CAS Presentation – Open Peer Review

Opening slide:

Good morning, and thank you for inviting me to speak on such an important topic! My apologies that I am not presenting this live, but I hope you find it useful and please feel free to contact me if you have any questions, my email address is at the end of this presentation. I will be talking about Open and Transparent practices today, and so it would be remiss of me to begin without a quick introduction and more importantly a conflict of interest statement. My name is Eleanor-Rose Papas, my pronouns are she/her, and I'm the Senior Editorial Operations & Peer Review Manager for F1000, which is part of Taylor and Francis. I've been working in Open Peer Review for over 9 years now, and strongly believe that it the best option available and a solution to many of the issues faced in traditional peer review. While I work for a publisher I've also authored papers on peer review and take part in the peer review process by reviewing other articles as well, and so I have experienced peer review from quite a few different perspectives

So why do I start with this declaration? Because it's important! If you didn't know who I was, or how my expertise and past experiences might influence what I'm about to speak on, you'd not be able to take these into consideration when weighing up the value of what I'm saying. I also hope that you do find some of this interesting or useful, and by making sure you know who I am it's easier for you to follow up if you've any comments or questions, or if you reference this presentation elsewhere. You might recognise these as the reasons why authors list their names and affiliations on their published articles – you need to know who has written it. And yet in traditional publishing models, information on what the reviewers thought and who they were is unavailable. Peer review is the cornerstone of academic publishing – you cannot have academic publishing without a form of peer review – and open and transparent peer review models recognise this by providing more information on the process, allowing people to see and validate the peer review process for themselves. As such, these are the topics I will be speaking on today.

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Before I continue, we should start with the biggest question – what actually is Open Peer Review? It's a surprisingly difficult question, as it can mean many different things to different people! A systematic review in 2017 identified 122 (!) separate definitions of open peer review, which the authors were able to split into seven common themes. This can make it difficult to discuss, as one publisher's open peer review model may operate very differently to another! I have included all the identified themes here, however those in bold green were the most common, and 99% of the definitions found included these three themes: Open Identities, Open Reports, and Open Participation.

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Open Identities in its most basic form is simply the removal of blinding in the publication process. Traditional publishing models often use either single-blinding, where the authors don't know who the reviewers are, or double-blinding, where neither the authors nor the reviewers know who is

who. At this point, I would like to make an important distinction – blinded processes do not necessarily mean anonymised processes! Just because a process is blinded, it does not mean someone cannot identify you – you should never assume anonymity. With Open Identities this problem goes away, as everyone is aware of who everyone is. In some but not all forms of Open Identity peer review, the names of the reviewers are published and available to readers as well – this allows readers to feel reassured that experts have reviewed the article, and can look up the named reviewers to verify this, also.

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One of the other common components of Open Peer Review is Open Reports! Open Reports are where the peer review reports themselves are published alongside the article, and available to readers. Depending on the publisher, you may find that only a section of the report has been published, or perhaps the full peer review report. Having the report available allows readers to not only gain more context around the article, but also lets them know where the expert reviewers had concerns or doubts, or requested changes.

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The last of the big three is Open Participation. This is where the academics involved with the process are encouraged to interact directly, for example conversations happening between the reviewers, or between the authors and the reviewers. Open Participation can help remove confusion in how to interpret parts of an article or peer review report, and aids collaboration. Often the publisher will help moderate and guide these interactions.

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So I've explained what Open Peer Review is, but why should we bother? There is a large and global movement towards more open and transparent practices are important, and while I'd love to go into lots of detail I'm afraid our time today is limited! As a brief overview however, one of the main reasons transparency and openness are important is that it allows more information to be available – peer reviewers thoughts on an article are valuable, and a useful resource for readers. Having data available means that others can both check it and reuse it. And when information is available it can be used in research to improve publishing and peer review in a data driven way! And of course, let us not forget that Open Access content grants everyone access to important research rather than it being locked away behind a paywall.

