

Translating in-person care to telehealth MSK

SUPPLEMENTARY DATA

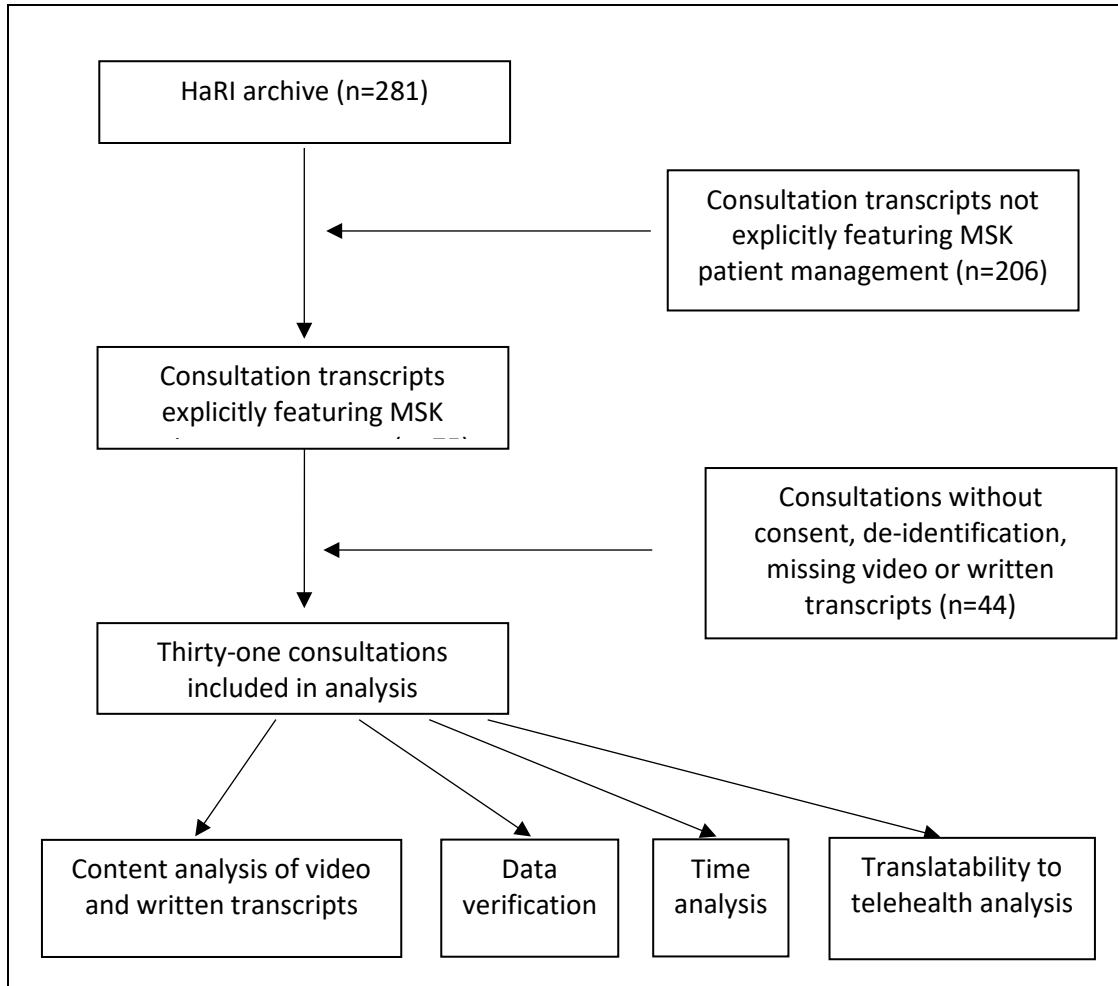




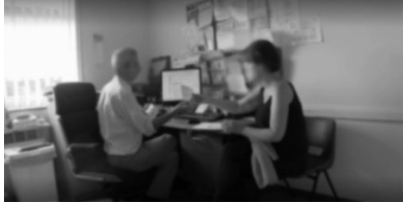




Figure S1: Flowchart of data screening and analysis of in-person GP consultations for MSK conditions.

Table S1: Visual examples of all clinical tasks involving the use of physical artefacts and/or examinations observed during analysis of video transcripts of in-person MSK GP consultations.

Task	Frequency (%)	Image example
Medication discussion	100%	
General inspection	100%	
Palpation and movement tests	83.9%	
Discussions about exercise	51.6%	
Generating prescriptions	25.8%	
Generating information brochures/leaflets	19.4%	
Blood pressure measurement	16.1%	

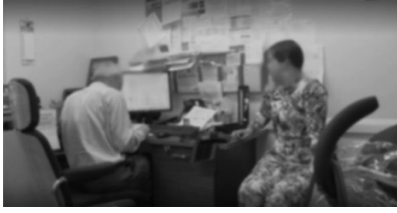


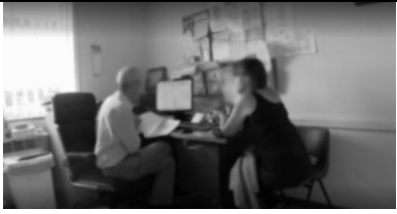

Generating referral letters	12.9%	
Pathology test interpretation/discussion	9.7%	
Weight measurement	6.5%	
Reviewing letters from other healthcare personnel	6.5%	
Reflex tests	6.5%	

Table S2: Rationale of scoring system for various tasks observed during in-person MSK consultations.

