Development and Refinement of a Persuasive Health Communication Intervention to Persuade Adult Emergency Department Patients to be Screened for HIV and Hepatitis C

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Abstract
Screening for HIV and hepatitis C (HCV) in emergency departments (EDs) allows patients to benefit from life-saving treatment; however, some patients at risk for these infections decline to be tested. Interventions that overcome patient reluctance to be screened are needed so that infected patients can be linked with care. In this project, we developed a very brief, theory-based, persuasive health communication intervention (PHCI) drawn from our previous research that can be integrated into usual clinical practice. The intervention was revised with the assistance of stakeholders who would likely either deliver the intervention (ED medical staff or HIV/HCV counselors) and those who would receive it (adult ED patients). The final version of the intervention was rated as both persuasive and respectful of ED patients who initially declined HIV/HCV testing.

Keywords
behavioral sciences, health communication, human communication, communication studies, communication, social sciences, risk communication, science, math, and technology, curriculum, education, psychology, social sciences, health psychology, applied psychology

Introduction
The United States (US) Centers for Disease Control and Prevention (CDC) recommends that emergency departments (EDs) and other healthcare facilities in the US screen patients for HIV and hepatitis C (HCV) (Branson et al., 2006; Centers for Disease Control and Prevention, 1998; Smith et al., 2012). However, many US ED patients at risk for or later diagnosed with HIV (and likely also HCV) decline testing (Czarnogorski et al., 2011; Jones et al., 1993; Weinstock et al., 2002). In our research studies, 35% to 62% of adult ED patients declined HIV/HCV screening (Merchant et al., 2009, 2011, 2014, 2015). In US EDs, patients commonly decline HIV screening out of a belief that they are not at risk (Brown et al., 2008; Christopoulos et al., 2012; Jain et al., 2012; Merchant et al., 2008; Pisculli et al., 2011; Schechter-Perkins et al., 2014; Ubbayakar et al., 2011). However, self-perceived and actual risk about HIV are frequently incongruent among ED patients (Pringle et al., 2013; Ubbayakar et al., 2011) which can contribute to losing an opportunity to identify an infection through screening. Although less studied than HIV screening, US ED patients also often decline of HCV screening due to a lack of perceived risk for HCV (Cowan et al., 2018; Merchant et al., 2014). Interventions that overcome ED patient reluctance to be tested for HIV and HCV could assist in identifying those who are unaware of their infection in order to link them with care.

We previously developed and tested interventions designed to increase adult ED patient uptake of combined

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HIV/HCV testing or HIV testing alone. In two randomized, controlled trials (RCTs) among adult ED patients who used drugs, we determined that a brief motivational interviewing (MI)-based intervention delivered by an HIV/HCV counselor in person was not efficacious in increasing uptake of combined rapid HIV/HCV screening (Merchant et al., 2014, 2015). We further observed in these two RCTs that most participants had already decided—before receiving the intervention—if they were going to be tested; accordingly, their decisions rendered the intervention unnecessary for those who would have agreed to be tested at the onset of the screening process. In a third RCT, we sampled the general population of adult ED patients (i.e., participants were not selected based on prior drug use or HIV risk), and found that providing patients with computer-based feedback about their self-reported HIV risk-taking behaviors from injection-drug use (IDU) and condomless sex did not increase uptake of HIV screening (Merchant et al., 2011). In fact, participants with lower or moderate risk for HIV were less likely to agree to be tested; apparently, patients believed that their risks were not high and hence declined testing, even though they reported some risk for being infected.

We learned three lessons from our prior work. First, to increase efficiency in ED-based HIV/HCV screening, interventions should be provided only to those who initially decline to be tested. Second, due to patients’ tendency to underestimate their risk, an intervention to encourage patients to be screened for HIV/HCV should not focus on risk-taking behaviors. Instead, the intervention should provide other convincing evidence of the value of testing. Third, the intervention should not be delivered using MI. Because MI is inherently non-directional and encourages decision-making only after a review of pros/cons, it can leave patients without clear guidance on the recommended course of action (in this case, to be tested for HIV/HCV). Furthermore, the time and training needed to deliver MI renders it less likely to be used in typical clinical encounters.

