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Physical activity assessment, prescription and referral in US healthcare: How do we make this a standard of clinical practice?

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ABSTRACT

Numerous guidelines and recommendations reinforce the important role of healthcare providers promoting physical activity (PA) through assessment, prescription, and referral. This paper summarizes what is required to accomplish these actions as a standard of care. The sections describe the importance of measurement development and standardization, the integration of PA into the care continuum, suggested roles and responsibilities for the healthcare team, the role of technology and telehealth in promoting PA, connecting patients to different PA modalities and settings, a summary of the overall regulatory and policy plan to accomplish integration of PA into delivery of care, and areas for future research. Integrating PA assessment, prescription, and referral into delivery of care requires a multi-stakeholder, coordinated effort with government agencies, payers, non-governmental organizations, professional societies, the United States Congress, state legislatures, healthcare systems, and the healthcare industry.

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Abbreviations: AMA, American Medical Association; CMS, Centers for Medicare and Medicaid Services; CPT® code set, Current Procedural Terminology code set; DMPAG, Digital Medicine Payment Advisory Group; EHR, Electronic Health Record; HL7, Health Level Seven International; NCCA, National Commission for Certifying Agencies; NCQA, National Commission on Quality Assurance; NQF, National Quality Forum; ONC, Office of the National Coordinator for Health Information Technology; PA, Physical Activity; PAA, Physical Activity Alliance; PHI, Personal Health Information; RPM, Remote Patient Monitoring; US, United States; USREPS, The US Registry of Fitness Professionals.

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Introduction

Being physically active is one of the most important lifestyle behaviors people can engage in, to maintain physical and mental health and well-being.[1] Regular physical activity (PA) is both health-promoting and important for disease treatment and prevention with numerous benefits that contribute to a disability-free lifespan.[2] It also contributes to social connectedness, quality of life, and environmental sustainability.[3] Currently in the United States (US), only 26% of men, 19% of women, and 20% of adolescents report sufficient PA to meet the relevant aerobic and muscle-strengthening PA guidelines.[1] The current levels of physical inactivity in the US population create $117 billion in annual healthcare costs[4] and contribute about 10% of premature mortality.[1] Even so, current population PA levels avert 3.9 million premature deaths globally and 140,200 premature deaths in the US on an annual basis.[5]

Numerous guidelines and recommendations, including the Physical Activity Guidelines for Americans,[1] the US Preventive Services Task Force,[6] the Healthy People 2030 Framework,[7] and the US National Physical Activity Plan[8] promote the importance of PA screening, assessment, and prescription as a standard of care in clinical practice. The Prescription for Activity Task Force has provided an important road map to mobilize healthcare and help all people in the US become more physically active to improve health outcomes and reduce health disparities.[9] Exercise is Medicine® is a global health initiative to make PA assessment and promotion a standard in clinical care.[10] Despite these important guidelines, recommendations, and initiatives, we still have not integrated PA as a standard of care due to barriers of time, the need for standardized measures, and more professional education and training for providers. This paper summarizes a framework, resources, and a plan of action to catalyze the necessary regulatory and policy work. The effort will require a multi-stakeholder, coordinated effort with government agencies, payers, non-governmental organizations, professional societies, the US Congress, state legislatures, healthcare systems, and the healthcare industry.

The care continuum

The PA care continuum (see Fig. 1) connects patient screening, prescription, and referral that happens in the clinical environment with community resources and/or an individualized plan for follow through with a feedback loop to the provider about whether the behavior change happened. There are several international models[11–16] around exercise prescription and referral that provide history and evidence for implementation in the US. They underscore the need for patient-centered counseling, robust data collection for outcomes evaluation, provider competencies and training, performance measures, and an intentional equity focus that reaches the most sedentary patients at highest risk for chronic disease.[11,15,17]

Who may be qualified to do the assessment, provide the prescription/referral, and deliver the services?

As a health behavior that is relatively new to the healthcare setting, there is little to no formal guidance from governing bodies or major health professional organizations in the US on who should be doing what, when, and how in terms of promoting PA with patients in the clinical setting. Unlike other fields that have clear credentialing and scope of practice, such as the role of registered dietitians in advising and counseling on dietary habits,[18] no clear state or federal guidance exists on who should, and should not, provide PA counseling. However, we believe that there are a few foundational points that should serve as the basis for the integration of PA in clinical settings and the connection to community settings.

