

**Supplemental Table 1: Included Studies**

Author (year)	Sampling of clusters	Sampling of patients	Response rate (%)	Sex (age)	Source of race and ethnicity data	Race and ethnicity of participants				Hispanic ethnicity reporting	Missingness of race and ethnicity, handling	Source of HPV vaccination data	<i>n</i>		Study design
						% W	% B	% H	% A				Initiation	Follow-through	
Ackerson <sup>1</sup> (2017)	Single Site	Conv	NA	M (9-17)	Admin	18	9	59	8	Combined	4.3%, own category	Provider		75,024	CS
Barboza <sup>2</sup> (2016)	National	Prob	NR	M/F (9-17)	Self	71	10	20	.	Combined	NR	Self	5,285	880	CS
Bass <sup>3</sup> (2015)	Regional	Prob	71	M/F (14-18)	Self	16	56	.	7	NA	NR	Self	764		CS
Bednarczyk <sup>4</sup> (2011)	Single Site	Conv	66	F (18+)	Self	62	10	11	8	Combined	8%, excluded	Self	538		CS
Bendik <sup>5</sup> (2011)	Single Site	Conv	31	F (18-24)	Self	86	5	1	2	Combined	NR	Self	1,957		CS
Berenson <sup>6</sup> (2016)	Single Site	Conv	NA	F (9-26)	Admin	25	21	53	.	Combined	NR	Provider	739	575	CS
Bernat <sup>7</sup> (2013)	National	Prob	NR	M/F (18-24)	Self	76	5	8	12	Separate	NR	Self	2,870		CS
Blumenthal <sup>8</sup> (2012)	Single Site	Conv	NR	M/F (13-18)	Self	8	21	65	1	Combined	0.9%, excluded	Self	194		CS
Brewer <sup>9</sup> (2011)	Regional	Prob	73	F (10-18)	Self	56	35	.	.	NA	NR	Self	567		L
Caskey <sup>10</sup> (2009)	National	Prob	47	F (13-26)	Self	63	17	13	.	Combined	NR	Self	933		CS
CDC <sup>11</sup> (2009) NIS-Teen	National	Prob	60	F (11-17)	Self	70	10	12	2	Combined	NR, imputed	Provider	7,987		CS
CDC <sup>12</sup> (2010) NIS-Teen	National	Prob	58	F (11-17)	Self	70	10	12	2	Combined	NR, imputed	Provider	9,116	3,759	CS
CDC <sup>13</sup> (2011) NIS-Teen	National	Prob	58	F (11-17)	Self	69	10	13	3	Combined	NR, imputed	Provider	17,918	3,974	CS

CDC <sup>14</sup> (2012) NIS-Teen	National	Prob	57	M/F (11-17)	Self	71	11	14	3	Combined	NR, imputed	Provider	18,032	5,559	CS
Chao <sup>15</sup> (2009a)	Single Site	Conv	NA	F (9-26)	Admin	22	10	37	6	Combined	Included in other	Provider	112,841		CS
Chao <sup>16</sup> (2009b)	Single Site	Conv	NA	F (9-26)	Admin	18	7	29	3	Combined	NR	Provider		16,512	CS
Chao <sup>17</sup> (2010)	Single Site	Conv	NA	F (9-26)	Admin	19	8	44	6	Combined	50%, imputed	Provider	219,314		CS
Chao <sup>18</sup> (2015)	Single Site	Prob	NA	F (9-26)	Admin	24	9	50	9	Combined	Included in other	Provider		2,251	CS
Chou <sup>19</sup> (2011)	Single Site	Conv	NA	F (11-26)	Admin	52	31	4	.	Combined	9%, excluded	Provider		1,227	CS
Chuang <sup>20</sup> (2017)	Regional	Conv	NA	M/F (9-18)	Admin	7	3	83	3	Combined	NR	Provider	36,822	16,690	CS
Clarke <sup>21</sup> (2016)	Single Site	Conv	NA	M (11-26)	Self	51	35	5	3	Combined	NR	Provider	13,733	632	CS
Conroy <sup>22</sup> (2009)	Single Site	Conv	72	F (13-26)	Admin	15	79	.	.	NA	NR	Self	173		L
Cook <sup>23</sup> (2010)	Regional	Conv	NA	F (9-20)	Admin	28	38	25	.	Combined	NR	Provider	151,978	14,155	CS
Corriero <sup>24</sup> (2017)	National	Prob	NR	F (9-33)	Self	70	17	13	.	Combined	NR	Self	4,449	916	CS
Cowburn <sup>25</sup> (2014)	Regional	Conv	NA	F (9-26)	Self	39	.	35	7	Combined	23%, excluded	Provider	12,119	2,234	CS
Cuff <sup>26</sup> (2016)	Regional	Conv	NA	F (11-12)	Admin	75	16	.	.	NA	NR	Self	824		CS
Curtis <sup>27</sup> (2013) NIS-Teen	National	Prob	54	M/F (11-17)	Self	68	10	13	3	Combined	NR, imputed	Provider	18,032	5,559	CS
Daley <sup>28</sup> (2010)	Single Site	Conv	90	F (17-42)	Self	85	.	18	.	Separate	NR	Self	255		CS
DanielUlloa <sup>29</sup> (2016)	National	Prob	NA	M/F (18-30)	Self	52	15	22	.	Combined	NR	Self	5,794	1,062	CS