These lessons led us to consider instead using a persuasive health communication intervention (PHCI) to convince patients who initially declined HIV/HCV screening instead to be tested for these infections. PHCIs differ from other projects, as well as from CDC brochures and their HIV/HCV counselors. Interviews were performed from January through March 2019. This research was conducted at Rhode Island Hospital, which is an academic, urban, Level 1 trauma center, “safety net” adult patient ED (>110,000 ED visits/year) in Providence, Rhode Island, which is in a moderate HIV/HCV prevalence area. The study was approved by the hospital’s institutional review board.

**Methods**

**Study Purposes, Design, and Setting**

The purposes of this research were to: (1) create a PHCI designed to convince adult ED patients who initially declined opt-out rapid HIV/HCV screening instead to be tested for these infections, and (2) refine the PHCI based on interviews of stakeholders who would receive the intervention (adult ED patients who had declined screening) and those who might deliver it (medical staff [nurse practitioners, physician assistants, attending and resident physicians] and HIV/HCV counselors). Interviews were performed from January through March 2019. This research was conducted at Rhode Island Hospital, which is an academic, urban, Level 1 trauma center, “safety net” adult patient ED (>110,000 ED visits/year) in Providence, Rhode Island, which is in a moderate HIV/HCV prevalence area. The study was approved by the hospital’s institutional review board.

**Creation of the PHCI**

The PHCI drew upon behavioral theories underlying persuasive health communications, including their recommended content and order of presentation (Harrington, 2016; Kaptein et al., 2010; O’Sullivan et al., 2003; Storey et al., 2014). Thus, the PHCI consisted of six successive components (information, education, gain, loss, common concerns, and call to action), with associated objectives for each component (e.g., the gain component comprised arguments of why the patient would benefit from being tested for HIV/HCV). Also as recommended, we included only content for the PHCI relevant to the desired behavioral outcome and purpose of each PHCI component, and not any extraneous information, details or explanations. Content was drawn from HIV/HCV materials prepared by the research team for other projects, as well as from CDC brochures and their HIV/HCV websites. The PHCI was revised until it was consistent with the underlying theory and purpose of persuasive health communications; included only essential content that presented unambiguous, clear, and concise arguments that could convince someone to be tested for HIV/HCV; could be delivered orally within 2 to 3 minutes; did not contain content linking testing to perceived, reported, or actual HIV/HCV risk; did not contain medical jargon; presented medical and public health concepts in an understandable form; was less than a sixth grade reading level in its written form; and was designed to be respectful of patient autonomy and decision-making.
Refinement of the PHCI

Participants and interviewer. Participants to assist in the refinement of the PHCI were recruited by quota according to three stakeholder groups: ED medical staff, HIV/HCV counselors, and ED patients. The ED medical staff participants (n=15) included five attending physicians, five resident physicians, and five advanced practice providers (i.e., nurse practitioners and physician assistants). To avoid impacting future research using the PHCI in the ED where it would be subsequently evaluated, we recruited ED medical staff who worked at nearby hospitals and also graduating ED resident physicians. Likewise, we recruited HIV/HCV counselors (n=5) who worked at the sexually transmitted disease clinic at The Miriam Hospital in Providence, Rhode Island. Patient participants (n=24) were recruited from the study site ED. Of the 24 patients, 12 English-speaking (6 women, 6 men) and 12 Spanish-speaking (6 women, 6 men) adult (18–64 years-old) ED patients. Participants received a gift card to a local store after completing the study. The interviewer for this investigation was a research assistant (RA), who was a bilingual (English- and native Spanish-speaker) medical student who had completed 3 years of medical school. The RA underwent >10 hours of training in the interview protocol with study investigators, including mock interviews with the study investigators and other research team members, prior to interviewing participants. The RA and participants were not known to each other prior to the interviews.

