



Physical activity and alcohol measurement in NHS Health Checks

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1. Introduction

National Best Practice Guidance for NHS Health Checks (NHSHC) [1] states that practitioners should measure alcohol using the Fast Alcohol Screening Test (FAST), Alcohol Use Disorder Identification Test (AUDIT) or Alcohol Use Disorders Identification Test for Consumption (AUDIT-C) score. Physical activity should be measured using the General Practitioner Physical Activity Questionnaire (GPPAQ). The first NHSHC national data extract from over 9 million patient medical records identified that among the 5.1 million who attended their NHSHC, physical activity was measured in 64.5% and alcohol measured (using the AUDIT-C, AUDIT or FAST) in 38.3% of patients [2].

Using data gathered for the Risk COmmunication in NHS Health Check (RICO) study [3–5], this work aimed to explore the extent of physical activity and alcohol measurement in NHSHC. It would comprise three parts.

2. Methods

Medical records were available for 171 patients from 12 general practices in the West Midlands, who were recruited as part of the RICO study [5]. RICO involved video-recording NHSHCs that were delivered according to usual practice (using QRISK®2 to communicate CVD risk) or using the Joint British Societies (JBS3) heart age. In both cases, practitioners needed to complete the NHSHC template. Therefore, interrogation of these data to explore practices around alcohol and physical activity measurement has ecological validity. Moreover, the objective, real-time record from recorded NHSHCs offers a unique insight into practice.

This analysis involved a series of steps.

2.1 Review of medical records

Anonymised data from all 171 participants were reviewed to determine the proportion of NHSHCs in which physical activity and alcohol measurements were coded in the patient record. Read codes shown in Appendix 1 were used to examine the recording of alcohol through AUDIT-C, AUDIT, FAST, and other single items, and patient classification of physical activity level according to the GPPAQ.

This included an exploration of adherence to expected practice around the respective uses of the three main alcohol measures; specifically, where three questions that comprise AUDIT-C resulted in a score of 5 or more, practitioners should proceed to ask the remaining seven questions of the full AUDIT.

2.2 Transcripts of recorded NHS Health Checks

Transcripts of 130 NHSHCs (41 were not transcribed for qualitative analysis in RICO, due to the original study design and some NHSHCs not meeting the risk communication inclusion criteria) were examined to:

- Describe the extent to which AUDIT/AUDIT-C/FAST and GPPAQ measurements were completed in each video-recorded NHSHC

- Compare read coded activity (from medical records) with actual activity in NESHCs, and note discrepancies; i.e., if medical records and practice matched, or if activity was coded but not undertaken, or vice versa
- Extracts from transcribed NESHCs are presented to illustrate practice and explore why practitioners did/did not collect information regarding patients' physical activity and alcohol consumption.

3. Results

3.1 Patient Characteristics

Data collected relates to NESHCs undertaken between January 2018 and March 2019; with follow-up medical record review data collected up to June 2019. Medical records were available for 171 patients (Table 1). There was an equal proportion of male and females, a mean age of 58.2 years (range 40-74 yr), an ethnic mix appropriate for the region (West Midlands has ~80% White British population)¹ and a spread across deprivation quintiles (based on area of patient residence). Patients in the low CVD risk category (based on QRISK[®]2) were over-represented. Transcripts of video-recorded NESHCs were available in a subsample of the 171 patients (n=130).

Table 1. Sample characteristics (n=171)

		Mean(SD)	n	%
Age, yr (mean(SD))		58.20 (9.80)		
Gender	Male		85	49.71
	Female		86	50.29
Ethnicity	WBRI		144	84.21
	BAME		25	14.62
	Missing		2	1.17
CVD risk ^a	QRISK [®] 2	9.34 (7.15)		
	Low		102	59.65
	Medium-High		69	40.35
Deprivation ^b	Q1		32	18.71
	Q2		31	18.13
	Q3		37	21.64
	Q4		34	19.88
	Q5		37	21.64

WBRI, white British; BAME, Black, Asian and Minority Ethnic

^a CVD risk categories based on QRISK[®]2 10-year risk score: Low <10%; Medium-High ≥10%

^b Deprivation quintiles derived from Index of Multiple Deprivation 2015 [6]

¹ [ONS. Ethnicity and National Identity in England and Wales: 2011](#)

3.2 Medical Record Data

Alcohol measurement

In total 150 patients (87.7%) had a read coded alcohol measurement using one or more of the three recommended tools (AUDIT-C, AUDIT, FAST); 21 (12.3%) did not, most recorded use of an alcohol consumption question (Table 2). There was no evidence of asking about alcohol for just one patient.

Of the 171 patients, 130 (76.0%) had an AUDIT-C code and score in their medical record, of which 46 had codes for all three AUDIT-C questions. Of those 130 patients with an AUDIT-C score, 34 (19.9%) had a score ≥ 5 ; this should have led to the completion of the remaining seven questions of the AUDIT, but this was only evident for 20 (58.8%) patients. AUDIT scores were, however, recorded for a further 51 patients who did not have AUDIT-C scores ≥ 5 .

Of the 71 patients for whom AUDIT was recorded as complete, the individual questions were coded as completed in just 20 (28.2%) patients, 19 of whom had an AUDIT-C score (11 of which were ≥ 5).

The FAST tool was used for just 11 (6.4%) patients from two general practices, all of whom had an AUDIT score and 8 of whom had an AUDIT-C score; i.e., there was no evidence from medical records of the FAST tool being used in isolation.

Table 2. Proportion of patients with different NHS Health Check alcohol measurement methods coded in their medical record

Method(s) of alcohol measurement	n	%
AUDIT-C only	76	44.4
AUDIT only	17	9.9
AUDIT-C + AUDIT	46	26.9
FAST + AUDIT-C	0	0.0
FAST + AUDIT	3	1.8
FAST + AUDIT-C + AUDIT	8	4.7
TOTAL with use of recommended tool(s) ^a	150	87.7
- <i>No use of recommended tool</i>	21	12.3
- <i>Alcohol consumption question only</i>	20	11.7
- <i>Alcohol question only</i>	1	0.6

^a Recommended tools: AUDIT-C, AUDIT, FAST

Physical activity measurement

The majority of patient medical records recorded that GPPAQ had been completed (93.6%), denoted by a code for physical activity classification (inactive, moderately inactive, moderately active or active):

- 11 (6.4%) patients did not have a GPPAQ code
- 154 (90.1%) had a GPPAQ code
- 6 (3.5%) had two GPPAQ classifications coded.

3.3 NHSHC Consultation Data

Transcribed NHSHC consultations were explored to determine if/how the AUDIT/AUDIT-C/FAST and GPPAQ measurements were completed in each video-recorded NHSHC (Total N=130; Table 3).