De <sup>30</sup> (2017)	National	Prob	NA	M/F (18-26)	Self	77	15	.	3	Combined	NR	Self	34,557		CS
Dempsey <sup>31</sup> (2010)	Single Site	Conv	NA	F (9-18)	Self	73	14	.	.	NA	Included in other	Provider	8,771	2,532	CS
Dempsey <sup>32</sup> (2011)	Single Site	Conv	NA	F (19-26)	Admin	76	11	.	.	NA	Included in other	Provider	10,036	1,839	CS
Du <sup>33</sup> (2015)	Regional	Prob	NR	F (9-26)	Self	66	6	23	.	Combined	NR	Self	2,093	591	CS
Eberth <sup>34</sup> (2013a)	Regional	Prob	NR	F (11-17)	Self	54	.	33	.	Combined	NR, excluded	Self	574		CS
Eberth <sup>35</sup> (2013b)	Regional	Prob	NR	F (18-26)	Self	43	8	38	.	Combined	NR, excluded	Self	277		CS
Elam-Evans <sup>36</sup> (2014) NIS-Teen	National	Prob	47	M/F (11-17)	Self	68	10	14	3	Combined	NR, imputed	Provider	17,013	6,616	CS
Feemster <sup>37</sup> (2014)	Single Site	Conv	NA	F (11-18)	Admin	58	28	2	.	Combined	Included in other	Provider	16,138		L
Ford <sup>38</sup> (2011)	National	Prob	76	F (18-24)	Self	66	16	18	.	Combined	NR	Self	1,019		CS
Fuller <sup>39</sup> (2017)	Regional	Prob	NR	M (18-26)	Self	69	9	12	.	Combined	NR	Self	1,459		CS
Gerend <sup>40</sup> (2016)	National	Conv	61	M (18-26)	Self	57	7	23	.	Combined	NR	Self	265		CS
Gilkey <sup>41</sup> (2012)	Regional	Prob	63	M/F (11-17)	Self	73	16	.	.	Combined	NR	Self	669		CS
Gold <sup>42</sup> (2011)	Regional	Conv	NA	F (8-17)	Admin	55	11	22	.	Combined	4%, excluded	Provider		395	CS
Gorbach <sup>43</sup> (2017)	Single Site	Conv	95	M (18-26)	Self	27	18	38	7	Combined	NR	Self	729		CS
Gottlieb <sup>44</sup> (2009)	Regional	Prob	NR	F (10-18)	Self	52	38	5	.	Combined	NR	Self	855		CS
Guleria <sup>45</sup> (2016)	Single Site	Conv	NA	F (14-26)	Self	8	67	17	.	Combined	NR	Provider		190	CS