Recruitment procedures. Medical staff and HIV/HCV counselors were recruited through email solicitation using lists of providers at their respective institutions. The email solicitation explained the purpose of the study. Those who responded via email affirmatively to participating were contacted further about the study via email, telephone, or in person, and an in-person interview time was chosen. At the start of these interviews, the RA reviewed the purpose of the study and what participation entailed, and obtained informed consent.

Patient participants were recruited through a process that reflected the intended audience for the PHCI, which was adult ED patients who initially declined combined rapid HIV/HCV screening. To identify possible patient participants, the RA reviewed the electronic medical record (EMR) of patients present in the ED to determine preliminary eligibility. The initial EMR review was performed to ensure that participants were not already known to be HIV or HCV infected or had been tested for HIV and HCV within the prior year. Following EMR review, the RA approached those who appeared to meet eligibility criteria and asked them to confirm their eligibility. For those who were study eligible, the RA explained the purpose of the study and what participation entailed, and for those who agreed to participate, obtained informed consent. Interviews with all participants were conducted in person.

Next, the RA initiated simulated opt-out rapid HIV/HCV screening, using the following script: “Please tell me what you would say or do if I said the following: ‘As part of a study, we are offering a random sample of patients free rapid testing for HIV and hepatitis C. HIV and hepatitis C testing is recommended by medical professionals. I would like to test you for these two infections, unless you tell me that you do not want to be tested. The test is free and you will get the test results in about 20 minutes while you are still here in the emergency department. If the test shows that you could be infected, I will help you get the care you need’. If I said that to you, would you get tested or would you instead say that you did not want to be tested?’” Patients who indicated they wanted to be tested for HIV/HCV were thanked, informed that they could ask their ED medical provider to test them as part of clinical care, and were provided with a list of resources where they could be tested in the community. If patients declined HIV/HCV screening, they continued to the interview phase.

Stakeholder interviews to refine the PHCI. The purpose of the interviews was to obtain feedback from stakeholders regarding its persuasiveness, acceptability, and respect for patient autonomy. In addition, the interviews collected feedback on the intervention’s content, comprehensibility, and clarity. The interviews were based on a script that contained a series of questions that addressed 11 topic areas (See Supplemental Material). The 11 topic areas concerned: clarity, respect for patient autonomy, and the convincing quality of the PHCI as a whole; the six components of the PHCI (information, education, gain, loss, common concerns, call to action); and the completeness and an overall assessment of the PHCI as a whole. There were thirty interview questions relevant to this analysis; two on clarity, four on each of the six components of the PHCI, and one each for the remaining four topic areas. The interview script was developed by the study authors. After approximately five interviews, the PHCI was revised using the feedback from those interviews. As such, subsequent interviewees provided feedback on an iteratively revised PHCI.

Each interview session was audio-recorded. For each interview, the RA first delivered the entire PHCI without interruption to participants. Afterward, participants were asked to consider the entire message when answering questions about its clarity, respect for their choice on whether or not to be tested for HIV/HCV, and persuasiveness. Participants next were read each of the six components in order of appearance and asked to indicate content in that individual section that was not clear or they did not like, as well as how that section could be improved. At the end of the interview, participants were asked to provide suggestions on any additional content that should be included and offer an overall assessment of the PHCI. Each interview lasted 30 minutes.
Data Analyses

Three members of the research team independently reviewed the interview transcripts and summarized the feedback by interview question for each of the 11 topic areas separately for each participant group. These three team members met with the study principal investigator who moderated a discussion to summarize feedback for each interview question. Feedback was then collated across participant groups for each interview question. Participant quotations of interesting and insightful comments also were identified.