Task	Scoring rationale
<p>Physcial Examination (non-MSK specific): blood pressure measurement, weight measurement, general inspection</p>	<p>Automated blood pressure monitors are available to the public in the UK, although may not be commonly found in the average person's home. For this reason, blood pressure measurement received a score of 3 for Metric 2 (physcial examation or artefacts score). Weight measurement received a score of 4 for Metric 2, as weight scales can be commonly found in the home and can be easily acquired by the patient in the community. Scores of 3 in Metric 1 (clinical endorsement score) was given to these tasks, owing to their simplicity which requires relatively non-complex medical expertise. General inspection scored a 4 in Metric 2 as no equipment were required except when a patient is using a mobility aid (or requires assistance from a carer). Also, this task scored a 2 in Metric 1 as it involves degrees of in-person clinical endorsement that may be difficult to replicate over telehealth (e.g. inspecting a patient's posture and pose).</p>
<p>Management-based tasks: generating information brochures/leaflets, generating referral letters, generating prescriptions, reviewing letters from other healthcare personnel,</p>	<p>All management-based tasks observed in this study scored a 4 for Metric 2, as these required use of a computer and/or printer which were deemed 'relatively easy to be acquired' by the patient. However, it is important to differentiate the degree of clinical endorsement and complexity between these tasks (i.e., generating information brochures/leaflets scored a 5 in Metric 1 as medical expertise is not required to complete the task, whereas generating prescriptions scored a 4 in Metric 1 because it requires medical expertise that does not necessarily require in-person contact). Reviewing letters from other healthcare personnel may require the use of a computer and therefore scored as 4 in Metric 2, but does not require in-person medical expertise and as such scored a 4 in Metric 1.</p>
<p>Discussion-based tasks: medication discussion, discussion about exercise/lifestyle modification,</p>	<p>Discussion about lifestyle scored a 5 in Metric 2. This is because no equipment was actually required to complete this task, whereas medication discussion occasionally involved a physical artefact in the form of a tablet bottle or packaging. This was scored as a 4 in Metric</p>

<p>pathology test interpretation/ discussion</p>	<p>2 and deemed 'relatively easy to be acquired' by the patient, as it depends on the type of medication (i.e., over-the-counter vs prescription). Pathology test discussion scored a 4 in Metric 1 owing to the high level of clinical expertise required that does not necessarily require in-person contact. Similarly, discussions about lifestyle and medication both scored a 4 in Metric 1 as they require clinical endorsement that also do not necessarily require in-person assessment.</p>
<p>Physical examination tasks (MSK-specific): palpation and movement tests, reflex tests.</p>	<p>Certain tasks require a higher degree of clinical endorsement and medical expertise, as well as potentially requiring special equipment which may be difficult for patients to acquire. Movement and palpation tests or reflex tests both scored a 2 in Metric 2 due to the requirement of an examination bed or reflex hammer to complete the task, which could be potentially acquired by the patient through purchase or provision (examination bed may be substituted with the patient's own bed or couch at home). Both of these tasks also scored a 2 in Metric 1, as in-person medical expertise is preferred but remote solutions may be possible.</p>

Table S3: Frequency and time analysis of physical examination(s) during in-person consultations.

Patient ID	Physical exam (yes/no)	No. of physical exams	Initiated by patient	Initiated by GP	Length of consultation (mm:ss)	Time spent on physical exam (mm:ss)	Physical exam time as % of total consultation time
P1GP1R10	Yes	1	1	0	7:28	0:40	8.9%
P1GP1R16	Yes	1	0	1	10:58	0:14	2.1%
P1GP1R120	Yes	2	1	1	9:24	1:13	12.9%
P1GP1R122	No	0	0	0	19:06	0	n/a
P1GP1R126	No	0	0	0	8:03	0	n/a
P1GP1R13	Yes	2	0	2	15:09	1:20	8.8%
P1GP1R14	Yes	1	0	1	7:51	0:22	3.2%
P1GP1R17	No	0	0	0	11:35	0	n/a
P1GP1R4	Yes	1	0	1	8:59	1:55	21.3%
P1GP1R9	Yes	2	0	2	10:42	0:43	6.7%
P1GP2R30	Yes	1	0	1	4:58	1:51	37.2%
P3GP5R131	Yes	1	0	1	10:31	0:54	8.6%
P3GP5R138	Yes	2	0	2	9:04	3:10	34.9%
P3GP5R139	Yes	1	0	1	11:19	0:28	4.1%

P3GP5R1 52	Yes	1	0	1	7:26	1:47	24.0%
P3GP5R1 59	Yes	1	0	1	9:13	1:24	15.2%
P4GP6R1 84	Yes	1	0	1	14:20	2:45	19.2%
P5GP7R1 91	Yes	1	0	1	12:59	2:24	18.5%
P6GP8R2 07	Yes	1	0	1	14:13	1:40	11.7%
P6GP8R2 12	Yes	1	0	1	12:29	2:03	16.4%
P6GP8R2 13	Yes	1	0	1	12:37	2:20	18.5%
P7GP9R2 37	Yes	1	0	1	7:29	0:44	9.8%
P7GP9R2 44	No	0	0	0	5:48	0	n/a
P7GP9R2 48	Yes	1	1	0	10:16	1:23	13.5%
P7GP9R2 54	Yes	1	0	1	6:29	0:54	13.9%
P7GP9R2 58	Yes	1	0	1	5:13	0:25	8.0%
P7GP9R2 68	Yes	1	0	1	8:54	1:13	13.7%
P7GP9R2 71	No	0	0	0	7:55	0	n/a
P8GP10R 290	Yes	1	0	1	24:45	0:27	1.8%
P8GP10R 302	Yes	1	0	1	6:04	0:31	8.5%
P8GP10R 305	Yes	1	0	1	13:18	0:20	2.5%

AVERAGE	0.97	0.10	0.87	10:44	1:07	10.4%
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