



The Global Network for
Interprofessional Education and
Collaborative Practice Research

Interprofessional Education & Collaborative Practice (IPECP) in Post-COVID Healthcare Education and Practice Transformation Era Discussion Paper





Interprofessional Education and Collaborative Practice (IPECP) in Post-COVID Healthcare Education and Practice Transformation Era Discussion Paper

A Publication by the Global Network for Interprofessional Education and Collaborative Practice Research (InterprofessionalResearch.Global), in collaboration with the American Interprofessional Health Collaborative (AIHC) and the Canadian Interprofessional Health Collaborative (CIHC)

October 2022

Citation: Khalili, H., Park, V., Daulton, B., Langlois, S., Wetzlmair, L. C., MacMillan, K. M., El-Awaisi, A., Green, C., Ballard, J., Pandey, J. Konrad, S. C., Frost, J., Başer Kolcu, M. I., Kolcu, G., McCartan, C., Baugh, G., Gaboury, I., Breitbach, A., Brown, R., Pfeifle, A. (2022). Interprofessional Education and Collaborative Practice (IPECP) in Post-COVID Healthcare Education and Practice Transformation Era – Discussion Paper. Joint Publication by InterprofessionalResearch.Global, American Interprofessional Health Collaborative & Canadian Interprofessional Health Collaborative, **ISBN: 978-1-7366963-3-0**. Available at www.interprofessionalresearch.global



Prepared by:

IPR.Global Joint Publication Taskforce

Hossein Khalili (Chair), BScN, MScN, PhD, FNAP, President, IPR.Global; Director, University of Wisconsin Center for Interprofessional Practice and Education (UW CIPE), University of Wisconsin-Madison, USA. Adjunct Research Professor, Western University

Vikki Park PhD., PG Dip., PG Cert., BSc (Hons), RN, RNT, FHEA. Assistant Professor of Interprofessional Education & Collaborative Practice, IPE Faculty Lead, Northumbria University, United Kingdom; CAIPE National Board Member; IPR.Global Communication & Marketing Working Group Member

Brittany Daulton PhD, MS, Director of Evaluation, Interprofessional Practice and Education Center, Indiana University, Indianapolis, IN, USA.

Sylvia Langlois M Sc. Associate Director, Curriculum and Faculty Relations, Centre for Advancing Collaborative Healthcare and Education, and Associate Professor, Occupational Science and Occupational Therapy, Temerty Faculty of Medicine, University of Toronto

Lisa Wetzlmair, B.S.c., B.A., M.P.H, PhD Candidate, University of St Andrews, Scotland, UK

Kathleen M. MacMillan, B.Sc. in Pharmacy with Distinction, M.D. Candidate, Dalhousie University, Dalhousie Medicine New Brunswick, Canada.

Alla El-Awaisi, MPharm, MSc, PhD Director of Clinical Operations and Engagement and Chair of the Interprofessional Education Program, QU Health, Qatar University, Qatar.

Chris Green PhD SFHEA, Professor and Director of Education, School of Health and Social Care, University of Essex, UK

James Ballard, EdD, MS Associate Professor, Department of Family and Community Medicine and Director, Center for Interprofessional and Community Health Education. University of Kentucky.

Jyotsna Pandey, MD PhD, Professor, Central Michigan University College of Medicine, Mt. Pleasant, MI; Interprofessional education Champion, Course Director, Director Community-Based Healthy Aging program, Professor of Pathology

Shelley Cohen Konrad, Professor, University of New England, Portland, MA, USA; Director, Center for Excellence in Collaborative Education.

Jody Frost, PT, DPT, PhD, FAPTA, FNAP, Education Consultant and Facilitator, Immediate Past President, National Academies of Practice, USA

Mukadder Inci Başer Kolcu, DDS, PhD, Assistant Professor, University of Süleyman Demirel, School of Medicine, Department of Medical Education and Informatics, Turkey.

Giray Kolcu, MD, PhD, Süleyman Demirel University, Head of Medical Education and Informatics Department, Süleyman Demirel University Vice Director of Institute of Health Sciences Turkey.

Charlotte McCartan PhD(c), MN, BScN; Coordinator, Physician Learning Program, Faculty of Medicine & Dentistry, University of Alberta, Canada

Gina Baugh, PharmD, Professor, Clinical Track, West Virginia University School of Pharmacy, Director of Interprofessional Education, West Virginia University Health Sciences Center

Isabelle Gaboury, PhD, Professor, Department of Family medicine and emergency medicine, Faculty of medicine and health sciences, Université de Sherbrooke, Canada
Anthony Breitbach PhD, ATC, FASAHP, FNAP; Professor, Vice Dean, Doisy College of Health Sciences, Director-Athletic Training Program, Saint Louis University

Ryan Brown, MPH, MBA, PCP, FRSPH, Assistant Adjunct Professor, Department of Emergency Medicine, Faculty of Medicine, Dalhousie University; Professional Practice Leader, Nova Scotia Health; CIHC Board Member

Andrea L. Pfeifle, EdD PT FNAP, Associate Vice-Chancellor for IPECP, Ohio State University Wexner Medical Center, Clinical Professor of Family Medicine; President-Elect, National Academies of Practice

Edited by:

Hossein Khalili, BScN, MScN, PhD, FNAP, President, IPR.Global; Director, UW CIPE, University of Wisconsin- Madison, USA. Adjunct Research Professor, Western University

Anthony Breitbach PhD, ATC, FASAHP, FNAP; Professor, Vice Dean, Doisy College of Health Sciences, Director-Athletic Training Program, Saint Louis University

Ryan Brown MPH, MBA, PCP, FRSPH, Assistant Adjunct Professor, Department of Emergency Medicine, Faculty of Medicine, Dalhousie University; Professional Practice Leader, Nova Scotia Health; CIHC Board Member

Sponsored by:



**UW Center for Interprofessional
Practice and Education**
UNIVERSITY OF WISCONSIN-MADISON

Table of Content

• PREFACE	6
• EXECUTIVE SUMMARY	9
• INTRODUCTION	12
• SECTION 1: IPECP and Healthcare Education and Practice at a Cross Point	14
• <i>Overview: Systemic Response to Global Disruption</i>	15
• <i>Post-COVID Transformation in Healthcare Education and Practice and the Role of IPECP</i>	16
• <i>Healthcare Resilience</i>	19
• <i>Cross-Professional/Organization/Sector Collaboration and Partnership</i>	21
• <i>Misinformation and (public) health literacy</i>	23
• SECTION 2: From Momentum to a Movement: Ways to Integrate and Sustain IPECP in Healthcare Education and Practice	25
• <i>Overview: Leading through Adaptation and Evolvment</i>	26
• <i>In-Person and Virtual IPECP</i>	28
• <i>Digital Health and IPECP - Lessons Learned from COVID-19 Pandemic</i>	29
• <i>Simulation-Enhanced IPE</i>	32
• <i>Interprofessional Telehealth Training and Practice</i>	34
• CALL TO ACTION	36
• <i>Sustainability of Digital Technology in IPECP Beyond the Pandemic</i>	37
• <i>Forward Thinking and Adaptability</i>	37
• REFERENCES	39



Preface

Preface

In the past two years the world has experienced unprecedented devastation, disruption, and death due to the COVID-19 global Pandemic. At the same time, the Pandemic acts as a transformation catalyst that accelerated the implementation and adoption of long overdue changes in healthcare education and practice.

The Pandemic has become a reality test exposing the vulnerabilities of our health systems in absorbing and managing sudden and growing pressures on their workload. While at first countries responses to the crisis were mainly in isolation, the evolution and cross-border impact of the Pandemic required joint actions, coordination, and collaboration across professions, organizations, systems, nations, and globally, that proved to be essential in addressing such a global health and social crisis.

The coordinated and collaborative response efforts resulted in developing innovative and common solutions to COVID-19 Pandemic that has accelerated the movement towards new models of healthcare education and practice. The focus of these new educational pedagogies and healthcare delivery are on remote learning and care, collaborative education and practice, community and home-based services, and substantial technological advancement, which all could lead to improved quality, equity, and access. The utilization of remote care or telehealth services during the Pandemic has accelerated in large-scale patients screening, routine monitoring of patients at home, remote clinical encounters, and supervising patient care by off-site experts. Virtual and remote health professional education has also expanded beyond didactic teaching to remote experiential learning through virtual simulation and telehealth community and clinical training. These technological-based innovations and advancements will continue evolving as they provide greater convenience and better patient-centered care while addressing the capacity challenges in healthcare education and practice.

As we are emerging out of the Pandemic, we have a unique opportunity to leverage the lessons learned from the pandemic in fostering the healthcare transformation through innovation and interprofessional education and collaborative practice. To capitalize on this opportunity and in a collaborative effort, the InterprofessionalResearch.Global (IPR.Global), the American Interprofessional Health Collaborative (AIHC), and the Canadian Interprofessional Health Collaborative (CIHC) have developed this e-book as a Discussion Paper to explore and discuss (from a global perspective) the impact and application of healthcare education and practice transformation on interprofessional education and collaborative practice (IPECP) as we emerge from the COVID Pandemic with the goal to identify best practices to integrate and sustain IPECP.

We call the interprofessional educators, practitioners, leaders, scholars, and policy makers to utilize both 'Forward Thinking and Adaptability' and 'Sustainability and Growth' in using digital technologies in their IPECP approaches and strategies, beyond the Pandemic, to achieve Quintuple Aim. As learned during the Pandemic, working together – across professions, nations and globally – could help us in emerging stronger in transforming our healthcare education and practice in post-COVID era.

Hossein Khalili, BScN, MScN, PhD, FNAP
President,
[InterprofessionalResearch.Global](https://interprofessionalresearch.global/);
Director, UW Center for Interprofessional
Practice and Education,
University of Wisconsin-Madison

Amy Blue, PhD
Chair, American Interprofessional Health
Collaborative (AIHC);
Associate Vice President for
Interprofessional Education, University of
Florida.

Jacinthe Beauchamp, Ph.D.
Chair, Canadian Interprofessional Health
Collaborative (CIHC);
Education consultant at Centre de
formation [médicale](#) du Nouveau-
Brunswick (CFMNB)



Executive Summary

Executive Summary

The COVID-19 pandemic was, and continues to be, a once in a generation event, transcending healthcare and producing disruptions in all aspects of life on a global scale. Clinical services across the continuum of healthcare had to quickly pivot to telehealth and virtual care where possible. Similarly, healthcare education was forced into a new pedagogical paradigm of remote learning on an emergency basis. This report undertaken by InterprofessionalResearch.Global (IPR.Global) has reflected on the impact of the COVID-19 pandemic on interprofessional education and collaborative practice (IPECP) from two perspectives:

- IPECP and Healthcare Education and Practice at a Cross Point
- From Momentum to a Movement: Ways to Integrate and Sustain IPECP in Healthcare Education and Practice

Frontline healthcare and educational institutions alike have leveraged technology to ensure continuity in the face of the pandemic, but this leveraging has laid bare the breadth of digital divide and subsequent inequities when it comes to accessing care or participating in education. This paradigm shift has required educators and practice leaders to rethink traditional models of pedagogy and care, and has posed many challenges. Resourcing of teaching spaces to facilitate public health restrictions and access to online spaces for those with equity issues has been a considerable hurdle. With that said, the pandemic has also facilitated many new learning opportunities, as transitioning away from the traditional logistics of in-person learning and the barrier of geographic location can allow for greater opportunity to learn with, from, and about other professions, fostering collaboration locally and on the global stage. This rapid advancement of pedagogy requires evaluation, research, and review of learning outcomes to determine effective and best IPECP approaches.