Table 3. To show how alcohol was measured based on video-recorded Health Checks

Measure	n	%	% denominator
AUDIT-C	59	45.4	130
- Fully Completed	19	14.6	130
- Partially Completed	40	30.8	130
<i>Asked Q1; How often do you have a drink containing alcohol?</i>	28	70.0	40
<i>Asked Q2; How many units of alcohol do you drink on a typical day when you are drinking?</i>	23	57.5	40
<i>Asked Q3; How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?</i>	10	25.0	40
AUDIT			
- Required (based on information from transcribed Health Check)	40	30.8	130
- Not Required (based on information from transcribed Health Check)	84	64.6	130
Requirement Unknown	6	4.6	130
- Fully Completed	12	9.2	130
<i>and required...</i>	11	91.7	12
<i>and not required...</i>	1	8.3	12
- Partially Completed	13	10.0	130
<i>and required...</i>	6	46.2	13
<i>and not required...</i>	6	46.2	13
<i>and requirement unknown...</i>	1	7.7	13
- Specific questions asked when partially completed:			
<i>Asked Q4; How often during the last year have you found that you were not able to stop drinking once you had started?</i>	12	92.3	13
<i>Asked Q5; How often during the last year have you failed to do what was normally expected from you because of your drinking?</i>	10	76.9	13
<i>Asked Q6; How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?</i>	8	61.5	13
<i>Asked Q7; How often during the last year have you had a feeling of guilt or remorse after drinking?</i>	1	7.7	13
<i>Asked Q8; How often during the last year have you been unable to remember what happened the night before because you had been drinking?</i>	2	15.4	13
<i>Asked Q9; Have you or somebody else been injured as a result of your drinking?</i>	2	15.4	13
<i>Asked Q10; Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?</i>	1	7.7	13
- No Completion of recommended tools, but alternative questions asked	65	50.0	130
<i>...asked a question related to alcohol</i>	62	95.0	65

...asked no questions related to alcohol	3	5.0	65
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Fifty-nine of the 130 recorded NHSHCs, included some of the AUDIT-C questions; 19 patients were asked all three AUDIT-C questions, whereas 40 were asked some but not all of the AUDIT-C questions. Practitioners who partially completed AUDIT-C most commonly omitted the final question (i.e., *how often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?*).

AUDIT-C scores were calculated by the researcher, based on the information collated by the practitioner in the consultation, to determine if completion of AUDIT was required. The researcher was unable to determine whether AUDIT was required for six patients as the AUDIT-C was not completed in full (i.e., only one question was asked or no questions were asked related to units of alcohol consumption). Forty patients scored ≥ 5 using the AUDIT-C criteria meaning completion of AUDIT was required. Of those, 12 (9.2%) patients were asked all seven AUDIT questions, of which one patient was asked unnecessarily (as their AUDIT-C score was below five). This was also evident for several patients who were asked some, but not all of the AUDIT questions (by two practitioners; both HCAs). Upon further investigation, one practitioners asked the AUDIT questions to patients who scored below five suggested that *“if they [patients] drink alcohol erm you got all the longer sort of questions”* (P4_1; HCA) to ask patients. The practitioner appeared to suggest the *“whole”* (P4_1; HCA) alcohol measure should be completed for all patients who drink any alcohol. The Health Care Assistant was new to NHSHC therefore they may have misunderstood the requirements of the measure. Following the first three questions of AUDIT (i.e., questions 4, 5 and 6), the four remaining questions were asked considerably less frequently by one practitioner. Whilst not captured during the practitioner’s follow-up interview, they may have felt uncomfortable about asking the patient the remaining questions included in AUDIT and chose not to complete the measure.

Despite medical records showing that the FAST alcohol measure was used in 11 patients across two general practices, there was no evidence from recorded NHSHCs that the initial FAST question (or subsequent questions) was asked.

Half of the sample were not asked any AUDIT-C, AUDIT or FAST questions (n=65, 50%), but most of these patients were asked a question related to alcohol (n=62; e.g., What would you say you drink in a week?, How many units do you drink?, Confirmation of recorded units in patient record). As most patients provided enough information about their alcohol intake, practitioners would have been able to complete the alcohol measure within the template. There was a complete absence of questions about alcohol in just three cases.

Table 4. To show how the GGPAQ was completed based on video-recorded NHSHC consultations

GPPAQ	n	%	% denominator
GPPAQ Completed	63	48.5	130
GPPAQ Not Completed	7	5.4	130
GPPAQ Partially Completed	60	46.2	130
GPPAQ - specific questions asked when partially completed:			
GPPAQ Working Questions Asked	11	18.3	60
GPPAQ Working Questions Not Asked	49	81.7	60
<i>Not asked (working)</i>	12	24.5	60

<i>Not asked (retired/not working)</i>	36	73.5	60
<i>Not asked (working status unknown)</i>	1	2.0	60
GPPAQ Recreational/household/walking Questions Asked	58	96.7	60
GPPAQ Walking Pace Question Asked	34	56.7	60

For the GPPAQ physical activity measure, approximately half of patients (48.5%) were asked all three questions that completed the measure. Of the 60 (46.2%) patients for whom the measure was partially completed: 58 were asked about their recreational activities, 34 were asked about their walking pace and 11 patients were asked about their work-related physical activity. Only seven patients were not asked any questions about their physical activity levels.

Table 5. Frequency of communication of the measure's score, reference to guidelines, recommendations, and referrals (Total n=130)

Risk Factor	n	%^a
Alcohol		
Score given to patient	10	7.7
Practitioner referred to guidelines/result	60	46.2
Recommended to reduce alcohol	35	26.9
Referral	0	0.00
Physical Activity		
Score given to patient	53	40.8
Practitioner referred to guidelines/result	47	36.2
Recommended to increase PA	45	34.6
Referral	4	3.1

^a% as proportion of the 130 patients with recorded Health Checks

Following on from whether the practitioner completed the alcohol and physical activity measure, frequency of communication of the score, reference to guidelines, recommendations and referrals were also explored (Table 5). Very few practitioners shared the result of the AUDIT-C/AUDIT screening with the patient (7.7%); more practitioners made reference to the score (i.e., high, low) and if the patient's alcohol intake was in line with the recommended guidelines. No practitioners referred patients for alcohol consumption, but recommendations were made to reduce alcohol intake to reduce their risk of CVD (26.9%).

