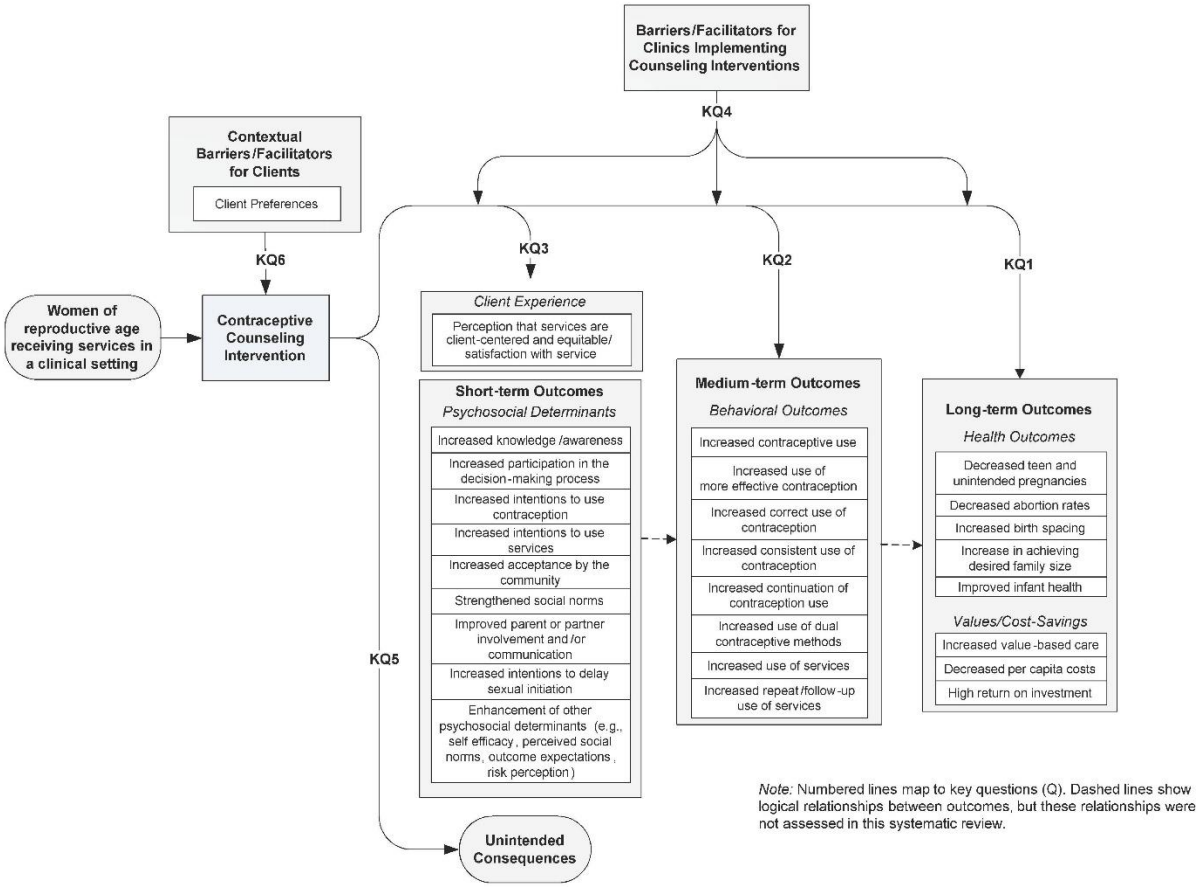
Appendix Table 1. Key Questions for Updated Systematic Review on Impact of Contraceptive Counseling in Clinical Settings

Number	Question
Q1	Is there a relationship between contraceptive counseling and improved long-term outcomes of family planning services (e.g., decreased teen or unintended pregnancies, decreased abortion rates, increased birth spacing, increased achievement of desired family size, improved infant health, increased value-based care, decreased per capita costs, high return on investment)?
Q2	Is there a relationship between contraceptive counseling and improved medium-term outcomes of family planning services (e.g., increased contraceptive use, increased use of more effective contraception, increased correct use of contraception, increased consistent use of contraception, increased continuation of contraception use, increased use of dual contraceptive methods, increased use of services, increased repeat or follow-up service use)?
Q3	Is there a relationship between contraceptive counseling and improved client experiences (e.g., perception that services are client-centered and equitable, satisfaction with services) or short-term outcomes of family planning services (e.g., increased knowledge or awareness, increased participation in the decision-making process, increased intentions to use contraception, increased intentions to use services, increased acceptance by the community, strengthened social norms, improved parent or partner involvement or community, increased intentions to delay sexual initiation, enhancement of other psychosocial determinants of contraceptive use)?
Q4	What are the barriers and facilitators for clinics in adopting and implementing contraceptive counseling in the family planning setting?
Q5	Are there any unintended negative consequences associated with contraceptive counseling when used in the family planning setting?
Q6	What are clients' preferences with regard to contraceptive counseling approaches in the family planning setting?

Note: Questions are put into context by the analytic framework presented in Appendix Figure 1.

Appendix Figure 1. Analytic framework for updated systematic review on the impact of contraceptive counseling in clinical settings.



Appendix Table 2. Search Terms and Strategy Used in the Updated Systematic Review

Set #	Concept	PubMed search terms[a]
1	Family planning	"family planning"[All fields] OR "family planning services"[MeSH][b] OR "family planning services"[All fields] OR "family planning policy"[MeSH] OR "family planning policy"[All fields] OR "reproductive health services"[MeSH] OR "reproductive health services"[All fields] OR "Title X"[All fields] OR "Planned Parenthood"[All fields]
2	Contraception	contraception[MeSH] OR contracept*[All fields] OR "contraceptive agents"[MeSH] OR "contraceptive agents"[All fields] OR "contraceptive devices"[MeSH] OR "contraceptive devices"[All fields] OR "birth control"[All fields] OR "contraception behavior"[MeSH] OR "contraception behavior"[All fields]
3	Counseling	counseling[MeSH] OR counseling[All fields] OR "patient-centered"[All fields] OR "patient comprehension"[All fields] OR "patient understanding"[All fields] OR "patient participation"[MeSH] OR "patient participation"[All fields] OR "patient autonomy"[All fields] OR "decision making"[MeSH] OR "decision making"[All fields] OR "active decision"[All fields] OR "informed decision"[All fields] OR "informed choice"[All fields] OR "informed patient"[All fields] OR "informed client"[All fields] OR "informed consent"[MeSH] OR "informed consent"[All fields]
4	Communication	"communication"[All fields] OR "health communication"[MeSH] OR "health communication"[All fields] OR "risk communication"[All fields] OR "communicating risk"[All fields] OR "communication barriers"[MeSH] OR "communication barriers"[All fields] OR "patient communication"[All fields] OR "professional-patient relations"[MeSH:NoExp] OR "professional-patient relations"[All fields] OR "nurse-patient relations"[MeSH] OR "nurse-patient relations"[All fields] OR "physician-patient relations"[MeSH] OR "physician-patient relations"[All fields] OR "information dissemination"[MeSH] OR "information dissemination"[All fields] OR "access to information"[MeSH] OR "access to information"[All fields] OR "information seeking behavior"[MeSH] OR "information seeking behavior"[All fields] OR "truth disclosure"[MeSH] OR "truth disclosure"[All fields] OR "risk perception"[All fields] OR "perceived risk"[All fields] OR "perception of risk"[All fields] OR "risk management"[MeSH] OR "risk management"[All fields] OR "patient safety"[All fields]

5	Follow-up/Continuity of care	"continuity of patient care"[MeSH] OR "continuity of patient care"[All fields] OR "followup"[All fields] OR "follow up"[All fields]
6	Education	"health education"[MeSH] OR "health education"[All fields] OR "health educator"[All fields] OR "patient education as topic"[MeSH] OR "patient education"[All fields] OR "health literacy"[All fields]
7	Adolescents	adolescent[MeSH] OR adolescen*[All fields] OR "adolescent behavior"[MeSH] OR "adolescent behavior"[All fields] OR "adolescent development"[MeSH] OR "adolescent development"[All fields] OR "pregnancy in adolescence"[MeSH] OR "pregnancy in adolescence"[All fields]
8	All sets combined (without adolescents)	((#1) OR (#2)) AND ((#3) OR (#4) OR (#5) OR (#6))
9	All sets combined (with adolescents)	(#7) AND (#8)

[a]Adapted, as needed, for searches of other databases. Other electronic databases searched were CINAHL, PsychINFO, HealthSTAR, POPLINE, EMBASE, MEDLINE, Education Resources of Information Center (ERIC), Cochrane Database of Systematic Reviews (CDSR), Cochrane Central Register of Controlled Trials (CENTRAL), Database of Abstracts of Reviews of Effects (DARE), UK NHS Economic Evaluation Database (NHS EED), National Guideline Clearinghouse, UK National Institute of Clinical Excellence (NICE), Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre), and Turning Research into Practice (TRIP).
[b]Medical Subject Headings.

