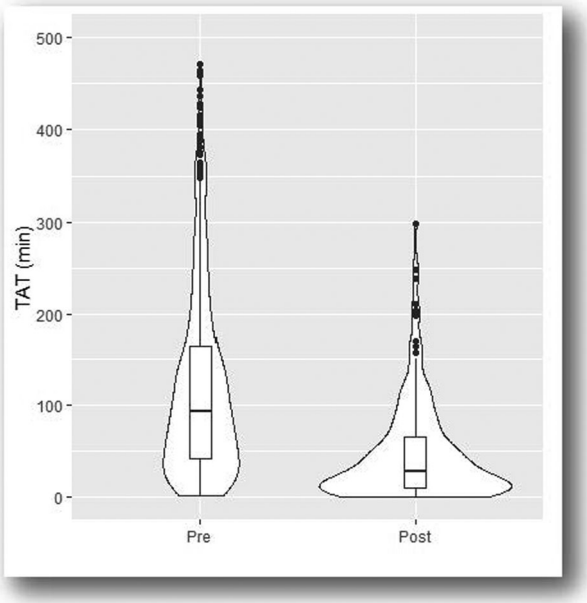

Figure 2. This graphic demonstrates the mean and maximum turnaround times from radiology imaging order to final result before and after electronic health record integration.

Enabling telehealth video visits

Telehealth, including telephonic and video visits, has been one of the most rapidly adopted medical trends in modern history, offering the ability to continue necessary patient care while limiting the risk of exposure to both patients and providers.[22] Because of COVID-19, UCSD transitioned to remote learning for spring quarter 2020 sending many students off-campus. For SHW, the EHR integration made the transition to virtual care relatively seamless and essentially immediate. As fewer in-person visits were being conducted, providers were able to leverage UCSDH's existing platform, compliance and billing structure and technical support staff to rapidly transition patient encounters to telehealth, and in particular video visits with no downtime in services (Figure 4.) Telehealth platforms were available for both Student Health Services (SHS) and Counseling and Psychological Services (CAPS), however usage rates varied between the two services. The mean telehealth percentage for the month of April for SHS was 29.4% while the mean for CAPS was 68.4%. Notably, the telehealth video visit ability enabled the uninterrupted provision of mental health services during an unprecedented health crisis for a student-patient population faced with increased stressors.[23]

Testing and the "return to learn" program

The COVID-19 pandemic and physical distancing requirements drastically altered the campus landscape for institutions of higher education which were designed to bring people from all around the globe closer together. In order to return students to campus and resume in-person activities while maintaining a safe environment, institutions must have widespread testing capabilities, contact tracing, and systems that enable isolation/quarantine of ill and exposed individuals.[24] With the SHS integrated in the health system EHR, UCSD was uniquely well positioned to meet these requirements and ensure appropriate medical follow-up. On May 11, 2020 UCSD launched the *Return to Learn* Program, an evidence-based testing and tracing initiative that aims to broadly test on campus students, faculty, and staff for coronavirus (SARS-CoV-2) on a recurring basis.[25] The program is intended to better position UCSD to resume in-person activities in fall 2020.

Table 2. Shared student-patient care across San Diego region following EHR integration.

	Volume of Shared Student-Patient Visits										
Community Healthcare Organizations	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
UCSDH Facilities											
UCSD Medical Center - Hillcrest Campus	4	21	13	17	15	12	10	18	10	6	**126**
UCSD Medical Center - La Jolla Campus	84	108	177	185	119	158	168	147	48	64	**1,258**
Grand Total	**88**	**129**	**190**	**202**	**134**	**170**	**178**	**165**	**58**	**70**	**1384**
Health Facilities in San Diego Region											
Non UCSDH-Affiliated Medical Clinics	711	1545	2195	2060	1523	2334	2281	1925	1327	1451	**17,352**
UCSDH-Affiliated Medical Clinics	36	89	138	111	71	121	109	112	84	93	**964**
Grand Total	**747**	**1634**	**2333**	**2171**	**1594**	**2455**	**2390**	**2037**	**1411**	**1544**	**19,700**

UCSDH = University of California, San Diego; UCSDH = University of California, San Diego Health

