

1 **Valid, but undervalued**

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3 Commentary to Validation of Home Visual Acuity Tests for Telehealth in the COVID-  
4 19 Era

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16 The Covid pandemic has pushed many aspects of health care and monitoring into  
17 the home. Even ophthalmology, a specialty traditionally regarded as one highly  
18 dependent on clinical examination, has managed to deliver appropriate care and  
19 advice to patients without their needing to enter a hospital. Visual acuity is a  
20 fundamental test to every ophthalmic assessment and the authors validation of home  
21 acuity tests is both timely and important.[REF Bellsmith et al]<sup>1</sup>

22  
23 The authors found that home vision testing using an app, a website and a printed  
24 chart were comparable to formal acuity testing in-office, and echoed earlier validation  
25 studies on home vision testing technologies. We may be quite confident that when a  
26 competent patient submits their acuity, that it may contribute usefully to the full  
27 clinical picture. However, what is noteworthy is the disappointing patient engagement  
28 rates in this cohort selected from a range of ophthalmic specialties, with only half of  
29 the patients completing two of the three test modalities, and around a third returning  
30 the mail-only tests. This is poorer than the 60% engagement in a recent home vision  
31 testing study targeting patients attending an intravitreal injection clinic, who may be a  
32 less diverse group and more accustomed to routine vision testing.<sup>2</sup>

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34 To translate the clear potential of home vision testing into scaled, real-world clinical  
35 impact, the problem of poor engagement and compliance will have to be overcome.  
36 This will require an increasing research focus on implementation of home vision  
37 testing rather than the accuracy of the test itself. A user-centred design process can  
38 identify better service design: how should we onboard patients, provide remote  
39 support, demonstrate the benefits of the system to the individual, and increase  
40 patient buy-in?

41  
42 We need to look more closely at our patients, our target audience, and their  
43 motivations. The benefits of compliance with medication, for example, are easy to  
44 explain to the patient. However, patients may not attribute the same importance to a  
45 visual acuity test as would an ophthalmologist. And perhaps when patients  
46 understand a more direct and tangible benefit to home vision monitoring will we be  
47 able to achieve higher engagement.

48  
49 Thus vision monitoring may not be suitable for broad deployment to any patient prior  
50 to attending an ophthalmologist's office. Rather there may be different modalities

51 more suited to certain diseases, such as the potentially motivating effect of improving  
52 vision in an amblyopic eye, and utilizing gamification to engage, and the ethics of  
53 which are beyond the scope of this commentary. We may have much to learn from  
54 colleagues who rely heavily on patient home monitoring such as in diabetes and  
55 asthma. Patient education which is ongoing is a key but that may not be possible in  
56 vision acuity testing when patients may be seeking care for the first time. Another  
57 useful strategy might be for vision acuity to be incorporated into telemedicine  
58 consultations and so the clinician still guides the patient.

59

60 There are many exciting innovations, but what is achievable may not be what is  
61 useful. There could be an impactful role for home vision monitoring and may improve  
62 patient care through patient initiated followup. Different diseases may perform better  
63 with different test modalities. This is another timely reminder that the end goal of  
64 such products is to serve the patient.

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## 67 References

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