Appendix Table 3. Evidence on Impact of Contraceptive Counseling in Clinical Settings for Adolescents and Young Adults

Reference/ Funding	Design/ Setting	Population	Intervention	Outcomes	Results	Quality
Berger (1987) Funding source NR U.S.	Pre-post study; 1 study group Urban adolescent clinic, NYC FU=average of 7.8 months (range 2–12 months)	383 unmarried youth, aged 11–19 years; 61% female; 73% Hispanic; 45% Medicaid eligible; 35% sexually active Recruitment: NR	Discussions on establishing sexual values, ability and right to refuse sexual intercourse, abstinence and alternate forms of intimacy, contraceptive methods, and consequences of unprotected sex Variable frequency but 2 visit minimum	Medium-term: increase contraceptive use Other: unintended negative consequences	Contraceptive use at last sex among sexually active youth significantly (p<0.001) increased from baseline to FU from 22% to 70% for females and from 34% to 85% for males Counseling did not appear to promote entry into sexual activity among nonsexually active youth (3% of nonsexually active youth initiated sexual activity during FU)	Level II-3; high risk for bias Strengths: Staff received training on protocol Weaknesses: Self-report bias Recall bias High attrition Maturation bias Only 5% of youth presented to clinic for FP reasons Selection bias (those not returning to clinic excluded; number NR)
Winter (1991) Ford Foundation U.S.	CT; 2 study groups. 6 non-metropolitan FP clinics, Pennsylvania (3 control clinics and 3 experimental clinics) FU=12 months	1,256 females aged 18 years and younger; 98% white, NH Baseline data collected with n=251 (n=93 in experimental and n=158 in control groups; control group received SOC)	Psychosocial model that provided counseling, education, reassurance, and social support; addressed peer pressure, parental involvement, confidential services, used visual aids to make information concrete, and scheduled initial visit as two appointments—1 for information, 1 for medical exam	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase continuation of use Short-term: improve knowledge,	Pregnancy rate among intervention group from original sample (3%) was lower than that of control group from original sample (6%), but differences were not statistically significant at p<0.05	Level II-1; high risk for bias Strengths: FU time ≥1 year Instruments had evidence of validity Staff received training in adolescent psychosocial development

		Treatment phase data collected with n=1,005 (n=425 in experimental and n=580 in control groups) FU at 6 months: n= ~236 in experimental and n= ~489 in control groups (calculated from manuscript data) FU at 12 months: n= ~166 in experimental and n= ~221 in control groups (calculated from manuscript data) Recruitment: personal information form administered at clinic reception area used to identify adolescents at high risk for UIP	Frequency: initial plus 6 month FU	enhance other psychosocial determinants of contraceptive use <u>Client experiences:</u> satisfaction with service	Significantly (p<0.05) more intervention females were using some method at 6 months (97%), and using chosen method at 6 (92%) and 12 (90%) months vs control group females (92%, 85%, and 83%, respectively) Intervention group reported significantly (p<0.05) greater ease coping with contraceptive related problems at 6 months FU Intervention group had significantly improved knowledge from baseline to FU (F=4.59, p=0.032); no difference in control group No significant differences between groups in satisfaction	Weaknesses: Self-selection bias Participation rate unknown Comparability of groups questionable (baseline data not collected for 80% of participants); experimental sites had elevated satisfaction scores at baseline. High attrition FU rate ≥15% different between groups at 6 months (~56% for experimental and 89% for control groups); similar at 12 months (39% and 38%, respectively) No comparison of completers and noncompleters performed Self-report bias Unclear how pregnancy was measured
Hanna (1993)	RCT; 2 study groups	51 unmarried females aged 16–18 years seeking	Based on King's theory of goal achievement through transactions and	<u>Medium-term</u>: increase correct use	Intervention group demonstrated increased correct	Level I; moderate risk for bias

Funding source NR U.S.	2 rural FP clinics, Midwest FU=3 months	OCs for first time; 98% white, NH Intervention group (n=26); control group (n=25); control group received SOC Potential enrollees: n=60 Completed study: n=39 Recruitment: NR	the Health Belief Model; included personalized discussions on maturity, responsibility, decision-making, benefits and barriers of contraceptive use, potential barriers to correct use, and developing plans to manage perceived barriers. Single session	Short-term: enhance other psychosocial determinants of contraceptive use	use of OCs (less frequently missed pills) vs control group (F=4.15, *p*=0.049) No significant differences between groups related to contraceptive perceptions (perceived benefits and barriers)	Strengths: Providers received training on protocol 85% participation rate Comparable study groups related to age Weaknesses: Low reliability of instrument Self-report bias Recall bias Small sample Short FU time for behavioral outcomes Blinding NR Allocation procedures including concealment NR
Cowley (2002) Funding source NR U.S.	Pre-post study; 1 study group Semi-rural comprehensive adolescent health clinic, Colorado FU=average of 10.3 months (range 1–29 months)	39 females aged 13–18 years considered high risk for early pregnancy with ambivalent pregnancy intentions or desiring pregnancy Enrolled: n=40 (68% Hispanic)	Detailed exploration, using motivational interviewing and narrative therapy, of 6 areas: impact of childbearing on life goals; youth hopes and dreams for future; long-term expectations for current relationship; reaction of parents if pregnancy were to occur; current health	Medium-term: increase contraceptive use, increase use of more effective methods	15/39 (38%) began contraception with 5/39 (13%) choosing DMPA and 10/39 (26%) choosing OCs; on average, users made 3 clinic visits before requesting contraceptives	Level II-3; high risk for bias Strengths: Providers received training Used standard provider tool (e.g., Decisional Balance Sheet) Weaknesses:

		Recruitment: youth seeking RH services (most seeking pregnancy testing) serially asked to participate	status; pros and cons of current vs delayed pregnancy; followed the FRAMES-D approach to counseling: feedback, responsibility, and advice-giving, menu of options, empathy, and self-efficacy Single session			Small sample Self-selection bias Recall bias Some (40%) enrolled youth desired pregnancy
Brindis (2005) California Wellness Foundation U.S.	Pre-post study; 1 study group 1 of 5 peer provider RH clinics, California FU=up to 36 months Compared clinic only vs clinic-telephone	1,590 sexually active youth, aged ≤14–20 years; 90% female; ~40% Hispanic Completed initial survey: females, n=7,486; males, n=2,151 Exclusions: females, n=6,062; males, n=1,985; reasons for exclusion included not being sexually active, not receiving a FP visit or male exam during initial visit, or not making a FU visit 3 months later Recruitment: individuals	Peer provider approach with peers meeting with participants at intake and making FU calls (females only) shortly after first visit and quarterly afterwards to reinforce messages, answer questions, etc. Peer providers staff toll-free teen line, which youth can call to receive advice and information, schedule a clinic appointment, and get referrals for other services Variable frequency	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase use of more effective methods, increase repeat/FU service use Other: unintended negative consequences	Females demonstrated significant (p<0.01) changes from first to last visit in always using birth control (42% vs 61%, OR=1.9), contraceptive use at last intercourse (61% vs 74%, OR=1.8), and use of effective methods (10% vs 49%, OR=3.5); no significant differences for males As compared with females receiving clinic- only intervention, females receiving FU telephone calls had significantly (p<0.05) increased odds of returning	Level II-3; high risk for bias Strengths: Peer providers received training. Pregnancy tests used Weaknesses: Self-report bias Recall bias High attrition Selection bias (those not returning to clinic 90 days after initial visit [33%] excluded) FU time between first to last visit not reported

