

ZACH BURROUGHS: Well, thanks guys, for having me today. You're probably saying, well, why is a pediatric emergency medicine doctor talking to use about video games. This talk I originally gave a couple years ago is My Grand Rounds during residency. And it's something that growing up playing video games and still playing video games as a 31-year-old, almost 32-year-old, it's something that I know a lot about and something I'm very passionate about.

And it's something that I don't think a lot of times that we as pediatricians necessarily think about to talk about with our patients, or something that we don't know a lot of information on, because there's a lot of new and evolving stuff out there regarding video games. And so today we'll kind of go through and talk about some of that stuff.

And I think Chris Koehler was the only person that recognized that this is the title, "Slide to Contra", which was a great video game that came out like, in the 1980s, a long time ago.

[LAUGHTER]

So I have no disclosures. I'm not getting paid by anyone, unfortunately. So the objectives of this talk are going to be several things. So we'll kind of do a brief overview and history of violent and explicit video games. And what we'll do is I'll kind of take you through and show you where the video game industry was when it started back in the '70s, kind of the late '70s, and how it's evolved to today and what that means in terms of what violence and explicit content is in 2016.

We'll talk about the ESRB, which is essentially the governing body that rates video game content that's out in the marketplace. We'll talk about some of the literature out there as to how violent and explicit video games might affect some of our patients' children. We'll talk about some of the AAP recommendations and the APA recommendations that are out there. And then we'll kind of close with some advocacy and resources for you guys.

So before we get started and look at some of the video games, it's kind of good to know what, when we say violent and explicit video games, exactly what we mean. And so there's a lot of different things that that can mean. Violence can be anything from cartoon and fantasy violence-- so that would be like Mario jumping on a Goomba, which are the little mushroom characters in that game, to real life violence.

So like in Call of Duty, someone getting stabbed or shot to death or completely exploded. So violence can be a lot of different things. It can also be cruelty to animals. So gore and blood can be anything from kind of green blood that may come out of a monster or an alien to actual depictions of blood coming out of a human or an animal or something like that.

Language can be choice four or five letter words, but it can also be kind of sexually explicit language and sexually suggestive language as well. Nudity can be anything from partial nudity to full on nudity to mimicking or depicting acts of sexual intercourse and that type of thing in a game. And then gambling, there's a lot of online gambling games, and within certain games like Grand Theft Auto and some other games, you can kind of simulate gambling as well.

So moving on, we'll kind of walk you through some of the history of the violence and graphic content to kind of see where we were and where we're at today. And I apologize-- some of this stuff is kind of graphic and shock inducing, but I just wanted you get a good kind of dose of what this is and kind of realize what's out there.

So this was a game-- it's called Death Race 2000. It was released in arcades in 1976. The title featured players that would run over what were supposed to be gremlins with a car and you would rack up points as a reward system in the process of doing that. And the game designers kind of made all attempts to explain that these were not humans that they were depicting as being killed, but the primitive graphics of the day kind of didn't allow for that.

So a lot of parents, a lot of the media, kind of took this is something that looked like you were simulating killing humans and it led to a big kind of 60 minutes investigation on kind of the psychological impact of video games. This is a game called Custer's Revenge. It was released for the Atari 2600 in 1983.

And so the player character is based on General George Armstrong Custer. Players would control a naked kind of sprite or image of the titular character wearing a cavalry hat, boots, a bandana, and sporting a pixel erection there, if you can see on the screen.

[LAUGHTER]

Real stuff, real stuff. It's out there. And the goal of this game is to essentially dodge arrows as little kind of black things at the top of the screen, as you would cross the screen to simulate raping a naked Native American woman who's bound to a pole. Yeah. Not awesome. So this is Mortal Kombat, probably a game that a lot of people realize and are familiar with. It's a very popular gaming franchise.

It was first released in 1992 in arcades and then in 1993 across the Super Nintendo and the Sega Genesis. And the big deal with this game was it's kind of, at the time, photo quality graphics. And all of the blood and gore and guts that spilled out of characters when you kicked and punched and did various things to them. This game was really big for these fatalities that you could perform, or you could rip out people's-- as you can see, their heads attached to their spines.

