

DED services in the era of COVID-19



Looking for new ways forward

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This report has been produced by Santen and authored by a panel of UK Dry Eye Disease Experts.

The views and insights contained within the report are those of the expert panel and the chapters have been written by members of the panel with the support of a medical writer.

FOREWORD



I want to congratulate Santen and the authors for producing this informative and useful report that has implications beyond managing patients with dry eyes.

During the pandemic when eye services were severely reduced, only patients with more serious and sight threatening eye conditions were able to access care. This has likely added to the burden of care for patients with dry eye disease.

The large number of these patients presenting at clinics has always been a challenge, more so at a time when we continue to have to prioritise patients with the greatest need.

It is becoming clear that managing an ophthalmology outpatient backlog that is likely to be over two million and a surgical backlog of over 600,000 patients will require eyecare services to change from some of its

traditional approaches of face-to-face care to innovative and transformative approaches like virtual/remote clinics. Empowering patients, with access to better education, shared decision making, and use of patient-initiated follow-up will also ensure more patients are involved with their own care.

The new health reforms, launched in March 2022 focuses on prevention, personalised care, improving performance and people as its themes. This is reflected in all the recent work on transforming eye care services starting from high quality referrals and initiatives to reduce the need for patients to attend hospitals (by 25%). With the current workforce crisis, embracing technology and the Optometry First programme will mean making best use

of a multidisciplinary team, whereby patients see the appropriate health care professional at the appropriate time in the appropriate setting. This means optimising consultant time, to focus on the more complex and surgical needs of our patients.

One of the recommendations (10) from the report is about “Daring to Think Differently”. This is crucial in making change happen and I urge readers to draw inspiration from the report and think about how their service can change to meet the challenges in the post Covid era.



Empowering patients, with access to better education, shared decision making, and use of patient-initiated follow-up will also ensure more patients are involved with their own care.



Professor Bernard Chang
President, The Royal College of Ophthalmologists

Why do we need to make changes?

THE EMERGENCE OF COVID-19

COVID-19 has had a profound impact on the management of dry eye disease (DED) in the UK, along with many other ophthalmic disorders (see Chapter A for more details). Presentations of patients with DED at eye emergency departments were reduced during the initial lockdown period;¹ patients classified as 'low urgency' have found their access to treatment limited and worsened disease has been seen as a result. DED symptoms may even have been aggravated by some of the measures taken to address the spread of COVID-19, including mask use² and increased use of screens while working from home.³ At the same time, some of the steps taken to ameliorate the disruption, including the COVID-19 Urgent Eye-care Service (CUES) framework and the implementation of patient-initiated follow-up (PIFU), have led to improved communication and efficiencies.



Reset and recovery requires identifying ways in which we can effect positive change as we emerge from the COVID-19 period, for lasting improvements in patient care – we will never get this opportunity again



Resource limitations

There are significant challenges of resource faced on a daily basis by professionals managing DED in the UK, and indeed across ophthalmology: unfilled consultant posts are common across units in England, and even before the COVID-19 pandemic, providers were struggling to manage the numbers of patients needing care for ophthalmic disorders.⁴

With ocular surface diseases, including DED, the only way to obtain objective data on a patient's condition is using expensive machines, which are largely not accessible in NHS centres. With many hospitals struggling financially, DED is not a high priority for funding – but where centres are lacking this resource, their ability to perform the three key objective tests recommended by the DEWS II report⁵ is compromised. The fact that the equipment is available in many private centres, and that patients may often be prepared to pay their own way to access a diagnosis, may be serving as a disincentive for NHS commissioners. However, given the profound reduction in quality of life experienced by patients with under-treated and under-managed DED, the case for more widespread availability of these instruments must be made.

Many of the changed circumstances and challenges created by COVID-19, such as social distancing requirements, may be in place in some form or another for some time. Reset and recovery requires identifying ways in which we can effect positive change as we emerge from the COVID-19 period, for lasting improvements in patient care – we will never get this opportunity again. Good habits have been developed, and these must be maintained while identifying other areas for improvement: subsequent chapters in this report address these positive changes, and more.

About this report

The report is divided into five core focus areas:

- 1 The impact of COVID-19 on dry eye disease services
- 2 The evolving role of technology in ophthalmic care
- 3 Exploiting new models of care to improve efficiencies in the hospital clinic setting
- 4 How management of mild/moderate DED can be led by primary care
- 5 How education can revolutionise DED care

Each chapter has been written by a different pair of specialists with a particular interest in that area, with the whole group of authors subsequently reviewing and refining the full report. The key recommendations have been brought together below.

The observations and recommendations in our five focus areas are intended to serve as a prompt for discussion and improvements in care: we do not aim to offer precise, rigid solutions but rather experiences to learn from and suggestions to consider.

This report is written with anyone with an interest in DED and ophthalmic services in

mind, whether that is consultants, nurses, people with a diagnosis of DED, service managers, commissioners, or others. We want to share our experiences and suggestions with all those who want to ensure the management of DED is improved, both now and in the future.

The report assumes the reader has a basic knowledge of DED, but background information is provided in the Appendix.

Overall, we hope this report will prompt significant steps forward in the experiences of patients with DED – an underserved, yet widespread population.



Sajjad Ahmad



Laura Crawley



Nicholas Dash



Sophie Harper



Parwez Hossain



Sai Kolli



David Lockington



Andrena McElvanney



Michael O'Gallagher



Zoe Richmond

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Ten guiding principles for the future of DED management

1

Keeping the patient's needs at the centre of care

We must strive to ensure that appropriate care is accessible to all patients, equally, and they are supported to take responsibility for managing their own eyecare, with patient-initiated follow-up (PIFU) and self-care (with access to specialist advice and guidance) key cornerstones of this aim

2

Effective assessment of patient needs

A coherent and consistent approach nationwide will help to identify those patients in need of urgent specialist care, as well as ensuring those with less severe need can be appropriately managed in the primary care setting

3

Improved collaboration between primary and secondary care

This could help the good work started during the COVID-19 pandemic, developing iron-clad and effective communication links between the settings and building a holistic, multidisciplinary approach to ocular care

4

An Optometry First approach

Encouraging patients to present first to their optometrist when they experience ocular symptoms and providing adequate support for optometrists to provide first-contact care can help relieve pressure on the system

5

A signposted pathway of care

For patients and for care providers should help to ensure efficiency of the system, across all disciplines, and that patients get the holistic care they need

6

Supporting appropriate discharge

Supporting appropriate discharge: patients should feel supported when they are discharged, with PIFU empowering them to access the service as needed; the full medical team should also be assisted and empowered to recommend this step for patients, where appropriate

7

Alternative options for seeing patients

We could consider new approaches, from optometrist-led clinics to group-based support, to ease the pressure on secondary care and to improve patient access to care

8

Embracing technology – with appropriate support

New technologies, especially digital connectivity and information flow, offer the potential for vastly improved efficiencies, but training is needed to ensure they can be used effectively

9

Focus on education

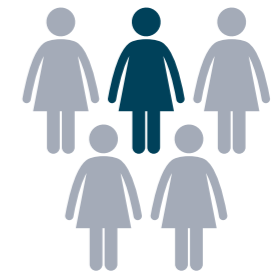
Time and resource invested in patient education, with credible centralised educational resources to support both patients and healthcare professionals (HCPs) to better understand DED, its disease course and its care, will offer significant returns in terms of improved self-management by patients as well as greater confidence among HCPs

10

Daring to think differently

To find maximum efficiencies and optimise patient outcomes, we will need to challenge the status quo

LAY SUMMARY



DED is seen as a non-urgent condition, with women more likely to be affected than men¹

This report suggests how we can improve the diagnosis and treatment of dry eye disease (DED) in the UK and is co-authored by ten leading experts in dry eye disease.

Over the last few years, DED care has changed faster than at any other time. The pandemic has made pre-existing problems much worse, with longer hospital waiting lists, increased pressure on already-stretched resources and fewer staff. But the service has also responded, rapidly evolving to lockdowns, demand and new safety requirements. There are many success stories we can learn from.

However, the challenge is a big one: while DED is seen as a non-urgent condition, research has suggested that 5-50% of people worldwide could experience symptoms, with women more likely to be affected than men.¹ Today, many more people living with DED are undiagnosed, untreated and have symptoms that are getting worse, sometimes leading to permanent damage.

One of the biggest barriers to care continues to be access. During peaks of infection, people living with DED simply weren't able or didn't want to go into hospital. That still hasn't changed.

An obvious solution has been to get patients the care they need outside of the hospital. That means setting up dedicated DED clinics and allowing optometrists and General Practitioners (GPs) to do more of the work that would traditionally be done in hospitals, such as prescribing certain medications. This relies on triage to make sure urgent cases are still referred to hospital, so improving the triaging process is vital.

Another way of reducing footfall in hospitals is to avoid unnecessary follow-up appointments. Instead of automatically giving patients a follow-up when they might not need it, we could allow patients to book in follow-ups themselves when they feel they need it. Patients could be offered direct access to their consultant's secretary and those at higher risk of flare-ups could be offered a 'rescue pack' of emergency medication at discharge.

And when patients do need a consultation,

we can make it more efficient with self-complete pre-appointment questionnaires, limits on accompanying visitors and online educational resources. Telephone and video consultations also save time without compromising on care when used in the right way, for example when providing education and counselling (something which tends to take up the most time in appointments). To get even more out of virtual services, we need to invest in the best technology for them, and also invest in education – making patients aware that video consultations are still real consultations and training healthcare professionals in how to get the most out of them. National questionnaires and guidelines to standardise telephone and video consultations could help.

Making these, along with other tools and electronic patient records, available for GPs, optometrists and hospital specialists via a centralised repository would save a lot of time and repetition. Similarly, allowing patients to access high quality educational content and their own records from one online platform could avoid much duplication and variation.

With the new approaches we've outlined, including the use of new medical technology such as interferometry, training is crucial if we are to increase adoption and make a marked improvement to DED services.

Finally, it should be noted that any improvement to DED services ultimately has one end goal: to improve the wellbeing of people living with DED. This has been kept at the forefront throughout this report's recommendations.

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The impact of COVID-19 on dry eye disease services

AUTHORS



Sai Kolli



Andrena McElvanney

The advent of COVID-19 brought with it a sea-change in the functioning of the NHS, with the high load placed on the system limiting provision of many services and necessitating adjustments in approach to protect patients and staff from infection. Public

perceptions and expectations of NHS services have also changed, with the public more likely to consider whether they really require management in secondary care. However, the pandemic has also necessitated the re-examination of hospital resource allocation.

For ophthalmology, and particularly dry eye disease (DED) services, these events have led to both negative and positive changes in a range of areas. Some of the more positive changes were already needed, but have been accelerated owing to the pressure placed on services from COVID-19.