		requested clinic visit			for annual exam (OR=1.4) and decreased odds of positive pregnancy test at any FU clinic visits (OR=0.9) Female participants reported decreased likelihood of condom use (OR=0.7, $p<0.01$) from first to last visit	
Kirby (2010) William and Flora Hewlett Foundation U.S.	RCT; 2 study groups RH clinic affiliated with University of California, San Francisco FU= ~21 months	805 sexually active females aged 14–18 years Intervention: n=402 (45% Latina; 75% attending HS; 7% married) Control: n=403 (35% Latina; 75% attending HS; 8% married); control group received SOC Recruitment: research staff and clinicians identified and approached potential participants at clinic	Regular services plus 9 FU telephone calls over 12 months that incorporated motivational interviewing to identify discrepancies in current risky behaviors and goals and to reinforce messages (e.g., effectiveness of hormonal method) Frequency: monthly/bimonthly	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase correct use, increase repeat/FU service use Client experiences: satisfaction with services	While study participants as a whole reported an increase in contraceptive use at last intercourse, from 11% at baseline to 44% at 6 months, FU calls did not have any further impact on this outcome Intervention did not demonstrate any effect on pregnancy rates; correct use of condoms, OCs, injectables, or patch; number of clinic visits; or satisfaction with services (data not shown)	Level I; moderate risk for bias Strengths: Comparable study groups related to age, education, and marital status Analyses adjusted for confounding variables FU time ≥1 year Counselors received training on protocol Randomization assignment made using random number generator Weaknesses: Self-selection bias

					Although 89% of intervention group received at least 1 FU call, only 35% recalled receiving the calls	Self-report bias Recall bias Poor intervention completion rates (i.e., counselors averaged ~2.7 of 9 completed calls per participant Unclear how pregnancy was measured Blinding NR Allocation concealment NR
Martin (2011)[a] Martin (2009)[a] Funding source NR UK	Pre-post study with a historical comparison group; 2 study groups Pre-intervention: 9-month baseline period Post-intervention: 9-month FU period National Health Service family planning clinic in a northern UK city with higher than national average levels of teen pregnancy	Intervention group: 87 adolescents aged 14–19 years using a user-dependent contraceptive method (injections, pills, condoms) recruited September-December 2007) with FU data Control group: 131 teen girls (mean age 16.7 years) recruited during 11-week period (dates NR) who received	Trained sexual health clinicians worked with clients during contraceptive consultations to develop individually tailored 'if-then' plans to increase contraceptive adherence and overcome potential barriers to adherence. "If-then" planning is a technique to change individual behavior by linking situations with a desired behavior. During consultations, clinicians: (1) introduced planning to young women; (2) identified a suitable target behavior(s) for a plan; (3) developed a	<u>Medium-term</u>: repeat/FU service use (decrease repeat visits for EC or pregnancy testing)	Consultation for EC or pregnancy testing decreased from baseline (49%) to FU (34%) among youth in the intervention group (significance testing not conducted). This compares to a small non-significant reduction among youth in the control group (from 57% at baseline to 53% at FU) Among youth who visited the clinic at baseline for EC or	Level II-3; high risk for bias <u>Strengths</u>: Staff received training on protocol Sample size calculations conducted Outcomes assessed using electronic medical records <u>Weaknesses</u>: Single site Recruitment rate among intervention participants NR

		SOC; 106 (81%) with FU data Exclusions: those seeking termination, testing positive for pregnancy, and attending the clinic after sexual assault Recruitment: 19 clinicians trained in the intervention approached potential participants at clinic	plan(s) by working through the when, where, how of the behavior; (4) recorded and rehearsed the if-then plan; and (5) provided positive feedback about the plan. Single session		pregnancy testing, 53% in the intervention group (23/43) made a positive change and visited at FU for supplies only, compared with 28% in the control group (13/45); statistical testing comparing intervention vs control groups not conducted	Recruitment rate from study from which control group originated low (47%) Comparability of intervention and control groups unknown Statistical testing of comparisons of interest not conducted
Berenson (2012)[a] Maternal and Child Health Bureau, Health Resources and Services Administration and the Eunice Kennedy Shriver NICHD U.S.	RCT; 3 study groups 5 publicly funded RH clinics in Southeast Texas All patients given oral and written instructions on OC use and a 4-month supply; patients instructed to initiate OCs within 7 days of starting net menstrual cycle; patients also given 24 condoms	1,155 low-income adolescents and young adults aged 16–24 years requesting OC (56% aged 16–19 years; 54% Hispanic, 19% black, 25% white, 2% other; 78% never married) Group 1: n=383 Group 2: n=384 Group 3: n=388 Recruitment: potential	Group 1: Face-to-face behavioral counseling and education from an experienced research assistant trained in contraceptive counseling for ~45 minutes at baseline clinic visit; techniques based on health belief model. Included distribution of handouts; reviewing instructions verbally; helping patient develop a cue to improve adherence; discussing risk and impact of pregnancy if contraception not used	<u>Long-term:</u> decrease teen or UIP <u>Medium-term</u>: increase contraceptive use (condoms), increase correct use (OC adherence, defined as starting each pack on time and not missing any doses or correctly making up any pills missed), increase continuation of	Pregnancy rates did not differ by study group (p=0.22): • Group 1: 63 (16.5%) • Group 2: 52 (13.5%) • Group 3: 48 (12.4%) Based on Cox proportional HRs, no differences in pregnancy over 12 months of FU: Group 1 vs 3 HR=1.39, p>0.05; Group 2 vs 3 HR=1.07, p>0.05.	Level I; high risk for bias <u>Strengths</u>: Multiple sites Randomization scheme followed for allocation Outcome assessors blinded Sample size calculations conducted Comparable study groups related to baseline characteristics

	FU=3, 6, 12 months via phone interviews	participants approached at clinic (1,155/1,638 eligible patients recruited [71%])	correctly, noncontraceptive benefits of OC, how to deal with common side effects, and STIs and need for condom use; and practicing condom application using a plastic model and discussing condom negotiation skills. Group 2: Same as group 1 followed by monthly phone calls for 6 months (phone calls made weekly after initial visit until OC initiation). During calls, counselor reviewed how to use OC correctly, what to do when doses were missed, strategies to address side effects, and importance of condom use. Group 3: SOC from a nurse provider who followed a written protocol Variable frequency: monthly phone calls for 6 months for Group 2	use, increase dual-method use	Condom use at last sexual intercourse did not differ by study group at 3, 6, or 12 months (p>0.05). Condom use for groups 1, 2 and 3 was 8% at 12 months. Using GEE and adjusting for age, race/ethnicity, and FU visit, women in Group 2 were more likely to report condom use at last sexual intercourse than those in Group 3 (OR=1.32, p<0.05). Mean number of correctly used pill packs did not differ by study group (p=0.06). • Group 1: 5.3 • Group 2: 5.9 • Group 3: 5.2 OC continuation did not differ by study group at 3, 6, or 12 months (p>0.05). OC continuation for groups 1, 2, and 3 was 18%, 20%, and 20%, respectively, at 12 months.	Standardization of counseling techniques tested by audio recordings Pregnancy rates documented via medical record review Pill packs used to verify correct use Intent to treat analysis FU time ≥1 year Weaknesses: Blinding of participants and counselors NR Allocation concealment NR Participants differed from non-participants by age and race/ethnicity Outcomes largely assessed via self-report Intervention completion rate not reported (e.g., unknown how many phone calls per participant were completed)

