Pokémon GO! -- Pandemic or Prescription? The Public Health Perspective

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Niantic’s new smartphone game has unleashed a Pokémon fever that is spreading around the globe faster than Swine Flu. Together with Zika and Zombies, researchers at Johns Hopkins are scrambling to study how Zubats and Pikachus might be affecting populations - possibly helping to combat another ongoing public health crisis - the global obesity epidemic.

From med students to middle-school kids - 65 million Americans have suddenly taken to the streets, phone in hand, walking blocks in cities from from San Francisco to Baltimore in search of elusive virtual beasts. The more you walk, the more likely you are to find these pixel critters, gain expertise and ‘level up’. With a global launch imminent (the game has only officially launched in four countries in its first week), this immersive, augmented-reality game has the makings of a social, or health, experiment on a global scale.¹

As the obesity epidemic continues to grow and physical activity continues to decline worldwide, could chasing Pokémon be part of the solution? Each day in the U.S., only one in three children is physically active and less than 5% of adults participate in the recommended 30 minutes of physical activity². Over the past five years, hundreds of wearable technologies have emerged, but the jury is still out on whether these actually improve physical activity, especially among those who live sedentary lifestyles. Public health studies have sought answers to these tough questions -- Do wearables actually enhance physical activity? Can they substitute for expensive gym memberships or exercise equipment? Will people keep using them once the novelty wears off, and what motivations are necessary to achieve and sustain health benefits? Roughly 13 million Americans bought smart activity trackers in 2015, but a third of those New Year's resolutions were abandoned within 6 months of purchase.³⁴

Maybe the secret sauce is not trying to be a healthy app, but instead focus on a game that gets people off the couch, into the real world, with inadvertent health effects. In 2006, Microsoft’s Kinect and Nintendo’s Wii game consoles were heralded by many as the solution to getting a nation of young gamers off their couches--but in this case, only as far as the carpet in front of the TV. In just three days, more people have downloaded and used Pokémon GO than have ever bought the Wii Fit game. Even major fitness giants such as Nike have tried, unsuccessfully, to capture users in NikeFuel “Missions”, powered by a digitally-enhanced sneaker -- only to dissolve most of their Digital Sports division two years after launch.⁵

As a commercial digital game, Pokémon GO may be better at engaging users, especially currently sedentary ones, than health apps disguised as games. Pokémon GO not only builds on the appeal of a massively successful gaming franchise but also adds a hefty dose of 21st century tech. Kids and

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¹ https://www.similarweb.com/blog/Pokémon-go
³ https://www.theguardian.com/technology/2014/apr/01/wearables-consumers-abandoning-devices-galaxy-gear
adults alike seem to be having no problem walking for city blocks when it doesn’t seem like exercise - like hiding broccoli in a smoothie. Video games are massively popular worldwide; their captivating graphics and realistic fantasy settings can transport players away from daily stressors, while high-speed internet connectivity encourages team play in virtual worlds on a global scale. The best high-def, however, may be no match for the the hybrid game + real world mix when it comes to propelling users out of the house. Pokémon GO’s augmented reality superimposes Charizards and Squirtles on once-familiar buildings and sidewalks and turns churches and parking lots into state-of-the-art Pokémon Gyms, allowing this exciting virtual environment to attract users out into the real world - no additional hardware required beyond the ubiquitous smartphone. On the other hand, if the rumor mill is to be believed, plans to embrace fast-food chains as Pokémon Gym sponsors could negate gains as players are drawn to the nearest McDonalds to fuel more than just their virtual menagerie.

+ **Increasing physical activity**
Gamified health and fitness apps don’t seem to have the same “stickiness” that really good digital games do. Already fans are reporting the discovery of nature trails they never knew existed, or historic landmarks they’d never noticed, thanks to the lure of another wild Pokémon. Active games like Dance, Dance Revolution! are based on high-energy, frenetic jumps and twists, but so far haven’t shown evidence for actually reducing body mass index (BMI). The shininess of an exergame quickly wears off, leaving only die-hard fans to play the game until they’ve internalized every jackhammer and butterfly spin (and maybe lost a few pounds). But GO is a commercial franchise, likely to build momentum and keep players hooked well beyond the proverbial chasm of long-term adoption - probably with armies of game strategists, behavioral experts and design specialists focused on optimizing user experience at their disposal. Most public health agencies trying their hand at digital health can hardly dream of competing on this level.

+ **Promoting outdoor time**
What has many parents surprised since wild Pokémon appeared in our neighborhoods is the sudden desire that screen-bound preteens have to go outdoors. Getting kids out in the open has clear health advantages, like increased Vitamin D levels (which helps strengthen bones), strengthened immune systems, lower stress levels, and reduced ADHD. symptoms. Following specific routes and checking in at points of interest along the way could encourage people to explore their communities, allowing them to rediscover unappreciated real-world landmarks. Niantic could even partner with state and national park systems to host ‘Pokémon days’ which bring people together to enjoy both the virtual and real world.