KEY POINTS

COVID-19 has enforced a wide range of changes in DED services, both for better and worse

Often classified as 'low urgency', many patients have found their condition deteriorating in the absence of regular consultations and in the light of environmental and behavioural changes induced by the pandemic

However, many positive changes have also been observed, including improved collaboration between primary and secondary care, greater efficiencies in hospital departments, and a greater openness to technology



Impact of COVID-19 on patients and their eyes

As a result of limited resource during the pandemic, patients with severe or high-risk eye disease have been prioritised for face-to-face consultations. Triage was absolutely necessary during the peaks of the pandemic, with patients in many places allocated to red, amber and green queues according to their urgency. Many patients with DED, despite suffering from impaired quality of life (QoL), were considered low risk for long-term negative outcomes and so were not seen for extended periods of time. In the last few months, increasing numbers of patients have contacted hospital departments with pressing issues as a result of not having seen a specialist for 18 months. By this time, patients can find themselves in a vicious cycle and the disease can be hard to get under control again: DED can be stable for a long period of time, then suddenly deteriorate rapidly.



Triage was absolutely necessary during the peaks of the pandemic, with patients in many places allocated to red, amber and green queues according to their urgency

Some patients may find themselves markedly symptomatic – while others may have no symptoms due to reduced corneal sensation, and may therefore be unaware of the gravity of the condition of their eyes. Delayed access to treatment could potentially result in serious consequences, reinforcing the need for regular follow-ups. Corneal melt, corneal vascularisation and infection have all been observed in patients in our clinics as a result of COVID-19-induced delays. These are serious conditions, with limited options remaining for therapy. Enabling greater access to ‘Urgent’, ‘Soon’ and ‘Routine’ slots would permit more appropriate engagement with priority of referral and review, hopefully addressing these issues.

Some patients with DED did not present at all, or presented later than they otherwise would have, perhaps owing to fear of infection or to increased challenges with routine referrals. All routine referrals were halted early in the pandemic; once reopened, urgent cases

took priority. Referrals from other departments, such as rheumatology, are still down on pre-pandemic levels – and some patients are still wary of the hospital setting. DED is commonly seen in bone-marrow transplant patients with graft-versus-host disease (GVHD); many of these patients are still too anxious to enter the department, even though they may require treatment to control their eye disease.

DED itself may have been worsened by the events of the COVID-19 pandemic. Lockdowns forced behavioural changes on the population, such as increased time spent at home and in enclosed spaces, greater time spent interacting with screens and the extensive use of masks. All these may have led to an increased incidence of DED, and may have an impact on services well into the future.

Prior to COVID, discussions with patients around screen time revealed a generally low awareness of the impact of screens on blink rate. Blinking, integral to the maintenance of the tear cycle within the eye, reduced in frequency by between three and five times when interacting with a computer screen¹ – increasing the user’s chances of a disrupted tear film. Education around the impact of screens is even more important in this era, given the spread of virtual communication platforms and remote working. Blinking exercises and taking regular breaks from screen use are increasingly relevant beneficial and likely to become even more important in the coming years.^{2,3}



Blinking is reduced in frequency by between three and five times when interacting with a computer screen¹

Mask use for between 3 and 6 hours is associated with increased scores on the Ocular Surface Disease Index (OSDI) compared with lower usage,⁴ and mask-associated DED has been observed particularly among individuals who wear masks for extended periods⁵ (for

example, the elderly and medical professionals). Improved mask fit (for example, using surgical tape to close any gaps around the bridge of the nose) may help to counteract this.

Conversely, some patients – largely those who had coexisting allergic elements – found their condition improved during the lockdowns imposed as a result of COVID-19. Less time spent outdoors meant less exposure to allergens and improvement in their ocular condition.



Mask use for between 3 and 6 hours is associated with increased scores on the Ocular Surface Disease Index (OSDI) compared with lower usage⁴

Collaboration between secondary and primary care

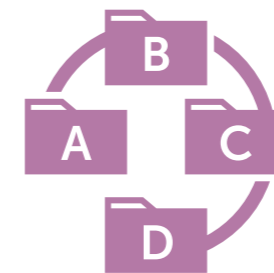
Changes to primary care, and increased management within primary care, is a work in progress: changes were in process even prior to the pandemic, but COVID-19 accelerated this and there is now an established service in place in many areas. This is boosted by informal collaboration between primary and secondary care, not limited to formal channels such as the COVID-19 Urgent Eye-care Service (CUES), which has allowed exchanges of advice, guidance and support across the system.

The CUES service itself has led to benefits from formal coordination and closer links across primary and secondary care, although it does also have the potential to raise additional barriers. For example, the presence of ‘urgent’ in its acronym has led to concerns about which patients should be classified as urgent cases and thus potentially further delays. Conversely, a large number of patients were erroneously classified as ‘urgent’ during the pandemic, potentially taking up urgent

appointments in place of those with true urgent needs. While the model is good, more work is needed to optimise triage and reduce variability across areas and healthcare providers. A key recommendation is that patients should have access to a phone line to reach the appropriate person in case of true emergencies, such as a severe corneal ulcer, which would need immediate triage – including at weekends.

In general, there has been a new impetus for General Practitioners (GPs) to prescribe medicines they would not have considered prescribing before, something that was made possible with support from hospital eye services (HES). However, there are limits on what can be prescribed in primary care, meaning that consultant ophthalmologists are still required to prescribe certain medications and high-cost eyedrops. Increased collaboration and empowerment of primary care professionals can help this to happen more efficiently (see Chapter D).

Having a treatment protocol in place has been helpful to guide both patients and GPs through the different types of tear film supplements that are available. In the past, patients have often been prescribed a particular tear film supplement in hospital, only to have this substituted for something else in primary care. Centralised pathways may help to align management – something currently being trialled in the capital with a pan-London formulary.



Having a treatment protocol in place has been helpful to guide both patients and GPs through the different types of tear film supplements that are available

Impact of COVID-19 on DED services in secondary care

Historical clinical templates – such as service setups and clinic capacity and locations – have been shown to be unfit for purpose, disrupted by the reduced clinic capacity as a consequence of COVID-19 restrictions. However, the challenges faced by hospital departments have led to a number of changes for the better.

Sharing medical records and bundling tests can help with effective triage of patients ([see Chapter C](#)), allowing both streamlining of services and identification of patients who may require a medication review. Further, patient-initiated follow-up (PIFU) may help to ensure those in most need have access to face-to-face care while reducing the number of low-risk patients unnecessarily in the emergency eye department. PIFU can be

offered over the phone to enable patients to get into the service more quickly, without having to go through their GP.

The limit on the number of visitors in hospital departments (except in cases of essential need), while emotionally difficult for patients, has made patient throughput in the clinical setting more efficient. The reduced footfall has led to increased space in waiting rooms and has allowed efficiencies to be found in the process of vision checking, as well as ensuring patients are sent to the correct clinics. However, despite this reduced footfall, space in hospital car parks is at a premium as more people are now using their cars to travel.

For patients unable to reach the hospital pharmacy for their prescriptions, some hospital pharmacies have set up delivery services for any medicines they would be unable to obtain from their GP. This service is likely to be particularly beneficial for elderly or vulnerable patients, and we would encourage it to continue.

Finally, where consultations have taken place, either in person or virtually, they have tended to be longer than previously. This potentially allows for better clinical care, as well as time for education, which can improve the patient's long-term outlook: education is a critical element of DED management ([see Chapter E](#)).



Some hospital pharmacies have set up delivery services for any medicines DED patients need but would be unable to obtain from their GP

The role of technology

Virtual consultations, a necessity as a result of COVID-19, are increasingly being used across the country and can be a valuable addition to services ([see Chapter B](#)). Technology has supported us to find significant efficiencies as well as identifying patients in need of urgent hospital care. The uptake and acceptance of

technology, which was previously slow, has been accelerated beyond all expectation by the pandemic. More investment could open up additional technological avenues to increase efficiencies and improve the accessibility of services for patients.



Overall, while COVID-19 has placed an enormous pressure on the system, it has also led to changes for the better. The subsequent chapters in this report look in more detail at the changes already taking place, and those that would be additionally beneficial, in terms of technology, models of care, the role of primary care, and education.

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CHAPTER B

The evolving role of technology in ophthalmic care

AUTHORS



Nicholas Dash



Parwez Hossain

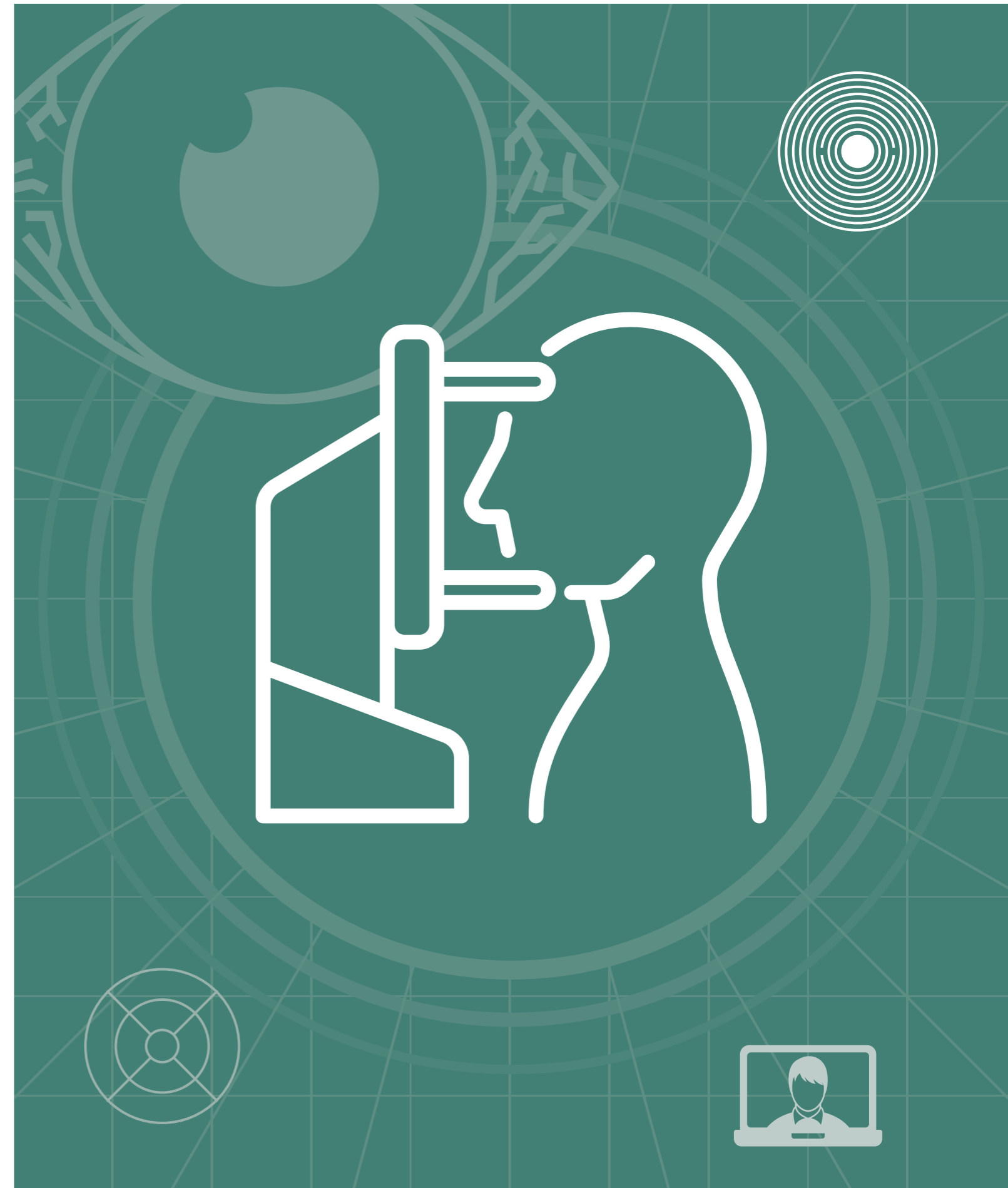
KEY POINTS

A range of technologies is already available to support efficient and effective care – it is important to ensure that providers have the training and expertise required to get the most from the tools already available