Providing comprehensive PA guidance to patients requires the coordinated efforts of the entire healthcare team. Unlike previous calls to action for physicians to be accountable for counseling patients on PA, no single member of the patient care team should be solely responsible for promoting PA. The more team members who are engaged, the more comprehensive the effort. A job task analysis can be done in

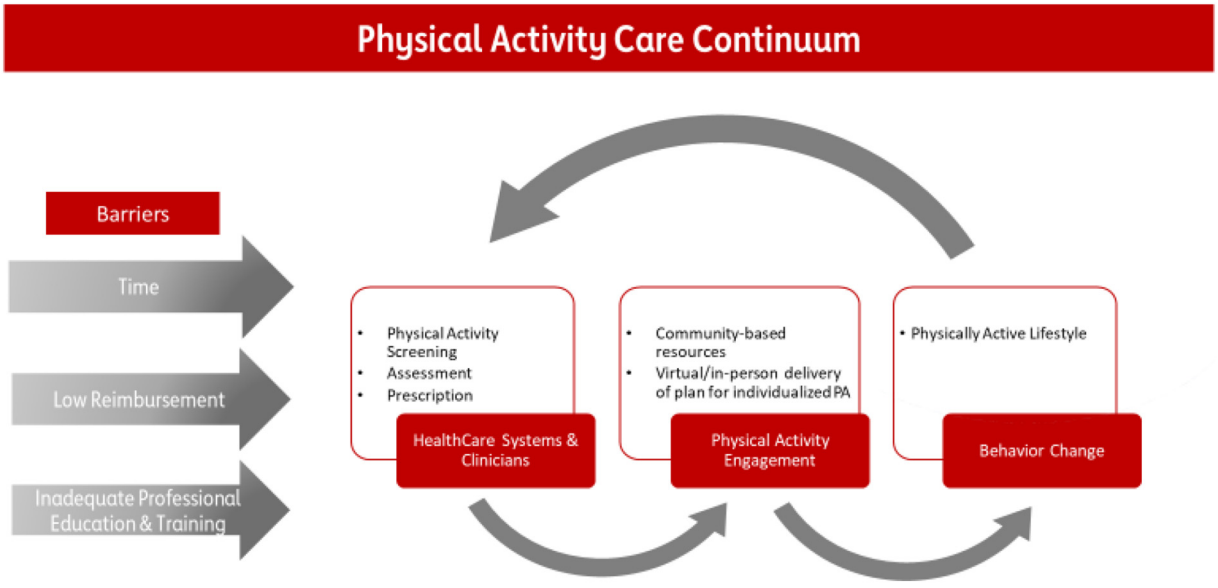


Fig. 1. The PA Care Continuum in Payment and Delivery Systems.

each setting to identify team members best suited for each activity. For example, at healthcare organizations that assess self-reported PA as a vital sign, the medical assistant or nurse is responsible for asking the patient the number of days per week and minutes per day that the patient engages in PA.[19] The medical assistant or nurse then notes the response in the electronic medical record, prompting follow-up by the physician.

Providing PA counseling and a basic prescription will often fall under the responsibility of the attending clinician (i.e., nurse practitioner, physician assistant or physician), while the final 'connecting' or referral of the patient to PA resources will likely be the responsibility of a discharge nurse or care coordinator. To ensure optimal patient engagement and adherence to a more physically active lifestyle, in both the short- and long-term, linking patients to a wide range of PA resources and options outside of the clinical setting is essential. The patient services provided in the clinical setting serve as a spark that ignites the flame, with the connection to community-based PA resources serving as the fuel that sustains the fire. To be successful at a population level, exercise professionals and evidence-based PA programs must be considered as an extended part of the healthcare team.

One way to structure the roles and responsibilities of the professionals who make up this extended healthcare team is to consider who might serve as a 'referrer' and as a 'receiver' of patients (see Fig. 2). A list of professionals that may be a part of the extended healthcare team can be found in Table 1, defined according to the Department of Labor Bureau of Labor Statistics[20] and categorized as 'referrer,' 'receiver,' or individuals that 'straddle' the responsibilities of both referrers and receivers.

