Supplement 2: Data tables A-J

Table A: Repeat investigation categories examined.

Categories	**Investigations**
Bloodwork	Baseline panels (e.g., FBC, U&E)
	Cardiac profile (e.g., troponin)
	Thyroid panel (e.g., TFT)
	Liver panel (e.g., LFT)
	Lipid profile (e.g., LDL/HDL)
	Inflammatory markers (e.g., ESR/CRP)
	Blood gases ABG/VBG
Urine-based	Urine dipstick
	Urinalysis
	Infectious panels Urine culture
	Blood culture
Radiology	Ultrasound
	Plain film/X-rays
	CT scans
	MRI
Miscellaneous	Point-of-care tests (e.g., Group A Strep, RSV)
	βHCG pregnancy test
	Other investigations
Non-applicable	Non-applicable

Table B: Repeat diagnostic investigations performed because of poor EHR interoperability (non-aggregated figures) from total number of responses.

	Daily n (%)	**4-6 times a week n (%)**	**2-3 times a week n (%)**	**Once a week n (%)**	**Never n (%)**
Baseline panels (i.e., FBC, U&E)	12 (4.29%)	12 (4.29%)	32 (11.43%)	97 (34.64%)	127 (45.36%)
Blood gas (i.e., ABG, VBG)	3 (1.10%)	3 (1.10%)	11 (4.04%)	48 (17.65%)	207 (76.10%)
Cardiac profile (i.e., troponins)	1 (0.38%)	1 (0.38%)	10 (1.57%)	37 (13.96%)	216 (81.51%)
Thyroid panel (i.e., TFT)	4 (1.48%)	2 (0.74%)	9 (3.33%)	68 (25.19%)	187 (69.26%)
Liver panel (i.e., LFT)	4 (1.49%)	1 (0.37%)	15 (5.58%)	80 (29.74%)	169 (62.83%)
Lipid profile (i.e., LDL/HDL)	4 (3.37%)	1 (0.37%)	9 (3.37%)	48 (17.98%)	205 (76.78%)
Inflammatory markers (i.e.,	8 (2.97%)	6 (2.23%)	13 (4.83%)	84 (31.23%)	158

ESR/CRP)					(58.74%)
Blood culture	2 (0.76%)	0 (0.00%)	5 (1.91%)	64 (24.43%)	191 (72.90%)
Urine dipstick	12 (4.62%)	11 (4.23%)	40 (15.38%)	61 (23.46%)	136 (52.31%)
Urinalysis	11 (4.21%)	9 (3.45%)	25 (9.58%)	68 (26.05%)	148 (56.70%)
Urine culture	5 (1.92%)	5 (1.92%)	16 (6.13%)	62 (23.75%)	173 (66.28%)
βHCG pregnancy test	8 (3.07%)	3 (1.15%)	13 (4.98%)	38 (14.56%)	199 (76.25%)
Point-of-care tests	4 (1.57%)	4 (1.57%)	7 (2.75%)	32 (12.55%)	208 (81.57%)
Ultrasound	6 (2.21%)	3 (1.10%)	18 (6.62%)	75 (27.57%)	170 (62.50%)
Plain film/X-rays	5 (1.85%)	4 (1.48%)	13 (4.81%)	93 (34.44%)	155 (57.41%)
CT scans	4 (1.46%)	4 (1.46%)	12 (4.38%)	82 (29.93%)	172 (62.77%)
MRI	4 (1.50%)	3 (1.12%)	7 (2.62%)	66 (24.72%)	187 (70.04%)
Other investigations	5 (4.07%)	2 (1.63%)	4 (3.25%)	24 (19.51%)	88 (71.54%)
Not applicable	13 (11.50%)	1 (0.88%)	2 (1.77%)	5 (4.42%)	92 (81.42%)

Table C: EHR functions commonly available and in use by NHS doctors[1]

