An introduction to video instant ticket vending machines

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Abstract

Video Instant Ticket Vending Machines (V-ITVMs) are a new form of electronic gambling machine currently being introduced to the North American markets of Ontario, Maryland, Missouri and New Mexico. The present paper is intended to raise awareness among regulators, problem gambling researchers, and clinicians about the nature of these games. These V-ITVMs resemble slot machines and present audiovisual content along with the sale of the tickets. We discuss several potentially harmful features of these games, ones which may promote problem gambling behaviour, such as fast continuous play, losses disguised as wins, near misses, deceptive bonus rounds, and a tendency to promote false beliefs among players who are vulnerable to disordered gambling behaviour. Effective programs for problem gambling prevention and treatment should be implemented as vital parts of any initiative to introduce V-ITVMs.

Résumé

On assiste aujourd'hui dans certains marchés nord-américains à l'implantation de nouveaux jeux de hasard électroniques : les appareils de loterie vidéo (ALV). C'est le cas en Ontario, au Maryland, au Missouri et au Nouveau-Mexique. Notre article vise à sensibiliser à la nature de ce type de jeu les responsables de la réglementation, les chercheurs qui étudient les problèmes de jeu et les cliniciens. Les ALV ressemblent à des machines à sous; ils présentent du contenu audiovisuel qui accompagne la vente de billets. Nous analysons un certain nombre de caractéristiques susceptibles d'être néfastes et d'engendrer des comportements problématiques : le caractère rapide et répétitif de ces jeux; le travestissement des pertes en gains; les expériences de « presque gagné »; les parties bonus trompeuses; une tendance à susciter de fausses perceptions chez les joueurs sujets à des comportements de jeu aberrants. Tout projet d'implantation d'appareils de loterie vidéo devrait impérativement s'accompagner de programmes en matière de prévention et de traitement des problèmes de jeu.

Introduction to Video Instant Ticket Vending Machines

Charitable gaming provides an important stream of revenue for many charitable organizations. Charity bingo has been traditionally viewed by the public as posing relatively low risk for problem gambling (PG), despite its potential to contribute to PG in some segments of the population, such as young adults, senior citizens, women, and persons with low incomes (Moubarac, Shead, & Derevensky, 2010). In our home jurisdiction of Ontario, Canada, the charitable gaming industry is being modernized in an effort to increase player participation. We visited most of the Charitable Gaming Centres as the revitalization was being rolled out and we examined all of the new games being introduced. We also obtained various forms of publicly available documentation about them, including material from the manufacturers' websites, patents, and documents from both the lottery corporation and the provincial regulator of gaming. We also scrutinized information obtained from the websites and newsletters of the Ontario Charitable Gaming Association and the Commercial Gaming Association of Ontario. When necessary, we contacted officials to clarify issues that were not obvious from other sources. Through these activities, we learned that the revitalization program includes some traditional paper and electronic bingo games that were present before the revitalization, but we also became aware of some new forms of electronic gambling that we had not seen previously. One of these new forms, the Video Instant Ticket Vending Machine (V-ITVM) is the focus of the present paper. These V-ITVMs have also been licensed for use in in veterans organizations in Maryland, veteran and fraternal clubs in Missouri, and charitable bingo halls and clubs in New Mexico ("Maryland Lottery Awards," 2015).

This paper is intended to raise awareness among researchers, clinicians and policy makers. Our intention is to explain how the V-ITVM sells lottery tickets, and to illustrate how they provide an experience of continuous play, with structural characteristics that mimic the style and content of multiline slot machine games. These machines sell "break-open" lottery tickets that are similar to those that have traditionally been sold at bingo halls, but the sale of these tickets is accompanied by audiovisual content similar to slot machines. This novel technology is a form of electronic gambling that is distinct from casino slots, video lottery terminals (VLTs) and online gambling. There is no legal distinction between these various forms of electronic gambling in Canada, and the responsibility for the conduct and management of all forms of electronic gambling falls under the jurisdiction of provincial governments. However, such is not the case elsewhere, most notably in the United States. Under American regulations, the V-ITVM is technically a "Class II device" because it does not resolve the outcome of gambles using an internal random number generator. Instead, the V-ITVM sells pre-made lottery tickets that have predetermined outcomes. Because of this legal difference, they can be offered to the public in settings where traditional "Class III" slot machines are not allowed. This potential for increased access might allow for a considerable expansion in the range

of venues that can have this form of electronic gambling. As this new technology is introduced in other jurisdictions, we caution policy makers to consider the nature of the audiovisual entertainment that these machines add to the sale of lottery tickets, and to decide whether permitting their use is consistent with the intended spirit of laws that restrict the placement of slot machines. The potential for increased access to a slots-like electronic gambling experience may be problematic in terms of harm minimization and social responsibility.