The role and use of digital technologies in healthcare education and practice have been extended and solidified by the pandemic, but educators and researchers must reflect on the best use of these technologies, build an evidence base to evolve the use of technology going forward and address factors which lead to inequity in access. Simulation-based education has traditionally relied on advanced computerized mannequins, and more recently, virtual reality, to produce high-fidelity simulation experiences. These technologies were largely inaccessible during the pandemic. Innovation moved simulated environments online and advanced the pedagogy of IPE simulation substantially. Similarly, and at times via simulation, telehealth services and telehealth training has brought interprofessional team members together. The pandemic has shown us that appropriate training in providing telehealth services is essential for positive patient outcomes and satisfaction.

Despite IPECP being an integral component of promoting patient safety, and holistic, quality care, silos continue to exist. Furthermore, implementation of the Quintuple Aim (better health, better care, better value, better work experience, and better health equity), particularly through the lens of equity, remains elusive. Society requires a healthcare system that is resilient to disruptions and

consistently delivers high-quality care. The pandemic has amplified the importance of this resilience and has shown vulnerabilities such as strategic planning, professional training and interprofessional protocols must be addressed via a system-based collaborative approach of healthcare resilience.

Interprofessional collaboration during the pandemic was able to foster healthcare transformation in a number of ways at the policy and legislative level, such as the fast-tracking of internationally trained professions. Macro-level policies acknowledging the importance of population health are key for future interprofessional collaboration of stakeholders to address inequalities. Similarly, interprofessional collaboration is key to addressing the proliferation of misinformation.

Misinformation during (and predating) the pandemic has given rise to a number of 'conspiracy theories' which have been amplified by social media. IPECP can be effectively utilized to combat misinformation by increasing health literacy amongst health professions and the communities they serve.

Emerging from the pandemic, IPECP leaders have considerable experience and lessons learned pertaining to developing, delivering, and integrating IPE and interprofessional practice in novel ways leveraging technology. Pedagogy has been advanced and challenges which existed pre-pandemic have been addressed through new ways of learning with, from, and about each other. Societal inequities have been identified, along with ways to mitigate lack of access to affected groups. IPECP has influenced system-level transformation and innovation and has proven to be a resilient framework to provide safe, holistic care to patients. Going forward, the integration and sustainability of IPECP are crucial and the experience of IPECP within the context of the COVID-19 pandemic should be reflected on, researched, and evaluated to inform future global healthcare systems and the workforce to provide and achieve the Quintuple Aim; the goal of all in healthcare.



Introduction

Introduction

The COVID-19 Pandemic produced significant disruptions in all aspects of life across the world. Globally, no region avoided the impact that this crisis created. It particularly stressed healthcare delivery systems with regard to resources and personnel, requiring collaboration, creativity, and resilience of health professionals, institutions, and policy makers. Educational institutions felt a similar impact where, in March 2020, many universities and colleges were forced into a new pedagogical paradigm of remote learning with online and hybrid delivery methods (Singh & Singh, 2020).

These conditions reinforced the need for interprofessional collaboration in educational and healthcare settings and many of the lessons learned from innovations that were developed in response to the pandemic have produced a lasting impact on persons and institutions. Our purpose is to explore and discuss the impact and application of healthcare education and practice transformation on interprofessional education and collaborative practice (IPECP) during the post-COVID era (from a global perspective) with the goal to identify best practices to integrate and sustain IPECP.

This report provides information in two sections:

- **IPECP and Healthcare Education and Practice at a Cross Point:** The future of healthcare relies on our successful and systematic evolution out of the pandemic. The COVID-19 pandemic has placed healthcare at a crossroads of either viewing it as a temporary situation that requires short-term solutions, or as a major disruption that presents opportunities for innovation for sustainable development and transformation.
- **From Momentum to a Movement: Ways to Integrate and Sustain IPECP in Healthcare Education and Practice:** As the landscape of higher education and healthcare is continuing to evolve to meet the growing needs and expectations of students, patients, and communities, it is time for the IPECP leaders to reflect on the changing societal trends, demographics, diversity, and technologies in becoming more adaptable for the future. The healthcare digital transformation and technologies are here to stay and grow, and the sustainability and growth of virtual learning and practice in IPECP will be reliant on how we best utilize them to meet the IPECP agenda and goal of achieving Quintuple Aim.



SECTION ONE

IPECP and Healthcare Education and Practice at a Cross Point

Section One

IPECP and Healthcare Education and Practice at a Cross Point

Overview – Systemic Response to Global Disruption

Healthcare education and practice continue to be highly disrupted by the COVID-19 Pandemic. In practice, while the operation of providing in-person care has been restricted, telehealth has become a primary method of delivering care. In education, students and faculty are still experiencing some level of fragmentation in learning and collaboration while the sustainability and effectiveness of virtual learning in healthcare is not yet fully understood.

The Pandemic revealed the breadth of digital divide and widened inequity in accessing services, technology, and distance learning in global society with only 60% of the global population having online access (Aissaoui, 2021; Bakhtiar, Elbuluk, Lipoff, 2020). In addition to the above-mentioned challenges, the abrupt transition to virtual healthcare and distance learning along with the COVID-19 restrictions impacted healthcare professionals' and students' health. Over 80% of healthcare professionals and over 70% of college level students to experience anxiety, stress, and/or burnout (Couarraze et al., 2021; Khalili et al., 2021a; Shreffler, Petrey, Huecker, 2020).

The future of healthcare relies on our successful and systematic evolution out of the Pandemic. The COVID-19 Pandemic has placed healthcare at a crossroads of either viewing it as a temporary situation that requires short-term solutions, or as a major disruption that presents opportunities for innovation for sustainable development and transformation.

Effective post-COVID healthcare transformation requires systems-based change management, innovation, collaboration, resilience, and longer-term planning and preparedness. Effective Pandemic preparedness requires the engagement of all stakeholders, while being aware of the strengths, susceptibilities, and capabilities of the health care system. The rapidly changing landscape of healthcare towards digitalization and smart technology integration provides promising opportunities for innovation, collaboration, and resilience in improving patient/population care, safety, and health outcomes. The new paradigm shift in digitalized healthcare education and practice requires us to think and act differently from the traditional models utilized by educators and providers. The following sections outline recommendations for action moving forward.

1. Post-COVID Transformation in Healthcare Education and Practice and the Role of IPECP

Key Message:

IPECP is needed to promote patient safety, holistic care, and quality.

The Role of Interprofessional Education and Collaborative Practice

Interprofessional education and collaborative practice (IPECP) is acknowledged as an approach to optimize the quality and safety of healthcare across the world. It is often a mandated component of healthcare professional education. For example, Power et al. (2021) outline that in the United Kingdom, professional statutory regulatory bodies (PSRB) require all healthcare professionals to demonstrate IPECP competence. Drivers for IPECP include national and international policies, standards, and guidance from government, organizations and accreditation requirements. The World Health Organization (WHO, 2010a) has long advocated that collaborative practice should be integrated into healthcare education and practice to promote and sustain effective collaborative person-centered care.

More recently, WHO (2022) published the Global Competency Framework for Universal Health Coverage which identifies collaboration as one of six domains needed to achieve quality universal health coverage. This domain is based on the philosophy of teamwork, and it outlines the purpose of interprofessional education, to learn from, with and about others. Subsequently, because of these drivers, IPECP is recognized as an essential educational approach to underpin and shape healthcare education and practice. IPECP has a pivotal role in creating a highly skilled and knowledgeable workforce that provides safe and holistic healthcare to the public. Therefore, to avoid adverse outcomes and to promote safety and excellence in care provision, interprofessional collaboration in healthcare education and practice is deemed essential (Khalili et al., 2021; Reeves et al. 2017).

The Status of IPECP in Healthcare Education and Practice

Over the past decade, the global interprofessional community has experienced a significant expansion in which IPECP is being embraced and becoming the mainstream in healthcare education and practice not just in Western countries but also in other countries around the world, from Asia to South America and Africa. Currently, whilst international and national interprofessional networks exist, such as InterprofessionalResearch.Global, some nations are further advanced with IPECP than others. To support this process and to further promote IPECP status across the world, national and international IPECP organizations are vital in fostering a global community of practice. The next challenge in IPECP seems to be the operationalization, integration, and sustainability of IPECP in health systems all around the globe (Herath et al., 2017).

Within healthcare educational and practice organizations, there remain numerous perceived challenges which impede interprofessional activity, thereby detrimentally affecting the status of IPECP as a valued educational and practice approach. Common challenges in education include pragmatic aspects that relate to resourcing, such as organizing teaching spaces and having sufficiently trained facilitators (Sy et al. 2022) who are required to facilitate learners' interactions, interprofessional socialization, and understanding of professional roles and responsibilities (Reeves et al. 2017; Khalili et al, 2019). While being considered as a roadmap for preparing collaborative practice-ready healthcare professionals, IPECP in higher education seems to still present significant academic challenges and has been described as a 'substantial undertaking' (Park, 2022, p.264).

Mapping provision of IPECP across multiple professions, organizations, curricula, and schedules are challenges frequently encountered when organizing IPECP. A risk to the legitimacy of IPECP occurs if interprofessional activity is infrequently embedded into programs because it may be considered tokenistic which is detrimental to the status of IPECP and can render it a superficial exercise. As argued by Khalili and Price (2021) in their discussion paper entitled 'From Uniprofessionality to Interprofessionality', the integration of IPE in healthcare education and practice is a system change that requires transformation in thinking, policies, and actions. They suggest that health care systems are at times still viewed as siloed performances of single professions verses a collective functioning of interprofessional teams. Breaking down the silos in healthcare education and practice to ensure cross-professional learning and practice is an essential first step in IPECP (Khalili et al., 2013).

Additionally, there is a need for IPECP to be authentic to make learning meaningful and transferable to practice. Education needs to replicate practice to promote engagement and to reinforce the status of IPECP as a fundamental component of safe effective holistic healthcare. IPECP needs to be viewed more as a means, rather than the end goal, to achieve healthcare transformation (Khalili, 2021). In this process, IPE aims to prepare interprofessional practitioners who view themselves not just as a member of their own profession, but also part of the larger interprofessional team and community. This simultaneous sense of belonging to one's own profession and the interprofessional team and community is called dual identity formation (Khalili & Orchard, 2020).

Finally, the transformation of healthcare towards IPECP is mainly possible if and when both the healthcare education and practice systems embrace the integration of interprofessional collaboration in their everyday practice. The complex interactions between healthcare education and practice - as illustrated in the interprofessional education for patient centered practice (IPECPCP) model (D'Amour and Oandasan, 2005) - requires a multifaceted approach to IPECP integration and sustainability in which the education system, the learner, healthcare delivery system, and the practitioners should be involved. Facilitating such a transformation requires IPECP to be viewed not just as an approach, but also, and more importantly, as a philosophy of collaboration (Khalili, 2021). As an approach, IPECP is viewed as a pedagogical strategy to progressively integrate interprofessional socialization into health professional curricula and practice. As a philosophy, IPECP is the integral and core mission of building the infrastructure and the culture of interprofessionality within healthcare education and practice to foster achieving the Quintuple Aim (better health, better care, better value, better work experience, and better health equity) (Khalili, 2021; Nundy et al., 2022). Hence, the lessons learned during the

Pandemic are important to shape definitive action steps to solidify IPECP as not only a pedagogical approach but integral to the Quintuple Aim moving forward.

What is Quintuple Aim?

In 2008, Berwick and colleagues published their seminal work that introduced the Triple Aim of U.S. healthcare: improving the individual experience of care for patients, improving the health of populations, and reducing the per capita cost of care (Berwick et al., 2008). Subsequently, Bodenheimer and Sinsky (2014) advocated for a Quadruple Aim, adding the concept of clinician well-being, as the Triple Aim cannot be achieved without addressing healthcare professionals' burnout. More recently others have proposed a Quintuple Aim (Coleman, et al., 2016; Josiah Macy Jr, 2021; Itchhaporia, 2021; Nundy et al., 2022), taking into account issues of anti-racism, diversity, equity, inclusion, and cultural humility. The Quintuple Aim incorporates the foundational concepts of the Triple Aim; improved population health, improved patient experience, and reduced per capita costs of healthcare (Berwick et al., 2008) with the important addition of clinician well-being and the health equity (Coleman et al., 2016; Itchhaporia, 2021).

