

## SUPPLEMENTARY DATA

Table S1: Inclusion and Exclusion Criteria

<i>Inclusion criteria</i>
<ul style="list-style-type: none"><li>• Consultations that discuss type 2 diabetes as part of a patient's presentation or past medical history, and</li></ul>
<ul style="list-style-type: none"><li>• Consultations that discuss cardiovascular disease as part of a patient's presentation or past medical history, whereby cardiovascular disease includes patients that meet the clinical criteria as well as patients who have conditions that place them at high risk for CVD, like hypertension and hypercholesterolaemia.</li></ul>
<ul style="list-style-type: none"><li>• Consultations that discuss patient results or review as part of diabetes or cardiovascular screening or risk assessment.</li></ul>
<i>Exclusion criteria</i>
<ul style="list-style-type: none"><li>• Consultations where diabetes or cardiovascular disease are not discussed,</li></ul>
<ul style="list-style-type: none"><li>• Consultations where pre-diabetes is discussed,</li></ul>
<ul style="list-style-type: none"><li>• Consultations where diabetes and cardiovascular disease are ruled out as a cause of a presenting issue,</li></ul>
<ul style="list-style-type: none"><li>• Where the consult was a first presentation or diagnosis of chronic disease regarding diabetes or cardiovascular diseases</li></ul>
<ul style="list-style-type: none"><li>• Consultations, where patients discussed, are not present in the consultation.</li></ul>
<ul style="list-style-type: none"><li>• Consultations where consent was not obtained to use in audio or video analysis, or where complete data of the consultation (i.e., both de-identified video and transcript) were not available.</li></ul>

