

Improving Services for Sex Partners of Chlamydia-infected Patients in an HMO

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Objective: To improve services for sex partners of chlamydia-infected patients (ie, chlamydia partner services [CPS]) at an HMO.

Study Design: Assessment of current CPS policy, practices, and opinions in Kaiser Permanente Northwest Region (KPNW) and in local health departments, and design, implementation, and evaluation of 4 CPS interventions.

Methods: We reviewed KPNW policy documents, conducted focus groups with KPNW clinicians, and did phone interviews with KPNW chlamydia-infected patients and health department disease intervention specialists. We then implemented 3 informational interventions: CPS information was added to the after-visit summary given to patients tested for chlamydia; information on how to test, treat, and counsel chlamydia-infected patients was added to KPNW's electronic clinical-decision tool; and CPS information and a direct link to KPNW's chlamydia screening and treatment guidelines were added to KPNW's Web site. We also organized training for KPNW clinicians to review the roles of CPS and disease intervention specialists. We evaluated intervention uptake and impact by reviewing electronic medical charts, Web site "hits," and post-training evaluations.

Results: Clinicians and disease intervention specialists reported that KPNW's CPS policy and the roles of disease intervention specialists regarding KPNW patients were unclear. Clinicians and patients wanted more CPS information. Clinicians commonly used the after-visit summary and Web-based CPS information and reported that training improved CPS knowledge. However, none used the clinical-decision tool.

Conclusions: Several simple, centralized informational interventions to improve CPS were feasible and used by KPNW clinicians. These interventions could potentially be used in other settings structured like KPNW.

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Chlamydia *trachomatis*, the most commonly reported sexually transmitted disease (STD) in the United States, affects about 3 million persons annually. Untreated infection may result in serious and costly consequences, including pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain.^{1,2} Because up to 75% of infected women are asymptomatic, routine screening is critical.³ Several national organizations recommend routine screening for all sexually active women under age 25 years, and for high-risk women aged 26 and older.³⁻⁷ Services for

sex partners, referred to as chlamydia partner services (CPS), could prevent disease transmission, encourage treatment of infected partners, and prevent patient reinfection.⁸

Public health departments usually provide CPS for public-sector patients. New screening guidelines have increased the number of *C trachomatis*-infected women diagnosed in HMOs and strained the capacity of health departments to notify exposed sex partners of HMO patients.^{9,10} Partnerships between health departments and HMOs could improve both the effectiveness and efficiency of CPS. Enhancing CPS in HMOs requires learning current CPS practice and then addressing the barriers and facilitators to CPS as perceived by HMO clinicians, managers, patients, and health departments.

Although many HMO clinicians counsel *C trachomatis*-infected patients to notify their sex partners, clinicians may not follow up on notification outcomes.¹¹ An evaluation of STD services¹² concluded that partner management needed attention, particularly in the areas of legal responsibility, liability, and confidentiality. It recommended strengthening partnerships between HMOs and health departments, focusing on cost effectiveness and relevance to managed care, integration of STD care into existing activities, and education about the importance of CPS for comprehensive chlamydia control.

Our team partnered with local public health agencies to assess CPS knowledge and practices, and local CPS barriers and facilitators. This paper describes

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that assessment and the subsequent development, implementation, and evaluation of interventions to improve CPS.

ASSESSMENT

Methods

Kaiser Permanente Northwest Region (KPNW) is a nonprofit, group-practice HMO that provides prepaid medical care to 470 000 members in the Portland, Oregon and Vancouver, Washington areas. Clinicians use a systemwide electronic medical record system (EpicCare). EpicCare enables KPNW clinicians to access members' medical records. It also integrates into the medical record clinical practice guidelines and clinician reminders about needed services specific to each member (eg, overdue for a mammogram).

To assess CPS knowledge, barriers, and facilitators, we reviewed HMO policies and database records, conducted 4 focus groups with 22 clinicians, conducted open-ended phone interviews with 7 disease intervention specialists employed by 2 local health departments, and conducted phone interviews with 30 female and 5 male KPNW members infected with *C trachomatis* from June to December 2000. All procedures for the assessment and intervention design, implementation, and evaluations were approved by the KPNW institutional review board and followed the procedures of the Centers for Disease Control and Prevention (CDC) regarding protection of human subjects.