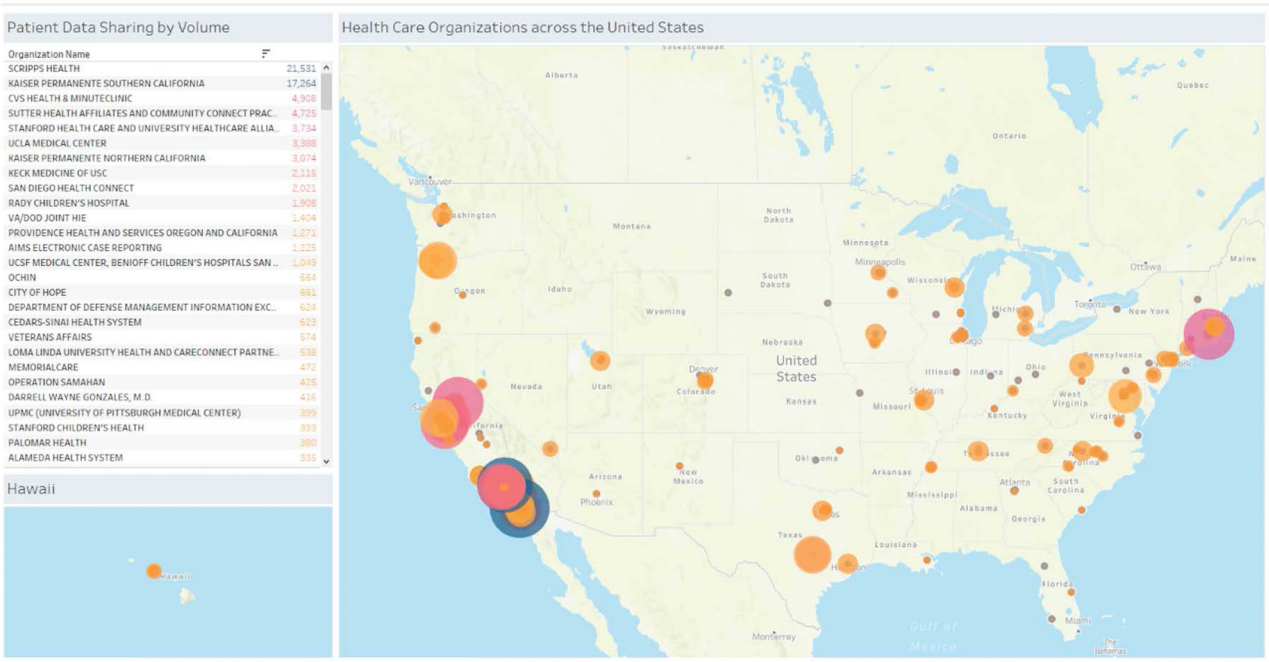

Figure 3. This graphic displays the geographic location and relative volume of healthcare organizations across the United States from which University of California, San Diego Student Health and Well-Being received medical records following the integration with the interoperable electronic health record shared with University of California, San Diego Health. Each bubble represents a unique healthcare organization and the size of the bubble represents the relative volume of documents that were shared.

Table 3. Data sharing September 2019 to May 2020.

Top 15 Most Common Shared Health Systems (Information Outgoing)	Unique Documents Sent
SCRIPPS HEALTH	21,688
KAISER PERMANENTE SOUTHERN CALIFORNIA	17,232
UC HEALTH (SAN DIEGO / IRVINE / RIVERSIDE) AND AFFILIATES	8,247
CVS HEALTH & MINUTECLINIC	4,723
SUTTER HEALTH AFFILIATES AND COMMUNITY CONNECT PRACTICES	4,521
STANFORD HEALTH CARE AND UNIVERSITY HEALTHCARE ALLIANCE	3,659
UCLA MEDICAL CENTER	3,468
KAISER PERMANENTE NORTHERN CALIFORNIA	3,087
KECK MEDICINE OF USC	2,226
SAN DIEGO HEALTH CONNECT	1,998
RADY CHILDREN'S HOSPITAL	1,775
PROVIDENCE HEALTH AND SERVICES OREGON AND CALIFORNIA	1,423
UCSF MEDICAL CENTER, BENIOFF CHILDREN'S HOSPITALS SAN FRANCISCO / OAKLAND, AND AFFILIATED PRACTICES	1,149
AIMS ELECTRONIC CASE REPORTING	1,094
OCHIN	685
Total Health Systems (n= 262)	**93,611**
Top 15 Most Common Shared Health Systems (Information Incoming)	**Unique Documents Received**
SCRIPPS HEALTH	33,567
KAISER PERMANENTE SOUTHERN CALIFORNIA	21,788
RADY CHILDREN'S HOSPITAL	14,742
CVS HEALTH & MINUTECLINIC	12,848
UCLA MEDICAL CENTER	7,387
SUTTER HEALTH AFFILIATES AND COMMUNITY CONNECT PRACTICES	7,337
KAISER PERMANENTE NORTHERN CALIFORNIA	6,063
PROVIDENCE HEALTH AND SERVICES OREGON AND CALIFORNIA	6,036
STANFORD HEALTH CARE AND UNIVERSITY HEALTHCARE ALLIANCE	4,464
UCSF MEDICAL CENTER, BENIOFF CHILDREN'S HOSPITALS SAN FRANCISCO / OAKLAND, AND AFFILIATED PRACTICES	3,851
CEDARS-SINAI HEALTH SYSTEM	3,815
MEMORIALCARE	3,420
STANFORD CHILDREN'S HEALTH	2,870
LOMA LINDA UNIVERSITY HEALTH AND CARECONNECT PARTNERS	2,078
OCHIN	1,584
Total Health Systems (n = 231)	**154,630**

