

ABSTINENCE EDUCATION: A POLICY ANALYSIS

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

Abstinence Education: A Policy Analysis

Kateri Castillo Nelis

Spring 2016

CE Advisory Group:

Arthur Elster, MD, MJ

Kenzie A. Cameron, PhD, MPH

Submitted in partial fulfillment of the
requirements for the degree of Master of Public Health

Feinberg School of Medicine

Program in Public Health

Northwestern University

Chicago, Illinois

23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43

Abstract

Background: In recent years, the United States (U.S.) has had the highest rate of adolescent pregnancy of any of the world’s developed countries (1). At the same time, the burden of new sexually transmitted infection (STIs) cases in the U.S. has increased disproportionately among the adolescent population: an estimated 50% of new STI cases occur in U.S. in the 15 to 19-year-old adolescent population (2). School-based sexual health education programs have been seen as one avenue to address these issues with two vastly different approaches emerging in recent years: abstinence education and comprehensive sexual education (CSE). The question of how to reduce teen pregnancy and STI rates in the U.S. continues to be debated at federal, state and local levels. The purpose of this policy analysis is to examine sex education policies and compare and contrast the two sexual health education approaches to determine which is more effective in reducing pregnancy and STI rates. I hypothesize that CSE programs will be more effective at reducing teen pregnancy and STI rates with one explanation being the dual foci of CSE programs on abstinence and risk reducing behaviors, such as contraceptive use.

Methods: This analysis was conducted following Collins’ (3) “Health policy analysis: a simple tool for policy makers.” In short, Collins proposes that policy researchers should: 1) define the context of the problem, 2) state the problem, 3) provide evidence, 4) consider different policy options, 5) project the outcomes, 6) apply an evaluation criterion, 7) weigh the outcomes, and 8) suggest a decision.

ABSTINENCE EDUCATION: A POLICY ANALYSIS

44 **Results:** Research has shown that CSE programs are effective in delaying the initiation of sexual
45 activity, reducing the number of sexual partners, increasing contraceptive use and reducing the
46 frequency with which adolescents are having sexual intercourse. In addition, CSE programs
47 have long-term effects with some programs showing behavior changes lasting upwards of three
48 years. In comparison, abstinence education programs lack scientific evidence to support their
49 claims of effectiveness.

50

51 **Conclusion:** Results of the policy analysis support the hypothesis that CSE programs are the
52 more effective approach to reducing teen pregnancy and STI rates. Long-term outcomes of CSE
53 programs include delayed initiation of sexual activity, fewer sexual partners, and increased
54 contraceptive use. All of these factors are critical in reducing teen pregnancy and STI rates. The
55 recommendation of this policy analysis is for broader U.S. federal support for CSE programs at
56 national, state and local levels

57

58 **Implications for Public Health Practice:** Sexual health education in the U.S. has been a
59 contentious issue over the past 30 years. The debate has always centered on the role of sexual
60 education: should it only objectively relay the facts about sexual health or simply encourage
61 youth to refrain from sexual activity? There is broad support for abstinence as a necessary and
62 appropriate part of sexuality education in public schools. Controversy over abstinence
63 education arises when it is provided as the sole choice for teens and when health information
64 on other choices is restricted or misrepresented.

65

66 **Introduction**

67 In the U.S. the debate between abstinence education and comprehensive sex education
68 (CSE) has spanned the past 30 years. Although teen pregnancy rates in the U.S. have continued
69 to drop over the past 20 years, it still has the highest teen pregnancy rate among developed
70 nations (1). The adolescent population is also disproportionately affected by STIs, accounting
71 for 50% of all new STI cases annually (2). Two approaches have emerged within the past 30
72 years with uniquely different approaches to reducing both teen pregnancy and STI rates:
73 abstinence education and CSE.

74 Given the rates at which youth are facing pregnancy and STIs, school-based sex
75 education curricula have been identified as one approach to mitigating these adverse health
76 outcomes. The National Center for Education Statistics (4) estimates that in 2015, 50.1 million
77 students attended either public primary or secondary schools with an additional 4.9 million
78 attending private schools. Schools, therefore, provide access to this population and an
79 opportunity to provide sexual health education. The question remains, which intervention is
80 most likely to reduce adverse health outcomes for teens: abstinence education or CSE?

81 The purpose of this policy analysis is to examine the difference between the abstinence
82 education and CSE approaches to sexual health education. The primary goal is to explore both
83 approaches to sexual health education and to determine the more effective of the two for
84 reducing teen pregnancy and STI rates. I hypothesize that CSE programs will be more effective
85 at reducing teen pregnancy and STI rates because CSE programs have a dual focus on
86 abstinence and risk reducing behaviors such as contraceptive use.

87

88 **Methods**

89 This policy analysis is based on *Health policy analysis: A simple tool for policy makers*
90 developed by Collins (3). Published in 2004, the Collins model aims to analyze policy content
91 and to offer practical guidance on policy and how to link it to public health topics. To
92 accomplish this analysis, Collins suggests an eight-step approach to studying health policy:

- 93 1. **Define the context:** provide the context of the policy issues under debate.
- 94 2. **State the problem:** define the healthcare problem.
- 95 3. **Search for evidence:** discuss the literature and sources of information pertaining to
96 both intervention approaches.
- 97 4. **Consider different policy options:** consider multiple courses of action.
- 98 5. **Project the outcomes:** describe potential results.
- 99 6. **Apply evaluative criteria:** apply selected criteria against which to measure the
100 projected outcomes.
- 101 7. **Weigh the outcomes:** review the projected outcomes based on actual outcomes of
102 abstinence education and CSE programs.
- 103 8. **Make the decision:** Recommend a policy option based on factors such as feasibility
104 of the intervention, material, financial and human resources needed for
105 intervention.

106 The Collins analysis tool has been used on adolescent health topics both nationally and
107 internationally (5,6). By no means a complete list, some of the previous topics that have been
108 studied using Collins' method include: adolescent tobacco use, alcohol use, physical education
109 polices, and infant hearing screenings. Thus, Collins' model appears to be relevant to apply

110 across a variety of settings, and will be applied here to the topic of provision of sexual health
111 information to adolescents. To the writer’s knowledge, the Collins’ method has not been used
112 to analyze adolescent sexual health education in the U.S. to date.

113

114 ***Step 1 - Define the Context***

115 There are primarily two competing sexual health education approaches in U.S. schools:
116 abstinence education and CSE. According to the Guttmacher Institute (7), a total of 24 states
117 and the District of Columbia (DC) mandate some form of sexual health education. Twenty-one
118 states and DC require that sexual health education includes human immunodeficiency virus
119 (HIV) education. Two states have a general mandate for sex education that do not specify topics
120 to be covered. Thirty-nine states require that abstinence be included in sexual health
121 education. Of those 39 states, 27 require that abstinence be stressed (7).

122

123 ***Step 1.1 – Abstinence Education***

124 The core message of abstinence education is that a person should abstain from sexual
125 intercourse until he or she is in a committed monogamous marriage (8). According to the
126 federal government’s A-H definition of abstinence (full definition available in Appendix A, Table
127 1), abstinence education is to be taught as the expected sexual norm for adolescents (8).
128 Abstinence education messaging also includes that the only way to absolutely (100%) avoid out-
129 of-wedlock pregnancy, STIs and other adverse health outcomes is to abstain (8) from sexual
130 activity. Under the federal government’s abstinence education policy, discussion surrounding
131 condoms and other contraceptives is strictly limited to their failure rates (9).

