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When Expert Decision Making Goes Wrong: Consensus, Bias, the Role of Experts, and Accuracy

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Oliver (2017) presented a study in which contextual information impacted medical examiners' decision making. Results showed that this information increased consensus among examiners by 18%, as well as confidence in their judgments. These findings are highly consistent with myriad research showing the impact of contextual information on decision making—including among experts within established forensic science domains such as fingerprinting and DNA (for a review, see Kassin, Dror, & Kukucka, 2013).

In his commentary on "Cognitive Bias and Blindness " (Kukucka, Kassin, Zapf, & Dror, 2017), Oliver (2018) interprets his own findings as proof that contextual information increased accuracy while diminishing error. Yet increased consensus and confidence cannot be used to infer accuracy. Rather, Oliver's (2017) findings betray the fact that experts were more likely to disagree when they based their conclusions solely on the medical -relevant data. Adding nonmedical , irrelevant contextual information masks this problem by artificially increasing consensus and confidence, both of which can be misinterpreted as indicators of accuracy.

Disagreement between experts is a cause for concern. For example, DNA experts can reach different conclusions from the same data. Dror and Hampikian (2011) found that DNA experts disagreed as to whether or not a suspect could have contributed to a DNA mixture, even when these experts worked in the same lab and followed the same procedures and protocols. The National Institute of Standards and Technology (NIST) replicated this finding using DNA that was analysed with established statistical tools that are regularly used in court (Coble, 2015). Even more concerning is intra- expert disagreement, whereby the same expert reaches different conclusions from the same data examined at two different times. In one study, for example, fingerprint experts reached a different conclusion 10% of the time when they examined the same fingerprints on two separate occasions (Ulery, Hicklin, Buscaglia, & Roberts, 2012).

The fact that experts reach different conclusions when examining the same data is an issue of *reliability*, which is distinct from the issue of *bias*, whereby exposure to irrelevant contextual information affects decision making. The Hierarchy of Expert Performance (HEP) presents research addressing reliability and bias as different and distinct elements in expert decision making (Dror, 2016).

Oliver's (2017) study reduced experts' disagreement (and increased confidence) not by increasing reliability in the way they draw conclusions, but by additionally providing all the experts with the same contextual information. Adding such contextual information can be appropriate, as long as

1. This contextual information is task-relevant. The National Commission on Forensic Science concluded that forensic experts should base their conclusions solely on relevant information (NCFS, 2015).
2. Examiners are transparent and explicitly state in their reports and testimonies that their conclusions are based on both the data and the contextual information.

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Oliver's commentary (2018) claims that Kukucka et al. (2017) misinterpreted his study by citing it as an example of how "irrelevant contextual information can distort [forensic examiners'] judgment" (p. 453). But the data clearly show that the contextual and historical information did in fact change the examiners' decisions in the Oliver (2017) study, as reflected in the increased consensus among them. However, this increased consensus is not necessarily an indicator of reliability or accuracy, but rather an artificial byproduct of giving all examiners the same irrelevant , non-medical contextual information. This finding hides the issue that examiners reach different conclusions when examining the same medical data (see HEP; Dror, 2016).

This raises a fundamental question about the appropriate role of the forensic expert. In our view, the forensic pathologist's role is to make decisions within his or her domain of expertise that are based solely on the medical-relevant data, not to integrate these data with other types of evidence. In the criminal and forensic context, the task of integrating multiple lines of evidence is appropriate for the detective, the District Attorney Office, the jury, and the judge—but not for the scientific expert (especially when they encounter evidence that is beyond their domain of expertise).

Our article cited Oliver (2017) as one of many "studies of professional forensic examiners. . . show[ing] that irrelevant contextual information *can* distort their judgment" (p. 453, emphasis added). The Oliver (2017) study clearly shows the impact of contextual information, and hence how it *can* distort judgment, which can increase error rates when the contextual information is misleading or incorrect. At the same time, we agree that relevant and accurate contextual information can be beneficial, and we clearly make that point in our Discussion, stating that "contextual information may be beneficial—or even essential—to an examiner's analysis" (p. 458).

We think and hope that we all agree that there are various factors that impact expert decision making, including that of medical examiners. These include issues of reliability, validity, bias, and effects of contextual information (both relevant and irrelevant to making a "medical" judgment). These factors need to be studied to illuminate whether and how they impact the decisions of experts.

Conflicts of Interest Statement

The authors declare no conflict of interest.

Author Contributions

All authors contributed.

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