Understanding the critical concept of the Quintuple Aim is essential to the work of interprofessional education and collaborative practice. The 2022 National Academies of Practice (NAP) position statement, "Interprofessional Collaboration" (approved by NAP Council April 26, 2022) describes ways to integrate and sustain IPECP in Healthcare Education and Practice.

"The principle of health equity is one of social justice as it is a vow to eliminate the social determinants that create disparities in health (Braveman, 2014; National Academies of Science, Engineering, and Medicine, 2019a). Social determinants of health (SDOH) are the conditions in which people live, learn, work, and play that affect health and quality-of-life (Centers for Disease Control and Prevention, 2021) and contribute to health disparities that often disproportionately affect historically disadvantaged groups of individuals (Nundy et al., 2022, p2)."

The recent COVID-19 Pandemic highlighted the critical need to attend to health equity and increased awareness of health disparities (Nundy et al., 2022; National Academies of Science, Engineering, and Medicine, 2019b) and provider health and wellness, thereby reinforcing the relevance and interconnectedness of all five elements of the Quintuple Aim.

2. Healthcare Resilience

Key Message:

The COVID-19 pandemic amplified the importance of healthcare resilience. Healthcare resilience requires institutional culture change and a system-based collaborative approach.

Understanding Healthcare Resilience

There is a societal need for healthcare systems to consistently deliver high-quality care that anticipates, manages, and adapts to crises and disruptions. This requires sustainable mitigation strategies to strengthen resilience in healthcare as a system. According to IPR.Global Call to Action (Khalili et al., 2021), resilience in healthcare should be viewed as a whole of system adaptation in which all levels of the system from individuals and teams to organizations and systems should be able to adjust their functioning before, during, or following changes and disturbances so that they can sustain required operations, even after a major mishap or in the presence of continuous stress. Thus, support for resilience has to be driven from all levels in the system: individuals, teams, organizations, and the broader system.

In order to translate healthcare resilience into an operational concept, it is important that a) all healthcare professionals are knowledgeable of, and value the roles and responsibilities of each other as interprofessional teams to facilitate and foster collaboration, and b) the healthcare organizations and systems have the robust public health measures, policies and the highly proactive and functioning healthcare delivery systems in place to support the healthcare professionals and the community in receiving high-quality care and services. Resilience is a dynamic process that helps regain equilibrium through multiple interactions across interprofessional relationships that encompass individuals, communities, and organizations (Khalili et al, 2021).

The COVID-19 Pandemic comprehensively tested the resilience of healthcare systems across the globe. It brought out pre-existing vulnerabilities and gaps in strategic planning, interprofessional protocols, professional training, financial planning, and infrastructure capacity to endure shock (Bender et al., 2021; Hartwig, Clarke, Johnson, 2020). In 2020, the COVID-19 Pandemic brought about unprecedented levels of provider burnout that upended resiliency efforts and rendered previous methods to address workforce stress obsolete (Hartwig et al., 2020; Khalili et al, 2021a). Workers across professions, roles, and responsibilities experienced physical, emotional, and spiritual exhaustion brought on by unrelenting losses (real and ambiguous) and a collision of professional practice ideals and the inability to carry them out (moral distress) (Bender et al., 2021; Lai et al., 2020)).

Adopting Resilient Systems

Resilient systems require a support infrastructure to address provider stress consistently and reliably and prevent professional disillusionment and burnout (Khalili et al., 2021a). Self-care alone is insufficient as it does not affect dynamic institutional factors contributing to strains across professions (Epstein & Krasner, 2013; Keeton et al., 2007; Phillips, Knowlton, Riseden, 2022). It is suggested that workers might be better served by talking less about individual resilience and concentrating their energies on advocating for broad systemic change towards healthcare resilience at meso and macro levels. Such attitudinal shifts are well represented by the following comment, excerpted from a survey of faculty, students, and community providers (Konrad, 2022):

“I used to think of resilience in an uncritical and positive light. Now, I feel like it may inadvertently imply a burden on the individual, a recognition of the inequitable systems in which we're all embedded. This means that it's not just you or me who should adapt to this problematic world; it's also the world that should be adapted to better serve us all.”

Fostering system resilience is achieved through deconstructing and addressing the complexity of what resilience and adaptability actually look like in practice. Within this resilience paradigm, systems should destigmatize help-seeking (Khalili et al, 2021), acknowledge vulnerability, and view individual and collective struggles as strengths, not failures (Mayo & Woolley, 2016). A psychologically safe workplace supports the duality of workers' responses to stress during normal times as well as promotes a resilient system when crises erupt (WHO, 2017). Creating a culture of interprofessional psychological safety within healthcare teams can promote interprofessional collaboration and compassion through enhancing shared interprofessional identity and communities of practice, strengthening team resilience (Khalili et al, 2021a; Park, 2019).

Resilient systems should prioritize interdependency and collaboration, discourage competitiveness, and nurture trusting interprofessional relationships acknowledging that not one person or profession has all the answers (Hartwig et al., 2020; Kim et al., 2017). Consistent with the Quintuple Aim, a resilient culture privileges working together as an interprofessional team to decrease burden, improve patient care, and enhance job satisfaction (Nundy et al., 2022). Resilient systems value and remind workers that they and the work they do matter. This can be accomplished by developing systems that promote psychosocial constructs and resources that contribute to workers feeling like they make a difference, and are valued by others (Haizlip et al, 2020). System policy, procedures and resources must be designed to provide reliable support whereby workers, regardless of role, can be candid without fear of repercussions, or judgement (Barasa et al., 2017).

Institutional culture change is needed to build system resilience. Words alone are insufficient, collective action is necessary, and it must be ongoing, enacted, and not merely sloganized (Hartwig et al., 2020). A resilient workplace simultaneously fosters adaptability, flexibility, and growth needed for the time of vulnerability and uncertainty. Given the scope of COVID's impact on health care, there is some urgency for institutional decisionmakers and leaders to enact system change (Khalili et al., 2021a). This requires honest assessments of systemic inefficiencies and deficiencies, and actionable

efforts to create sustainable structures that affirm workers matter and prioritize ongoing interprofessional supports (Khalili et al., 2021b). Incentives in the system should not just depend on successful revenue streams but on equity, and retention of satisfied and productive healthcare workers (Khalili et al., 2021a). All this would promote quality care and resilient systems, which are essential to foster cross-professional, organizational, and sectoral collaboration and partnership.

3. Cross-Professional/Organization/Sector Collaboration and Partnership

Key Message:

During the COVID-19 pandemic, interprofessional collaboration faced challenges but fostered healthcare transformation.

Transformation through Collaboration During the Pandemic

Interprofessional collaboration has been more important than ever to ensure an impactful, holistic, and safe collaboration between health services and other public services as one effective COVID-19 response (Alderwick et al., 2021; Fernandes et al., 2021). The Pandemic has caused disruptions in every aspect of healthcare from workflows to physical and mental stress on the individual healthcare professionals and the interprofessional healthcare team (Goddard & Patel, 2021). The importance of interprofessional collaboration between sectors and organizations beyond the bedside became apparent (Jazieh & Kozlakidis, 2020). Such a cross-professional/organization/sector collaboration and partnership has led to several transformations in healthcare. Among those transformations were the surge of telehealth services, increased public health surveillance, and the accelerated development of new policies, legislation, and financial models (Jazieh & Kozlakidis, 2020).

When the COVID-19 public health crisis emerged globally, health sectors responded to the shortage of healthcare professionals by voluntary actions. Common strategies were hiring retired healthcare workers, employing healthcare professional students near the end of their education, and accelerating the registration of internationally educated healthcare professionals (Bourgeault et al., 2020). These measures had a significant impact on the perception of a healthcare team and interprofessional collaboration. In one respect, the emergency situation helped teams react as a stronger unit (Goldman & Xyrichis, 2020). The extent of the unfamiliarity with the virus supplanted typical power hierarchies within interprofessional healthcare teams, as all professions worked together to face the challenges of working beyond capacities in overcrowded hospitals and the difficult decision-making on treatment plans for patients (Bourgeault et al., 2020). Interprofessional collaboration during these times fostered the sense of psychological safety and facilitated the development of creative approaches and ideas by reducing organizational hurdles (Anjara et al., 2021). Peer support was an essential factor contributing to a positive work environment (Anjara et al., 2021). In another respect, however, a shift in responsibilities and tasks within the professional

groups caused additional stress and disruptions of workflows (Anjara et al., 2021; Bourgeault et al., 2020; Goddard & Patel, 2021). Some healthcare professionals experienced a reinforcement of power hierarchies whilst dealing with stress, frustration, the feeling of powerlessness, and the fear of getting infected with COVID-19 (Anjara, 2021).

The realignment of health services utilization during the Pandemic signposts the importance of well-established cross-organizational and cross-sectoral collaboration. The COVID-19 Pandemic has facilitated decentralized and automatic collaborations between healthcare providers (Kassmi & Jarir, 2021). Cross-organizational collaboration can for example support a specific targeting of people with non-COVID illnesses and unmet healthcare needs (Moynihan et al., 2021). A successful interprofessional collaboration between sectors and organizations requires macro-level policies that acknowledge the importance of population health in policies and political contexts (Alderwick et al., 2021). The health in all policies approach, i.e., the acknowledgement of health implications in all public policies, can be the key for future cross-sectoral collaborations with the intention to reduce health inequalities (Amri et al., 2022). The COVID-19 Pandemic has highlighted the value of health in all policies and the necessity of cross-sectoral collaboration.

In some cases, the Pandemic has been perceived as a potential disruptive innovator as it has provoked the need for professionals and organizations to come together to reduce silos (Breitbach, Muchow & Gallegos, 2020; Ehrlich, McKenny, & Elkbuli, 2020; Robeznieks, 2020), upending current roles of individual professions. Likewise, some have hypothesized that the resulting interest in collaboration could be maintained and advanced into the future (Kerrissey & Singer, 2022). Still challenges remain, specifically as the implementation of interprofessional, interorganizational, and intersectoral collaboration might be challenged by a healthcare professional shortage, organizational constraints, and legal regulations (Alderwick et al., 2021).

Optimal preparation for future crises requires patients, the population and healthcare professionals to take an active role in collaboration within formal and informal networks (Jazieh & Kozlakidis, 2020). Collaborations on the micro- and meso-level must be embedded in a larger, macro-level context to actually benefit the population's health (Alderwick et al., 2021). In addition, and to achieve global improvements in health and to advance progress towards universal health coverage, WHO (2022) outlines that health workers must develop competence to effectively collaborate. Therefore, establishing effective communication strategies between all stakeholders involved in healthcare might be an important first step to facilitate patients' journeys through the systems, coordinate healthcare interventions, and ultimately benefit the population's health outcomes. At the same time, being aware of, and ready to effectively address misinformation in healthcare and community will be essential.

4. Misinformation and (public) health literacy

Key Message:

Addressing misinformation not only requires filling any knowledge gaps but also correcting incorrect beliefs by building a trusting collaborative patient–provider relationship.