You could rip out their hearts from their bodies. You do a lot of nasty, gruesome things. And this game, along with some of the other ones that we'll talk about, kind of led to some congressional hearings in the early '90s that called for video rating legislation. This is another game called Night Trap. It came out for the Sega CD back in 1992. And it was a big deal just because of, again, its kind of photo quality graphics.

I mean back in 1992, that looks pretty good, I think. Pretty realistic. But it depicted a lot of scantily clad females. It depicted a lot of gore and violence as you tried to protect these females who were at a sorority slumber party in a house from being attacked by vampires. This is Doom 2, which was not the first game to put players behind a virtual gun-- so that being like a first person shooter would be the correct terminology for that.

But it was one of the first ones to do so in a very realistic way, combining sprays of blood and exploding bodies and that first person shooter perspective. Just for some more shock and awe value, this is a game called ethnic cleansing, which came out in 2002 for a Windows PC. It was released on Martin Luther King Jr. Day. And the game invites players to fight their way through a city controlled by, and I quote, "Blacks, Latinos, and Jews".

When players would murder African-American characters, the game would emit monkey sounds. Hispanic characters would yell "Ay caramba!" And Jewish characters would yell, "Oy vey." Other titles of the same period kind of similar to this included Concentration Camp Rat Hunt and Shoot the Blacks. These are real games. Real games that people can get their hands on.

This is Grand Theft Auto. The Grand Theft Auto series, which was originally released back in 1998-- and back then, it didn't look anything like it did now. But this gaming franchise kind of introduced carjacking as a national pastime, along with vehicular manslaughter and the murder of police officers. In one of the game's sequels, players could hire prostitutes and later kill them-- an option that obviously attracted a lot of widespread protests and criticism.

One of the versions of the game, Grand Theft Auto: San Andreas, actually had a sub-game which is a game that's hidden within the larger game that you can uncover and play. And that game was called Hot Coffee. And essentially what it did is it allowed players to simulate explicit sex. So this gaming franchise has kind of been related, or has been involved in a lot of lawsuits and whatnot, kind of blaming it as a cause for various murderers and violent acts of crime.

Two other games here-- Virginia Tech Rampage and Super Columbine RPG-- are games that were made to recreate those horribly tragic events in our nation's past time. And then one of the last ones-- Call of Duty. Call of Duty is a huge franchise. Lots of people play it. Lots of kids play it. You can play it in your living room. You can play it online with people across the country, with people across the world, and it's just known for its realistic first person depiction of war and all the brutality that goes along with that.

That's a game that's rated M for Mature, and we'll talk about ratings in a minute. But that's a game that supposedly should only be marketed to kids age 17 and up, but a parent can go and buy that for their kid. A sibling can go in and buy that for their younger sibling. I mean, anyone-- like a homeless person off the street could go in and buy that game for a kid if they wanted to.

So these games are one of the examples of some of the games that kids are playing these days. So moving on from that-- so then we'll talk about the ESRB, which is the Entertainment Software Rating Board, which is essentially the governing body which produces content-based ratings for video games. So the graphic content of games such as Mortal Kombat, which you just saw there-- Night Trap, and Doom 2-- were kind of the focal point of some congressional hearings back in the early '90s.

And so those hearings kind of resulted in an ultimatum for the industry, which was to form a kind of a self-regulated rating system for video games within a year or have the government do it for you. And so the threat of that kind of led to the formation of a lot of different regulating agencies with the ESRB being the main one and the one that stuck and the one that's still around today.

And so the ESRB was meant to really inform and suggest rather than prohibit individuals from buying or playing video games. So the ESRB is not like a legally binding thing. So next, we'll walk through the ratings. So these are the ratings that you'll see on the covers of video games, on commercials for video games, on the backs of video covers. When you start up a video game, you'll see them.

So currently the ESRB uses a two-tiered system with kind of six age based ratings, complemented by 32 content descriptors. They give very detailed information about a game, including the presence of everything from crude humor to tobacco references and animated blood. And so as I go through these, I'll kind of liken them to ratings within the movie industry, because I think more people are familiar with those.