The referrers are likely the healthcare providers in the clinical setting who examine the patients' current PA levels,[21] engage them in appropriate behavior change counseling based on their current readiness for change,[22] provide a basic PA prescription,[23] and refer them to supportive resources for ongoing engagement in PA.[10] As a trusted source of health information and guidance, 'referrers' play an essential role highlighting the importance of a physically active lifestyle. The 'receivers' will likely be health and fitness, exercise or other trained professionals who have the appropriate credentials to develop customized PA plans for patients with a variety of chronic and musculoskeletal conditions and lead individual and/or group-based exercise programming. Lastly, many professions may serve in a dual role, capable of both referring and receiving patients. One example is the role of the physical therapist, who typically receives patients referred from medical practices[24] and can promote PA as part of the rehabilitation process with patients. At the same time, patients often have a limited number of visits with their physical therapist and may benefit from a referral to a certified exercise professional for continued assistance in achieving a physically active lifestyle beyond resolving their specific musculoskeletal issue.[25]

Much like other fields, it is important for everyone involved in this extended healthcare team to be mindful and respectful of each other's areas of expertise, especially given the absence of defined scopes of practice around PA promotion. Just as exercise professionals should not be providing medical advice to their clients, healthcare providers should value and trust trained exercise professionals to provide their patients with high quality PA support and guidance.

Patient navigation

A vital, and perhaps undervalued, component in linking patients to PA resources, programs, and professionals is that of the 'navigator' – a role similar to that of a care manager or nurse navigator,[26] who follows up on referrals to ensure that patients are successful in accessing and engaging with PA resources external to the clinical setting. The navigator helps patients with logistical considerations involved with 'filling their prescription', assesses readiness to change, employs behavior change strategies, and connects them to available PA resources.

Health coaches may be considered as a more advanced form of patient navigation specific to PA promotion. A relatively new addition to the extended healthcare team, health coaches were officially recognized as an occupation by the Department of Labor in 2013,[20] falling under the classification of a 'Community Health Worker.' There is an expanding evidence base and increased recognition of the role that health coaches play in improving health outcomes, especially around chronic disease prevention and management, by creating linkages between clinical and community settings.[27] Health coaches use a client-directed approach to empower individuals to adopt and sustain healthy lifestyle behavior change. They can be brought into a clinical setting to work alongside clinicians or they can work together with registered dietitians and exercise professionals in the community setting. Health coaches can serve as an initial point of contact with providers and use their referral network to connect patients to supportive resources for PA promotion. Thus, they are well positioned to connect the clinical and community settings, build trust and facilitate communication among 'referrers' and 'receivers' to maximize patient PA behavior change.

Licensing versus certification

Licensing and certification in healthcare is intended to hold practitioners to certain standards of qualifications, training, knowledge, experience, and scope of practice. Physicians, physician assistants, and nurses[28–30] are required to be licensed to practice medicine, but there is no licensure or specific training for providers to assess PA and deliver PA prescriptions. There are efforts underway to incorporate this training into medical school curricula,[31] however insufficient training remains a challenge.

Licensed providers understand the system of licensure but may not understand the certification systems that apply to 'receivers.' This may make providers more likely to refer patients to a licensed professional like a physical therapist than to a certified exercise professional or certified exercise physiologist. Many professional associations maintain registries of certified professionals to raise their visibility and establish credibility. The US Registry of Fitness Professionals (USREPS) is a registry of exercise professionals who hold third-party recognized (National Commission for Certifying Agencies (NCCA)-accredited) exercise certifications.[32] These registries help streamline the certification

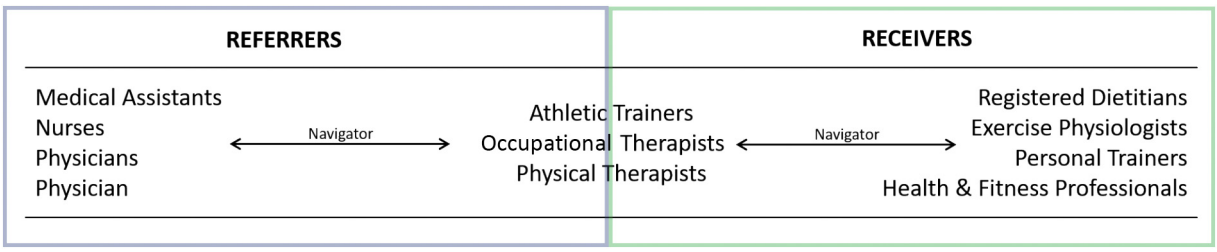


Fig. 2. The role of referrers and receivers in promoting PA through the clinic setting.