Results

Table 1 provides a summary of the feedback provided by participants for each of the 30 interview questions, organized by the 11 topic areas according to stakeholder group. Figure 1 shows both the PHCI draft prior to the stakeholder interviews and the final version of the PHCI after all revisions were made based on stakeholder feedback. Categories of revisions made to the PHCI based on stakeholder feedback along with examples of changes made are as follows:

1. changes of phrases or word choices based on specific feedback from participants: for example, “life-saving treatment” changed to “effective treatment”;
2. clarifications of sections that participants indicated were unclear or confusing: for example, an explanation was added about HIV’s effect on the body and its relevance, “Without treatment, HIV damages the body’s immune system that protects us from diseases”;
3. changes or clarifications based on inferences from participant feedback that indicated a lack of participant understanding: for example, change of “. . . and for hepatitis C, whether or not you’ve been exposed. If you aren’t infected or exposed, you can rest easy. If you have been exposed to hepatitis C, we will notify you in a few days as to whether or not you are currently infected.” to “If your test results show that you are infected, you will have additional tests to confirm your diagnosis”;
4. changes or additions to emphasize important concepts: for example, provision of support after an HIV or HCV diagnosis added, “You will also get the support you need to cope with and overcome any challenges of having HIV and hepatitis C”; and
5. additions, deletions, or rearrangement of content: for example, removal of “peace of mind.” Suggested changes that were not in keeping with the intent or scope of the PHCI were not made, for example, providing HIV/AIDS statistics, conducting assessment of risk factors and inquiring about reasons for lack of prior testing, explaining modes of transmission, making recommendations for repeat testing, providing time to read about the topic of testing, distinguishing types of hepatitis, and explaining testing mechanisms.

Discussion

With input from stakeholders, we developed and refined a PHCI to convince adult ED patients who initially declined opt-out rapid HIV/HCV screening instead to be tested for these infections. Stakeholder input was particularly invaluable in refining the intervention. Stakeholders in this project were those who would either deliver or receive the PHCI, and as such were the ideal group needed to shape the content of the intervention to improve its clarity and persuasiveness. Of importance, participants believed that the PHCI was respectful of patient decision-making on acceptance or decline of HIV/HCV screening, and their input helped to ensure that it maintained patient autonomy. The next phase of our research will assess the efficacy of the intervention in increasing uptake of HIV/HCV screening in the ED setting.

The immediate implication of this project is that it demonstrates a PHCI aimed to increase acceptance of HIV/HCV screening among ED patients can be refined through the input of stakeholders, particularly ED patients, ED medical staff, and HIV/HCV counselors. As such, this work serves as a model, or at least as an example, for stakeholder involvement in producing behavioral interventions in this setting. We provide in this manuscript a detailed description of those processes and how it yielded the final product. The subsequent phase of our research which utilizes the PHCI in the ED for HIV/HCV screening hopefully will demonstrate its value.

Although we obtained a variety of stakeholder perspectives, we acknowledge as a limitation of this work is that the perspectives obtained cannot reflect the views of those who declined to participate or had demographic characteristics different from those who were included in the study. The study was conducted in a single city in the northeastern US and only involved adult English- or Spanish-speaking patients at a “safety net” academic hospital. As such, interviews of other patients and healthcare workers with different demographic characteristics could have led to different intervention content. Interpretation of the interviews and resultant revisions also reflect the views of the research team, which was reflected in the changes made. However, the iterative nature of the changes with consequent stakeholder feedback helped to keep the PHCI from being based solely on the research team’s perspectives. Finally, the PHCI’s efficacy was not examined in this investigation, which will be conducted in future research.