Description of Video Instant Ticket Vending Machines

Conventional vending machines are commonly used to sell instant-win scratch tickets or break-open tickets (i.e., "Nevada tickets") without providing any additional entertainment beyond that of the lottery product that they dispense. The V-ITVM platform is substantially different from conventional machines because it presents an entertainment component that gives added value over and above the tickets it sells. The V-ITVM units that we examined were the Diamond Game model LT-3 (Diamond Game, Chatsworth, CA, USA). Here we describe these so-called "TapTix" machines and how they work.

Figure 1 shows our schematic of what the V-ITVM break-open tickets look like. Figure 1a shows that the front of the ticket simply provides the logo of the provincial or state lottery corporation. Figure 1b shows that the back of the ticket has a barcode and a message "Ticket cannot be redeemed for cash." Once dispensed by the V-ITVM, the ticket can be opened and inside is the result of the game. In this case it is a 3x5 grid of symbols in a fictitious game that we called "Amazing Cards." There are many games that can be played on a V-ITVM unit (see www.diamondgame.com for examples), and in Figure 2 we show a schematic of a machine running the software. The opened ticket has text informing the player how many credits they have won, if any, and what the credits are worth in currency. In the example ticket in Figure 1c the player has a loss. In the example in Figure 1d, the player has won 20 credits for 4 kings, with each credit being worth $0.05 for a total win of $1.00. In Figure 1e the player has won a bonus for 5 aces. The bonus win is 335 $0.05-credits, worth $16.75.

The V-ITVM unit is housed in a cabinet that is approximately the size and shape of a conventional slot machine. The unit has a computer touchscreen that shows the arrangement of symbols corresponding to a printed ticket. In Figure 2 we show what the machine would look like if it had just dispensed the ticket displayed in Figure 1d. Below the screen, a "Cash In" slot is provided. It is used by the player to insert money, a "Play" button to initiate play, and a "Cash Out" button to print a voucher for the balance of money that is on the machine. The voucher is dispensed in the "Ticket Out" slot. The bottom part of the machine has a bin in which the physical game tickets are dispensed at the end of each play.

The manner in which the V-ITVM machine functions is as follows. The player inserts money and their credit balance is then continuously displayed. The player presses "Play" to purchase a ticket and play the game. The machine selects the next ticket
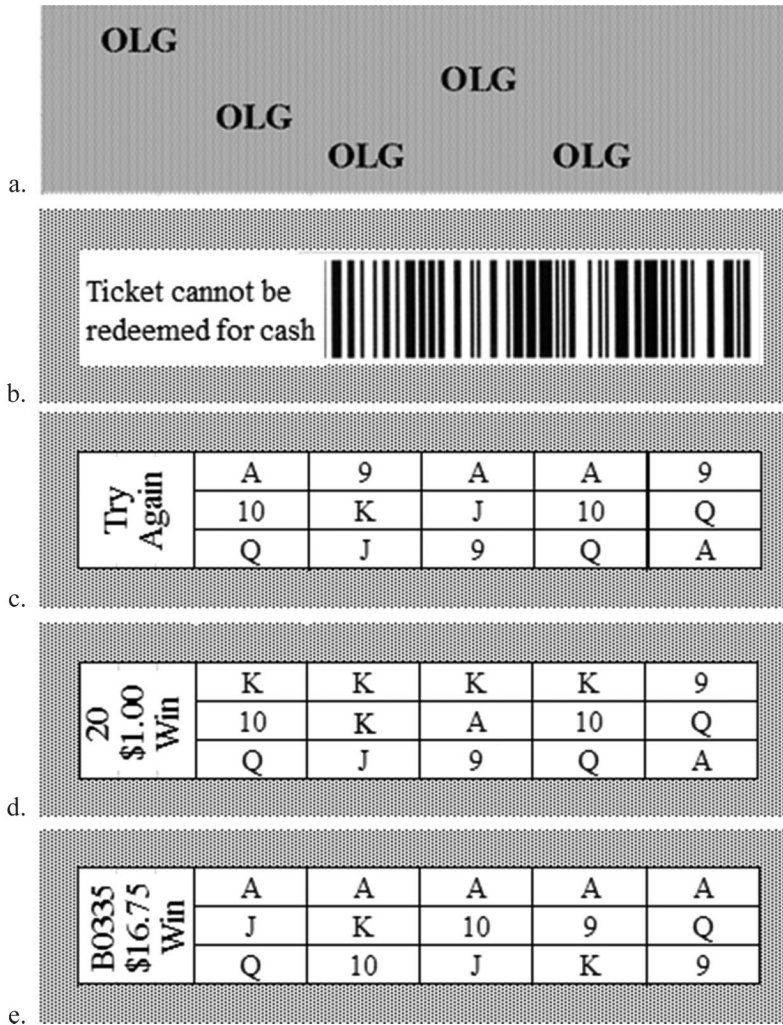
a.