ABSTINENCE EDUCATION: A POLICY ANALYSIS

132 Social conservatives believe that any discussion of sexuality with youth, especially when
133 discussing topics such as contraception, can led to elevated levels of youth sexual activity,
134 teenage pregnancy, and STIs. Further, it is believed that adults who speak to youth about sex
135 and sexuality should limit their conversations so as not promote destructive or immoral
136 thoughts or behaviors (10). In addition, many social conservatives see abstinence education as
137 a way of restoring “traditional values” of sexuality, gender, and the family (10).

138 The primary mechanism for measuring the success of abstinence educations is the age
139 of sexual initiation (11). The later sexual initiation takes place, the more successful the
140 abstinence education program is perceived to be (11). Proponents of abstinence education
141 argue that delaying the initiation of sexual activity will reduce the number of years an
142 adolescent is sexually active as well as the potential number of sexual partners, all of which will
143 reduce teen pregnancy and STI cases (12).

144 The majority of pro-abstinence education studies have shown that students
145 participating in abstinence education programs routinely had lower rates of sexual initiation at
146 follow-up compared to students in control groups (12, 13). “If the program [abstinence
147 education] is designed well, implemented well, has the right kind of teachers, focuses on the
148 right kind of issues...we see impact (11).” Weed describes the impact of a properly designed
149 program as having the ability to cut in half for significant periods of time, teen sexual activity
150 (8). Properly designed and implemented programs can also go beyond the superficial impact
151 and alter the cognitive mediators that bring about behavioral change (13). Abstinence
152 education literature has suggested that abstinence education as a primary prevention method

ABSTINENCE EDUCATION: A POLICY ANALYSIS

153 is a valid one that can fully prevent adverse health outcomes such as teen pregnancy and STIs
154 through delayed sexual initiation (8).

155 This point of view has been reflected in sex education programs that have been funded
156 by the federal government since the early 1980s. Sexual health education in the U.S. was
157 formally launched at the federal level in 1981 with the passing of the Adolescent Family Life Act
158 (AFLA). The AFLA was designated for programs that promoted premarital abstinence,
159 discouraged abortion, and promoted adoption as an option for pregnant teens (10). There was
160 little initial funding for AFLA but it provided the support needed for the widespread expansion
161 of abstinence education programming that continued through the mid-1990s (14). AFLA grants
162 were awarded not only to states, but also to public or private non-profit organizations,
163 including faith-based organizations or agencies (15).

164 The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Title V,
165 Section 510) expanded funding opportunities for states to focus on groups of youth who were
166 considered to be most in danger of having children out-of-wedlock. Sexual initiation occurs
167 primarily in the teen years, but earlier initiation (prior to the age of 13) is especially high among
168 minority youth (16). Funding focused on providing mentoring, counseling and adult supervision
169 to promote abstinence from sexual activity (17). Funding levels for Title V, Section 510
170 programs are allocated based on the ratio of the number of low-income children in a state to
171 the total number of low-income children in all states (15).

172 In 2000, the Community-Based Abstinence Education (CBAE) projects were earmarked
173 in the maternal-child health block grant for the Special Project of Regional and National
174 Significance (SPRANS) program (18). SPRANS grants were administered by the U.S. Department

ABSTINENCE EDUCATION: A POLICY ANALYSIS

175 of Health and Human Services (HHS) and provided directly to community and faith-based
176 organizations or agencies, bypassing state health departments that were responsible for the
177 Title V, Section 510 grant funds (14 & 18). Funding for the SPRANS program created a more
178 “rigid” and “pure” approach to abstinence education in response to concerns that states were
179 not utilizing funds for direct programming. States were charged with using SPRANS funds for
180 “soft” activities such as media campaigns and programming targeting younger adolescents (18).

181 Federal funding for abstinence education has continued to grow since its inception. In
182 1981, AFLA first introduced abstinence funding for states at \$7 million (10). Title V, section 510,
183 significantly increased federal funding for abstinence education programs from \$75 million in
184 fiscal year (FY) 2001 to \$158 million in FY 2005 (15). The FY 2007 budget allocated \$13 million to
185 AFLA, \$50 million under Title V, Section 510, and \$113 million under CBAE bringing the total
186 amount of federal funding for abstinence education programs to \$176 million (14).

187 To receive federal funding for abstinence education programming, recipients have to
188 follow a specific eight-point, A-H definition of abstinence, and limit the information provided
189 about condoms and contraceptives to their failure rates (14). This federal A-H definition does
190 not account for the alternative risky sexual behaviors that many teens participate in while
191 remaining “abstinent.” Touching, kissing, mutual masturbation, oral sex, and anal sex are
192 alternative activities that youth can participate in to feel “close (18).” For the purpose of this
193 policy analysis, the author is defining abstinence as not participating in vaginal intercourse.

194 Abstinence education supporters have often expressed concern over CSE programs and
195 their inclusion of information about condoms and contraceptives in the curricula. Their greatest

ABSTINENCE EDUCATION: A POLICY ANALYSIS

196 concern is that by including information on condoms and contraceptives, CSE programs will
197 increase the frequency of sexual activity and hasten sexual initiation (9).

198

199 ***Step 1.2 – Comprehensive Sex Education***

200 Comprehensive sex education programs teach abstinence as the primary prevention
201 method for teen pregnancy and STIs, but also include information on contraceptives, healthy
202 relationships, human development, and negotiation skills. The core message of CSE programs is
203 to promote healthy decision making while providing youth with the tools and skills necessary to
204 keep themselves safe (19). Public health officials worry that by not including information on
205 condoms or contraceptives, abstinence education places youth at significantly higher risk for
206 pregnancy and STIs (12). Simply put, adolescents would lack basic information on how to keep
207 themselves safe from teen pregnancy and STIs (12). Of additional concern is the idea that
208 abstinence education places the majority of its focus on the sexually uninitiated which could
209 potentially alienate youth who have some sexual experience (20).

210 Prior to 2010, CSE programs fought an up-hill battle for federal funding. In 2010, for the
211 first time, CSE programs were funded at the federal level (21). President Barack Obama and
212 Congress eliminated funding for the existing AFLA and CBAE programs and created two new sex
213 education initiatives to “support evidence-based programs and innovative approaches to
214 prevent unintended teen pregnancy and STIs, including HIV (21)” in FY 2010.

215 In the Consolidated Appropriations Act of 2010, President Obama allocated \$114.5
216 million to the President’s Teen Pregnancy Prevention Initiative (TPPI) (21). The program is
217 administered through the Office of Adolescent Health in HHS and supports medically accurate

ABSTINENCE EDUCATION: A POLICY ANALYSIS

218 and age appropriate programs that reduce teen pregnancy, behavioral risk underlying teenage
219 pregnancy, or other associated factors (22). The initiative was broken down into three tiers. The
220 first tier is for replication of programs found to be effective based on research evidence, while
221 tier two funds promising new or community-wide initiatives. The third tier funds research,
222 evaluation, and technical assistance for continued research and development in the field of
223 sexual health education (23).

224 The second program was introduced in the Affordable Care Act (ACA) which allocated
225 \$75 million per year in funding for the Personal Responsibility Education Program (PREP).
226 Overseen by the Administration for Children and Families in HHS, the program aims to provide
227 “individual states with grants for comprehensive sex education programs that provided young
228 people with complete, medically accurate, and age-appropriate sex education in order to help
229 them reduce their risk of unintended pregnancy, HIV/AIDS, and other STIs (22).” State grants
230 made up the bulk of the funding, accounting for \$55 million of the \$75 million available. An
231 additional \$6.5 million was allocated to research, training, and technical assistance with the
232 remaining \$13.5 split between interventions specifically aimed at tribes and tribal organizations
233 and research and evaluation of innovative approaches and promising models to prevent teen
234 pregnancy (24).