In conclusion, with the assistance of stakeholders, we produced a very brief, theory-based intervention guided by prior
Table 1. Summary of Feedback From Stakeholders on the Persuasive Health Communication Intervention.

| Topic 1: Clarity | What do you think the message was asking you to do? | What parts of the message were not clear? | Interesting/representative quote |
|------------------|-----------------------------------------------|----------------------------------------|----------------------------------|
| Get tested for HIVa,b,d,e | Nonea,d,e | Cost of testing and insurance coveragec | “Knowing that HCV causes liver cancer is very scary”b |
| Protect loved ones and others from becoming infectedf | | | “I think it’s very important. You never know whether you may have been infected or not”b |
| To check one’s health status as routine caref | Timeline to receive test resultsh | Confidentiality of test resultsi | Comment: It might be too long. I’d suggest including bullet points.f |
| Get a free, easy, and quick testf | | Testing processes, procedures in the ED, confirmatory testing, and follow upf | |
| Find out if one is free or infected with these infectionsd,e | HIV/HCV transmission modes and risk factorsd,e | Lack of information about the window period | |
| To take care of self and one’s health if infecteda,b | The term positive results instead of infectionse | | |
| Provide information about testing (risks, benefits, reasons) | | | |
| | | | |
| Topic 2: Respect | Was there anything that bothered you about this message? | Interesting/representative quote |
|------------------|-----------------------------------------------|----------------------------------|
| Nonef | Testing should be offered anywhereb | Message is useful, necessary, and very important for everyoneb |
| Lack of emphasis that everyone is offered test and should be testedc,e | Message is dramatic and more negative thanpositivec,a | |
| Message is dramatic and more negative than positivec,a | Failure to say that the test result will not influence care | |
| Failure to say that the test result will not influence care received in the ED todayc | Message is dramatic and more negative than positivec,a | |
| Skeptical if testing is actually freef | Message is dramatic and more negative than positivec,a | |
| Overwhelming fear of test resultsc | Message is dramatic and more negative than positivec,a | |
| Getting tested is an opportunity rather than a loss, no mention about being able to get tested laterf | Message is dramatic and more negative than positivec,a | |
| | | |
| Topic 3: Convincing | What could we say in the message that would convince you to be tested? | Interesting/representative quote |
|------------------|-----------------------------------------------|----------------------------------|
| Nonef | “Free testing and receiving results the same day is convincing”e | |
| Emphasize that HIV is treatable and HCV is curablee,f | | |
| Provide statistics about HIV/HCV risks, management of the infection, symptoms, and complicationsa,c,e,f | | |
| Emphasize that everyone should be testedd,e | | |
| Provide more information about transmission mechanisms and progress of infection if not treatedd | | |
| Indicate who is recommending testing and their recommendations (such as a risky lifestyle)b,d | | |
| Use more assertive language and make the message less generic and more tailored to the individual | | |
| Describe how getting tested prevents infecting othersb | | |
| Acknowledge emotional components and association of stigma with HIV and HCVe,f | | |
| Reword the message to make it seem positive and reassuring | | |
| Highlight that test offer is an opportunity rather than a loss | | |

(continued)
Table 1. (continued)

| Topic 4: Information | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|----------------------|-------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------|
| None*<sup>*</sup><br> Timeline of receipt of results for HIV versus HCV<sup>†</sup> | None<sup>n,a–f</sup><br> Discuss the window period<sup>†</sup> | None<sup>n–c</sup><br> The test might reveal a “life threatening disease”<sup>†</sup> | None<sup>n</sup><br> Elaborate more on the type of testing when and where will results be obtained<sup>†</sup> | If I do have it I’d be very scared to give it to my family<sup>†</sup> |
| The additional wait for HCV test results and necessity for confirmatory testing<sup>†</sup><br> Coverage of testing costs by health insurance<sup>†</sup><br> Type of test being performed (rapid vs. conventional)<sup>†</sup> | None<sup>a–f</sup><br> Discuss why it’s necessary to wait longer for HCV test results<sup>†</sup><br> State that health insurance will not be charged for testing<sup>†</sup><br> Describe that a rapid test will be used and describe its limitations<sup>†</sup> | None<sup>n–e</sup><br> Why do providers think this testing is necessary for me?<sup>‡</sup><br> Explain that testing is offered to everyone so patient doesn’t feel targeted<sup>‡</sup> | |