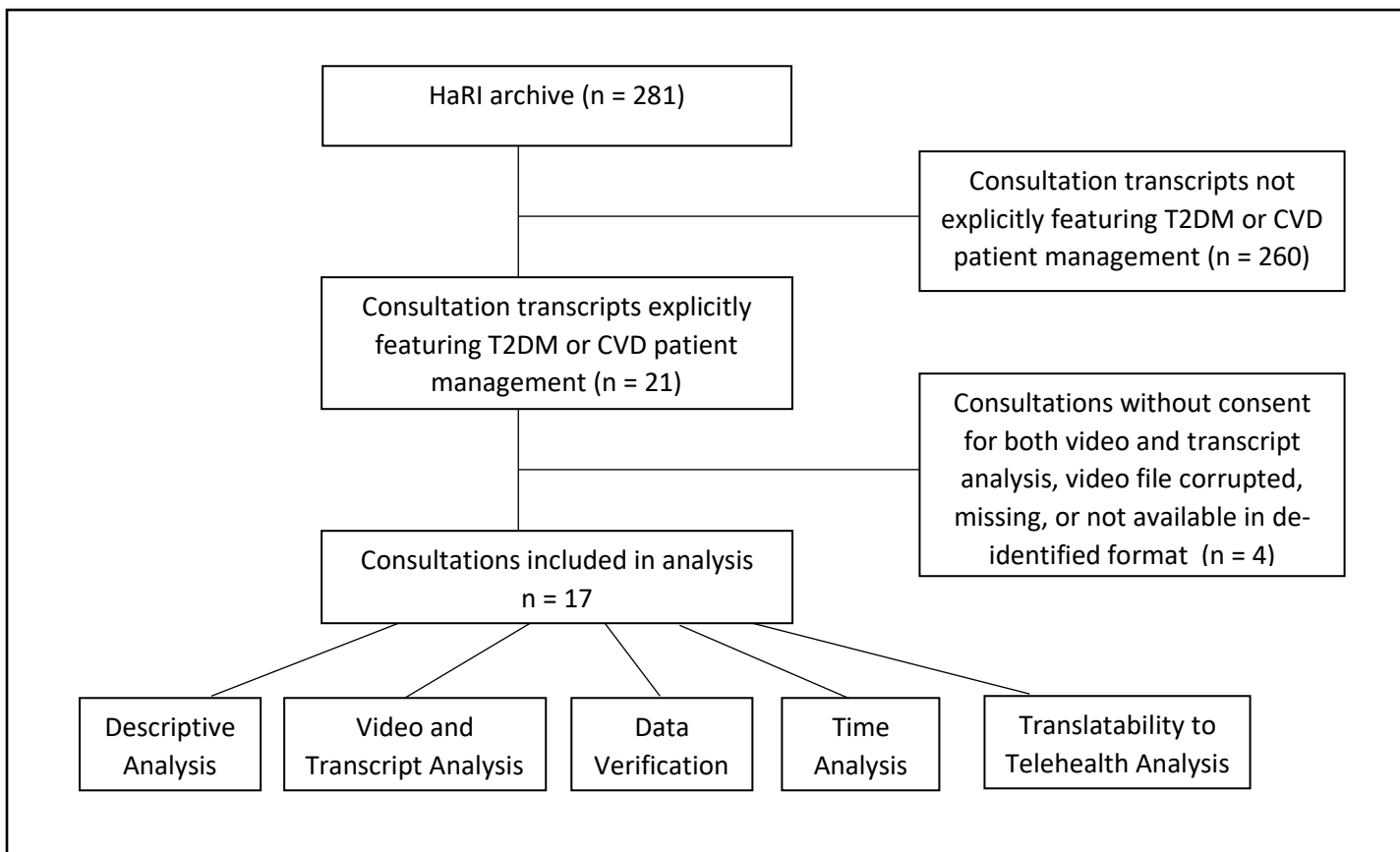


Figure S1: Flow chart of data screening and analysis of GP consultations for T2DM or CVD

Table S2: Scoring system rationale for different task-types

Task	Score Rationale
<b>Clinical measures:</b> Weight versus Temperature; oxygen saturation; blood pressure; heart rate	The difference between measuring weight and the other listed clinical measures is that weight scales are more commonly found in the home than thermometers, BP monitors, or pulse oximeters. For this reason, weight measurement received a 4-point score for Metric 2, much like tasks that require a computer and/or printer, or other artefacts deemed ' <i>easily accessible in a patient's home, and thus can be translated over Telehealth</i> '.
<b>Paperwork-based tasks:</b> Interpretation/ discussions about specialised procedures; Interpretation/ Discussions about pathology tests/results; Pharmaceutical prescriptions; Generating pathology request forms; Generating referrals	Any task that requires paperwork sent from doctor to patient (even if electronically) - request forms/referral letters/results OR is sent from patient to doctor (e.g. letters) received a 4-point score for Metric 2. This is because these tasks require a computer and/or printer which were deemed physical artefacts ' <i>easily accessible in a patient's home, and thus can be translated over Telehealth</i> '. It was also important to distinguish these tasks from those which truly require no physical artefacts

for Specialist services; Reviewing letters from other Healthcare personnel	- like most of the discussion-based tasks, which received a 5-point score for Metric 2.
<b>Discussion-based tasks:</b> Reviewing diabetes management versus discussions about diet; alcohol consumption; mental health; exercise; smoking; respiratory/ breathing problems; medications	'Reviewing diabetes management' involves the GP and patient reviewing patient log books/diaries where the patient records their diet; medication; glucose results. The only artefact is the diary so this matches the 3-point scoring definitions for Metrics 1 and 2 as well as Type-3 virtual care solution i.e. <i>Patients acquire necessary artefacts through purchase or pick-up, and perform and communicate findings.</i> In contrast, the other discussion tasks involve no physical artefacts or physical interactions and match the Type-5 virtual care solution i.e. <i>Clinicians and/or patients can easily exchange information over the telephone and/or video.</i> In certain instances, physical artefacts are used or referred to in these discussions for e.g. a Fitbit during a discussion about exercise. This task was still given a 5-point score for Metric 2 as it was reasoned that the physical artefact was not necessary for the execution of the task.
<b>Complex tasks:</b> Skin inspection versus other specialised tasks – chest auscultation; physical inspection involving palpation; diabetic foot examinations.	Certain tasks require a high level of clinical expertise and/or specialised equipment and training. These tasks - with the exception of skin inspection - received 2-point scores for Metrics 1 and 2, matching the Type-2 'Translatability to Telehealth' Score i.e. <i>Has the potential to be translated over Telehealth but may require clinician to administer virtual examination, and may require patient to obtain special equipment and training.</i> Skin inspection, however received a 4-point score for Metric 2. This was because of significant literature on the topic, demonstrating the feasibility of performing this task remotely, using easily accessible equipment i.e. phone camera or computer. This was not the case for the other listed specialised tasks, for which in-person expertise and/or specialised equipment is still currently recommended.