So the first one you see up there on the left is the EC or early childhood rating, which is similar to TY-Y. And these games contain content that's believed to be suitable for kids ages three to six years of age. And games that fall under this rating are usually kind of educational games. They contain no inappropriate content.

Next is the E for Everyone, which is kind of similar to a G rating. These games may contain cartoon or fantasy violence or some mild profanity, but they're believed to be suitable for all ages. Then the E 10+, which is the next one there, is similar to like a PG rating. These games contain content believed to be suitable for kids ages 10 and up, as you can imagine.

They can contain mild use of violence, language, or suggestive themes. Next is the T for Teen, which is similar to PG-13. These games contain content which is believed to be suitable for kids ages around 13 and up. And they can contain moderate use of violence, including blood, strong language, suggestive themes, and they can also have partial nudity in them.

And then games with this rating do contain some adult material. And the ESRB says that parents are kind of really urged to learn more about these games that carry these ratings before they let a child play it. And then the M for Mature rating is similar to an R rating. It's said to be suitable for ages 17 and up. These cannot be sold to minors, although like I said earlier, these are games that anybody can buy for a minor.

And these are games like Call of Duty, Grand Theft Auto, Mortal Kombat, Halo. I mean, there's a ton of them out there. And then finally is the AO or Adults Only rating, which is similar to a NC-17 rating. And these are games which are supposed to be suitable for people ages 21 and up. And these games typically contain strong sexual themes or content, graphic nudity, use of drugs, alcohol, and tobacco, strong language, strong mature humor, and sometimes real gambling.

Interestingly enough, games that are rated AO, none of the kind of major console manufacturers-- so Sony, Microsoft, Nintendo-- will allow an AO rated game on their platform. But as you can imagine, there's a lot of games like Mortal Kombat that probably should carry an AO rating that end up getting a mature ratings so that they can be on those platforms. And major retailers also won't sell games that are rated AO.

So how is the ESRB enforced? So it's enforced on a self-regulatory basis by the video game and retail industries. And like I was saying, the majority of retail outlets will not carry games that are rated above M for Mature, or games that are not rated by the ESRB. And like I said earlier, these ratings are not legally binding.

So if you misrepresent content in a game, you can get fined for it and the ESRB can refuse to rate your game or give their seal of approval, but you're not going to go to jail for it. You're not going to get in trouble with the law for it. And then lastly, just to talk with this kind of responsible advertising practices, these include ensuring that a game packaging and advertisements, as well as trailers, properly display ratings information and they restrict where the advertising materials for the games rated T or higher can appear.

So you're not going to see Call of Duty or Grand Theft Auto-- you're not going to see a commercial for that on the Disney Channel or Nick Jr. And this kind of allows the ESRB to restrict video game advertising to consumers for whom the product is not rated. And real quick I'll walk you through kind of the ratings process just to see how a game gets its rating and what constitutes certain ratings.

So we'll use Grand Theft Auto 5 as an example here, which is a game that came out in late 2013. So to get a rating-- so the ESRB is first sent essentially a copy of the game containing footage of the most graphic and extreme content found in the game, including content related to the game's context, story line, reward system, and then the gaming manufacturers also have to fill out a questionnaire essentially describing what's in the game.

The ESRB then has these trained raters who they employ who watch the footage, assign the game a rating, a recommended rating, and then send that back to the publisher. And then the publisher can accept their fate and say, all right, we've got this rating and we're going to produce the game, or they can edit the content and resubmit it to have the game re-rated.

So once the publisher does that, they then send a copy of the finished game back to the ESRB. It's play tested. There are penalties, such as fines up to a million dollars for publishers who misrepresent content within the games. And then if everything looks good, it's put out on the market. So using GTA 5 as an example, we'll walk through what gets certain games a rating.

I know it's probably small there and you guys can't read it, but I'll read it for you. So if you go to the ESRB's website, you can type in the name of a game and you can pull up all of the content, or you can pull up this page, which essentially will show you all the content that's in the game, what rating the game has, how it got it, and examples of what got it its particular rating.