Students living on campus during the summer quarter completed voluntary, self-administered COVID-19 tests facilitated by SHW and UCSDH. Through the pilot phase of Return to Learn 1,483 students successfully self-tested over three weeks, demonstrating the feasibility of this approach to large scale SARS-CoV-2 screening. Because all student

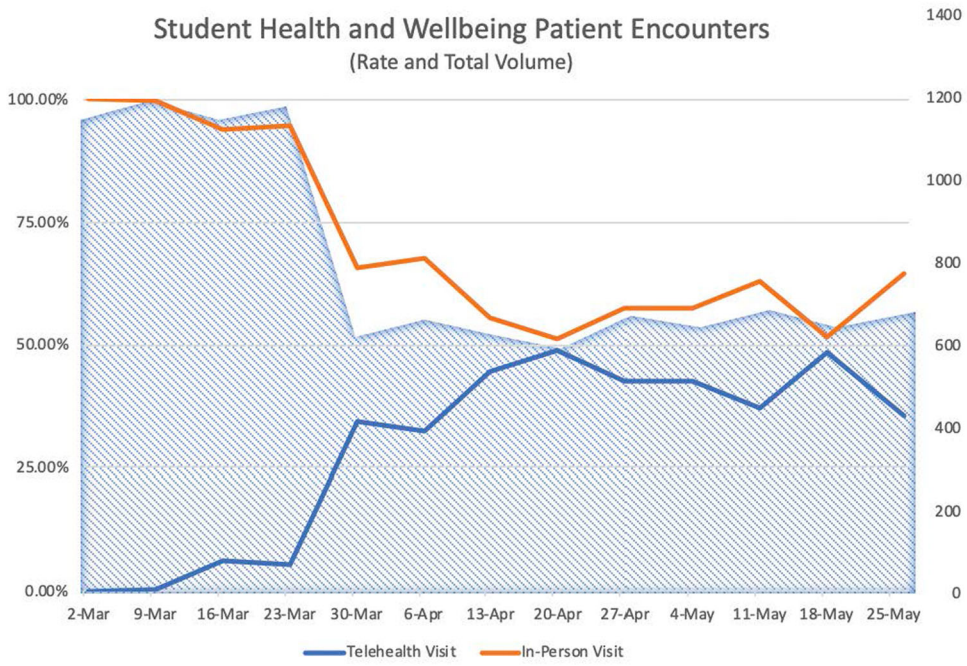

Figure 4. This graphic depicts the volume and rate of in-person versus telehealth visits during the COVID-19 pandemic. The shadow in the background shows the overall visit volume. The orange line represents the percentage of encounters conducted in person, while the blue line represents the percentage of encounters conducted via telehealth video visits or telephone encounters.

records were already in the integrated EHR, it was straightforward to develop a registry of students and place bulk orders for the tests. Tests were sent to UCSDH labs for processing, and results post directly to the online patient care portal for immediate access by providers and the student-patient. Guidance on the implications for both negative and positive results was made available in advance to the students. Structured data in the integrated EHR is also available for large-scale analysis and automated public health reporting. UCSD continues to monitor the evolving COVID-19 situation and will leverage the lessons learned from the Return to Learn pilot to consider expansion to periodic testing for the roughly 65,000 students, faculty, and staff within our campus community. Testing of this scale is facilitated by the integration with health system and single EHR.