New technologies offer the potential to enhance diagnosis and management, as well as in some cases making care more widely accessible

It is critical, when considering the use of new technology, to ensure not only that the systems and infrastructure are set up appropriately, but that we are not disenfranchising or potentially missing patients in need – installing consistent safeguards will be a critical part of the journey to greater digitalisation of care

COVID-19 has forced eye-care providers across the country, many of whom were still reliant on paper at the start of the pandemic, to embrace technology at unprecedented speed. Overwhelming numbers of patients are waiting longer and longer to be seen and waiting lists are still growing across a range of therapy areas, including ophthalmology,¹ thanks to the widespread disruption of the pandemic. New technologies – and optimising our use of existing ones – may help us to find more efficiencies and make workloads more manageable, while simultaneously improving the outcomes experienced by patients.



Getting the most from current technologies

Before looking to future technologies, it is important to consider the current range of standard-of-care equipment that is already widely available. A significant first step to improving outcomes is simply using current equipment more effectively and knowing what to look for. Efficiencies and upskilling are particularly needed in the primary care setting, to help empower optometrists (in particular, as the facilitators of ophthalmic primary care) and ophthalmologists to effectively diagnose and triage patients seeking help in their practices.

SELECTED CURRENT EQUIPMENT AND TOOLS

Tool	Purpose in Dry Eye clinics	Availability	
		Optometrist practice?	Hospital eye service?
Slit lamp/video slit lamp ¹	Estimation of tear meniscus height ²	✓	✓
Dye tests (e.g., sodium fluorescein, lissamine green) ^{3,4}	Assessing damage to tear film and corneal surface ³	✓	✓
Keratometer ^{1,5}	Assessing the shape of the front of the eye ³	✓	✓
Corneal topographer ^{3,4}	Assessing the shape of the front of the eye ³ meibography ⁶	(selected practices with a specialist interest only)	✓
Patient questionnaires	History taking	✓	✓
Optical coherence tomographer (OCT) ^{3,4}	Appropriate software can be used for detailed anterior segment examination	(not universally)	(most hospital eye departments)

Sources: 1. College of Optometrists. Essential Equipment. Available at: <https://www.college-optometrists.org/clinical-guidance/guidance/knowledge,-skills-and-performance/contact-lens-equipment/essential-equipment> (accessed January 2022); 2. Niedernolte B, et al. Clin Exp Optom 2021;104(5):583–588; 3. ABDO. Equipment in optical practices. Available at: <https://www.abdo.org.uk/eyecarefaq/equipment-in-optical-practices/> (accessed January 2022); 4. Royal College of Ophthalmologists. Ophthalmic Services Guidance, March 2021. Ophthalmic Imaging. Available at: <https://www.rcophth.ac.uk/wp-content/uploads/2020/09/Ophthalmic-Imaging-November-2016.pdf> (accessed April 2022); 5. NICE. Cataracts in adults: management. Available at: <https://www.nice.org.uk/guidance/ng77/resources/cataracts-in-adults-management-pdf-1837639266757> (accessed March 2022); 6. Abdelfattah NS, et al. ASCRS 2015: presented paper.

The digital revolution, combined with the impact of COVID-19, has enabled virtual consultations to become a common feature of clinical practice. Online video calls can be a suitable approach for a first consultation, if the patient reaches out directly to the hospital eye



Video consultations became a necessity during the peaks of the recent pandemic and worked surprisingly well for cornea, particularly for dry eye disease (DED)

service. Video consultations became a necessity during the peaks of the recent pandemic and worked surprisingly well for cornea, particularly for dry eye disease (DED). Undergoing a symptoms-focused video consultation may also give the patient more confidence to be discharged, since symptoms generally have a more obvious impact on the patient's life, and are of more interest for them, than signs. It is, however, important to establish that virtual appointments are real appointments and do require an allocation of both time and resource – in case of technical issues, they may need more than an in-person appointment. They are not a panacea from a workload perspective, and their limitations

must be acknowledged.

Virtual consultations may lend themselves better to triage rather than diagnosis. In this context, video consultations may be better than via telephone, allowing detection of non-verbal cues and increasing the focus on the patient. Where a virtual consultation is chosen, letters or emails beforehand can help ensure patients are prepared for their consultation and not caught unawares.

In many cases, however, an in-person consultation is required for any number of reasons. Patients who may be unable to join virtual consultations for whatever reason

(including lack of access, language barriers or discomfort) must have their needs met. Clinical features of DED are on the ocular surface and require a slit-lamp examination to accurately assess them, something that is difficult to emulate completely remotely with current videoconferencing technology. Face-to-face appointments can also support requesting additional investigations. Increasingly, some patients are reporting dissatisfaction with a lack of face-to-face appointments, indicating that a number of patients do value an in-person consultation, and this should be taken into account.

The advantages and disadvantages of different approaches for consultations are outlined in the table below.

TYPES OF CONSULTATIONS: PROS AND CONS

Tool	Advantages	Disadvantages
Virtual consultation: telephone	<ul style="list-style-type: none"> No need for the patient to travel; minimal disruption to daily life No need for internet connection No risk of COVID-19 infection May 'tune specialist in' to patient's symptoms and lived experience 	<ul style="list-style-type: none"> No chance for visual assessment or slit lamp examination Language barriers potentially problematic Some patients prefer in-person consultations
Virtual consultation: video	<ul style="list-style-type: none"> No need for the patient to travel; minimal disruption to daily life No risk of COVID-19 infection May 'tune specialist in' to patient's symptoms and lived experience Visual assessment possible Allows detection of non-verbal cues 	<ul style="list-style-type: none"> Access to internet is not universal No chance for slit lamp examination Language barriers potentially problematic Some patients prefer in-person consultations Poor internet quality or technical issues can disrupt consultation Time savings for the consultant are unlikely – particularly in case of technical issues
In-person consultation	<ul style="list-style-type: none"> Allows slit lamp and visual examinations Easier to request additional investigations; tests can be performed immediately Physical prescriptions can be handed to the patient Opportunity for in-person demonstrations of self-care techniques 	<ul style="list-style-type: none"> Patient required to travel Social distancing requirements must be met

Whether the appointment is virtual or face-to-face, obtaining information from the patient before the start is a key step to save time and make appointments more efficient. Supplying a questionnaire (such as the Ocular Surface Disease Index [OSDI] or a modified, more patient-friendly approach) helps with history taking so the consultant can focus on examining the eye.

Of note, the OSDI is research-orientated and consequently may be intimidating for the patient: more patient-oriented, simpler and more succinct questionnaires might allow for more complete responses and support triage as well as history taking. The DEWS II report² recommends the DEQ-5 (Dry Eye Questionnaire-5), which comprises five quick and easy questions;³ much like the SPEED II (Standard Patient Evaluation of Eye Dryness) Test, this provides an option for a standardised test that is simple for patients to complete.

Transitioning to electronic versions, which the patient can complete online or within an app, should make the process even simpler for the patient, further enhancing efficiency and completeness. At present, the OSDI is the only questionnaire available as an app, but minimal investment could also support adaptation of the other two questionnaires above and would be welcomed. Apps also allow the patient to keep an ongoing record of changes over time and their response to various treatments, supporting ongoing management.

Importantly, we must ensure that different



We must ensure that different options are available for patients and that technology does not worsen inequity of access



Whether the appointment is virtual or face-to-face, obtaining information from the patient before the start is a key step to save time and make appointments more efficient

options are available for patients and that technology does not worsen inequity of access. A key aim of incorporating technological and digital methodologies is to offer more options for patients while maximising efficiencies; patients must not find themselves excluded from care.

For virtual appointments, some patients may prefer a telephone consultation, while others benefit from a video call; this may, to an extent, vary by generation. Patients with linguistic challenges or technological barriers may struggle with a virtual consultation, and more research is needed into the barriers of such technology to people from vulnerable groups.⁴ In-person patient group consultations may also offer the chance to connect patients with advocates from similar backgrounds (see Chapter C), although this is unlikely to be possible for every hospital. Sharing resources, however, could broaden the ability of many Trusts to reach out to often-disadvantaged groups.

AVAILABLE QUESTIONNAIRES

- OSDI questionnaire: six questions related to visual disturbance and function, now available to complete online¹ and as an app²
- DEQ-5: five questions relating to visual disturbance, including time-related changes³
- SPEED II questionnaire⁴
- Other questionnaires are also available⁵

Sources: 1. Dry Eye Zone. Ocular Surface Disease Index. Available at: <https://www.dryeyezone.com/osdi> (accessed January 2022); 2. Apple Store. Dry Eye OSDI Questionnaire. Available at: <https://apps.apple.com/us/app/dry-eye-osdi-questionnaire/id849849034> (accessed January 2022); 3. Chalmers RL, et al. Cont Lens Anterior Eye. 2010;33(2):55–60; 4. NCO. Speed II questionnaire. Available at: https://www.ncophth.com/storage/app/media/_pdf/Speed-II-Questionnaire-UPDATED-NQV-2013.pdf (accessed January 2022); 5. Wolffsohn JS, et al. Ocul Surf. 2017;15(3):539–574.

Optimising communication and education

Technology and interconnectivity has been grasped by or forced upon the majority of the population, both general and professional, as a result of COVID-19. This affords increased opportunities in the dissemination of information between all individuals and institutions within the pathway of care. It provides economies in time and finance, as long as appropriate safeguards are put in place. The traditional care pathway may, however, need to be updated or reworked to encompass new technologies.

Self-assessment

Before the patient encounters a primary care practitioner, the first stage in their journey is self-assessment: identifying that they have a problem and what this could be. In cases where even getting a primary care appointment may be challenging or delayed, this step is particularly important. Self-care and self-diagnosis apps may help patients to begin the process of self-management while they wait for a professional opinion. However, an important aspect of patient self-care is knowing to whom, how and when to present: it is important that credible guidance and signposting on these points is easily to find and access.

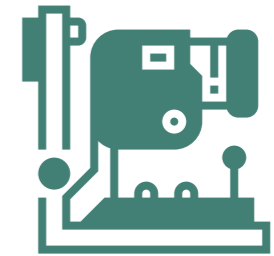
Diagnosis and management

Technology also holds the potential to support with diagnosis and longer-term management – in the long run, this should help to address the growing waiting list and thereby reduce waiting times for specialist assessment.