235 Public opinion suggests that the majority of Americans support CSE programs.
236 Approximately 82% of respondents in an Annenberg National Health Communication Survey
237 (25) indicated that they support sex education programs that teach both abstinence and
238 contraception to prevent pregnancy and STIs. When three types of sex education were placed

ABSTINENCE EDUCATION: A POLICY ANALYSIS

239 side-by-side (abstinence, CSE, condom instruction), abstinence education received the lowest
240 levels of support out of the three at 36% and the highest levels of opposition at 50% (25).

241

242 ***Step 2 – State the Problem***

243 There are multiple adverse health outcomes that are associated with teen sexual
244 activity, including: harmful social, physical and psychological effects; pregnancy; and STIs, to
245 name a few. This policy analysis will focus on two of these adverse health outcomes, pregnancy
246 and STI rates, as these are the two most studied outcomes in abstinence education and CSE
247 literature. In addition, both teen pregnancy and STIs have short and long-term consequences.

248 By many measures, such as teen pregnancy rates and contraceptive use, teens in the
249 U.S. are making healthier decisions about sex than they were 20 years ago. The vast majority of
250 sexually experienced teens (both male and female) used contraceptives the first time they had
251 intercourse; 78% for females and 85% for males (26). Birth rates for teen mothers has been on
252 the decline for the past 20 years. In 1991, the birth rate was 61.8 per 1,000 adolescent females
253 compared to 24.2 births per 1,000 in 2014 (27).

254 Although teen pregnancy rates in the U.S. have continued to decline since 1996, the U.S.
255 still has the highest rate of teen pregnancy in comparison to other developed nations (26).
256 While teens in the U.S. and Europe have similar levels of sexual activity, U.S. teens are less likely
257 to use effective contraceptive methods and, therefore, have substantially higher pregnancy
258 rates than European teens (26). Research shows that approximately three out of every 10
259 young women will become pregnant by the time they turn 20 (28). Also, fewer teens are
260 marrying than were 20 years ago. “With fewer teens entering into marriage, the proportion of

ABSTINENCE EDUCATION: A POLICY ANALYSIS

261 births to unmarried teens, with some variation depending on geography and ethnic group, has
262 increased dramatically – 89% in 2011 versus 29% in 1970 (8).”

263 A second major trend in the U.S. is the growing rate of STIs among the U.S. adolescent
264 population. While adolescents 10 to 19 make up 12% of the U.S. population (29), the CDC (30)
265 estimates that nearly 20 million new cases of STIs occur annually and half of those are in youth
266 and young adults aged 15-24. This statistic demonstrates the large burden of STIs on the youth
267 population, given that this age group represents only 25% of the sexually active population.

268 Annually, one in four teens will contract a STI and one in two will contract an STI by the age of
269 25 (30). The STI rate for teens and young adults ages 13-24 is especially poor when it comes to
270 HIV. They accounted for approximately 21% of all HIV diagnoses in the U.S. in 2011. The Kaiser
271 Family Foundation (31) estimates that over 34,000 young people were living with HIV in 2009.).

272 Research shows that early initiation of sexual activity places youth at even greater risk
273 for adverse health outcomes. Among high school students surveyed by the CDC in 2013, 47%
274 had sexual intercourse (30), and 41% of youth did not use a condom the last time they had sex.
275 When comparing sexually active teens to those with early initiation of sexual intercourse and
276 their use of contraceptive the last time they had sexual intercourse, there is a 37% difference in
277 females and 44% difference in males (26, 30). HHS reports that in 2014, approximately 249,000
278 babies were born to teens aged 15-19 years of age (27). Nearly 98% of those births happened
279 outside of marriage (27).

280 Teen pregnancy rates differ significantly by race, ethnicity, age, and region of the
281 country. Birth rates are higher among minority communities such as African Americans and
282 Latinos compared to their Caucasian counterparts. There are substantial geographic variations

ABSTINENCE EDUCATION: A POLICY ANALYSIS

283 in teen pregnancy as well. In 2013, U.S. teen pregnancy rates were the highest in the Southern
284 states while the lowest rates were in the Northeastern part of the country (9).

285 Teen pregnancy is also associated with negative consequences for both the parents and
286 their offspring. Teen parents are less likely to finish high school and more likely to rely on public
287 assistance in the future; be poor as adults (27); have repeat pregnancies; be single mothers;
288 and experience divorce (8). By age 22, approximately 50% of teen mothers will receive their
289 high school diploma and 30% will earn their general education development (GED) certificate.
290 In comparison, 90% of non-teen mothers will complete high school (32). Only 10% of teen
291 mothers will complete a two or four-year college program. Teen mothers are not the only ones
292 affected by teen pregnancy. Teen fathers are 25-30% less likely to graduate from high school
293 compared to non-teen fathers (32).

294 Children born to teen parents are also more likely to face adverse experiences when
295 compared to children born to older adults. They have an increased risk of low birth weight and
296 infant mortality. They may receive lower levels of emotional support and cognitive stimulation,
297 have fewer skills and are less prepared to learn when they enter kindergarten (32). Children of
298 teen parents are more at risk for behavioral problems and chronic medical conditions. They rely
299 more heavily on publicly funded healthcare, have higher rates of foster care placement, and are
300 more likely to be incarcerated during their adolescence. In addition, they have lower school
301 achievement and greater high school drop-out rates. Children born to teens are more likely to
302 give birth as a teen. These children are more likely to be unemployed or underemployed as
303 young adults (32).

304

305 ***Step 3 – Search for Evidence***

306 In order to complete this policy analysis a variety of literature, peer-reviewed articles,
307 and reports from public and private non-profit organizations were referenced. While the writer
308 relied primarily on peer-reviewed sources for key scientific information, policy-relevant
309 information and viewpoints about abstinence education were often only available from other
310 sources such as government reports and websites or reports from advocacy organizations.
311 Reports or papers from advocacy organizations have been included as sources when the
312 opinions expressed in them were considered important in the debate or when additional
313 information was not available from peer-reviewed sources.

314 Sources of information outside of peer-reviewed journal articles included data from the
315 Centers for Disease Control and Prevention (CDC), the National Campaign to Prevent Teen
316 Pregnancy, Guttmacher Institute, the Heritage Foundation, Kaiser Family Foundation (KFF),
317 National Abstinence Education Association (NAEA), the Sexuality Information and Education
318 Council of the United States (SIECUS), and U.S. Congressional Testimony and Public Reports.

319 Peer-reviewed sources were sought through Google Scholar® and EBSCO Academic
320 Search Complete®. Searches for literature included terms such as: *abstinence, abstinence only,*
321 *abstinence only sex education, abstinence education, comprehensive sex education, sex*
322 *education, and sexual health education.* A snowball approach was taken to identifying
323 additional literature resources. Reference lists from the initially returned peer-reviewed articles
324 were used to identify additional sources of reliable information on both abstinence education
325 and CSE programs.

326

327 ***Step 4 - Consider Different Policy Options***

328 Recent years have brought emerging scientific evidence on both abstinence education
329 and CSE programs. The quality and quantity of evaluation research in the field of sexual health
330 education has improved dramatically with more persuasive evidence that a limited number of
331 sex education programs can reduce sexual risk-taking behaviors in youth and, therefore,
332 decrease teen pregnancy and STI rates (9).