Table 1
Providers and Definitions.

Role	Category	Department of Labor Bureau of Labor Statistics Definition [20]
Physician	Referrer	Diagnose and treat injuries or illnesses; examine patients; take medical histories; prescribe medications; order, perform, and interpret diagnostic tests; and counsel patients on diet, hygiene, and preventive healthcare
Physician Assistant	Referrer	Examine, diagnose, and treat patients, and practice medicine on teams with physicians, surgeons, and other healthcare workers
Nurse	Referrer	Provide and coordinate patient care, educate patients and the public about various health conditions, and provide advice and emotional support to patients and their families
Medical Assistant	Referrer	Complete administrative and clinical tasks in the offices of physicians, hospitals, and other healthcare facilities
Physical Therapist	Straddles Referrer/Receiver	Help injured or ill people improve movement and manage pain; an important part of preventive care, rehabilitation, and treatment for patients with chronic conditions, illnesses, or injuries
Occupational Therapist	Straddles Referrer/Receiver	Treat injured, ill, or disabled patients through the therapeutic use of everyday activities. They help these patients develop, recover, improve, as well as maintain the skills needed for daily living and working
Athletic Trainer	Straddles Referrer/Receiver	Prevent, diagnose, and treat muscle and bone injuries and illnesses
Community Health Worker	Navigator	Provide a link between the community and healthcare professionals; develop and implement strategies to improve the health of individuals and communities; collect data and discuss health concerns with members of specific populations or communities
Health & Wellness Coach	Navigator	Classified under the occupational cluster of community health workers; serve as trusted advisors and guides, working in collaboration with clients to help them achieve their personal wellness goals (e.g, social, physical, mental, environmental, medical and dental, spiritual, nutritional, psychological, occupational, financial, and behavioral
Exercise Physiologist	Receiver	Assess, plan, or implement fitness programs that include exercise or physical activities such as those designed to improve cardiorespiratory function, body composition, muscular strength, muscular endurance, or flexibility
Fitness Trainer, including Personal Trainer	Receiver	Lead, instruct, and motivate individuals or groups in exercise activities, including cardiovascular exercises (exercises for the heart and blood circulation), strength training, and stretching
Dietitians and Nutritionists	Receiver	Advise people on what to eat in order to lead a healthy lifestyle or achieve a specific health-related goal

landscape, reducing a key barrier to providers referring to community-based PA resources and professionals.

Different settings for the delivery of the PA Prescription

PA prescriptions and referrals are initiated in the clinical setting and can be delivered in both healthcare and community settings. Providers can give patients information ranging from general guidelines to individualized plans with detailed dosage information, or they can refer patients to third parties (e.g., exercise professionals) who supervise PA programs. Referrals within the healthcare setting (i.e., internal referrals) might be to cardiac rehabilitation programs, hospital wellness programs, or even medical fitness centers that are associated with health systems.

Community-based organizations or programs, including recreational centers, health & fitness centers, and community-based walking groups, are important settings for the delivery of the PA prescription. Exercise professionals who work in community-based organizations or independently are an important part of an integrated team approach to the delivery of PA prescriptions. These professionals can provide equipment demonstrations, develop individualized or group programs, as well provide ongoing support and encouragement, thus facilitating PA behavior change.

There are multiple other settings that offer PA programming to which patients can be connected. One emerging concept for patient engagement in PA is that of the park prescription. Park prescription programs improve mental and physical health through active time spent in nature.[33] Additional settings for delivery of PA prescriptions include: 1) worksite wellness initiatives involving a partnership between health clinics and employers; 2) school settings in which school nurses delivering prescriptions to students and their families; and 3) faith-based settings in which faith workers (i.e., parish nurses) refer patients to faith-based PA and behavior change programs.

Spectrum of delivery

After the healthcare team starts the conversation about engaging in a more physically active lifestyle, the next crucial step in the patient engagement process is connecting them to appropriate, supportive PA resources. When connecting patients to these resources, it is important to note that one size does not fit all. Using a patient-centered mindset, it is helpful to consider a spectrum of options available to engage patients in their preferred form of PA (see Fig. 3). Many patients will not want, do not have the time, or cannot afford to participate in formal programs or work with trained exercise professionals. For these individuals, referring them to self-directed resources[34] may be the most appropriate first step.