Technologies particularly need to empower providers in the primary care setting to effectively diagnose and triage patients to



It is important that credible guidance and signposting on whom, how and when to present is easy to find and access



Technologies particularly need to empower providers in the primary care setting to effectively diagnose and triage patients to address the growing backlog



Technology can allow primary care optometrists, working in the community, to discuss cases and gain advice from secondary care experts

address the growing backlog. Many basic technologies for assessment are used in clinical trials and some academic clinics, but more widespread use would help to improve patient outcomes. Slit-lamp vital staining with fluorescein and lissamine green, along with yellow filters to enhance contrast, should be universally undertaken when DED is suspected. The Oxford scale⁵ offers an objective method of assessing the degree of corneal and conjunctival staining, and is a useful tool for monitoring the course of the disease and responses to treatment. Similarly, meibomian gland function scores such as the meiboscore are used in clinical studies,^{6–8} but should be used more widely in clinical practice. Matrix metalloproteinase testing⁹ may offer a way to assess inflammatory activity at the ocular surface. Objective measures are important to ensure an accurate understanding of the effectiveness of therapy, as well as to ensure all patients with DED are correctly identified in the first place.

By enhancing connections between primary and secondary care, technology can allow primary care optometrists, working in the community, to discuss cases and gain advice, reducing their sense of isolation in their

practice and boosting their confidence to manage patients in the primary care setting. Joint clinics or consultations may also be made possible with the help of technology (see Chapter C), building on the links created by COVID-19 Urgent Eye-care Service (CUES).

Robust connectivity, allowing professionals to send electronic referrals, feedback and advice and guidance, is essential to enable these improvements. Such connectivity is already in place within the NHS, but every region and/or centre has a slightly different approach. This lack of a unified approach can be frustrating and confusing for the referrer, and a future aim should be to align approaches across the country to simplify the process.

COVID-19 has also demonstrated the importance of electronic patient records (EPRs). Managed access to details of the patient's history can both improve efficiency and increase empowerment, allowing the current HCP to see which treatment options have already been tried. Common EPRs include 'instructions for the next visit' to collate the tests required and further focus minds on the rationale for a follow-up consultation. Such approaches can also reduce reliance on paper systems, while supporting better sharing of information and more joined-up working. In Northern Ireland, EPRs draw together prescribers' letters from all Trusts to build a detailed picture of each patient's clinical situation – this has revolutionised care and communication, but is reliant on the right information being captured in the letters. There is a nationwide push towards such an approach, though its implementation is currently variable.

CASE STUDY

Central electronic care records in Northern Ireland

Optometry practices in Northern Ireland will soon have access to their patients' electronic care records (NIECRs), in order to inform referrals and avoid duplication of efforts. The NIECR holds prescribing information, helping specialists to review the medications patients have already tried before reaching them, as well as information on allergies, ophthalmology clinic letters and referrals, information from Eye Casualty and diabetic eye screening reports.

Online patient education

Being able to signpost patients to credible online informational and educational resources would help to save time in consultations and offer patients resources with which they can engage at their leisure. They can also revisit these resources as often as they wish and share them with family members and/or carers, ensuring those around them also become more informed. Interactive training, as well as video training, for patients could help to ensure they are comfortable with self-management. Any information provided must always be curated, credible and accurate, with consistency of messages throughout.

DED is a chronic and sometimes life-changing disease: by providing a platform for educational resources, technology can help patients to better understand DED and know what they need to do on a lifelong basis, as well as supporting them to report their condition and seek professional support in the first place. See Chapter E for more discussion of the role of education in improving DED management.

The potential of tomorrow's tools for assessment and management

Some of tomorrow's technology is already here: many new and future tools can be hosted on simple digital devices that are already widely available. Digital tools can empower both patients, to manage their disorder, and healthcare professionals, to be more confident and targeted in their management of patients with DED – and will be an important step forward.

Enhancing access to care

Cost can sometimes present a significant barrier to implementation and uptake of new technologies for assessment and management; reliability is also an issue with some devices. Apps can offer increased portability and affordability, for example in assessing the tear meniscus.²

Some apps already allow clinicians or high-street optometrists to follow up with patients. These generally include a quick checklist and input of simple grading tests (e.g., tear meniscus height, staining, tear break-up time [TBUT]). These could be important tools supporting optometrists in differential diagnosis and management. They can also highlight available products to address the patient's symptoms, as well as reminding patients to take their medication and attend appointments.

In the longer term, artificial intelligence (AI) and big data are likely to play an important role. Patients may be able to input their symptoms on their smartphone: these are fed into the AI, which will then be able to offer advice without the patient needing to consult with a medical professional. If the patient does not respond to initial treatment, their case can then be escalated. Given the high prevalence

of DED,¹⁰ technologies supporting patient self-diagnosis or primary care-based diagnosis and initial management are likely to be an important step forward.

Such solutions may help reduce the obstacles limiting access to care, potentially helping to relieve pressure on the healthcare system – but are likely to be controversial. There is a chance that remote approaches could miss the opportunity to identify some other, more serious conditions that may present with similar patterns of symptoms – this risk must be managed. Built-in safeguards are critical to avoid misdiagnosis and ensure that people do not disappear from the system: we must ensure we can filter patients so that they receive urgent care when needed.

Diagnosis

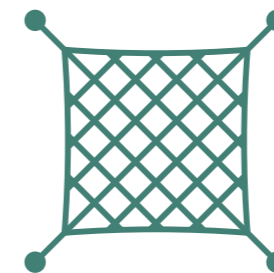
New technologies offer the potential for improvements in the accuracy of diagnosis.

Meibography is assessment of the meibomian gland, which is partly responsible for a substantial proportion of DED.^{10,11} Improvements in technology have made this assessment simpler and cheaper to perform, including mobile and handheld instruments, as well as those attached to slit lamps,² allowing the meibomian gland's structure to be visualised in primary care. This visual approach also allows patients to see the problem with their own eyes, enhancing their understanding of the issue and the reason it needs to be managed. Technology such as this has been a gamechanger for eye care professionals in the past few years.

Management

Novel technology is also offering new options for treatment of DED. Intense pulsed light (IPL) has previously been used in dermatology to treat conditions including hyperpigmentation and acne.¹² More recently, IPL has been found to improve tear film stability and reduce the symptoms of DED, as well as improving meibomian gland function, in prospective and retrospective studies.¹²

Contact lenses, while associated with the pathogenesis of DED, can also be a therapeutic option¹²; bandage contact lenses, made of soft



Safeguards and safety nets must be incorporated at every stage of the patient journey

silicone hydrogel, can help to improve ocular comfort, and may even improve the stability of the tear film.^{12,13} Several studies of fluid-filled scleral lenses have demonstrated improvements in DED symptoms¹¹ and these lenses are now available more widely for

DED.¹⁴ Therapeutic contact lenses tend to be prescribed more commonly for severe disease; 43% of practitioners prescribe this option for patients with severe DED.¹⁵ In addition, serum eye drops are commonly used to treat DED.¹⁵

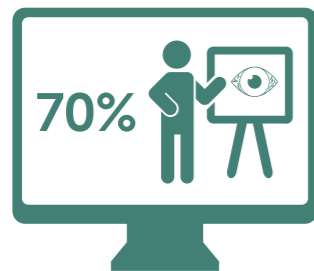
Key considerations for the future

Commissioning is needed across the whole pathway of care, and has a particularly essential role in supporting the full range of DED services to reach the potential of new technology. Investment is required to ensure all Trusts, practices and patients have equal access to technology in care, and that specialists are adequately recompensed: for example, remuneration must be appropriate for virtual consultations as well as face-to-face ones.

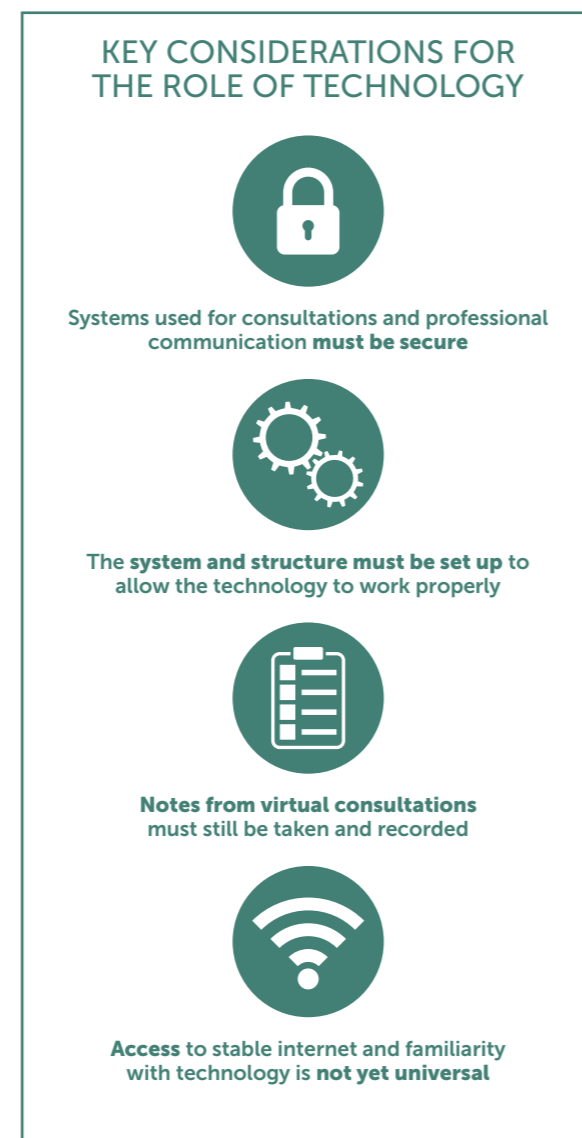
Training is a critical factor throughout the DED management pathway and is particularly central to ensure widespread adoption of new technology. Without trained staff to operate it, equipment is essentially useless. Technology is also central to training, with online education a regular feature of clinical life as a result of the pandemic; in an online survey, up to 70% of ophthalmology residents and fellows reported regularly attending web-based teaching during the recent period.¹⁶

Digital transformation should be embedded in future patient pathways and delivery of care, but there are important considerations for the role of technology.

While some technologies are not yet available – for example, for remote full eye assessment – this situation is likely to change in the future. It is important that clinical



Up to 70% of ophthalmology residents and fellows reported regularly attending web-based teaching during the recent period¹⁶



pathways and approaches are flexible enough to incorporate future technologies swiftly and efficiently. Additionally, as new technologies become more mainstream, they may further influence how we look at things and perhaps may lead to more effective treatment plans.



With new technologies becoming available, an increasing range of options are open to us in the field of DED, which may support more efficient and effective diagnosis and management. It is important that we maintain an open mind to the potential of such innovations and are prepared to adapt our approaches to incorporate them when needed.

