

# Overview: New Media

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## KEYWORDS

- New media • Web 1.0 • Web 2.0 • Digital divide • Participatory culture
- Social media • Digital families • Pediatricians

## KEY POINTS

- Technology is influential in children's lives from a very young age, especially new media, which occur on everything children use today.
- Technology can cause health problems when issues such as sexting, cyberbullying, and privacy breaches develop.
- Pediatricians must be well versed in new media to adequately care for today's children.
- All generations use new media, although slightly differently.
- Knowing what new media each age group uses helps pediatricians ask the right questions to detect issues like cyberbullying and sexting.

*For the very first time the young are seeing history being made before it is censored by their elders.*

—Margaret Mead<sup>1</sup>

*Social media is like teen sex. Everyone wants to do it. No one actually knows how. When finally done, there is surprise it's not better.*

—Avinash Kaushik, Google's analytics evangelist via Twitter<sup>2</sup>

Pediatricians have a difficult task: to care for children's growth and development from the time they are born until they become adults. In addition to physical, emotional, and developmental growth, pediatricians also must be vigilant for external influences, which can have a profound impact on health and well being.<sup>3</sup> In today's society, one of the most influential factor's on children of all ages is technology, as shown by the common sights of children using cell phones, listening to MP3 players, and using laptops and handheld devices. Seventy-five percent of teenagers own cell phones, with 25% using them for social media.<sup>4</sup> According to Common Sense Media, 22% of teenagers log onto their favorite social media site more than 10 times a day.<sup>5</sup>

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Pediatr Clin N Am 59 (2012) 589–600

doi:[10.1016/j.pcl.2012.03.024](https://doi.org/10.1016/j.pcl.2012.03.024)

[pediatric.theclinics.com](http://pediatric.theclinics.com)

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With the increase in technology comes not only an increase in skills and social benefits, but the potential for harm such as sexting, cyberbullying, privacy issues, and Internet addiction, all of which may present with vague health symptoms.<sup>6</sup> Therefore, it is crucial for pediatricians to become well versed in the new media their patients and families are using. That is the only way to provide media-oriented anticipatory guidance and advice on media-related issues when they arise.

**NEW MEDIA DEFINED**

Media today include many different forms. At their core, they are all forms of communication. Media that evolved before digital technology have come to be known as traditional media, whereas media that have evolved since the development of digital technology are known as new media.

Examples of traditional media include all print materials, radio, television, records, and cassettes. Media consumption in this category tend to be passive. People are given these media; they do not create them or interact with them.<sup>7</sup>

New media include everything that is now used on a device or computer. E-readers, smartphones, computers, laptops, CDs, DVDs, MP3 players, and everything they produce are new media. Media consumption in this category is social and active. People can respond to these media and interact with them, if they choose to.<sup>8</sup>

New media technologies are further subclassified by their evolution in the digital world. Web 1.0 typically refers to Internet sites using the earliest web-based technologies, whereas 2.0 sites refer to sites that are the newest and are using the most social tools. The differences between the 1.0 media and 2.0 or new media have to do with the purpose of the sites and the user experiences. Web 1.0 sites are passive, whereas 2.0 sites are active (**Table 1**).

<b>Table 1</b> <b>Comparison of Web 1.0 and Web 2.0 Web sites. Created by Gwenn O’Keeffe, MD, FAAP based on material from <a href="http://www.darrenbarefoot.com/archives/2006/05/web-10-vs-web-20.htm">http://www.darrenbarefoot.com/archives/2006/05/web-10-vs-web-20.htm</a></b>	
<b>Web 1.0</b>	<b>Web 2.0</b>
1. Static	1. Dynamic
2. Home pages	2. Blogs
3. Reading	3. Writing
4. Companies	4. Communities
5. HTML	5. XML
6. Client server	6. Peer to peer
7. Lectures	7. Conversation
8. Advertising	8. Word of mouth
9. Wires	9. Wireless
10. Dial-up access	10. Broadband access
11. All about ownership	11. All about sharing
12. Netscape for search	12. Google for search
13. Owning	13. Sharing
14. Internet Explorer browser	14. Firefox browser
15. Like a newspaper	15. Like TV/video
16. Considered a tool	16. Considered a lifestyle