Accordingly, PA prescriptions can be delivered in home-based settings. This necessitates more personalized, tailored prescriptions from providers and/or receivers, with more specific information about the frequency, intensity, time and duration of exercise so that patients know exactly what they need to do in order to follow through on the prescription. Motivation is a challenge with home-based settings, and patients prescribed home-based activities are more likely to cite "low motivation" as a reason for non-adherence to the prescription than those referred to facility-based activities.[35]

The most common self-directed resource is walking programs that patients can complete on their own time and at their own pace.[36] Telephone counseling[37,38] and internet-based PA interventions[39] are effective in guiding individuals through self-directed programs. More recently, text messaging[40] and smart phone applications[41] have proven to be effective at increasing individual PA levels. Other patients may need a more supportive environment, preferring group-based PA programs that meet periodically each week.[42] Finally, some patients may require the personalized attention and one-on-one interaction of working with a certified exercise professional. A rapidly expanding option is the ability to connect patients to individualized and group-based PA programs offered virtually. Many commercially available, but not yet evidence-based, virtual programs are now available that offer individuals both asynchronous (individuals completing on-demand, recorded sessions) and synchronous (individuals engaging in live sessions with an instructor and peers) PA programs from the comfort of their home.

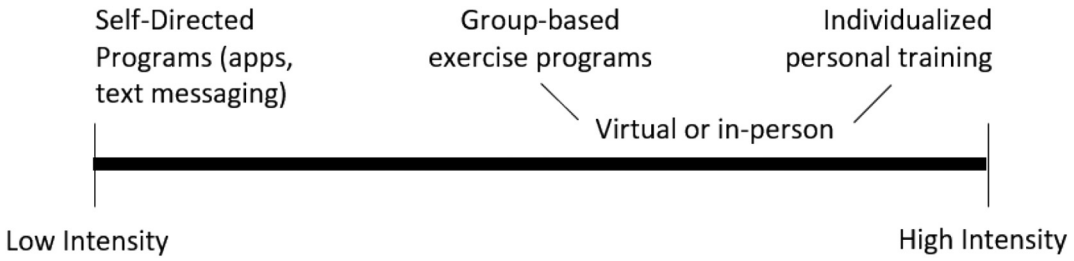


Fig. 3. A spectrum of options for delivery of PA programs.

The Role of Technology (Electronic Health Records/EHR and Interoperability)

The EHRs are becoming ubiquitous as US providers and health systems were incentivized to convert to EHRs with the 2009 American Recovery and Reinvestment Act (ARRA).[43] The number of US health systems using EHRs grew from 9% in 2008 to 83% in 2015, and at the same time have improved patient use and EHR functionality, and developed the ability to interoperate with other personal health information (PHI) data systems. EHR systems can facilitate physicians' provision of PA prescriptions and referrals by prompting the PA assessment, printing or providing electronic PA prescriptions and making PA referrals based on patient zip code.[44] When an EHR system is used to document patients' self-reported PA as part of the initial visit intake, physicians are more likely to note PA in their progress notes, counsel on PA, and make lifestyle-related referrals.[45] However, many of our existing health care and EHR systems still do not talk to each other with fax machines accounting for an estimated 75% of medical communication.[46] The US Department of Health and Human Services finalized new rules[47] to support the seamless and secure access, exchange, and use of electronic health information. Implementation of these rules was delayed due to the COVID-19 pandemic, but compliance was required by November 2020.

Communication between healthcare providers in the clinical setting ('referrers') and exercise professionals ('receivers)' is critical for helping both parties understand the impact of the prescriptions/referrals on patients' health behaviors and outcomes. EHR systems have a role in facilitating bi-directional, real time information exchange between 'referrers' and 'receivers.' 'Referrers' can provide detailed information on their reasons for referring, goals established in partnership with patients, and any medical limitations. In turn, 'receivers' can provide insight into patient motivation, as well as feedback quantifying progress (i.e., engagement, adherence, and improvement). However, lack of interoperability between different healthcare systems, as well as between clinical and community settings, serves as a significant barrier to practitioners providing referrals to community-based PA resources and professionals, and to these professionals being viewed as an extended part of the healthcare team. Collaboration and communication between physicians and exercise professionals is critical for facilitating referrals to exercise facilities and professionals.