Open practices also allow academics to validate information that they are shown – you can check whether the data or statistics used seem appropriate and correct, or whether a named peer reviewer is suitable to review. It's easier to spot, discuss, and rectify misunderstandings with the ability to discuss things openly, and future readers can also see those discussions and reach their own conclusions. And in some ways most importantly, open practices allow recognition! More visible articles are easier to find and see who wrote them; reuseable datasets allows people to acknowledge the people who generated that data; and, bringing things back to peer review – a peer review reports takes hours to write! And Open Peer Review allows academics to gain recognition for the hard work they put into writing peer review reports, without which academic publishing cannot happen.

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All of this I hope sounds fantastic, but how does it actually work? Different publishers will use different processes, and as mentioned that can make these things difficult to discuss. I will talk later

on how F1000 specifically works, but for now using broader terms I would like to look into Open Identities and Open Reports, as these are most commonly associated with Open Peer Review.

Open Identities mean that those directly involved in the process – authors, reviewers, and editors – are all aware of eachothers' identities. Depending on the publisher, this may happen at different stages of the process! Sometimes identities are available from the beginning, sometimes authors only learn of reviewer names when the article is accepted or even when it's published. Reviewer names may also be published alongside the article as well, so that readers also know who reviewed. So why is this beneficial? On the face of it, I appreciate that it can seem quite scary, however it makes the peer review process more human, encourages discussion, and adds context to both the article and the peer review reports. For example, we all know of peer review reports where the reviewer recommends that the author reads articles that the author themselves has written! It also ensures that reviewers and authors are accountable for their article, reports, and responses, which we have found prevents the majority of inappropriate or unkind reviews that occur outside of Open peer review.   Some publishers will also publish the reviewer names as part of Open Identities, which allows readers to investigate the reviewers' expertise and verify for themselves whether they believe the article to have had a full and thorough review. For multidisciplinary articles this is even more valuable, as readers can see whether the peer review covered all subject areas present in the paper.

Open Reports is where at least some, and ideally all, of the peer review reports received are published alongside the article. They are attached to the article, however some publishers will also assign DOIs to peer review reports and allow citation of them as a separate piece of academic literature as well. An Open Report may or may not have the reviewer's name attached – this would depend on whether the publisher has an Open Identity policy. Publishing peer review reports is valuable because there is so much work that goes into writing a report, and in more traditional publishing models this isn't fully recognised! I believe the average amount of time academics spend writing a peer review report is 4 hours or more, they are a significant undertaking and contain a huge amount of commentary and discussion on the article in question. While peer review reports may contain requests to change things, they also have questions surrounding why things were done a certain way, suggestions for additional avenues of research, citations to supporting or conflicting literature, and many more things besides. They provide vital context to the peer review process, and by publishing them they are both accessible and creditable

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Moving forward, I will be using the term Open Peer Review to mean Open Identities and Open Reports as a minimum, as these form the majority of open peer review models. I would love to say that Open Peer Review fixes every problem that is currently present in peer review, or indeed publishing, but that would not be accurate. Like all models, it has its pros and its cons, however I believe that it solves many of the issues that traditional publication models currently face.

The largest of these is whether or not sufficient peer review took place! Predatory publishing is on the rise, where articles are published with little or even no peer review, and even in more legitimate publications there have been instances where only one peer review report was received, or the

academic editor overruled the peer reviewers and published regardless.   With open peer review there is no need to take on trust that peer review took place, because the information is available to the reader straight away – you can see who reviewed, you can see what they wrote, and perhaps most importantly you can make your own decision based on that! Open peer review empowers readers by giving them the tools they need to judge the peer review quality for themselves.

It also allows readers to see how suitable the reviewers were to evaluate the article – are they researchers in the field, what are their viewpoints on this topic, and do they have any competing interests in reviewing? For example, if a reviewer worked at a pharmaceutical company that produces a competing drug to the one discussed in the article, they may have conflicting motivations when providing a review.   Readers can also determine whether or not the reviewers had other sources of bias, for example if they're close collaborators with the authors, or worked with them previously. These things should of course be detected by the publisher before the peer review process is completed, however with Open peer review you can verify for yourself that the reviewer was able to provide an independent review.