Table S3: T2DM and CVD consultation variables and consultation characteristics (n=17)

Variable	T2DM Consultations (n = 9)	CVD Consultations (n = 8)
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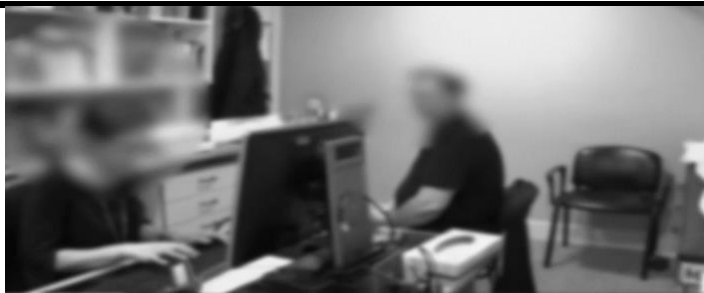


Gender % (n)	M = 44.4% (4) F = 55.6% (5)	M = 37.5% (3) F = 62.5% (5)
Age % (n)	26-35 = 11.1% (1) 36-45 = 0% (0) 46-55 = 11.1% (1) 56-65 = 22.2% (2) 66-75 = 33.3% (3) 76-85 = 22.2% (2)	26-35 = 0% (0) 36-45 = 12.5% (1) 46-55 = 12.5% (1) 56-65 = 25.0% (2) 66-75 = 50% (4) 76-85 = 0
Presence of a companion % (n)	Y = 22.2% (2) N = 77.7% (7)	Y = 12.5% (1) N = 87.5% (7)
Number of health conditions discussed during consultation % (n)	1 = 33.3% (3) 2 = 11.1% (1) 3 = 22.3% (2) >3 = 33.3% (3)	1 = 37.5% (3) 2 = 12.5% (1) 3 = 25% (2) >3 = 25% (2)
Types of conditions discussed	Diabetes, mental health, pain, numbness and tingling, hypertension, vascular heart disease, lung disease, vertigo, prostate issues, hyperkalaemia, asthma, bladder issues, smoking addiction.	Arrhythmia, hypertension, vascular heart disease, thyroid disease, IVF, HRT, mental health, Parkinson's Disease, leg swelling, smoking addiction, excess alcohol consumption, iron overload, cancer, obesity, excess salt consumption.
Objective measures used to assess condition	Pathology results e.g. HBA1C/glucose; weight; blood pressure; physical inspection including palpation, foot examination, chest auscultation	Blood pressure, chest auscultation, heart rate, pathology results e.g. cholesterol, cardiac risk assessment tool, physical examination, physical inspection including palpation.
Subjective measures used to assess conditions (e.g. fatigue, sleep quality etc)	Pain, patient mood, self-reporting of general health e.g. feeling of a "hypo event", breathlessness	Pain, patient mood, self-reported health, energy levels, breathlessness


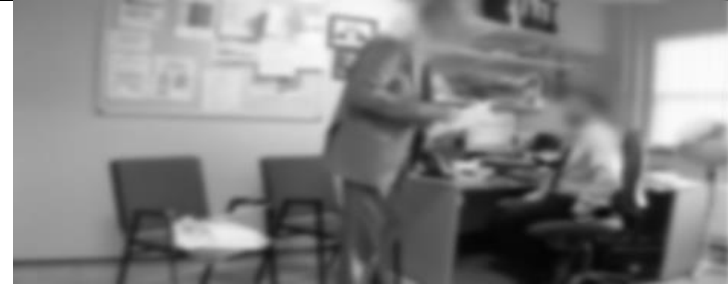

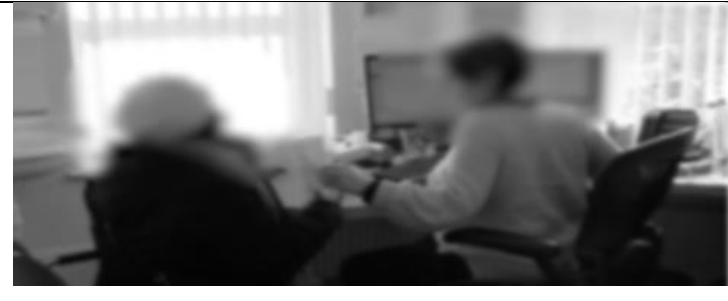


*Table S4: Number of physical examinations performed and time taken for physical examinations (n = 17)*