## IMPACT ON SOCIETY

The major impact of new media extends beyond technological advances and into the fiber of our society. New media, particularly the more recent advances online, have pushed our society toward a more participatory culture.<sup>9</sup> According to Henry Jenkins, “[a] participatory culture is culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one’s creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices. A participatory culture is also one in which members believe their contributions matter, and feel some degree of social connection with one another....”<sup>9</sup>

New media allow people to thrive in a participatory culture and enjoy benefits such as peer-to-peer collaboration, cultural diversity, enhanced learning, and more engaged citizens. In addition, with new media, people are more connected to their health and health care systems.<sup>6,9</sup>

Use of new media and how each generation uses new media shows how participatory our society has become. According to the most recent data from Pew Internet and American Life Project (**Fig. 1**), adults and teens are both online, but teens are online more than adults. However, both share similarities in the activities they do online, such as reading news, engaging in e-mail, shopping, and watching videos. Although

Survey dates for online activities charts

Activity	Online teens	Teen Survey Date	Online adults	Adult Survey Date
Go online	93%	Sep-09	79%	May-10
% of internet users who do the following activities:				
Send or read e-mail	73	Sep-09	94	May-10
Use a search engine	*	*	87	May-10
Get news	62~	Sep-09	75	May-10
Visit a government website	*	*	67	May-10
Buy a product	48	Sep-09	66	May-10
Make travel reservations	*	*	66	May-10
Watch a video	57	Nov-06	66	May-10
Use social networking sites	73	Sep-09	61	May-10
Bank online	*	*	58	May-10
Use online classifieds	*	*	53	May-10
Send instant messages	67	Sep-09	47	May-10
Get financial info	*	*	38	May-10
Look for religious/spiritual info	*	*	32	May-10
Rate a product, service or person	*	*	32	May-10
Participate in an auction	*	*	26	May-10
Make a charitable donation	*	*	22	May-10
Download podcasts	*	*	21	May-10
Work on own blog	14	Sep-09	14	Jan-10
Listen to music online	*	*	51	Sept-09
Visit a virtual world	8	Sep-09	4	Sept-09
Look for health info	31~	Sep-09	83	Dec-08
Read blogs	49	Nov-06	32	Dec-08
Play online games	78	Feb-08	35^	Aug-06

Note: ~ indicates significant differences in question wording between teen data and adult data.

**Fig. 1.** Breakdown in online activities between teen and adult users. In general, the online activities are similar between the 2 groups. (Courtesy of Pew Internet & American Life Project; with permission.)

adults search for health information more than teens, one-third of teens go online for health information.<sup>10</sup>

However, the generational differences become more pronounced among the adult groups, as shown in Fig. 2, with the oldest populations least involved in all online activities compared with the younger generations of adults, and with teens.

Within the teen generation, a 2009 Pew Internet survey showed that not all teenagers use the Internet to the same degree as noted in Fig. 3. However, despite slight socioeconomic and racial differences in how teens use digital devices, data show that most teens are online (Fig. 3).

NEW MEDIA AND TODAY’S FAMILY

*The Digital American Family*

Context is everything in evaluating a child. Illnesses that a child may come in contact with, stress, and peers all matter in influencing the health of a child. A child’s digital life plays a role as well.

Knowing how digital today’s family has become helps the health care services help them with media-related issues. It also helps health care services know where to begin in learning about new media, technologically, and in anticipating the issues that may arise from the use of that technology by children, teens, and parents.

