



A New Tool for Assessing the Primary Care Experience for Homeless Patients, the PCQ-H

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Support: VA Health Services Research & Development Branch

DISCLOSURE STATEMENT

Speaker: Stefan Kertesz, MD

Dr. Kertesz has documented that she (or he) has nothing to disclose.

Opinions are those of the authors and do not represent positions or views of VA or any agency of the U.S. federal government

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Aim

- To introduce a *primary care* experience questionnaire *designed for homeless-experienced patient*
- To show a systematic method for its development using
 - qualitative interviews
 - survey testing with patients
 - psychometric selection of informative items

What is your primary professional category at present?

1. Social Worker
2. Physician/Nurse
3. Psychologist
4. Other direct clinical service
5. Health Care Manager
6. You neglected my category, bonehead!

Have you ever provided direct service to homeless clients or patients in your professional work?

- Yes
- No

Background

- >600,000 Americans homeless (57,849 veterans) in 2013 (point-in-time)
- “Tailored” primary care programs began in 1986
 - 19 original HCH programs → 220+ today
 - 38+ similar VA teams (“Homeless PACTS”) today
 - >50 in coming year
 - HHS allowing Federally Qualified Health Centers to seek “Patient-Centered Medical Home” designation
 - All require patient experience questionnaires

What might service tailoring mean?

- Tailoring includes aspects of service design, outreach, co-location of mental and medical care, consumer governance, etc.

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She brings health services to skid row



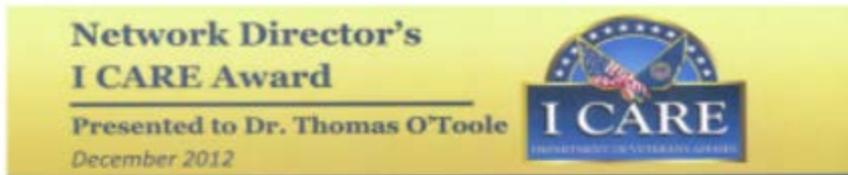
RESEARCHER ON HOMELESS

Physician/re



Other aspects of tailoring

- Co-location medical care and behavioral health
- Panel size adjustment
- Homeless-training & mission, leadership/Board representation



For demonstrating exemplary advocacy for Veterans through the development of the Homeless Patient Aligned Care Teams (H-PACT). This innovative model program of the National Center on Homelessness Among Veterans provides integrated, comprehensive health care and housing services that are reducing homelessness among our nation's Veterans.



Question

- If you thought you were delivering care in a better way, how would you **prove** it in a measurable way?
- Why does proving it matter?

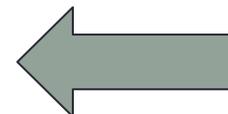


Quality Metrics for Primary Care

- Traditional care indicators
 - Disease-based, % with Hgb A1c < 8%, % with cancer screening
- Imperfect
 - Re: context and preferences,¹ complexity/comorbidity^{2,3}
- Example
 - Does failure to obtain colonoscopy count as poor care when the patient has no escort and no place to recover from the procedure?

Remedies

- Refine the measures¹
- Assess whether decisions take context into account¹
- Survey “Through the Patient’s Eyes”³
 - Patient-reported surveys (PCAS⁴, CAHPS⁵)
 - CAHPS family surveys are central to both VA SHEP and HHS expectations for Patient-Centered Medical Homes



1. Weiner, Ann Intern Med; 2010 3. Gerteis et al, 1993 4. Safran, Medical Care (1998) 5. Agency for Healthcare Research and Quality

When service providers ask me to fill out a survey, my internal reaction is most like...

- 1. This might help improve services, so I'm going to fill it out
- 2. I have no time for this
- 3. I will fill this out if you promise me a prize
- 4. Wow, what poor survey design! Did you even test the psychometrics on this thing?
- 5. Hey Kertesz, you didn't anticipate my reaction, bonehead! Maybe try qualitative first?

How comfortable are you with designing surveys and validating them

- Very comfortable
- Somewhat comfortable
- Uncomfortable\
- You didn't anticipate my response!

Comments on “off the shelf” instruments

- CAHPS 12 Month PC + PCMH items
 - 1012 words, 9th grade reading level (F-K)
 - 12 of 43 items are used to institute skips
 - 7 different response sets
 - Never, Sometimes, Usually, Always
 - Not at all, A little, Some, A Lot
 - 0, 1, 2, 3, 4, 5...10

Examples from CAHPS PC + PCMH

Access?

In the last 12 months, did you phone this provider's office to get an appointment for an illness, injury or condition that needed care right away?

- Note, 2 items are skipped if no phone
- No outreach questions
- No concept of walk-in

Control?

After an item related to talking about starting a medicine....

When you talked about starting or stopping a prescription medicine, how much did this provider talk about the reasons you might **not** want to take a medicine?"

Concerns with CAHPS PCMH

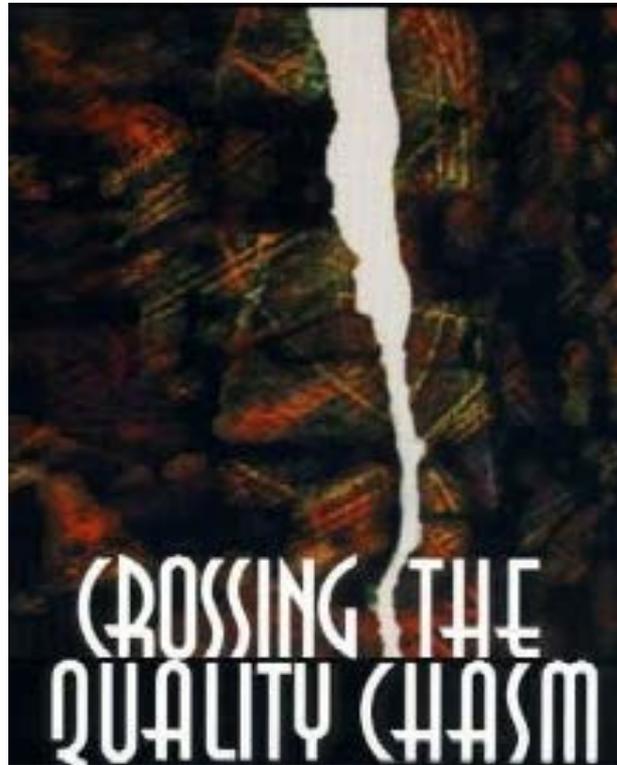
- The mandated industry standard
- Conceptually: a Patient Experience Questionnaire
- Emphasis on procedural/experiential reports from patients about their care
- Challenges:
 - The procedures/experiences queried may not fit the patient
 - Only indirectly related to asking patients what matters to them
 - Never tested for feasibility in homeless PC
 - Proven difficult in HCH settings

Approach: Top Down + Bottom Up

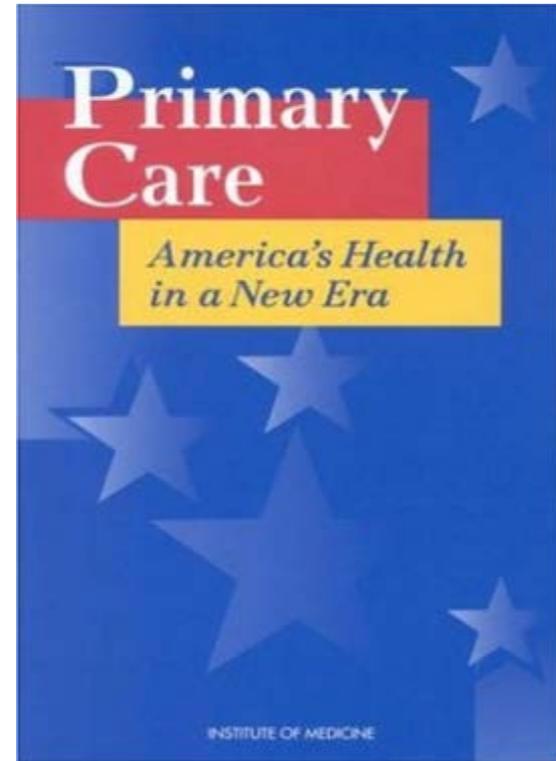
- Start with general constructs from a respected source (similar to CAHPS, PCAS, PCAT) to get general constructs
- Let people familiar with homeless primary care (patients, expert caregivers)
 - Prioritize the constructs
 - Add new constructs
 - Define the actual themes we ask about

16 Major Constructs Derived from 2 Respected Reports

Rules for Quality



Attributes of Primary Care



Using a Cardsort

Primary care for homeless patients should...