Hechter <sup>46</sup> (2015)	Single Site	Conv	NA	M (9-17)	Admin	19	8	35	7	Combined	16%, own category	Provider	688,567		CS
Hoffman <sup>47</sup> (2012)	Single Site	Conv	38	F (11-18)	Self	47	9	35	5	Combined	NR	Self	57		CS
Hofstetter <sup>48</sup> (2014)	Single Site	Conv	NA	F (11-26)	Admin	23	8	.	.	Separate	1%, excluded	Provider			CS
Jain <sup>49</sup> (2009)	National	Prob	NR	F (18-26)	Self	30	20	42	.	Combined	NR	Self	154		CS
Johnson <sup>50</sup> (2017)	National	Prob	54	M/F (11-17)	Self	55	22	14		Combined	NR, imputed	Provider	13,563	8,175	CS
Joseph <sup>51</sup> (2014)	Single Site	Conv	NR	F (18-22)	Self	15	34	15	.	Combined	NR	Provider	91	71	CS
Kahle <sup>52</sup> (2017)	National	Conv	79	M (18+)	Self	79	4	10	.	Combined	NR	Self	2,577		CS
Keenan <sup>53</sup> (2012)	Regional	Prob	85	F (13-17)	Self	49	51	.	.	NA	NR	Self	2,057		L
Kester <sup>54</sup> (2013)	National	Prob	81	F (14-17)	Self	59	14	22	.	Combined	NR	Self	469		CS
Kharbanda <sup>55</sup> (2013)	Single Site	Conv	NA	F (18-26)	Self	83	6	2	6	Combined	NR	Provider	2,464	1,798	CS
Kramer <sup>56</sup> (2012)	National	Prob	NR	F (12-17)	Self	70	10	7	.	Combined	NR	Self	14,931	2,759	CS
Lau <sup>57</sup> (2012)	National	Prob	NR	F (12-17)	Self	59	17	18	3	Combined	NR	Self	15,901		CS
Laz <sup>58</sup> (2012)	National	Prob	71	F (11-17)	Self	43	18	30	6	Combined	NR	Self	2,096	599	CS
Laz <sup>59</sup> (2013a)	National	Prob	NR	M (9-17)	Self	45	17	29	5	Combined	NR	Self	2,786		CS
Laz <sup>60</sup> (2013b)	National	Prob	NR	F (18-26)	Self	49	20	24	.	Combined	NR	Self	1,892	410	CS
Lefkowitz <sup>61</sup> (2014)	Single Site	Prob	73	F (17-20)	Self	20	25	28	27	Combined	NR	Self	313		L

Leybas Nuno <sup>62</sup> (2016)	Single Site	Conv	NR	F (18-26)	Self	56	4	25	9	Combined	NR	Self	508		CS
Licht <sup>63</sup> (2010)	Single Site	Conv	NR	F (18-26)	Self	79	5	5	9	Separate	NR	Self	395		CS
Liddon <sup>64</sup> (2012)	National	Prob	76	F (15-24)	Self	60	18	18	.	Combined	NR	Self	1,197		CS
Lindley <sup>65</sup> (2013)	Regional	Prob	30	F (18-24)	Self	77	6	6	10	Combined	NR	Self	39,948		CS
Lu <sup>66</sup> (2013)	National	Prob	61	M (18-26)	Self	61	14	20	3	Combined	NR	Self	1,593		CS
Manhart <sup>67</sup> (2011)	Single Site	Prob	87	F (22)	Self	82	4	4	7	Combined	NR	Self	416		L
Marchand <sup>68</sup> (2013)	Single Site	Conv	NR	F (18-26)	Self	1	31	59	2	Combined	Included in other	Self	106		CS
Markovitz <sup>69</sup> (2014)	Regional	Conv	NA	F (13-17)	Admin	90	5	3	2	Combined	NR, excluded	Provider	38,293	13,584	CS
McRee <sup>70</sup> (2014)	National	Conv	50	F (18-26)	Self	68	10	14	.	Combined	NR	Self	498		CS
Mehta <sup>71</sup> (2012)	Regional	Conv	59	F (18-27)	Self	77	14	17	.	Combined	NR	Self	272		CS
Meites <sup>72</sup> (2014)	National	Prob	NR	M (18-26)	Self	36	25	30	.	Combined	NR	Self	2,949		CS
Moss <sup>73</sup> (2012)	Regional	Prob	NR	F (11-17)	Self	64	21	.	.	NA	NR	Self	1,253		CS
Nelson <sup>74</sup> (2015)	Regional	Conv	NR	M/F (18-30)	Self	85	5	4	6	Separate	NR	Self	751		CS
Neubrand <sup>75</sup> (2009)	Single Site	Conv	NA	F (9-21)	Admin	59	21	19	.	Combined	<2%, excluded	Provider		351	CS
Niccolai <sup>76</sup> (2011)	National	Prob	58	F (11-17)	Self	58	15	19		Combined	NR, imputed	Provider		7,606	CS
Okafor <sup>77</sup> (2015)	Single Site	Conv	NR	F (18-26)	Self	51	16	14	8	Combined	NR	Self	751	406	CS