					Dual-method use did not differ by study group at 3, 6, or 12 months (p>0.05). Dual-method use for groups 1, 2 and 3 was 5%, 5%, and 6%, respectively, at 12 months.	High attrition (44% lost to FU)
Redding (2015)[a] NCI, NIH U.S.	RCT; 2 study groups 4 urban Title X-funded family planning clinics (2 in large inner-city teaching hospitals; 2 in community-based health centers), Pennsylvania Standard family planning medical care provided to all participants after counseling FU=telephone surveys implemented at 12 and 18 months	828 non-pregnant adolescents aged 14–17 years (mean age 16.4 years) Intervention group: n=424 (83% African American; 9% Latina; 95% sexually experienced; 62% never pregnant) Control group: n=404 (85% African American; 6% Latina; 97% sexually experienced; 58% never pregnant) received SOC education and advice Consistent condom use at	Trans-theoretical model (TTM)-tailored intervention to increase condom use and decrease smoking concurrently. Participants completed modular programs; printed reports for participants and counselors provided TTM-tailored feedback. TTM counselors provided stage-targeted counseling designed to accelerate stage progress among those in early stages of change, prevent relapse among those further along, and facilitate effective recycling through stages if participants relapsed. Sessions were client-centered, personalized, and integrated motivational interviewing techniques.	<u>Medium-term</u>: increase correct use (consistent condoms use, defined as using condoms during every sex occasion in the past month or past 3 months if no sex in the past month)	Consistent condom use was significantly (p-value NR) higher in the intervention vs control group at 6 months (61% vs 46%) and 12 months (51.1% vs 39.0%), but not 18 months Among consistent condom users at baseline (n=334), significantly (p<0.05) less relapse was found in the intervention vs control group at 6 months (22% vs 43%) and 12 months (46% vs 54%), but not 18 months Among non-consistent condom users at baseline	Level I; moderate risk for bias <u>Strengths:</u> Multiple sites Computer-based randomization Counselors received training on TTM and a protocol with stage-matched counseling activities Quality assurance conducted to assess intervention fidelity Study groups comparable related to baseline characteristics Similar retention rate among study groups at 12 months FU time ≥1 year

	baseline was 40.3% among both groups Recruitment: Upon registration at each clinic's reception desk, potential participants were recruited by a receptionist or health educator, recruitment occurred over 12 months (75% recruitment rate)	Variable frequency: out of 4 possible sessions (index visit, 3, 6, and 9 months), 75% of participants completed at least 2, 66% completed at least 3, and 34% completed all 4 sessions	(n=494), consistent condom use ranged from 42%–46% over 18 months among intervention group participants vs 34%–39% among control group participants (significance NR)	<u>Weaknesses:</u> Blinding NR Sample size about half of projected need based on power calculations Condom use based on self-report Retention rate 64% at 12 months and 60% at 18 months Significantly higher retention rate among intervention vs control participants at 18 months Analyses not restricted to sexually active youth

[a]Newly identified evidence since 2015 review.

CT, prospective nonrandomized controlled trial; DMPA, depot medroxyprogesterone acetate; EC, emergency contraception; FP, family planning; FU, follow-up; GEE, generalized estimating equations; HS, high school; LARC, long-acting reversible contraception (intrauterine device or implant); NCI, National Cancer Institute; NICHD, National Institute on Child Health and Human Development; HR, hazard ratio; NP, nurse practitioner; NR, not reported; NS, not significant; NYC, New York City; NH, non-Hispanic; OB/GYN, obstetrics and gynecology; OC, oral contraceptive; PA, physician assistant; RH, reproductive health; SOC, standard of care; STI, sexually transmitted infection; TTM, trans-theoretical model; UIP, unintended pregnancy; UK, United Kingdom.

Appendix Table 4. Evidence on Impact of Contraceptive Counseling in Clinical Settings for Adults or Mixed Populations[a]

Reference/ Funding	Design/ Setting	Population	Intervention	Outcomes	Results	Quality
Custo (1987) Funding source NR Italy	RCT; 2 study groups Study clinics FU=12–15 months	200 females aged 16–41 years (n=100 in intervention group; n=100 control group who received SOC); other characteristics NR Recruitment: females attending study clinics for contraceptive information	Use of provider tool, Adjusted Contraceptive Score, after standard of care counseling; tool intended to help women select the most appropriate contraceptive method and increase satisfaction with chosen method Single session	Long-term: decrease teen or UIP Medium-term: increase use of more effective methods	Intervention group had lower pregnancy rate (4%) vs control group (11%), but ns Diaphragm use (most effective contraceptive method examined) significantly (p<0.05) increased among intervention participants from baseline (9%) to FU (26%); no differences among controls (11% vs 16%, respectively); diaphragm use significantly (p<0.05) higher among intervention participants at FU (26%) than intervention participants (16%)	Level I; moderate risk for bias Strengths: Used standard provider tool Comparable study groups related to age, RH history and economic background FU rate ≤15% different between groups (95% for intervention and 92% for control group) FU time ≥1 year Weaknesses: Recall bias Recruitment rate NR Lack of blinding Allocation procedures including concealment NR
Namerow (1989)	CT; 2 study groups	823 females aged ≤17–≥23 years (n=412 in	Contingency planning counseling program with 5 components—	Long-term: decrease teen or	No significant difference between intervention and control	Level II-1; high risk for bias

Office of Population Affairs U.S.	Hospital-based FP clinic, NYC FU=12 months	intervention group; n=411 in control group who received SOC); 50% Latina; 41% African American; 56% HS graduates; 48% Medicaid Enrolled: n=914 Recruitment: FP patients deemed in need of individual counseling	participant asked to articulate a pregnancy goal; participant's perceived probability of pregnancy is determined; specific method selected, the length of time for which it would be used, and what the participant would need to do to use it effectively specified; contingencies that might arise subsequently and interfere with correct use; and detailed plans for dealing with each contingency outlined Program also included opportunities to: specify in writing when patient would next have contact with counselor or make a clinic visit; what would be done if an appointment could not be kept; and how the counselor and clinic could help participant practice effective contraception Participant received written copy of Pregnancy Prevention Plan Single session	unintended pregnancy Medium-term: increase correct use, increase repeat/FU service use	groups in UIP rates at 6 and 12 months FU (~7% became pregnant in each group by 6 months, ~15% by 12 months); among previously pregnant females, those in intervention group had significantly (p<0.05) decreased odds (50%) of experiencing UIP within 6 months vs those in control group; by 12 months, differences disappeared Among OC users (n=319), those in intervention vs control group reported significantly (p<0.05) higher correct use (i.e., taking pills every day) (53% vs 43%); among OC users that had missed pills (n=166), those in intervention vs control group reported significantly (p<0.01) more women taking the forgotten pills appropriately (89% vs 68%) No difference in clinic attendance between the intervention and control groups was observed (percentages NR)	Strengths: High participation (90%) Comparable study groups related to age, ethnicity, education, marital status, Medicaid status, and past pregnancy FU time ≥1 year FU rate ≤15% different for groups (73% for both groups) Weaknesses: High attrition Recall bias Self-report bias Lack of blinding

Todres (1990) Funding source NR Canada	Pre-post study; 1 study group Planned Parenthood clinic, Toronto FU=None	62 females aged 14–35 years (mean age=19 years); other characteristics NR Recruitment: questionnaire given to participant with intake forms at admission	Counseling delivered by public health staff versus nonpaid lay volunteers; details of counseling NR Single session	Short-term: increase knowledge	Overall, women had significantly (p<0.01) higher knowledge scores after counseling Both types of counselors produced significant changes in knowledge levels (public health staff, p<0.05 and lay counselors, p<0.20)	Level II-3; high risk for bias Weaknesses: Participation rate NR Small sample Characteristics of completers and noncompleters not examined Validity of instrument questionable Considered p<0.20 as statistically significant No behavioral outcomes examined
Weisman (2002) CDC, Association of Schools of Public Health U.S.	Cohort analysis of cross-sectional survey data 16 county commercial provider network (nonprofit managed care company founded by University of Michigan)	898 females aged 18–44 years; 83% white, NH, at risk for UIP; at risk for UIP group: mean age=33 years, 30% completed graduate school Eligible: n=1,406 Recruitment: random sample selected from provider network enrollees	Contraceptive counseling provided in the past 2 years by providers in managed care plans (HMO or POS); counseling evaluated on 3 dimensions—exposure, content and personalization Frequency NR	Medium-term: increase contraceptive use Short-term: increase intentions to use contraception, enhance other psychosocial determinants of contraceptive use Client experiences: satisfaction with services	Among women at risk of UIP, receiving personalized counseling plus information was significantly (p<0.05) associated with increased odds of current contraceptive use (OR=4.97), and intentions to use contraception next year (OR=2.74) vs those receiving no counseling Among all women, receiving personalized	Level II-2; high risk for bias Strengths: Analysis adjusted for confounding variables Weaknesses: ≤65% recruitment rate Recall bias