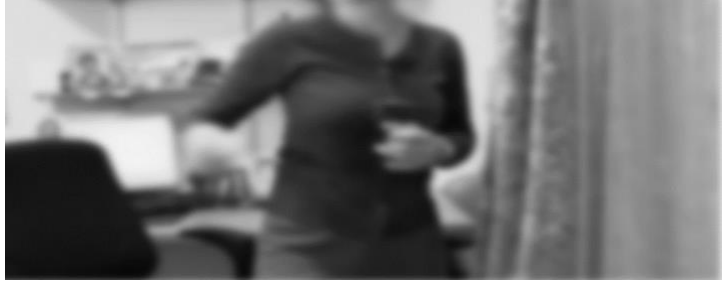

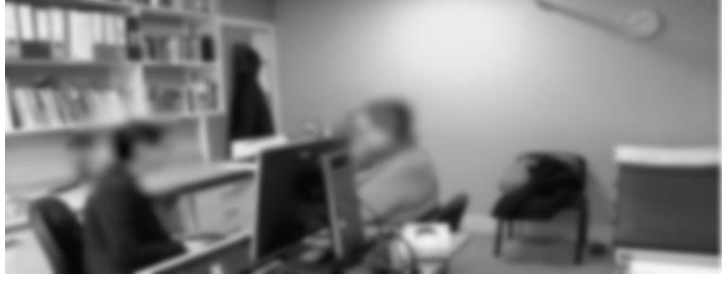
Patient ID	Physical Exam Yes/No	Number of Physical Exams	Physical Exams initiated by patient	Physical Exams initiated by GP	Length of Consultation (mm:ss)	Time spent on Physical Exams (mm:ss)	Physical Exam time as % of Total consultation time
P2GP4R102	Yes	5	1	4	15:01	4:30	29.97%
P3GP5R151	Yes	1	1	0	7:26	1:50	24.66%
P3GP5R156	Yes	3	0	3	7:18	2:23	32.65%
P3GP5R158	Yes	2	0	2	15:06	2:21	15.56%
P4GP6R162	Yes	2	0	2	22:58	1:22	5.95%
P4GP6R170	Yes	1	0	1	20:04	1:53	9.39%
P4GP6R173	Yes	3	1	2	18:05	1:12	6.64%
P5GP7R197	Yes	3	1	2	14:23	5:15	36.50%
P6GP8R211	Yes	1	0	1	16:03	1:34	9.76%

P7GP9R239	Yes	2	0	2	13:39	1:41	12.33%
P7GP9R241	Yes	1	0	1	7:00	1:17	18.33%
P7GP9R246	No	0	N/A	N/A	16:33	N/A	N/A
P7GP9R250	Yes	2	0	2	4:58	1:37	32.55%
P7GP9R253	No	0	N/A	N/A	9:05	N/A	N/A
P7GP9R266	Yes	2	0	2	8:16	4:47	57.86%
P7GP9R277	Yes	2	0	2	6:30	1:28	22.56%
P8GP10R289	Yes	3	0	3	19:23	3:28	17.88%
Average					13:02	2:26	22.17%
SD:S					5:32	1:22	14.04%
Total		33	4	29			
Average: T2DM					13:04	1:55	16.76%
Average: CVD					13:01	2:53	26.91%
SD: T2DM					5:56	0:46	6.30%
SD: CVD					5:29	1:39	17.47%

Table S5: Physical artefacts that are readily found or digitally available in the patient's home (n = 17)



Physical Artefact	Frequency (%)	Image Example
Computer	17 (100%)	
Printer	10 (59%)	
Pathology results (on computer or printout)	8 (47%)	

Prescriptions (printed or electronically mailed)	10 (59%)	
Referrals for specialist services (printed or electronically mailed)	5 (29%)	
Letters from other healthcare services for GP review (printed or electronically mailed)	4 (24%)	
Request forms	5 (29%)	
Tablets – medication (Patient-initiated task – tablets from home)	1 (6%)	
Weight scale	7 (41%)	

Bed*	3 (18%)	
Brochures/Leaflets	2 (12%)	
Smartwatch/Fitbit (Patient-initiated artefact)	1 (6%)	

\*Off camera/no image

Table S6: Physical artefacts that are easily acquired through purchase or provision (n = 17)

Pulse oximeter	1 (6%)	
Thermometer	1 (6%)	






Blood pressure - Automatic = digital sphygmomanometer	3 (18%)	
Diabetes diary: medication log; glucose measurement log; dietary log	3 (18%)	
Urine Pot for pathology testing	1 (6%)	
Specimen bag for pathology testing	1 (6%)	

Table S7: Physical artefacts that are not easily acquired (n = 17)

Physical Artefact		Example
Stethoscope	10 (59%)	