Remote Patient Monitoring (RPM)

Technology and RPM play an important role in educating patients and facilitating more effective, convenient delivery of the PA prescription. Technological advancements and the proliferation of personal computing devices, such as smartphones, tablets, and computers, enabled by high-speed mobile broadband and global roaming - coupled with EHR interoperability and PHI data systems - allow providers to capture ongoing PHI through connected, home use medical devices and digital medical tools to follow patient progress. In theory, this should allow patients to be remotely monitored for expanded clinical insights beyond the facility or physician office. RPM could lead to timelier care management and valuable interventions across varied settings.[48]

Central to this complex transaction is the capture of patient-generated health data (PGHD) from home use medical devices which, in turn, transfer and deposit their medical device data into an EHR. Through advances in application programming interfaces, it is not technologically difficult to execute this transfer of PGHD.[49] The 2020 data blocking and interoperability rules finalized by the Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC)[47] were designed to increase patient choice and competition while promoting patient access and control over their health information, requiring that patient electronic access to electronic health information be made available at no cost. These rules should facilitate the exchange of PGHD, such as that used to assess and monitor PA. With the continued growth of PA monitors, such as smartwatches, wristbands, and earbuds or "hearables" (which together accounted for 72 million units shipped in the first quarter of 2020),[50] many of these devices have the capability of offering some form of an active feedback loop between providers and users for daily assessments under a treatment plan or chronic condition monitoring.

Regulatory and Legislative Action to Embed Assessment and Prescription within Payment and Delivery Systems of Care

The Physical Activity Alliance (PAA) (https://paamovewithus.org/) is a new, national collaborative developed from a merger of the National Physical Activity Plan Alliance, the National Coalition for Promoting Physical Activity and the National Physical Activity Society, providing a broadly based, powerful voice for PA promotion in the US. The mission of the PAA is to lead efforts to create, support, and advocate policy and system changes that enable all Americans to enjoy physically active lives. The Alliance combines deep expertise in policy advocacy, strategic planning, and workforce development to address PA.

The PAA is leading a coordinated, multi-sector collaborative to develop and achieve a regulatory and policy action plan to embed PA assessment, prescription and referral into payment and delivery of care. The action plan is summarized in Table 2 and includes strategies with the CMS, the American Medical Association (AMA), the National Commission on Quality Assurance (NCQA), National Quality Forum (NQF), Health Level Seven International (HL7) and the ONC. Highlighted below are the role of each of the key stakeholders in the action plan.

Center for Medicare and Medicaid Services (CMS)

As a major public payer, CMS leads on coverage determinations for healthcare services. Typically, third party payers will follow CMS' lead in covering services like lifestyle behavioral counseling, including PA.

American Medical Association (AMA)

The AMA maintains the Current Procedural Terminology (CPT®) code set that describes medical, surgical, and diagnostic services. This code set is designed to communicate uniform information about

Table 2
Physical Activity Alliance Regulatory and Policy Strategy for Embedding PA Assessment and Prescription into Payment and Healthcare Delivery.

Centers for Medicare and Medicaid Services (CMS)	
Strategy	Actions Needed
• Engage with CMS on coverage and payment determinations for non-physician providers involved in assessment, prescription and referral • Determine providers who can bill for lifestyle/behavioral counseling and which patients are eligible to receive services • Identify billing code gaps as necessary • Assess the role for telehealth, remote monitoring, virtual care delivery and payment/coverage	• Develop questions (billing coding gaps, who can bill, who is eligible for services, opportunities for code development) • Understand CMS vision for these services • Develop a document clarifying the education, certification and experience requirements for different exercise professional types re: working with patients at various levels of risk and provide to CMS • Comment on the Physician Fee Schedule regarding Patient Generated Health Data (Annual payment rule that impacts payment rules for physicians and other healthcare practitioners)
• Develop evidence review and peer-reviewed publication to support expanded coverage determinations for PA assessment, prescription and referral in the clinical environment and evidence-based services delivered in community settings	• Share with CMS • Disseminate and communicate latest research to policy makers, decision makers and the broader public
American Medical Association	
• Engage the Digital Medicine Payment Advisory Group (DMPAG) to discuss Coding Gaps as identified by the PA Alliance and CMS	• Seek audience/presentation and communicate with full DMPAG to discuss coding gaps and the need for digital health services codes in lifestyle/-behavioral counseling, exercise coaching and virtual exercise programming • Propose new codes to the DMPAG • Submit new Code Change Application for new codes as identified and needed
National Commission on Quality Assurance/National Quality Forum (NCQA/NQF)	
• Bring new research on the impact of the prescription, anywhere where it has been integrated into guidelines/-recommendations (ex. USPSTF recommendation for those with CVD risk factors) to serve as a foundation for performance and quality measure development • Develop list of citations of important work across all areas to share with NCQA/NQF – assessment, implementation and relevant trials including cost data to health systems related to physically inactive patients	• Ongoing communication to achieve measure development and implementation
• Find funding to achieve measure development for adults	• Develop cost estimate • Explore funding mechanisms
HL7 Measures for PA	
Strategy	**Actions Needed**
• Develop HL7 Measures (adult and pediatric aerobic and muscle strengthening measures) for PA to be able to integrate into federal data modernization and surveillance efforts	• Exploratory process to understand the HL7 balloting process and investment needed to engage • Engage in balloting process to achieve measures
Office of the National Coordinator for Health Information Technology (ONC)	
• Create expectation from ONC to carry PA standards • Determine if there is a role for patient-generated data	• Include PA standards as part of ONC's annual Interoperability Standards Advisory
Electronic Health Record (EHR) Vendor Strategy	
• Work with EHR vendors to adopt measures for PA as a vital sign and/or prominently in the SDOH patient assessment	• Enlist their customers (health systems) as advocates to require PA measure integration • Assure clinical EHR workflow to optimize use by providers