Compared to AUDIT-C/AUDIT, more practitioners shared the result of the GPPAQ screening with patients and recommended increased physical activity levels when the patient was found to be 'inactive' or 'moderately inactive' (40.8%). Practitioners also referred to the outcome of the measure and if the patient was engaged in physical activity in line with the recommended levels (36.2%). Only four referrals were made for physical activity (3.1%), of which two patients refused the referral.

3.4 Comparison of medical records and video-recorded NHS Health Checks

Within-patient comparisons of medical record data and recorded NHSHC data were made to determine the extent to which medical records reflected practice (Total n=130; Table 5).

AUDIT-C

Of the 130 patients with recorded NHSHC data available for comparison with medical record data, 34 (26.2%) patients' consultation data matched for AUDIT-C; i.e., practitioner had coded and completed, or not coded and subsequently not completed the AUDIT-C with the patient.

In approximately three-quarters of NHSHCs, medical record and consultation data for AUDIT-C did not match (n=96, 73.8%). Most often, the mismatch was due to practitioners recording the AUDIT-C as completed within the NHSHC template, but consultation data revealed that the practitioner did not ask any of the AUDIT-C questions (n=48, 36.9%). Yet, 46 patients were asked about their alcohol consumption, but not using questions from the AUDIT-C (i.e., What would you say you drink in a week? How many units do you drink? Confirmation of recorded units in patient record).

Less frequently, practitioners had not recorded completion of the AUDIT-C in the patient's medical record, but had completed or partially completed the measure (n=11, 8.5%).

Table 6. Comparison of medical record review (MRR) data and data from video-recorded NHS Health Checks

Alcohol measure	n	% ^a
AUDIT-C		
Data matched (coded and completed/not coded and not completed)	34	26.2
Data were inconsistent	96	73.8
<i>MRR recorded as complete, AUDIT-C questions not asked in consultation but...</i>	48	36.9
<i>...were asked an alternative question about alcohol in consultation</i>	46 ^b	35.4
<i>MRR recorded as complete, AUDIT-C questions partially completed in consultation</i>	37	28.5
<i>MRR not recorded as completed, AUDIT-C question completed in consultation</i>	7	5.4
<i>MRR not recorded as completed, AUDIT-C questions partially completed in consultation</i>	4	3.1
AUDIT		
Data matched (coded and completed/not coded and not completed)	94	72.3
Data were inconsistent	36	27.7
<i>MRR recorded as complete, AUDIT questions not asked in consultation</i>	25	19.2
<i>MRR recorded as complete, AUDIT questions partially completed in consultation</i>	11	8.5
GPPAQ DATA		
Data matched (GPPAQ in patient record and ≥1 GPPAQ question asked in consultation)	125	96.2
Data were inconsistent	5	3.8
<i>MRR recorded as complete, physical activity levels not asked in consultation</i>	1	0.8
<i>MRR recorded as incomplete, physical activity levels asked in consultation</i>	4	3.1

^a % as proportion of the 130 patients with recorded Health Checks

^b 96 is the sum of rows italicised under 'data were inconsistent' except 46 cases (a sub-sample of 48) where MRR data were recorded as complete, AUDIT-C questions were not asked in the consultation but patients were asked an alternative question about alcohol in the consultation.

AUDIT

For the majority of the 130 NHSHCs, the medical record activity matched the actual use (or not) of the AUDIT tool (n=94, 72.3%); this agreement is high, primarily because of the large proportion of patients for whom the AUDIT was not used. For 25 patients, the practitioner recorded the AUDIT as complete, but the consultation data suggested no AUDIT questions were asked. Consultation data also indicated that less than half of patients who were eligible for AUDIT screening following an AUDIT-C score of ≥ 5 , were asked all seven AUDIT questions (12/40 or 30%; Table 3) or were asked some but not all AUDIT questions (6/40 or 15%; Table 3). Practitioners either chose to explore alcohol consumption in more detail with patients who had a positive AUDIT-C screening or they suggested the patient should reduce their alcohol consumption and proceeded to the next part of the Health Check (see 3.5 for examples of practice). A small number of patients were asked some of the AUDIT questions during the NHSHC, but these were not coded in their medical record.

FAST

Where there was recorded use of the FAST measure (2 practices, 11 patients), an AUDIT-C and/or AUDIT measure was recorded. Therefore, these were included in AUDIT-C/AUDIT totals (no patients were asked the FAST question in the consultation but were asked some or all of the AUDIT-C questions, Table 2).

GPPAQ

Almost all patients' medical record and consultation data matched for the GPPAQ measurement (n=125, 96.2%). Only one participant was found to have a GPPAQ score in their medical record but no physical activity related questions were asked during the NHSHC. Whereas four patients did not have a GPPAQ score recorded in their medical record but were asked about their engagement in physical activity during the consultation.

3.5 Examples of coding vs. practice

To understand why practitioners did/did not collect information regarding patients' physical activity and alcohol consumption in NHSHCs examples of how practitioners approached alcohol and physical activity measurement, are described and interpreted.

Alcohol Measures

Many practitioners did not complete the AUDIT-C screening (i.e., practitioner did not ask all three AUDIT-C questions; n=60), but did ask patients about their alcohol consumption in other ways (n=57):

- HP *OK. Do you drink any alcohol in a week?*
P *Yes only on a Friday, Saturday night mostly ...*
HP *What do you drink?*
P *Probably 3 units both nights, so 6 units.*
HP *That's 6 a week yeah.*

P *Obviously if I am on holiday, you know it goes but I pull it back in. I sound good on paper don't I?*

HP *So just a couple of times a week yeah?*

P *Yeah, I know what I should and shouldn't be doing, and I try to keep to that.*

HP *OK your bloods now OK.*

(8_055, Female, Aged 56)

Here is an example where the practitioner did not complete the AUDIT-C measure but did collect information about the patient's alcohol consumption (n=62; Table 3). The information provided by the patient maps to two of the three AUDIT-C questions, but the practitioner did not attempt to ask the third AUDIT-C question (i.e., How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?). This may be because the practitioner knew the patient and was able to make a judgment about their alcohol intake or they had limited time to explore in further detail therefore chose to move on to the next part of the NHSHC. Below is another example where the practitioner did not ask the third AUDIT-C question:

HP *Erm alcohol units in a week roughly?*

P *I wouldn't have a clue what stage you...*

HP *Now pints 2 units*

P *Yeah*

HP *Glass of wines 2, a short is 1*

P *Erm a short is 1.*

HP *Yeah*

P *See I don't drink all week, but I usually have a drink on a Friday and I have about 8 cans or if I go out I'll have about 8 pints.*

HP *Well that, cans are about 1 to 1 and a half units, so it will be about 4 and a half maybe 5, yeah so if we said 1 and a half units and you have 4 cans so*