Health literacy has received considerable attention over the last 25 years, with low health literacy associated with poorer health outcomes and reduced access to services (Berkman et al., 2011). Over this same period a proliferation of social and technological developments – particularly the rise of social media platforms – has created an environment where health information and misinformation are almost impossible to disaggregate. Similarly, the impact of low digital health literacy experienced by a great deal of the worldwide population has exacerbated the spread of misinformation (Naeem & Boulos, 2021). If health literacy is defined as the ability to access, obtain, evaluate, and translate health information to improve personal and public health (Liu et al., 2020), then the dizzying array of information and online discourse creates significant challenges for the public. Navigating public health information is also a process of researching and uncovering accurate evidence and public health information to appraise and inform. Algorithms that govern social media, and the practices of some corporate and political actors, amplify certain perspectives whilst minimizing others, often resulting in an oversimplified and binary “them-and-us” discourse (Suarez-Lledo & Alvarez-Galez, 2021). This has been characterized throughout the COVID-19 Pandemic by a number of influential ‘conspiracy theories’ perpetuated online and given equal weighting in debates about reasonable and evidence-based public health measures, such as mask-wearing, vaccinations and even the existence of the virus. The great tragedy of persistent misinformation is that it negates the benefits of public and service user empowerment in which incorrect beliefs of the public could lead to unhealthy choices and the patients with misinformation might make poor decisions that are deleterious to their health. As Schultz and Nakamoto (2022, page 136) highlight:

“If the misinformation is consistent with one’s world view, it can be maintained even in the face of retraction....Having accrued inaccurate information, one...might feel well-informed and capable of making judgments and decisions...that are deleterious to their health.”

This cognitive bias along with confirmation bias cause people to have the tendency to search for, interpret, favor, recall, and act on the misinformation that is consistent with or supports their existing beliefs (Turhan, Dilcen, Dolu, 2021). The rise of misinformation before, during, and after the Pandemic has presented a range of challenges for which IPECP can take steps to address. An integrative review by Toronto and Weatherford (2015) recommends didactic and active learning strategies that target health literacy skills during interprofessional learning opportunities for addressing and improving health literacy amongst health professions and the communities they serve. However, as revealed in the controversies over COVID-19 vaccination and treatment, countering misinformation and mistaken beliefs needs to go beyond addressing knowledge gaps

in patient knowledge. Building a trusting collaborative relationship with the patient could help transcend the patient-client relationship from a transactional to transformational one that is needed to counter misinformation and promote accurate patient knowledge, understanding, and healthy choices (Schultz & Nakamoto, 2022). To be realistic, tackling the misinformation Pandemic or 'infodemic' (WHO, 2021) also requires investment by political and policy actors and proportionate regulation – as well as a social appetite for robust evidence – to ensure that clear and accurate information is accessible and understandable to all.



SECTION TWO

**From Momentum to a Movement:
Ways to Integrate and Sustain IPECP in
Healthcare Education and Practice**

Section Two

From Momentum to a Movement: Ways to Integrate and Sustain IPECP in Healthcare Education and Practice

Overview: Leading through Adaptation and Evolvment

The global COVID-19 Pandemic has challenged communities and nations in ways that were never thought possible. Adapting to this accelerated change that healthcare organizations and institutions have faced—and will continue to face—demands innovative approaches to institutional and organizational practices at all levels. It will require all in the global IPECP community to reimagine strategic priorities and practices to better serve students and community needs.

As the landscape of healthcare education and practice continues to transform, the goal of IPECP evolvment in the post-COVID era should remain focused on long-term goals of creating sustainable and adaptable IPECP strategies that result in integrated and evolving IPECP offerings and initiatives across the globe. To evolve IPECP into a sustainable movement, innovation and transformation of policies, approaches, and actions towards viewing IPECP as a key element of everyday healthcare delivery and an integrated essential component of preparing current and future generations of healthcare providers are needed.

There is growing evidence to demonstrate the significant impacts of IPECP on the Quintuple Aim: (1) Better Health, (2) Better Care, (3) Better Value, (4) Better Work Experience, and (5) Better Health Equity (Itchhaporia, 2021; Nundy, Cooper, Nate, 2022). Short-term decisions to adapt to the Pandemic in healthcare education and practice should not hamper long-term goals of achieving the Quintuple Aim.

As we emerge from the Pandemic, we need to ask ourselves the following questions:

- What should we keep doing?
- What should we stop doing?
- What should we start doing?

In this process of adaptation and evolvment towards IPECP integration and growth, here are some practical guidelines for your institution and organization to consider:

- Identify, acknowledge, and address areas of systemic stagnation which obstruct the ability to support the growth and advancement of IPECP through leadership, partnership, and comprehensive interprofessional faculty development.
- Lead, champion, guide, and advocate for policies and procedures that build upon and promote a culture of cross collaboration and teamwork which aligns with and sustains the evolving needs of global health systems and educations, rooted and grounded in the framework of the Quintuple Aim.

- Envision, advocate, and apply meaningful systematic changes in healthcare education and practice that strengthen the integration and growth of IPECP and show sustainable, measurable and data-driven results that validate the IPECP communities shared vision in the collective success of achieving students' collaborative practice-readiness and the Quintuple Aim.
- Challenge assumptions and long-standing beliefs, practices, and policies that hinder IPECP, and assume an adaptive, transformative institution and organization-wide change process towards IPECP development, sustainability, and growth.
- Create wider partnerships and alliances with the local, national, and global institutions, organizations, networks, and people we serve (stakeholders).
- Build and strengthen relations with government and non-government agencies that could support and advance IPECP.

1. In-Person and Virtual IPECP

Key Message:

IPECP pedagogy has evolved at a rapid pace due to the Pandemic and should be evaluated.

Traditionally, IPE has been delivered as an in-person, face-to-face activity. Benefits of this approach include providing opportunities for members of different professions to meet, to promote socialization and to create trust and mutual understanding of professional roles. However, traditional face-to-face interprofessional learning experiences tend to be bound by resources such as timing and schedules, for both learners and educators. Additional challenges with in-person delivery include learners travelling to events when delivered in educational or practice environments, conflicts with placement and assessment schedules, and fixed attendance times can create barriers to attendance. Traditional experiences can also limit the range of professions involved. When geographic location restrictions are removed through the use of technology, the perspectives of learners can broaden and they can expand learning about, from, and with other professions, with potential to collaborate globally, thereby increasing cultural competence (Pecukonis et al., 2008).

Internationally, the Pandemic forced IPECP to online platforms whilst the mandate for interprofessional education remained to achieve collaborative practice and high-quality care, and for a time face-to-face delivery was prohibited to mitigate risks of transmitting COVID (Khalili, 2020). IPECP had to be adapted with the creation of innovative approaches to sustain delivery throughout the Pandemic. Utilizing technology in learning during the Pandemic allowed educators to overcome many logistic and resource related barriers to interprofessional learning. Using technology in learning also mimics the current state of healthcare, including a multitude of online tools to assist health professionals to communicate with team members as well as patients and service users (Shrader et al., 2016). During the Pandemic, various adaptations were implemented, including asynchronous and synchronous approaches (Khalili, 2020; Sy et al. 2022) providing the opportunity for learners to either participate during their own time using software such as Articulate Storyline (Park and Holland, 2022), or be able to communicate in real time with team members via virtual platforms such as Blackboard (Park 2022, Power et al. 2022), and Zoom (Bhaskar et al. 2020).

IPECP facilitators have now entered a period of reflection and have begun the process of evaluating the effectiveness of emergency remote teaching interventions and innovations introduced in lockdown (Power et al. 2022). Outside of enforced lockdown periods, many educators have utilized a hybrid approach, where learners participate in a blended delivery, both preparing for online collaboration, while working with team members through face-to-face learning. The face of IPECP has evolved and next steps include evaluation, research, and review of competencies and learning outcomes to determine the most effective interprofessional education approaches. With an ever-changing landscape of healthcare, learners can benefit from innovation in pedagogy and learning

(Lapidos and Ruffolo, 2017). However, the removal of barriers is not the only consideration that should be made when determining what should be retained in interprofessional education post-Pandemic. Although there is evidence emerging of the benefits of online education and utilizing technology to provide rich learning experiences across multiple professions, to design meaningful IPE, interprofessional competencies must be determined and the most effective pedagogical approaches must be identified. Evaluation and assessment are required to develop curriculum and to measure the quality of learner experiences. The future of interprofessional education should evolve based on competencies, interprofessional socialization, programs need, and context (Anderson, 2016; Khalili, 2020), and moving out of the Pandemic, evidence-informed decision making should be employed to make judgments as curricula are continuously improved and developed. IPECP cannot be a one-size fits all approach and must be tailored to context and to learners to ensure it is fit for future healthcare practice.

2. Digital Health and IPECP - Lessons Learned from COVID-19 Pandemic

Key Message:

As the COVID-19 Pandemic recedes, the integration and sustainability of IPECP in healthcare education and practice require us to reflect on and evolve our IPECP endeavors.

Potential of Digital Technologies

As the COVID-19 Pandemic recedes, to integrate and sustain IPECP in healthcare education and practice, healthcare educators and providers should reflect on, evaluate, and evolve their future IPECP endeavors. Previous government guidance on isolation and restricted social engagement to stem the transmission of COVID-19 resulted in a rapid shift to the use of virtual platforms in both healthcare practice and education globally (Sy et al. 2022; Power et al. 2021). Power and colleagues (2021) differentiated between the key terms of 'online IPE' and 'emergency remote teaching' (ERT); they describe online IPE as a process of professions learning together virtually in real time (synchronous) or with flexible timing (asynchronous) but ERT involves unplanned and unexpected transitions from in-person teaching to online provision. Initially in the Pandemic, ERT was employed to prevent the closure of teaching facilities across the world to sustain healthcare education. Similarly, in practice, service delivery was shifted from in-person care to telehealth with little to no virtual delivery training (Donnelly et al., 2021).

As the severity of the COVID-19 Pandemic appears to be waning and most restrictions have been lifted, healthcare providers and educators are questioning which practices should be retained and where they should revert to traditional approaches. What is clear is that some form of virtual practice and education will continue, and educators must consider building evidence for proposed virtual approaches through evaluation (Hutchings et al. 2022, Park, 2022).

In some cases, virtual platforms or hybrid delivery models have mitigated the persistent challenges of managing scheduling of interprofessional learning activities for students from multiple programs, however, this has not consistently been the case as outlined in case studies presented by Sy et al. (2022). Furthermore, technology affords opportunities for new approaches such as virtual simulations (Hutchings et al. 2022, Park and Holland, 2022). In-person practice-based experiences have provided an optimal context to translate learning to the real world. Yet, virtual skill-based training has shown promise (Eroğlu et al., 2022) and may be explored along with virtual simulation approaches. The classroom is also expanding and has the potential to be more inclusive. When geographic boundaries no longer present as restrictions, novel partnerships emerge (Wetzlmair et al., 2021). One such example is the shared learning experience between students at the University of Toronto, Canada, and the Chinese University of Hong Kong. Faculty partnered to deliver a 4-week interprofessional course segment for students from both universities (Li et al, 2021). As another example, University of Wisconsin-Madison has established an International Interprofessional Professional Development Consortium consisting of five universities from the United States (U.S.) and Canada to develop and deliver IPE professional development opportunities for faculty, facilitators, and practitioners (Khalili, et al, 2022). Such global learning experiences further important goals of cultural familiarity, learning, sensitivity, and humility, as well as the development of collaborative competencies. However, it should also be noted that technology can introduce barriers between external organizations when platforms are incompatible. Park (2022) provides an example of how medical students from another university were excluded from IPE because of the conversion to online platforms during lockdown when other external organizations could not access higher educational platforms.

COVID provided us with a great opportunity to make changes to education with multiple novel technologies implemented. The future provision of IPECP must now consider whether those technological advances will be long-lasting or whether they will be acknowledged as educational approaches that were introduced during emergency remote teaching. Although technology created opportunities to make learning easier and provided widened accessibility to education for some during the Pandemic, future learning experiences must determine which technology is readily available and which improves and enhances learning. When social distancing policies are applied outlining capacities of how many students can be safely distanced within a physical learning space, technology does provide a way to allow large numbers of students to collaborate safely. COVID also provided opportunity to evaluate healthcare. The Pandemic caused an increase in the use of technology to provide health care using telehealth and ehealth (Langlois et al, 2020), therefore the use of technology in education closely imitated the practice environment.