OLG
OLG
OLG
OLG   OLG

b.

Ticket cannot be
redeemed for cash

c.

Try Again	A	9	A	A	9
	10	K	J	10	Q
	Q	J	9	Q	A

d.

20 $1.00 Win	K	K	K	K	9
	10	K	A	10	Q
	Q	J	9	Q	A

e.

B0335 $16.75 Win	A	A	A	A	A
	J	K	10	9	Q
	Q	10	J	K	9

Figure 1. Drawing of a fictitious TapTix ticket. The ticket is in black and white. 1A is the front of the unopened ticket. It includes the Ontario Lottery and Gaming Corp. (OLG) logo. 1B is the back of the ticket with the bar code and a message that the ticket cannot be redeemed for cash. 1C is an opened ticket showing the 15 symbols on the 3x5 grid. It is a loss. 1D is an opened ticket with a win of 20 credits. Each credit on this fictitious ticket is $0.05 and thus the total win on this ticket is $1.00. 1E is an opened ticket which is a bonus win. It is a win of 335 credits, or $16.75.

from a roll inside the cabinet and scans the barcode printed on the back of it. From this barcode the machine knows what layout of symbols to display and what prize to deliver. The machine then animates the matrix of 3x5 symbols on the screen for approximately three seconds, with accompanying sounds, and when the symbols stop animating the layout of symbols shown on screen will match what is shown on the paper ticket. If it is a loss, as in Figure 1c, no celebratory sounds or celebratory animations are then provided. If it is a win, as in Figure 1d, a celebratory sound is then made, the symbols forming any wins animated, and the balance and win displays are updated. If it is a bonus win, as in Figure 1e, the game will display a

Figure 2. A schematic representation of a TapTix machine.

series of several animated "free plays" and then the total from all of the free plays is the amount won. In all three cases (1c, 1d and 1e) at the end of the play, one ticket is dispensed into the Ticket Bin. It is notable that, even for the bonus win where there are multiple animated plays, still only one ticket is dispensed, and the total won on all of the plays are fully encoded in the barcode of a single paper ticket. At any time the player can press "Cash Out" and a voucher is printed with the player's balance. That voucher can be redeemed for cash by an attendant, or it can be inserted into another machine to transfer the balance to the second machine. Paper break-open tickets are not redeemable and have no value once they have been played. The paper tickets are quite redundant in this system, as stated in the manufacturer's patent for these machines (US Patent 5,941,771):

At about the same time that the ticket is dispensed, the indicia information retrieved from the memory module is displayed in the video display for the convenience of the

game player. The player can then view the contents of the ticket without having to remove the cover from the purchased ticket.

This arrangement begs the question of what is the true source of the entertainment being sold by these break-open ticket dispensers: is it the gamble encoded on the paper tickets, or is it the audiovisual experience that accompanies their purchase?