Activity	Teens	Millennials	Gen X	Younger Boomers	Older Boomers	Silent Gen	G.I. Gen	All adults
	Ages 12-17	Ages 18-33	Ages 34-45	Ages 46-55	Ages 56-64	Ages 65-73	Age 74+	Age 18+
Go online	93%	95%	86%	81%	76%	58%	30%	79%
Teens and/or Millennials are more likely to engage in the following activities compared with older users:								
Watch a video	57	80	66	62	55	44	20	66
Use social network sites	73	83	62	50	43	34	16	61
Send instant messages	67	66	52	35	30	29	4	47
Play online games	78	50^	38^	26^	28^	25^	18^	35^
Read blogs	49^	43	34	27	25	23	15	32
Visit a virtual world	8	4	4	4	3	3	1	4

**Note:** ^ indicates data from 2006.  
**Source:** Pew Research Center’s Internet & American Life Project surveys , 2008-2010. All teens data are from different surveys than adult data, and may have slight differences in question wording. Findings for individual activities are based on internet users. For survey dates of all activities cited, please see the Methodology section at the end of this report.

Fig. 2. Generational breakdown of adult online use with a difference between younger and older adult use patterns. (Courtesy of Pew Internet & American Life Project; with permission.)

## Demographics of teen internet users

Below is the percentage of teens in each group who use the internet, according to our September 2009 survey. As an example, 94% of teen girls use the internet.

	% who use the internet
<b>Total teens</b>	<b>93</b>
Boys	91
Girls	94
<b>Race/ethnicity</b>	
White, Non-Hispanic	94
Black, Non-Hispanic	87
Hispanic (English -speaking)	95
<b>Age</b>	
12-13	88
14-17	95
<b>Household income</b>	
Less than \$30,000/yr	88
\$30,000-\$49,999	89
\$50,000-\$74,999	96
\$75,000+	97

Source: The Pew Research Center's Internet & American Life project 2009 Parent-Teen Cell Phone Survey, conducted from June 26 to September 24, 2009. n= 800 teens ages 12-17 (including 245 cell phone interviews).

*pewinternet.org*

**Fig. 3.** Demographic and racial differences in teen online use. (Courtesy of Pew Internet & American Life Project; with permission.)

According to Nielsen's *The New Digital American Family*, "(t)he New Digital American Family is getting older, smaller, growing more slowly and becoming more ethnically diverse than at any point in history. Diversity in all its dimensions defines the emerging American Family archetype, with no single cultural, social, demographic, economic or political point of view dominating the landscape."<sup>11</sup>

According to Nielsen, most of today's parents are from Generation X. Born between 1965 and 1976, this group represents 43.9% of homes with children less than 18 years of age. The next largest group is the Brady Boomers. Born between 1956 and 1964, this group comprises 23.3% of parents. Baby Boomers, born between 1946 and 1964, still represent a sizable force in the parenting generation, representing nearly 30%.<sup>11</sup>

Matching this information with the Pew Generations chart mentioned earlier, health care services can fine tune the way families are questioned.

### Teens and Adults











Pew and others have shown that search, social media, e-mail, and video are the main destinations online for all generations, but to what extent? What sites attention be focused on?

Data by Experian Hitwise from the week of December 3, 2011 help answer these questions, as noted in **Fig. 4**. The top 4 items on this chart represent the top 4 activities that are known to be important to all generations:

- Facebook: social media
- Google: search

### Top 10 visited US websites

The following report shows **websites** for the industry 'All Categories', ranked by **Visits** for the week ending 12/03/2011.

Rank	Website	Visits Share
1.	Facebook	9.03% 
2.	Google	7.15% 
3.	YouTube	2.89% 
4.	Yahoo! Mail	2.69% 
5.	Yahoo!	2.45% 
6.	Bing	1.39% 
7.	Yahoo! Search	1.34% 
8.	Gmail	1.23% 
9.	msn	0.98% 
10.	Windows Live Mail	0.89% 

**Fig. 4.** Most visited US Web sites in December 2011. (Courtesy of Experian Hitwise; with permission.)

- YouTube: video
- Yahoo! Mail: e-mail











Teasing through the social media sites further, other sites emerge as popular players in this field (**Fig. 5**):

What is interesting about **Fig. 5** is that Google+ is already in the top 10 and is new to the social media landscape. Being able to track this sort of trend will be helpful in knowing where families may be getting information online and, hence, what to ask them about.