As healthcare policy and practice continue to evolve, changes to education must align to provide authentic and meaningful learning opportunities to prepare the future healthcare workforce. While the shift to virtual education in 2020 was necessary to accommodate imposed restrictions, curriculum and corresponding pedagogy must now be built intentionally, where approaches align with interprofessional objectives and address the need for advancement of principles of inclusion, accessibility, equity, and diversity.

Digital Equity and Healthcare Access in the Pandemic

The COVID Pandemic widened and exacerbated inequalities in accessing IPE. For learners, unexpected challenges that related to technology included levels of digital literacy and confidence using technology, gaining access to electronic equipment, balancing caring responsibilities and having sufficient internet access to participate with virtual platforms (Sy et al. 2022; Khalili, 2020). The global education sector was generally ill prepared to support and equip learners and educators to work and learn from home as lockdown and social distancing measures were enforced. Globally, many adaptations were made to IPE and lessons have been learned, but emerging literature, such as Wetzlmair et al. (2021), shows that experiences differed, not only nationally and internationally, but also between educational providers in the same country.

The move to online IPE created financial burden for those who did not own devices such as laptops or computers, or for those who had to share devices with other household members, resulting in widening the digital divide in the society (Khalili et al, 2021a; Sy et al. 2022). In households with minimal access to technology or for those with competing demands for technology, it was challenging to participate in synchronous online learning (Sy et al. 2022). One cost saving for online interprofessional education noted in literature is the avoidance of commuting to attend in-person events (Wetzlmair et al., 2021). Further inequity in accessing online IPE during lockdown was introduced for people with caring responsibilities who had to manage childcare, overseeing homeschooling, or those who had to care for dependents in addition to everyday tasks of working and learning (Power et al. 2022; Khalili et al, 2021b). These authors refer to 'additional hidden pressures' that affected educators in lockdown including needing to learn about digital technologies themselves and experiences of receiving requests to support healthcare practice during the initial phases of the Pandemic as staff were redeployed to acute care environments.

Learners and educators were detrimentally affected during the Pandemic with reports of increased stress, reduced capacity to perform to high standards, and attrition and retention on healthcare programmes was impacted. Asynchronous learning approaches were therefore advantageous for learners and educators who could not engage in IPE during traditional daytime working hours and this provided a level of flexibility and autonomy for learners to lead their own learning at a time that was appropriate to them and provided access to equipment needed for online learning. However, it is possible that online IPE may deprive learners and educators from receiving positive support that occurs naturally through team learning and interactions with others during in-person IPE events (Khalili, 2020; Sy et al. 2022).

It is important to consider the influence of the Pandemic on service users who participate in IPECP in healthcare. In both practice and education environments, the central need to address humanism in virtual interactions must be prioritized (Langlois & Ng, 2021). Relationship-centred care approaches prioritize human interactions and holistic learning (Beach et al, 2006). The role of the service user is also evolving in both contexts. In practice settings, use of virtual services requires an appreciation of service user and caregiver access to and use of technology and reliable internet, as well as the ability

and confidence to participate as a partner to a team that is not physically present. As educational and healthcare delivery approaches evolve, service user and caregiver partners are increasingly being engaged to co-create curriculum, to lead and facilitate interprofessional educational learning experiences, as well as to assess competency development and program evaluation. As one example, the University of Wisconsin-Madison in collaboration with the Wisconsin Department of Health Services recruited caregivers of patients with dementia to develop and deliver their Interprofessional Telehealth Dementia Caregiving Practicum Badge (Khalili, et al., 2022). Therefore, as technology-enhanced learning evolves, service user partners need to be adequately prepared and supported to participate in teaching on virtual platforms, with equal access to faculty development programs.

To ensure equity in access and to promote and sustain participation with IPECP in healthcare education and practice, it is important that learners, educators, providers, and patients are equipped and sufficiently skilled to engage with future blended learning and healthcare delivery approaches. Educational institutions, employers, and governments have a responsibility to provide the infrastructure, training and equipment needed to reduce inequalities relating to the use of technology in future IPECP provision (Sy et al. 2022).

3. Simulation-Enhanced IPE

Key Message:

Simulation-enhanced IPE has the great potential to provide cross-profession students with an opportunity to develop and practice interprofessional competencies in a risk-free environment.

Simulation-based education (SBE) is associated with the aviation industry and has become embedded as an educational pedagogy in healthcare (Sunderland et al. 2017). Simulation-enhanced IPE, as part of SBE, provides cross-profession students with an opportunity to develop interprofessional collaborative competencies, recognize and appreciate their own and other team members' roles, improve overall communication skills, and develop adequate patient care in a risk-free environment (Marion-Martins and Pinho, 2020).

Simulation as a method for learning has been traced back millennia as an 'ancillary tool' to develop knowledge and understanding, however, contemporary healthcare simulation is underpinned by science, technology, art, and engineering (Park et al. 2020). Therefore, simulation is not a new concept, and it is a pedagogy which offers learning opportunities to authentically prepare for healthcare environments through practice and rehearsal. The primary modalities of simulation include computer-based simulation, simulated patient, simulated clinical immersion, and procedural simulation (Chiniara et al., 2013). Telehealth is an example of communication technology that can be utilized to create authenticity in learning. In simulation, the term fidelity is used to indicate the authenticity of the simulated experience and a variety of modalities can be used influencing the

environment, resources, and equipment (ASPiH, 2016). High fidelity simulation often involves advanced technology such as mannequins and immersive technologies, but SBE is underpinned by the philosophy of collaborative practice and teamwork, so simulation lends itself well to the principles of interprofessional education and collaborative practice (Park and Holland, 2022).

As technology and healthcare continue to advance, simulation is emerging through virtual technologies. Virtual Reality (VR) has introduced options to enhance interprofessional simulation, and literature reflects the growing trend in integrating VR into healthcare simulation (Liaw et al., 2020; Pottle, 2019; Samadbeik et al., 2018; Vaz de Almeida, 2021). However, the COVID Pandemic prevented access to such technology and interrupted collaborative face-to-face healthcare simulation, therefore education was urgently adapted and moved to online platforms. This method of learning is referred to as emergency remote teaching by Power et al. (2021). During the Pandemic, educators across the world shared a common challenge; finding ways to sustain interprofessional simulation during a global healthcare crisis whilst maintaining authenticity, quality and adhering to COVID prevention policies, legislation, and guidance. Practice environments additionally adapted the use of technology in the Pandemic to promote collaboration and can be viewed as exemplars for education.

Due to the closure of educational clinical placements for many health professional learners during the Pandemic, virtual simulation has been used as a substitution for traditional face-to-face SBE (Fogg et al., 2020). Therefore, to sustain simulation within educational programs, educators and facilitators introduced innovations in practice, and emerging literature provides increasing insight to the adaptations that have happened internationally as illustrated in the following exemplars. Park and Holland (2022) describe the creation of an online ward using computer software that enabled learners to assess and plan the interprofessional care required for the patient and their family using principles of scenario-based learning. Some universities posted medical devices and equipment to learners' homes to practice key clinical skills during lockdown (Wallace et al. 2021). Another example of adaptations is groups of medical students being taught ultrasound psychomotor skills virtually with an online simulator and the program was found to enhance knowledge and practical skills about using ultrasound probes (Meuwly et al. 2021). Another medical school taught student's spirometry using Zoom (Bhaskar et al. 2020). In the University of Wisconsin-Madison, virtual standardized patients were used to train interprofessional teams of students on dementia caregiving as part of their virtual Advanced Dementia Interprofessional Collaborative Simulation (ADICS) program (Wenker et al., 2021). Miller and Guest (2021) describe a range of adaptations that were made to replace simulation and practice-based learning in healthcare programs, including using multiple simulation software packages and creating videos, quizzes, interactive workbooks, and online question and answer sessions. Clinical nursing modules are another example of an innovation created to include virtual simulation (Espotito and Sullivan, 2020).

There are many more examples emerging in literature about the innovations that educators have implemented to sustain healthcare practice simulated learning throughout the Pandemic. Whilst COVID created a global emergency, the pedagogy of interprofessional simulation has advanced and literature and experiences indicate it is possible to create virtual interprofessional simulation. However, a period of reflection, sharing, evaluation and research is required to optimize future interprofessional healthcare simulation.

4. Interprofessional Telehealth Training and Practice

Key Message:

During the COVID-19 pandemic, interprofessional collaboration faced challenges but fostered healthcare transformation.

The highest level of integration of “remote care” or “health care at a distance” requires a skilled workforce to engage with those telehealth services (Lopez, Lam, Thota, 2021). Telehealth services can be delivered by all members of the interprofessional team, as opposed to telemedicine which is mainly tied to physicians (WHO, 2010b). Regardless of physical distances and infection risks, the importance of telehealth became apparent during the COVID-19 Pandemic, because those services not only ensured continuous health care but also brought together interprofessional team members (Paterson et al., 2020). Telehealth has long been utilized in interprofessional health care, particularly in rural and remote areas, to exchange information and/or develop a treatment plan by the interprofessional team. It has long been considered an effective method to provide clinical training among interprofessional groups with geographic barriers (Sanchez Gonzalez, 2019; Sweeney Haney et al, 2018). Multiple guidelines and regulations have been published ensuring all healthcare professionals continue to provide high-quality, safe collaborative person-centered care (Fisk et al., 2020).

Interprofessional Telehealth During the COVID-19 Pandemic

Throughout the Pandemic, many interprofessional teams opted to provide care via telehealth services. Evidence from a recent literature review on the role of telehealth across interprofessional cancer teams during the COVID-19 Pandemic have highlighted many benefits in terms of reducing travel burden of patients, timely review and discussion of treatment plans and receiving treatment in patient’s own homes (Paterson et al., 2020). However, appropriate training and skill development for both healthcare professionals and patients are essential to the success of telehealth services (Nearing et al., 2020; Paterson et al., 2020). Formal telehealth training services are being developed, such as the University of New Hampshire Telehealth Practice Center and the Frontiers in Telemedicine Certificate Course at Texas Tech University, utilizing interprofessional practitioners and faculty to train health professionals on this increasingly popular modality of healthcare delivery.

During the Pandemic, IPE activities may have been canceled or postponed due to the need to focus on profession specific education which, for some, was a priority over the development of interprofessional competencies (Langlois et al., 2020). However, there are institutions that were keen to provide students with interprofessional learning opportunities to complete their training, particularly in this area, due to limitations with in-person clinic visits and decreased experiential rotations. In the UK for example, interprofessional competence is a mandated component of pre-registration training for nurses and midwives, therefore IPECP opportunities had to continue throughout the Pandemic (Power et al. 2021) and telehealth offered an alternative means of developing interprofessional competence. Examples of telehealth used during the Pandemic include the development of interprofessional telehealth rotations (Bautista et al., 2020), IPE telehealth clinics (Leiman et al., 2021), interprofessional telehealth dementia caregiving badge (Khalili et al., 2021), remote visits via telephone (Winship et al., 2020) or video (Nearing et al., 2020), and telehealth simulation (Romito et al., 2020). Furthermore, many utilized innovative approaches including the use of real patient case vignettes (McKinlay et al., 2021). Assessments of the impact of interprofessional telehealth opportunities are evolving and to better understand the application and implication of interprofessional telehealth, educators and practitioners should explore other clinical rotation opportunities evaluating patient satisfaction, the patient, provider, and health system outcomes whilst directly observing and evaluating student interactions during telehealth learning and service opportunities (Bautista et al., 2020).

The background is a solid purple color. A diagonal line from the bottom-left corner to the top-right corner divides the image. The upper-left portion is purple and contains several faint, light-purple geometric patterns: a grid of small squares in the top center, a grid of small dots in the middle left, and a series of small dots forming a diagonal line in the bottom left. The lower-right portion is white and contains the text "Call to Action" in a bold, purple, sans-serif font.