333

334 ***Step 4.1 – Abstinence Education***

335 Research supporting abstinence education suggests that this sexual health education
336 approach can delay sexual initiation in youth and, in some cases, postpone future sexual
337 encounters for youth who are sexually experienced. According to the NAEA, abstinence
338 education is a “population-wide approach, communicating the best health messages broadly
339 and in a manner that resonates with a variety of sub-groups of the general population (33, pg.
340 6).” It is an approach that gives youth the information and skills necessary to help them avoid
341 possible negative consequences of teen sexual activity including teen pregnancy and STIs (33).
342 Although primarily directed at youth who have not engaged in sexual behaviors, abstinence
343 education can also include cessation messaging for those who are sexually active, offering the
344 support and skills necessary for sexually experienced youth to return to an “optimally healthy
345 lifestyle free of all sexual risk (33, pg. 6).”

346 Abstinence education also utilizes a holistic approach to sexual education. It includes
347 information on the non-physical consequences associated with youth sexual activity, the skills
348 necessary to make healthy decisions, information on healthy relationships, and medically

349 accurate information on condoms. Abstinence education stresses to youth that the only
350 absolutely (100%) safe method to remain untouched by teen pregnancy and STIs is through
351 abstinence (33).

352

353 ***Step 4.2 – Comprehensive Sexual Education***

354 In contrast to abstinence education, CSE programs have four main goals: “1. to provide
355 accurate information about human sexuality; 2. to provide an opportunity for young people to
356 develop and understand their values, attitudes, and insights about sexuality; 3. to help young
357 people develop relationship and interpersonal skills, and 4; to help young people exercise
358 responsibility regarding sexual relationships which includes addressing abstinence, pressures to
359 become prematurely involved in sexual intercourse, and the use of contraception and other
360 sexual health measures (19).”

361 Research suggests that CSE programs can reduce teenage pregnancy and STIs by
362 emphasizing abstinence as the core message, but by also offering medically accurate
363 information on contraceptives to teens who are or are not sexually active (34). Similar to
364 abstinence education, CSE proponents support a holistic approach with age-appropriate,
365 medically accurate and complete information that aims to help youth reduce their risk for
366 unintended pregnancy and STIs (35). Programs aim to teach topics and skills related to sexuality
367 in order to assist youth with making healthier decisions when they choose to be sexually active.
368 Human development, relationships, decision making, abstinence, contraception and disease
369 prevention are just a few of the topics that comprise CSE programs (35). In addition, CSE
370 encourages family communication about sexuality; teaches adolescents how to make

ABSTINENCE EDUCATION: A POLICY ANALYSIS

371 responsible decisions about sexuality including how to avoid unwanted verbal, physical and
372 sexual advances; and finally, how alcohol and drugs can affect responsible decision making (35).

373

374 ***Step 5 - Project the Outcomes***

375 One of the most cited sources of documented outcomes of abstinence education is a
376 nine-year experimentally-based study by Mathematica Policy Research Inc. (36). This report,
377 published in 2007, was commissioned by HHS' Office of the Assistant Secretary for Planning and
378 Evaluation to act as a scientific evaluation of Title V, Section 510, Abstinence Education
379 Program. The study included four abstinence education programs that were considered to be
380 the most promising abstinence education programs across the U.S. Study sites included four
381 different states, Florida (Miami), Wisconsin (Milwaukee), Virginia (Powhatan) and Mississippi
382 (Clarksdale). It included over 2,000 participants with a follow-up response rate of between 80-
383 84% (36). Participants of the study were a mix of races and ethnicities, socioeconomic status,
384 urban and rural, middle and upper elementary grades, and varied in the number of program
385 hours.

386 Overall, the Mathematica report (36) found abstinence education programs showed "no
387 overall impact on teen sexual activity, no differences in rates of unprotected sex, and some
388 impacts on knowledge of STIs and perceived effectiveness of condoms and birth control pills
389 (36, pg.59)." In addition, the Mathematica (36) study found that adolescents who participated
390 in the abstinence education programs were no more likely to abstain from sex than students
391 who had not participated in the programs. In fact, program participants who reported having
392 had sex in follow-up surveys did so at the same age, had a similar number of sexual partners,

ABSTINENCE EDUCATION: A POLICY ANALYSIS

393 and were equally likely to use condoms or other forms of contraception as the non-participants
394 (36).

395 Although there is evidence to support that abstinence education does delay sexual
396 initiation (9), pro-CSE researchers point out that abstinence education research has been
397 scarce, and suggest that it uses unreliable evaluation methods that often produce mixed
398 results. Abstinence education studies have primarily included white, middle-class, junior and
399 senior high school students, and only assessed students' short-term beliefs, attitudes, and
400 knowledge (37). Sexual behavior has also rarely been tested in abstinence education
401 evaluations. When tested, results have been modest with only a handful of evaluations finding
402 the desired behavioral effect (38). Moreover, when seen, these behavioral effects have only
403 been found in small sample sizes where the students were known to be virgins prior to the start
404 of the program (38).

405 A 2001 Institute of Medicine (IOM) report found that "two-recent reviews of the
406 literature on abstinence-only education programs concluded that the evidence was insufficient
407 to determine whether abstinence programs decrease sexual activity (39, pg. 118)." The weight
408 of the evidence indicates that abstinence education programs do not delay the onset of
409 intercourse; however, there were significant methodological limitations that could have
410 obscured the impacts of abstinence education interventions (39). The IOM states that investing
411 millions of dollars of federal funding in abstinence education programs is poor fiscal and public
412 health policy due to the lack of evidence supporting them. (39)," In conclusion, the IOM report
413 recommends "eliminating congressional, federal, state, and local requirements that public
414 funds be used for abstinence-only education, and that states and local school districts

ABSTINENCE EDUCATION: A POLICY ANALYSIS

415 implement and continue to support age-appropriate comprehensive sex education and condom
416 availability programs in schools (39, pg. 120).”

417 The same IOM report concluded that “studies reviewing the scientific literature, as well
418 as expert panels that have studied this issue [sex education], have concluded that
419 comprehensive sex and HIV/AIDS education programs and condom availability programs can be
420 effective in reducing high-risk sexual behaviors among adolescents (39, pg. 117).”

421 In addition to the IOM report, The Guide to Community Preventive Services finds
422 “insufficient evidence to determine the effectiveness of group-based abstinence education
423 interventions delivered to adolescents to prevent pregnancy, HIV and other [STIs] (40).” This
424 recommendation is made based on evidence being inconsistent across research studies. Of the
425 21 studies on which the Community Guide based its recommendation, it found that sexual
426 activity did decrease in abstinence education programs by approximately 16%; however, the
427 effect estimates differed by study design with larger effects for nonrandomized controlled trials
428 compared to randomized controlled trials (40). The reviewed studies also suggest that there are
429 statistically insignificant outcomes for reductions in frequency of sex and STIs in abstinence
430 education programs. The Community Guide also found abstinence education to have no
431 meaningful impact on number of sexual partners, use of protection, and unprotected sexual
432 activity (40).

433 On the other hand, a wide variety of literature supports CSE programs. Research has
434 shown that CSE programs are effective at reducing sexual activity and youth sexual risk-taking
435 behaviors, such as multiple partners, while increasing condom and contraceptive use (9).
436 Comprehensive sex education programs have also been shown to have long-term effects.

ABSTINENCE EDUCATION: A POLICY ANALYSIS

437 Behavior changes have lasted up to three years or to the end of the study (9). In addition, CSE
438 programs have been found to be effective in diverse racial, ethnic and economic communities.
439 Programs that were effective in one state were equally effective in other states, within different
440 communities, among all genders, and with both younger and older students (9). CSE programs
441 cannot be considered a one-size-fits-all approach. Programs must be modified and designed for
442 specific subgroups within the population to make them successful (9).