Challenges/limitations

There were many challenges faced during implementation; most were related to the inevitable logistical and technical issues involved in introducing a new EHR to a large, complex medical center and have been detailed elsewhere.[26] Challenges specific to integrating a CHS within a regional health system's EHR included identification of existing student-patient health system medical records, blocking and sharing PHI in varying EHR contexts based on medical necessity, integrating/uploading immunizations, and protecting student-patient privacy. Individual student-patient permission was necessary in order to utilize identifiers (i.e. social security numbers) to find existing records and thus prevent duplication. Permission was also required in order to share medical records with other institutions. Early collaboration and knowledge transfer between health and campus experts in data privacy were essential mitigation strategies that enabled a manageable and successful implementation in a highly regulated environment. For example, working with the University of California Office of the President, a disclosure on the admissions application was updated to include creation or maintenance of a health record as specific uses for a social security number (the disclosure can be viewed online through this hyperlink https://ucsd.edu/catalog/front/ferpa.html).

There are several limitations to this brief case report. UCSD SHW and UCSDH are financially separate but are both part of the same UC system. As such, application to other institutions of higher education who may not have as robust a relationship with an academic medical center may be more difficult. In addition, we have only highlighted process outcomes in this report; medical outcomes were not assessed. Future research is needed to further understand the impact on health outcomes; for example, examining whether increased patient-data connectedness between mental health providers has an impact on Patient Health Questionnaire scores for depressive and anxiety disorders.

Conclusions

Integration of an interoperable EHR between neighboring campus-based health services and an academic medical center is associated with many benefits to student-patients and their providers. Leveraging existing health technology can enrich connectivity between two health systems, streamline clinical care, provide enhanced privacy and security, and improve access to valuable health resources in times of need. Pertinent examples during the COVID-19 pandemic included uninterrupted and

safe provision of clinical services through access to existing telehealth platforms and increased testing capacity.

Acknowledgments

The authors gratefully acknowledge the help and support of IS project leaders Florgin Dela Luna, Dean Pham, Magaly Quintero, and Anita Wilson for assistance in implementing this project, and data analysts Allison Marsh and Calvin Fong and Dr. Paul Murphy for assistance with production of tables and figures. We appreciate the work of our predecessors and colleagues at the university health systems of Cincinnati, Duke, Johns Hopkins, and Nebraska who graciously shared with us their experiences with a similar integration at the onset of this project. We also gratefully remember the leadership of Karen Calfas, who was an inspiration to us all.

Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of United States of America and received approval from the University of California, San Diego institutional review board.

Funding

No funding was used to support this research and/or the preparation of the manuscript.