| Topic 5: Education | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|----------------------|-------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------|
| None*<sup>*</sup><br> The difference between AIDS and HIV<sup>**</sup><br> Seriousness of liver damage<sup>*</sup><br> Asymptomatic infections<sup>*</sup><br> HIV disease progression<sup>†</sup> | None<sup>n–f</sup><br> Elaborate on the consequences of HIV and HCV such as AIDS and opportunistic infections<sup>‡</sup><br> Mention that liver damage is irreversible<sup>c</sup><br> Clarify HIV and HCV testing and results timeline<sup>†</sup><br> Clarify while there may not be symptoms now, there may be symptoms later<sup>d</sup><br> Keep the message short<sup>†</sup><br> Provide statistics about the number of people who don’t know they are infected with HIV/HCV<sup>‡</sup> | None<sup>n</sup><br> Lack of clarity about disease progression and the difference between HIV/AIDS<sup>†</sup><br> The concept and wording “life threatening” are scary<sup>a,d</sup><br> You can be infected and not know about it<sup>c</sup><br> Lack of initial risk assessment prior to test offer<sup>†</sup><br> The framing of severity of HCV/HIV would make typical patient dissociate from this disease<sup>‡</sup> | None<sup>n</sup> | |
| | | | | It’s a scary subject but all is good info to know<sup>‡</sup> | |
| | | | | To state that: “HIV can attack the immune system which leads to AIDS”<sup>**</sup> | |
| | | | | |

| Topic 6: Gain | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|----------------------|-------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------|
| None*<sup>*</sup><br> The differences among hepatitis A, B, and C<sup>†</sup><br> Difference between being exposed and infected<sup>†</sup><br> Treatment payment methods<sup>†</sup><br> Lack of clarity of window period concept<sup>†</sup><br> Meaning of negative test results<sup>†</sup><br> Timeline for HCV results<sup>†</sup><br> Testing confidentiality and follow up<sup>†</sup> | None<sup>n–f</sup><br> AIDS versus HCV and fatality of each<sup>†</sup><br> Explain the difference between exposure and infection<sup>†</sup><br> Describe test processes and treatment options for positive test results<sup>†</sup><br> Describe that a rapid test will be performed and a window period must be considered<sup>†</sup><br> Engage the patient to get how much they know<sup>†</sup><br> Describe the need for confirmatory testing<sup>‡</sup> | None<sup>n–d</sup><br> The idea of putting my family at risk<sup>‡</sup><br> The term “life saving treatment” is dramatic, remove it<sup>d</sup><br> The term “rest easy” because this is falsely reassuring for negative test<sup>‡</sup><br> Provide safe sex tips<sup>‡</sup> | None<sup>n</sup><br> Mention that you can live a normal life if infected<sup>‡</sup><br> Explain the different types of test being used<sup>‡</sup><br> Eliminate the term “life saving” | While long, it was all clear<sup>‡</sup> | People may get scared by the subject<sup>‡</sup> |

(continued)
| Topic 7: Loss | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|--------------|----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|
| Nonea–f      | Nonef                           | Noneabc                            | Nothing                              | “It’s good to take advantage of this opportunity so you aren’t stressed” |
| The transmission to othersc | Explain risk factors and transmission modesc | | Provide info on treatments for those testing positivec | |
| Losing testing opportunities if not tested todayc | Mention that you can get tested at a later timec | Lack of information about counseling if test result is positivec | Explain you can change your mind about testing and that it can be completed at a later timec | |
| Specificity of loved onesf | Say “others” instead of loved onesf | Losing future testing opportunities and no mention about being able to get tested laterabcad | Phrase the section in a more positive and reassuring wayf | |
| | | Unclear if one can change their mind about testingf | | |
| | | No mention that HCV is curable and medications can make HIV undetectablef | | |