However, while remote assessment and management can offer appealing benefits, the increasing availability of remote options presents its own challenges. We must ensure that the small proportion of patients with DED who do have serious eye conditions and require expert help are not overlooked: to reduce the risk of enduring harm for these patients, safeguards and safety nets must be incorporated at every stage of the patient journey.

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Exploiting new models of care to improve efficiencies in the hospital clinic setting

AUTHORS



Laura Crawley



Michael O’Gallagher

KEY POINTS

Finding efficiencies in triage, consultations and improving discharge can help to ensure patients are treated appropriately according to their needs, maintaining a higher level of support for those with severe disease

Simple forms and checklists can help lead to significant improvements in efficiencies in terms of triage and assessments, as well as ensuring junior staff feel empowered to discharge patients when appropriate

New approaches to consultations, including digital platforms and group consultations, as well as reconsidering the role of allied health professionals, can help to relieve over-burdened clinics while offering benefits for patients

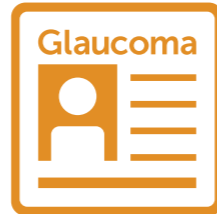
COVID-19 has shown us that rapid changes in ways of working, and equally rapid dissemination of these new approaches, are possible. A range of small changes to how we approach care may help address the challenges presented by COVID and the journey towards service recovery. Minor changes may free up capacity in the short term, but could also lead to bigger, beneficial changes in the future.



Assessments

With dry eye disease (DED) clinics facing limited capacity and increased backlogs as a result of COVID-19-related disruption, hospital clinic time for DED is under more pressure than ever before. It is essential to find efficiencies and prioritise those at highest risk. At present, many patients come back for multiple repeat visits and follow-ups – limiting the number of unnecessary repeat visits is one potential approach to reduce the overload on hospital clinics. To achieve this, effective triage is essential.

Introducing diagnostic bundles, as done for glaucoma, could both improve efficiency and ensure appropriate assessment is performed. For this approach, each 'bundle' contains a set selection of tests and every bundle is assigned a number. Assigning a patient to a bundle number ensures the correct assessments are performed as standard. That said, if the majority of patients usually need the same tests, it may be easier to perform these tests as



'Glaucoma passports' have been introduced, enhancing patient empowerment (International Ophthalmology Portal¹) and could have potential to be used with DED patients

CASE STUDY

Improving patient flow with yellow forms in Belfast

Yellow forms, containing simple tick-boxes, have been introduced for all patients. These forms specify the tests to be performed for that patient, ensuring all patients are assessed in a standardised way.

The yellow forms, developed as a collaborative effort by the whole clinic team, have led to a number of benefits. The simple, all-in-one form allows the nurses, technicians and other staff to get on with their jobs without reference to the consultant at every step: the process required is clearly outlined in the form. Further, as the form is completed in anticipation of the patient's next visit, it encourages the consultant to consider the purpose and necessity of calling the patient back in.

Importantly, the form was developed by the full team, including both clinical and non-clinical staff. This means that every team member is on board with the process and it is implemented consistently.

CASE STUDY

Care Information Exchange in London

The Care Information Exchange (CIE) is a web application allowing patients to review their health records, appointments and test results as well as advice and educational materials in one place – and also allows them to share their health records with other health professional, if they choose to. At present, this system is available only for patients of three London Trusts (Chelsea and Westminster Hospital NHS Foundation Trust, Hillingdon Hospitals NHS Foundation Trust and Imperial College Healthcare NHS Foundation Trust), expansion of this approach would be welcomed.

standard on *all* patients: this ensures everyone who needs it is assessed and may be a more efficient approach in the long run. Digital solutions are also an option to support easier sharing of patient records and testing needs (see Chapter B).

Sharing tests and their outcomes with patients is important to ensure they have access to their information wherever they are, without another healthcare professional (HCP) having to write to their consultant to ask for it. This can be done digitally. For patients with glaucoma, 'Glaucoma passports' have been introduced, enhancing patient empowerment (International Ophthalmology Portal¹) – but they are not yet universally available, nor are they available for DED.

Consultations

To make the most of the time patients spend in consultations, we need to think differently. The digital revolution has opened up new possibilities for consultations (see Chapter B), but there are other steps we can take as well.

Dedicated DED clinics could improve efficiency, but would need to be operated by consultants able to devote all or most of their time to DED. Alternatively, DED clinics could be run by optometrists in parallel with a consultant-led corneal clinic. This would allow

for increased efficiencies while allowing the optometrist to gain advice and expertise from the consultant when needed.

Alternatively, video consultations with the facility for other specialists to join can allow joint ophthalmologist-optometrist clinics to run in a time-efficient manner, offering the opportunity to gain specialist opinions and supporting co-management, as well as providing additional support and reassurance for the patient when it comes to discharge.

THINKING DIFFERENTLY ABOUT CONSULTATIONS FOR DED

	DED-focused clinics	Parallel clinics	Virtual consultations	Group consultations
Advantages	A clinic fully devoted to DED could improve efficiency	Increased efficiencies; allows for optometrist to gain further experience while supported by consultant	May help specialists to focus better on patients' symptoms and lived experience with DED, as well as offering efficiencies	Patients can learn to manage their disease together and may obtain additional support from peers; opportunity to reinforce education
Considerations	Requires an ophthalmologist/optometrist able to dedicate the full time to DED	Requires coordination between optometrist and corneal clinic	Do still require allocation of time and resources; may not be suitable for every patient	Must be led by a trained professional

CASE STUDY

Dedicated DED clinic in Belfast

Multiple corneal clinics are held each week. A surgical corneal clinic features an optometrist who supports with refraction, whereas the medical corneal clinic, which does not require refraction, has historically been supported by a specialist nurse. This dedicated time allows for a focus on DED, which can otherwise be somewhat overlooked as part of a busy corneal clinic.

An in-person (or remote) option offering time efficiencies could be that of a group consultation or support group for patients with escalating symptoms. Conducted by an appropriately trained professional, this group consultation would provide the chance for patients to obtain additional support from their peers: they can learn to manage their disease together. There are a number of online patient forums in existence already (such as Dry Eye Zone² and Patient.info³), but it would be helpful for patients to meet with an HCP, who can provide appropriate context and informed support.

Such a group consultation could be scheduled as a follow-up after all the patients have had a one-to-one appointment, providing an additional opportunity to reinforce educational points around management of the

disease. The ubiquity of virtual meeting platforms makes this option potentially easier from a logistical standpoint than it was in the past, as it could also be conducted remotely.

However, it is essential that any technological solutions take into account the needs and comfort levels of individual patients (see **Chapter B**).

Discharge

Improving the discharge of patients from secondary care when appropriate can help to reduce the burden on hospital services and secure more time for high-risk patients.

A number of approaches could help to improve the efficiency of discharge. Registrars and nurse practitioners can sometimes be wary of discharging patients, in case they make a mistake; a proforma, along with consultant oversight, can help to boost their confidence and reduce the number of patients called back automatically for six-monthly follow-ups, where there is no real need for this. Telephone and video reviews can also improve the efficiency of discharge.

It is important that patients know they are not simply being released into the 'void'. There is a spectrum of care between primary and secondary care settings, and the patient's management should continue after discharge: they should be released into the care of their optometrist, with a clear escalation plan.



It is important to consider the appropriate use of language and terminology, to ensure patients do not feel abandoned



Patient's management should continue after discharge: they should be released into the care of their optometrist, with a clear escalation plan

Such a plan empowers the practice nurse, optometrist and even pharmacist to support the patient as needed, with a trigger for referral and reassessment if symptoms do not improve after a certain period of time. Including the optometrist in correspondence with the patient is also helpful to ensure continuity of care.

It is important to consider the appropriate use of language and terminology, to ensure patients do not feel abandoned. It may be better, in fact, to avoid the word 'discharge' altogether, instead explaining that the patient will continue to be treated and supported within primary care to avoid any perception that their treatment is being stopped. Supporting transfer of care into the community environment empowers patients to take charge of managing their own disorder, with the support of experienced primary care professionals. The implementation of patient-initiated follow-up should further empower patients to contact secondary care specialists if their condition worsens.

The psychological element of DED is an important factor: many patients have spent a long time being referred between specialists in order to reach secondary care and a diagnosis, so may feel uncared for and become dependent on their specialist consultations –

even if they are low risk. Patients may also form a social community with others in the waiting room, increasing their dependence on their clinic visits. It is important that they are treated and transferred to primary care before they become dependent on secondary care. Fear of waiting lists, meaning a long wait to be seen again if needed, can also make patients wary of discharge: addressing this situation can be helpful (see box).

As a result of COVID-19, some patients' perceptions of whether they really need to attend clinic have changed, potentially making these conversations easier.

CASE STUDY

Addressing the fear of waiting lists in Belfast

The clinic has a limited number of emergency slots, but has stratified new patients and urgent referrals to ensure that patients can get back in to see the consultant if they need to after discharge. As a result, increasing numbers of patients report they are doing well and are happy not to come for repeat visits.

Patient-initiated follow-up

Patients should feel empowered to refer back to secondary care, either directly or via their GP, if their symptoms worsen, with a clear path back to care.

Patient-initiated follow-up can support more appropriate allocation of care and cohorting of patient needs; predicting when patients might need follow-up support can be challenging. It empowers patients, feeling less like a discharge into nothingness, but also avoids the need for automatic appointments that may be unnecessary.

Patients can be offered direct access to their consultant's secretary or the failsafe officer in order to get advice from a professional familiar with their care. The use of a failsafe officer is important to avoid over-reliance of the system on specific individuals, ensuring cover is provided during periods of absence and leave.

Contact details for a specialist nurse's mobile phone can also be offered, but should have restrictions. For example, appointment administration queries should not be allowed and the number shared only with those who really need it, with staff empowered to reject inappropriate queries.

Further, patients at higher risk of flare-ups could be offered a 'rescue pack' of emergency medication at discharge, such as a short course of steroids for use if needed. These should be limited and the patient should be required to inform the consultant when they

CASE STUDY

Predicting paediatric requirements in Belfast

Vernal keratoconjunctivitis (VKC) is a seasonal allergic disorder of the eye that is largely seen in children. In an attempt to reduce the overloading of follow-up appointments, the Belfast team trialled pre-booked appointments, anticipating when patients' symptoms were likely to worsen according to the pattern of their disease. That year, a wet April meant patients' symptoms appeared later than expected, and a large number of appointments took place when the children's symptoms were mild. After this, the system changed: patients now simply call in when their symptoms worsen.

use the medications, to ensure excessive or unnecessary dosing is avoided.

An alternative to this approach, or a complementary approach for selected patients, might be regular follow-ups with both the consultant and optometrist, but staggered.

For example, in some disease areas the patient is seen yearly by each specialist, but the consultant's appointments are 6 months after the optometrist's, so they are seen every 6 months overall. Such an approach is an alternative to joint clinics but may offer its own advantages.