	FU: None				counseling plus information was significantly (p<0.05) associated with increased odds of satisfaction (OR=3.07) vs those receiving no counseling; it was not significantly associated with self-efficacy to prevent UIP	Validity of instrument questionable
Boise (2003) CDC U.S.	Pre-post study; 1 study group Medical office FU=1 month	85 females aged 18–44 years (mean age=25 years); 38% Latina, 27% African American; 75% college educated; 69% cohabitating; 30% considered high risk for STI/HIV Recruitment: females seeking pregnancy test from medical office were requested to fill out screening questionnaire	Brief individually tailored motivational counseling based on participant responses to risk assessment; variety of contraceptive choices discussed; readiness to use chosen method scored; barriers and aspects of motivation explored; counselor and participant negotiated risk-reduction steps for client to decrease risk of UIP and STI/HIV; methods provided directly or via referrals; FU offered and counselor made "booster" call to participant 2 weeks after initial session to review risk-reduction steps, identify barriers to completing steps and help overcoming those barriers Frequency: initial plus FU contact 2–4 weeks later	Medium-term: increase contraceptive use, increase correct use	From baseline to 1 month FU (among completers), any contraceptive use increased from 74% to 91%, consistent condom use (among condom users) increased from 18% to 87%, and consistent OC use (among OC users) increased from 48% to 100%; tests of significance NR	Level II-3; high risk for bias Strengths: Providers received training on protocol Weaknesses: Self-report bias High attrition Recall bias Selection bias Small sample <65% recruitment rate Short FU time for behavioral outcomes Test of significance NR
Shlay (2003) NICHD	RCT; 2 study groups	877 females aged ~15–49 years; n=437 in	STI clinic-initiated enhanced contraceptive care followed by	Long-term: decrease teen or	At 12 months FU, no significant differences between intervention and control groups in	Level 1; moderate risk for bias

U.S.	STI clinic operated by Denver Public Health FU=12 months	intervention group; n=440 in control group; both groups received condoms with spermicide and a referral list of PCPs for ongoing RH care; 30% Latina; 25% African American; 61% no healthcare insurance Eligible: n=1,909 Total available for FU: n=794 Recruitment: invited by staff to participate	facilitated referral to a PCP to establish relationship, improve contraceptive adherence, and decrease UIP; care included individual medical screening, individual counseling about all potential methods available at the clinic, and methods available through a PCP; participants had method of choice initiated in clinic at enrollment or early FU visit; multiple client contacts to facilitate PCP referral for ongoing care Single session	unintended pregnancy Medium-term: increase use of more effective methods, increase repeat/FU service use, increase dual-method use	pregnancy rates (24% vs 28%) Significantly (p<0.0001) more intervention than control women reported use of effective contraceptives at 4 months (50% vs 22%) and 8 months (44% and 26%) FU; however, differences were ns by 12 months FU No significant differences between intervention and control participants in FU service use at 4, 8, or 12 month FU (68% vs 69%, 69% vs 65%, and 72% vs 72%, respectively) Significantly p<0.01 more intervention than control women reported dual protection use at 4 months (29% vs 14%) and 8 months (23% and 14%) FU; however, differences were ns by 12 months FU	Strengths: High completion rate (91%) Comparable study groups related to background characteristics FU time ≥1 year Weaknesses: ≤65% recruitment rate Reliance on birth registry for individuals lost to FU limited information available Recall bias Blinding NR Allocation procedures including concealment NR May not represent general FP clients (STI clinic sample)
Bender (2004) Funding source NR Iceland	RCT; 2 study groups University hospital abortion clinic	276 females aged 19–46 years requesting pregnancy termination (n=148 in intervention	Intensive pretermination contraceptive counseling; included plotting contraceptive history to focus past,	Medium-term: increase contraceptive use, increase use of more effective methods	No significant difference in the proportions of women in intervention and control groups who initiated post-abortion	Level I; moderate risk for bias Strengths: FU rate ≤15% different between

	FU=4–6 months post-abortion	group; n=128 in control group who received contraceptive information only); most (60%) completed primary education Recruitment: Individual contact at abortion scheduling visit	present, and future contraceptive use information together to raise participant awareness towards contraception Frequency: 2 contacts in 6 months		contraceptive use (86.5% vs 85.2%, respectively) No differences in the uptake of more effective methods; OCs were chosen by 61% and 58% of intervention and control group women; injectables chosen by 12% and 11%, respectively	groups (70% for intervention and 61% for control groups) Women were blinded as to study group assignment Randomization assignment made using random numbers table Weaknesses: Significant background differences between groups (age, childbearing, abortion history, education) may have biased results Recall bias Self-report bias May not represent FP clients (post-abortion sample) Allocation concealment NR
Gilliam (2004) ACOG/Park-Davis Research Award in Contraception	RCT; 2 study groups Resident run clinic serving low-income	33 unmarried females aged 15–25 years with UIP who expressed intention to use OCs postpartum (n=18 in	Theory-based, multimedia, postpartum educational intervention and individual counseling prior to hospital discharge;	Long-term: decrease teen or unintended pregnancy	At 1 year, no significant differences between intervention and control groups in repeat pregnancy rates (12% vs 8%, respectively) or	Level I; moderate risk for bias Strengths: FU time ≥1 year

U.S	women receiving public assistance FU=12 months	intervention group; n=15 in control group who received SOC); 100% African American; 37% college-educated; 75% unemployed Enrolled: n=43 12 month FU: n=25 (n=16 in intervention group and n=9 in control group) Recruitment: received informational flyer at time of first visit to clinic	counseling emphasized self-efficacy, what to do if a dose is missed, backup contraceptive methods, contact telephone numbers, and when to contact a nurse or physician; all written material was reviewed in detail; videotape based on principles of self-efficacy was viewed Single session	Medium-term: increase continuation of use Short-term: increase knowledge	continued use of OCs (16% vs 12%, respectively) Among the participants with complete data at 12 months (n=14), a significant positive change in knowledge was observed vs control group	Research team members blinded to group assignment Randomization assignment made using random numbers table Allocation concealed Weaknesses: Small sample Self-report bias High attrition FU rate ≥15% different between groups (89% for intervention and 60% for control group) May not represent general FP clients (postpartum sample)
Yassin (2005) Ford, W.T. Grant, and Hewlett Foundations UK	Cohort analysis of cross-sectional survey data; 2 study groups Surgical abortion clinic, Burnley, UK	100 females aged 15–41 years (median age=26 years) received counseling; compared with 422 control group women who received no counseling	Dedicated and targeted pretermination of pregnancy contraceptive counseling provided by experienced FP nurses; included full and detailed discussion of all methods of contraception,	Medium-term: increase contraceptive use, increase use of more effective methods	More women in intervention group used some contraceptive method post-abortion (96%) than control group (40%); tests of significance not conducted	Level II-2; high risk for bias Strengths: High participation and completion rates (100%) Weaknesses:

	FU: NR	Completed assessment: 100 Recruitment: participants self-selected through requesting abortion services	informational literature, opportunity to choose a method based on discussion and literature, administration of chosen method at time of abortion or immediately post-abortion; non-user-dependent methods were emphasized. Single session		More women in intervention group used effective methods post-abortion than control group (implant: 11% vs 0%, IUD: 47% vs 0%); tests of significance not conducted	Comparability of groups related to background characteristics unknown (NR for comparison group) Selection bias Confounding possible No tests of significance conducted May not represent FP clients (post-abortion sample)
Proctor (2006) Carolinas Healthcare Foundation U.S.	RCT; 3 study groups Urban medical center (Carolinas Medical Center, North Carolina) FU=8 months	319 postpartum females, mean age 23.4 years; n=117 in video arm; n=101 in literature arm; n=101 in physician arm; 53% Latina; 36% African American; 42% less than HS education Initially randomized: n=329 Recruitment: individuals attending postpartum service were invited to participate in study	Three different postpartum contraceptive counseling methods: (1) <u>video arm</u>, which is a video that gives overview of risks and benefits of each method; physician is available to answer questions, but prohibited from engaging in discussion; (2) <u>literature arm</u>, which is companion literature that directs counseling; physician is available to answer questions, but prohibited from engaging in discussion;	<u>Medium-term</u>: increase use of more effective methods <u>Client experiences</u>: satisfaction with services	No difference was identified in the contraceptive method chosen between the 3 arms >90% of participants in each arm were satisfied with their counseling, with significantly (p<0.05) higher levels of satisfaction in the physician-patient arm (99%)	Level I; high risk for bias <u>Strengths</u>: High completion rate (97% overall) Comparable study groups related to age, race, parity, education, or mode of delivery Randomization assignment made using random numbers table Allocation concealed