Call to Action

Call to Action

Sustainability of Digital Technology in IPECP Beyond the Pandemic

As the landscape of higher education and healthcare is continuing to evolve to meet the growing needs, interests, and expectations of students, patients, and communities, it is time for the institutions and organizations to reflect on the changing societal trends, demographics, diversity, and technologies and to emerge resolute in being more adaptable for the future. The COVID-19 Pandemic has accelerated the digital transformation and adoption by many years (Okhrimenko, 2021), and at the same time it has reinforced the desire for both in-person and the augmented virtual experiences to enhance the overall learning, care, and service experiences in a more multi-modal approach like HyFlex option where people have the option to be virtual or in-person (Lederman, 2020).

What is evident emerging from the COVID-19 Pandemic is that digital transformation and technologies in healthcare education and practice are here to stay and grow and it will remain up to institutions and organizations to find ways to effectively incorporate and develop technology for the benefit of those within their communities.

In IPECP, the sustainability and growth of virtual learning and practice in healthcare education environments will be heavily reliant on how they can be best utilized to meet IPECP agenda and goals. When developing learning experiences, it is important to consider learners and educators experiences of IPECP during the Pandemic to establish what and how students learnt, how they were socialized interprofessionally, and how learning objectives were met during COVID, to compare the outcomes to those prior to COVID. Health professionals must achieve interprofessional competence and become collaborative practice-ready regardless of technology and delivery method, and quality should not be compromised for reasons of convenience. In practice, the sustainability of digital technologies will depend on their impact and effectiveness in achieving and improving the Quintuple Aim for better health, better care, better value, better work experience, and better health equity.

Forward Thinking and Adaptability

Interprofessional educators, IPECP scholars, policy makers and practice leaders need to be prepared for future challenges and opportunities as the COVID-19 Pandemic has laid bare the fact that similar events could detrimentally impact upon education and service delivery. Education policies that enable transformation are essential, and analyzing the issues and addressing the need for change should be the initial response in the case of an unforeseen crisis. Changes should then be planned (Tilak et al, 2022). Interprofessional competency frameworks guide the development and practice of interprofessional education and collaborative practice. These framework domains are designed to be adaptable to differing contexts where teams operate. Although practice in virtual contexts is not explicitly referenced, overall competencies remain relevant. Given that there is limited expertise to date to guide both practice and education in such a recently adopted virtual practice, researchers,

practitioners, and educators must work on building evidence-informed knowledge, skills, and approaches. For example, strategies that support relationship-building, team dynamics and structure, conflict management, and communication in the context of virtual teams require additional research and evaluation to determine best practices. Competency frameworks may require revisions to accommodate new practice realities. Furthermore, approaches to partnering with patients/clients and their family/caregivers with team members that connect virtually must also be understood to determine optimal engagement that will support advancement of health. Emerging from the COVID-19 Pandemic there is opportunity to consider how access to and use of technology can be fostered, to evaluate which virtual, digital and technology enhanced learning modalities are effective for IPECP, to consider how learner engagement can be optimized and to consider the influence of IPECP on the health outcomes of the population. Now is the time to consider what approaches to IPECP in health education and practice, whether in-person, virtual or hybrid, result in optimal care and enhance the knowledge and skills of the future global healthcare workforce.

References

- Aissaoui, N. (2021). The digital divide: a literature review and some directions for future research in light of COVID-19. *Global Knowledge, Memory and Communication*.
<https://doi.org/10.1108/gkmc-06-2020-0075>
- Alderwick, H., Hutchings, A., Briggs, A., & Mays, N. (2021). The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health*, 21(1), 753. <https://doi.org/10.1186/s12889-021-10630-1>
- Amri, M., Chatur, A., & O'Campo, P. (2022). Intersectoral and multisectoral approaches to health policy: an umbrella review protocol. *Health Research Policy and Systems*, 20(1), 21.
<https://doi.org/10.1186/s12961-022-00826-1>
- Anderson, E. S. (2016). Evaluating interprofessional education: An important step to improving practice and influencing policy. *Journal of Taibah University Medical Sciences*, 11(6), 571-578.
<https://doi.org/10.1016/j.itumed.2016.08.012>
- Anjara, S., Fox, R., Rogers, L., De Brun, A., & McAuliffe, E. (2021). Teamworking in Healthcare during the COVID-19 Pandemic: A Mixed-Method Study. *International Journal of Environmental Research and Public Health*, 18(19). <https://doi.org/10.3390/ijerph181910371>
- ASPIH (2016) Simulation- Based Education in Healthcare: Standards Framework and Guidance Available at: <https://aspih.org.uk/standards-framework-for-sbe/> Accessed: 21.6.22
- Bakhtiar, M., Elbuluk, N., & Lipoff, J. B. (2020). The digital divide: how COVID-19's telemedicine expansion could exacerbate disparities. *Journal of the American Academy of Dermatology*, 83(5), e345-e346. <https://doi.org/10.1016/j.jaad.2020.07.043>
- Barasa, E. W, Cloete, K., & Gilson, & Gilson, L. (2017). From bouncing back, to nurturing emergence: reframing the concept of resilience in health systems strengthening. *Health Policy and Planning*, 32, iii91–iii94. doi: 10.1093/heapol/czx118
- Bhaskar, A., Ng, A.K.M., Patil, N.G., and Fok, M (2020) Zooming past the coronavirus lockdown: online spirometry practical demonstration with student involvement in analysis by remote control *Advances in Physiology Education* 44(4), 516-519
- Bautista, C. A., Huang, I., Stebbins, M., Floren, L. C., Wamsley, M., Youmans, S. L., & Hsia, S. L. (2020). Development of an interprofessional rotation for pharmacy and medical students to perform telehealth outreach to vulnerable patients in the COVID-19 Pandemic. *Journal of Interprofessional Care*, 34(5), 694-697. <https://doi.org/10.1080/13561820.2020.1807920>
<https://doi.org/10.1080/13561820.2020.1807920>
- Beach, M. C., Inui, T., & Relationship-Centered Care Research Network. (2006). Relationship-centered care. A constructive reframing. *Journal of General Internal Medicine*, 21 (Suppl 1), S3–S8.
- Bender, A. E., Berg, K. A., Miller, E., Evans, K. E., & Holmes, M. R. (2021). “Making sure we are all okay”: Healthcare workers strategies for emotional connectedness during the COVID-19 pandemic. *Clinical Social Work Journal*, 40, 445-455. <https://doi.org/10.1007/s10615-020-00781-w>

- Berkman ND, Sheridan SL, Donahue KE, Halpern DJ and Crotty K (2011) Low Health Literacy and Health Outcomes: an Updated Systematic Review. *Annals of Internal Medicine*; 155, 97-107. doi:[10.7326/0003-4819-155-2-201107190-00005](https://doi.org/10.7326/0003-4819-155-2-201107190-00005)
- Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost. *Health Affairs (Project Hope)*, 27(3), 759–769. <https://doi.org/10.1377/hlthaff.27.3.759>
- Bhaskar, A., Ng, A.K.M., Patil, N.G., and Fok, M (2020) Zooming past the coronavirus lockdown: online spirometry practical demonstration with student involvement in analysis by remote control *Advances in Physiology Education*, 44(4), 516-519.
- Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: care of the patient requires care of the provider. *Annals of Family Medicine*, 12(6), 573–576. <https://doi.org/10.1370/afm.1713>
- Bourgeault, I. L., Maier, C. B., Dieleman, M., Ball, J., MacKenzie, A., Nancarrow, S., Nigenda, G., & Sidat, M. (2020). The COVID-19 Pandemic presents an opportunity to develop more sustainable health workforces. *Human Resources for Health*, 18(1), 83. <https://doi.org/10.1186/s12960-020-00529-0>
- Braveman, P. (2014) What are health disparities and health equity? We need to be clear. *Public Health Reports*. 129(2),5-8. <https://pubmed.ncbi.nlm.nih.gov/24385658>
- Breitbach, A. P., Muchow, J. A., & Gallegos, D. F. (2020). Athletic trainers' unique clinical and teamwork skills contribute on the frontlines during the COVID-19 Pandemic: A discussion paper. *Journal of Interprofessional Care*, 34(5), 607-613. <https://doi.org/10.1080/13561820.2020.1792426>
- Centers for Disease Control and Prevention. (2021). Social determinants of health: Know what affects health. CDC, <https://www.cdc.gov/socialdeterminants/index.htm>
- Chiniara, G., Cole, G., Brisbin, K., Huffman, D., Cragg, B., Lamacchia, M., Norman, D., & Canadian Network For Simulation In Healthcare, Guidelines Working Group (2013) Simulation in healthcare: a taxonomy and a conceptual framework for instructional design and media selection. *Medical Teacher*, 35(8), e1380–e1395. <https://doi.org/10.3109/0142159X.2012.733451>
- Coleman, K., Wagner, E., Schaefer, J., Reid, R., & LeRoy, L. (2016). Redefining primary care for the 21st century. *Rockville, MD: Agency for Healthcare Research and Quality*, 16(20), 1-20.
- Conference Participants (2022). Josiah Macy Jr. Foundation Conference on COVID-19 and the Impact on Medical and Nursing Education: Conference Recommendations Report. *Academic medicine : journal of the Association of American Medical Colleges*, 97(3S), S3–S11. <https://doi.org/10.1097/ACM.00000000000004506>
- Couarraze, S., Delamarre, L., Marhar, F., Quach, B., Jiao, J., Avilés Dorlhiac, R., ... & Dutheil, F. (2021). The major worldwide stress of healthcare professionals during the first wave of the COVID-19 Pandemic—the international COVISTRESS survey. *PloS one*, 16(10), e0257840.
- Donnelly, C., Ashcroft, R., Bobbette, N., Mills, C., Mofina, A., Tran, T., Vader, K., Williams, A., Gill, S., & Miller, J. (2021). Interprofessional primary care during COVID-19: a survey of the provider perspective. *BMC Family Practice*, 22(1), 31. <https://doi.org/https://www.doi.org/10.1186/s12875-020-01366-9>
- Ehrlich, H., McKenny, M., & Elkbuli, A. (2020). Protecting our healthcare workers during the COVID-19 Pandemic. *American Journal of Emergency Medicine*, 38(7), 1527-1528.