Results

KPNW guidelines recommend screening young, sexually active female patients for *C trachomatis*, and testing female and male patients with *C trachomatis*-related symptoms. According to laboratory databases, KPNW identified 1223 adults with positive *C trachomatis* tests among 54 929 tests conducted in 1998 and 1999. Most (84%) positive tests were in female patients; 88.2% of these patients were between the ages of 12 and 29 years. Pharmacy data showed that 91% of patients with positive *C trachomatis* tests received azithromycin or doxycycline through the KPNW pharmacy. Fifteen percent of these *C trachomatis*-infected patients received more than 1 of these prescriptions on the same day, and an additional 6% were dispensed repeat doses within weeks of a positive *C trachomatis* test. KPNW's pharmacy database does not capture reasons for multiple prescriptions or doses, but the additional medication may have been for partners.

KPNW's Infection Control Department reported 642 positive *C trachomatis* lab tests to Oregon or Washington county health departments during 1998. State

health department records indicate that Oregon disease intervention specialists interviewed 58% of KPNW patients with *C trachomatis* and Washington disease intervention specialists interviewed 17% of KPNW patients with *C trachomatis* diagnosed in 1998.

During the evaluation period, KPNW policy documents recommended that clinicians use CDC's 1998 Guidelines for Treatment of Sexually Transmitted Diseases.⁵ These guidelines state that "patients should be instructed to refer their sex partners for evaluation, testing, and treatment." However, KPNW had no official policies about partner services and no clinical practice supports to promote guideline adherence. KPNW policy did not officially endorse services to nonmembers, although KPNW managers said this sometimes occurred. An oral agreement between KPNW and some Oregon health departments gave disease intervention specialists blanket permission to contact KPNW's *C trachomatis*-infected members about CPS without asking clinicians.

Clinicians. In focus groups, most clinicians stated they knew that reporting *C trachomatis* infections is required and that KPNW's Infection Control Department reported positive *C trachomatis* tests to local health departments. However, only about half of the clinicians reported telling patients with positive *C trachomatis* results about this health department reporting. Most clinicians did not know that disease intervention specialists, without informing them, routinely contact KPNW members diagnosed with *C trachomatis* to inquire about sex partners and offer treatment help. Few clinicians reported telling patients that health department staff might contact them, and fewer than half talked about health department services available for help with partner notification. None reported collecting information about sex partners or having their office notify the partners.

Consistent with treatment guidelines, almost all clinicians reported talking to patients infected with *C trachomatis* about abstaining from sex during treatment, safer sex practices, and the need to notify partners. Although clinicians or their staff generally notified patients of positive tests and the majority advised patients to notify partners of the need for testing and treatment, few reported discussing specific notification strategies. About half reported giving patients *C trachomatis* literature intended for their sex partners, and about half said they had at least once prescribed medications to an infected member for their sex partners. About two thirds reported ever talking with an infected member about their sex partners' possible reactions to being notified, but only about half said they always did this.

Clinicians named a number of barriers and facilitators to providing CPS (see **Table 1**). To improve CPS, clinicians suggested explicit health plan policies about CPS and patient-delivered partner therapy, specially trained staff to notify and follow up with infected members and partners, and better coordination between KPNW and local clinics. They also suggested clinician education about KPNW policies, local regulations and laws, and health department roles.

Disease Intervention Specialists. Of the 7 interviewed disease intervention specialists, 4 said that in the past year they infrequently contacted KPNW clinicians for permission to contact their *C trachomatis*-infected patients, 1 always tried to get permission, and 2 never did. Most reported contacting KPNW's medical records department to verify information before contacting infected KPNW members. Five indicated they were comfortable with the oral agreement with KPNW that provides blanket permission to contact *C trachomatis*-infected members. Disease intervention specialists reported never or rarely receiving partner information, such as names or locating information, from KPNW during the past year.