443 CSE programs that lower sexual risk-taking behaviors such as increasing condom use and
444 reducing frequency and number of partners by even a third can be considered a successful
445 program because reducing sexual risk taking behaviors will reduce teen pregnancy and STI rates
446 (9). In his 2007 comprehensive review of CSE programs, Kirby (9) found that CSE programs do
447 not increase frequency or hasten sexual initiation. In fact, many CSE programs have proven to
448 delay both of these behaviors. “The results, therefore, provide strong evidence that
449 comprehensive programs [CSE] do not increase sexual behavior (9).” Of the 40 studies that
450 measured delay in initiation of sex, 16 (40%) studies showed a significant delay in initiation of
451 sexual activity for at least six months (9). Of the 27 studies that measured frequency of sex,
452 eight (30%) found that programs reduced the frequency of sexual activity (9). Of the 29 CSE
453 programs that measured the number of sexual partners, 12 (41%) of the programs saw lower
454 reported number of sexual partners (9). Kohler et al. (41) found that adolescents that
455 participate in CSE programs are also 50% less likely to become pregnant than adolescents who
456 participated in an abstinence education program.

457 Unlike abstinence education, The Guide to Community Preventive Services recommends
458 “group-based comprehensive risk reduction [CSE] interventions delivered to adolescents to

ABSTINENCE EDUCATION: A POLICY ANALYSIS

459 promote behaviors that prevent or reduce the risk of pregnancy, HIV, and other STIs (42).” The
460 Community Guide found sufficient evidence that CSE programs reduce the number of self-
461 reported risk behaviors including: “engagement in any sexual activity, frequency of sexual
462 activity, number of partners, and frequency of unprotected sexual activity (42).”
463 Comprehensive sex education programs were also found to increase the self-reported use of
464 protection against STIs and a reduction in the number of self-reported and clinically-
465 documented STI cases (42).

466 An international example of a successful national CSE program was conducted in the
467 Netherlands. In 1993, the Netherlands mandated that all students receive some form of
468 sexuality education in schools (43). Some flexibility was built into the mandate allowing schools
469 to determine the materials, methods, approach and time spent on each objective (44). While
470 flexible, the Netherlands mandates that certain core subject be covered, including: pregnancy,
471 STIs, sexual orientation, homophobia, value clarification, respect for differences in attitudes,
472 and skills for healthy sexuality (43). “The underlying principle [in the Netherlands] is
473 straightforward: Sexual development is a normal process that all young people experience, and
474 they have a right to frank, trustworthy information on the subject (45).”

475 It is clear that the Netherlands’ CSE mandate is working: the Dutch have some of the
476 best outcomes in the world when it comes to teen health. Compared to the U.S., teens in the
477 Netherlands have sex at a later age, have increased contraceptive use at sexual initiation (45),
478 higher birth control use (46), and boast one of the lowest teen pregnancy rates in the world (1).
479 In addition, “students who had completed comprehensive sex education in the Netherlands
480 were also found to be more assertive and better communicators... (45).”

ABSTINENCE EDUCATION: A POLICY ANALYSIS

481 The Dutch curriculum, *Long Live Love* (LLL), is a stand-alone, intra-curricular
482 comprehensive program that is taught over a six-week period (47). When developing the
483 curriculum, writers took into consideration students with diverse cultural backgrounds,
484 differences in values and principles relating to sexuality; diversity in the way young people
485 begin relationships; differences between boys and girls; and young people from different
486 regions (47). The overall aim of LLL is to help student learn to enjoy their sexuality and how to
487 remain safe when they are ready. Lessons in LLL include topics that are similar to those covered
488 in U.S. CSE programs: puberty, falling in love, relationships, homosexuality, what students want,
489 drawing the line and assertiveness, the internet, the first time, problems with sex, getting help,
490 safe sex, condoms and contraceptives (47).

491

492 ***Step 6 – Apply an Evaluative Criterion***

493 CSE programs have been shown to be cost effective both within the U.S. and
494 internationally. Demonstrated cost-effectiveness is especially true when the programs are
495 compulsory, adapted from existing models, and integrated into the mainstream curriculum
496 (48). Compulsory programs are most cost-effective because they reap the benefits and greater
497 impact of full coverage of the student population (48). An example of a cost-effective program
498 is LLL in the Netherlands. Kivela (48) estimates that the cost-per-student is U.S. \$33. This
499 amount may seem high initially, but if you consider “budget outliers,” which are regular
500 expenses such as teacher salaries, the cost-per-student falls to U.S. \$10 (48). Research (49)
501 shows that school health programs that educate students about healthy sexual behaviors that
502 help prevent pregnancy and STIs save money in the long run. Wang et al. (49), found that, on

ABSTINENCE EDUCATION: A POLICY ANALYSIS

503 average, \$2.65 is saved in medical costs and lost productivity for every dollar invested in CSE
504 programs. A Brookings Institute brief (50) agreed and found that broader “publicly financed
505 mass media campaigns, comprehensive teen pregnancy prevention programs, and expansions
506 in government subsidized family planning services are estimated to save taxpayers between
507 two and six dollars for every dollar spent on them (50, pg. 6).”

508 The Guide to Community Preventive Services completed an economic review of CSE
509 programs and found them to be cost effective (42). The review found that school-based and
510 curriculum-based education were the lowest cost programs for implementation. Participation
511 in CSE programs saw a “yield of between \$2.70 to \$3.70 in returns based on saving in
512 healthcare costs related to pregnancies, HIV and STIs and improvement in income associated
513 with higher educational attainment (42).” In addition, CSE programs resulted in healthcare
514 savings from prevented pregnancies and STIs that ranged from \$5.80 per participant per year
515 for those aged 13-14 years and \$338 per participant per year for youth aged 18-19 years (42).

516 Some abstinence education studies found that long-term outcomes, such as delayed
517 sexual initiation required “booster” sessions. In comparison, CSE programs are designed to be
518 provided sequentially in school from kindergarten through grade 12. A scaffolding approach is
519 taken with CSE programs. In theory, students build upon what was taught in previous years,
520 thus providing ongoing “booster” sessions. Comprehensive sex education programs have the
521 long-term potential of being more cost-effective than abstinence education because they do
522 not require additional time besides what is already built into CSE programs.

523

524

525 ***Step 7 - Weigh the outcomes***

526 Having accurate, research-based information on what works in the field of sexual
527 education is important for communities, practitioners, educators, and parents trying to make
528 informed decisions about preventing teen pregnancy and STIs. Making true and lasting change
529 in teen pregnancy and STI rates requires not only youth education, but also broader efforts to
530 engaged and influence popular culture, parents, schools, and economic incentives that teens
531 face (9).

532 Outcomes for abstinence education remain largely under debate. Supporters of
533 abstinence education cite studies that show a delay in sexual initiation, reduced levels of sexual
534 activity, and an increase in abstinence until marriage among students (51). At the 2010, 2007
535 and 2005 HHS Abstinence Education Evaluation Conferences, 43 abstinence education studies
536 were presented as having shown abstinence education programs providing early-stage positive
537 attitudinal impacts that tended to predict lower sexual initiation rates (33).

538 A handful of abstinence education studies have employed experimental or quasi-
539 experimental designs while the majority of abstinence education studies have been based on
540 census, country, or state level data (9). Surveys have the possibility of introducing recall bias
541 into survey samples. Non-experimental or quasi-experimental studies also have difficulty
542 controlling statistically for other factors that might produce spurious statistical relationships or
543 obscure actual ones (9). Finally, data gathered through the census, country, or state might have
544 difficulty controlling for other factors that could influence relationships and often have very
545 small sample sizes (9).