The total number of users on these sites is staggering. As of June 2011, Facebook had 734 million users a month and Twitter 144 million users a month.<sup>12</sup> Among teens,

### Top 10 Social Networking sites

The following report shows **websites** for the industry 'Computers and Internet - Social Networking and Forums', ranked by **Visits** for the week ending 12/03/2011.

Rank	Website	Visits Share
1.	Facebook	63.63% 
2.	YouTube	20.36% 
3.	Twitter	1.52% 
4.	Yahoo! Answers	1.02% 
5.	Tagged	0.74% 
6.	Linkedin	0.65% 
7.	Google+	0.58% 
8.	MySpace	0.47% 
9.	myYearbook	0.41% 
10.	Pinterest.com	0.34% 

**Fig. 5.** Top 10 social networking sites, December 2011. (Courtesy of Experian Hitwise; with permission.)

73% use social media sites such as these.<sup>13</sup> Although Facebook is popular among teens, as it is with adults, Twitter is not, with only 8% of teens actively using Twitter.<sup>13</sup>

In a clinical encounter, knowing what sites families are spending time on is how they can be helped to make more healthy choices as well as to navigate issues when they occur. For example, by being aware that people spend most of their online time on Facebook and YouTube (Fig. 5), time can be focused on helping families understand those sites.

Similar trends reported by NM Incite show that parents use social media for similar reasons as teens: entertainment, gaming, connection.<sup>14</sup> Cell phone use and the accessing of new media via cell phones are increasing; 75% of teens and 93% of adults own cell phones.<sup>13</sup> All of these activities are important in monitoring and counseling families in the clinical setting.

Today's family is digitally savvy, an observation confirmed not just by Pew and Experian but other groups such as Nielsen.<sup>11</sup> "For members of the Post-Digital Generation, there has always been an Internet. Time-shifted viewing has become the norm. Three-screen lifestyles (TV, Internet and mobile) predominate. Social media use continues to soar... The Internet is more than a way to study."<sup>11</sup>

### **Children Aged 0 to 13 Years**

Teens and adults are not the only populations using new media. Children as young as toddlers are now exposed to new media technologies. According to Common Sense Media,<sup>15</sup> the total screen time for this population is significant. According to their recent report, *Zero to Eight: Children's Media Use in America*, people in this age group spend 27% of their time with digital devices, which includes computers, video games, tablets, cell phones, and other handheld and mobile devices.

Other important data for this age group:

- 52% have access to some sort of mobile device, such as a cell phone or smart phone<sup>15</sup>
- All children in this age bracket use computers: 53% of children aged 2 to 4 years and 90% of children aged 5 to 8 years<sup>15</sup>
- In the 2- to 5-year-old age group<sup>16</sup>
  - 58% can play a basic computer game
  - 19% can use a Smartphone App but only 11% can tie their shoelaces
- More children aged 2 and 3 years can play a computer game than ride a bike (58% vs 52%).<sup>17</sup>

Studies confirm what is seen in society: media use increases with age. Compared with the toddlers and preschoolers, the later elementary school group, children aged 6 to 9 years, are online even more<sup>17</sup> with:

- One-fifth using e-mail
- 14% using Facebook despite the registration age being 13 years
- 47% talking with friends online
- US children logging 4 hours of Internet time weekly, 30 minutes more than the international average.

By 11 years of age, most US tweens are on new media sites such as Twitter or Facebook; 62% of the group aged 10 and 13 years are actively using social media.<sup>18</sup>

Most children aged 10 to 13 years, both in the United States and internationally, report having their own computers.<sup>18</sup>

NEW MEDIA AND PEDIATRICS

Pediatricians use new media in a similar way as their patients, as shown<sup>19</sup> in **Fig. 6**. These data are consistent with other generational data and help explain how technology is used both personally and professionally.<sup>10</sup> Similarly, pediatricians, like the general public, are heavy social media users (**Fig. 7**), and this tracks along generational lines.<sup>10</sup>

NEW MEDIA AND THE FUTURE

To keep up with new media trends, pediatricians are best served by using their own new media use as one guide and the new media their patients are using as another guide. Knowing that their use is similar to their patients’ and families’ use should help them find common ground to help discuss technology issues and intervene when necessary.