Be easy to get

ACCESSIBILITY

Mean all of those who take care of a patient work as a team and talk to each other

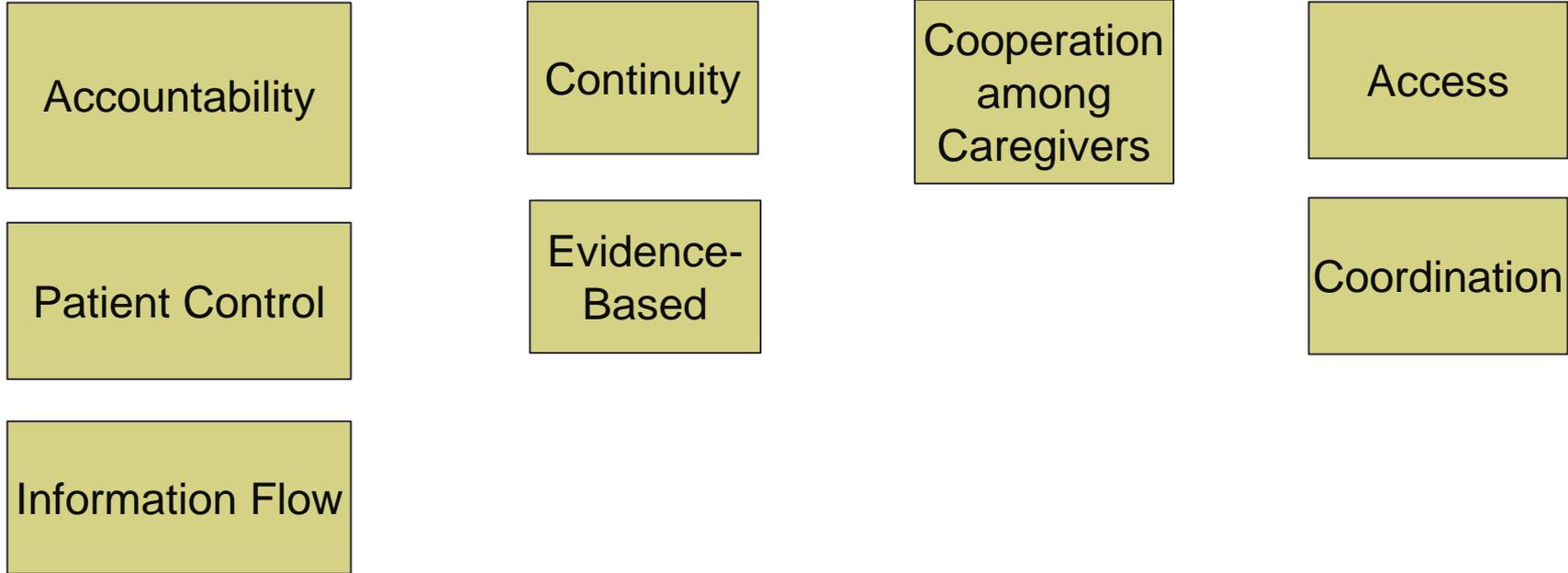
COOPERATION

Keep in mind safety

SAFETY

Responses from 26 patients and 10 providers/experts from multiple states and regions of the US

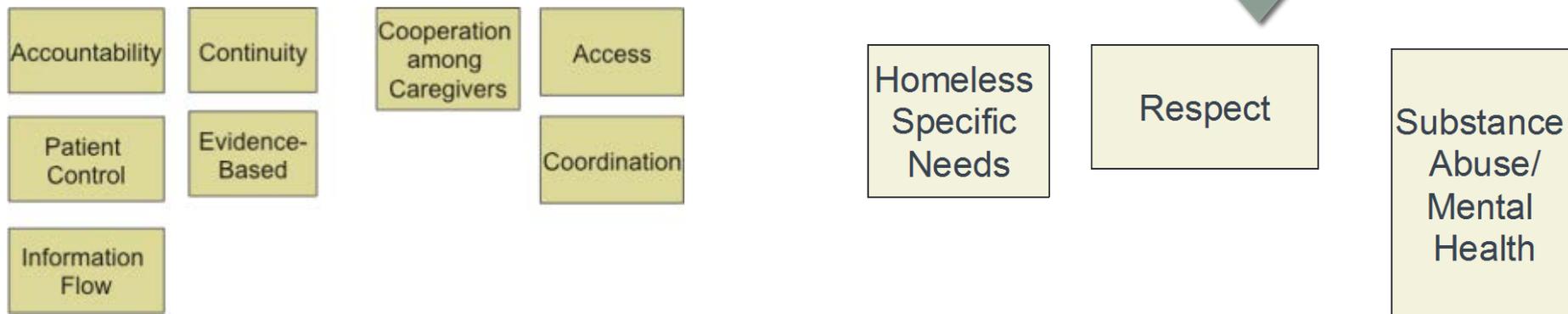
Constructs prioritized for interview-based study



- What do you think about the idea that you should have control in your primary care?
 - *What makes you say that?*
 - *How about times when you didn't have a regular place to live?*

Interviews

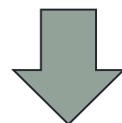
- 36 patients (Boston HCH & Birmingham VA)
- 24 experts in homeless health care
- Template coding approach
 - Quotes grouped within 8 a priori constructs
 - 3 “novel” constructs emerged by consensus
 - Themes identified inductively, linked to quotes



How quotes lead to items

Quote

I don't necessarily agree I should have control, but to share responsibility, that's what I think. Having a conversation with the doctor, listening to the options available, talking through the possibilities and having a say in what the final outcome is.



Survey Item

If my primary care provider and I were to disagree about something related to my care, we could work it out

Control

Item testing

- 877 drafted & ranked by research team
- 78 deployed (PCQ-H 1.0)
- 562 persons across 4 sites
 - PC patients with homeless experience in medical record

Item reduction

Missing

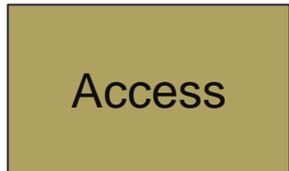
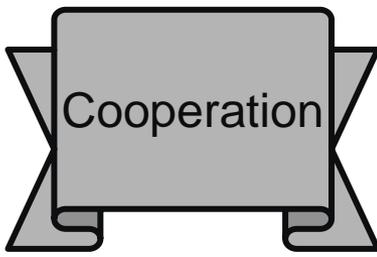
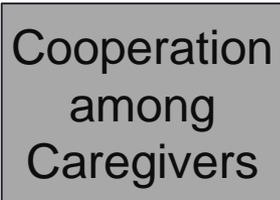
- Dropped if $>10\%$ responses missing

CFI

- Confirmatory Factor Analysis on 11 factors using Mplus (satisfactory)

Collapsing

- 11 preliminary scales tested for correlation & collapsed when $r > 0.9 \rightarrow 4$ scales



Item reduction strategy

Missing

- Dropped if $>10\%$ missing

CFI

- Confirmatory Factor Analysis on 11 factors

Collapsing

- 11 preliminary scales tested for correlation & collapsed when $r > 0.9 \rightarrow 4$ scales

Item
reduction

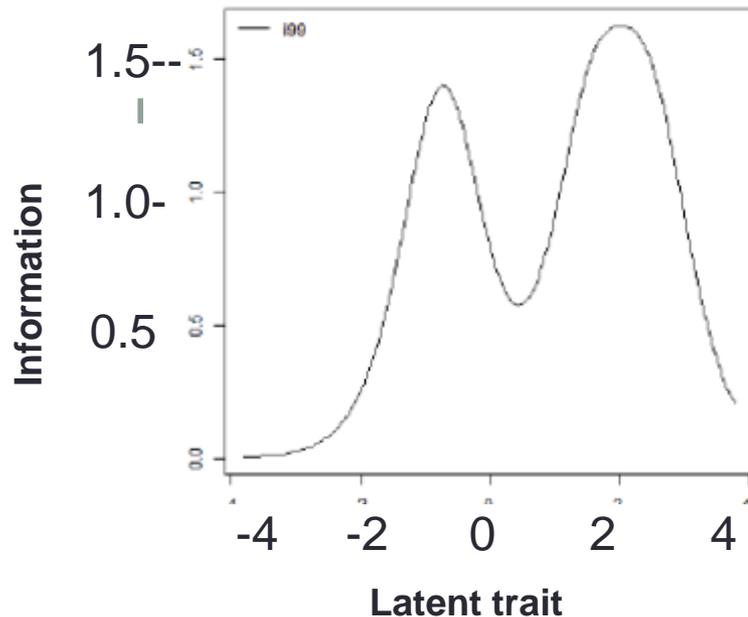
- **Balanced consideration of informational value and capacity to detect unfavorable experiences**

Item Response Theory

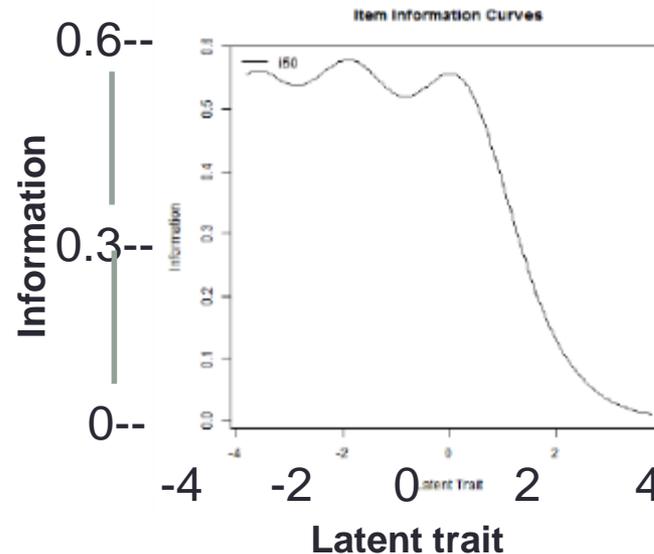
- A latent trait can be something you assess with questions
 - Patient perception of the patient-clinician relationship
- A latent trait may:
 - Reflect presumptions from prior work (as we did)
 - Emerge from exploratory analyses
- A collection of items make a mathematic contribution to a computed latent trait value (Mplus Software)
 - Items can provide more information or less
 - Items can provide information at different levels of the trait

Two Relationship Items (continuity)

- *I feel my PCP has spent enough time trying to get to know me*
- Unfavorable (“disagree”): 17%
- Test Information: strong with two high peaks



- *My PCP has known me long enough to see when I am struggling*
- Unfavorable (“disagree”): 19%
- Test Information Function: peaks well below 1.0, weaker.