Patient guidance and advice

Finding greater efficiencies in how we run clinics should enable us to spend more time with each patient, particularly during the first consultation, allowing more time for guidance, advice and education (see Chapter E). Ideally, attendance at a follow-up patient support

group would provide an opportunity to reinforce educational points and allow for questions to be addressed. This would also offer a chance to see how people are getting on at the early stages of their treatment, as well as providing more support for high-risk patients.

A lack of centralisation of good-quality information and support contributes to inefficiency, forcing specialists to repeatedly go through the same information with different patients. Much of this time may also be wasted, as patients often do not remember everything from their consultations. Centralisation of resources would free up consultant time and offer patients a more effective route to understanding their condition. Using digital platforms, video information resources can offer a chance to enhance and enrich the information and support currently offered to patients from all communities, and allow them to access the information at home for reminders whenever they need them.



Centralisation of education resources would free up consultant time and offer patients a more effective route to understanding their condition

The role of nurses and allied health professionals (AHPs)

Reconsidering the allocation of duties can be an important step towards improving efficiencies.

Triage of patients in secondary care can be conducted by nurses/AHPs, particularly if clear flow charts are introduced. The disparity between symptoms and signs in DED does present a challenge: seemingly innocuous issues can sometimes be serious. However, the newer imaging modalities available to us can allow for more effective triage and liaison with the consultant running the clinic by the nurse/

AHP. This also offers the potential to introduce a dedicated point of contact (in the form of the nurse/AHP) throughout the patient's journey, from triage to discharge, allowing the nurse/AHP to hold a broader remit than simply triage. AHPs or nurses are also well-placed to spend time on patient education, not least because there is often a different dynamic in the relationship between the patient and AHP in comparison to the consultant. Leveraging this can help the patient to better understand their condition and how to manage it.

The psychological impact of DED can be severe. In an ideal world, a clinical psychologist would provide valuable help and support to patients struggling with the impact of their eye disease on their daily lives. This may not be possible in every clinic: here, too, nurses can play a valuable role.



Improving the discharge of patients from secondary care when appropriate can help to reduce the burden on hospital services and secure more time for high-risk patients



Finding new efficiencies in secondary care can ultimately help all patients with DED, empowering those with mild-to-moderate conditions to take charge of their own disease, while allowing more time to focus on addressing the challenges of those with severe disease.

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CHAPTER D

How management of mild/moderate DED can be led by primary care

AUTHORS



David Lockington



Zoe Richmond

The NHS has been primary care-led since the mid-1990s,¹ with General Practitioners (GPs) viewed as the 'gatekeepers' of the NHS. More recently, primary care has been defined by NHS England as the first point of contact in the healthcare system.

Despite the multidisciplinary nature of primary care, it can often be viewed simplistically as comprising only general practice; however, it is now better recognised in the UK that primary care comprises General Practice (GP and their practice team), Pharmacy, Dentistry and Optometry.²⁻⁵ Optometry (comprising optometrists, dispensing opticians and their practice teams) is becoming increasingly central to the initial assessment of all patients with eye disorders, including dry eye disease (DED).

In the absence of indicators of a more serious condition, NICE recommends management of DED occurs within primary care.⁶ Across the four UK nations, although there are variations in the approaches taken, the role of primary care is growing in importance.

KEY POINTS

Primary care practitioners, and particularly optometrists, have the potential to play an integral role as first-contact care providers of the NHS for ocular disorders, including DED – however, at present, many patients are first seen by GPs or even within secondary care

Assessment and management of mild-to-moderate DED by optometrists could help ease the burden on overstretched hospital eye services

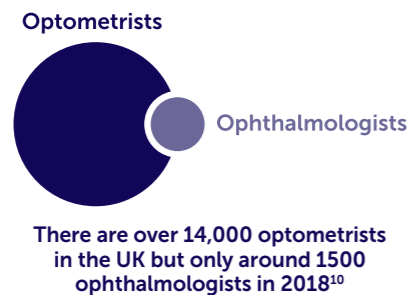
To make this happen, optometrists need improved infrastructure as well as greater professional and financial support and incentives, and the appropriate pathway of care must be clearly signposted to patients



Why is management in primary care important?

The traditional pathway of care for eye conditions (including DED) could be likened to a conveyor belt: patients were referred from primary care to hospital eye services, possibly never to return. However, the demand on hospitals and their eye services in the UK is continually increasing, as the ageing and growing population⁷ leads to a rise in the number of people with visual impairments along with other comorbidities.⁸ It is also important that patients are able to access care quickly when needed, in a location that is convenient for them.

The importance of primary care is highlighted by the disparity in numbers within the primary and secondary care workforces: with over 14,000 optometrists in 2016, the UK had a larger optometric workforce than any country in the EU,⁹ while in 2018 there were only around 1500 ophthalmologists.¹⁰ The shortage of ophthalmologists was leading to a crisis in terms of workload even before the COVID-19 pandemic: increasing management within primary care where possible, in the context of these numbers, makes sense.



The COVID-19 crisis further disrupted clinical care across the NHS, including in the delivery of eye care. Building on the established networks and creating new links between General Practice, Optometry and Hospital Eye Services (HES) could enable a more appropriate and sustainable approach to conditions such as mild-to-moderate DED. Diagnosis and management of such patients in the community could avoid unnecessary referrals to HES. Importantly, more comprehensive and consistent eye services in primary care have the potential to support earlier diagnosis of DED as well as patient

CASE STUDY

Optimal primary care working through COVID-19

Prior to the COVID-19 pandemic, the HES team in Gloucestershire were already beginning to work with primary care optometry, though urgent eyecare was restricted to individuals presenting with 'flashes' and 'floaters'. The CUES service was subsequently introduced in May 2020, with widespread support from local practices.

While COVID-19 Urgent Eyecare Service (CUES) is, as its name suggests, designed to meet patients' urgent eyecare needs, conditions such as DED or meibomian gland disorder (MGD) can present with distressing symptoms and many patients with these conditions have benefited from CUES.

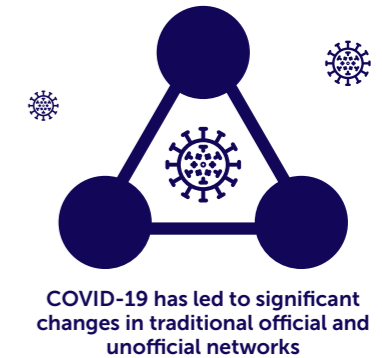
The service has enabled access to a local high-quality primary eye care service – prior to its implementation, there was only a partial minor eye conditions service (MECS), which did not cover DED, and patients were left to reach out to their GP, pharmacist, A&E, or directly to the HES. The CUES service also allows for referral to or input from optometrists with additional qualifications (Independent Prescribers). These clinicians can prescribe additional medication for the treatment and management of DED, which would previously have required referral to the HES and/or GP.

Patients are extremely satisfied with their new service and anecdotal evidence suggests a general consensus that this level of eyecare should continue.

Source: LOC communication

self-care. Identifying the most appropriate and efficient patient pathway is a part of this. Since 2010, optometrists have been cemented in Scotland as the first port of call for eye care prior to referral on to secondary care.¹¹ They are better equipped to perform the necessary tests and assessment for eye disorders than GPs (see below). Some patients may still need to attend hospital for their diagnosis and treatment plan, but most could then be managed in the primary care setting unless there is an escalation in their condition requiring secondary care. Ensuring a smooth transition and ongoing management is crucial for these patients.

COVID-19 has led to significant changes in traditional official and unofficial networks. The COVID-19 Urgent Eye-care Service (CUES)



Framework, developed collaboratively by NHS England, Local Optical Committee Support Unit (LOCSU) and the Clinical Council for Eye Health Commissioning, provides clear recommendations on how to define essential eye services, but importantly also on the close collaboration needed between primary and secondary care.¹²

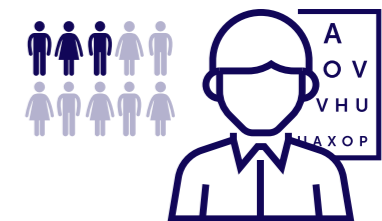
What are the key enablers and barriers to management of DED in primary care?

A clear pathway of care

Effective care navigation within primary care is essential to improve the efficiency of the system: it is important to identify who is best placed to assess and treat the patient. The approach, however, is variable across the country, making consistent signposting harder.

While the approach across the UK nations is somewhat variable, many people arrive in secondary care from routes outside the standard optometrist referral: for example, directly from their GP or from casualty. The required equipment to undertake key optometric investigations, including refraction and slit-lamp assessments, is held by optometrists and is not normally available to a GP. Consequently, patients arriving from other primary care practitioners have usually not had these tests, sometimes requiring them to be performed in the hospital eye centre with its attendant high costs.

The optometrist should therefore be a key point in the patient pathway before (or instead of) hospital care. In Scotland, this is already the case: the optometrist is officially the first to

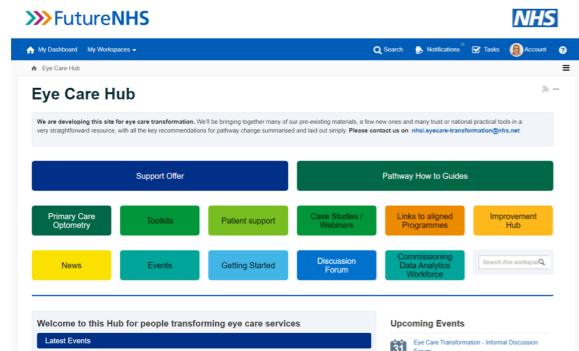


30% of the public would first go to an 'optician' with an emergency eye problem, representing an 11-point increase since 2015¹⁴

assess a patient with an ophthalmic issue. In England, Wales and Northern Ireland, many patients first see their GP or go straight to casualty, although this is starting to change. Across England, there are many different locally commissioned services: some areas have Minor Eye services or CUES and there are variations in the prescription charges for DED treatments depending on the type of treatment and the region it is prescribed in.

The situation shows encouraging signs of improvement across the UK. Notably, the National Eye Care Recovery and Transformation programme (NECRTP¹³) have

developed an Optometry First model to be tested within a few systems in England through 2022; the associated Toolkit, which includes guidance on the full recommended care pathway for ocular disorders, including support for patient self-care, is now available on the NHS Futures Eye Care Hub.

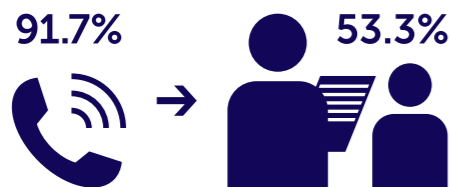


Awareness of the importance of optometrists is also increasing among the public: according to the recent General Optical Council (GOC) Public Perceptions Survey of over 2000 individuals across the UK,¹⁴ 30% of the public would first go to an 'optician' with an emergency eye problem, representing an 11-point increase since 2015. However, more (38%) would still first go to a GP – education and awareness may be needed to help change this.

Integrated working

Working in a more integrated way across the system will allow us to optimise the services delivered in primary care.