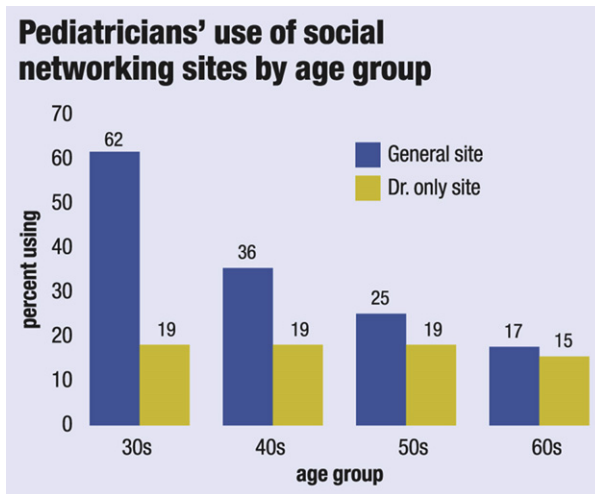
In addition, the American Academy of Pediatrics’ *Talking to Children and Teens about Social Media and Sexting* is not only a helpful guide for parents but also for pediatricians. The advice for social media does not just apply to sites such as Facebook but to any new media venue or technology:

- Let them know that their use of technology is something you want and need to know about. For kids of all ages, ask daily: “Have you used the computer and the Internet today?”
- Technology use varies by age. Tweens are likely to be using more instant messaging (IM) and texting, whereas teens use those technologies and also networking sites such as Facebook. (These tools often are referred to as platforms for social networking.) Ask daily how your family used those tools with questions such as: What did you write on Facebook today? Any new chats recently? Anyone text you today?
- Share a bit about your daily social media use as a way to facilitate daily conversation about your children’s online habits.
- Get your children talking about their social media lives so that you know what they are doing.

Ways pediatricians use the Internet by age group, 2009 (% using)				
	30s, n=205	40s, n=208	50s, n=224	60s, n=105
Get news**	95%	94%	85%	88%
Earn CME**	74	76	67	55
Watch videos (YouTube)**	74	76	67	58
Read blogs or journals*	44	33	30	34
Download podcasts	29	30	29	23
Create blog or journal	15	10	11	6
Use Twitter	13	9	8	4

\*P<.05, \*\*P<.01

**Fig. 6.** Ways pediatricians use the Internet by age group, showing similarities among generations of pediatricians. American Academy of Pediatrics, Periodic Survey of Fellows No. 75, 2009. (From the American Academy of Pediatrics, Periodic Survey of Fellows No. 75, 2009. Reprinted with permission of AAP News, June 2010.)



**Fig. 7.** Pediatrician social media use. American Academy of Pediatrics, Periodic Survey of Fellows No. 75, 2009. (From the American Academy of Pediatrics, Periodic Survey of Fellows No. 75, 2009. Reprinted with permission of AAP News, June 2010.)

- Keep the computer in a public part of your home, such as the family room or kitchen, so that you can check on what your children are doing online and how much time they are spending there.
- Talk with other parents about what their children of similar ages are using for social media. Ask your children about those technologies as a starting point for discussion. If they are in the same peer group, there is a good chance that they are all using the same platforms together. For example
  - For teens: Mrs Smith told me that Jennifer uses Facebook. Is that something you have thought of doing? Do you already have a profile? If so, I would like to see it.
  - For tweens and older elementary school children: Are you planning on meeting up with children on Club Penguin today? I would love to see how that works. Or, Let's look at your text log today together. I would like to see who has been texting you.