The disease intervention specialists estimated that they interviewed at least 75% of the private-sector patients by phone. They estimated that 10% to 65% of these contacted patients did not know that a disease intervention specialist would be contacting them, and that 1% to 25% were upset about being contacted. Disease intervention specialists estimated that from 0% to 20% of these contacted patients refused to talk with them. Of those patients who did talk with disease intervention specialists, about 5% to 40% refused to provide partner names. The ranges are wide because of variation in clinician practice and specialists' perceptions of patient reactions.

Disease intervention specialists named several barriers to providing CPS and suggested ways to improve CPS at HMOs (see **Table 1**). They noted that patient-delivered therapy might increase the proportion of partners treated, but patients who had already received medication for their partner might not talk with disease intervention specialists, and so might not receive prevention education. Nearly all disease intervention specialists suggested that clinicians should more fully educate infected persons about the importance of partner notification and treatment, coach patients about how to notify their partners, and inform patients that a disease intervention specialist might contact them. A few disease intervention specialists suggested that KPNW clinicians treat partners of infected members or inform partners about the health department and other facilities for STD evaluation, use noninvasive (ie, urine)

tests, and prescribe single-dose medication regimens. Finally, some disease intervention specialists suggested closer CPS collaborations between KPNW and disease intervention specialists.

Patients With Positive *C trachomatis* Tests. Before our interviews, KPNW had informed all 35 participants of their positive *C trachomatis* test by telephone or letter. Although 25 participants reported that their KPNW clinician counseled them to prevent reinfection by using condoms, only 14 remembered receiving prevention literature. Twenty-four participants reported being counseled about some aspect of partner evaluation or treatment. Nine participants reported that their KPNW clinician prescribed medication for partners. About one third of participants recalled being told that the health department might contact them. Twenty said they were contacted by the health department: 14 by telephone, 5 by letter, and 1 by both letter and telephone. All but 4 members reported that at least 1 partner had been notified about their *C trachomatis* exposure, either by themselves or by disease intervention specialists.

Infected members identified several barriers to telling partners about *C trachomatis* infection (see **Table 1**). Patients suggested improving CPS with accurate information about *C trachomatis*, coaching about how to notify partners, nonjudgmental and supportive services, and joint patient-partner counseling.

INTERVENTION

Methods

Based on our assessment, we developed interventions to help facilitate CPS at KPNW. We systematically reviewed KPNW patient care and clinical information systems to identify system-level interventions that could address the barriers to CPS cited by clinicians, disease intervention specialists, and patients. Potential interventions were required to be consistent with principles of centralization, low resource requirements, simplicity, and minimal demand on clinician time.¹³ We then consulted with KPNW clinicians and managers, disease intervention specialists, and health department clinicians and managers on the feasibility and acceptability of potential interventions.

Several proposed interventions were deemed infeasible: increased funding for health department disease intervention specialists to provide services to KPNW patients, posting disease intervention specialists in KPNW clinics to notify partners, and using KPNW staff to elicit partner contact information and provide this information to health departments, and/or notify the partners themselves. Creating new KPNW policy and funding mecha-

Table 1. Chlamydia Partner Services: Barriers, Facilitators, and Suggested Improvements