So just some of the excerpts from this page on Grand Theft Auto 5. Players use pistols, machine guns, sniper rifles, and explosives to kill various enemies, such as rival gang members. Players also have the ability to shoot non-adversary civilians, though they do know this may negatively affect a player's progress in the game.

The game includes depictions of sexual material and activity, such as implied fellatio and masturbation. Various sex acts that the player's character procures from a prostitute, and they know that, while no nudity is depicted in these sequences, various sexual moaning sounds can be heard. Some sequences within the larger game allow players to use narcotics, such as smoking from a bong, lighting a joint. Cocaine use is also depicted.

There are several choice four and five letter words in the game that-- I'm not going to read them out, but you can see them there-- which can be heard throughout the game. Nudity is present in the game, however they note in two settings-- one being a topless lap dance in a strip club, and then the other being an area where there are male cult members with exposed genitalia. They're doing that in a non-sexual content, whatever that means.

[LAUGHTER]

I think if you expose your genitalia, that's usually in a sexual context. Within the game, there's TV programs and radio ads that contain instances of mature humor, such as sex jokes. There's depictions of raw sewage and feces on people's bodies in the game, and there's also a brief instance of necrophilia. Yeah.

So after reading all that to you guys, I mean, you guys can imagine that this game is probably better rated instead of M for Mature as having that AO rating. But again, no one will carry an AO rated game, so the majority of games get this mature rating instead. So we'll talk about some interactive elements. This is another symbol which you'll see on the fronts and backs of video games.

And this is the Users Interact symbol. And this essentially refers to all the online content of the game and the ability to interact with other players within the game. So this can be like messaging boards. It can be voice chat. So sitting in your living room, headphones on, playing Call of Duty, talking to someone who's hundreds of thousands of miles away while you're playing the game.

And oftentimes you can have games that will share your information that you input into the game with third parties. And some games also allow you to share like through social media, Facebook, Twitter, all of that fun stuff. You'll also see on the games kind of this symbol that says online interaction is not rated by the ESRB. And that just means that all the online content within the game-- so the chat and message boards and the social media-- all that stuff is really not taken into account when the ESRB assigns their rating to a video game.

So talking to someone on chat, I mean, your 13-year-old could be sitting there playing a game and talking to a pedophile. He's playing the game. They can be talking to someone who's bullying them. I mean, you have no idea who's on the other end of these chat lines talking to kids. Can't really see this, but this is just to kind of briefly talk about cyber bullying, which is the use of information technology to harm or harass other people in a deliberate and repeated hostile manner.

And this can include harassment, which may involve slurs directed towards women, sexual stereotyping, overaggressive language. And this type of exposure can potentially lead to withdrawal from friends and family, outbursts of anger, anxiety, and depression. So we'll move from that and kind of talk about what some of the evidence is out there that shows that playing these video games might actually do something to people.

So the AAP had their most recent kind of policy statement on media violence back in 2009. And they show that there's extensive research which indicates that media violence can contribute to what you see up there-- aggressive behavior, desensitization to violence, nightmares, fears of being harmed. In 2008, Lenhart essentially did a survey and found that greater than 90% of US children ages 2 to 17 play some type of video game.

So think about all these little 2 and 3-year-olds that come into your office. I know when they come into the emergency department, we see them all the time. They're playing whatever game on their parents iPhone or Android, because those are gaming platforms nowadays. And then the NDP group in 2011 kind of did a similar thing. But if you look at just kids ages 12 to 17 that essentially goes up to 97%.

So close to 100% of kids that age are playing some type of video game or being exposed to some type of video game. An analysis-- in 2007 of ESRB rated video games show that more than half of all games are rated as containing violence. And this includes more than 90% of games that are rated for children ages 10 and up.

One study in 1996 kind of found that children in grades 4 through 8 preferentially choose video games that award points for violence, which is essentially nowadays all video games that have violence in them. And while another in 2006 found that 7 out of 10 children in grades 4 through 12 report playing M rated games-- so like Mortal Kombat and Call of Duty and Grand Theft Auto and Halo and all that stuff.