	My available EHR can perform these functions, n (%)	**I often perform these functions using my EHR, n (%)**
Hospital administrative processes and reporting	327 (70.9%)	139 (30.2%)
Input orders for investigations/medications	411 (89.2%)	261 (56.6%)
Public health surveillance and reporting	129 (28%)	56 (12.1%)
Planning patient disposition/discharges	329 (71.4%)	154 (33.4%)
Aid in clinical decision-making	282 (61.2%)	157 (34.1%)
Retrieve patient's previous health information	429 (93.1%)	291 (63.1%)
Communicate with other healthcare professionals	299 (64.9%)	163 (35.4%)
Communicate with and support patients	162 (35.1%)	82 (17.9%)

Table D: Directionality of interoperability of existing EHR systems.

	Yes, n (%)	**No, n (%)**	**I do not know, n (%)**
I can SEE clinical information inputted by other healthcare providers WITHIN my healthcare setting. (n=461)	418 (90.7%)	36 (7.8%)	7 (1.5%)
I can SEE clinical information inputted by healthcare providers FROM EXTERNAL hospitals/clinics. (n=460)	175 (38%)	251 (54.6%)	34 (7.4%)
I can both SEE & EDIT clinical information inputted by other healthcare providers WITHIN my healthcare setting. (n=460)	197 (42.8%)	225 (48.9%)	38 (8.3%)

[1] It was not possible to differentiate between respondents who did not complete this question and those who completed the question but chose not to select any options. As such, the number of respondents who completed the next question in the survey (n=461), is taken as a denominator for the purpose of calculating percentages.

I can both SEE & EDIT clinical information inputted by healthcare providers FROM EXTERNAL hospitals/clinics. (n=452)	23 (5.1%)	381 (84.3%)	48 (10.6%)
Healthcare providers FROM EXTERNAL hospitals/clinics, can SEE all the clinical information I have inputted. (n=457)	74 (16.2%)	259 (56.7%)	124 (27.1%)
Healthcare providers FROM EXTERNAL hospitals/clinics, can both SEE & EDIT the clinical information I have inputted. (n=456)	16 (3.5%)	309 (67.8%)	131 (28.7%)

Table E: Impact of interoperability on patient care, safety, and clinical workflow.

	Always, n (%)	**Most of the time, n (%)**	**About half the time, n (%)**	**Sometimes, n (%)**	**Never, n (%)**
Difficulty accessing and retrieving clinical information through the EHR systems currently in use. (n= 413)	38 (9.2%)	62 (15%)	64 (15.5%)	232 (56.2%)	17 (4.1%)
Difficulty with accessing and retrieving this clinical information negatively affects my day-to-day clinical workflow. (n=412)	55 (13.4%)	72 (17.5%)	56 (13.6%)	203 (49.3%)	26 (6.3%)
Difficulty with accessing and retrieving this clinical information poses a potential risk to patient safety during my routine shifts in the hospital/clinic. (n=411)	30 (7.3%)	49 (11.9%)	27 (6.6%)	229 (55.7%)	76 (18.5%)
Difficulty with accessing and retrieving this clinical information negatively impacts my ability to share clinical information with other healthcare professionals. (n=411)	46 (11.2%)	72 (17.5%)	55 (13.4%)	198 (48.2%)	40 (9.7%)
Difficulty with accessing and retrieving this clinical information negatively impacts my ability to share clinical information with my patients and/or their caregivers. (n=409)	47 (11.5%)	56 (13.7%)	46 (11.3%)	203 (49.6%)	57 (13.9%)
Thinking about your patients' expectations regarding the accessibility of their health records, do you feel that the EHR systems you currently use allow you to meet these expectations? (n=408)	21 (5.2%)	76 (18.6%)	70 (17.2%)	165 (40.4%)	76 (18.6%)

Table F: Difficulties with EHR data availability and tasks due to poor interoperability [2]

[2] It was not possible to differentiate between respondents who did not complete this question and those who completed the question but chose not to select any options. As such, the number of respondents who completed the next question in the survey (n=359), is taken as a denominator for the purpose of calculating percentages.