System Factors	Clinician Factors	Member Factors
Barriers Reported by Clinicians		
KPNW's lack of clear policies concerning treatment of nonmember partners	Lack of knowledge about health department's role in CPS	Difficulty notifying teens about test results without disclosing sexual activity to parents
Encounter time too short to discuss CPS	Concern about medical and legal issues related to treating partners without first evaluating them	Poor follow-through of infected patients with partner
KPNW's lack of educational materials for infected members and partners	Reluctance to talk to patients about partners Concern about legal requirements to report sexual abuse and statutory rape	Teen attitudes and behaviors suggest little concern about infection
Facilitators Reported by Clinicians		
Avenues at KPNW to treat partners who are not KPNW members	Having a trusting relationship with patients	Partner being a KPNW member
Improved partner access to school-based and health department clinics	Educating patient about the importance of prevention and treatment Individual clinician strategies	Long-term or stable relationship with the partner
Suggestions From Clinicians		
Standardized KPNW policies regarding CPS	Education of clinicians about optimal CPS practices	Education of infected members and partners about their role in CPS
Specially trained staff to assist with CPS		
Improved coordination with health departments and school-based clinics		
Barriers Reported by Disease Intervention Specialists		
Inaccessibility of care to partners who are not KPNW members	Clinicians' failure to notify patients of positive test results	Patients in denial about having <i>Chlamydia trachomatis</i>
Not enough disease intervention specialists to handle the large case load	Inadequate clinician time spent educating infected persons	Failure of infected persons to notify partners
Insufficient collaboration between KPNW and disease intervention specialists	Use of multiple-dose medication regimens that result in lower compliance than single-dose regimens	Discomfort of testing
Lack of information about where partners can seek care	Concerns about possible confidentiality violations	
Lack of insurance to cover STD care		
Suggestions From Disease Intervention Specialists		
Closer collaboration between KPNW and disease intervention specialists	Change in clinician behavior and KPNW's approach to CPS More time spent educating patients and coaching them about how to notify partners Use of less invasive tests and prescription of single-dose medications	Education of infected members and partners, especially in the case of new, unstable, or ended relationships Provide partners of infected members with treatment or information about where to get care

(continued)

Table 1. Chlamydia Partner Services: Barriers, Facilitators, and Suggested Improvements (*continued*)

System Factors	Clinician Factors	Member Factors
Barriers Reported by Members Insufficient information about <i>C trachomatis</i> or about how to approach partner	Clinician/disease intervention specialist perceived to be judgmental Clinician/disease intervention specialist perceived to be not interested, concerned	Fear of negative reaction from partner Extremely hard when relationship is not going well Embarrassment/shame Concern that partner is cheating or may think member is cheating Difficulty informing partners if the relationship has ended
Facilitators Reported by Members Option of having disease intervention specialists contact partner Availability of accurate <i>C trachomatis</i> information	Clinician/disease intervention specialist reassurance about how common <i>C trachomatis</i> is Assurance of confidentiality Prescribing medication for partners	Close, long-term relationship with partner
Suggestions From Members Provide pamphlet describing <i>C trachomatis</i> symptoms Offer support groups for infected persons	Provide more help on what to say to partners Provide joint patient-partner counseling	Keep chart of past sex partners and contact information

CPS indicates chlamydia partner services; KPNW, Kaiser Permanente Northwest Region; STD, sexually transmitted disease.

nisms to cover testing, treatment, and counseling for nonmember partners was deemed too complicated from the medicolegal perspective for rapid implementation.

Several interventions for educating clinicians and patients and improving collaboration between KPNW clinicians and disease intervention specialists were deemed feasible by KPNW clinicians and managers because they could be readily implemented with minimal effort and cost, and they would promote consistent healthcare delivery. Three computerized informational interventions and 1 educational intervention met our criteria, were acceptable to KPNW managers, and could be evaluated by using process outcome measures. Because the proposed interventions were expected to save rather than demand clinician time, KPNW management did not require that efficacy be demonstrated before initial implementation.

Additional Information in After-visit Summary. At the end of medical visits, clinicians give patients a print-

ed treatment plan called an after-visit summary. We added CPS information to the after-visit summary given to patients tested for chlamydia. Project investigators sought advice on CPS content from KPNW's Regional Prevention Steering Committee and their Chlamydia Screening Guidelines Subcommittee. Reviewers requested limiting the new material to 1/2 page. After much discussion, reviewers decided that CPS information on the after-visit summary would not risk breaching confidentiality because members are responsible for handling that information. CPS information intended to encourage patients to complete treatment and notify partners was added on October 15, 2001.

The new CPS information addressed how chlamydia and gonorrhea are transmitted, the importance of treatment if the test is positive, the need to abstain from sex during treatment, the need to notify partners of infection exposure, the health department's role in CPS, and relevant telephone numbers and Internet Web sites. We

were unable to target this after-visit summary information only to patients with positive *C trachomatis* test results because most patients are notified of positive test results by phone or letter days after the visit.