			and (3) physician-patient face-to-face session, which included interaction that was not scripted or limited in any way. Single session			Weaknesses: Not all patients in the physician arm received same counseling Recruitment rate NR Completion rate by study group NR Blinding NR May not represent general FP clients (postpartum sample)
Schunmann (2006) Scottish Executive for the Scottish Health Demonstration Project Healthy Respect Scotland	RCT; 2 study groups Royal Infirmary of Edinburgh clinic FU=24 months	613 females, mean age 24 years; n=316 in intervention group; n=297 in control group who received SOC Assessed for eligibility: n=1,151 Complete FU data at 4 months: n=199 in intervention group and n=178 in control group Complete case notes at 24 months: n=302 in intervention group and n=268 in control group	Brief individualized discussion of future contraception during initial consultation and assessment; post-abortion interview with physician and specialist trained in contraception to solicit details regarding demographics, full reproductive history, and contraceptive use at time of conception; preferred method of post-abortion contraceptive ascertained with 3 month supply of chosen method of dispensed if possible; if IUD was chosen, appointment	Long-term: decrease teen or unintended pregnancy Medium-term: increase contraceptive use, increase use of more effective methods, increase continuation of use	At 24 months FU, case note review found that 15% of intervention and 10% of control group women had at least 1 further UIP that resulted in termination (ns) At 4 months FU, 88% of intervention and 89% of control group women were using contraception (ns); significantly (p<0.05) more women in the intervention (37%) than control (26%) group were using a longer-acting method (IUD, implant, injectable)	Level I; moderate risk for bias Strengths: Comparable study groups related to age and deprivation (calculated from ZIP codes) FU rate ≤15% different for groups (63% for intervention and 60% for control group) FU time ≥1 year Randomization assignment (of

		Recruitment: invited by staff to participate	with FP clinic arranged for insertion 2 weeks post-abortion; condoms and written information provided Single session		At 4 months FU, continuation rates for intervention vs control women were 86% vs 80% for COCs, 64% vs 100% for POPs, 75% vs 100% for barrier methods, 66% vs 50% for IUD, 33% vs 20% for IUS, and 86% vs 69% for injectables (all were ns)	calendar weeks) made using random numbers table Weaknesses: ≤65% recruitment rate High attrition Differences in background characteristic between completers and noncompleters related to parity, education, and past abortion) Recording bias Lack of blinding Allocation not concealed May not represent general FP clients (post-abortion sample)
Nobili (2007) Funding source not stated Italy	RCT; 2 study groups University hospital FU=3 months	43 females aged 18–44 years (n=21 in intervention group; n=22 in control group who received SOC) Eligible: n=70 Completed FU:	Patient-centered contraceptive counseling; phase 1 included semi-structured interview that explored past and present contraceptive experiences, barriers to use, perceptions of risk and future plans; phase	Medium-term: increase use of more effective methods Short-term: increase knowledge, enhance other psychosocial	Intervention group demonstrated a significant (p<0.005) increase in the use of effective methods between baseline (20%) and 1 and 3 months FU (65% and 80%, respectively); no changes in control	Level I; moderate risk for bias Strengths: Research team members blinded to group assignment Comparable study groups related to

		n=20 in intervention group; n=21 in control group Recruitment: invited by staff to participate at time of visit to clinic to request pregnancy termination	2 offered education; presented advantages and disadvantages of available methods and explanations on how to obtain and use each method; phase 3 involved choosing method and knowledge test; participant questions and doubts were addressed Single session	determinants of contraceptive use	group between baseline (19%) and FU were detected (32% and 38%, respectively) At baseline there was no difference in knowledge or attitudes towards contraception; at 1 month FU, the intervention group demonstrated significant (p<0.0005) increase in both knowledge and positive attitude toward contraception vs nonsignificant results from control group	age, education, marital status, parity, and occupation High completion rate (95%) FU rate ≤15% different for groups (95% for both groups) Weaknesses: Low participation (61%) Small sample size Short FU time for behavioral outcomes Allocation procedures including concealment NR May not represent general FP clients (post-abortion sample)
Petersen (2007) Petersen (2007) CDC, Association for Prevention,	RCT; 2 study groups 3 primary healthcare settings in North Carolina	708 females aged 16–44 years (n=336 in intervention group; n=372 in control group who received general preventive health counseling (e.g.,	Behavior-based contraceptive counseling using motivational interviewing techniques, including discussion of all available types of	Long-term: decrease teen or unintended pregnancy Medium-term: increase correct use	No significant difference in UIP between groups at 2, 8, or 12 months FU (percentages NR) Among condom users, the proportion reporting	Level I; moderate risk for bias Strengths: High participation rate (96% of eligible females were randomized)

Teaching and Research U.S.	FU=12 months	smoking, diet); 62% white; 84% HS graduate or GED; 45% never married Eligible and enrolled: n=737 Complete FU data: n=329 in intervention group and n=335 in control group Recruitment: approached by study personnel at primary healthcare setting	contraceptives and which method might be the most appropriate, and the opportunity for EC information and advance prescription; counselors evaluated participant pregnancy intention, contraceptive use patterns, and high risk sexual behaviors. Individualized risk reduction strategies discussed; participants obtained or received referral for any type of contraceptive; booster session focused on client progress toward meeting specific risk reduction steps and adopting consistent, effective contraceptive use Single session	Client experiences: satisfaction with services	correct use (use during every act of intercourse) did not differ between intervention and control groups at any FU point Intervention participants reported high levels of satisfaction (82% reported that it was helpful to talk to the educator about contraception, 90% reported that the educator had focused on their individual concerns, and 93% reported that all of their questions had been adequately addressed)	Comparable study groups related to age, education, marital status, and race/ethnicity High completion rate (98% of intervention and 90% of control group) FU rate ≤15% different for groups FU time ≥1 year Pregnancy tests used Randomization assignment made using random numbers table Allocation concealed Weaknesses: Recall bias Self-report bias Lack of blinding Some participants had ambivalent pregnancy intentions

Adams-Skinner (2009) NICHD, National Institute of Mental Health U.S.	Prospective cohort study; 2 study groups 4 community healthcare clinics serving underserved populations, NYC FU=6 months	78 sexually active females aged 15–32 years had counseling sessions audiotaped (n=36 in intervention group; n=42 in control group who received SOC); 92% non-white, 60% HS or less 75/176 eligible females declined participation Recruitment: clients approached in waiting room of clinic	Grounded in motivational interviewing and relapse prevention, focused on client adoption and continued use of dual-method contraception; nurses used semistructured counseling and decision-making tool to help clients select contraception; positive and negative aspects of chosen methods discussed; nurses helped clients anticipate difficulties they might encounter with consistently and correctly using selected methods and helped them identify solutions; individualized action plans of challenges and solutions provided in writing for client to take home; nurses scheduled subsequent call or FU appointments to reinforce method use; counseling session audiotaped and coded to measure 3 domains— promotion of dual protection, relapse prevention counseling, and quality of nurse-client interaction Frequency: 2 contacts in 6 months	Medium-term: increase contraceptive use (condoms)	Among total sample, quality of nurse-client interaction was significantly (p<0.05) associated with reduction of condom unprotected sex at 6 months FU, controlling for study group (client-defining behaviors, OR=1.57, 95% CI=1.25, 1.97; nurse-defining behaviors OR=1.60, 95% CI=1.04, 2.44) Among total sample, promotion of dual protection and relapse prevention techniques were not significantly associated with reduction of condom unprotected sex at 6 months FU, controlling for study group	Level II-2; high risk for bias Strengths: Comparable study groups related to age, ethnicity, education, marital status. Domain indices had moderate to high reliability Weaknesses: Selection bias Nonblinded coders Recall bias Self-report bias Small sample <65% recruitment rate Short FU time for behavioral outcomes
Langston (2010) Anonymous Foundation U.S.	RCT; 2 study groups Private practice setting; Columbia	222 females aged 18–45 years post-abortion (n=114 in intervention group; n=108 in control group who received SOC); most Latina	Structured, standardized, nondirective counseling using a version of the WHO Decision-Making Tool; trained counselor read and displayed a	Medium-term: increase use of more effective methods, increase continuation of use	No significant differences between groups in choice of method (50% of intervention and 58% of control group selected a very effective method	Level I; moderate risk for bias Strengths: Comparable study groups related to