ABSTINENCE EDUCATION: A POLICY ANALYSIS

546 CSE research has documented long-term, positive outcomes on youth. Outcomes
547 associated with participation in CSE programs include the delay of sexual initiation, reduced
548 frequency of intercourse and number of sexual partners, and increased condom or
549 contraceptive use (19). As we have seen both in the U.S. and in the Netherlands, school-based
550 sexual health education works in reducing teen pregnancy and STI rates. Particularly in the
551 Netherlands, CSE programs have helped with normalizing the idea of sexuality as a natural part
552 of adolescent growth and development. These outcomes have been supported through
553 multiple experimental and quasi-experimental evaluations (9).

554

555 ***Step 8 – Make the Decision***

556 Based on the evidence available today, CSE programs reduce a variety of teen sexual
557 risk-taking behaviors and increase protective behaviors such as contraceptive use. Outcomes of
558 CSE programs have been shown to reduce adverse health effects in youth more so than
559 abstinence education.

560 Research continue to show that CSE programs have a significant positive impact on
561 sexual risk-taking behaviors among adolescents (52). “There is strong evidence that more
562 comprehensive approaches help young people both withstand the pressure to have sex too
563 soon and learn the skills to build healthy, responsible, and mutually protective relationships
564 when they do become sexually active (21).” These impacts have also been shown to be long-
565 term in nature, lasting up to three years or as long as the behavior was being evaluated (9, 52).

566 As peer-reviewed support for CSE programs has continued to grow over the past
567 decade, many of the leading U.S. medical and public health associations have come to publicly

ABSTINENCE EDUCATION: A POLICY ANALYSIS

568 support CSE programs, including: the American Medical Association, American Psychological
569 Association, The Institute of Medicine, American Nurses Association, American Academy of
570 Pediatrics, American College of Obstetricians and Gynecologists, Society of Adolescent
571 Medicine and the American Public Health Association (35).

572 In addition to the supporting research, CSE programs are also known to work in a variety
573 of circumstances and are highly adaptable to different populations and age groups (9).

574 According to an interview with Douglas Kirby, “when some curricula that were found to be
575 effective in one study were implemented by other educators in other states and evaluated by
576 independent research teams, they remained effective if they were implemented with fidelity in
577 the same type of setting and with similar youth (52, pg. 7).”

578 Based on this information, it is the writer’s recommendation that the U.S. Government
579 increases current support for CSE programs through federal funding.

580

581 ***Conclusion***

582 Demonstrated outcomes show that CSE programs reduce sexual risk-taking behaviors in
583 youth including delaying the initiation of sex, reducing the number of partners and frequency of
584 sex, and increasing contraceptive use. CSE programs have also been demonstrated to be cost
585 effective. Individuals that participate in CSE programs are more likely to avoid the negative
586 economic outcomes associated with teen pregnancy and STIs as well as saving in medical costs
587 and lifetime productivity. The data identified in this policy analysis are consistent with the initial
588 hypothesis that CSE programs are more effective at reducing teen pregnancy and STI rates, with
589 the dual foci on abstinence and risk reduction behaviors one possible explanation.

590 ***Acknowledgements***

591 I would like to dedicate this paper to my godfather Frederick “Rick” Brock who passed away
592 before seeing me graduate. In addition, I would like to thank my immediate family for their
593 continued support throughout the culminating experience (CE) process. Finally, I would like to
594 give my deepest thanks to my CE advisory committee for the support and guidance they
595 provided during this process.

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612 **Appendix A**

Table 1: Federal A-H Definition of Abstinence used in federal legislation
A. Have as its exclusive purpose teaching the social, psychological, and health gains to be realized by abstaining from sexual activity
B. Teach abstinence from sexual activity outside of marriage as the expected standard for all school-age children
C. Teach that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems
D. Teach that a mutually faithful, monogamous relationship in the context of marriage is the expected standard of sexual activity
E. Teach that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects
F. Teach that bearing children out of wedlock is likely to have harmful consequences for the child, the child’s parents, and society
G. Teach young people how to reject sexual advances and how alcohol and drug use increased vulnerability to sexual advances
H. Teach the importance of attaining self-sufficiency before engaging in sexual activity.

613

614

615

616

617

618

619

620

621

622

623

624

625 **References**

- 626 (1) The World Bank. Adolescent fertility rate (births per 1,000 women ages 15-19)
627 [Internet]. 2016 [cited 24 March 2016]. Available from:
628 <http://data.worldbank.org/indicator/SP.ADO.TFRT>
- 629 (2) Centers for Disease Control and Prevention. Incidence, Prevalence, and Cost of Sexually
630 Transmitted Infections in the United States [Internet]. 1st ed. Atlanta: CDC; 2013 [cited
631 19 March 2016]. Available from: [http://www.cdc.gov/std/stats/sti-estimates-fact-sheet-](http://www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf)
632 [feb-2013.pdf](http://www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf)
- 633 (3) Collins T. Health policy analysis: a simple tool for policy makers. Public Health.
634 2005;119(3):192-196.
- 635 (4) National Center for Education Statistics. Back to School Statistics [Internet]. Fast Facts.
636 2016 [cited 20 March 2016]. Available from:
637 <http://nces.ed.gov/fastfacts/display.asp?id=372>
- 638 (5) Robertson L, Thomson D. "BE"ing a Certain Way: Seeking Body Image in Canadian Health
639 and Physical Education Curriculum Policies. Canadian Journal of Education.
640 2012;35(2):334-354.
- 641 (6) Lunze K, Migliorini L. Tobacco control in the Russian Federation- a policy analysis. BMC
642 Public Health. 2013;13(1):64.
- 643 (7) Guttmacher Institute. State Policies In Brief [Internet]. 1st ed. New York, NY:
644 Guttmacher Institute; 2016 [cited 7 February 2016]. Available from:
645 https://www.guttmacher.org/sites/default/files/pdfs/spibs/spib_SE.pdf

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 646 (8) Weed S., Lickona T. Abstinence Education in Context: History, Evidence, Premises, and
647 Comparison to Comprehensive Sexuality Education. In: Maureen K, ed. by. Sex
648 Education [Internet]. 1st ed. Hauppauge, NY: Nova Science Publishers; 2014 [cited 20
649 January 2016]. p. 1 - 36. Available from:
650 [https://www.researchgate.net/publication/269574010_ABSTINENCE_EDUCATION_IN_C](https://www.researchgate.net/publication/269574010_ABSTINENCE_EDUCATION_IN_CONTEXT_HISTORY_EVIDENCE_PREMISES_AND_COMPARISON_TO_COMPREHENSIVE_SEXUALITY_EDUCATION)
651 [ONTEXT HISTORY EVIDENCE PREMISES AND COMPARISON TO COMPREHENSIVE SE](https://www.researchgate.net/publication/269574010_ABSTINENCE_EDUCATION_IN_CONTEXT_HISTORY_EVIDENCE_PREMISES_AND_COMPARISON_TO_COMPREHENSIVE_SEXUALITY_EDUCATION)
652 [XUALITY EDUCATION](https://www.researchgate.net/publication/269574010_ABSTINENCE_EDUCATION_IN_CONTEXT_HISTORY_EVIDENCE_PREMISES_AND_COMPARISON_TO_COMPREHENSIVE_SEXUALITY_EDUCATION)
- 653 (9) Kirby D. Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy
654 and Sexually Transmitted Diseases [Internet]. Washington, DC: The National Campaign
655 to Prevent Teen and Unplanned Pregnancy; 2007. Available from:
656 [https://thenationalcampaign.org/sites/default/files/resource-primary-](https://thenationalcampaign.org/sites/default/files/resource-primary-download/EA2007_full_0.pdf)
657 [download/EA2007_full_0.pdf](https://thenationalcampaign.org/sites/default/files/resource-primary-download/EA2007_full_0.pdf)
- 658 (10) Irvine J. Talk about sex. Berkeley: University of California Press; 2002.
- 659 (11) Weed S. Committee on Oversight and Government Reform. Domestic Abstinence-Only
660 Programs: Assessing the Evidence. Washington, DC: U.S. House of Representatives;
661 2008.
- 662 (12) Borawski E, Trapl E, Lovegreen L, Colabianchi N, Block T. Effectiveness of Abstinence-
663 only Intervention in Middle School Teens. Am J Health Behavior. 2005;29(5):423-434.
- 664 (13) Weed S. An Abstinence Program's Impact on Cognitive Mediators and Sexual Initiation.
665 ajhb. 2008;32(1).
- 666 (14) Kantor L, Santelli J, Teitler J, Balmer R. Abstinence-only policies and programs: An
667 overview. Sex Res Soc Policy. 2008;5(3):6-17.