P *Yeah*

HP *Yeah that's going to be about 6 isn't it, so we'll put you down for 6 in a normal week*

P *Yeah double that, double it because sometimes I go out on a Sunday, sometimes I go out... drink on a Friday and sometimes on a Sunday night I go out as well but not every week.*

HP *So if we said 12 units yeah?*

P *Yeah*

HP *Its not every week its just er 2 to 4 times a month, which is fine because you're under you know what they say the normal is about 14 units a week so...*

P *Yeah, see I don't drink all week I just drink at the weekends.*

HP *Weekends, right I'm just going to do another blood pressure...*

(2_040, Male, Aged 39)

Again, the practitioner asked the patient the first two AUDIT-C questions. This resulted in a score of five, yet they did not complete the measure by asking the patient if they had consumed more than 8 units on a single occasion in the last year, nor did they proceed to complete the full AUDIT as per recommended practice. This may be because the practitioner focused on the number of units consumed per week, and as the patient was below the recommended level (i.e., 14 units per week), they perceived their level of alcohol consumption to be acceptable.

However, similar cases of not completing the full AUDIT despite scores over 5, were also identified, even when, as below, the patient openly admitted to drinking heavily:

HP *Do you have any alcohol on a weekly basis?*

P *Err pretty much.*

HP So what would you have over a 7-day period on a regular basis?
P On a regular basis I would say, I would say I would have at least between 10 and 14 cans a week.
HP So how much is that a can roughly?
P The cans are like 440 ml, so average about 80 mls a day.
HP Yeah so, that's 4 is that bitter or lager?
P Lager. **I am quite bad with alcohol if I'm honest.**
HP That's at least 40 units a week.
P A week yeah, it may be more some weeks.
HP Well the maximum you should have is 14, that's for male and female, they've reduced this in the past 18 months, it used to be 24, so **do you need to start reducing it a little bit if you can OK.**
P That's err, **I'll, let me work on the biscuits first, one step at a time.**
HP But you are better, like I'd say is to start reducing it, if it's only 1 can less it makes a difference if you keep doing that OK? Err would you say you had a good diet, plenty of fruit and veg on a regular basis?
(5_185, Male, Aged 47)

Above, the practitioner asked the patient about their alcohol consumption which resulted in the patient suggesting that they are "quite bad with alcohol". Whilst the practitioner correctly suggested that the patient reduced their alcohol intake, they did not go on to complete the AUDIT measure to understand the patients' relationship with alcohol. The patient also seemingly rejected the practitioner's suggestion to reduce their alcohol intake, which was not further explored with the patient. This may be due to a lack of understanding and/or training around the purpose of AUDIT, the practitioner's focus on the process of NSHC or time constraints.

Some practitioners completed the AUDIT-C in full (n=19, Table 3), and asked some but not all of the AUDIT measure:

HP OK so erm the dreaded alcohol questionnaire OK.
P Oh no.
HP Hm.
P Definitely too much.
HP OK so **how many units would you say you drank in a week.**
P **I normally drink a litre of whiskey per week which is 40, I think that's 40 units isn't it...**
HP OK.
Pwhich I know I need cut down; in fact I am in the process of cutting down.
HP OK. Hm **it's very high.**
P Yeah.
HP OK so hm obviously the guidelines are...
P 14 is it.
HP Yeah erm yeah quite a bit a lower than that so yes and we do advise that you know have two full days off from drinking.
P Yeah I do that occasionally and I seldom drink every day.
HP So obviously more alcohol...
P Basically its sounds such a lot but have a couple of small whiskeys at night and it's gone in a week.
HP It all adds up its does yeah.
P I say small whiskeys they are probably bigger than what you get in the pub. But yeah I am aware of that and I need to do something about that.
HP Would you drink more than 4 times in a week, 4 nights in a week.
P Possibly.

HP *Yeah. So on average how many would you how many glasses or units would you have in a day, when you have a drink.*

P *Well if you divide that by 5 - 40 units I say must 8 per day yeah.*
[pause]

P *Over 5 days.*
[long pause]

HP *So let me catch up with myself.*
[long pause]

HP *Hm OK so **because you have scored quite high we got just a few extra questions to ask about your erm drinking.***

P *OK.*

HP *OK so erm so **would you be able to stop drinking** if you started, you don't have finish and wait until you've finished the bottle or....*

P *Oh goodness no, no.*

HP *No.*

P *Normally I have a couple before I go to bed and then go to bed and no I don't finish any bottles or anything like that.*

HP *Err...*

P *I think it's more like a habit rather than addition.*

HP *It's **just in the evening rather than like yeah.***

P *Yeah, yeah, absolutely yeah late in the evening usually it's not like I am sitting drinking all night or drinking during the day I have never....*
[long pause]

HP *We will try your blood pressure again then OK*
(8_085, Male, Aged 67)

Here, the practitioner identified that the patient consumed high levels of alcohol. They then asked the first AUDIT question but did not complete the measure following the patient's response. Perhaps because of the patient's reaction to the question the practitioner decided not to continue or by the patient's own admission of being "in the process of cutting down" they accepted that the patient was already doing something about their alcohol consumption and chose not to explore further. Regardless, the quote above is another example of a missed opportunity to understand the patient's relationship with alcohol.

Another practitioner openly shared their thoughts about AUDIT with the patient:

HP *And alcohol?*

P *Alcohol yes unfortunately.*

HP *Err units a week do you know roughly.*

P *Hm oh possibly erm 2 or 3 half pints, maybe on a Friday, Saturday night maybe a bottle of wine.*

HP *OK erm so probably the upper limit is it 14 units.*

P *I would say yes.*

HP *OK.*

P *Yeah but only at weekends.*

HP *Yes that's fine. Like I say just a few questions about alcohol intake. **So how often do you have drink containing alcohol so is it 2-3 times a week.***

P *2-3 yeah.*

HP *Yeah and **how many units of alcohol do you drink on a typical day** when you are drinking.*

P *Maybe half a bottle of wine 'ish that's, standard maybe either lager or wine not whisky or gin or anything.*

HP *3-4 pints.*

P Halves yeah.

HP OK.

P Or half a bottle of wine yeah.

HP OK.

P Yeah a bottle over the weekend yeah.

HP That's fine **and how often have you had 6 or more units.**

P Err how often?

HP On a single occasion in the last year.

P 6 units is probably 1 bottle is it.

HP Yeah roughly.

P Maybe once a month, or maybe not quite yes.

HP That's less than a month.

P Yeah less yeah.

HP That is fine. It's quite difficult to work out the alcohol.

P Yeah. It's something I should not drink yes.

HP Occasionally yes...

P It's OK yes.