| Topic 8: Common concerns | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|--------------------------|----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|
| Nonea–f                  | Noneabcf                         | Noneabcde                         | Noneabcde                           | Everyone should get tested even people who don’t believe they are at riskf |
| The concept of “window period”c | Refer to and define the window periodc | Very stressful topicc | Provide test specimen sampling methods (saliva or blood)c | |
| The meaning of a “positive test result”c | Define AIDS and its difference from HIVf | Lack of info on where to get care and affordabilityc | Give more info about treatment and refer to it as highly effective treatment instead of life saving treatmentc | |
| Confidentiality of HIV test results and how they are reported | Explain confidentiality of HIV test result and how they are reportedf | The term “life saving treatment”c | Mention that testing will not prolong ED stayc | |
| Use of the phrase “peace of mind” for a negative test is inaccurate due to limitations and window period | Rephrase “peace of mind” (and test limitations/ concept)f | Lack of clarity of window period conceptc | | |
| | | Lack of mention about impact on emergency department stayc | | |

| Topic 9: Call to action | What parts, if any, were confusing? | How could we make it less confusing? | What parts, if any, did you not like? (or, what parts made you feel uncomfortable?) | How could we make that part sound better? | Interesting/representative quote |
|------------------------|----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|
| Noneabcf               | Noneabcf                         | Noneabcde                         | Noneabcde                           | “I like the idea of fast results and freeabcf” | |
| The claim that the tests are free and if tests are covered by insurancef | Explain how testing is freef | Knowing the consequences of testingf | Provide info about free clinic or similar servicesf | |
| The absence of information about testing types, procedures and if phlebotomy will be requiredf | Change: “Do you agree to get tested” to “Do you want to get tested!”f | Lack of info about free clinic or similar resourcesf | Provide more details about testing methodsf | |
| Use of phrase “status before you leave today” is misleading considering the window periodf | Explain that the rapid test may miss recent infectionsf | Testing methods were not providedf | | |
| Contradictory messages about when final HCV test results will be deliveredf | Explain why HCV results will be provided laterf | Lack of clarity about rapid test limitationsf | | |
### Table 1. (continued)

#### Topic 10: Completeness

| Is there any information that we did not give you that you would like to know? | Interesting/representative quote |
|---|---|
| None"a–c, d, f | "Encourage more patients to think that testing is a good thing" |
| Provide more information about the test, types, and options"c, e, f |  |
| Provide info about a negative HIV rapid test results such as the window period"c, e, f |  |
| The difference between HIV and AIDS and hepatitis typesb |  |
| Clarify the cost of testing and if insurance will pay for it"a |  |
| Provide info about healthcare options for positive test results, treatment, cures, low viral loads, and life with the infections"a–d, f |  |
| The modes of virus transmission and risk factors"c |  |
| Provide the patient with reasons why they should get tested, including test performance characteristics (sensitivity and negative predictive value)"c, e, f |  |
| More information on referrals, resources, and treatment"c |  |
| Reassure patients that testing equipment and HCV will not transmit infections"a |  |
| Provide more time to read about the topic"a |  |

#### Topic 11: Overall impression

| Anything else we could do to make it better? | Interesting/representative quote |
|---|---|
| None"a–e | "Long enough to make patients realize the importance of getting tested" |
| Provide info with more information (transmission and transmission risk, testing methods)"a–d, e, f |  |
| Reduce the length"a, c, d |  |
| Emphasize that testing is offered to everyone"a |  |
| Share with community test centers and doctors"a, e |  |
| Add pauses for patients to ask for more information"c |  |
| Clarification about release and posting of test results and their confidentiality"c |  |
| Change the term "life saving""c, e |  |
| Make message more positive"c |  |
| Assess risk factors" |  |
| Empower patient to get tested" |  |
| Provide resources after a positive test result"f |  |
| Find out why patients haven't been previously tested"f |  |
| Remind the patient to get tested another time"f |  |

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*aEnglish speaking patients.
*bSpanish speaking patients.
*cEmergency department attending physicians.
*dEmergency department residents.
*eNurse practitioners and physician assistants.
*fHIV/HCV counselors.
Figure 1. Persuasive health communication intervention content.

theory and research and feasible for use in usual clinical practice. Stakeholders found it to be convincing while respectful of patient autonomy and decision-making.