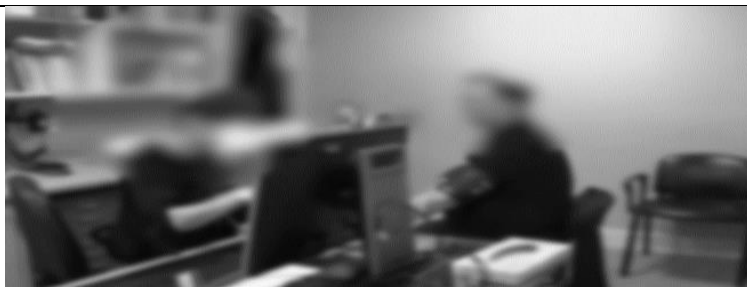
Reflex Hammer	1 (6%)	
Blood pressure – Manual = sphygmomanometer and stethoscope	7 (41%)	

Table S8: Tasks performed during in-person CVD and T2DM consultations (n = 23)

Task	Physical artefacts	Clinical endorsement score <sup>1</sup>	Physical Artefacts or Physical Interactions Score <sup>2</sup>	Translatability to Telehealth score <sup>3</sup>	Virtual care solution type <sup>4</sup>
<b>Physical Examinations</b>					
Measuring oxygen saturation	Pulse oximeter	3	3	6/10	Type 3
Measuring temperature	Thermometer	3	3	6/10	Type 3
Measuring heart rate	Blood pressure monitor; pulse oximeter	3	3	6/10	Type 3
Measuring blood pressure – Automatic and Manual assessment	Automatic = digital sphygmomanometer Manual = sphygmomanometer and stethoscope	3	3	6/10	Type 3
Measuring weight	Weight scale	3	4	7/10	Type 4
Chest auscultation	Stethoscope	2	2	4/10	Type 2
Diabetic foot examinations	Reflex hammer*	2	2	4/10	Type 2
Inspection – skin	N/A	2	4	6/10	Type 3

Physical inspection including palpation	N/A	2	2	4/10	Type 2
<b>Management</b>					
Interpretation/ discussions about specialised procedures	Electronic or mailed reports from specialist providers	4	4	8/10	Type 4
Interpretation/ Discussions about pathology tests/results	Physical/ electronic results; printer	4	4	8/10	Type 4
Pharmaceutical prescriptions	Printed prescription, Printer, computer	4	4	8/10	Type 4
Discussions about diet	N/A	4	5	9/10	Type 5
Discussions about alcohol consumption	N/A	4	5	9/10	Type 5
Discussions about mental health	N/A	4	5	9/10	Type 5
Discussions about exercise	Wearable device/Fitbit *	4	5	9/10	Type 5
Discussions about smoking	Smoking cessation leaflet/info-sheet*	4	5	9/10	Type 5
Discussion about respiratory/ breathing problems	N/A	4	5	9/10	Type 5
Reviewing diabetes management	Diabetes diary with glucose recordings; medication log; food log	3	3	6/10	Type 3
Discussions about medications	Tablet medication; leaflet/info-sheet*	4	5	9/10	Type 5
Reviewing letters from other Healthcare personnel	Letters (printed or electronically mailed)	4	4	8/10	Type 4
<b>Investigations</b>					
Generating pathology request forms*	Computer Printer, paper, ink, request form, Urine pot	4	4 **	8/10	Type 4
Generating referrals for Specialist services	Referrals (printed or	4	4	8/10	Type 4

	electronically mailed)				
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Note: Refer to Methods – Scoring System and Supplementary Table 3 for detailed breakdown of above scores

<sup>1</sup> *Clinical endorsement score*, where score 1 = 'Requires in-person medical expertise', 5 = 'Medical expertise is not necessarily required to complete this task'. See Table 1 Metric 1 for details.

<sup>2</sup> *Physical artefacts or physical interactions score*, where score 1 = 'Requires equipment or physical examination in a manner not translatable to telehealth', 5 = 'Does not require any equipment, thus readily translatable over telehealth'. See Table 1 Metric 2 for details.

<sup>3</sup> *Translatability to Telehealth*, where score 1 = 'Not amenable to being replicated over telehealth at this stage', 10 = 'Easily translatable over telehealth with no additional physical artefacts required'. See Table 2 for details.

<sup>4</sup> *Virtual care solution type*, where Type 1 = Not amenable to being replicated over telehealth at this stage, Type 5 = Easily translatable over telehealth with no additional physical artefacts required. See Table 2 for details.

\*Not essential for performance of task

\*\*May require physical artefact pick-up (e.g. urine pot)