So this was a study done in 2012. It is an Australian study that looked to see what the effects of violent video game playing would be on sleep patterns. And so it was a smaller study. It took 17 males between the ages of 15 and 17 who were in good physical health. Each subject underwent two testing nights. So the subjects were tested one week apart in a sleep lab.

And they were exposed either to 15 minutes of video game playing, which was deemed a regular amount, or they were exposed to a 150 minute period, which was deemed prolonged amount, directly before bedtime on each of the testing nights. And so they played a video game called Warhammer 40,000 Space Marine, which is just an M rated game because it's got a lot of violence and strong language in it.

After playing the games, the subjects were hooked up to polysomnography and their sleep was measured. And so what they found was, after prolonged gaming-- violent gaming, that is-- that total sleep time decreased by 27 minutes and they found that to be statistically significant. And sleep efficiency, which is your number of minutes asleep divided by your number of minutes in bed, decreased by 7%.

So this next study, which came out 2008, in *Pediatrics* actually kind of looked to see whether high exposure to violent video games would or wouldn't increase physical aggression over time. And so basically what this study did is they had three different sample populations-- two of those in Japan, one in the United States.

It was around 1,500 kids total between the ages of 9 and 17. And essentially what they did is they measured the exposure that these kids had to violent video game content and then kind of, over time, followed them and measured their reported physical aggressive behaviors. And so what they found is they found a statistically significant and reliable positive correlation between exposure to violent video game content and levels of physical aggression.

They found that boys were affected more than girls in this study. And they showed that this occurs in both cultures with high societal levels of violence, so being the good old US of A, and those with low levels being in Japanese culture. And they found this even after controlling for gender and previous aggressiveness in all three of the groups.

So this study came out in 2006. And basically what they wanted to do is they wanted to see if viewing media violence-- so in this case, playing violent video games-- would lower physiological responsiveness to other media violence, which was kind of real world violence is what they had in this study.

And so they took a bunch of college kids, around 300. They measured their baseline heart rate and galvanic skin response, which is essentially sweating. They did five minutes of baseline measurement prior to playing the video game, and then they broke them up into two groups. One group played violent video games. The other group played nonviolent video games.

And then immediately after that, they again measured their heart rate and their galvanic skin response. And then they had both groups watch a 10 minute video of real world violence. And that was anything from courtroom outbursts to police confrontations to shootings, prison fights, all kinds of fun stuff like that. And while they did this, they measured again their heart rate and their galvanic skin response while they were watching this real life violence.

And so what they found-- you can see up there-- is basically they showed a statistically significant decrease in heart rate and galvanic skin response in the subjects who were exposed to playing violent video games while they were-- and then when they then watched the kind of real world violence. And so they measured-- they call this desensitization-- from playing the violent video games.

And then they kind of took and extrapolated this to this generalized aggression model which basically says that the more exposure you have to violent content, violent media-- so in this case, violent video game play-- in a positive manner, which most video games depict violence in a positive way, the more likely you are to be desensitized to violence.

And then being desensitized to violence can then lead to changes in the way you think and feel about violence, which can then lead to changes in your behavior, such as being more aggressive, being less likely to help someone who is being hurt or being injured or being aggressed upon. So the American Psychological Association, or the APA, formed this task force on violent media back in 2013.

And essentially what they did is they reviewed their 2005 resolution on violence in video games and interactive media. So they reviewed all the existing literature and then all the new literature that had been published since 2009. And they examined close to 200 articles. And some of the stuff that they found we'll go through in the next slide.

So they found a consistent relation between violent video game use and heightened aggressive behavior, aggressive cognition, aggressive affect, as well as reduced pro-social behavior, empathy, and sensitivity to aggression. And they found, in looking at different types of studies and sample populations, that this kind of held true across all of those.

And the last thing on this slide here-- five of the studies actually took into consideration known risk factors for aggression. So having anti-social personality traits, delinquency, poor academic achievement level, parental conflict, child and parent depression, exposure to deviant peers. And they found that when controlling for those things or adjusting for those risk factors that this still held true, that the more you were exposed to violent media, the more aggressive you were likely to be.

