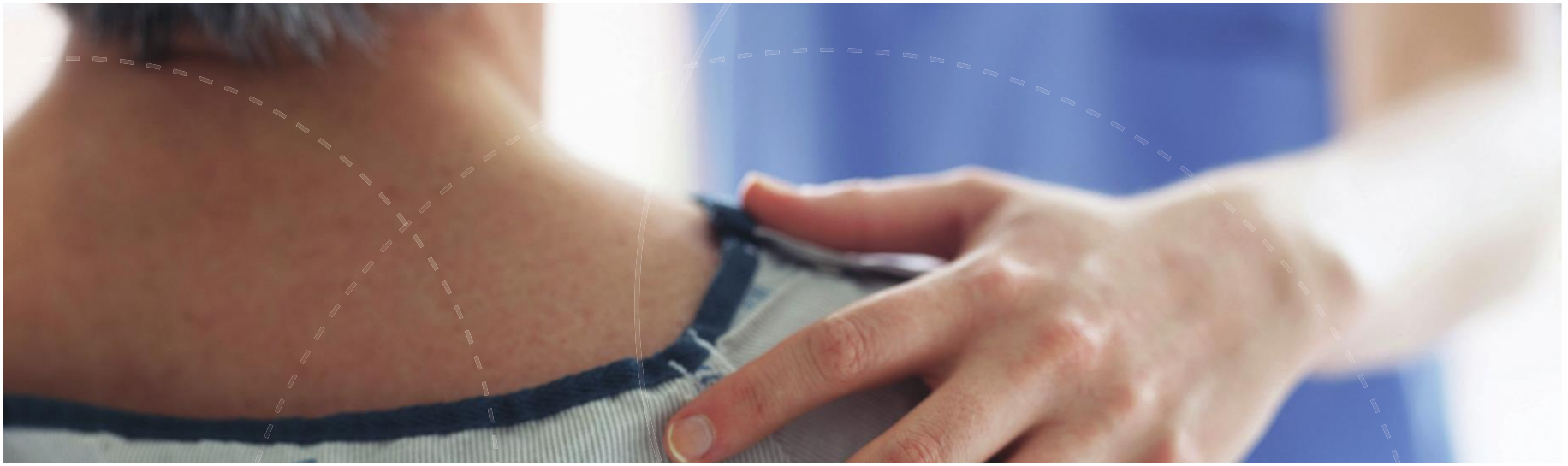

Content Coding for Contextualization of Care (4C):
Assessing Attention to Life Context in Care Planning

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VA HEALTH CARE Defining EXCELLENCE in the 21st Century

Questions

- What is “contextualization of care”?
- What is a “contextual error”?
- **How are contextual errors identified? (4C Coding)**
- How common are they?
- Why do they matter?

Contextualization of Care

A plan of care is contextualized when it adapts research evidence to patient context.

Contextual Error

A care plan that is inappropriate given a particular patient's context

Looks correct if you don't know the back story.

How do you detect contextual errors?

You have to be able to listen in on the visit.

Two ways to do that:

- The Unannounced Standardized Patient (USP).

- Real patients who carry a concealed audio recorder

From a USP encounter….

- Aaron James is a 42 year old man whose asthma flared up after he lost his insurance and could no longer afford to take an expensive brand-name inhaler as prescribed.
- At one point during the visit with his doctor he commented that “Boy, it’s been tough since I lost my job.”
- The doctor replied “I’m sorry to hear that. It’s been a rough economy lately. Do you have any allergies?”

Outcome: Mr. James left with a higher prescribed dosage of a medication he already could not afford and a referral for pulmonary function tests.

Same USP, Different Doctor

- *Exact same comment:* "Boy, it's been tough since I lost my job."
- *Different response:* The doctor replies: "I'm sorry to hear that. How has it been tough? Is it affecting your health care?"
- Mr. James reveals that he cannot afford his medication.

Different Outcome: Mr. James left with a much less costly generic version of the medication that he said he could afford.

Same USP, 50 Doctor Visits

- Only about 30% of the time did he leave with a care plan that addressed the reason for his asthma symptoms.

- Most didn't ask the evident question:

"How has it been tough since you lost your job?"

Another USP…

- Gregory Garrison is a 72 year old man who has been losing weight since he lost a job as a security guard, has been intermittently homeless, and able to get a good meal only about three times a week.
- He presents with weight loss.
- Wears old, ill fitting clothing.
- Physician screens for depression but does not inquire about food insecurity.