PCQ-H

- 33 items
- 7th Grade Reading Level
- One Likert-type response option across all 33
 - *Strongly Agree*
 - *Agree*
 - *Disagree*
 - *Strongly disagree*

Introductory Text

- *We would like to ask you some questions about the person you see for primary medical care here at _____ . This is the person you see for a check-up or for a general medical problem when it is not an emergency. This person could be your regular personal doctor, a nurse practitioner, or a physician assistant. We would also like to ask you about receiving care here at _____ . Please indicate how much you agree or disagree with the following statements about the person who provides your primary medical care. Again, we are asking for you to make your best guess.*

Examples for Constructs

% a manifestly unfavorable response

Patient-Clinician Relationship (15 items)

I feel my PCP has spent enough time trying to get to know me 17%

My PCP makes sure health care decisions fit with other challenges in my life 9%

Cooperation (3)

My primary care and other health care providers need to communicate with each other more 45%

Access/Coordination (11)

If I walk into this place without an appointment, I have to wait too long for care 29%

Homeless-Specific Needs (4)

This place tries to help me with things I might need right away like food, shelter or clothing 11%

Results

- **Convergent validity:** $r=0.77^*$ with PCAS
- **Divergent validity:** $r=-0.13^*$ with negative psychiatric symptoms (<2% of variance)
- **Internal consistency (Cronbach α):** All ≥ 0.75
- **Item-factor loadings similar/higher than CAHPS**
- **Criterion validity:** Scores higher at “tailored” primary care sites

Correlations among 4 scales

	Relationship	Cooperation	Access	Homeless-specific Needs
Relationship	1	0.66	0.78	.66
Cooperation		1	0.65	.51
Access			1	.69
Homeless-specific needs				1

Convergent validity (overall PCQ-33 with Safran's Primary Care Assessment Survey): $r=0.77$ ($p<.001$)

Divergent validity (overall against Gun attitude score): $r=0.01$ ($p=0.82$)

Internal validity (alphas):

Relationship (0.92), Cooperation (0.75), Access (0.87), Homeless specific needs (0.78)

In the Field

- Side by side use at Boston Health Care for the Homeless Program CAHPS vs PCQ-H...PCQ-H easier for patients
- VA HSR&D-supported ARCH study: Aligning Resources to Care for Homeless Veterans (ARCH)¹
- Being used in the 8-site HRSA-funded Special Project of National Significance
 - *Building a Medical Home for Multiply Diagnosed HIV-Positive Homeless Populations (PI: Carol Hohl)*²

1. <http://clinicaltrials.gov/show/NCT01550757>

2. <http://hab.hrsa.gov/about/hab/special/homeless.html>

Impacts/Dissemination

- Vision: PCQ-H will be the consumer survey of choice for providers serving homeless patients
- Current use:
 - HHS “Special Project of National Significance” (8 sites)
 - VA HSR&D ARCH study (2 sites)
 - Briefed to VA national leaders (quality measurement, homeless)
- Next steps:
 - Testing/refining real-world use
 - Attaining VACO and HHS consensus

Conclusions and Implications

- Homeless Primary Care is unique enough to merit special methods of assessing care quality
 - Including a special patient questionnaire
- Top-down and bottom-up approaches, combining expert consensus and qualitative research produced the PCQ-H
- The resulting 33-item survey appears to be practical and is available for use

Thank you

- **Request:**
- If you wish to use the PCQ-H English or Spanish version, contact my team (skertesz@uabmc.edu; nancy.johnson8@va.gov; erika.austintin@va.gov)
- We wish to log (a) where used; (b) number of respondents; (c) positive and negative experiences

Elements of Homeless-Tailored Service Design

Explicit homeless mission

Primary care in shelters & streets

Team design assures continuity from streets/shelters to clinic

Formal relationships to community shelters

Homeless-focused staff training

PC and mental health in same clinical space

PC clinic equipped to directly meet tangible needs (clothing, food)

Linkage to national homeless organizations

Formerly homeless persons in organizational governance

>10 years explicit homeless mission focus

QUESTIONS OR COMMENTS?
Please use the Q&A box located on the
right-hand side of your screen.

skertesz@uabmc.edu

For later follow-up

This instructional version is not for direct administration in clinic, but presents items and scoring methodology.

Primary Care Quality-Homeless Survey – Scoring Version 1.0

Introduction: We would like to ask you some questions about the person you see for primary medical care here at _____. This is the person you see for a check-up or for a general medical problem when it is not an emergency. This person could be your regular personal doctor, a nurse practitioner, or a physician assistant. We would also like to ask you about receiving care here at _____. Please indicate how much you agree or disagree with the following statements about the person who provides your primary medical care. Again, we are asking for you to make your best guess.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q1. My primary care provider never doubts my health needs.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q2. My primary care provider takes my health concerns seriously.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q3. My primary care provider makes decisions based on what will truly help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q4. I feel my primary care provider has spent enough time trying to get to know me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q5. I can get in touch with my primary care provider when I need to.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q6. I can get enough of my primary care provider's time if I need it.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q7. If my primary care provider and I were to disagree about something related to my care, we could work it out.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q8. My primary care provider makes sure health care decisions fit with other challenges in my life.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q9. I worry about whether my primary care provider has the right skills to take good care of me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q10. I can be honest with my primary care provider if I use drugs or alcohol.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q11. I worry my primary care provider might report my health information to the authorities.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

If you wish to use the Primary Care Quality-Homeless (PCQ-H), please let the PCQ-H Investigative Team know (stefan.kertesz@va.gov & nancy.johnson8@va.gov). For VA use, note that OMB Privacy Act rules apply.

This instructional version is not for direct administration in clinic, but presents items and scoring methodology.

Instructions: For the next questions, we will ask about how your primary care provider works with other health care providers. The other health care providers can be other doctors, therapists, or other providers who help in your medical care.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q12. My primary care and other health care providers need to communicate with each other more.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q13. I have been frustrated by lack of communication among my primary care and other health care providers.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q14. My primary care and other health care providers are working together to come up with a plan to meet my needs.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q15. My primary care provider helps to reduce the hassles when I am referred to other services.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q16. I have to wait too long to get the health care services my primary care provider thinks I need.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

Instructions: The next questions are about the place where you go for primary medical care. This is the place you normally go for a check-up or for general medical problems when it is not an emergency. The place might be a clinic, hospital, or a program. For these questions think about the place and the staff who are there.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q17. Someone from my primary care provider's office returns my phone or pages.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q18. At this place, I have sometimes not gotten care because I cannot pay.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q19. If I could not get to this place, I think the staff would reach out to try to help me get care.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q20. If I walk-in to this place without an appointment, I have to wait too long for care.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q21. This place is open at times of the day that are convenient for me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q22. This place helps me get care without missing meals or a place to sleep.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q23. It is often difficult to get health care at this place.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q24. This place tells me about what services are	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

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available					
Q25. The health care services I need are close to each other.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q26. If my primary care provider is unavailable there is someone else that can help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q27. When I need information about my health care, like test results, I can get it easily.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q28. The staff at this place listens to me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q29. This place tries to help me with things I might need right away, like food, shelter or clothing.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q30. The people who work at this place seem to like working with people who have been homeless.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q31. If I miss an appointment, this place still finds a way to help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q32. At this place, I always have to choose between health care and dealing with other challenges in my life.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q33. Staff at this place treats some patients worse if they think that they have addiction issues.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

This survey is the product of the Primary Care Quality and Service Customization Study. It is intended for clients who have been homeless or who are leaving homelessness behind. **Clinics or agencies seeking to use it must seek permission from the developer, who can provide scoring information.** Contact: Stefan G Kertesz, MD, emailing both skertesz@uabmc.edu and Nancy Johnson, RN, (nancy.johnson8@va.gov), or phone 205-212-3970.

Scoring

Questions are referred to as “Q1” “Q2” etc

Generally a positively worded item is scored 4 if the client strongly agrees, 3 if they “agree”, 2 for “disagree” and 1 for “strongly disagree”.

For example, item Q1: My primary care provider never doubts my health needs

A negatively worded item (Q22: It is often difficult to get health care at this place) is scored differently. Agreeing with it must ultimately result in lower scores, not higher scores. The scoring formula below achieves that by inserting a value of “5-Q22”

Where items are missing, we generally do not score if >50% of items are missing for a particular scale.

If you wish to use the Primary Care Quality-Homeless (PCQ-H), please let the PCQ-H Investigative Team know (stefan.kertesz@va.gov & nancy.johnson8@va.gov). For VA use, note that OMB Privacy Act rules apply.

This instructional version is not for direct administration in clinic, but presents items and scoring methodology.

Optimum response if <50% of items are missing is to assume that the response to the missing one would be the mean of the responses available.

The simplest way to do this is to compute the mean of the items available, and report that as the final score.

So if the Homeless-Specific Needs scale has 4 items normally, but the individual responded to just 2 of them, giving a value of 3 for each, then the computed mean of those 2 items (obviously) is (3+3)/2.

Our research team can provide an Excel sheet to do this automatically. Check with us (skertesz@uabmc.edu and nancy.johnson8@va.gov) if you plan to use the instrument in clinical settings.

Relationship (15 items):

RawTotal_Relat: $Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8 + [5 - Q9] + Q10 + [5 - Q11] + Q17 + Q27 + Q28 + [5 - Q33]$

Relationship Score = RawTotal_Relat/15

Cooperation (3 items) :

RawTotal_Coop: $[5 - Q12] + [5 - Q13] + Q14$

Cooperation Score = RawTotal_Coop/3

Access/Coordination (11 items):

RawTotal_AccCoor: $Q15 + [5 - Q16] + [5 - Q18] + Q19 + [5 - Q20] + Q21 + Q22 + [5 - Q23] + Q24 + Q25 + Q26$

AccCoor Score = RawTotal_AccCoor/11

Homeless-Specific Needs (4 items):

RawTotal_HomeSp: $Q29 + Q30 + Q31 + [5 - Q32]$

HomSp Score = RawTotal_HomeSp/4

Missing:

Where <50% of items were missing for a particular subscale, a mean of answered items was imputed for missing items. SAS code to accomplish this is available on request from the authors.