Finally, as I touched upon earlier, open peer review enables recognition of the work that reviewers do. With a peer review report published and citeable online, it is more obvious just how valuable the hard work that reviewers contribute to the publishing ecosystem is, and why we should reward it. People who write good peer review reports should be applauded, and yet because of how traditional models work it is often hard to demonstrate the quality of review that some academics are writing. With Open peer review, that report is not only available but also citeable, and can be used as evidence to show one's contribution to the academic publishing system.

Now of course, Open peer review isn't without its share of problems! While it solves many issues, it also brings to light some problems that are obscured by traditional peer review models. For example, unfortunately sometimes peer review reports contain inappropriate, biased, or unkind feedback. This is obviously unacceptable, however in an open system this could be embarrassing for not only the author but also the reviewer who wrote those things, as their name would be publicly attached. That said, my experience is that in open peer review we receive less of such comments than in traditional systems, perhaps because having one's name attached to the peer review reports makes you accountable for what is written. I'm afraid I cannot speak for other publishers, but at F1000 we would obviously never publish a report that contained inappropriate comments. On a similar note, some reviewers may be concerned about reviewing publicly, especially with their name attached – it might be that they do not wish to damage their relationship with the author, they don't have the subject expertise to feel confident in writing something publicly, or maybe they have an affiliation that would not be comfortable with their views on this topic being shared online. These are all very real concerns, however I would argue that that are not just reasons to decline to review openly, they all demonstrate Conflicts of Interest in reviewing the article whether the peer review is open or closed! There is never anything wrong with declining to review due to a conflict of interest, and it's important to remember to do so regardless of the peer review model being used.

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F1000 platforms, which include F1000Research, Wellcome Open Research, Digital Twin, and Open Research Europe, all operate the F1000 publishing model, which includes Open Peer Review. F1000Research is the flagship publication under the F1000 model, and all screenshots I use will be from this platform. We've been publishing since 2012, and are an Open Research publishing platform which offers fast publication of articles and an open and transparent peer review process, without editorial bias. While I want to talk mainly about our peer review, the publishing process at

F1000 is a little different to a traditional publisher and so a quick whistlestop tour of how it works. Things starts in the same way – authors submit their articles online. As we're an Open Research publisher, authors are also asked to provide details on where their data is openly available – this not only helps reviewers when assessing the article, but also allows readers to view, analyze, use, and even reproduce the underlying data.

Once we've the article, the Editorial Team begin a set of comprehensive checks to make sure that the article is suitable – these range from checking it is in line with our editorial policies such as the Open Data policy I previously mentioned, and also our ethical policies like ensuring that informed consent was given if humans were involved. As standard, all articles submitted to F1000 undergo a plagiarism check, as well. When our Editorial team are happy that the article is suitable, we then begin the process of publishing it! Under a traditional publishing model, this wouldn't be happening just yet – rather, peer review would begin and an editor would make a final decision on whether or not to publish. However at F1000 we peer review *after* publication – this is because, as I'm sure some of you have experienced and as much as we'd all like for it to be faster, peer review can take months. And that's not necessarily a bad thing – better that it takes a little longer and experts have time to assess an article, rather than having to rush – but especially in cutting edge fields or situations where rapid access to research is especially important, for example articles on COVID, those months can be a painful delay. This is why we publish articles first, and they then undergo peer review in an open and transparent way, allowing the authors, readers, and of course other peer reviewers to see reports the moment they're available. Authors can then revise their article in order to respond to the comments and feedback they receive, and these revisions become new versions of that article, creating a living publication.

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Now that we've covered the basics of the model, we can begin exploring peer review in a little more detail. Because peer review occurs after the article is published, it's especially important that when someone opens up an article the peer review status is both clear and available!   Here's an example, and you can immediately see that the article has undergone peer review, an at-a-glance explanation of what the reviewers thought and of course who they were. Our Open Peer Review box is present on all our articles, and will contain the history of the peer review process for that paper – a summary is always available at the top, for example here the current reviewer status is two green ticks, known as Approved. Now while it's useful to know what a reviewer thought overall, their full peer review report will contain the real insights, and these are easily available also – just click the 'read' button beneath each report

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So I've only included a section of the reviewer's report here, but please feel free to look up the full text online! All peer review reports at F1000 are named, and so up at the top we display the person or people reviewing, and where they're affiliated – we're aware that it's not uncommon for peer review to be a joint affair, with early career researchers assisting their PIs, and so we display the names of all involved as they deserve the credit too! And of course, most importantly, the report itself! We publish both the reviewer's full report and also their answers to a set of mandatory questions, tailored to the article type, so that it's available to both the authors and readers. The published peer review reports also become part of the academic literature and are assigned their own DOIs, making them citeable in their own right. They're also published in a way that makes them data mineable, making them not only valuable to the author and readers of the individual article, but on a wider scale to academics who are researching peer review itself!