HP ...it's normally but if it was a daily thing...

P Daily not daily, and I don't do hard stuff...

HP Yeah.

P ...the wine is also dangerous so.

HP OK so just few more questions. **How often during the last year have you found that you were not able to stop drinking once you had started?**

P Oh never.

HP **Never. These are a bit awkward ones to ask. How often during the last year have you failed to do what was normally expected from you because of the drinking?**

P Never.

HP OK. I am going do never.

P No that's fine yes, yes.

HP It's **nearly the same the questions.**
(4_151, Female, Aged 58)

Whilst the practitioner completed the AUDIT-C questions with the patient, they did not appear to confidently calculate the patient's alcohol intake and described the AUDIT questions as "*a bit awkward*". Following the second AUDIT question, the practitioner chose to complete the questions with the same answer as they are "*nearly the same questions*". This may be due to a lack of confidence in asking the AUDIT questions to patients who show a positive screen from the AUDIT-C.

In keeping with this theme, follow-up interviews with practitioners who participated in the RICO study, a minority (n=3) suggested that it can be "*quite hard*" (P8_2, Practice Nurse) to talk to patients about alcohol consumption. It was perceived that patients often "*clam up as soon as you mention 14 units*" (P8_2, Practice Nurse) and those who are over the recommended limit "*get very offended*" (P6_2, Practice Nurse). Another practitioner suggested that patients "*don't really want to disclose much, but then afterwards it's like, actually I have to be honest, I do drink more than what I should*" (P8_1, HCA). Whilst others that were recommended to speak to the GP about their alcohol consumption "*did[n't] go and see doctor and they were quite shocked at what I told them, but also quite offended*" (P6_2, Practice Nurse). Though limited, data from follow-up interviews with practitioners suggested that some patients may be reluctant to engage with communication around alcohol consumption.

A minority of patients were not asked about their alcohol consumption during the NHC consultation:

HP *So certainly everything is all good, all normal there, don't smoke, no alcohol. So for a healthy heart you need to have – one handful is a portion of any kind of protein, that's like your chicken and your fish.*

P *Yeah that's what I have.*

HP *And one handful is also a portion for carbohydrates, which is your rice, your pasta and your bread, potatoes that sort of thing. Try and eat two portions of oily fish every week.*

P *A week?*

HP *And try and not to have too much in the way of red meat, because that can cause high cholesterol, so things like bacon, sausages, ham that is all red meat as well, because pork is a red meat, so try and keep that down. But I mean your cholesterol it was absolutely fine, what was it? It was 4.9 which is ideal. So all in all there is not much more I can add. It's all very good yeah, you are reassuringly healthy, everything is level. That's it really.*

P *Yeah, well that was quick.*

HP *We could spend more time talking about diet, smoking, alcohol, etc but.*

P *No I will be alright.*

HP *No?*

P *No*

HP *So short and sweet for you – yeah that's it then.*

P *That's great – that's good to know.*

HP *Yes, it is, it is, it is really good.*

(3_075, Male, Aged 50)

The practitioner mentioned alcohol when suggesting that more time could be used to discuss risk factors but did not ask the patient about their alcohol intake during the NHSHC. This may be because the practitioner already knew, or made an assumption, that the patient did not drink alcohol from prior contact outside of the NHSHC. Regardless, the patient refrained from accepting the opportunity to discuss further.

Finally, below is an example of a practitioner that asked all questions in the AUDIT-C and proceeded to ask all questions included in AUDIT following a positive screening:

HP *...lovely. **How often do you drink alcohol?***

P *Err probably 3 times a week.*

HP *And **what do you have on each occasion.***

P *Err, several cans of lager, probably 6-7 cans of lager.*

HP *On each occasional?*

P *On each occasion yeah.*

HP *So that's about 1.5 units,,,*

P *I am cutting down on that.*

HP *...9 – 18 probably hitting about 30 units a week of alcohol aren't you?*

P *Is that too much again?*

HP *Far too much double the intake of what you should have.*

P *Is it really?*

HP *You shouldn't have any more than 14 units a week.*

P *Right.*

HP *OK so you can, I tell you how many units is in that can. So if you work on that and work to try and stick to 14 units a week.*

P *Right.*

HP *You probably find that little bit of weight that's over, just by cutting down on that will come off without even trying to be honest.*

P *I suppose it will stop everything won't it really.*

HP *Yeah. So I need to add the extended on that 2-3 times a week, 25 units. **Erm how often during the last year have you found that you were not able to stop drinking once you started?***

P *What as in on the nights?*

HP ***You can control it.***

P *Yeah I can control it.*

HP ***How often during the last year have you failed to do what was normally expected of you because of your drinking, like getting up for work.***

P *Never.*

HP ***How often during the last year have you needed a drink in the morning?***

P *No, I don't do that no. (laughs)*

HP ***How often have you felt guilty or remorse about drinking?***

P *Well its happened yes I suppose so yeah.*

HP *Would you say that you felt that in the last year?*

P *Erm yeah I probably have yeah when I have been out with friends.*

HP *Shall I put less than monthly, monthly?*

P *Err perhaps twice a year.*

HP *OK less than monthly.*

P *Its mainly self-inflicted and I feel sorry for himself.*

HP ***How often during the last year have you been unable to remember the night before?***

P *Probably the same to be fair.*

HP *A couple of times.*

P *Yeah that doesn't sound good does no.*

HP ***Have you ever been injured as a result of your drinking?***

P *Erm.*

HP ***...or has anyone else been injured as a result of your drinking?***

P *Yes, I fell down stairs it not so long ago.*

HP *So yes during the last 12 months yeah.*

P *Its was err a friends birthday...*

HP *OK.*

P *...and I went home and then fell down stairs and had to go to hospital and everything, I got a scar there.*

HP *Oh gosh yes you have.*

P *Yes it's very vague I said I come here and tell you the truth.*

HP *No that's fine at the end of the day...*

P *That's something that's never happened before.*

HP *...the best thing to do is tell the truth because otherwise you're only kidding yourself and if you want to make those changes...*

P *Yes.*

HP *...you just need someone to say to you,*

P *That's fine.*

HP *...you know you're doing too much of that ,and you know your honest with us.*

P *I fell down stairs and I had to go to hospital, and I had a day off work so that's one of the questions early on.*

HP ***And erm is anyone concerned about your drinking, anybody in the family?***

P *No.*

HP *They just think your a bit mad sometimes.*

P *A bit silly.*

HP *So it does give you score of 15 OK. You do need to be careful on your alcohol intake...*

P *Yes.*

HP *I am going put you down for 30 units a week, but I am going ask to go away and think about reducing that by half OK.*

P *Yeah.*

(9_087, Male, Aged 48)

The practitioner identified that the patient consumed a large quantity of alcohol and proceeded to ask the AUDIT questions to determine the patient's relationship with alcohol. The practitioner appeared to be direct in the way expressed their concern with the patient, suggesting that they "*need to be careful*" about their alcohol intake. This may be the practitioner's chosen consultation style, or, as the dialogue appears to suggest, the practitioner may be familiar with the patient and understood that this was the best way to communicate with this particular patient.