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I have attached 2 versions of the PCQ-H survey (one to illustrate scoring formulas, and one that can be handed directly to patients in paper format). I have also attached our team's publication in which the PCQ-H was used to compare experiences among patients in tailored and non-tailored settings.

Although some people will wish to program a scoring calculator (and we can provide an excerpt of SAS code for this; just notify myself and unita.granstaff@va.gov), there is also an Excel workbook that will auto-calculate responses, attached

Stefan Kertesz, MD
Birmingham VA Medical Center

Instructions: For each question listed, enter a response value of 1,2, 3
response value is missing or "I don't know" then leave blank. After e
activate formulas.

Note: Any response values entered other than 1, 2, 3 or 4 will result

Name	ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7
X1	1	1	3	4	2		3	4
X2	2	3	3	1	1	4	3	2
X3	3	4	4	4	3	3	3	3
X4	4	4	3	3	3	3	2	2
X5	5	3	2	2	2	1	1	1
X6	6	3	3	3	3	3	3	3
X7	7	4	4	4	4	4	4	4
X8	8	2	2	2	2	2	2	2
X9	9	1	1	1	1	1	1	1
X10	10	2	2	2	2	2	2	2
X11	11	3	3	3	4	4	4	4
X12	12	3	2	1	1	1	3	3
X13	13	2	2	3	3	4	4	4

3, or 4 as indicated from patient survey. If survey
entering response values, pull down scoring cells to
in calculation errors.

Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
4	3	3	3	4	3	4	3	4
4	4	3	4	3	4	4	4	3
2	2	2	2	1	1	1	3	3
2	2	3	3	3	2	2	2	3
3	3	4	4	3	3	3	4	4
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
4	4	4	4	1	1	1	1	1
3	4	4	4	4	4	2	2	2
3	3	3	2	2	2	2	1	1

PCQ-H 33 Scoring Ca

Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
3	4	4	3	4	3	3	3	4
3	3	2	2	4	1	1	1	4
4	4	3	2	2	2	2	4	4
2	1	1	1	1	4	4	4	2
4	4	4	1	2	3	4	1	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
1	2	2	3	3	4	4	4	4
2	2	2	2	4	4	4	4	4
1	1	3	3	3	3	3	4	4

calculator 1.0

Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33
4	4	4	4	3	4	3	3
2	3	4	3	3	2		1
3	4	4	4	4	3	3	2
3	3	3	3	3	4	3	2
3	4	1	2	3	3	3	1
3	3	3	3	3	3		4
4	4	4	4	4		4	3
2	2	2	2	2	4	2	2
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	3
4	3	3	3	2	1	1	4
4	4	2	2	2	2	3	3
4	4	4		4	4	4	3

<p>Check Your Data Entry for Errors</p>  <p>Any Invalid Values Entered?</p>	<p>Relationship Score</p>	<p>Cooperation Score</p>	<p>Access Coordination Score</p>
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NONE	2.928571429	2.333333333	2.818181818
NONE	2.666666667	2.333333333	2.636363636
NONE	3.266666667	3	2.727272727
NONE	2.733333333	2.333333333	2.545454545
NONE	2.333333333	2.333333333	2.363636364
NONE	2.733333333	2.333333333	2.636363636
NONE	3.466666667	2	2.909090909
NONE	2.2	2.666666667	2.363636364
NONE	1.6	3	2.090909091
NONE	2.133333333	2.666666667	2.363636364
NONE	2.866666667	3	2.909090909
NONE	2.2	1.333333333	3.090909091
NONE	2.933333333	2.666666667	3.090909091

<i>Homeless Specific Score</i>	Min Value	Max Value	Average Relationship Score	Average Cooperation Score	Average Access Coordination Score
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3.25	1	4	2.62014652	2.461538462	2.657342657
2.666666667	1	4			
3.25	1	4			
3	1	4			
2.5	1	4			
3	3	4			
3	3	4			
2.75	2	4			
1.75	1	1			
2.25	2	3			
2.5	1	4			
2	1	4			
3	1	4			

**Average
Homeless
Specific
Score**

2.685897436

Primary Care Quality - Homeless Survey – Patient Version 1.0

Introduction: We would like to ask you some questions about the person you see for primary medical care here at _____. This is the person you see for a check-up or for a general medical problem when it is not an emergency. This person could be your regular personal doctor, a nurse practitioner, or a physician assistant. We would also like to ask you about receiving care here at _____. Please indicate how much you agree or disagree with the following statements about the person who provides your primary medical care. Again, we are asking for you to make your best guess.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q1. My primary care provider never doubts my health needs.	<input type="checkbox"/>				
Q2. My primary care provider takes my health concerns seriously.	<input type="checkbox"/>				
Q3. My primary care provider makes decisions based on what will truly help me.	<input type="checkbox"/>				
Q4. I feel my primary care provider has spent enough time trying to get to know me.	<input type="checkbox"/>				
Q5. I can get in touch with my primary care provider when I need to.	<input type="checkbox"/>				
Q6. I can get enough of my primary care provider's time if I need it.	<input type="checkbox"/>				
Q7. If my primary care provider and I were to disagree about something related to my care, we could work it out.	<input type="checkbox"/>				
Q8. My primary care provider makes sure health care decisions fit with other challenges in my life.	<input type="checkbox"/>				
Q9. I worry about whether my primary care provider has the right skills to take good care of me.	<input type="checkbox"/>				
Q10. I can be honest with my primary care provider if I use drugs or alcohol.	<input type="checkbox"/>				
Q11. I worry my primary care provider might report my health information to the authorities.	<input type="checkbox"/>				

Instructions: For the next questions, we will ask about how your primary care provider works with other health care providers. The other health care providers can be other doctors, therapists, or other providers who help in your medical care.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q12. My primary care and other health care providers need to communicate with each other more.	<input type="checkbox"/>				
Q13. I have been frustrated by lack of communication among my primary care and other health care providers.	<input type="checkbox"/>				
Q14. My primary care and other health care providers are working together to come up with a plan to meet my needs.	<input type="checkbox"/>				
Q15. My primary care provider helps to reduce the hassles when I am referred to other services.	<input type="checkbox"/>				
Q16. I have to wait too long to get the health care services my primary care provider thinks I need.	<input type="checkbox"/>				

Instructions: The next questions are about the place where you go for primary medical care. This is the place you normally go for a check-up or for general medical problems when it is not an emergency. The place might be a clinic, hospital, or a program. For these questions think about the place and the staff who are there.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q17. Someone from my primary care provider's office returns my phone or pages.	<input type="checkbox"/>				
Q19. If I could not get to this place, I think the staff would reach out to try to help me get care.	<input type="checkbox"/>				
Q21. This place is open at times of the day that are convenient for me.	<input type="checkbox"/>				
Q23. It is often difficult to get health care at this place.	<input type="checkbox"/>				
Q25. The health care services I need are close to each other.	<input type="checkbox"/>				
Q27. When I need information about my health care, like test results, I can get it easily.	<input type="checkbox"/>				
Q29. This place tries to help me with things I might need right away, like food, shelter or clothing.	<input type="checkbox"/>				
Q31. If I miss an appointment, this place still finds a way to help me.	<input type="checkbox"/>				
Q33. Staff at this place treats some patients worse if they think that they have addiction issues.	<input type="checkbox"/>				

This survey is the product of the Primary Care Quality and Service Customization Study. It is intended for clients who have been homeless or who are leaving homelessness behind. **Clinics or agencies seeking to use it must seek permission from the developer, who can provide scoring information.** Contact: Stefan G Kertesz, MD, emailing both skertesz@uabmc.edu and Nancy Johnson, RN, (nancy.johnson8@va.gov) or Phone 205-212-3970.

Primary Care Quality – Homeless Survey – Scoring Version 1.0

Introduction: We would like to ask you some questions about the person you see for primary medical care here at _____. This is the person you see for a check-up or for a general medical problem when it is not an emergency. This person could be your regular personal doctor, a nurse practitioner, or a physician assistant. We would also like to ask you about receiving care here at _____. Please indicate how much you agree or disagree with the following statements about the person who provides your primary medical care. Again, we are asking for you to make your best guess.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q1. My primary care provider never doubts my health needs.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q2. My primary care provider takes my health concerns seriously.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q3. My primary care provider makes decisions based on what will truly help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q4. I feel my primary care provider has spent enough time trying to get to know me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q5. I can get in touch with my primary care provider when I need to.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q6. I can get enough of my primary care provider's time if I need it.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q7. If my primary care provider and I were to disagree about something related to my care, we could work it out.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q8. My primary care provider makes sure health care decisions fit with other challenges in my life.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q9. I worry about whether my primary care provider has the right skills to take good care of me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q10. I can be honest with my primary care provider if I use drugs or alcohol.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q11. I worry my primary care provider might report my health information to the authorities.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

[This space intentionally left blank]

Instructions: For the next questions, we will ask about how your primary care provider works with other health care providers. The other health care providers can be other doctors, therapists, or other providers who help in your medical care.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q12. My primary care and other health care providers need to communicate with each other more.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q14. My primary care and other health care providers are working together to come up with a plan to meet my needs.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q16. I have to wait too long to get the health care services my primary care provider thinks I need.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

Instructions: The next questions are about the place where you go for primary medical care. This is the place you normally go for a check-up or for general medical problems when it is not an emergency. The place might be a clinic, hospital, or a program. For these questions think about the place and the staff who are there.