For all ages, emphasize that everything sent over the Internet or a cell phone can be shared with the world, so it is important that they use good judgment in sending messages and pictures and set privacy settings on social media sites appropriately.

- Discuss with children of every age what good judgment means and the consequences of poor judgment, ranging from minor punishment to possible legal action in the case of sexting (discussed later) or bullying.
- Remember to make a point of discouraging children from gossiping, spreading rumors, bullying or damaging someone's reputation using texting or other tools.
- To keep children safe, have your children and teens show you where the privacy features are for every social media venue they are using. The more private they are, the less likely it is that inappropriate material will be received by your child, or be sent to their circle of acquaintances.
- Be aware of the ages of use for sites that your tweens and older elementary school children want to use, including game sites such as Club Penguin and Webkinz. Many sites are for age 13 years and older, and the sites for younger children require parental consent to use.

- Be sure you are where your children are online: IM, Facebook, MySpace, and so forth. Have a policy requiring that you and your child friend each other. This is one way of showing your child that you are there, too, and will provide a checks-and-balance system by having an adult within arm's reach of their profile. This precaution is important for children of all ages, including teens.
- Show your children that you know how to use what they are using, and are willing to learn what you may not know how to do.
- Create a strategy for monitoring your children's online social media use, and be sure you follow through. Some families may check once a week and others more sporadically. You may want to say, "Today I'll be checking your computer and cell phone." The older your children are, the more often you may need to check.
- Consider formal monitoring systems to track your child's e-mail, chat, IM, and image content. Parental controls on your computer or from your Internet service provider, Google Desktop, or commercial programs are all reasonable alternatives.
- Set time limits for Internet and cell phone use. Learn the warning signs of trouble: skipping activities, meals, and homework for social media; weight loss or gain; a reduction in grades. If these issues are occurring because of your children being online when they should be eating, sleeping, or participating in school or social activities, your children may have a problem with Internet or social media addiction. Contact your pediatrician for advice if any of these symptoms are occurring.
- Check chat logs, e-mails, files, and social networking profiles for inappropriate content, friends, messages, and images periodically. Be transparent and let your children know what you are doing.
- Multitasking can be dangerous, even deadly. Be sure to stress to teens the importance of not texting, using Facebook, using the phone, listening to ear buds or earphones, or engaging in similarly distracting activities while driving. These forms of distracted driving are illegal in many states because they are so dangerous. In addition, caution children of all ages about using mobile devices while walking, biking, babysitting, or doing other things that require their full attention.<sup>20</sup>

Pediatricians are uniquely positioned to help families understand how the digital world affects a child's health and development. For that reason, the American Academy of Pediatrics has issued a clinical report on social media for pediatricians with the following advice<sup>6</sup>:

*Pediatricians are in a unique position to educate families about both the complexities of the digital world and the challenging social and health issues that online youth experience by encouraging families to face the core issues of bullying, popularity and status, depression and social anxiety, risk-taking, and sexual development. Pediatricians can help parents understand that what is happening online is an extension of these underlying issues and that parents can be most helpful if they understand the core issues and have strategies for dealing with them whether they take place online, offline, or, increasingly, both.*

*Some specific ways in which pediatricians can assist parents include*

- 1. Advise parents to talk to their children and adolescents about their online use and the specific issues that today's online kids face.*
- 2. Advise parents to work on their own participation gap in their homes by becoming better educated about the many technologies their youngsters are using.*

*3. Discuss with families the need for a family online-use plan that involves regular family meetings to discuss online topics and checks of privacy settings and online profiles for inappropriate posts. The emphasis should be on citizenship and healthy behavior and not punitive action, unless warranted.*

*4. Discuss with parents the importance of supervising online activities via active participation and communication, as opposed to remote monitoring with a “net-nanny” program (software used to monitor the Internet in the absence of parents).*

Pediatricians are already more technologically savvy than they realize. With better communication and recognition of how their families use new media, they can better incorporate new media technologies into all areas of pediatric practice from general care to subspecialty practices.

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