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 668 (15) U.S. Government Accountability Office. Abstinence Education: Efforts to Assess the
669 Accuracy and Effectiveness of Federally Funded Programs. Washington, DC: U.S.
670 Government Accountability Office; 2006.
- 671 (16) Miller K, Boyer C, Cotton G. The STD and HIV Epidemics in African American Youth:
672 Reconceptualizing Approaches to Risk Reduction. *Journal of Black Psychology*.
673 2004;30(1):124-137.
- 674 (17) U.S. Social Security Administration. Separate program for abstinence education. Sec. 510
675 (42 U.S. C.710); 2007
- 676 (18) Santelli J, Ott M, Lyon M, Rogers J, Summers D, Schleifer R. Abstinence and abstinence-
677 only education: A review of U.S. policies and programs. *Journal of Adolescent Health*.
678 2006;38(1):72-81.
- 679 (19) Sexuality Information and Education Council of the United States. Sexuality Education Q
680 & A [Internet]. Siecus.org. [cited 19 March 2016]. Available from:
681 [http://www.siecus.org/index.cfm?fuseaction=page.viewpage&pageid=521&grandparen](http://www.siecus.org/index.cfm?fuseaction=page.viewpage&pageid=521&grandparentID=477&parentID=514)
682 [tID=477&parentID=514](http://www.siecus.org/index.cfm?fuseaction=page.viewpage&pageid=521&grandparentID=477&parentID=514)
- 683 (20) Lamstein E, Haffner D. Abstinence-only Guidelines Restrict Postponing Sexual
684 Involvement Adaptation [Internet]. 1st ed. New York, NY: Sexuality Information and
685 Education Council of the United States; 1998 [cited 11 January 2016]. Available from:
686 [http://crawl.prod.proquest.com.s3.amazonaws.com/fpcache/9e17da4ff1c1407b63d179](http://crawl.prod.proquest.com.s3.amazonaws.com/fpcache/9e17da4ff1c1407b63d1792854c7edf8.pdf?AWSAccessKeyId=AKIAJF7V7KNV2KKY2NUQ&Expires=1460338943&Signature=Uc5sykLZ5rVPauey066EeCEp4ZI%3D)
687 [2854c7edf8.pdf?AWSAccessKeyId=AKIAJF7V7KNV2KKY2NUQ&Expires=1460338943&Sig](http://crawl.prod.proquest.com.s3.amazonaws.com/fpcache/9e17da4ff1c1407b63d1792854c7edf8.pdf?AWSAccessKeyId=AKIAJF7V7KNV2KKY2NUQ&Expires=1460338943&Signature=Uc5sykLZ5rVPauey066EeCEp4ZI%3D)
688 [nature=Uc5sykLZ5rVPauey066EeCEp4ZI%3D](http://crawl.prod.proquest.com.s3.amazonaws.com/fpcache/9e17da4ff1c1407b63d1792854c7edf8.pdf?AWSAccessKeyId=AKIAJF7V7KNV2KKY2NUQ&Expires=1460338943&Signature=Uc5sykLZ5rVPauey066EeCEp4ZI%3D)

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 689 (21) Sexuality Information and Education Council of the United States. An Explanation of
690 Federal Funding for More Comprehensive Approaches to Sex Education [Internet].
691 Siecus.org. [cited 22 March 2016]. Available from:
692 <http://www.siecus.org/index.cfm?fuseaction=Page.ViewPage&PageID=1262>
- 693 (22) Sexuality Information and Education Council of the United States. A Brief History of
694 Federal Funding for More Comprehensive Approaches to Sex Education FY10 [Internet].
695 Siecus.org. [cited 11 February 2016]. Available from:
696 <http://www.siecus.org/index.cfm?fuseaction=page.viewpage&pageid=1341&nodeid=1>
- 697 (23) University of Chicago Family Planning & Contraceptive Research. Federal Funding for Sex
698 Education: Teen Pregnancy Prevention Initiative (TPPI) [Internet]. 1st ed. Chicago, IL:
699 University of Chicago; 2012 [cited 1 April 2016]. Available from:
700 [http://familyplanning.uchicago.edu/policy/publications-](http://familyplanning.uchicago.edu/policy/publications-resources/TPPI%20Fact%20Sheet%20FINAL.pdf)
701 [resources/TPPI%20Fact%20Sheet%20FINAL.pdf](http://familyplanning.uchicago.edu/policy/publications-resources/TPPI%20Fact%20Sheet%20FINAL.pdf)
- 702 (24) University of Chicago Family Planning & Contraceptive Research. Federal Funding for Sex
703 Education: Personal Responsibility Education Program (PREP) [Internet]. 1st ed. Chicago,
704 IL: University of Chicago; 2012 [cited 1 April 2016]. Available from:
705 [http://familyplanning.uchicago.edu/policy/publications-](http://familyplanning.uchicago.edu/policy/publications-resources/PREP%20Fact%20Sheet%20FINAL.pdf)
706 [resources/PREP%20Fact%20Sheet%20FINAL.pdf](http://familyplanning.uchicago.edu/policy/publications-resources/PREP%20Fact%20Sheet%20FINAL.pdf)
- 707 (25) Bleakley A, Hennessy M, Fishbein M. Public Opinion on Sex Education in US Schools.
708 Arch Pediatr Adolesc Med. 2006;160(11):1151.

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 709 (26) Guttmacher Institute. American Teens' Sexual and Reproductive Health [Internet]. 1st
710 ed. New York, NY: Guttmacher Institute; 2014 [cited 20 March 2016]. Available from:
711 <https://www.guttmacher.org/sites/default/files/pdfs/pubs/FB-ATSRH.pdf>
- 712 (27) U.S. Department of Health and Human Services. Trends in Teen Pregnancy and
713 Childbearing [Internet]. Office of Adolescent Health. 2016 [cited 20 March 2016].
714 Available from: [http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-](http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/teen-pregnancy/trends.html)
715 [health/teen-pregnancy/trends.html](http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/teen-pregnancy/trends.html)
- 716 (28) The National Campaign to Prevent Teen and Unplanned Pregnancy. Freeze Frame 2012:
717 A Snapshot of America's Teens [Internet]. 1st ed. Washington, DC: The National
718 Campaign to Prevent Teen and Unplanned Pregnancy; 2012 [cited 20 March 2016].
719 Available from: https://www.dibbleinstitute.org/NEWDOCS/reports/freeze-frame_0.pdf
- 720 (29) U.S. Department of Health and Human Services. The Changing Face of America's
721 Adolescents [Internet]. Office of Adolescent Health. 2016 [cited 20 March 2016].
722 Available from: [http://www.hhs.gov/ash/oah/adolescent-health-topics/americas-](http://www.hhs.gov/ash/oah/adolescent-health-topics/americas-adolescents/changing-face.html)
723 [adolescents/changing-face.html](http://www.hhs.gov/ash/oah/adolescent-health-topics/americas-adolescents/changing-face.html)
- 724 (30) Centers for Disease Control and Prevention. Sexual Risk Behaviors: HIV, STD, & Teen
725 Pregnancy Prevention [Internet]. Cdc.gov. 2016 [cited 20 March 2016]. Available from:
726 <http://www.cdc.gov/healthyyouth/sexualbehaviors/>
- 727 (31) Kaiser Family Foundation. Sexual Health of Adolescents and Young Adults in the
728 United States [Internet]. Kff.org. 2014 [cited 20 March 2016]. Available from:
729 [http://kff.org/womens-health-policy/fact-sheet/sexual-health-of-adolescents-and-](http://kff.org/womens-health-policy/fact-sheet/sexual-health-of-adolescents-and-young-adults-in-the-united-states/)
730 [young-adults-in-the-united-states/](http://kff.org/womens-health-policy/fact-sheet/sexual-health-of-adolescents-and-young-adults-in-the-united-states/)