Computerized Decision Support Addition: Smart Set. A computerized clinical decision support tool called Smart Set enables clinicians to order medications and lab tests, and to document counseling services by clicking in a single location in EpicCare. We developed a new Smart Set component to help clinicians test for *C trachomatis*, treat *C trachomatis*, counsel about *C trachomatis* and CPS, and document these services in EpicCare. The pharmacy department reviewed the *C trachomatis*/CPS Smart Set material to ensure accuracy of treatment recommendations. After approval by EpicCare managers and piloting, the *C trachomatis*/CPS Smart Set was installed on EpicCare on December 20, 2001, indexed as "Gonorrhea/Chlamydia." In January 2002, it was additionally indexed as "Chlamydia/Gonorrhea" to make it easier for clinicians to locate.

Intranet Resources on C trachomatis Screening and CPS. We developed a new module for KPNW's internal Web site on *C trachomatis* screening and CPS. The CPS module includes information on chlamydia reporting to local health departments, the role of disease intervention specialists in CPS, and how to counsel patients about partner services. The module also advises clinicians to counsel patients about safer sex, abstaining from sexual intercourse during treatment, telling their sex partners to seek care, sex partners' possible reactions, possible contact by health department disease intervention specialists, and health department services for notifying partners. KPNW's Regional Prevention Steering Committee approved the new CPS module and posted it on October 15, 2001. By October 22, 2001, the KPNW STD treatment guideline linked directly to the new module.

Clinician Training. We developed a CPS training session for KPNW clinicians. To reach as many trainees as possible, we e-mailed letters to chiefs of clinical departments that treat *C trachomatis*-infected patients, explaining the project and reporting that clinician focus groups identified interest in CPS training. We then requested 30-45 minutes for CPS training at continuing medical education sessions or department meetings.

At the CPS training, a project clinician reviewed the CPS project. Then disease intervention specialists from local health departments reviewed CPS procedures—specifically that the KPNW Infection Control Department reports positive chlamydia test results by patient name to local health departments and that disease intervention specialists counsel patients, discuss and plan partner notification, and notify and manage

treatment of partners of some infected members. Next, the project clinician summarized key clinician behaviors that facilitate KPNW–health department coordination: counseling infected patients about STD risk reduction and abstinence from sex during treatment, how to tell sex partners to seek evaluation and treatment, and sex partners' possible reactions to being notified. Clinicians were advised to provide patients with information about health department services and to tell them that KPNW reports positive tests to the health department. Clinicians also were encouraged to contact disease intervention specialists for help in providing CPS. Presentation handouts included health department telephone numbers, the after-visit summary text, the Smart Set, and the revised Web site information. The sessions ended with questions and answers.