Acknowledgments

The study authors gratefully acknowledge the assistance of Drs. Francesca Beaudoin and Philip Chan in facilitating the conduct of this study, as well as the invaluable help of the study participants who assisted with the refinement of the intervention.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This project was supported by a grant from the National Institute on Drug Abuse (R34 DA045544).

Human Subjects Protection

This study was approved by the Partners Human Research Committee (2018P000700/PHS) and by the Lifespan Institutional Review Board (1301303-1, 2, 3, and 4).

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| Element       | Initial version before stakeholder input                                                                 | Final version after stakeholder input                                                                 |
|---------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Information   | I’d like to encourage you to get tested for HIV and hepatitis C today. The tests are free, and you will get | I would like to encourage you to get tested for HIV and hepatitis C today. Testing is easy, fast and free. |
|               | the results for HIV before you leave today. Testing is easy, fast and free.                                | You will get your test results before you leave today. If your test results show that you are infected, you will have additional tests to confirm your diagnosis. |
| Education     | Why get tested? Because you might be infected with HIV or hepatitis C and not even know it. You can be infected and not have any symptoms. But both HIV and hepatitis C can lead to serious health problems. HIV can lead to AIDS, and hepatitis C can cause serious liver damage, and even liver cancer. Being tested is the only way to know for sure. | HIV and hepatitis C are infections that can spread from person to person. Without treatment, HIV damages the body’s immune system that protects us from diseases. When the immune system is damaged by HIV, it leads to AIDS. When someone has AIDS, they can become seriously ill. Without treatment, hepatitis C can cause serious liver damage and even liver cancer. Getting tested is necessary because you might be infected with HIV or hepatitis C and not even know it. |
| Gain          | If you get tested for HIV, you will know today whether you’re infected or not, and for hepatitis C, whether or not you’ve been exposed. If you aren’t infected or exposed, you can rest easy. If you have been exposed to hepatitis C, we will notify you in a few days as to whether or not you are currently infected. And if you are infected with either HIV or hepatitis C, we will help you access life-saving treatments to protect your health. Also, you will know to take precautions to prevent spreading the infection to those close to you. | What do you gain by testing? If you get tested for HIV and hepatitis C, you will know if you are infected or not. In addition, if you are infected with HIV or hepatitis C, we can help you get highly effective treatment. With treatment, people living with HIV can expect to live as long as an average person. Even though there is no cure for HIV, there is a cure available for hepatitis C. Getting tested helps you take control of your health. |
| Loss          | If you don’t get tested, you give up the chance to treat these diseases, and you lose the chance to protect your loved ones and others. | If you do not get tested, you will not know if you have HIV or hepatitis C. Not knowing if you are infected can be stressful. If you do not get tested today, you delay your chance to treat these infections now. You also lose the chance to keep your loved ones and others from getting infected. |
| Common concerns | To repeat: if the test results show that you are infected, there are highly effective treatments. And, your test results will be kept strictly confidential. Many people are tested regularly with a negative result and enjoy the peace of mind of knowing for sure. | Everyone should be tested for HIV and hepatitis C, even if you do not believe you are at risk for these infections. Getting tested will not make you stay in the emergency department any longer. Your results will be kept strictly confidential. No matter what your test results are, we will continue to treat you with dignity and respect. If your test results show that you are infected, we will help you get effective treatment. You will also get the support you need to cope with and overcome any challenges of having HIV and hepatitis C. |
| Call to action | We have simple, quick, free tests you can take right now that will let you know your status before you leave today. Would you like to be tested? | We have quick, easy, free tests that you can have right now. Given the information I have shared with you today, will you agree to be tested? |

Figure 1. Persuasive health communication intervention content.
Supplemental Material

Supplemental material for this article is available online.

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