	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know
Q17. Someone from my primary care provider's office returns my phone or pages.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q19. If I could not get to this place, I think the staff would reach out to try to help me get care.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q21. This place is open at times of the day that are convenient for me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q23. It is often difficult to get health care at this place.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q25. The health care services I need are close to each other.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

there is someone else that can help me.					
Q27. When I need information about my health care, like test results, I can get it easily.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q29. This place tries to help me with things I might need right away, like food, shelter or clothing.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q31. If I miss an appointment, this place still finds a way to help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
Q33. Staff at this place treats some patients worse if they think that they have addiction issues.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

This survey is the product of the Primary Care Quality and Service Customization Study. It is intended for clients who have been homeless or who are leaving homelessness behind. **Clinics or agencies seeking to use it must seek permission from the developer, who can provide scoring information.** Contact: Stefan G Kertesz, MD, emailing both skertesz@uabmc.edu and Nancy Johnson, RN, (nancy.johnson8@va.gov), or phone 205-212-3970.

Scoring

Questions are referred to as “Q1” “Q2” etc

Generally a positively worded item is scored 4 if the client strongly agrees, 3 if they “agree”, 2 for “disagree” and 1 for “strongly disagree”.

For example, item Q1: My primary care provider never doubts my health needs

A negatively worded item (Q22: It is often difficult to get health care at this place) is scored differently. Agreeing with it must ultimately result in lower scores, not higher scores. The scoring formula below achieves that by inserting a value of “5-Q22”

Where items are missing, we generally do not score if >50% of items are missing for a particular scale.

Optimum response if <50% of items are missing is to assume that the response to the missing one would be the mean of the responses available.

The simplest way to do this is to compute the mean of the items available, and report that as the final score.

So if the Homeless-Specific Needs scale has 4 items normally, but the individual responded to just 2 of them, giving a value of 3 for each, then the computed mean of those 2 items (obviously) is (3+3)/2.

Our research team can provide an Excel sheet to do this automatically. Check with us (skertesz@uabmc.edu and nancy.johnson8@va.gov) as you complete your work to see if it is available.

Relationship (15 items):

RawTotal_Relat: $Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8 + [5 - Q9] + Q10 + [5 - Q11] + Q17 + Q27 + Q28 + [5 - Q33]$

Relationship Score = RawTotal_Relat/15

Cooperation (3 items) :

RawTotal_Coop: $[5 - Q12] + [5 - Q13] + Q14$

Cooperation Score = RawTotal_Coop/3

Access/Coordination (11 items):

RawTotal_AccCoor: $Q15 + [5 - Q16] + [5 - Q18] + Q19 + [5 - Q20] + Q21 + Q22 + [5 - Q23] + Q24 + Q25 + Q26$

AccCoor Score = RawTotal_AccCoor/11

Homeless-Specific Needs (4 items):

RawTotal_HomeSp: $Q29 + Q30 + Q31 + [5 - Q32]$

HomSp Score = RawTotal_HomeSp/4

Missing:

Where <50% of items were missing for a particular subscale, a mean of answered items was imputed for missing items. SAS code to accomplish this is available on request from the authors.

Comparing Homeless Persons' Care Experiences in Tailored Versus Nontailored Primary Care Programs

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In the United States, homelessness affects more than 1.5 million persons per year and more than 630 000 individuals nightly.^{1,2} A lack of stable domiciles makes medical care much more challenging, and is associated with increased prevalence of medical and psychiatric conditions³ and mortality.⁴ Accompanying these challenges is a pattern of excess hospital and emergency department utilization,⁵ lack of a usual source of care,⁶ uninsured status,⁷ and inadequate access to care when needed.⁸

Health care programs to remediate homeless persons' challenges in accessing health care began in 1985, when the Robert Wood Johnson Foundation and the Pew Memorial Trust initiated funding for specialized Health Care for the Homeless Programs. In 1987, this funding was assumed by the federal government.⁹ Since that time, experts have advocated tailoring service design and delivery to assure that high quality care is provided to homeless patients.¹⁰⁻¹² However, it is helpful to view tailored service design on a continuum because modifications are diverse and may include a combination of elements, such as outreach workers to develop relationships outside of traditional settings, primary care services in shelters or on the streets, team-based care, co-location of homeless-dedicated primary and mental health providers, special education for providers, capacity to assist with sustenance needs such as food or hygiene items, and a robust consumer role in organizational governance.¹²⁻¹⁴ Some modified programs have reported improved appointment attendance,¹⁵ reductions in hospital admissions, and improvements in disease outcomes.¹⁶ However, such modifications are not required of publicly funded homeless primary care providers, and they are not the norm. For example, among 208 federally funded Health Care for the Homeless Programs in 2010, only 15 had

Objectives. We compared homeless patients' experiences of care in health care organizations that differed in their degree of primary care design service tailoring.

Methods. We surveyed homeless-experienced patients (either recently or currently homeless) at 3 Veterans Affairs (VA) mainstream primary care settings in Pennsylvania and Alabama, a homeless-tailored VA clinic in California, and a highly tailored non-VA Health Care for the Homeless Program in Massachusetts (January 2011-March 2012). We developed a survey, the "Primary Care Quality-Homeless Survey," to reflect the concerns and aspirations of homeless patients.

Results. Mean scores at the tailored non-VA site were superior to those from the 3 mainstream VA sites ($P < .001$). Adjusting for patient characteristics, these differences remained significant for subscales assessing the patient-clinician relationship ($P < .001$) and perceptions of cooperation among providers ($P = .004$). There were 1.5- to 3-fold increased odds of an unfavorable experience in the domains of the patient-clinician relationship, cooperation, and access or coordination for the mainstream VA sites compared with the tailored non-VA site; the tailored VA site attained intermediate results.

Conclusions. Tailored primary care service design was associated with a superior service experience for patients who experienced homelessness. (*Am J Public Health*. 2013;103:S331-S339. doi:10.2105/AJPH.2013.301481)

designated outreach providers (National Health Care for the Homeless Council, analysis of health resources and services administration uniform data set, unpublished data, 2012). One policy analysis reported that primary care for the homeless remains inadequate, even when insurance is available.¹⁷ The Patient Protection and Affordable Care Act (PPACA), coupled with efforts to encourage the Patient-Centered Medical Home model in public and private settings¹⁸ lends impetus to efforts to assure that vulnerable populations obtain care that is truly patient-centered.^{7,19,20}

To date, there has been no evaluation of whether efforts to tailor service delivery for homeless clients yield a superior patient experience. Homeless patients' experiences in primary care are important for several reasons. Patient ratings of their care correlate with whether care relationships are sustained,²¹ recommendations are adhered to,²² and in

some reports, whether behavioral conditions improve.^{23,24} Also, as emphasized by developers of other primary care rating tools,^{25,26} patients are the optimum reporters of whether primary care delivery fulfills the desired attributes described by the Institute of Medicine and others,^{27,28} including accessibility, comprehensiveness, continuity, ease of communication, and sensitivity to context.²⁹

Our study compares patients' assessments of their own care across 5 primary care settings that varied in the degree of homeless-tailored service design, from none (i.e., "mainstream primary care") to intensive tailoring. Given the lack of a population-specific survey, we developed a new patient-reported instrument specifically for homeless persons. We hypothesized that ratings would be superior for care obtained in settings that tailored services for homeless clientele. Because homeless patients have reported significant negative experiences

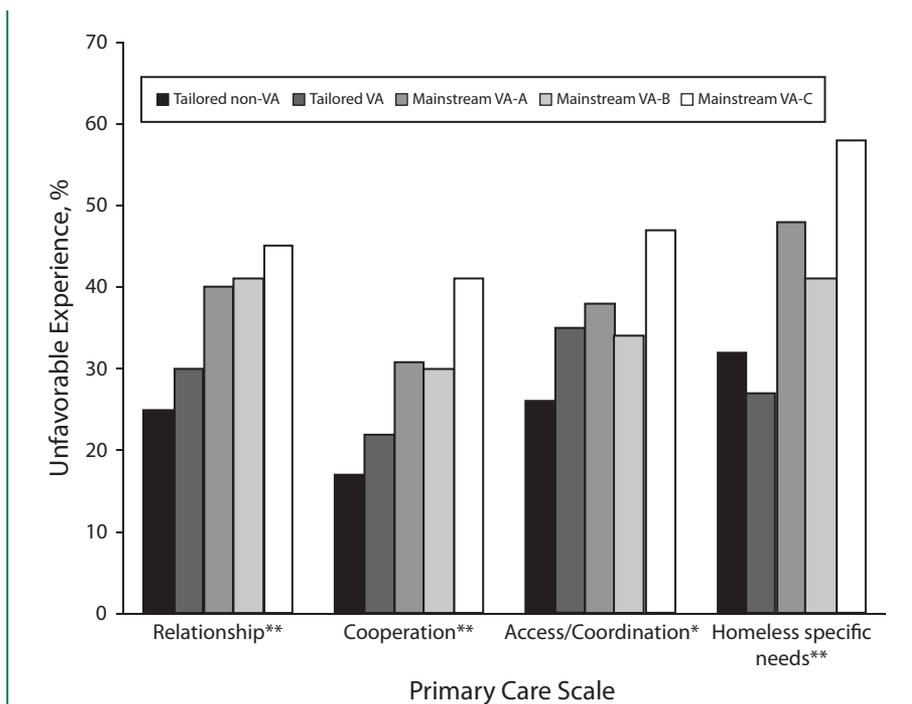
in care,^{30,31} our secondary hypothesis was that unfavorable experiences would be more common in mainstream primary care compared with tailored settings.

METHODS

This study entailed a survey-based comparison of patient experiences of primary care at 5 federally funded sites (4 within the US Department of Veterans Affairs [VA] and 1 funded through the Department of Health and Human Services) that differed in the degree to which primary care service delivery was tailored for the homeless. The assessment of patient-perceived primary care was administered as part of a 40 to 60 minute survey battery conducted face-to-face by research associates at each site from January 2011 through March 2012. Participants received a single payment of \$20 for their time.