For the player, the experience of purchasing break-open tickets through a V-ITVM is similar to the fast and continual gaming experience of playing a VLT or slot machine, and with similar audiovisual content. In our opinion, this combination of features makes the TapTix machine essentially equivalent to a VLT, both in terms of its purpose of selling gambles in a lottery scheme as well as the subjective effects it is likely to have on players and their behaviour. The primary reason for selling instant lottery tickets using V-ITVMs rather than selling them over-the-counter or through non-video enhanced vending machines is explicitly stated. The patent (US Patent 5,941,771) for the Diamond Game V-ITVM indicates that "a desirable attribute of such machines is that they should outwardly resemble gaming machines of the type known as 'slot machines', 'slots', or 'one-armed bandits'," and that "game indicia may emulate any of a variety of games of chance, including, but not limited to indicia that are displayed in conventional slot machines." The V-ITVMs are housed in cabinets that look like conventional slot machines and they can play animations that appear similar to the games played on slot machines and VLTs.

Structural Characteristics and Implications for Problem Gambling

A patron who purchases break-open tickets through a V-ITVM then enjoys the gamble of the ticket, which they could also obtain by simply buying a similar ticket from a store counter or conventional vending machine. With the V-ITVM they were also able to experience the anticipation and excitement of watching animated symbols similar to a slot machine. Of particular concern for responsible gambling is the nature of these entertainment components and the increased access to a slots-like gaming experience. Play consists of a series of small ticket purchases that are resolved quickly, but which can be made continually over an extended period of time to foster an immersive experience in the player (Schüll, 2012). The software running on these machines also allows for some other slots-like game features that are not available with conventional paper tickets and that may promote irresponsible gambling behaviours. These machines have four features that may make them risky in terms of promoting problem gambling: (1) losses disguised as wins, (2) near misses, (3) deceptive bonus rounds, and (4) promotion of the gambler's fallacy. Each respective feature is described immediately below.

Losses Disguised as Wins

During one of our visits to a Charitable Gaming Centre, we obtained a pamphlet, freely available to playersand which both introduces the games and describes certain important characteristics of five specific games that could be played on the V-ITVMs

then in place (Dynamite Diamonds, Hot 'n' Saucy, Bayou Bucks, Lott o' Fruit, Scatter Play). The pamphlet stated the payout percentages of these games as ranging between 89% and 92% (i.e., a house edge, or hold, of 8% to 11%), with tickets sold for 50 cents to $1.20, and maximum prizes ranging from $402 to $1,800. It also included the following disclaimers:

These games do not involve skill and you cannot influence the outcome. The odds of winning a prize vary by game from 1 in 1.91 to 1 in 3.15. Odds may be subject to change and may vary by site. Malfunctions void all plays and pays. Prizes for this game are randomly distributed within a complete deal of tickets. Decks are loaded into one or more TapTix Dispensers or held in inventory until one or more TapTix Dispensers needs a ticket reload. Must be 18 years of age or older.

Prize payout is the theoretical payout percentage based on the dollar amount of all cash prizes offered within a TapTix deal at the time that the deal is initiated, and assuming all tickets for that deal are purchased and all cash prizes are claimed. The final prize payout for a TapTix deal is determined when a deal is ended, and is based on the actual number of tickets that were purchased by consumers and the total value of cash prizes claimed. A deal is a defined prize structure comprising a set number of tickets with set prize amounts established to achieve the total prize value.

The frequent reinforcement rate (i.e., wins occur on 1 in 1.91 to 1 in 3.15 of tickets) is comparable to the high rates that occur when playing multiline slots games while bets are placed on multiple paylines (Harrigan, Dixon, MacLaren, Collins, & Fugelsang, 2011). At the same time, the overall hold (i.e., the average proportion of wagers that are kept by the TapTix machine) is maintained between 8% to 11%. Again, this is comparable to what is typically seen in slot machines. At this point, one might wonder how the hold can be maintained at 8% to 11% when one out of every two or three tickets is a winner. Modern slots games promote a perception of frequent winning despite overall monetary losses through the frequent occurrence of "wins" that are in fact *less* than the total amount wagered. These losses are net losses but are presented to the gambler with audiovisual feedback similar to what is presented with a legitimate win where the prize is greater than the total wagered on the spin. This situation is possible because many separate gambles can be conducted on a single play. For example, a patron might place a bet that identical symbols will land in the top row of the first three reels, and also place another bet that identical symbols will fall on the middle row, and yet a third bet on identical symbols landing on the bottom row. Such a player would be said to have "bought" those three paylines and made an independent wager on each of them, hence buying three opportunities to gamble on the same spin. A player can win on none, some, or all of the bought paylines. If they win on only one of the paylines, the amount won may be less than the total amount wagered on the play, but it is celebrated as a win despite the overall monetary loss. We refer to these outcomes as "Losses Disguised as Wins" (LDWs). They have been shown to create excitement in players in a way that is comparable to legitimate wins, thereby reinforcing continued gambling despite recurring losses (Dixon, Harrigan, Sandhu, Collins, & Fugelsang, 2010; Jensen, Dixon, Harrigan, Sheepy, Fugelsang, & Jarick, 2010; Wilkes, Gonsalvez, &