From the medical record data, it appeared a small number of practices used the FAST measure during the NHSCH (although not confirmed through recorded Health Checks):

HP *So it wasn't... well it was learnt behaviour as much as anything else wasn't it? Do you drink alcohol?*

P *Yeah*

HP ***How much in a week?***

P *Not a lot if I am perfectly honest, it's probably too much in as much as I drink... I go out on a Thursday and I have never more than three/four, usually two.*

HP *Pints is that, or spirits, yeah?*

P *Two, two pints normally. If there's a few more of us, it might stretch to three/four, Sunday, I go out on a Sunday and I can have... I go out at 8.00 and come back at 11:00-12:00, so I could have five/six maybe.*

HP *OK*

P *But usually that's all I have is Thursday and Sunday so...I know it's wrong to have all your quota all in one go, but I would be a liar if I said I never drink in the house, because I do, but I don't drink a lot in the house, I try not to drink in the house.*

HP *So you just go out on a Thursday and a Sunday?*

P *Just a Thursday and a Sunday as a rule.*

HP *As a rule, and you have a drink in the house?*

P *No, no, because I try not to drink in the house.*

HP *OK so you don't.*

P *I would be a liar if I said I never drink in the house, you know sometimes I might have a pizza or a curry or something, and I just think 'I'll have a bottle of wine or something, maybe... well a glass of wine, which turns into a bottle, but ...*

HP *So would that be **weekly, monthly?***

P *Oh occasionally. It wouldn't be... if I said I bought a bottle of wine a week, I wouldn't buy one every week, because as I say, I might buy two in one week, and not have another drink for a month, a month and a half you know, it is occasionally.*

HP *Yes OK.*

P *And I have had, I have got two possibly three bottles of spirits in the house that were bought at Christmas that are still unopened, but...*

HP *Right, they were bought as gifts were they?*

P *Yeah, yeah, I had a gift from a customer at work and then I had a gift, you know somebody bought me some, they could stay there.*

HP *Yeah*

P *And it's my Birthday in April, they could stay there until April.*

HP *Hm*

P *I do like whiskey, but I don't buy it. So the bottles that I have got in the house, if I open them they won't last long.*

HP OK alright.

P But they could be there for about ...

HP OK, there is no real... you know we used to say before you know 21 units or less. Really we are sort of saying now that any sort of alcohol regularly drank is not brilliant.

P It's not good yeah.

HP And you are sort of about 30-36 units in a week, so that is quite a bit. OK.

P Well I do drink...

HP **You don't sort of ever, is it more habitual, or do you ever think that you have to drink?**

P Oh no, it's a social thing.

HP Yeah, and if it didn't happen in the week, it wouldn't bother you too much?

P No, no, no. I don't, like I say I don't drink, in the house, because I don't want it to be a habit.
(10_539, Male, Aged 51)

Whilst the FAST measure was included in the NHSHC, the practitioner did not ask the FAST question (i.e., How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?), yet they did collect information similar to that required as part of the AUDIT-C and explored the patient's alcohol consumption in their own way.

Overall, it appeared that most practitioners chose to collect information about alcohol consumption in this way, likely due to their experience of conducting NHSHCs and completing the process in a way that works best for the patient-practitioner relationship, choosing not to adhere to the list of AUDIT-C/AUDIT questions.

The approach to, and extent of information collected about alcohol consumption, varied between practitioners. Some practitioners chose to explore patients' alcohol intake in their own way whilst others chose to stick to the format of recommended alcohol measures. Yet, there were missed opportunities for practitioners to discuss alcohol consumption, particularly with patients who showed a positive screening from the AUDIT-C. This may be due to a lack of confidence to complete AUDIT, the patient's response to the discussion of alcohol intake, limited understanding of the purpose of AUDIT, insufficient training, or a lack of time to adequately measure alcohol consumption. Equally, practitioners may choose to use their own interpretation to decide if AUDIT needs to be completed with the patient. Regardless, further exploration of practitioners' use of alcohol measures with patients in NHSHCs is warranted.

Physical Activity

Both the medical record and consultation data suggested that practitioners asked at least one of the three physical activity questions listed in the GPPAQ measure:

HP So this is the physical activity questionnaire.

P Oh yes.

HP **And it is asking if you do any sort of exercise, so any swimming, jogging, do aerobics, do a sport, go to gym anything like that.**

P I go line-dancing once a week.

HP OK.

P Go line dancing.

HP **Would you say over than one period is that for an hour or?**

P Oh no I go at 7 and come home at about quarter to ten, I can go for 7 and I can last now because I been doing it a few years I can now last about 2½ hours - I can do line dancing straight off.

HP OK.

P We have a rest in between you know and glass of water in between.

HP That's really good.

P And I also go to an exercise class in the mornings.

HP Oh well done!

P One morning at a local exercise class.

HP Oh brilliant.

P ...and that's for an hour.

HP Oh that's good so you do more than 3 hours that's really good.

P Your arms see, line dancing is your feet.

HP Yeah.

P You do some arms but.

HP Your using all sorts of parts of your body when you're doing these things without realising.

P Yes.

HP Is all good for you.

P Yeah.

HP Especially dancing for cardio vascular workout which is good.

P Yeah.

HP Any cycling.

P No I sold my cycle, it was too heavy.

HP Do you walk?

P Walking mostly, because Keith is supposed to walk so much...

HP Yeah.

P ...and I got him now walking about a quarter of a mile.

HP That's good.

P He will say oh we will just pop to so and so because of course he is going get back. He can do it.

HP **Do you walk most days?**

P No about three times a week.

HP OK yeah that's good.

P Not every day but...

HP That's good. **Housework lots of housework.**

P Yeah I do my own housework...

HP Yeah childcare. Grandchildren or anything like that no?

P Yes.

HP Yeah I put that in as well. **Gardening DIY.**

P Oh yes I am an avid gardener.

HP Most of us woman do the gardening don't we.

P Yeah well I do, Keith always did the vegetables, and I do the flowers but this last three years I have had to do the lot...

HP Yeah. I do the vegetables and flowers and he does the grass.

P Oh I do the lot.