So the existing research out there suggests that-- this is not rocket science really. The more you're exposed to violence in video games, the higher levels of aggression you will have. They do acknowledge that the majority of the research that's out there in the studies that have been done are more so on adolescents and young adults than on kids.

And so they recommend doing-- more studies need to be done on children less than the age of 10, because we really don't have a lot of data for that population. So they also did not find really enough evidence across all the studies that they reviewed to suggest that exposure to violence in video games necessarily lead to kind of criminal violence or delinquency.

So we know that you're more likely to be aggressive, to have aggressive thoughts if you're exposed to violent content in video games, but we don't have any studies that really say that because you played Call of Duty for 10 hours a day, you're more likely to go out and murder someone or do something along those lines.

So what does the AAP say? So the AAP's policy on violent media back in 2000 basically says probably a lot of what you guys know. So no TV, internet, or video games in the bedroom. They say to limit screen time, including video games, to one to two hours per day. They say to avoid violent games.

A lot of this stuff is kind of common sense. Don't buy video games which use human targets or which award points for killing. And then violent video games should be age restricted. So next we'll talk about some kind of advocacy and resources. So the ESRB's website is actually a really good place to go to get a lot of resources, both as a primary care provider and as a parent.

So this is a screenshot of their website. So the first link up there kind of on the top left-- I know it's probably hard to see-- but just essentially allows you to do what I did earlier when I walked you through Grand Theft Auto. You can type in a game's name and you can check the ESRB's rating of that game and essentially a summary of the game.

You can also get links to several websites, many of which will have screenshots of game-play, videos of game-play, like demos of the games, and other resources that can kind of get you better acquainted with the content of the game. One of the other links up there allows you to download a mobile app for the ESRB so that if you're at Target with your kid and they're trying to buy a video game, like Far Cry or something like that, you can pull it up on this app and kind of see what its rated, why it got that rating, what's in the game, and whether or not it's appropriate for your 8-year-old to kill people in a game.

One of the other links up there kind of will give you step by step instructions for each of the currently available consoles, as well as Windows PC, about how to enable parental controls so that you can block games by their rating. You can regulate how much time can be spent on the console. And you can actually restrict access to the internet through the parental controls.

And then a couple of the other links on there just kind of provide resources to kind of help families stay safe online. And then there's one that kind of provides a framework for families to help parents and their children have a discussion about video games. So kind of tips-- check ratings and reviews. A good place to start is a game's age appropriateness.

Game review websites, like IGN, are also good resources because they can help you get better acquainted with the game through their reviews of the games, their demonstrations of the game. They have lots of video content on that website. Set parental controls. They're built into these gaming devices, although they're not really built into phones nowadays.

But they're built into gaming devices. Like I said, some consoles will let you decide how long and when a child can play, who they can play with, and disable the ability for them to interact online with other users. Parents and pediatricians can speak up. You can notify a game's publisher or online service or Sony, X-Box, Nintendo, those companies as well, if there is a player online who's behaving in an inappropriate manner and who is bullying or talking in an inappropriate way.

Be involved by keeping your gaming consoles or your computers in a public area of the house so that you always know when your child is playing and what they're playing, so they're not just like, up in the bonus room in the dark playing. Talk with your children about what they're playing and with whom they're playing. And then don't disclose. You want to make sure that your children know not to divulge personal or financially sensitive information about themselves or about you when they are completing online profiles or they're purchasing items in a game or they're interacting with others online.

And then look out for cyberbullies. Look out for signs of cyberbullying, such as decreased-- or sorry, changes in computer game usage, increased anxiety or depression, and reluctance to go to school or socialize. So what's next? You know, I think that the video game industry is evolving. Things are getting more graphic. Things are getting more complex. There's a ton of video game consoles out there nowadays.

You can play video games on your phone, on your tablets. There's all kinds of stuff that kids are being exposed to today. So I would encourage you as pediatricians just to try and stay up to date on what's out there and include this in part of your anticipatory guidance talk when you talk to families and when you talk to especially young adolescents, teenagers, pre-adolescents as well. I feel like we can really make a difference by including that in our talks.