As the first point of care, the optometrist needs to be empowered to make full use of their skills to assess and manage the patient within primary care where appropriate, avoiding the need for a referral in many cases and allowing the patient to manage their



91.7% of patients were eligible for CUES and offered a telemedicine appointment, 53.3% of people were given a face-to-face appointment following telemedicine appointment, 85.7% of the cases seen in GM were managed within primary care, without requiring a referral. Source: Kanabar R, et al. Eye 2021

CASE STUDY

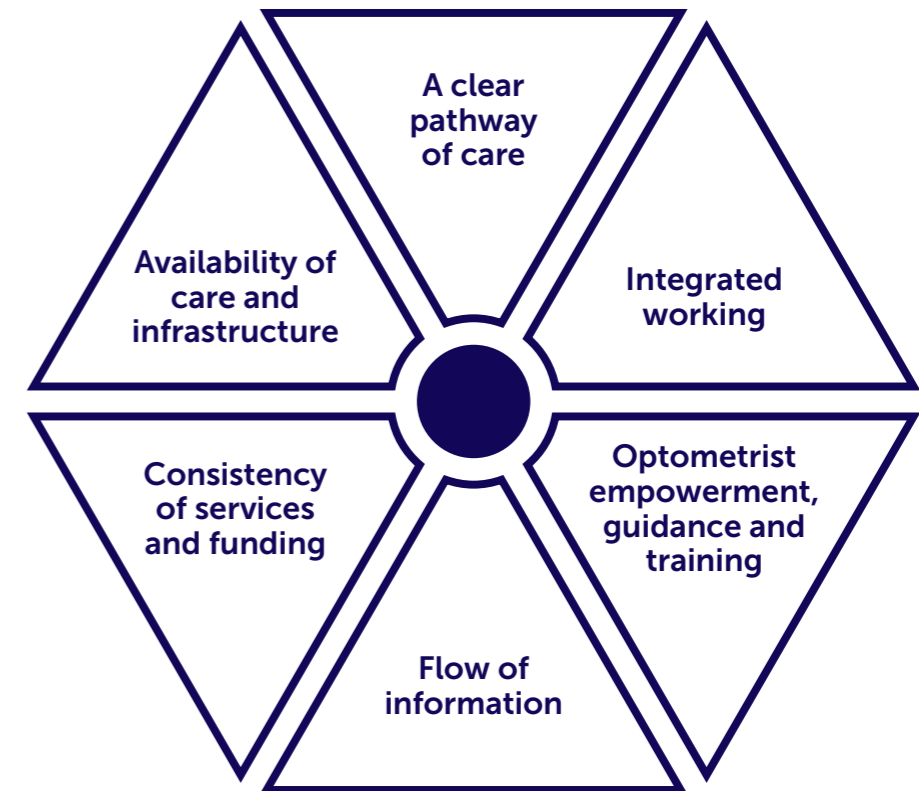
Manchester CUES

In March 2020, before the publication of the NHS England/Improvement service specification on the COVID-19 Urgent Eyecare Service (CUES; published in mid-April), a collaboration of Greater Manchester Local Eye Health Network, Manchester Clinical Commissioning Group and the Manchester Royal Eye Hospital (MREH) was already working on plans to develop an urgent eyecare service supporting the immediate and recovery phases of the COVID-19 pandemic. Primary and secondary care physicians worked closely together to set up the pathway, which was designed to align with CUES as well as taking advantage of local services.

As part of the service, clinicians from MREH set up a prescribing formulary that could be supplied to optometrists, including those with an Independent Prescribing (IP) qualification. Clinical guidelines were also developed by specialists in secondary care to help support primary care management. A new IT system, called the Optometric Electronic Referral and Assessment platform (OPERA), was integrated into primary care optometric practices and supported swift referral of patients where needed, with information and notifications shared between primary and secondary care.

In Greater Manchester (GM), 91.7% of patients were screened as being eligible for CUES and offered an initial telemedicine appointment. Following a telemedicine appointment in GM, 53.3% of people were given a face-to-face appointment, and 85.7% of the cases seen in GM were managed within primary care, without requiring a referral. A later review found only two of 1027 patients (0.23%) were classed as false negatives posing moderate-to-high risk of sight loss – a rate evaluated as reassuringly low in the context of the pandemic and subsequent improvements to the service.

Sources: Harper RA, et al. Eye 2020; Kanabar R, et al. Eye 2021; Williams E, et al. Eye 2021



condition within the community. Remote support and advice from colleagues in the Hospital Eye Service can allow a primary care practitioner to broaden the services and support they can deliver and provide a sense of support and reassurance for everyone involved; integrated approaches can help to make this simpler to implement where needed. Remote advice and guidance, in place of referral, also allows the patient to benefit from wider expertise, without the inconvenience of another appointment.

Further, a smaller number of optometrists who are interested and expert in DED may also be networked locally to provide additional support and options for referral and advice within primary care. We must recognise the core competencies of our primary care practitioners and identify opportunities to expand their clinical experience where appropriate.

COVID-19 has enhanced existing networks and created additional, highly beneficial ones: moving forward, we need to make sure this positive trend continues, and to grow it further. A commissioning framework is needed in order to allow this to happen and to break down the boundaries between primary and secondary care, so they can work collaboratively.



Optometrists can qualify as Independent Prescribers (IP) in all four UK nations, giving them greater autonomy and clinical responsibility

Optometrist empowerment, guidance and training

Optometrists must be adequately supported in order to fulfil the fundamental role of primary care as first-contact providers in triage for ophthalmic disorders: *reassure, react* or *refer*.

Relevant, structured opportunities are needed for optometrists to build experience, potentially working across different settings and alongside clinicians with greater expertise (either other, more experienced optometrists or ophthalmologists). Greater experience will help optometrists to recognise their own scope of practice and gaps or learning needs. While formal qualifications can be beneficial,

they are not the only route to development and can add further barriers due to cost and time requirements: ideally, alongside further qualifications, opportunities would be identified for further training and/or development while providing care, as part of an integrated service model.

Appropriate commissioning is a requirement to empower primary care optometrists to support new models of care. Optometrists may currently have different levels of autonomy and empowerment depending on whether they are employed or a practice owner. For employees, the culture of the practice may determine how autonomously they are able to work. However, if services are commissioned, this can allow optometrists to make the necessary decisions to manage the patient in primary care and is thus a key enabler to improving the care pathway.

Optometrists can qualify as Independent Prescribers (IP) in all four UK nations, giving them greater autonomy and clinical responsibility. Qualifying as IP allows optometrists to take clinical responsibility for the diagnosis and management of patients with certain conditions, including prescribing appropriate medications.¹⁵ Referral from non-IP to IP optometrists (or optometrists with expertise in DED management), where appropriate, could provide an extra filter to

reduce the load on secondary care and ensure the patient has a solution sooner. Support for prescribing optometrists should include a formulary to follow with clear guidance, and adequate access to prescribing pads to ensure the patient does not have to make a further trip to their GP to obtain a prescription.

However, IP optometrists can be part of but not the whole of the solution: despite high levels of IPs in Scotland, the referral rate to hospitals is not decreasing and indeed rising.¹¹ If a proportion of optometrists completes this additional qualification and is then able to receive referrals from, or provide remote advice and guidance to, their colleagues, this can help build their clinical expertise and experience and help to address the backlog of patients effectively. Prescribing could also be managed under Patient Group Directions (PGDs), supporting non-IP optometrists to supply or administer certain medicines to selected patients.

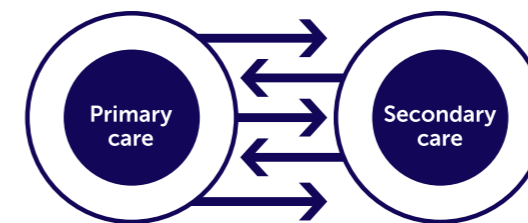
A detailed, easy-to-follow protocol on management of mild-to-moderate disease, with signposts indicating when to refer and how to identify the patient in need of urgent referral, will help to align approaches and standards.⁶ A clear governance framework and guidelines are needed to protect patients and ensure healthcare professionals at all points in the pathway are working within their capabilities and qualifications.

Where patients do make their way to be assessed in the secondary care setting, their consultant may consider them suitable for continued management in primary care. Appropriate transfer to primary care is important, with adequate information provided to the managing primary care practitioner to ensure the management plan can be followed and a clear escalation plan is in place in case of need.

Availability of care and infrastructure

A clear barrier to optometry as the first point of care for eye disorders is the prompt and continuing availability of care.

Access to optometric appointments varies across the UK. In general, optometrists are contracted for a single 'episode of care' (the sight test every two years¹⁶). However, in Scotland, optometrists can offer an additional episode of care via a 'supplementary visit'.¹⁷



A multi-way flow of clinical information between primary and secondary care is essential to improve efficiency and outcomes

In both Scotland and Wales, a free eye health examination can be offered to those with a problem in need of urgent attention.¹⁸ In England, a free sight test can be carried out earlier than planned if it is considered clinically necessary.¹⁶

Scepticism about the ability to make a same-day appointment was the most common reason given by people choosing not to see an 'optician' first across all four UK nations.¹⁴ Urgent cases as well as elective appointments need to be catered for in order for primary care to make an impact: the appointment schedule within optometry practices needs capacity built into it to allow for urgent appointments.

The availability of follow-up appointments is also key in order to empower the optometrist to decide not to refer: in many cases, they are contracted for a single 'episode of care' and a follow-up appointment with the patient is not covered until their next sight test in two years' time. For optometrists to act as the initial point of care, they need the same permissions as their GP colleagues so that they are able to make that crucial decision not to refer. Patients also need to feel confident that they can contact their optometrist and see them again in case of further problems. Some patients with moderate DED will need a high degree of contact time, and at present they are often advised to go to A&E if the problem recurs.

In Scotland, the guidelines for 'supplementary visits' are limited and restrictions are still tight, limiting the number of appointments for patients in need of multiple follow-ups. Further, despite the existence of this option, referrals to hospital have continued to rise.¹¹ Nevertheless, in 2018, a greater proportion of acute eye presentations in Scotland were managed entirely in the community than in 2006.¹⁹



Equity of access to everyone who needs care is essential

Flow of information

A multi-way flow of clinical information between primary and secondary care is essential to improve efficiency and outcomes.

The links between primary and secondary care provided by CUES have worked well, improving information transfer – including images and full volumetric optical coherence tomography (OCT) scans – between Optometry and Ophthalmology.^{12,20} Care of appropriate patients is thus managed away from eye casualty to primary care: this should provide a blueprint for future collaboration.

The flow of information is in need of improvement across the UK, but progress is being made. In Northern Ireland, work is ongoing to secure access for optometry practices to patients' central electronic care records (see Chapter B). NHS England are working with a number of Integrated Care Systems (ICSs) to implement and test an electronic referral management and image sharing framework across primary and secondary care. To help to enable to secure transfer of data between systems already in use, a common application programming interface (API) solution is also in development (Electronic Eye Care Referral System [EeRS]²¹). The Scottish Government is working on their own electronic system, but optometrists in Scotland already have increased access to clinical portals and electronic referrals.

Consistency of services and funding

Equity of access to everyone who needs care is essential.