- Epstein, R. M., & Krasner, M. S. (2013). Physician resilience: what it means, why it matters, and how to promote it. *Academic medicine : journal of the Association of American Medical Colleges*, 88(3), 301–303. <https://doi.org/10.1097/ACM.0b013e318280cff0>
- Eroğlu, E., Kolcu, G., & Kolcu, M.B. (2022) The Effect of Distance Education Conducted during the COVID-19 Pandemic Period on the Psychomotor Skill Development of a Dental School Students. *BioMed Research International*. 2022:6194200. <https://doi.org/10.1155/2022/6194200>
- Esposito, C.P. & Sullivan, K. (2020) Maintaining Clinical Continuity Through Virtual Simulation During the COVID-19 Pandemic. *Journal of Nurse Education*. 59(9) 522–525. <https://doi.org/10.3928/01484834-20200817-09>
- Fernandes, S. F., Trigueiro, J. G., Barreto, M. A. F., Carvalho, R., Silva, M., Moreira, T. M. M., Costa, M. V. D., & Freitas, R. J. M. (2021). Interprofessional work in health in the context of the COVID-19 Pandemic: a scoping review. *Revista da Escola de Enfermagem da USP*, 55, e20210207. <https://doi.org/10.1590/1980-220X-REEUSP-2021-0207>
- Fisk M, Livingstone A, Pit S (2020). Telehealth in the Context of COVID-19: Changing Perspectives in Australia, the United Kingdom, and the United States. *Journal of Medical Internet Research*, 22(6), e19264. <https://doi.org/10.2196/19264>
- Fogg, N., Wilson, C., Trinka, M., Campbell, R., Thomson, A., Merritt, L., ... & Prior, M. (2020). Transitioning from direct care to virtual clinical experiences during the COVID-19 Pandemic. *Journal of Professional Nursing*, 36(6), 685-691.
- Goddard, A. F., & Patel, M. (2021). The changing face of medical professionalism and the impact of COVID-19. *The Lancet*, 397(10278), 950-952. [https://doi.org/10.1016/s0140-6736\(21\)00436-0](https://doi.org/10.1016/s0140-6736(21)00436-0)
- Goldman, J., & Xyrichis, A. (2020). Interprofessional working during the COVID-19 Pandemic: sociological insights. *Journal of Interprofessional Care*, 34(5), 580-582. <https://doi.org/https://www.doi.org/10.1080/13561820.2020.1806220>
- Hartwig, A., Clarke, S., & Johnson, S. (2020). Workplace team resilience: A systematic review and conceptual development. *Organizational Psychology Review*, 10(3-4) 169–200. <https://doi.org/10.1177/2041386620919476>
- Herath, C., Zhou, Y., Gan, Y., Nakandawire, N., Gong, Y., & Lu, Z. (2017). A comparative study of interprofessional education in global health care: A systematic review. *Medicine*, 96(38), e7336. <https://doi.org/10.1097/MD.0000000000007336>
- Hutchings, M., McLarnon, N., McDermott, J., Watson, A., Power, A., Anderson, E.S., & Owens, M. (2022) Practice-based learning and the impacts of COVID-19: doing it for real? *British Journal of Midwifery*, 30(6), 333-344.
- Itchhaporia D. (2021). The Evolution of the Quintuple Aim: Health Equity, Health Outcomes, and the Economy. *Journal of the American College of Cardiology*, 78(22), 2262–2264. <https://doi.org/10.1016/j.jacc.2021.10.018>
- Jazieh, A. R., & Kozlakidis, Z. (2020). Healthcare Transformation in the Post-Coronavirus Pandemic Era. *Front Med (Lausanne)*, 7, 429. <https://doi.org/10.3389/fmed.2020.00429>
- El Kassmi, I., & Jarir, Z. (2021). Blockchain-oriented Inter-organizational Collaboration between Healthcare Providers to Handle the COVID-19 Process. *International Journal of Advanced Computer Science and Applications*, 12(12).

- Keeton, K., Fenner, D. E., Johnson, T. R., & Hayward, R. A. (2007). Predictors of physician career satisfaction, work-life balance, and burnout. *Obstetrics and gynecology*, 109(4), 949–955. <https://doi.org/10.1097/01.AOG.0000258299.45979.37>
- Kerrissey, Singer, S. (2020). Leading Frontline Covid-19 Teams: Research-informed Strategies. *NEJM Catalyst*. Available at: <https://catalyst.nejm.org/doi/abs/10.1056/CAT.20.0192>
- Khalili, H., (2020). Online Interprofessional Education during and post-COVID-19 Pandemic. *Journal of Interprofessional Care*, 34(5), 687-690.
- Kim, S., Bochatay, N., Relyea-Chew, A., Buttrick, E., Amdahl, C., Kim, L., ... & Lee, Y. M. (2017). Individual, interpersonal, and organisational factors of healthcare conflict: A scoping review. *Journal Of Interprofessional Care*, 31(3), 282-290.
- Khalili, H., Lising, D., Kolcu, G., Thistlethwaite, J., Gilbert, J., Langlois, S., ... & Pfeifle, A. (2021a). Advancing health care resilience through a systems-based collaborative approach: Lessons learned from COVID-19. *Journal of Interprofessional Care*, 35(6), 809-812.
- Khalili, H., Lising, D., Gilbert, J., Thistlethwaite, J., Pfeifle, A., Maxwell, B., Başer Kolcu, I., Langlois, S., F. J., (2021b). *Building Resilience in Health Care in the time of COVID-19 through* Najjar, G., MacMillan, K. Al-Hamdan, Z., K., Schneider, C. R., Kolcu, G., El-Awaisi, A., Ward, H., Rodrigues, F. J., (2021b). *Building Resilience in Health Care in the time of COVID-19 through Collaboration - A Call to Action*. InterprofessionalResearch.Global Publication (ISBN: 978-1-7366963-0-9). Available at: www.interprofessionalresearch.global Accessed: 27.9.22
- Khalili, H., & Orchard, C. (2020). The effects of an IPS-based IPE program on interprofessional socialization and dual identity development. *Journal of interprofessional care*, 1–11. Advance online publication. <https://doi.org/10.1080/13561820.2019.1709427>
- Khalili, H., Orchard, C., Laschinger, H. K, Farah, R. (2013). An interprofessional socialization framework for developing an interprofessional identity among health professions students. *Journal of Interprofessional Care*. 27(6), 448- 453; DOI: 10.3109/13561820.2013.804042.
- Khalili, H., Price, S., (2021). From uniprofessionality to interprofessionality: dual vs dueling identities in healthcare. *Journal of Interprofessional Care*, 1-6, doi.org/10.1080/13561820.2021.1928029
- Khalili, H., Thistlethwaite, J., El-Awaisi, A., Pfeifle, A., Gilbert, J., Lising, D., MacMillan, K., J. Maxwell, B., Grymonpre, R.E., Rodrigues F. F., Snyman, S., Xyrichis, A. (2019). *Guidance on Global Interprofessional Education and Collaborative Practice Research: Discussion Paper*. A joint publication by InterprofessionalResearch.Global & Interprofessional.Global. Available: www.interprofessionalresearch.global Accessed: 27.9.22
- Kolcu G. , Demir S. , Başer Kolcu M. İ. , Gülle K. , Atay T. , & Koşar A. (2021). A Success Story During the Pandemic Period Süleyman Demirel University Medical Faculty Experience. *T Tıp Eğitimi Dönüşümü*, 20(60-1), 5-10. <https://doi.org/10.25282/ted.790795>
- Konrad, S. C. (2022). *Resilience in Extraordinary Times: Coexistence and Coping in an Uncertain World*. Keynote, 2022 NAP Forum, San Diego, CA
- Lai, J., et al., Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 2020. 3(3): p. e203976

- Langlois, S. & Ng, S. (2021) Prioritizing Humanism in Technology-Enabled IPE: Post-Pandemic Possibilities. *Journal of Interprofessional Collaboration in Health and Social Care*, 14(2), 95-120. doi.org/10.32217/jaipc.14.2_95.
- Langlois, S., Xyrichis, A., Daulton, B. J., Gilbert, J., Lackie, K., Lising, D., MacMillan, K. M., Najjar, G., Pfeifle, A. L., & Khalili, H. (2020). The COVID-19 crisis silver lining: interprofessional education to guide future innovation. *Journal Of Interprofessional Care*, 34(5), 587-592. <https://doi.org/10.1080/13561820.2020.1800606>
- Lapidos, A. and Ruffolo, M. (2017). Access to interprofessional continuing education in integrated care through digital instructional technology. *Journal of Social Work Education*, 53(51), 540-546. <https://doi.org/10.1080/10437797.2017.1288596>
- Lederman, D. (2020). The HyFlex Option for Instruction if Campuses Open This Fall. *Inside Higher Ed*, : Available: <https://www.insidehighered.com/digital-learning/article/2020/05/13/one-option-delivering-instruction-if-campuses-open-fall-hyflex> Accessed: 27.9.22
- Leiman, E. R., Waite, K. A., & Ostrovsky, D. A. (2021). Lessons Learned from the Development and Implementation of Virtual and Telehealth Interprofessional Educational Clinics. *Advances In Medical Education and Practice*, 12, 1145-1152. <https://doi.org/10.2147/AMEP.S328990>
- Li, J.T.S., Wong, W.T., Lo, S., Chan, W., Chan, K.C., Lising, D., Langlois, S., Ng, E.E.N., Chick, M.M.Y., & Lee, V.W.Y. (2021) Internationalization at Home – Opportunities for Global Classroom Amid COVID-19. Presented at the CUHK T&L Expo 2021.
- Liaw, S.Y., Wu, L.T., Soh, S.L.H., Ringsted, C., Lau, T.C., & Lim, W.S. (2020) Virtual reality simulation in interprofessional round training for health care students: a qualitative evaluation study. *Clinical Simulation in Nursing*, 45, 42-46.
- Liu C, Wang D, Liu C, Jiang J, Wang X, Chen H, Ju X and Zhang X (2020) What is the meaning of health literacy? A systematic review and qualitative synthesis. *Family Medicine and Community Health* 2020; 8: e000351. doi: 10.1136/fmch-2020-000351
- Lopez, A. M., Lam, K., & Thota, R. (2021). Barriers and facilitators to telemedicine: can you hear me now? *American Society of Clinical Oncology Educational Book*, 41, 25-36.
- Marion-Martins, A. D., & Pinho, D. L. (2020). Interprofessional simulation effects for healthcare students: A systematic review and meta-analysis. *Nurse Education Today*, 94, 104568.
- Mate K. (2022) On the Quintuple Aim: Why Expand Beyond the Triple Aim? Available: <http://www.ihl.org/communities/blogs/on-the-quintuple-aim-why-expand-beyond-the-triple-aim> Accessed: 4.2.22
- Mayo, A. T., & Woolley, A. W. (2016). Teamwork in Health Care: Maximizing Collective Intelligence via Inclusive Collaboration and Open Communication. *AMA Journal of Ethics*, 18(9), 933–940. <https://doi.org/10.1001/journalofethics.2016.18.9.stas2-1609>
- McKinlay, E., Banks, D., Coleman, K., Darlow, B., Dungey, G., Farr, T., Fyfe, R., Gray, B., Kemp, L., Mitchell, M., Morris, C., Myers, J., Neser, H., Perry, M., Price, R., Thompson, W., Westenra, B., & Pullon, S. (2021). Keeping it going: the importance of delivering interprofessional education during the COVID-19 pandemic. *Journal of Primary Health Care*, 13(4), 359–369. <https://doi.org/10.1071/HC21070>

- Meuwly J, Mandralis K, Tenisch E, Gullo G, Frossard P, Morend L (2021) Use of an Online Ultrasound Simulator to Teach Basic Psychomotor Skills to Medical Students During the Initial COVID-19 Lockdown: Quality Control Study. *JMIR Medical Education* ,7(4):e31132
<https://doi.org/10.2196/31132>
- Miller, A. & Guest, K. (2021) Rising to the Challenge: The Delivery of Simulation and Clinical Skills during COVID-19. *Comprehensive Child and Adolescent Nursing*, 44(1), 6-14.
<https://doi.org/10.1080/24694193.2021.1883156>
- Moynihan, R., Sanders, S., Michaleff, Z. A., Scott, A. M., Clark, J., To, E. J., Jones, M., Kitchener, E., Fox, M., Johansson, M., Lang, E., Duggan, A., Scott, I., & Albarqouni, L. (2021). Impact of COVID-19 Pandemic on utilisation of healthcare services: a systematic review. *BMJ Open*, 11(3), e045343.
<https://doi.org/10.1136/bmjopen-2020-045343>
- NAP Lexicon, National Academies of Practice. (2020) Nap Lexicon Task Force Update: Nap Executive Committee Meeting Available at:
<https://nap.memberclicks.net/assets/docs/NAP%20Lexicon%20-%20Approved%20by%20Council%20FINAL%202011.10.2020.pdf> Accessed: 28.9.22
- Naeem, S.B., & Boulos, M.N.K. (2021). COVID-19 Misinformation online and health literacy: A brief overview. *International Journal of Environmental Research and Public Health*, 18(5), 1-12.
- National Academies of Sciences, Engineering, and Medicine. (2019a) Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25467>.
- National Academies of Sciences, Engineering, and Medicine. (2019b) Strengthening the Connection Between Health Professions Education and Practice: Proceedings of a Joint Workshop. Washington, DC: The National Academies Press. . <https://doi.org/10.17226/25407>.
- Nearing, K. A., Lum, H. D., Dang, S., Powers, B., McLaren, J., Gately, M., Hung, W., & Moo, L. (2020). National Geriatric Network Rapidly Addresses Trainee Telehealth Needs in Response to COVID-19. *Journal of the American Geriatrics Society*, 68(9), 1907-1912.
<https://doi.org/https://doi.org/10.1111/jgs.16704>
- Nundy, S., Cooper, L. A., & Mate, K. S. (2022). The Quintuple Aim for Health Care Improvement: A New Imperative to Advance Health Equity. *JAMA*, 327(6), 521–522.
<https://doi.org/10.1001/jama.2021.25181>
- Okhrimenko, O. O. (2021). Accelerating Of Digitization of Business Processes Under the Influence of the Covid-19 Pandemic. *Deputy Editor-in-Chief*, 68.
- Park, C. S., Clark, L., Gephardt, G., Robertson, J. M., Miller, J., Downing, D. K., Koh, B., Bryant, K. D., Grant, D., Pai, D. R., Gavilanes, J. S., Herrera Bastida, E. I., Li, L., Littlewood, K., Escudero, E., Kelly, M. A., Nestel, D., & Rethans, J. J. (2020). Manifesto for healthcare simulation practice. *BMJ Simulation & Technology Enhanced Learning*, 6(6), 365–368. <https://doi.org/10.1136/bmjstel-2020-000712>
- Park, V. (2022). Moving interprofessional education to a virtual platform. *British Journal of Nursing*, 31 (5), 264
- Park, V. (2019). *Learning in Critical Care: A Focused Ethnography of Interprofessional Learning Culture*. PhD Thesis submitted to Northumbria University.
<http://nrl.northumbria.ac.uk/id/eprint/45621/>