Sites

To test the primary hypothesis, we selected 5 sites with (1) variation in service tailoring characteristics (based both on investigator direct knowledge supplemented by interviews with staff), (2) adequately sized panels of currently or recently homeless patients, and (3) the presence of a local investigative team capable of conducting a random sampling and survey methodology. The sites differed in service design and delivery in ways that the literature and clinical experience suggested could be important to homeless care (Figure 1 and Table 1).^{10,12} Notably, 3 were traditional primary care operations (in Pennsylvania and Alabama) within VA settings where most primary care occurred in standard clinics serving homeless and housed patients alike without unique staff or other resources (mainstream VA A, mainstream VA B, and mainstream VA C). Among these, mainstream VA A was a multisite health system that included, for some patients, primary care provided in shelters and a VA domiciliary. Because of the minimal provision of primary care services outside standard clinics and the absence of additional tailoring modifications, we classified this site as mainstream. The remaining 2 sites offered tailored services; one was a VA site (CA), and the other was a non-VA site (MA). The tailored non-VA site was a 26-year old



Note. VA = US Department of Veterans Affairs. Unfavorable experience was defined based on the number of “frankly unfavorable” responses falling into the highest tertile observed for that particular scale (i.e., agree or strongly agree with a negatively worded item, or disagree or strongly disagree with a positively worded item). The highest tertile for unfavorable responses was found to be 2 or more frankly unfavorable responses for the relationship, cooperation and access/coordination scales, and 1 or more frankly unfavorable responses for the homeless-specific needs scale. Tailored non-VA refers to a 26-year old Health Care for the Homeless Program. Mainstream VA sites are non-tailored primary care sites in Pennsylvania (A), and Alabama (B and C). Tailored VA is a VA homeless-tailored primary care program (California). * $P < .05$; ** $P < .01$.

FIGURE 1—Unfavorable experiences in primary care, among persons receiving primary care in 5 different primary care programs, January 2011–March 2012.

Health Care for the Homeless (HCH) Program³² that provided care in streets, shelters, and hospital-based clinics, with a specialized electronic record system, homeless-focused medical and nursing staff, as well as representation of homeless and formerly homeless persons in governing and advisory bodies. The tailored VA site, which began operations in 2002, was designed and funded specifically for homeless patients, including co-located mental health and primary care, with an emphasis on access without scheduling delay.^{33a}

Recruitment

Recruitment was designed to obtain a random sample of homeless-experienced, English-speaking persons who received primary care from each site of care. An automated query of records was used to identify persons with (1)

presumptive past or current homelessness and (2) receipt of primary care at the site of care 2 or more times in the past 2 years. In the 4 VA sites, presumptive past or current homelessness was based on an *International Classification of Diseases-9-CM* code of V60.0 (i.e., homeless) diagnosis.^{33b} In the tailored non-VA site, past or current homelessness was based on utilization of the site for care. A random subset at each site was targeted for recruitment, with the number targeted based on consideration of (1) number of homeless served at the site and (2) numbers necessary to identify differences in satisfaction with sufficient power. Entry was further restricted based on the respondent verbally affirming receipt of primary care at the site of interest. Across all 5 sites, 6371 persons met the criteria from July 1, 2008, to June 30, 2010. After random

TABLE 1—Variation in Degree of Primary Care Service Tailoring in Tailored vs Nontailored Care Programs: 5 Study Sites, January 2011–March 2012

Primary Care Service Design Characteristics	Mainstream VA B Mainstream VA C (Alabama)	Mainstream VA A (Pennsylvania)	Tailored VA (California)	Tailored Non-VA (Massachusetts)
Explicit homeless mission			X	X
Primary care in shelters and streets		X		X
Team design assures continuity from streets/shelters to clinic				X
Formal relationships to community shelters		X		X
Homeless-focused staff training			X	X
PC and mental health in same clinical space	X		X	X
PC clinic equipped to directly meet tangible needs ^a				
Linkage to national homeless organizations				X
Formerly homeless persons in organizational governance				X
> 10 y explicit homeless mission focus				X

Note. PC = primary care; VA = Veterans Affairs. Tailored non-VA refers to a 26-year old Health Care for the Homeless Program. Mainstream VA sites are non-tailored primary care sites in Pennsylvania (A), and Alabama (B and C). Tailored VA is a VA homeless-tailored primary care program (California). Characteristics pertain to the design of the primary care service utilized by study participants. Survey questions defined primary care as the person or team seen for a check-up or for a general medical problem when it is not an emergency. By design, recruitment was initiated only with persons who had recorded evidence of 2 or more primary care visits. An X indicates the characteristic pertains to the primary care service utilized. Thus “clinic equipped to directly meet tangible needs” is designated only when the primary care site utilized by patients was specifically equipped to directly meet such needs, and not designated if such a service was available elsewhere in the same hospital-based system of care.

^aSuch as clothing and food.

selection, 2584 (41%) were subject to recruiting, 870 (14%) were successfully contacted and screened, 634 (10%) entered the study, and 601 (9.4%) were included in analysis. Of the 33 entrants excluded from analysis, 19 did not receive care at the site, 1 had a mistaken identity, 1 had prohibitive behavioral issues, 1 refused to sign a Health Insurance Portability and Accountability Act consent, and 11 had survey administration that was compromised (e.g., stopped because of competing appointment; data available as a supplement to the online version of this article at <http://www.ajph.org>).

The Primary Care Quality-Homeless Survey

Although patient-reported primary care assessments exist,^{34,35} there is no standard survey instrument to assess primary care for homeless populations. Because research has shown that the concerns, priorities, and aspirations of homeless patients can differ from those in mainstream populations,^{36,37} we developed a new instrument, the Primary Care Quality-Homeless (PCQ-H) Survey.

A 2-year qualitative research process began with review of 2 Institute of Medicine reports^{27,38} to define major constructs relevant to primary care quality. These constructs were explored in semistructured interviews with 36

homeless-experienced patients and 22 experts in homeless health care. Based on interview coding, we developed a preliminary set of 78 items. After administration to all study participants, items were submitted to factor analysis to identify groups of items measuring distinct domains, and then within domains, item response theory (2 parameter graded response analysis³⁹) was applied to identify a subset of these items that was optimally discriminating for and adequately covered the range of responses for each domain. Items that were psychometrically equivalent and did not address conceptually unique aspects of the measured domains were dropped. The resulting 33-item PCQ-H Survey consisted of 4 scales: (1) patient–clinician relationship (15 items), (2) cooperation among clinicians (3 items), (3) accessibility or coordination (11 items), and (4) homeless-specific needs (4 items; data available as a supplement to the online version of this article at <http://www.ajph.org>).

Each item on the survey is a simple statement regarding the primary care provider or the site or program where the client obtained primary care (e.g., “My primary care provider makes sure health care decisions fit with the other challenges in my life”), scored on a 4-point Likert scale with reverse-coding for negatively worded items. Averaging the

responses generated a subscale score from 1 (least favorable) to 4 (most favorable).

Covariates

To more accurately compare ratings of primary care across sites, our analysis controlled for a range of patient characteristics. These characteristics were selected on the basis of existing empirical literature regarding patient-level predictors of satisfaction^{40–42} and characteristics identified by the Behavioral Model for Vulnerable populations⁴³ (which predicts service use among the homeless^{8,44,45}).

Items related to residential status were drawn from previous work focused on residence in the past 2 weeks,^{46–48} homelessness in the past 6 months,⁴⁹ and questions to assess whether the person had been “chronically homeless” in the past 3 years (≥ 4 episodes in 3 years or a period longer than 1 year).^{50,51} Health status was measured by the single-item general self-reported health question, which was shown to strongly predict both mortality and health care utilization.^{52,53} Psychiatric symptoms were assessed with the 14-item Colorado Symptom Index.⁵⁴ In some models, a binary indicator of “severe psychiatric symptoms” was based on affirming any 1 of the following experiences several times per week or more: being told one acted suspicious or

paranoid; hearing voices others could not hear, feeling suspicious or paranoid, or feeling like hurting or killing oneself or another (a safety algorithm included clinical response to persons affirming this item). Substance use measures came from the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) 3.0.⁵⁵

Analysis

Analysis proceeded in 3 phases. First, respondents participating at the 5 recruitment sites were compared with respect to a range of demographic, health, and health service utilization measures using analysis of variance for continuous variables and the χ^2 test for categorical variables. Second, continuous PCQ-H scores were compared across sites, first without covariate adjustment and then controlling for case mix, including all covariates in a multiple linear regression model. Because the recruitment strategy risked enriching the sample with “more stable” or “less vulnerable” homeless-experienced persons, analyses included a priori plans to assess for differences within stratified groups: persons with a history of chronic homelessness; persons with fair or poor general health status; and persons with current severe psychiatric symptoms. Last, in light of the interest in reducing negative experiences in homeless persons’ health care, we developed a categorical “unfavorable experience” indicator based on the number of unfavorable responses in the top tertile (33%) for each subscale, analogous to bottom-box scoring. An unfavorable response would be agree or strongly agree with a negative item (e.g., “It is often difficult to get health care at this place”) or disagree or strongly disagree with a positive item (e.g., “My primary care provider takes my health concerns seriously”). We used the χ^2 test to compare the prevalence of unfavorable experiences, adjusting for case mix with multiple logistic regression. All site comparison analyses were conducted using SAS versions 9.2 and 9.3 (SAS Institute, Cary, NC), whereas factor analyses were completed with MPlus version 6.12,⁵⁶ and item response theory analyses utilized the R module ltm.⁵⁷

RESULTS

Participants were mostly men (85%), with a mean age of 53 years (± 8.3 years). Sixty-eight

percent reported it was hard to pay for basic necessities like food and shelter (Table 2). Overall, 70% had met temporal criteria for chronic homelessness in the previous 3 years (an episode > 1 year, or ≥ 4 times in 3 years). As might be expected given the recruitment approach (mail and telephone contact), literal homelessness in the 6 months before study participation (e.g., any nights on the streets or in shelters) was less common (24% overall).