Blaszczynski, 2013). The chance of winning on at least one payline is so great that LDWs occur with great frequency and promote a false impression that the player is winning often, even when in reality he or she is losing money on every LDW.

In the TapTix games that we examined, the LDW effect is achieved in a manner similar to slot machines. On a TapTix machine, when the player presses "Play," he or she is purchasing a ticket with many ways of winning, such as on the top row of printed symbols, the middle row, the bottom row, and so on. On TapTix machines the player *cannot* chose the number of lines to buy, but rather each TapTix game is already designed with a variety of ways in which the player can win something. This is essentially the same as buying individual paylines on a multiline slots game. For example, when playing the so-called "20-line" game Dynamite Diamonds, the player buys one ticket and is forced to bet on all twenty of the possibilities to win that are provided by the ticket. The representation of LDWs as wins may deceive consumers as it creates an artificially high rate of subjective reinforcement despite monetary loss (i.e., winning signals with losing tickets) that may contribute to the incidence and maintenance of problem gambling. Furthermore, this cannot be avoided by betting on a single payline as can be done with a conventional slot machine or VLT game.

Near Misses

A near miss is a losing outcome that is close to a win. For instance, on a three-reel slot machine two jackpot symbols may appear on the first two reels on a payline, with a third jackpot symbol appearing on the third reel but in a location that is not on the payline. Near misses evoke high levels of subjective arousal (Griffiths, 1991) and foster the urge to continue gambling (Chase & Clark, 2010; Clark, Crooks, Clarke, Aitken, & Dunn, 2012; Clark, Lawrence, Astley-Jones, & Gray, 2009) in slot machine games. Near misses have been shown to extend play in simulated slots games (Kassinove and Schare, 2001; MacLin, Dixon, Daugherty, & Small, 2007) and VLTs (Côté, Caron, Aubert, Desrochers, & Ladouceur, 2003). These losing outcomes increase the excitement of the game by frustrating the player, and even though frustration is a negative emotional state it nevertheless still promotes further reward-seeking behaviour (Dixon, MacLaren, Jarick, Fugelsang, & Harrigan, 2013; Shao, Behrens, & Rogers, 2013). Of the TapTix games that we examined, three had paylines and two did not. The two without paylines (Lott o' Fruit, Scatter Play) are scatter-only games, in which wins are given for having specified numbers of identical symbols appear anywhere in the 3x5 grid of symbols, but without any need for them to fall in specific locations. The other three games enjoyed paylines with the potential for frequent near-miss outcomes, ones which may create excitement and thus promote continued play despite their being losing outcomes.

Deceptive Bonus Rounds

The games provide certain specific outcomes from the break-open tickets as "bonus rounds." On the games that we examined, these bonus rounds were of two types,

both of which are commonly found in slots games: "free spins" and "pick'em." In a free spins bonus, the machine presents a series of animations that are similar to what is seen with the regular purchase of a ticket, but no purchase is required, so the rounds appear to be free. In a pick'em bonus, the player must select from a set of concealed symbols that are then uncovered to reveal prizes. In a conventional slots game, the amounts won during these bonus rounds are indeed randomly determined but they are also generally high, and bonus rounds are highly sought by players. Because V-ITVMs do not have random number generators, the outcomes of all tickets must be predetermined within the lottery scheme. That is, any loss, win, or "bonus" win is embedded in the barcode of the paper tickets. What appear to be "free" plays during a bonus round are really just meaningless animations that are presented *to appear like separate gambles*, but in reality all stem from the original ticket purchase. Likewise, the outcomes of pick'em bonuses are barcoded and will have the same winning amount no matter which symbols the player selects. Because V-ITVMs are not capable of generating outcomes beyond what is printed on the tickets, any presentation of bonus rounds as if they are separate gambles is completely superfluous. Any bonus round that involves player input (e.g., the pick'em bonuses described above) can be viewed as deceptive since no matter what choices the player makes the outcome is predetermined. Furthermore, having players actively make choices in such pick'em games might foster an illusion of control in some players, since players are rewarded for their most recent action, and may interpret the predetermined win as having something to do with the choice they just made. This mistake is a recipe for having players misinterpret their play as a form of skill. Such bonus rounds may encourage players to continue playing until they encounter the highly prized "game within a game."