- Park, V. (2019). *Learning in Critical Care: A Focused Ethnography of Interprofessional Learning Culture*. PhD Thesis submitted to Northumbria University.
<http://nrl.northumbria.ac.uk/id/eprint/45621/>
- Park, V. and Holland, R. (2022) Online platform utilised during COVID can boost teaching toolkit *British Journal of Nursing*, 31 (11) 562 <https://doi.org/10.12968/bjon.2022.31.11.562>
- Paterson, C., Bacon, R., Dwyer, R., Morrison, K. S., Toohey, K., O'Dea, A., Slade, J., Mortazavi, R., Roberts, C., Pranavan, G., Cooney, C., Nahon, I., & Hayes, S. C. (2020). The Role of Telehealth During the COVID-19 Pandemic Across the Interdisciplinary Cancer Team: Implications for Practice. *Seminars in Oncology Nursing*, 36(6), 151090.
<https://doi.org/https://doi.org/10.1016/j.soncn.2020.151090>
- Pecukonis, E., Doyle, O., & Bliss, D. L. (2008). Reducing barriers to interprofessional training: promoting interprofessional cultural competence. *Journal of Interprofessional Care*, 22(4), 417–428. <https://doi.org/10.1080/13561820802190442>
- Phillips, K., Knowlton, M., & Riseden, J. (2022). Emergency Department Nursing Burnout and Resilience. *Advanced Emergency Nursing Journal*, 44(1), 54–62.
<https://doi.org/10.1097/TME.0000000000000391>
- Pottle, J. (2019). Virtual reality and the transformation of medical education. *Future Healthcare Journal*, 6(3), 181–185. <https://doi.org/10.7861/fhj.2019-0036>
- Power, A., Park, V., Owens, M., and Sy, M. (2022) 'Academics' experiences of online interprofessional education in response to COVID-19'. *British Journal of Midwifery*, 30 (4), 222-228
- Power, A., Sy, M., Hutchings, M., Coleman, T., El-Awaisi, A., Kitema, G., Gallagher, J., Herath, C., McLarnon, N., Nagraj, S., Nazar, H., O'Carroll, V., Owens, M., Park, V., Pope, E., Wetzlmair, L-C., Anderson, E., & Greaves, J. (2021). 'Learning in Lockdown': exploring the experiences of the impact of COVID-19 on Interprofessional Education. *British Journal of Midwifery*, 29 (11), 648-652.
- Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, (6), 1-38
- Robezieks, A. (2020). In COVID-19 epicenter, breaking silos led to better teamwork. *American Medical Association*. Available: <https://www.ama-assn.org/practice-management/sustainability/covid-19-epicenter-breaking-silos-led-better-teamwork> Accessed: 27.9.22
- Romito, L. M., Pfeifle, A. L., Weber, Z. A., & Daulton, B. J. (2020). Successful conversion of simulation-based interprofessional education in a pandemic. *Journal of Dental Education*, 10.1002/jdd.12328. Advance online publication. <https://doi.org/10.1002/jdd.12328>
- Samadbeik, M., Yaaghobi, D., Bastani, P., Abhari, S., Rezaee, R., & Garavand, A. (2018). The Applications of Virtual Reality Technology in Medical Groups Teaching. *Journal of Advances in Medical Education & Professionalism*, 6(3), 123–129.
- Sanchez Gonzalez, M. L., McCord, C. E., Dopp, A. R., Tarlow, K. R., Dickey, N. J., McMaughan, D. K., & Elliott, T. R. (2019). Telemental health training and delivery in primary care: A case report of interdisciplinary treatment. *Journal of Clinical Psychology*, 75(2), 260–270.
<https://doi.org/10.1002/jclp.22719>

- Schulz PJ and Nakamoto K. (2022) The perils of misinformation: when health literacy goes awry. *Nature Reviews Nephrology*; 18, 135–136.
- Shrader, S., Kostoff, M., Shin, T., Heble, A., Kempin, B., Miller, A., & Patykiewicz, N. (2016). Using communication technology to enhance interprofessional education simulations. *American Journal of Pharmaceutical Education*, 80(1), 13.
- Shreffler, J., Petrey, J., & Huecker, M. (2020). The impact of COVID-19 on healthcare worker wellness: a scoping review. *Western Journal of Emergency Medicine*, 21(5), 1059.
- Singh, J., & Singh, J. (2020). COVID-19 and its impact on society. *Electronic Research. Journal of Social Sciences and Humanities*, 2(1), 168-172
- Suarez-Lledo, V. & Alvarez-Galez, J. (2021). Prevalence of health misinformation on social media: systematic review. *Journal of Medical Internet Research*, 23(1) e17187 (<https://www.jmir.org/2021/1/e17187>)
- Sunderland, A., Nicklin, J. and Martin, A. (2017) Simulation and Quality in Clinical Education *Open Medical Journal* 4(Suppl-1, M3) 26-34 www.dx.doi.org/10.2174/1874220301704010026
- Sweeney Haney, T., Kott, K., Rutledge, C. M., Britton, B., Fowler, C. N., & Poston, R. D. (2018). How to prepare interprofessional teams in two weeks: An innovative education program nested in telehealth. *International Journal of Nursing Education Scholarship*, 15(1), 1. <https://doi.org/10.1515/ijnes-2017-0040>
- Sy, M., Park, V., Nagraj, S., Power, A., and Herath, C. (2022) Emergency remote teaching for interprofessional education during COVID-19: student experiences *British Journal of Midwifery*, 30(1) 47-55.
- Synnevåg, E. S., Amdam, R., & Fosse, E. (2019). Legitimising Inter-Sectoral Public Health Policies: A Challenge for Professional Identities? *International Journal of Integrated Care*, 19(4), 1-10 <https://doi.org/10.5334/ijic.4641>
- Tilak, J., & Kumar, A. G. (2022). Policy Changes in Global Higher Education: What Lessons Do We Learn from the COVID-19 Pandemic?. *Higher education policy*, 35(3), 610–628. <https://doi.org/10.1057/s41307-022-00266-0>
- Toronto CE and Weatherford B (2015) Health Literacy Education in Health Professions Schools: An Integrative Review. *Journal of Nursing Education*; 54,(12), 669-676. doi: [10.3928/01484834-20151110-02](https://doi.org/10.3928/01484834-20151110-02)
- Turhan, Z., Dilcen, H. Y., & Dolu, İ. (2021). The mediating role of health literacy on the relationship between health care system distrust and vaccine hesitancy during COVID-19 pandemic. *Current psychology*, 1–10. Advance online publication. <https://doi.org/10.1007/s12144-021-02105-8>
- Vaz de Almeida, C. (2021). The great potential of virtual reality in healthcare. *Patient Safety Monitor Journal*, 22(5), 10–13.
- Wallace, D., Sturrock, A. and Gishen, F. (2021) ‘You’ve got mail!’: Clinical and practical skills teaching re-imagined during COVID-19. *Future Healthcare Journal*, 8(1) e50-e53; <https://doi.org/10.7861/fhj.2020-0231>

- Wenker S., Khalili H., Rusch R., Schroepfer T., Maser A., Tissot K. (2021) *Using Virtual Clinical Simulation in Preparing Interprofessional Dementia Workforce*. Accepted as a Poster Presentation; APTA Academy of Education - ELC 2021 Conference, Atlanta, GA. October 22-24, 2021.
- Wetzlmair, L., Kitema, G.F., O'Carroll, V., El-Awaisi, A., Power, A., Owens, M., Park, V., Mairi McKinley, M. and Anderson, E.S. (2021) The impact of Covid-19 on the delivery process of Interprofessional Education: it's not all bad news *British Journal of Midwifery*, 29 (12) 699-705.
- Winship, J. M., Falls, K., Gregory, M., Peron, E. P., Donohoe, K. L., Sargent, L., Slattum, P. W., Chung, J., Tyler, C. M., Diallo, A., Battle, K., & Parsons, P. (2020). A case study in rapid adaptation of interprofessional education and remote visits during COVID-19. *Journal Of Interprofessional Care*, 34(5), 702-705. <https://doi.org/10.1080/13561820.2020.1807921>
- World Health Organization (2022) Global Competency and Outcomes Framework for Universal Health Coverage. Available at: <https://www.who.int/publications/i/item/9789240034662> Accessed: 20.6.22
- World Health Organization (2021) Fighting misinformation in the time of COVID-19, one click at a time. Available at: <https://www.who.int/news-room/feature-stories/detail/fighting-misinformation-in-the-time-of-covid-19-one-click-at-a-time> Accessed: 04.07.22
- World Health Organization Regional Office for Europe. (2017). Building resilience: a key pillar of Health 2020 and the Sustainable Development Goals: examples from the WHO Small Countries Initiative. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/338752>
- World Health Organization (2010a) Framework for action on interprofessional education & collaborative practice Available at: <https://www.who.int/publications/i/item/framework-for-action-on-interprofessional-education-collaborative-practice> Accessed: 20.6.22
- World Health Organization Global Observatory for eHealth. (2010). Telemedicine: opportunities and developments in Member States: report on the second global survey on eHealth. Available at: <https://apps.who.int/iris/handle/10665/44497>. Accessed: 08.07.22
- Wosik, J., Fudim, M., Cameron, B., Gellad, Z. F., Cho, A., Phinney, D., Curtis, S., Roman, M., Poon, E. G., Ferranti, J., Katz, J. N., & Tcheng, J. (2020). Telehealth transformation: COVID-19 and the rise of virtual care. *Journal of the American Medical Informatics Association*, 27(6), 957-962. <https://www.doi.org/10.1093/jamia/ocaa067>
- Zhao, Y., Watterston, J. (2021) The changes we need: Education post COVID-19. *Journal of Educational Change*, 22, 3–12 . <https://doi.org/10.1007/s10833-021-09417-3>



IPR.Global

The Global Network for
Interprofessional Education and
Collaborative Practice Research

Interprofessional Education and Collaborative Practice (IPECP) in Post-COVID Healthcare Education and Practice Transformation Era

Discussion Paper 2022

ISBN: 978-1-7366963-3-0