medical services and procedures among physicians, coders, patients, accreditation organizations, and payers for administrative, financial, and analytical purposes. Developing appropriate codes for PA is essential to assure payment for services. The AMA also convenes the Digital Medicine Payment Advisory Group (DMPAG), a collaborative initiative that engages nationally recognized experts in digital medicine to identify barriers to digital medicine adoption and propose comprehensive solutions where applicable on coding, payment, and coverage. Increasing coverage requires a coordinated effort from knowledgeable professionals as well as input, such as pertinent use cases and clinical data that demonstrate the efficiencies and clinical benefits of digital medicine related to PA.

National Commission on Quality Assurance (NCQA) and the National Quality Forum (NQF)

The NCQA and NQF are independent nonprofit organizations that address healthcare quality through the administration of evidence-based standards, measures, programs, and accreditation. Working with NCQA to develop appropriate Healthcare Effectiveness Data and Information Set (HEDIS) measures for PA is essential for integrating into provider performance and quality of care. NQF promotes patient protections and healthcare quality through measurement and public reporting.

Health Level Seven International (HL7)

The primary mission of HL7 is to provide standards that empower global health data interoperability for the exchange, integration, sharing and retrieval of electronic health information that supports clinical practice and the management, delivery, and evaluation of health services. As the federal government begins the important work of upgrading the US public health infrastructure and improving data modernization and surveillance efforts it will be critically important to work with HL7, stakeholders and experts to develop a PA standard that can be integrated, exchanged, shared and retrieved across healthcare delivery, patient data in EHRs, and delivery of services. Health information technology networks, including EHRs, will be one of the "data superhighways" that feed into national surveillance systems and PA should be one of the measures used to assess population health and well-being.

Office of the National Coordinator for Health Information Technology (ONC)

ONC is at the epicenter of health information technology efforts and is a resource for the US healthcare system to support the adoption of health information technology and the promotion of nationwide health information exchange to improve healthcare. ONC is located within the Office of the Secretary for the US Department of Health and Human Services. ONC has the potential to carry PA standards and determine if there is a role for patient-generated data.

A multi-stakeholder effort will identify short- and long-term strategies to support strong PA policy development in the clinical setting. To do so requires a structured regulatory approach that addresses all variables within the healthcare delivery system, to include changes to provider service models, and reimbursement reform. Data analytics support the transition to value-based service models, showing greater improvements in patient health outcomes with lower costs.[51]

Potential billing mechanisms

Expanding reimbursement efforts for PA assessment, monitoring, and evaluation has been recognized as the cornerstone for promoting the use of long-term lifestyle and behavioral change within clinical practices.[52] Improved billing practices that are inclusive of PA will allow physicians and other clinical practitioners the flexibility to render

Table 2 (*continued*)