ORCID

J. Jeffery Reeves http://orcid.org/0000-0002-7438-2625

References

1. Association of American Medical Colleges. AAMC Medical School Members. https://members.aamc.org/eweb/DynamicPage.aspx?site=AAMC&webcode=AAMCOrgSearchResult&orgtype=Medical.School. Published 2020. Accessed June 1, 2020.
2. American Hospital Association. Fast Facts on U.S. Hospitals, 2020. AHA Hosp Stastistics. 2020 Ed. 2020: 1–3.
3. Michael F, Laura K, Jones, David J, Machta, Rachel M, Jing G. Rich E. Consolidation And Health Systems in 2018: New Data From the AHRQ Compendium. *Heal Aff Blog*. 2019. doi:https://www.healthaffairs.org/do/10.1377/hblog20191122.345861/full.
4. American College Health Association. The history of the ACHA. http://www.acha.org/ACHA/About/History/ACHA/About/History.aspx?hkey=9937c765-d1b4-4e68-9eac-76ed2b8f0864. Published 2020. Accessed May 28, 2020.
5. Turner JC, Keller A. College health surveillance network: Epidemiology and health care utilization of college students at us 4-year universities. *J Am Coll Heal*. 2015;63(8):530–538. doi:10.1080/07448481.2015.1055567.
6. National Center for Educational Statistics, US Department of Education I of ES. Table 301.10: enrollment, staff, and degrees/certificates conferred in degree-granting and non-degree-granting postsecondary institutions, by control and level of institution, sex of student, type of staff, and level of degree: Fall 2017 and 2016-2017. *Dig Educ Stat*. 2018; https://nces.ed.gov/programs/digest/d18/tables/dt18_301.10.asp?current=yes.
7. Perrault EK. Campus Health Centers' lack of information regarding providers: a content analysis of division-i campus health centers' provider websites. *Health Commun*. 2018;33(7):860–866. doi:10.1080/10410236.2017.1316635.
8. Salari S, Klapman S, Fry B, Hamel S. Interprofessional education: in silo, ineffective. *Med Sci Educ*. 2017;27:831–833. doi:10.1007/s40670-017-0471-8.
9. Hinman AR, Davidson AJ. Linking children's health information systems: Clinical care, public health, emergency medical systems, and schools. *Pediatrics*. 2009;123(Supplement 2):S67–S73. doi:10.1542/peds.2008-1755D
10. Frisina PG, Munene EN, Finnie J, et al. Analysis of end-user satisfaction with electronic health records in college/university healthcare. *J Am Coll Heal*. 2020;0(0):1–7. doi:10.1080/07448481.2020.1762610.
11. Downing NL, Adler-Milstein J, Palma JP, et al. Health information exchange policies of 11 diverse health systems and the associated impact on volume of exchange. *J Am Med Informatics Assoc*. 2017;24(1):113–122. doi:10.1093/jamia/ocw063.
12. Mowbray CT, Megivern D, Mandiberg JM, et al. Campus mental health services: Recommendations for change. *Am J Orthopsychiatry*. 2006;76(2):226–237. doi:10.1037/0002-9432.76.2.226.
13. Reeves JJ, Hollandsworth HM, Torriani FJ, et al. Rapid Response to COVID-19: Health Informatics Support for Outbreak Management in an Academic Health System. *J Am Med Inform Assoc*. 2020;27(6):853–859.doi:10.1093/jamia/ocaa037.
14. Drees J. UC San Diego transfers student health services data to UCSD Health EHR. *Becker's Health IT*. https://www.beckershospitalreview.com/ehrs/uc-san-diego-transfers-student-health-services-data-to-ucsd-health-ehr.html. Published August 20, 2019.
15. Cohen IG, Mello MM. HIPAA and protecting health information in the 21st Century. *JAMA - J Am Med Assoc*. 2018;320(3):231. doi:10.1001/jama.2018.5630
16. Office FPC. Family Educational Rights and Privacy Act (FERPA). U.S. Department of Education. https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html. Accessed June 1, 2020.
17. Health Information Privacy Beyond HIPAA: A 2018 Environmental Scan of Major Trends and Challenges. Committee on Vital and Health Statistics. https://www.ncvhs.hhs.gov/wp-content/uploads/2018/02/NCVHS-Beyond-HIPAA_Report-Final-02-08-18.pdf. Accessed June 1, 2020.
18. Dorman JM, Christmas WA. *History and Practice ofCollege Health*. Chapter 5. Primary care issues in college health; 2002:104–117.
19. Lemly DC, Lawlor K, Scherer EA, Kelemen S, Weitzman ER. College health service capacity to support youth with chronic medical conditions. *Pediatrics*. 2014;134(5):885–891. doi:10.1542/peds.2014-1304
20. Slade M, Gask L, Leese M, et al. Failure to improve appropriateness of referrals to adult community mental health services-lessons from a multi-site cluster randomized controlled trial. *Fam Pract*. 2008;25(3):181–190. doi:10.1093/fampra/cmn025.
21. Koppel R, Lehmann CU. Implications of an emerging EHR monoculture for hospitals and healthcare systems. *J Am Med Informatics Assoc*. 2015; 22(2):465–471. doi:10.1136/amiajnl-2014-003023.
22. Mann DM, Chen J, Chunara R, Testa PA, Nov O. COVID-19 transforms health care through telemedicine: evidence from the field. *J Am Med Inform Assoc*. 2020;27(7):1132–1135. doi:10.1093/jamia/ocaa072.
23. Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Heal*. 2020;4(6):421. doi:10.1016/S2352-4642(20)30109-7.
24. American College Health Association. Considerations for Reopening Institutions of Higher Education in the COVID-19 Era. 2020. May 7. https://www.acha.org/documents/resources/guidelines/ACHA_Considerations_for_Reopening_IHEs_in_the_COVID-19_Era_May2020.pdf.
25. Buschmanm H, LaFee S. Introducing the UC San Diego return to learn program. UC San Diego New Center. May 5, 2020; Available at: https://health.ucsd.edu/news/releases/Pages/2020-05-05-introducing-uc-san-diego-return-to-learn-program.aspx. Accessed June 1, 2020.
26. Meyer GS, Britton O, Gross D. Seven challenges and seven solutions for large-scale EHR Implementations. *NEJM Catal*. 2018; 4(5).