	University Medical Center FU=3 months	(>85%) and HS graduates (>65%); 94% sought induced abortion 250 randomized/ 380 screened 3 month FU: n=96 for intervention and n=90 for control group Recruitment: FP clinic referral to private practice	contraceptive flipchart in a private setting, with the various methods available for the participant to see and handle; counseling included both audio and visual components; participants were supplied note cards on which to write questions Single session		(IUD, implant or sterilization); 42% of intervention and 34% of control group selected an effective method (injectable, ring, patch, or pill) No significant differences between groups in continuation of chosen method at 3 months; among those choosing very effective methods, 3 month continuation rates were 85% and 77% for intervention and control groups; among those choosing effective methods, 3 month continuation rates were 68% and 68% for intervention and control groups	background characteristics FU rate ≤15% different for groups (84% for intervention and 83% for control group) Providers received training on protocol Randomization assignment made using random numbers table Allocation concealed <u>Weaknesses</u>: Selection bias High attrition Short FU time for behavioral outcomes Lack of blinding May not represent general FP clients (post-abortion sample)
Lee (2011) Data funded by AHRQ; PI	Cohort analysis of cross-sectional survey data	770 females aged 18–50 years; 94% white, NH; >85% at least some college	Contraceptive counseling provided by primary care physician; may have included	<u>Medium-term</u>: increase contraceptive use	Participants who received counseling on any method had increased odds of	Level II-2; high risk for bias <u>Strengths</u>:

funded by NICHD U.S.	4 primary care clinics, Pennsylvania FU=up to 1 month (7–30 days) post visit	Recruitment: invited to participate immediately after index visit	discussion of different contraceptive methods; little detail provided Single session		reporting use of a hormonal method at last intercourse (OR=2.68, CI=1.48, 4.87) vs those who did not receive counseling Participants who received counseling about a specific method had increased odds of reporting use of that method at last intercourse (OR=4.78, CI=3.70, 11.37 for hormonal methods; OR=18.45, CI=4.88, 69.84 for LARCs)	Analyses adjusted for confounding variables Weaknesses: Recall bias Not all patients received same counseling Temporal order between counseling and contraceptive use uncertain Short FU time for behavioral outcomes Low response rate to survey (19%); responders were more likely to be white, have more education, and to be established patients at clinic
Rubenstein (2011)[b] Funding source NR UK	Retrospective cohort study; 2 study groups Sexual health clinic, North London Both physicians practiced patient-centered medicine and	50 women (n=25 in intervention group and n=25 in control group) Control group received a 'cautious' ('are you really sure') approach to counseling delivered by a single physician (women	'Just-try-it' counseling approach, which consisted of encouraging patients to have an implant inserted and emphasizing the reversibility of the method, delivered by a single physician Single session	Medium-term: increase continuation of use (implant)	Continuation rates were 80% for the 'just-try-it' approach and 92% for the 'cautious approach' (p=0.21)	Level II-2; high risk for bias Strengths: Study groups age matched Both physicians had more than 15 years of experience in specialist contraceptive care

	completed a checklist to ensure all patients received all relevant information FU=12 months via telephone interview	were advised to think carefully about having an implant inserted and the physician emphasized the risk and relative inconvenience of inserting and removing the implant) Recruitment: Telephone recruitment ≥12 months after implant insertion; 70% recruitment rate				High (98%) participation rate among those contacted FU time ≥1 year Weaknesses: Single site Small sample Non-random allocation of patients to counseling approaches Only patients with adequately completed records were eligible for participation (possibly only 24% of patients, although unclear from report; those with incomplete records may have differed) Unknown if study groups were comparable and analyses not adjusted for potential confounders Recall bias (at least 1 year had elapsed between counseling and telephone interview)
Madden (2013)[b]	Prospective cohort study; 2 study groups	7,637 women aged 14–45 years interested in starting	Structured, comprehensive counseling modeled	Medium-term: increase use of more effective	LARC uptake was lower at intervention vs control clinics (72% vs	Level II-2; moderate risk for bias

An anonymous foundation and the Eunice Kennedy Shriver NICHD U.S.	University clinic research site and 13 community partner clinics St. Louis City or County, Missouri All women received their method of choice at no cost. FU= immediately post-intervention	a new reversible contraceptive method (n=6,530 in intervention group and n=1,107 in control group who received SOC) Women enrolled from intervention clinics were older, more likely to be white, insured, and nulliparous, and less likely to be Hispanic and of low SES Recruitment: Self-referral	after GATHER, a client-centered process focused on the woman, her expressed needs, situation, problems, issues and concerns; delivered by 54 research team members (most did not have formal healthcare training). Standardized script described effectiveness, advantages, and disadvantages of each reversible method in order of effectiveness. Participants were provided with physical models of methods during counseling and descriptions of LARC insertion procedures. Single session	methods (LARC uptake)	78%, $p<0.0001$); however, both had very high LARC uptake. By LARC type, IUD uptake was higher at intervention vs control clinics (58% vs 43%, ($p<0.0001$); but implant uptake was lower (14% vs 35%, ($p<0.0001$). After adjustment for confounders, there was no difference in LARC uptake between study groups (aRR=0.98; 95% CI=0.94, 1.02).	Strengths: Large sample Staff received training on protocol Analyses adjusted for baseline differences between study groups Statistical analyses conducted Weaknesses: Both study groups exposed to brief LARC script SOC counseling may have varied widely across control sites No FU post-intervention
Bommaraju (2015)[b] No funding U.S.	Cohort analysis of program data; 2 study groups Cincinnati-Hamilton County RH and Wellness Program (system of county primary care health centers	771 women not seeking pregnancy receiving gynecological services (mean age 28 years) 74% black, 12% white, 15% Latina; 50% insured; 12% reported recent birth	Providers were trained to provide reproductive life plan counseling with an emphasis on shared decision-making: open a dialogue with patients about their future life plans and the impact of pregnancy and parenthood on these plans; discuss contraceptive options in	Medium-term: increase use of more effective methods (LARC; DMPA; and pill/patch/ring vs no method or a nonmedical method [natural FP or barrier method])	Results from multinomial logistic regression suggest reproductive life plan counseling may be associated with LARC use vs no method or a non-medical method (OR=1.6, CI=1.03, 2.61); but not associated with DMPA use or pill/patch/ring	Level II-2; high risk for bias Strengths: Multiple sites Large sample Data abstracted from electronic medical records

	receiving Title X funding), Ohio FU: None	41.8% received reproductive life plan counseling	order of typical use efficacy. Providers were asked to mark in the medical record whether reproductive life plan counseling was provided. Frequency NR		use vs no method or a non-medical method.	Statistical analyses adjusted for potential confounders Weaknesses: Source database limited in scope; little detail available on actual counseling provided Potential for misclassification bias in receipt of counseling
Cha (2015)[b] AHRQ U.S.	Cohort analysis of cross-sectional survey data; 2 study groups Data from PRAMS, national sample FU: None	193,310 postpartum women with a recent live birth 9.1% <20; 23.8% 20–24; 28.8% 25–29; 23.7% 30–34; 14.6% 35+ years 63.6% married 62.2% white, non-Hispanic; 15.4% black, non-Hispanic; 15.9% Hispanic 80.2% received prenatal contraceptive counseling Recruitment: women sampled to participate from birth certificates	Receipt of prenatal contraceptive counseling (coded as yes or no); no details provided Frequency NR	Medium-term: increase contraceptive use (contraceptive use vs nonuse)	Women who received prenatal contraceptive counseling vs those who did not had increased odds of postpartum contraceptive use (81.7% vs 72.2%, OR=1.72, CI=1.64, 1.80)	Level II-2; high risk for bias Strengths: Large, national sample Weaknesses: Self-report bias Self-selection bias Response rate NR No details on counseling Limited details on contraceptive use Statistical analysis of comparison of interest did not adjust for potential confounders