I mentioned Approval statuses earlier, and you can see one here again – the reviewer has awarded this article an Approved. There are three statuses to choose from: Approved, Approved with Reservations, or Not Approved – these are useful indicators to authors on what's needed to improve their article, and to readers so they know the reviewers' overall thoughts. They also have another very important purpose, which is that they directly determine whether an article passes peer review! So there are no external editors at F1000 making the decision on whether or not a paper passes peer review, it is determined by the expert peer reviewers. Authors need to receive 2 Approved reports, or 1 Approved and 2 Approved with Reservations, in order to pass peer review – if we flick back to the article overview quickly, you can see that Version 1 received 1 Approved and 1 Approved with Reservations, therefore didn't pass peer review; this is why the authors revised and published a new version, which received 2 Approved reviews and therefore passed! It is only once an article passes peer review that it'll be sent to places such as PubMed and Scopus, and the peer review reports are always attached to the article when sent.

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I've explained what you might see when looking at an article on an F1000 platform, but how does the underlying process work? In short, we have a formal and invited peer review process. In practice, this means that every peer review report will be from someone the F1000 Editorial team have checked to ensure they're suitable, and then contacted directly. Once someone has agreed to review we provide resources to assist them, and they are of course also able to read any reports that have already been published for the article they're reviewing!

We publish peer review reports in full, but that doesn't mean that we don't check them first! All reports must meet our Code of Conduct, which helps us ensure that articles are being reviewed thoroughly and fairly. If the Editorial team do find something we need clarification on we'd always contact the reviewer and try and work with them to address it – whether it's making a sentence clearer, addressing a misunderstanding, or requesting that something is phrased in a different way. The report's then published and immediately available to the authors and readers. If a new version of the article is published, the Editorial team will then contact the original reviewers and request that they provide an updated review, allowing them to indicate if their concerns have been addressed

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Just quickly, a look at the F1000 Code of Conduct; it's simple, but sets a baseline for what we expect from peer reviewers – we provide more detail on what we mean by each point in our guide to reviewers, and it helps keep the peer review process fair to the authors.

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That leads us nicely onto preserving integrity. Publishing articles is key to academic research, and one of the most important roles of a Publisher is to preserve the integrity of the process. As the cornerstone of academic publishing, it is therefore particularly important that the integrity of peer review is protected! This ranges from ensuring the right people are being invited to review, to preventing systematic manipulation of the peer review process.

There are a number of ways in which F1000 does this, but the most fundamental aspect is that every reviewer we invite will have been checked by our Editorial team. There are a suite of suitability checks, listed on our website for transparency, which include how to determine if someone is an expert in that field, and at what point we'd consider someone to have too much of a competing

interest to review – for example, we wouldn't allow someone who worked at the same institution to review an article, or someone who's worked closely with the authors, as this has too much potential to bias their thinking. We'll also make sure that the email address we're contacting someone on is independently verifiable, and definitely belongs to the reviewer we're inviting.

It's of course possible that someone has a competing interest, but not a large enough one to prevent them from reviewing – for example they might receive funding from the organisation who funded the article. These are still important for the authors and readers to be aware of, and so every report published on F1000 has a competing interest statement, to allow reviewers to declare these. The great thing about Open and Transparent Peer Review at F1000 is that you don't need to simply trust that reviewers were suitable, or indeed that peer review took place at all – because the peer review reports are published, and the names and affiliations of reviewers are available, readers have the tools to verify expertise and suitability themselves.

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I could happily talk on peer review for longer, but in the interests of time I shall draw things to a close. If you've any questions please don't hesitate to contact me, my email address should be visible for you on-screen [Eleanor-rose.papas@f1000.com]