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 731 (32) Youth.gov. Adverse Effects [Internet]. Youth.gov. [cited 20 March 2016]. Available from:
732 [http://youth.gov/youth-topics/teen-pregnancy-prevention/adverse-effects-teen-
pregnancy](http://youth.gov/youth-topics/teen-pregnancy-prevention/adverse-effects-teen-
733 pregnancy)
- 734 (33) National Abstinence Education Association. Abstinence Works: Sexual Risk Avoidance
735 (SRA) Abstinence Education Programs Demonstrating Improved Teen Outcomes
736 [Internet]. Washington, DC: National Abstinence Education Association; 2013. Available
737 from: http://www.thenaea.org/docs/Abstinence_Works.pdf
- 738 (34) Christopher F, Roosa M. An Evaluation of an Adolescent Pregnancy Prevention Program:
739 Is "Just Say No" Enough? Family Relations. 1990;39(1):68.
- 740 (35) Sexuality Information and Education Council of the United States. What the Research
741 Says...Comprehensive Sex Education [Internet]. Siecus.org. [cited 21 March 2016].
742 Available from:
743 <http://www.siecus.org/index.cfm?fuseaction=Page.ViewPage&PageID=1193>
- 744 (36) Mathematica Policy Research, Inc. Impacts of Four Title V, Section 510 Abstinence
745 Education Programs. Princeton, NH: U.S. Department of Health and Human Services
746 Office of the Assistant Secretary for Planning and Evaluation; 2007.
- 747 (37) Pierre T, Mark M, Kaltreider D, Aikin K. A 27-Month Evaluation of a Sexual Activity
748 Prevention Program in Boys & Girls Clubs across the Nation. Family Relations.
749 1995;44(1):69.
- 750 (38) Jorgensen S, Potts V, Camp B. Project Taking Charge: Six-Month Follow-up of a
751 Pregnancy Prevention Program for Early Adolescents. Family Relations. 1993;42(4):401.

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 752 (39) Ruiz M, Gable A, Kaplan E, Stoto M, Fineberg H, Trussell J. No Time to Lose: Getting
753 More from HIV Prevention [Internet]. 1st ed. Washington, DC: Institute of Medicine;
754 2001 [cited 5 April 2016]. Available from: <http://www.nap.edu/catalog/9964.html>
- 755 (40) The Guide to Community Preventive Services. Abstinence Education [Internet].
756 Thecommunityguide.org. 2009 [cited 8 April 2016]. Available from:
757 http://www.thecommunityguide.org/hiv/abstinence_ed.html
- 758 (41) Kohler P, Manhart L, Lafferty W. Abstinence-Only and Comprehensive Sex Education and
759 the Initiation of Sexual Activity and Teen Pregnancy. Journal of Adolescent Health.
760 2008;42(4):344-351.
- 761 (42) The Guide to Community Preventive Services. Group-Based Comprehensive Risk
762 Reduction Interventions for Adolescents [Internet]. Thecommunityguide.org. 2009
763 [cited 8 April 2016]. Available from:
764 <http://www.thecommunityguide.org/hiv/riskreduction.html>
- 765 (43) Weaver H, Smith G, Kippax S. School-based sex education policies and indicators of
766 sexual health among young people: a comparison of the Netherlands, France, Australia
767 and the United States. Sex Education. 2005;5(2):171-188.
- 768 (44) Greene M, Rasekh Z, Amen K, Chaya N, Dye J. In This Generation: Sexual & Reproductive
769 Health Policies for a Youthful World [Internet]. 1st ed. Washington, DC: Population
770 Action International; 2002 [cited 20 March 2016]. Available from: [http://pai.org/wp-](http://pai.org/wp-content/uploads/2012/01/English.pdf)
771 [content/uploads/2012/01/English.pdf](http://pai.org/wp-content/uploads/2012/01/English.pdf)

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 772 (45) De Melker S. The Case for Starting Sex Education in Kindergarten [Internet]. PBS
773 NewsHour. 2015 [cited 11 February 2016]. Available from:
774 <http://www.pbs.org/newshour/updates/spring-fever/>
- 775 (46) World Health Organization. Health Behavior in School-aged Children [Internet].
776 Euro.who.int. [cited 20 March 2016]. Available from:
777 [http://www.euro.who.int/en/health-topics/Life-stages/child-and-adolescent-
778 health/child-and-adolescent-health2/youth-friendly-services/health-behaviour-in-
779 school-aged-children-hbsc2.-who-collaborative-cross-national-study-of-children-aged-
780 1115](http://www.euro.who.int/en/health-topics/Life-stages/child-and-adolescent-health/child-and-adolescent-health2/youth-friendly-services/health-behaviour-in-school-aged-children-hbsc2.-who-collaborative-cross-national-study-of-children-aged-1115)
- 781 (47) Long Live Love. Long Live Love [Internet]. Langlevedeliefde.nl. [cited 20 March 2016].
782 Available from: <http://www.langlevedeliefde.nl/extra-module/long-live-love/>
- 783 (48) Kivela J, Ketting E, Baltussen R. Cost analysis of school-based sexuality education
784 programs in six countries. *Cost Eff Resour Alloc.* 2013;11(1):17.
- 785 (49) Wang L, Davis M, Robin L, Collins J, Coyle K, Baumler E. Economic Evaluation of Safer
786 Choices. *Arch Pediatr Adolesc Med.* 2000;154(10):1017.
- 787 (50) Thomas A. Policy Solutions for Preventing Unplanned Pregnancy [Internet]. The
788 Brookings Institution. 2012 [cited 20 March 2016]. Available from:
789 <http://www.brookings.edu/research/reports/2012/03/unplanned-pregnancy-thomas>
- 790 (51) Kim C, Rector R. Evidence on the Effectiveness of Abstinence Education: An Update
791 [Internet]. The Heritage Foundation. 2010 [cited 11 December 2015]. Available from:
792 [http://www.heritage.org/research/reports/2010/02/evidence-on-the-effectiveness-of-
793 abstinence-education-an-update](http://www.heritage.org/research/reports/2010/02/evidence-on-the-effectiveness-of-abstinence-education-an-update)

ABSTINENCE EDUCATION: A POLICY ANALYSIS

- 794 (52) Boonstra H. The Case for a New Approach to Sex Education Mounts; Will Policymakers
795 Heed the Message? [Internet]. 1st ed. New York, NY: Guttmacher Institute; 2007 [cited
796 20 March 2016]. Available from:
797 <https://www.guttmacher.org/sites/default/files/pdfs/pubs/gpr/10/2/gpr100202.pdf>