Nearly half the participants characterized their general health as fair or poor (43.1%) compared with 9.6% of Americans in the general population.⁵⁸ Severe psychiatric symptoms several times per week were common (24.5%), especially among participants at mainstream site VA C (42.1%).

For each of the 4 subscales assessed, PCQ-H mean scores (rang = 1–4) were as low (unfavorable) as 2.43 and as high (favorable) as 3.32, with standard deviations ranging from 0.35 (relationship) to 0.6 (cooperation).

Comparison of Primary Care Quality-Homeless Continuous Scores

Comparisons of unadjusted mean PCQ-H scores across the 5 sites showed that scores differed on all 4 subscales (patient–clinician relationship and cooperation, $P < .001$; accessibility or coordination, $P = .024$; and homeless-specific needs, $P = .033$). Specifically, scores at the tailored non-VA site were higher (reflecting more positive experience with care) than those at the 3 mainstream VA sites. The tailored VA site generally had scores that were either similar to those of the 3 mainstream VA sites or somewhat higher, depending on the subscale of interest. The mainstream VA 3 had consistently lower scores, often close to a full SD below the tailored VA site, which was a large effect size.

Adjusting for patient characteristics, differences remained significant for the relationship ($P < .001$) and cooperation ($P = .005$) subscales, whereas they fell short of statistical significance in the case of access or coordination ($P = .055$) and homeless-specific needs ($P = .21$).

As shown in Table 3, the magnitude of difference favoring the tailored non-VA site over mainstream VA B site was 0.25 to 0.50 SD for relationship and cooperation, which was a small to moderate effect size. The magnitude

of difference was more modest in comparison with the mainstream VA A site (because it performed better) and more pronounced in comparison with the mainstream VA C site (which performed worse).

Adjusted differences among the sites were of similar magnitude and statistically significant after restriction to subgroups defined by history of chronic homelessness or fair or poor general health status (data available as a supplement to the online version of this article at <http://www.ajph.org>). The tailored VA site typically attained an intermediate position in these comparisons.

Comparison of Categorical “Unfavorable Experience” Indicator

Finally, an unfavorable experience was 1.5 to 2 times more common at the mainstream VA sites compared with the tailored non-VA site (all $P < .01$ in unadjusted χ^2 comparisons), and these contrasts remained statistically significant after adjusting for patient characteristics for the relationship, cooperation, and access or coordination scales. Analyses comparing the tailored VA site with the tailored non-VA site obtained an intermediate result. Specifically, patients at the tailored VA site were more likely than patients at the tailored non-VA site to have an unfavorable experience on the access or coordination subscale, but not with the other 3 subscales.

DISCUSSION

We tested the hypothesis that homeless-experienced patients would rate their primary care experience more highly when care was obtained in settings that explicitly tailored services for this population through variations in service design (Table 1). This hypothesis was supported by our results, both in comparison of mean scores from the PCQ-H subscales, and in the likelihood of a categorical outcome indicating an unfavorable experience in primary care.

Patient experiences are typically influenced by patient, provider, and environmental characteristics.²⁹ Despite the range of characteristics that could dilute detection of an effect from tailored service design, survey scores for patient–clinician relationship and perceptions of cooperation among providers were highest

TABLE 2—Characteristics of Participants by Site in a Comparison of Homeless Persons' Care in Tailored vs Nontailored Care Programs: 5 Study Sites, January 2011–March 2012

Characteristics	Tailored Non-VA (Massachusetts, n = 195), No. (%) or Mean ±SD	Tailored VA (California, n=94), No. (%) or Mean ±SD	Mainstream VA A (Pennsylvania, n = 124), No. (%) or Mean ±SD	Mainstream VA B (Alabama, n = 150), No. (%) or Mean ±SD	Mainstream VA C (Alabama, n = 38), No. (%) or Mean ±SD	P ^a
Demographics						
Age, y	51.1 ±10.5	55.9 ±6.8	53.6 ±6.9	53.7 ±7.1	50.9 ±9.6	< .001
Gender						
Male	133 (68.2)	94 (100)	112 (90.3)	139 (92.7)	34 (89.5)	< .001
Female	59 (30.3)	0	11 (8.9)	11 (7.3)	4 (10.5)	
Other/transgender	3 (1.5)	0	1 (0.8)	0	0	
Race						
Hispanic, Latino, or Spanish origin	20 (10.5)	6 (6.5)	2 (1.6)	1 (0.7)	0 (0.0)	< .001
White	77 (39.5)	13 (13.8)	49 (39.5)	33 (22.0)	12 (31.6)	< .001
Black, African American	75 (38.5)	73 (77.7)	66 (53.2)	111 (74.0)	21 (55.3)	
American Indian/Alaska Native	2 (0.1)	1 (0.1)	5 (4.0)	1 (0.7)	2 (5.3)	
Asian/Pacific Islander	2 (0.1)	1 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	
Other	39 (20.0)	5 (6.4)	4 (3.2)	5 (3.3)	3 (7.9)	
Race non-White	119 (61.0)	81 (86.2)	75 (60.5)	117 (78.0)	26 (68.4)	< .001
Ever served in military	27 (14.4)	94 (100)	124 (100)	150 (100)	38 (100)	< .001
Difficulty paying for basic necessities	63 (67.7)	123 (67.7)	84 (68.9)	97 (66.9)	27 (77.1)	.823
Residential history						
Chronically homeless in past 3 y	164 (84.1)	68 (72.3)	67 (54.0)	85 (56.7)	21 (55.3)	< .001
Spent ≥ 1 nights in street, in car or abandoned building or in emergency shelters, last 2 wk	37 (18.7)	7 (7.5)	10 (8.1)	14 (9.3)	1 (2.6)	.002
Self-designates as currently homeless	61 (31.3)	27 (29.0)	33 (26.6)	50 (33.3)	14 (36.8)	.685
Currently domiciled, last 2 wk ^b	117 (60.0)	57 (60.6)	92 (74.2)	88 (58.7)	23 (60.5)	.064
Health services						
Health insurance ^c	181 (92.8)	83 (88.3)	106 (85.5)	141 (94.0)	33 (86.8)	.078
“How many times have you seen this provider in last 6 months?”	4.7 ±5.1	2.3 ±1.8	1.6 ±1.2	3.3 ±6.8	2.2 ±2.3	< .001
Health status						
General health status fair or poor	89 (46.6)	35 (38.0)	48 (39.0)	66 (44.3)	18 (47.4)	.539
Psychiatric symptom intensity in last 6 mo, Colorado (range = 0–56) ^d	16.6 ±11.1	15.8 ±10.6	15.2 ±10.6	17.6 ±12.4	25.3 ±11.6	< .001
Severe psychiatric symptoms several times per wk ^d	40 (20.9)	21 (22.3)	18 (14.6)	50 (34.0)	16 (42.1)	< .001
Drug Global Continuum Score (ASSIST) ^e	27.6 ±27.2	23.8 ±18.8	25.0 ±23.9	18.6 ±15.4	19.8 ±18.2	.005
Alcohol Specific Substance Involvement Score (ASSIST), ^e	9.8 ±9.9	5.8 ±6.5	7.5 ±8.3	18.6 ±15.4	8.5 ±8.3	< .004

Note. VA = Veterans Affairs; Tailored non-VA refers to a 26-year old Health Care for the Homeless Program. Mainstream VA sites are non-tailored primary care sites in Pennsylvania (A), and Alabama (B and C). Tailored VA is a VA homeless-tailored primary care program (California).

^aP values are based on comparison among the 5 sites using the χ^2 test (categorical) or analysis of variance (continuous).

^b“Currently domiciled” was designated for persons reporting at least 1 night during the past 2 weeks in their “own apartment/house” or in “permanent supportive housing provided by an organization or the government.”

^cInsured status included affirmation of having “a source of insurance that can pay for your medical expenses,” including private insurance, Medicare, Medicaid, or VA benefits.

^dPsychiatric symptoms probed using previously validated Colorado Symptom Index.⁴⁸ “Severe” symptoms were being told one acted suspicious or paranoid, hearing voices others could not hear, feeling suspicious or paranoid, feeling like hurting or killing oneself or another person.