Evaluation

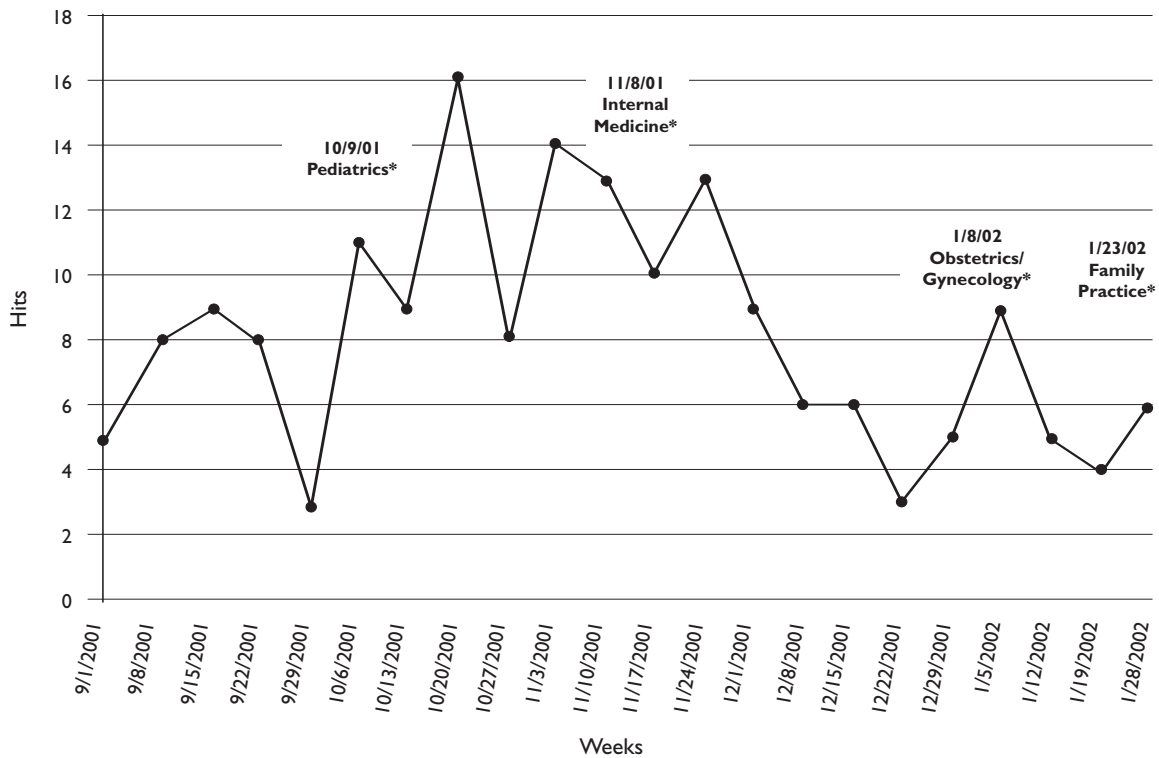
After-visit Summary. We assessed how often clinicians printed the after-visit summary by monitoring EpicCare charts of patients who had a positive *C trachomatis* test. EpicCare charts were reviewed for the 3.5-month period beginning with after-visit summary implementation on October 15, 2001, through January 31, 2002.

Smart Set. We ascertained clinician use of the Smart Set by reviewing provider notes in EpicCare charts of all patients who had positive *C trachomatis* tests during the period from December 20, 2001, when the Smart Set was implemented, through January 31, 2002. We also abstracted documentation of CPS counseling from the *C trachomatis* Smart Set.

C trachomatis Screening and CPS Guidelines. Using a standard Web Trend reporting system, we monitored use of the newly posted *C trachomatis*/CPS guidelines. The number of times the *C trachomatis*/CPS guideline pages were accessed ("hits") were tracked weekly from September 1, 2001, through January 31, 2002. The *C trachomatis* screening guidelines and STD treatment areas of the Intranet were operational during this entire observation period. The CPS-specific module was posted and linked in mid-October. Data on Web page use included all KPNW computer users because KPNW confidentially regulations preclude tracking of Web usage by individual users. Project staff kept logs of their visits to the *C trachomatis*/CPS Web pages to distinguish their usage from clinical usage.

Clinician Training Sessions. At the end of the session, attendees evaluated the relevance and value of the presentations, what they learned, and their likelihood of adopting the various clinician CPS behaviors, including calling disease intervention specialists for help in providing CPS. We compared department responses to

Figure. Hits per Week on the *Chlamydia trachomatis*/Chlamydia Partner Services Guidelines Page of Internal Kaiser Permanente Northwest Region Web Site



*Clinician training session dates.

training session evaluation questions using chi-square tests with a 2-tailed significance level of .05.

Results

Use of After-visit Summary. Of the 183 abstracted charts, 95% contained documentation that the after-visit summary was printed when the *C trachomatis* test was ordered. Most encounters that lacked documentation of printing the after-visit summary occurred in emergency departments. Whenever an after-visit summary was printed, it contained the CPS information, indicating that clinicians did not avoid the CPS addition by printing the after-visit summary before ordering the *C trachomatis* test.

Use of Smart Set. In the 75 abstracted charts of patients with *C trachomatis*-positive tests when the Smart Set was available, we found no evidence of Smart Set use at initial encounters when *C trachomatis* tests were ordered, nor at follow-up encounters when patients were informed of their positive *C trachomatis* test results.