Centers for Medicare and Medicaid Services (CMS)	
Strategy	Actions Needed
Telehealth/Remote Monitoring	
• Expanding which non-physician practitioners can bill for the telehealth lifestyle behavioral services virtually and maintain appropriate changes made during COVID for the long-term	• May require legislative action from Congress and federal/state synchronization across statute and regulation
• Explore opportunities for use of Remote Monitoring (RPM) codes related to PA when applicable.	• Understand what digital tools and mobile devices can be used for this purpose
Collaborative and Future Research	
• Launch research learning collaborative to educate and connect researchers to policy makers and health systems to integrate PA into payment and delivery systems	• Develop research agenda to inform policy development • Publish research gap analysis • Disseminate and communicate latest research to policy makers and decision makers

and refer services on an individualized basis. Previously, the use of modifiers by CMS was the primary mechanism to provide policy guidance on billing practices within the PA spectrum; however, as therapy practices evolved, CMS has recognized the need to provide further clarity and billing instructions that reflect changes in affiliated service lines.

To expand care opportunities for PA patients in clinical environments, innovation within the billing realm becomes paramount. The inclusion of new reimbursement models for lifestyle change programs in recent years by the AMA and CMS shows how an integrated team approach can optimize patient care.[53] The PA-related CPT® Code table (found at https://paamovewithus.org/additional-resources/) compiled by PAA provides an inclusive list of evaluation and management and other related categorical reimbursements applicable to payment for services provided by all clinicians. This table is not an exhaustive list of reimbursable codes, but those most commonly billed to support PA services. Of note, the table lists codes that are eligible for billing by physicians and other healthcare providers.

Over the past few years, and with more recent updates to the 2020 fee schedule, CMS has made significant improvements through coverage and payment of therapeutic activities, behavioral change and health and wellness coaching. CPT® code, including Level II Healthcare Common Procedures Coding System (HCPCS), have been used to implement billing criteria for virtual care and remote patient monitoring. This is even more relevant given the changing healthcare landscape, because of the COVID-19 public health pandemic and the increasing reliance on telehealth services.[54] The requirement for uninterrupted care in a transient environment for all patients, but specifically for more vulnerable populations, has allowed CMS to temporarily expand coverage determinations for inclusion of telehealth visits in a broader manner.[53] Whether these billing changes are made permanent, the benefits extolled through the use of telemedicine services show the extent to which flexibilities with digital assessments can supplement the continuum of patient care and may potentially be applied to PA.

Research gaps

Ideally, there would be coordinated research across the federal government, healthcare systems, providers, and community organizations on the efficacy of PA interventions in healthcare delivery. There is a need for ongoing research to inform the regulatory and policy work, specifically around measure development, standardization, outcome evaluation, optimal provider models, patient satisfaction, and sustainability. There is the opportunity to use real-world data (RWD) and real-world evidence (RWE) to monitor safety and adverse event reporting related to PA participation. RWD/RWE continues to play an increasing role in healthcare decision making and for decision support in clinical practice.[55] Real-world data are collected from a variety of sources, including information on patient health status from EHRs, claims and billing, product and disease registries, PGHD (including in home-use settings), and data from other sources that inform health status such as mobile devices.[56]

Through the spread of advanced mobile communications devices, products, and services, as described *supra*, large amounts of health-related data are now being captured and stored. These large sets of structured and unstructured data can be used to improve device development and should include when possible information about user experience, specific software performance data, and clinical outcomes.[57]

Research findings, to be most impactful, should be rapidly disseminated and communicated to policy makers, decision makers, providers, and healthcare systems. Ideally, this communication could be coordinated through a quasi-governmental research innovation group that is collaborating with federal agencies, informing a coordinated National Institutes of Health PA strategic plan and research agenda, and receiving sustainable funding from public/private sources.

Conclusion

Standardizing PA assessment, prescription, and referral into healthcare delivery in the US will require a coordinated, multi-stakeholder effort focusing on the complex regulatory and policy environment. Various healthcare providers can assess and provide the prescription and referral, while other professionals or "receivers" can deliver the intervention. There is opportunity to integrate feedback into EHRs, incorporating data from mobile devices and RPM. There can be different modes of delivery in different settings with key billing mechanisms. Making all of this happen seamlessly and sustainably will take time and will involve government at all levels, health systems, non-profits, community providers, healthcare professionals, technology companies, informatics specialists, and EHR vendors. Creating this new norm will transform patient care in the US and increase population levels of PA, shifting our paradigm from acute care toward improved quality of life and well-being.

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