+ **Encouraging social interactions**
Many multiplayer online games, from Farmville to World of Warcraft, promote (or even require) virtual socialization, but it is intriguing to see how Pokémon GO fosters real-world, face-to-face interactions - a strong predictor of both mental and physical health. People bond over shared interests, and so far GO fans have reported spontaneous meet-ups of over 1000 people as well as smaller group encounters. This opportunity for interaction could be useful, especially for those who otherwise have difficulty in social situations; some users are already reporting improvements in depression and

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6 https://www.researchgate.net/publication/260019275_Are_field-based_exergames_useful_in_preventing_childhood_obesity_A_systematic_review
8 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448497/
9 http://mashable.com/2016/07/10/Pokémon-gowalk-sydney/#FDu2yRvXnuq7
10 https://www.reddit.com/r/Pokémon-go/comments/4rszbc/the_lure_was_supposed_toBring_more_Pokémon/
anxiety.\textsuperscript{11,12} In fact, Niantic could capitalize on this through new features that could encourage social interactions -- perhaps by increasing the chances of rare Pokémon sightings or speeding progress when traveling with a group.

Of course, as public health professionals, we are also wary of a few potential areas of concern.

- **Injuries while Catching ’em all**

  Pokemon’s intro screen warns players to “...be alert at all times. Stay aware of your surroundings” but media reports are flooding in of people injured while focusing on Squirtle and not the busy traffic intersection. We wouldn’t be surprised to see hospitals adopting a new injury billing code in the near future, or officers writing tickets for jaywalking while Pokémon hunting\textsuperscript{13}. Given the game’s engaging nature it’s likely to continue to contribute to distracted walking and, possibly, driving while playing. Safety features which completely disable interaction when in a moving vehicle may be warranted in future releases.

- **Pokescams and exploitation**

  GO’s game mechanics have already been used to rob players of their phones and money\textsuperscript{14} by luring unwitting players to attractive ‘virtual’ locations. Reports of malware, piggybacked on illegally-downloaded copies have emerged, potentially able to intercept a user’s communications and locations, even when not playing the game. While engaged in play, usual vigilance can be compromised - leading people to venture into areas they might not otherwise, alone or during times of day where they might be at increased risk of crime. Some have even warned of the risk of racial bias affecting how game-inspired wandering could be misinterpreted by police or the neighborhood watch.

- **Pikachu dependence**

  As noted with other highly engaging games, some users might find GO interfering with real life, causing relationship conflicts low bank balances, and possibly neglect of work, school or sleep—problems common to behaviors that spiral out of control. It’s the very elements of GO and other games that are so fascinating and engaging that also make them potentially problematic. Attention to basic theories of behavioral reinforcement is integral to game design, and newer free-to-play games (like GO) use the enormous amounts of data they collect to develop analytics. These analytics are often used to identify and exploit “social whales” -- those 0.15% of players who account for half of the in-app purchases, creating an ethical embarrassment.\textsuperscript{15} To offset this quandary, developers and scientists could collaborate over these data to prevent problematic gaming and to extend insights into public engagement.

There is no doubt that we, in the health community, have a lot to learn from the Pokémon playbook - whether it’s the way GO captures and motivates players, or the social element of a shared gaming experience. Alternatively, this is an opportunity for the health community to identify existing commercial games with the potential to have real world health impacts.

Collecting information about benefits and risks is important to public health scientists the same way monitoring use and demographic data is critical to a game’s marketing analysts (and capturing Pokémon is for 7 million Pokémon GO users). The Food and Drug Administration is joining other health agencies worldwide to pave the way for apps to be allowed to make health claims, but this will require plenty of

\textsuperscript{11} https://www.amazon.com/Social-Competence-Routledge-Advances-Studies/dp/1138804266
\textsuperscript{12} http://psychcentral.com/blog/archives/2016/07/11/Pokémon-reportedly-helping-peoples-mental-health-depression/
\textsuperscript{13} https://www.aapc.com/blog/27301-icd-10-cm-external-cause-codes-tell-the-whole-story/
\textsuperscript{14} http://gizmodo.com/armed-robbers-used-Pokémon-go-to-find-9-victims-1783416898
\textsuperscript{15} http://www.recode.net/2014/2/26/11623998/a-long-tail-of-whales-half-of-mobile-games-money-comes-from-0-15
evidence.\footnote{http://www.fda.gov/downloads/MedicalDevices/…/UCM263366.pdf} If Pokémon GO or other games can be used to prevent obesity or improve social anxiety and depression, we’ll need evidence to encourage their use as “digiceuticals”.

Public health and clinical investigators can design the studies that will figure out if a future prescription should read “Capture 60 Pokémon and call me next month”. But studies cost money, and the time it takes to get a study done, from conception to funding to published guidelines, can take a decade or more, by which time we’ll likely be talking about Pokémon GONE. This timespan could be shrunk dramatically with intentional collaborations between the gaming industry, gamers and global health.

These are early days, so it’s not clear yet what impact (or duration) this Pokémon epidemic will have in terms of societal benefits and consequences. Certainly, Pokémon GO is challenging public health scientists to rethink how to leverage mobile technologies and video games to engage a clearly willing gaming public to combat the looming and very-real epidemics of childhood obesity, depression and other non-communicable diseases. The staggering current $190 billion spend on obesity, and the projected costs of over 1 trillion US$ from cardiovascular diseases by 2030\footnote{http://www.championadvocates.org/en/champion-advocates-programme/the-costs-of-cvd} demands that we identify new solutions to excite and, literally, move people to action. Beyond healthy bodies, the ability of wild Pikachus to unite crowds of strangers may be just the prescription strength app for the socially tense and politically divided times we live in.