Oliver <sup>78</sup> (2017)	National	Conv	NR	M (18-26)	Self	26	34	31	.	Combined	<1%, excluded	Self	2,616		CS
Palli <sup>79</sup> (2012)	National	Prob	47	F (12-17)	Self	71	.	14	.	Separate	NR	Self	12,803		CS
Pathela <sup>80</sup> (2016)	Regional	Conv	NA	M/F (13-18)	Admin	3	61	29	2	Combined	NR	Provider	12,803	6,172	CS
Perkins <sup>81</sup> (2012)	Single Site	Conv	NR	F (11-21)	Admin	13	61	15	.	Combined	NR	Provider	6,831	2,729	CS
Perkins <sup>82</sup> (2015)	Single Site	Conv	NA	M/F (11-21)	Admin	8	47	13	4	Combined	NR	Provider	13,118		CS
Perry <sup>83</sup> (2014)	Single Site	Conv	NA	F (13-26)	Admin	20	55	19	7	Combined	NR	Provider		310	CS
Pierce <sup>84</sup> (2013)	Single Site	Conv	NR	F (11-12)	Self	72	21	.	.	Combined	NR	Provider	511		L
Pierre- Victor <sup>85</sup> (2014)	National	Prob	73	F (11-26)	Self	27	29	25	.	Combined	NR	Self	814		CS
Price <sup>86</sup> (2010)	National	Prob	63	F (18-26)	Self	60	15	17	5	Combined	NR	Self	1,468		CS
Pruitt <sup>87</sup> (2010)	National	Prob	NR	F (13-17)	Self	71	9	13		Combined	0.3%, included in other	Self	1,709		CS
Reagan- Steiner <sup>88</sup> (2015) NIS-Teen	National	Prob	47	M/F (11-17)	Self	65	10	16	4	Combined	NR, imputed	Provider	19,448	8,934	CS
Reagan- Steiner <sup>89</sup> (2016) NIS-Teen	National	Prob	37	M/F (11-17)	Self	59	10	21	3	Combined	NR, imputed	Provider	20,424	10,855	CS
Reiter <sup>90</sup> (2011)	Regional	Prob	NR	F (11-20)	Self	74	20	.	.	Combined	NR	Self	610		L
Reiter <sup>91</sup> (2013)	National	Prob	58	M (11-17)	Self	58	14	19		Combined	NR, imputed	Provider	22,365		CS