Outcome: Orders a CT scan, colonoscopy, CXR and labs for a malignancy work up for unexplained weight loss.

"Mr Garrison" visits another doctor:

- *Different response*: Physician asks patient if he is having trouble accessing food.
- Patient replies "Well, I get over to the soup kitchen at the church over by where I'm staying a few times a week, but I hardly ever get a good meal otherwise."

Different Outcome: Social worker is consulted and patient is referred to Meals on Wheels

Same USP, 50 Doctor Visits:

- "Mr. Garrison" made visits to 50 physicians portraying the same case.
- Only 37% of the time did he leave with a care plan that addressed the reason for his weight loss.
- Most didn't ask the evident question:

"Are you having trouble getting enough food?"

What went wrong?

Followed a guideline:

- Mr James: Adding more medicine for poorly controlled asthma.
- Mr. Garrison: ordering a malignancy work up for "unexplained weight loss"

But inattentive to the context:

But neither was appropriate for these particular patients *given their particular situations*

4 USP Scripts, 400 visits

- Physicians contextualized care plan only 22% of the time. 78% made contextual errors.*

- Contextual errors resulted in unnecessary tests and treatments, costing a mean of $231/visit**

*Weiner SJ, Schwartz A, Weaver F, Goldberg J, Yudkowsky R, Sharma G, Binns-Calvey A, Preyss B, Schapira M, Persell SD, Jacobs E, Abrams R. Contextual errors and failures in individualizing patient care: A multicenter study. Ann Intern Med. 2010;153(2):69-75.

**Schwartz A, Weiner SJ, Weaver F, Goldberg J, Yudkowsky R, Sharma G, Binns-Calvey A, Preyss B, Jordan N. Uncharted Territory: Measuring Costs of Diagnostic Errors Outside the Medical Record. BMJ Quality & Safety. 2012;21:918-924.

Contextualizing Care is a 4 Step Process

1. Recognize a *Contextual Red Flag*: A clue that something in a patient's life situation might be impacting their care
2. Pursue the clue with a *Contextual Probe*: An attempt to inquire about a contextual red flag to find out what in the patient's life situation might be impacting their care.
3. Identify, when present, a *Contextual Factor*: Anything in a patient's life situation that is impacting their care.
4. Establish a *Contextual Plan of Care*: A care plan that takes contextual factors into account so that the care will be effective.

Contextual Errors are Cognitive Errors

Two lapses:

1. Either: Clinician is inattentive to *contextual red flags* that a *contextual factor* might account for a health or health care problem.
2. And/or: Clinician is aware of *contextual factor*, but does not address it in the care plan.

Contextual Factors sort into 12 Domains

Areas to consider when there are clues that a patient's circumstances or behaviors may need to be addressed when planning their care.

1	**Access to Care**	7	**Attitude Towards Illness**
2	**Competing Responsibility**	8	**Cultural Perspective/Spiritual Beliefs**
3	**Environment**	9	**Emotional State**
4	**Financial Situation**	10	**Health Behavior**
5	**Resources**	11	**Relationship with Health Care Provider and System**
6	**Social Support**	12	**Skills, Abilities and Knowledge**

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Missed opportunities to probe:

- **Red Flag:** The patient mentioned that he was not taking his blood pressure medication.

- **No Probe:** The doctor did not asked the patient why. They did renew it, though. Missed opportunity to assess adherence and whether anything in the patient's life circumstances was impacting their ability to manage their medications.

Missed opportunities to probe or contextualize care:

- **Red Flag:** The patient had lost a significant amount of weight since his last visit.
- **No Probe:** The provider did not inquire as to what was going on in the patient's life.
- **Contextual Factor Revealed by Pt.:** The patient went on to say that his wife had died four months ago and she had been the one to prepare meals. Now that his wife was gone, he didn't cook or eat as he had before. (Domain: Social Support)
- **No Contextual Plan of Care:** The provider did not respond. Missed opportunity to explore ways for the patient to cook more or become more socially engaged, such as inviting friends over for meals.

Physician probes, identifies factor, does not address it in care plan

- **Red Flag:** A patient with high blood pressure, when asked, stated that he was not checking his blood pressure at home as recommended because of the machine he owned.
- **Probe**: The provider asked the patient what kind of blood pressure machine he had at home.
- **Contextual Factor:** The patient responded that he had an old fashioned sphygmomanometer and had no idea how to use it. (Domain: Skills, Abilities, and Knowledge)
- **No Contextual Plan of Care Made:** The provider didn't say anything and continued with the visit. The provider could have suggested the patient bring in his equipment to learn how to use it, or could have ordered an automated blood pressure machine for the patient.