	Yes, n (%)
Do not know if the information is available in the EHR system or one that is connected to it.	201 (56%)
Difficulty accessing patient information even when you know that information is available within the system	217 (60.5%)
Difficulty retrieving patient information you know is available in another healthcare facility frequented by the patient	300 (83.6%)
Difficulty following up on an order (e.g., test results) you inputted previously	152 (42.3%)
Difficulty conveying clinical information for another healthcare professional	216 (60.2%)

Table G: When is the lack of interoperable EHRs most impeding to your clinical work during a routine clinical shift?

	Yes, n (%)	**No, n (%)**
Admitting a new patient from the community	152 (49%)	158 (51%)
Receiving a patient from a secondary/tertiary healthcare facility	224 (72.3%)	86 (27.7%)
During handover of patients from other members within my immediate clinical team	51 (16.5%)	259 (83.5%)
During handover of a patient from another clinical team/clinician within my hospital	71 (22.9%)	239 (77.1%)
Following up on an order from another clinical team/clinician in my hospital	102 (32.9%)	208 (67.1%)
Discharging patient from my hospital back into the community	102 (32.9%)	208 (67.1%)
Transferring a patient from my hospital to another secondary/tertiary healthcare facility	175 (56.5%)	135 (43.6%)
Medication reconciliation	178 (57.4%)	132 (42.6%)
Other	28 (9%)	282 (91%)

Table H: Repeat diagnostic investigations performed because of poor EHR interoperability as reported by 289 respondents who completed the question.

	Bloodwork, n (%)	**Blood Gases, n (%)**	**Urine-based, n (%)**	**Infectious Panel, n (%)**	**Radiology, n (%)**
Never	108 (37.4%)	207 (76.1%)	125 (46.8%)	21 (8%)	123 (42.9%)
Once a week	114 (39.5%)	48 (17.7%)	87 (32.6%)	33 (12.5%)	125 (43.6%)
2-3 times a week	35 (12.1%)	11 (4%)	30 (11.2%)	13 (4.9%)	25 (8.7%)
4-6 times a week	15 (5.2%)	3 (1.1%)	12 (4.5%)	3 (1.1%)	5 (1.7%)
Daily	17 (5.9%)	3 (1.1%)	13 (4.9%)	194 (73.5%)	9 (3.1%)

Table I: Cross tabulation of delays in hospital vs. specialty training. Percentages expressed are for values per row.

	No delays, n (%)	**Several hours delay, n (%)**	**1-night additional stay in hospital, n (%)**	**2+ nights additional stay in hospital, n (%)**
Internal medicine	6 (8.3%)	21 (29.2%)	25 (34.7%)	20 (27.8%)
Surgery	21 (25.9%)	42 (51.9%)	9 (11.1%)	9 (11.1%)
A&E	5 (15.2%)	17 (51.5%)	9 (27.3%)	2 (6.1%)
Anaesthesia	3 (18.8%)	9 (56.3%)	3 (18.8%)	1 (6.3%)
Paediatrics	8 (36.4%)	11 (50%)	2 (9.1%)	1 (4.6%)
Psychiatry	8 (53.3%)	1 (6.7%)	4 (26.7%)	2 (13.3%)
Other	1 (20%)	3 (60%)	1 (20%)	0 (0%)

Table J: Prolonged clinic times due to issues of EHR interoperability amongst participants who responded (preparation and during the consultation).

	Preparing for consultations, n (%)	**During consultations, n (%)**
No extra time needed	9 (4%)	7 (3.2%)
Less than 5 minutes	18 (8.3%)	22 (10.1%)
5-15 minutes	56 (25.7%)	64 (29.4%)
15-30 minutes	72 (33%)	71 (32.6%)
30-60 minutes	45 (20.6%)	43 (19.7%)
More than an hour	18 (8.3%)	11 (5.1%)