Use of Guidelines. The *C trachomatis*/CPS guideline pages had 180 hits from September 2001 through

January 2002, 6 of which were made by CPS project staff. The weekly number of hits ranged from 3 to 16 (Figure). The *C trachomatis*/CPS Web pages were accessed most frequently after initial posting and after clinician training sessions; hits declined over time. Average Web site session time increased during the 5-month observation period (September 2001–January 2002) from less than 30 seconds during September to about 1 minute after the first department presentation on October 9, 2001, then to a maximum of 3.5 minutes during the second week in December. Brief visits by project staff to verify site content and operations contributed to the low average session time in September.

Clinician Training Sessions. A total of 127 clinicians attended the educational presentations: 37 from pediatrics, 45 from internal medicine, 20 from obstetrics/gynecology, and 25 from family practice. A total of 72 (57%) participants completed evaluation forms.

Most participants thought the presentations were valuable and relevant (Table 2). Most also indicated that the presentations made it more likely that they would counsel infected patients to notify their partners, would

Table 2. Percentage of Session Attendees Responding “Somewhat Agree” or “Strongly Agree” to the Listed Statements, by Specialty

Statement	Percentage					
	Pediatrics (23/37)*	Internal Medicine 1 (9/15)*	Internal Medicine 2* (15/30)	Obstetrics/ Gynecology (13/20)*	Family Practice (12/25)*	Total (72/127)*
The presentation was of value to you.	100	100	93	92	100	96
The content was relevant to your work.	100	100	93	92	92	96
You learned something new that would help your practice.	100	89	87	85	91	91
As a result of the material presented today, you will be more likely to:						
Counsel patients to tell their sex partners to seek care for evaluation and treatment.	95	88	80	80	88	86
Talk with infected patients about their sex partners’ possible reactions to being notified.	100	100	64	82	83	87
Talk with infected patients about health department services available for notifying sex partners.	100	100	93	92	83	95
Call disease intervention specialist for assistance.	96	56	79	92	55	80

*Number completing evaluations/number of attendees.

talk with patients about partner reactions, and would notify them about health department services. Eighty percent were more likely to call disease intervention specialists if patients needed help notifying sex partners. Fifty-four percent reported learning something new from the training sessions (Table 3). This percentage was highest for pediatrics (65%) and lowest for obstetrics/gynecology (31%). Respondents most frequently cited learning something new about disease intervention specialists, including their existence and role in CPS, followed by *C trachomatis* testing procedures. Departmental differences were not statistically significant.

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DISCUSSION

We found that KPNW has many strengths in the area of CPS and *C trachomatis* treatment. For 90% of infected patients, drug prescriptions followed the CDC treatment guidelines, which is consistent with other studies.^{14,15} Appropriate treatment of a patient makes uninfected partners less likely to become infected. Most clinicians reported talking to patients about abstaining from sex during *C trachomatis* treatment, STD risk

reduction, and notifying sex partners so that they can seek evaluation. Similarly, most interviewed patients recalled receiving such counseling. Clinicians may have provided these services because they were recommended by CDC and KPNW treatment guidelines, were considered to be a routine clinical function, or took minimal time. Reporting of positive *C trachomatis* tests to the health department by KPNW’s infection control staff was consistent with other studies showing fairly complete reporting in health plans with centralized reporting.¹⁶ Like clinicians in other studies, most KPNW clinicians were aware that *C trachomatis*-infected patients were reported to the health department.¹⁰

We also found several policy-, clinical-, and patient-level barriers to CPS, consistent with studies of private-sector settings, which confirm that partner services are challenging¹⁷ or inadequate.¹⁰ KPNW had no written policy on partner treatment, including patient-delivered partner therapy, for *C trachomatis*. Pharmacy data and member reports suggest some patient-delivered partner therapy occurs. As a result of this evaluation, KPNW is currently reviewing their nonmember policy to determine whether treating nonmember partners may reduce risk of reinfection for KPNW members. Health

Table 3. Content Areas in Which Clinicians Indicated That They Learned Something New