HP **Erm, when you walk would you say it's a slow pace, a steady average, or quicker or...?**

P Well quite quick if I am own but if I am with him its slow.

HP Alright.

P You have to put slow because he...

HP We will put steady average for you when you're walking on your own and slow when you're with him.

P Yes, yes, yeah.
HP OK.
(12_189, Female, Aged 69)

Though the practitioner did not ask about the patient's work-related physical activity, they did ask in detail about the patient's engagement in exercise. This may be because the practitioner forgot to ask the patient about their work-related physical activity or is familiar with the patient and already knew the answer to the question (as they were above retirement age). Below is another example where the practitioner asked about a patient's physical activity levels during the NHSHC:

HP **Do you do any exercise at all? We don't count work, but do you do go for walks, go gym, play football?**
P Yeah, erm, erm I haven't done it for a while to be fair because I've just been so consumed with a lot of things, but I do running.
HP Running?
P Yeah, and I would suggest that I'd run, oh I've got to do a half marathon in September funnily enough and I haven't started training for it yet, but it will be about 20k a week minimum
HP **Right then definitely semi active.**
P Yeah.
(5_185, Male, Aged 47)

The practitioner asked about the patient's recreational activities but suggested that work-related physical activity did not count towards physical exercise (despite being included in the GPPAQ measure) suggesting that they were unsure of the types of activity that counted towards the GPPAQ score.

Like the alcohol measures, a minority of patients were not asked about their physical activity levels:

P Right, basically it's my weight is slightly higher, I need to be about 70kg.
HP Yeah you need to be... it needs to be a bit lower.
P I need to be about 70kg, so I know that, but like I said I have always been between 70kg and 75kg.
HP So your weight is 74 and your ideal weight is 65.7 it says, so you are not a lot over.
P And you are saying it has to be between 65 and 70.
HP Yeah
P Not a problem whatsoever I think I can manage that - a couple of weeks exercise.
[pause]
HP So yeah, healthy diet, lots of fruit and lots of veg, **exercise, as much exercise as you can do, that will help to bring down your BMI and that will bring down your Q Risk, CVD risk as well.**
(3_206, Male, Aged 67)

Whilst the practitioner suggested an increase in exercise would help to reduce the patient's weight, they did not ask about the patient's current level of physical activity any time during the NHSHC. This may be because the practitioner had forgotten to ask, yet this could have been explored during this period of the NHSHC and was not. Therefore, it is more presumable to suggest that the practitioner chose not to complete this part of the NHSHC or did not have time.

Lastly, is an example of a practitioner that asked all three questions listed in the GPPAQ measure and explored physical activity levels in some depth with the patient:

HP **Do you do any formal exercise at all?**

P I swim hopefully four times a week, sometimes five, but definitely three.

HP OK

P And I do my half-mile.

HP Fabulous, so **how long does that take you roughly would you say, how long are you swimming for on average?**

P I am a bit behind at the moment. I did today and it was 33 minutes and I normally get it down to 27, but since I have had my hip, it has been fluctuating. But round about 30-35 minutes.

HP OK, so sort of **if you go three to five times a week so you are sort of talking an hour-an-a-half to two-and-a-half hours a week swimming?**

P Hm

HP Brilliant, that's great. **Do you do any cycling at all?**

P No, I used to when I was in the gym, but no I don't ride on a bike, so I don't cycle now.

HP Yeah, so **walking, including walking for work, shopping, pleasure, etc. would you say you do more than three hours a week?**

P I would say I probably do more than 30 hours a week, but definitely more than three hours a week.

HP **Housework and childcare, do you do more than three hours a week, less than three hours a week.**

P Housework and childcare? I am not sure that applies to me.

HP Grandchildren care?

P Well XXX is 11 nearly 12, so I don't have to care for him.

HP So not really OK.

P Can you include dog care? Because we look after dogs?

HP Not really something there.

P Oh right OK. Housework? Well you would have to ask Hillary about that, I make the bed in the morning, that's about all I do.

HP OK, shall I **put some, but less than an hour then?**

P Oh no, no, no, no, no, no!

HP Do you do more than an hour a week?

P No, I would say at least, if not more. No I am not totally ...

HP So we have got 'less than an hour, 1-3 hours, or more than 3 hours'.

P Do it 1-3, because she will probably laugh me out of the surgery but...

HP **(laughs) And gardening and DIY same options.**

P Oh as much as I like.

HP So more than three hours yeah 3 hours plus a week, brilliant?

P Well I say I don't do DIY, I put some cupboards up the other day, it's the first time ever, and that took me about 15 days.

HP And are they still up?

P Yes

HP Brilliant.

P But gardening is something I love, it is something I do.

HP **OK and your normal walking pace, would you say it is slow, steady, brisk or fast?**

P I have just run up here. Oh I would say, it depends on what I am doing. I amble if I am enjoying myself

HP Yeah

P ... but what are the choices again?

HP Slow, steady, brisk or fast?

P Oh put me down as steady

HP Steady

P I am not really brisk unless I have to be.

HP *That's fine. So we try to encourage 30 minutes activity five days a week, of doing something that's sort of moderate activity, so something that is getting your heart rate just above normal. So obviously you are doing your swimming 3-4 times a week, maybe 5, so that's great. So yeah it's just sort of being aware when you are doing other activities, such as gardening, walking, anything like that it's just like you know putting a little more effort into it and just get that heart rate up, it all counts as activity.*

(7_012, Male, Aged 70)

The practitioner completed all questions included in the GPPAQ measure and concluded by sharing the patient's GPPAQ score and explaining the recommended level of physical activity. They also summarised the patient's engagement in physical activity to show that they listened to the information the patient provided and offered suggestions for increasing their heart rate during other activities that they may engage in.

Overall, physical activity was discussed with the majority of the 130 patients whose Health Checks were analysed (n=123). Most commonly, practitioners asked patients about their engagement in recreational activities. Yet, only half of patients were asked all three questions listed in the GPPAQ measure according to consultation data. Perhaps the practitioners forgot to ask patients all three elements of the measure, or they have limited time to fully complete the questions, and therefore focused on the information that was provided by the patient and chose not to gather additional information about their levels of physical activity. Only one practitioner commented on use of the GPPAQ measure as part of the NHSHC during follow-up interviews as part of the RICO study: *"the exercise...I think they [the questions] are not right because I had one chappie that walked 8 or 9 miles a day, and because it was only walking and he didn't do anything else he came up as inactive"* (P2_1, HCA). The practitioner suggested the measure did not adequately calculate the patient's physical activity levels which made it difficult to explain to score to the patient. Further exploration into practitioners' perceptions and use of the GPPAQ is clearly warranted.