Physician probes, identifies factor, and addresses it in care plan

- **Red Flag:** The patient had a recent increase in the number of times he had fallen. When asked, he declined to get a walker.
- **Probe**: The doctor asked the patient to explain his thinking regarding using a walker.
- **Contextual Factor:** The patient stated, “If I use one, I’m an old person!” (Domain: Attitude Towards Illness)
- **Contextual Plan of Care:** The provider addressed the patient’s feelings by pointing out that young people use walkers when they are recovering from injuries and that using a walker would make him safer, not old. He said the doctor had a point and he would try one out.

4c Coding

Coding Manual and spreadsheet at:
https://dataverse.harvard.edu/dataverse/4C

- Purpose: identifying and tracking contextual errors and contextualization of care during clinical encounters
- Contextual red flags extracted from medical record and audio
- Contextual probes, factors and plan of care from audio
- May also track outcome of contextual red flag
- 90% inter-rater agreement
- Validation study: Weiner SJ, Kelly B , Ashley N, Binns-Calvey A, Sharma G, Schwartz A, Weaver FM. Content Coding for Contextualization of Care: Evaluating Physician Performance at Patient-Centered Decision Making. Medical Decision Making. 2014;34(1):97-106.

4C Studies with Real Patients

- *Real Patients Collect Data*: About 600 real patients carried concealed audio recorders into their visit.*
- *Measurement:* Coded audio and chart using "4C"
- *Outcomes:* Followed patients for several months and coded outcome of presenting contextual red flag (e.g. loss of diabetes control).

*Weiner SJ, Schwartz A, Sharma G, Binns-Calvey A, Ashley N, Kelly B, Dayal A, Patel S, Weaver FM, Harris I. Patient-Centered Decision Making and Health Care Outcomes: An Observational Study. Annals of Internal Medicine.

Real Patient Example

Ms. Geller presented with a loss of control of diabetes: Hgb A1c was 9.7. (too high) Used to be 7.0 (better).

Contextual red flags: She revealed that she recently moved and her meds got “all messed up.”

Failure to probe context: Physician did not ask about medication adherence.

Failure to contextualize care plan: Physician increased dosage of insulin but did not address patient’s confusion.

Outcome: Four months later A1c is 9.8.

What we've learned

- Context matters: In about 40% of real ambulatory visits, effective care depends on identifying and addressing patient context.
- Often overlooked: In about 40% of encounters in which care depends on attention to context, physicians overlook context --i.e. there is a contextual error.
- Harmful: Contextual errors *predict worse health care outcomes.*
- Expensive: Contextual errors *result in overuse and misuse of medical services with higher costs.*
- Wide variability: Physicians vary greatly in their attention to patient context.
- Surprising Finding: Physicians who did well didn't take longer.

Weiner SJ, Schwartz A. Contextual errors in medical decision making: overlooked and understudied. Academic Medicine: Journal of the Association of American Medical Colleges. 2016;91(5):657-662.

Can clinicians do better?

Studying two approaches to improve how doctors practices:

Experiential learning: A workshop series on contextualization of care. Fourth year medical students and residents.

Finding: They acquired the skill but it didn't improve performance in practice.*

Audit & feedback: Patients audio recorded their visits; information fed back to care team.