						May not represent general FP clients (postpartum sample)
Zapata (2015)[b] No funding U.S.	Cohort analysis of cross-sectional survey data; 2 study groups PRAMS data from Missouri, NY, and NYC FU: None	9,536 postpartum women with a recent live birth 27.4% ≤24; 54.18% 25–34; 18.5% 35+ years 62.7% married 58.1% white, non-Hispanic; 14.2% black, non-Hispanic; 20.9% Hispanic 78% received prenatal contraceptive counseling; 86% received postpartum counseling; 72% received both Recruitment: women sampled to participate from birth certificates (reporting area response rates ≥65%)	Receipt of prenatal and postpartum contraceptive counseling (none, 1, both); no details on counseling Frequency NR	Medium-term: increase contraceptive use (contraceptive use vs nonuse), increase use of more effective methods (sterilization, LARC or hormonal)	Compared with women who received no counseling, those counseled during 1 period (OR=2.01, CI=1.55, 2.59) and both time periods (OR=2.74, CI=2.18, 3.45) had increased odds of postpartum contraceptive use (69% vs 81% and 87%, respectively, *p* for trend <0.0001). Compared with women who received no counseling, those counseled during 1 period (OR=2.10, CI=1.65, 2.67) and both time periods (OR=2.33, CI=1.87, 2.89) had increased odds of postpartum use of a more effective contraceptive method (32% vs 49% and 56%, respectively, *p* for trend <0.0001).	Level II-2; high risk for bias Strengths: Large sample Statistical analyses adjusted for potential confounders Weaknesses: Self-report bias Self-selection bias No details on counseling May not represent general FP clients (postpartum sample)
Dehlendorf (2016)[b] Minnis (2014)[b]	Prospective cohort study; 2 study groups 6 clinics in San Francisco (primary care,	348 women aged 16–53 years (mean 26.8 years) seen for contraceptive care 46% white; 28% black; 26% Latina	Counseling sessions were coded to examine: (1) patient-reported interpersonal quality of FP care measured based on dimensions of patient-centered care;	Medium-term: increase use of more effective methods (highly or moderately effective), increase continuation of use	Patients who reported high interpersonal quality of FP care were more likely to maintain use of their chosen contraceptive method at 6 months (45.6% vs	Level II-2; moderate risk for bias Strengths: Multiple sites

Society of FP; Eunice Kennedy Shriver NICHD U.S.	STI/FP, and general OB/GYN sites) Counseling provided by licensed health professionals (NPs, PAs, physicians); 94% by NPs FU: 3 and 6 months via telephone surveys	48% never pregnant 84% and 86% completed surveys at 3 and 6 months Sub-analysis conducted among 67 adolescents aged 16–21 years (median 19 years); 90% completed a FU interview 3 or 6 months after clinic visit Recruitment: women recruited upon presenting for medical care with a participating provider (n=382)	and (2) interpersonal communication behaviors of clinicians coded according to the validated Four Habits Coding Scheme. For adolescent sub-analysis, counseling sessions were coded as either: (1) interactive and appropriately targeted (determined by assessing the degree to which providers incorporated interactive communication and discussion of youth-specific contextual influences [e.g., lifestyle characteristics, knowledge of method use among friends and family, role of peer influence in method chose and use]); or (2) non-interactive (these sessions failed to engage youth and often seemed to lead to providers' choosing what they thought was the best option for the patient, in some cases with the chose shaped by the availability of free samples) Single session	(of method selected at index visit), for adolescent sub-analysis: increase continuation of use (hormonal or LARC)	36.1%; OR=1.8, CI=1.1, 3.0); and to be using a highly or moderately effective method at 6 months (66.0% vs 55.0%; OR=2.0, CI=1.2, 3.5). Patients were more likely to report continuous use of their chosen method at 6 months when seen by providers coded higher on 'invests in the beginning' (55.7% vs 36.8%; OR=2.3, CI=1.2, 4.3) and 'elicits the patient perspective' (48.8% vs 38.1%; OR=1.8, CI=1.01, 3.2). Neither 'demonstrates empathy' or 'invests in the end' were associated with contraceptive continuation. No associations between provider communication behaviors and use of a highly or moderately effective method at 6 months. Among adolescents only, use of a hormonal or LARC method at 6 months was more	Moderate sample Sample size calculations conducted High (91%) participation rate Transcripts of audio-recorded patient-provider interactions were coded by multiple researchers High completion rates Statistical analyses adjusted for potential confounders Validated scales used to measure interpersonal quality of FP care and interpersonal communication behaviors of clinicians <u>Weaknesses</u>: Participation rates not tracked systematically

					common among adolescents who had received interactive and appropriately targeted counseling (80%) than among those who received non-interactive counseling (50%)	Short FU time for behavioral outcomes Self-report bias Women lost to FU were more likely to have lower income and education levels May not represent general family planning clients (only 58% of adolescent sample stated that contraception-related concerns were primary reason for visit)
Whitaker (2016)[b] NIH; University of Minnesota's Center for Leadership Education in Maternal and Child Public Health U.S.	RCT; 2 study groups Urban academic clinic, Chicago Arrangements for starting a contraceptive method, if the participant chose to start one, were performed during usual care for all women	60 women aged 15–29 years (mean 22.8 years) presenting for abortion (n=29 in intervention group; n=31 in control group who received non-standardized SOC counseling) 78% NH black, 10% Hispanic, 46% some college, 42% annual income <$10,000, 53% parous 51 (85%) completed FU at 3 months	Motivational interviewing-based counseling with a trained counselor prior to returning to routine clinic flow, incorporating reflective listening, collaborative discussion of benefits and drawbacks of contraceptive methods, and avoidance of confrontation. Included 7 steps: (1) establish rapport; (2) set the agenda; (3) discuss prior contraceptive use; (4) ask permission to give educational	Medium-term: increase use of more effective methods (LARC; any effective method) Client experiences: satisfaction with services Other: intervention feasibility	More women in the intervention vs control group reported using a LARC method (65.5% vs 32.3%, *p*=0.01, RR=2.03, CI=1.14, 3.61 at 1 month; 60.0% vs 30.8%, *p*=0.05, RR=1.95, CI=1.01, 3.77 at 3 months). Among subsample of women who had not intended to use LARC at baseline (n=40), more women in the intervention vs control group initiated a LARC method (46.7% vs	Level I; moderate risk for bias Strengths: Staff trained in motivational interviewing principles and skills Randomization via sequentially numbered, sealed, opaque envelopes Researchers blinded to group assignment

	All women had same day access to LARC and DMPA at no cost FU=1, 3 months via telephone survey	Recruitment: staff approached potential participants at clinic (60/116 eligible patients recruited [52%])	information about contraceptive methods; (5) assess importance, confidence and readiness to use contraception; (6) continued discussion of very effective contraception; (7) wrap up. Single session	16.0%), but comparison ns. Use of any effective method (IUD or hormonal method) did not statistically differ between intervention and control groups (86.2% vs 74.2%, *p*=0.34 at 1 month; 84.0% vs 61.5%, *p*=0.12 at 3 months). At 3 months, more women in the intervention vs control group reported satisfaction with their counseling (92.0% vs 65.4%, *p*=0.04).	Quality assurance conducted to assess intervention fidelity Behavioral outcomes assessed at 1 month ascertained via electronic medical records High completion rate (92% at 1 month, 85% at 3 months) Excluded women with desire for repeat pregnancy within 6 months Weaknesses: Single site Allocation concealment NR Low recruitment rate (52%) Sample size calculations not conducted More women who at baseline intended to use LARC method post-abortion were

							allocated to intervention group Completion rate by study group NR Behavioral outcomes assessed at 3 months ascertained via self-report Short FU time for behavioral outcomes May not represent general FP clients (post-abortion sample)

[a]Adults and Adolescents
[b]Newly identified evidence since 2015 review.

ACOG, American College of Obstetricians and Gynecologists; AHRQ, Agency for Healthcare Research and Quality; CDC, Centers for Disease Control and Prevention; COC, combined oral contraceptive pill; CT, prospective nonrandomized controlled trial; DMPA, depot medroxyprogesterone acetate; EC, emergency contraception; FP, family planning; FU, follow-up; HR, hazard ratio; IUD, intrauterine device; IUS, intrauterine system; LARC, long-acting reversible contraception (intrauterine device or implant); NICHD, National Institute on Child Health and Human Development; NH, non-Hispanic; NR, not reported; NS, not significant; NYC, New York City; OB/GYN, obstetrics and gynecology; OC, oral contraceptive; PCP, primary care provider; PI, principle investigation; POP, progestin only pill; PRAMS, Pregnancy Risk Assessment Monitoring System; POS, point of service; RH, reproductive health; RR, adjusted relative risk; SOC, standard of care; STI, sexually transmitted infection; UIP, unintended pregnancy; UK, United Kingdom.