4. Summary

Compared with data from the first NHSHC national data extraction from medical records (for 2012-2017) [2], medical record data from the RICO study (for NHS HCs completed 2018-2019) showed far higher rates of alcohol and physical activity measurement: 87.7% recorded use of recommended alcohol measures (AUDIT-C, AUDIT or FAST); 93.6% recording of GPPAQ derived physical activity classification (compared with 38.3 and 64.5%, respectively [2]). However, insight from analysis of transcripts of recordings of these NHSHC's showed that medical records do not provide an accurate picture of how tools to measure alcohol or physical activity are implemented.

Medical record data indicated that across 171 Health Checks:

- Nearly all patients had alcohol, measured using one of the recommended tools, and nearly all of the 13% who did not, were apparently asked an alternative alcohol consumption question
- AUDIT-C was the most commonly used measure of alcohol consumption (in 44.4% patients), but its use as a screening tool (whereby scores >5 lead to full AUDIT completion, was inconsistent.
- FAST was rarely used (6.5%) and never in isolation, always with AUDIT and/or AUDIT-C
- Physical activity was measured using GPPAQ in nearly all NHSHCs (93.6%).

Data from transcripts of 130 of these Health Checks indicated:

- Use of recommended alcohol measurement tools during the NHSHC consultation was far lower than medical record data suggested:
 - AUDIT-C - question asked in 45.4% of NHSHCs; 14.6% in full, 30.8% partial
 - AUDIT – questions asked in 30.8% of NHSHCs in which it was required (based on responses to initial alcohol questions); 9.2% % in full, 10.0% partial
 - FAST – was not used.
- The most commonly omitted AUDIT-C question related to the frequency with which patients had drunk excessively on the last year (6+ units in female, 8+ units in men), which is the first item of FAST.
- Practitioners asking AUDIT questions rarely progressed as far as question 7, generally omitting questions relating to feeling of guilt/remorse after drinking, memory loss, alcohol-related injuries, or concern about their drinking among others.
- In approximately half of NHSHCs, recommended tools to measure alcohol consumption were not used, but practitioners asked an alternative question(s) about alcohol.
- Few practitioners shared the results of the alcohol measures (7.7%) and were more likely to discuss in reference to recommended intake (46.2%).
- In approximately half of NHSHCs, patients were asked all questions from the GPPAQ; partial completions usually focused on recreational physical activity, omitting questions about work-related physical activity or walking.
- Results from GPPAQ were given to 40.8% of patients and discussed in relation to recommended physical activity levels in 36.2% cases.

Within-case comparison of medical records and extracts from NHS Health Check transcripts showed:

- Questions regarding physical activity and alcohol were asked in nearly all NHS Health Checks. However, the approach to, and extent of information collected about alcohol consumption, varied between practitioners. Some practitioners did adhere to the format of recommended alcohol measures, but there was often a mismatch between the way alcohol was measured in practice and how it was recorded in the patient medical record. Often questions from recommended tools were not asked at all or alternative questions were used.
- There were missed opportunities for practitioners to discuss alcohol consumption, particularly with patients who showed a positive screening from the AUDIT-C. The extent to which this reflects barriers to following recommended practice (e.g., restricted time, perceived intrusiveness of questions/feeling awkward, lack of training), or practitioners applying their professional judgement based on the information they already have, should be explored.
- For physical activity measures, failure to ask all of the GPPAQ questions can still allow practitioners to derive a physical activity classification using other patient information (e.g., if patients are known to be retired, or to have a sedentary occupation). Again, it would be useful to speak with practitioners to explore if frequent omission of work and walking-related questions was due to barriers to full implementation of the tool (e.g., time, perceptions of GPPAQ) or because questions were deemed unnecessary in some cases.

Strengths

We draw on a unique dataset offering objective insights into the discussions that take place in NHSHCs, allowing comparison of NHSHC activity recorded in patient medical records versus actual practice. Extracts from NHSHC dialogue allow inferences about how practitioners approach measurement of alcohol and physical activity with/without use of questions from recommended tools. Insights are also drawn from qualitative data from NHSHC practitioners to help explain observed behaviour, particularly around alcohol measurement.

Limitations

Data from a modest sample of 171 patients across 12 general practices. Recording of NHSHCs might have affected practitioner behaviour, increasing how thoroughly they completed the NHSHC processes.

Conclusions

NHS Health Check practitioners measure alcohol consumption in nearly all patients, but in many cases they do not adhere to use of recommended tools. This could be explained by time restrictions and the administrative burden of asking all questions, and intrusiveness of questions around alcohol consumption in the full AUDIT tool.

Physical activity measurement is recorded in nearly all NHSHCs, but again, practitioners rarely ask all of the questions. This is potentially less problematic, as some of the information for GPPAQ might be inferred from other known patient data (e.g., work-related questions are not necessary if the patient is known to be retired).

Interviews with practitioners would help to further understand why practitioners avoid asking certain questions to measure alcohol consumption.

5. References

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Appendix 1. Codes included and corresponding code terms:

Measure	Read code	Code term
GPPAQ		
	138X	GPPAQ physical activity index: inactive
	138Y	GPPAQ physical activity index: moderately inactive
	138a	GPPAQ physical activity index: moderately active
	138b	GPPAQ physical activity index: active
AUDIT-C		
	EMISNQAU129	AUDIT-C score - frequency of drinking alcohol
	EMISNQAU130	AUDIT-C score - units of alcohol drunk on a typical day
	EMISNQAU131	AUDIT-C score-frequency drunk 6+units (fem)/8+units (male) last yr
	38D4	Alcohol use disorder identification test consumption questionnaire
AUDIT		
	EMISNQAU119	AUDIT score - frequency of drinking alcohol
	EMISNQAU120	AUDIT score - units of alcohol drunk on a typical day
	EMISNQAU121	AUDIT score-frequency drunk 6+units (fem)/8+units (male) last yr
	EMISNQAU122	AUDIT score-frequency unable to stop drinking when started in last yr
	EMISNQAU123	AUDIT score-frequency of failing to do what was expected in last year
	EMISNQAU124	AUDIT score - frequency needs morning alcoholic drink in last year
	EMISNQAU125	AUDIT score-frequency of guilt or remorse after drinking in last year
	EMISNQAU126	AUDIT score - frequency unable to remember previous night in last yr
	EMISNQAU127	AUDIT score - injury to self/other as a result of drinking
	EMISNQAU128	AUDIT score - others concerned about drinking/suggest cut down
	38D3	Alcohol use disorders identification test
FAST		
	388u	Fast alcohol screening test
OTHER		
	136	Alcohol consumption
	136V	Alcohol units per week
	9k13	Alcohol questionnaire completed