Promotion of Gambler's Fallacy

The so-called gambler's fallacy is a common cognitive distortion that salient events appear at predictable intervals in a series (Tversky & Kahneman, 1974), so if a player has purchased several losing tickets, the machine might appear to be "due" to dispense a winning ticket. This false perception is why players of conventional slot machine games will typically adopt a "mini-max" strategy of betting small wagers on all paylines (Livingstone, Woolley, Zazryn, Bakacs, & Shami, 2008) and only bet maximal amounts when they feel a win is imminent. On slot machines, it is impossible to predict accurately when wins occur because each outcome is independent of all other outcomes. Nevertheless, the illusion is both compelling and well documented as one of the most common cognitive distortions which maintain problem gambling behaviour (Blaszczynski & Nower, 2002; Fortune & Goodie, 2012).

The gambler's fallacy may be promoted by V-ITVMs because the sale of paper tickets off a roll makes it obvious to players that these highly prized events are delivered in a prearranged sequence. It would be entirely reasonable for experienced players to believe that tickets coded with bonus rounds are dispensed in a way that is not independent of other outcomes, and to attempt therefore to time their purchase

of tickets to maximize their number of bonus wins. In fact, a gambler would be quite correct in asserting that a series of non-winning tickets must be followed inevitably by a greater frequency of winning tickets if the lottery is to maintain a preset hit frequency and payback percentage across the whole deal of tickets. Because the largest wins are encountered in highly salient bonus rounds, players may be led to believe that a certain number of these conspicuous events are contained within each roll of tickets. The number of tickets in a deal is likely quite large, and whether a person could accurately predict future outcomes based on previous outcomes is somewhat beside our main point. The fact that the outcomes are obviously prearranged and appear potentially predictable is a feature that seems likely to promote this belief and foster prolonged play accordingly.

Debunking beliefs like the gambler's fallacy has been a challenge for problem gambling treatment providers and public awareness campaigns. For example, consider the case of "The Slot Machine: What Every Player Needs to Know," a well-produced and experimentally-validated animation video (Wohl, Christie, Matheson, & Anisman, 2010) that was created specifically to dispel the gambler's fallacy in relation to slot machines. It is distributed through OLG's responsible gambling website ("Know Your Limit," 2014) and it uses a "conveyor belt" analogy to illustrate the gambler's fallacy that many players hold. They dispel the myth that the sequence of wins and losses in slots games are prearranged and can be predicted by indicating to the player that slot machine outcomes do not unfold over time like balls falling off a conveyor belt, but rather are like balls in a huge bag that are sampled with replacement. Ironically, with the introduction of TapTix we now have slot-like games in Ontario that actually do have prearranged sequences of wins, losses, and bonus rounds that unfold over time in conveyor-belt like fashion!

Summary

The V-ITVM platform raises serious concerns about potential risk for increasing the prevalence of PG. This is true in any jurisdiction where games of this type are to be introduced in settings that did not previously include electronic gambling machines. The games are similar enough to multiline slots games that players may not make a distinction between the experience of purchasing V-ITVM tickets and playing a slot machine. Both forms of electronic gambling machine misrepresent losses as wins, and create frequent reinforcement and near-miss outcomes. Bonus rounds in V-ITVMs are inherently deceptive to consumers and present superfluous audiovisual content designed to give the impression of separate gambles even though the final outcomes have been predetermined by the printed ticket. Furthermore, the apparent possibility of predicting game outcomes from a predetermined series may foster distorted beliefs that typify problem gamblers, perhaps making these games somewhat more problematic for consumers who are vulnerable to PG. Co-location of these electronic gaming machines, along with other forms of gambling in established bingo locations, may increase potential for harm among existing and new bingo enthusiasts. Clinicians, gambling researchers

and policy makers should be aware of the potential risks that these new machines pose to the public.

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