Topic	No. (%)					Total
	Pediatrics	Internal Medicine 1	Internal Medicine 2	Obstetrics/ Gynecology	Family Practice	
<i>Chlamydia trachomatis</i> risk, incidence, and age distribution	0	0	1 (9.1)	0	1 (14.3)	2 (4.1)
<i>C trachomatis</i> testing procedures	1 (5.3)	2 (28.6)	4 (36.4)	1 (25.0)	4 (57.1)	12 (25.0)
KP reporting procedures for <i>C trachomatis</i>	2 (10.5)	2 (28.6)	2 (18.2)	0	0	6 (12.5)
Existence of disease intervention specialists, as well as role, access, procedures, services	15 (78.9)	3 (42.9)	4 (36.4)	3 (75.0)	2 (28.6)	27 (56.3)
Interaction between KP and public health department	1 (5.3)	0	0	0	0	1 (2.1)
Total number of new facts learned	19 (100)	7 (100)	11 (100)	4 (100)	7 (100)	48 (100)
Respondents reporting new facts learned	15 (65.2)	5 (55.6)	9 (60.0)	4 (30.8)	6 (50.0)	39 (54.2)
Total number of respondents	23 (100)	9 (100)	15 (100)	13 (100)	12 (100)	72 (100)

KP indicates Kaiser Permanente.

department records and patient interviews suggest that the disease intervention specialists interviewed only a small portion of KPNW *C trachomatis*-infected patients, increasing the importance of clinicians and staff discussing partner notification and treatment as well as prevention with patients.

We successfully developed and implemented informational interventions to improve CPS in an HMO. Interventions were based on identified barriers and facilitators, the criteria of feasibility and acceptability to KPNW management and clinicians, and past intervention experience.^{18,19}

Of the 4 interventions, 3 were commonly used and sustainable. Almost all clinicians printed the CPS component of the after-visit summary when they ordered a *C trachomatis* test. We can only assume that patients received the after-visit summary because clinic protocols required that a medical assistant give the after-visit summary to the patient and explain its content, and KPNW staff indicated that patients generally like receiving the after-visit summary. Clinicians who were concerned that the CPS information would offend patients could have printed the after-visit summary before ordering the *C trachomatis* tests, but none chose this option. KPNW is discussing the feasibility of 2 different CPS components: 1 for patients who receive a *C trachomatis* test (about disease prevention, transmission, and treatment) and 1 for patients with positive

C trachomatis tests (with information about partner notification and the health department's role).

No clinicians used the Smart Set to document counseling when it was indexed either under "Gonorrhea/Chlamydia" or the easier-to-find "Chlamydia/Gonorrhea." In theory, use of the *C trachomatis* Smart Set can save considerable time by guiding clinicians through *C trachomatis* treatment protocols and documentation from a single EpicCare location. Clinicians' past experiences with slow computer response times for other Smart Sets might have discouraged use of the *C trachomatis* module. This prompted EpicCare staff to make presentations to clinicians on the newer, faster Smart Sets after the project period. KPNW will maintain the *C trachomatis* Smart Set on EpicCare and promote *C trachomatis* Smart Set use.

Many clinicians attended the training sessions and reported that they learned more about *C trachomatis* and CPS, and that the training might influence future CPS behaviors. Clinician comments about the Web-based *C trachomatis*/CPS guidelines were positive. The pattern of weekly hits on *C trachomatis*/CPS Web pages—with use peaking just after training sessions—suggests that Web visitors obtain needed information at their initial visits. We expect the revised *C trachomatis*/CPS guidelines to be maintained as standard information resources on KPNW's internal Web site.

The quality of CPS at commercial health plans like KPNW is increasingly important because more *C trachomatis* infections may be detected as a result of new screening guidelines,⁵ a Health Employer Data and Information Set (HEDIS) measure to monitor the *C trachomatis* screening performance of health plans,²⁰ and more sensitive tests.²¹ This project demonstrated the feasibility of introducing centralized, low-cost, sustainable informational interventions that address identified barriers and facilitators to CPS. These informational interventions offer the potential for use in other settings with centralized resources similar to KPNW. Future research should address whether these interventions affect clinician and patient behaviors, notification and referral of sex partners for evaluation and treatment, or risk of *C trachomatis* reinfection in patients.

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