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## Comment on: How do paper and electronic records compare for completeness? A three centre study

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We congratulate Wu et al. on their study, as monitoring of records is important for clinical and medicolegal reasons, especially during the challenging transition towards paperless working in NHS hospitals [1–3]. However, we have concerns with their study methodology and conclusions.

New glaucoma referrals were reviewed at three sites with two different EPR systems at different stages of rollout and clinical engagement. They compared these to ‘pooled’ paper records from only two sites with no mention of possible use of structured paper proformas or paramedical staff collating data. Conclusions are based on data sampled possibly randomly over 5 years (2010–2015), including a changeover phase in 2014, which itself could have contributed to poorer outcomes. Separating the values for the EPR systems also provides some clues on poor quality (Table 1). Both systems may have been used simultaneously at Moorfields during transition when it was left to clinician preference as it is difficult to explain how 1 in 10 new referrals did not have eye pressures recorded. Gonioscopy recording in EPR is significantly different to paper records and, as expected, had low entries but, interestingly, did not differ between both systems.

We also tracked data quality over 1 year in our eye casualty after EPR (Medisoft) introduction, and noted consistent issues with use of free text entries due to lack of familiarity, inadequate data fields and few specified forced choice defaults. Moreover, as staff changed during this period there was a gradual deterioration in record quality (Table 2). We recommend regular electronic record audits

with continued targeted training following mandatory induction. Feedback via user groups can facilitate software changes in future EPR versions allowing better integration with workflow.

Although Wu et al. rightly raise awareness on this issue, it is important to not make biased and unsupported conclusions on electronic working, e.g., electronic data is more accessible, but data breaches may not be more common, but just more easily tracked. EPR has the power to truly transform healthcare, but we need to focus on the roll out to ensure better integration with workflow to fully realize their potential.

### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

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**Table 1** Data review: separating the percentage entry for two EPR systems and paper across relevant fields (Wu et al.) [1]

	Medisoft (%) <i>n</i> = 170	Open eyes (%) <i>n</i> = 100	Paper (%) <i>n</i> = 170	$\chi^2$ <i>p</i> -values Paper versus Medisoft (Open eyes)
Intraocular pressure	98.8	90	100	0.50 (<0.001) <sup>a</sup>
Central corneal thickness	80.6	85	85.9	0.19 (0.84)
Gonioscopy	62.35	64	88.8	<0.001 (<0.001)
Fundus examination	88.8	69	90	0.72 (<0.001)
Past medical history	81.17	58	92.4	0.002 (<0.001)
Current medications	80.58	47	93.5	<0.001 (<0.001)
Glaucoma medications	78.8	28	88.2	0.19 (<0.001)
Drug allergies	78.8	38	87.6	0.03 (<0.001)

<sup>a</sup>Fisher exact test**Table 2** Summary of our data in eye casualty record quality audit (UHCW)

	2016 <i>n</i> = 100	2017 <i>n</i> = 100	$\chi^2$ <i>p</i> -values 2016 versus 2017 Medisoft entries
Presenting complaint	99	85	<0.001
Past ocular history	70	57	0.06
Past medical history	63	38	<0.001
Drug history	27	22	0.41
Allergies	49	21	<0.001
Family history	19	5	0.002
Social history	12	5	0.04
Diagnosis	95	93	0.55
Prescription recorded	100	99	1 <sup>a</sup>
Outcome recorded	98	96	0.41

<sup>a</sup>Fisher exact test

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## Response to: Comment on ‘How do paper and electronic records compare for completeness? A three centre study’

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To the Editor,

We thank Qadir and Kadyan for their comments concerning our study [1]. The interesting point is that the data they share shows exactly the same findings as we report. With specific reference to our methodology:

1. We sampled the data over three sites with two different EPR systems as we believe this reduced the bias of analysis based on a specific EPR.