^eScores related to drug and alcohol use were devised from the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (ASSIST).⁴⁹

TABLE 3—Comparison of Primary Care Quality-Homeless Scores by Site of Care in Tailored vs Nontailored Care Programs: January 2011–March 2012

Scores	No.	Tailored, Mean \pm SD, Mean (SE), or OR (95% CI)			Mainstream, Mean \pm SD, Mean (SE), or OR (95% CI)		<i>P</i> ^a
		Tailored Non-VA	Tailored VA	Mainstream VA A	Mainstream VA B	Mainstream VA C	
Subscale scores, unadjusted							
Relationship	600	3.32 \pm 0.41	3.28 \pm 0.46	3.28 \pm 0.55	3.13 \pm 0.49	2.95 \pm 0.49	< .001 ^b
Cooperation	566	2.97 \pm 0.52	2.85 \pm 0.82	2.81 \pm 0.82	2.75 \pm 0.70	2.43 \pm 0.62	< .001 ^b
Access/coordination	600	3.17 \pm 0.40	3.10 \pm 0.48	3.15 \pm 0.53	3.12 \pm 0.44	2.90 \pm 0.39	.024 ^c
Homeless-specific needs	596	3.17 \pm 0.46	3.17 \pm 0.49	3.05 \pm 0.60	3.05 \pm 0.51	2.96 \pm 0.50	.033
Subscale scores, adjusted ^d							
Relationship	551	3.45 (0.09)	3.38 (0.10)	3.37 (0.09)	3.26 (0.09)	3.07 (0.12)	< .001
Cooperation	522	3.15 (0.13)	2.96 (0.15)	2.93 (0.14)	2.89 (0.14)	2.71 (0.18)	.005
Access/coordination	551	3.29 (0.08)	3.19 (0.10)	3.24 (0.09)	3.24 (0.09)	3.03 (0.11)	.055
Homeless-specific needs	547	3.38 (0.09)	3.38 (0.11)	3.25 (0.10)	3.31 (0.10)	3.26 (0.13)	.209
Unfavorable experience ^{d,e}							
Relationship	551	Ref	1.84 (0.96, 3.54)	2.60 (1.49, 4.56)	2.57 (1.48, 4.47)	2.38 (1.03, 5.48)	.005
Cooperation	522	Ref	1.87 (0.88, 4.00)	2.73 (1.46, 5.09)	2.73 (1.45, 5.14)	2.70 (1.06, 6.84)	.01
Access/coordination	551	Ref	2.36 (1.22, 4.57)	2.50 (1.42, 4.41)	1.96 (1.11, 3.46)	2.38 (1.02, 5.56)	.018
Homeless-specific needs	547	Ref	0.96 (0.51, 1.81)	2.15 (1.27, 3.63)	1.45 (0.87, 2.44)	1.90 (0.85, 4.28)	.021

Note. CI = confidence interval; OR = odds ratio; VA = Veterans Affairs. Tailored non-VA refers to a 26-year old Health Care for the Homeless Program. Mainstream VA sites are non-tailored primary care sites in Pennsylvania (A), and Alabama (B and C). Tailored VA is a VA homeless-tailored primary care program (California).

^aIn unadjusted comparisons, the *P* value is from an overall test for significant differences among the 5 included sites. In the 2 adjusted analysis, the *P* value reflects a test of whether the site (5 categories, degrees of freedom = 4) was significant after controlling for variables detailed under footnote b.

^bPost hoc tests revealed significant pairwise differences between tailored non-VA and mainstream VA B; tailored non-VA and mainstream VA C; tailored VA and mainstream VA C; and mainstream VA A and mainstream VA C.

^cPost hoc tests revealed significant pairwise differences between tailored non-VA and mainstream VA C; and mainstream VA A and mainstream VA C.

^dAdjusted analyses control for age, gender, Black race, having had one's own domicile (apartment or house) in past 2 weeks, psychiatric symptoms (Colorado score), drug and alcohol risk scores on the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), general self-reported health, and low income status.

^eUnfavorable experience was defined based on the number of "frankly unfavorable" responses falling into the highest tertile observed for that particular scale (i.e., agree or strongly agree with a negatively worded item, or disagree or strongly disagree with a positively worded item). The highest tertile for unfavorable responses was found to be 2 or more unfavorable responses for the relationship, cooperation and access/coordination scales, and 1 or more unfavorable responses for the homeless-specific needs scale.

where homeless-tailoring was most pronounced. The comparison of "unfavorable experiences" produced a more striking contrast. For 3 subscales (relationship, cooperation, and access or coordination), such unfavorable experiences were 1.5 to 2 times more frequent in the 3 mainstream settings. The tailored VA site obtained results that were, on whole, intermediate, which often lined up with the 2 better performing mainstream VA sites (in analyses of mean scores), and were sometimes more like the tailored non-VA site (e.g., for unfavorable experience on items related to relationship, cooperation, and homeless-specific needs).

A review of study sites (Table 1) underscored that service tailoring was not all-or-none, but rather could be viewed on a continuum. The tailored VA site had fewer elements of tailoring than the tailored non-VA site, and attained ratings that were, on the

whole, intermediate between the mainstream VA sites and the tailored non-VA site. The mainstream VA A site offered some shelter-based and domiciliary-based primary care for a subset of patients, which was also a potential element of tailored service design.

Tradeoffs characterize the question of whether to prioritize mean score comparisons versus a categorical unfavorable experience. We believe both are useful. As noted for the widely used Consumer Assessment of Health Plans,⁵⁹ mean scores are more precise in capturing performance relative to average, but experience the downside that scores are compressed in a small part of the available range and could be hard for consumers to interpret. Conversely, categorical results better illustrated important outcomes to consumers, although they sacrificed precision.⁵⁹ In this study, both sets of results aligned with the expectation that

high levels of tailoring were associated with a better experience. Importantly, however, we could make no claim to a correlation between improved patient experiences with any medical outcome, such as decreased morbidity or mortality. Health improvements might only be demonstrable through study of persons whose poor experiences led to disengagement from primary care, a group we were not positioned to study.

Limitations and Strengths

This study had limitations. First, individuals were not randomly assigned to clinics. Thus, it was possible that some characteristics of the patients or the 5 clinical settings, other than service tailoring, could account for the results. It could be speculated that VA facilities delivered a less patient-friendly experience than non-VA organizations. However, the higher

quality reported from the VA in comparison with the private sector settings,⁶⁰ coupled with VA satisfaction ratings similar to those from commercial insurance,⁶¹ made this less plausible. Similarly, although homeless veterans differed from homeless nonveterans in some samples, the differences were not systematic and consistent across studies.⁶² Ultimately, more robust efforts to disentangle potential VA-specific influences await research from a wider range of VA and non-VA care settings.

We measured and adjusted for several patient characteristics, but it can be assumed that other environmental factors influenced results. For example, the 38 participants at the mainstream VA C site offered considerably lower ratings. Because that facility included a regional psychiatric and rehabilitative facility, it was conceivable that aspects of its referral pattern differed in ways not captured by our measures or by the homeless-tailoring concept.

Second, by studying 4 VA sites and a health center in Massachusetts, few in the sample lacked financial coverage for care, and questions concerning financial access might have been less informative. Because financial barriers arise elsewhere,⁶³ we believed these items might prove helpful in other settings.

Lastly, recruitment utilized a random record query, with initial contact often via telephone or mail. Although reducing a bias toward “happy customers” obtained with waiting room samples, our sample was dominated by persons who were homeless-experienced rather than homeless at the time of the survey. Because results favoring tailored care were more pronounced among vulnerable subgroups (i.e., persons who met the federal chronic homeless definition, or persons in fair or poor health), we believed this was not a severe limitation.

Alongside limitations, our study had strengths in the breadth of characteristics assessed and statistically adjusted, and in randomly sampling a population that could be challenging to recruit. Finally, our study might be the first to utilize homeless patients in every aspect of questionnaire design. The resulting 33-item instrument might be useful with homeless and potentially other vulnerable populations facing challenges to obtaining high-quality primary care.^{30,36,64}

Implications for Primary Care Settings

Understanding how specific organizational characteristics affect patients’ primary care experiences will require further research. However, some speculation could be offered regarding the relationship and cooperation subscales, in which differences were most pronounced. Patient perceptions of cooperation among caregivers might be influenced by actual co-location of services (e.g., primary medical, mental, social work) as well as demonstration that team members actually communicated with each other in ways that went beyond the medical record. Communication might become evident to patients when they see providers speaking with each other, when providers mention each other by name, or when they describe conversations with other team members. Such events might occur more readily and be most apparent to patients when care is delivered in distinct mission-driven teams, as in the 2 tailored settings. Items that scaled together as the “relationship” subscale encompassed aspects of communication and trust. In mainstream settings, homeless patients might feel either mistrusted or unwelcome.³⁰ Tailored clinics might remediate these challenges in part by recruiting providers who wish to work with the homeless population. Mutual support and mentorship might be more readily fostered among like-minded professionals, so that challenges to the clinical relationship (e.g., a lost prescription, a missed appointment) are handled constructively.

Implications for Health Care Policy

A recent policy analysis found that the dominant mainstream model for delivering primary care to homeless individuals is not adequate, but little empirical evidence exists to guide selection of a superior approach.¹⁷ Both the US Department of Veterans Affairs and the US Department of Health and Human Services support some tailored programs focused on the primary care of homeless individuals, and they have the wherewithal to encourage tailored approaches to care, to the degree that evidence in their favor is persuasive. Patient reports of their own experiences offer important evidence in favor of expanding these tailored approaches.

More broadly, these findings have implications for how health care system changes may affect homeless patients, many of whom

will become eligible for Medicaid under the PPACA. The Act funds payment and delivery arrangements across insurers, and implements demonstration projects that seek to improve quality and accountability. However, identifying the optimum mechanism to assure good care experiences for vulnerable patient populations remains a key challenge. Federally Qualified Health Centers, which PPACA expands, have in recent years been encouraged to seek recognition as Patient-Centered Medical Homes according to national criteria.⁶⁵ A number of criteria embody principles of practice adopted by homeless-tailored programs, including an emphasis on coordination, accessibility, and individualizing care to patient needs and circumstances.^{12–14,66} In this regard, the experience of successful homeless primary care programs could inform policymakers dedicated to vulnerable patient populations. The present study suggests that tailored service delivery matters to patients in ways that are readily measurable. Future work will be needed to learn which aspects of service tailoring matter most, and whether they are easily translated across service environments for both homeless and nonhomeless patient populations. ■

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Contributors

S. G. Kertesz conceptualized and designed the study, designed the data and collection procedures, collected data, analyzed and interpreted results, wrote the primary

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Human Participant Protection

Research was conducted under the approval of 5 separate institutional review boards at the 5 included study sites. We affirm that the research was conducted in keeping with the Principles of the Ethical Practice of Public Health.

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