Reiter <sup>92</sup> (2015)	National	Prob	NR	M (18-26)	Self	64	7	18	.	Combined	NR	Self	380		CS
Richards <sup>93</sup> (2016)	Single Site	Conv	NA	F (18-24)	Admin	29	16	30		Combined	NR	Provider		909	CS
Rosenthal <sup>94</sup> (2011)	National	Prob	19	F (19-26)	Self	84	3	8		Combined	NR, excluded	Provider	501		CS
Sadigh <sup>95</sup> (2012)	National	Prob	NR	F (9-18)	Self	52	23	25	.	Combined	NR	Self	444		CS
Sara Test <sup>96</sup> (2013)	National	Conv	NR	F (12-17)	Self	71	10	10	.	Combined	1.5%, own category	Self	14,475		CS
Schluterman <sup>97</sup> (2011)	Single Site	Conv	NR	F (9-26)	Admin	19	68	.	.	Combined	11%, excluded	Provider	6,957	2,542	CS
Schmotzer <sup>98</sup> (2013)	Single Site	Conv	NR	F (18-54)	Self	50		50		Combined	NR	Self	201		CS
Simons <sup>99</sup> (2015)	Regional	Conv	NA	M/F (11-26)	Admin	38	8	33	11	Combined	4%, excluded	Provider		7,301	CS
Small <sup>100</sup> (2012)	Single Site	Conv	NA	F (19-26)	Admin	63	22	8	2	Separate	NR	Provider	145		L
St. Sauver <sup>101</sup> (2016)	Single Site	Conv	NA	M/F (9-27)	Admin	78	7	.	5	NA	Included in other	Provider		2,134	CS
Staras <sup>102</sup> (2014)	Regional	Prob	43	F (9-17)	Self	40	24	36	.	Combined	2%, used Medicaid files if self report missing	Self	1,995		CS
Sundstrom <sup>103</sup> (2015)	Single Site	Conv	31	F (18-26)	Self	77	7	2	.	Combined	7%, excluded	Self	410		CS
Tan <sup>104</sup> (2011)	Regional	Conv	NA	F (9-26)	Admin	63	33	9	1	Separate	18%, own category	Provider		118,865	CS
Taylor <sup>105</sup> (2011)	National	Prob	75	F (9-26)	Self	32	27	24		Combined	NR	Self	827		CS
Taylor <sup>106</sup> (2014)	National	Prob	NR	M (11-17)	Self	74	10	10	4	Combined	NR	Self	737		CS

Thomas <sup>107</sup> (2016)	Single Site	Conv	91	M (13-26)	Self	23	69	3	.	Separate	NR	Provider	367		CS
Thompson <sup>108</sup> (2016)	National	Prob	30	M/F 18-26)	Self	68	6	7	8	Combined	NR	Self	101,020		CS
Tiro <sup>109</sup> (2012a)	Regional	Conv	NR	F (11-18)	Admin	9	41	45	.	Combined	NR	Provider	700		CS
Tiro <sup>110</sup> (2013b)	Regional	Prob	18	F (12-27)	Self	40	5	43	11	Combined	NR	Self	3,708		CS
Walker <sup>111</sup> (2017) NIS-Teen	National	Prob	33	M/F (11-17)	Self	63	10	16	4	Combined	NR, imputed	Provider	18,958	10,600	CS
Wei <sup>112</sup> (2013)	National	Prob	NR	F (18-26)	Self	51	18	24	6	Combined	NR	Self	1,867		CS
Widdice (2011) <sup>113</sup>	Single Site	Conv	NA	F (9-26)	Admin	29	67			NA	NR	Provider		3,175	CS
Williams <sup>114</sup> (2013)	National	Prob	NR	F (19-26)	Self	50	18	22	7	Combined	NR	Self	2,104		CS
Williams <sup>115</sup> (2015)	National	Prob	61	F (19-26)	Self	52	17	22	6	Combined	NR	Self	2,007		CS
Wilson <sup>116</sup> (2016)	Single Site	Conv	17	F (18-26)	Self	81	2	7	5	Combined	NR	Self	310	194	CS
Wilson <sup>117</sup> (2017)	Single Site	Conv	5	F (18-26)	Self	76	2	15	3	Combined	NR	Self	1,069		CS
Wong <sup>118</sup> (2011)	National	Prob	72	F (9-17)	Self	47	17	25	6	Combined	NR	Self	1,636		CS

Notes. Conv=Convenience sample, Prob= Probability sample, NA= Not applicable, NR= Not Reported, M=Male, F= Female, Admin= Administrative Data, Self=Self-reported data, W=White participants, B=Black/African American participants, H=Hispanic/Latino Participants, A= Asian Participants. Those reporting another race or ethnicity are not included, therefore totals may not add up to 100. Provider= Provider-verified from medical record, immunization registry, or claims, Self=self-reported or parent-reported. Sample size represents number of individuals included in at least one meta-analysis (unadjusted, adjusted, or both). CS= Cross-sectional, L=Longitudinal