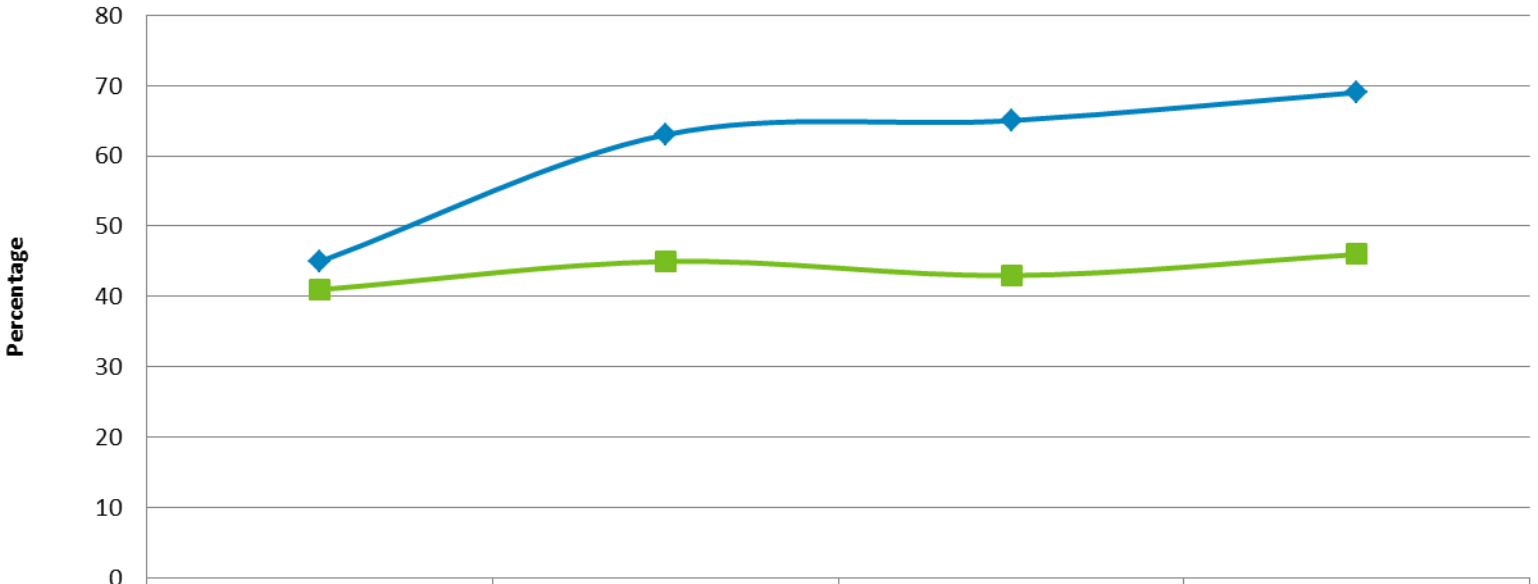
Pilot Data (2015): trend towards improved performance**

*Schwartz A. Weiner SJ, Harris I, Binns-Calvey A. An educational intervention for contextualizing patient care and medical students' abilities to probe for contextual issues in simulated patients. JAMA 2010;304(11):1191-1197.

Weiner SJ, Schwartz A, Sharma G, Binns-Calvey A, Ashley N, Kelly B, Dayal A, Patel S, Weaver FM, Harris I. Patient-Centered Decision Making and Health Care Outcomes: An Observational Study. Annals of Internal Medicine. 2013;158:573-579.

**Weiner SJ, Schwartz A, Sharma G, Binns-Calvey A, Ashley N, Kelly B, Weaver FM. Patient collected audio for performance assessment of the clinical encounter. Jt Comm J Qual Patient Saf. 2015;42(6):273-278.

Example of trend data as reported to PACT teams:
Rate of Probing *Contextual Red Flags* and of *Contextualizing Plan of Care* in response to feedback and training



	3/20-5/15/13 Mtg. on 5/16 at mtg.: 12 attndngs. 50-70 total 7 Cmpltd. Exercises	5/16-7/17/13 Mtg. on 7/18 at mtg.: 10 attndngs. 50-70 total	7/18-9/18/13 Mtg. on 9/19 at mtg.: 10 attndngs. 50-70 total 3 Cmpltd. Exercises	9/19-11/13/13 Mtg. on 11/21 at mtg.: 15 attnding 50-70 total 6 Cmpltd. Exercises
POC	45	63	65	69
Probe	41	45	43	46

Audit & Feedback to Prevent Contextual Error:
Changing how physicians communicate across a large organization

OVERVIEW FOR TOMORROW

1. Patient volunteer to carry encrypted audio recorders into their visits. The recorders are distributed and collected at a table in the waiting room by project staff and/or volunteers.
2. The audio recordings are uploaded to a secure server and analyzed by 4C coders who review the chart and listen to the audio for contextual red flags, contextual probes, contextual factors and contextualized care plans, employing a method called “Content Coding for Contextualization of Care” or “4C”.
3. The data is fed back to physicians, pharmacists, and nurses who may receive continuing education and board recertification credit for participating in exercises to use the data to improve their care.
4. Group and individual performance is tracked over time.

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The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.

Listening for What Matters (Oxford Univ. Press, 2016)