Ensuring consistency of commissioning across the UK is a challenge, particularly in primary care, although the nature of devolved healthcare means that the four UK nations share more commonalities than differences. All have the same foundations, but each nation

CASE STUDY

Low vision networks

Low vision services, provided by the NHS to assess and support patients with reduced visual capacity, are delivered by specialist low-vision clinics. Patients who are identified during a sight test as sight-impaired or severely sight-impaired are signposted from other primary care practitioners to a local specialist clinic, delivered by optometrists with an interest and expertise in this area, which may be located with secondary or primary care. The Low Vision Service in Wales aims to support a specialist appointment for each patient within two weeks, allowing the patient to access specialist care and resources within the community. A similar model for DED could be beneficial.

has its own nuances with respect to primary care. In England, commissioning of services is highly variable by postcode with regional differences by clinical commissioning group (CCG). There are over 100 CCGs across the country,²² although the change to ICSs has reduced the number of different areas to 42 ICSs across the country.²³ In each of Wales and Scotland, care is commissioned in a system of integrated health boards^{24,25} while in Northern Ireland, health and social care are overseen by a single government department and delivered across five local commissioning groups.²⁶

An urgent eye care service from primary care optometry is now commissioned by 78% of CCGs in England,²⁷ but a small number of these services exclude 'minor' eye conditions and include DED within this category. Consistent commissioning requires joint

clinical leadership and integrated care, with standardised service specifications. Reallocation of funds to more efficient delivery of DED services up-front will pay dividends in savings further down the line; in 2006, the cost to the NHS of managing DED in secondary care was estimated at \$1.1 million.²⁸

At present, the remuneration available for optometrists is not sufficient. Financial incentives, along with professional ones, will be required to encourage them to take on an increased burden of responsibility. Equally, the high cost relating to secondary care, which is met by the taxpayer, cannot be justified for all patients. Integrated care systems could perhaps provide an opportunity to address this; as noted above, appropriate commissioning is essential to both optometrist autonomy and adequate remuneration.



In conclusion, making better use of the skills and qualifications of optometrists across the UK can enable a large proportion of patients with DED to be managed in primary care, potentially reducing the burden on hospital eye services and on patients themselves, who would no longer need to travel to hospital departments. The COVID-19 pandemic has already demonstrated that this approach is feasible, and contributed to the growing confidence and clinical experience of a number of optometrists. It is important to build on this experience and provide the necessary support, governance and infrastructure to empower more optometrists to manage appropriate patients in this setting.

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How education can revolutionise DED care

AUTHORS



Sajjad Ahmad



Sophie Harper

Dry eye disease (DED) is a complex disease with different forms (such as aqueous-deficient and evaporative). It is important that this is understood at every level of treatment, including by patients and those who care for them. These different forms

have different nuances and may require different treatments.¹

Education will allow us to deliver a more efficient service and is required throughout the pathway to ensure every participant in the patient journey understands the disease and its management to the appropriate degree. Crucially, education for both ophthalmic specialists and the patient themselves can help to ensure the patient sees the right healthcare professional (HCP) at the right time, as well as supporting better compliance to treatment and thus, ultimately, improved outcomes.

KEY POINTS

Patient education is critical to help patients to self-manage their condition better, to better comply with treatment, and to ensure they are aware of who can help them – and how

New, centralised educational resources are needed so HCPs can point patients to reliable, credible information

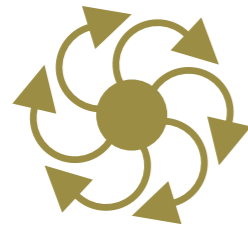
Education of HCPs, from the pharmacist to the consultant ophthalmologist, would also be beneficial – supporting appropriate history taking, accurate diagnosis and appropriate referrals, as well as potentially enabling a redistribution of workloads within clinic teams



Patient education

Patient education, around both the management and the likely prognosis of their condition, is essential to the management of DED.² A patient who fully understands the course and management of their disease may not need to come back for repeat consultations as frequently, ultimately saving time and resources.

Importantly, patients do not always need to come to the hospital, though some may not be aware that they can usually be managed within primary care or shared care. It is important they understand whom to see first and that their care could be managed across multiple settings. Education on this point could reduce the overload on secondary care, which can currently prevent access for some patients who do need to be managed within that setting.



Our aim should be to provide holistic ophthalmic care

Many patients may not understand the concept of shared care: if their primary care practitioner has referred them to the hospital eye service, how can their disease then be managed back in primary care? Shared care is in fact an arrangement whereby, although the patient's care is overseen by their primary care practitioner (PCP) and the PCP is responsible for prescribing, there is a significant degree of guidance and information transfer between primary and secondary care.³ Management in shared care not only reduces the burden on the Hospital Eye Service (HES); it also ensures

“ You need to take charge of your disease and not let it take charge of you ”

Sajjad Ahmad, Consultant Ophthalmic Surgeon



Learning how to look for their symptoms and their timing allows patients to self-treat more effectively

the patient can be treated close to home, which is generally easier for them as well (see Chapter D for more discussion around the role of primary care).

Symptoms of DED can include a gritty feeling or burning sensation in the eyes, waking up with 'glued-together' eyelids, eyes watering and, occasionally, fluctuations in vision – but every patient's experience will be different. An understanding of the potential disconnect between signs and symptoms^{4,5} is important among patients and may help to relieve some anxiety. Further, patients may not feel their watering eyes are 'dry', leading to confusion when the disorder is described as 'dry eye' disease: it may be helpful in these cases to describe watering eyes as an unstable tear film, where the tears are not in the right place. Further, what we mean by DED may not specifically refer to the symptoms the patient is experiencing, although it is important those symptoms are managed as well, since symptoms have the most immediate and noticeable impact on the patient's life. Clear communication is essential to help the patient to understand what approach is being taken and why.

Patients will benefit from taking some responsibility for their DED. Lifestyle advice can help them to manage the disease, if they understand that it does make a difference. For example, understanding how to manage and avoid certain environmental factors, such as humidity or dry environments (e.g., sitting near a wood-burning stove or taking a long-haul flight), can help to limit the severity of symptoms. Lifestyle factors such as hydration and diet can also make a difference. Learning how to look for their symptoms and their timing, and ultimately to take preventive

management steps, allows patients to self-treat more effectively. If a patient is waking up in the morning with dry eyes, they should be treating them with an ointment at night before bed; however, if the eyes are burning in the evening, treatment in the middle of the day with lubricants should prevent this.

Behavioural changes as a result of COVID-19 are becoming increasingly relevant to DED and education on these is likely to have a powerful impact. The negative impact on blinking of extended screen use, exacerbated by the remote working necessitated by COVID, as well as the potential impact of mask wearing on symptoms, should be understood by patients (see Chapter A for more details). Ensuring patients understand these points can help them to modify their behaviours and thus contribute to management of their symptoms.

Patients may under-report because they believe their symptoms must be 'lived with': education is vital to lead to better reporting and therapeutic options before the patient enters the eye care system. DED is better treated earlier, so patients should not wait to report their problem – but the hospital is not normally the first port of call (see diagram on page 46). It is advisable for patients to visit the pharmacist or primary care optometrist when symptoms start, to seek early intervention

CASE STUDY

Signposting with QR codes in Belfast

The Hospital Eye Service has a history of producing a range of leaflets for different ophthalmic conditions, particularly paediatric disorders; however, the workload became overwhelming. In order to find efficiencies, we began researching other available information sources online. We now provide patients with a QR code directing them to various Trust or charity resources. During the COVID-19 pandemic, this had the added benefit of making it easy to communicate important messages around changes to the service.



Realistic expectations are set through clear communication: it is important that patients understand the goal of treatment is symptom control, not cure

advice and support with lubricants and self-help treatments as well as the lifestyle and environmental management steps outlined above. Patients should then seek further help if their symptoms are not controlled by these steps.

Better education and informational support can help create a more streamlined patient pathway, where patients can access care (e.g., via an online portal) when they need it. Resources could support patients with basic aspects of self-care and ocular hygiene, including how and when to perform cold compresses and tips on how to instil drops. At the moment, the available resources for patient education are highly variable. Sometimes hospitals host good information on their own websites, or provide physical leaflets; however, there is no single central repository that a patient can be signposted to. If a patient does their own research online, they may find conflicting or skewed information. There is a real need for a high-quality repository for patient education formulated in a range of different media (such as videos, print items and infographics), allowing patients to learn from media that suit them best. Clinical photos will be needed to help to explain some conditions, such as blepharitis, and some terms will need explaining (for example, being advised to practise 'lid hygiene' does not mean the patient is unclean).

Videos in waiting rooms would provide an opportunity for patients to learn more about their condition while waiting to be seen, freeing up time in consultations to focus on the bigger picture. This approach could also be useful for those patients who are primarily being treated for another ophthalmic condition (such as glaucoma) or who have relatives who are affected.

There is a lack of consensus on some points relating to DED management, which may be a barrier to development of these resources, but this can be overcome with a coordinated effort. Further, patients themselves are often able to supply tips gained from experience – even to HCPs. However, sources for all these resources must be credible and well researched.

Higher-risk patients may require additional support, as they will be prescribed different medications that may have disconcerting side-effects. Written information about side effects is always needed to ensure that the

patient is aware of what to expect from their treatment. More frequent follow-up phone calls may also help to keep patients on track with their medication.

Realistic expectations are set through clear communication: it is important that patients understand the goal of treatment is symptom control, not cure. DED is a chronic disease: it is likely to wax and wane, and treatments may not immediately have an effect.² Nevertheless, perseverance with their medication and behavioural and lifestyle changes should pay off, and lead to an improved quality of life in the medium-to-long term.

Education in primary care

Appropriate education is needed for all professionals involved in care to ensure a consistent approach and adequate support for patients. The patient pathway generally begins with the pharmacist, progressing through the optometrist (preferably) or General Practitioner (GP) to secondary care as needed (see Chapter D).

Optometrist education

Greater exposure and experience of DED management for optometrists during their pre-registration year would be beneficial.

At present, within the registration scheme completed by all graduate optometrists, a competency on assessment of the tear film is included, along with a compulsory 'patient episode' featuring a patient with DED.

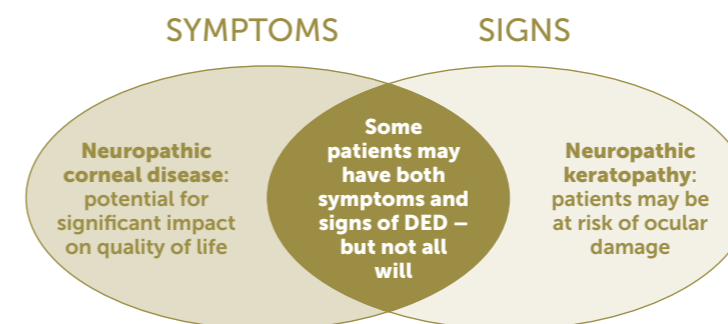
History taking is critical and should not be overlooked in the assessment process: it helps to determine the severity of the disease and the course of treatment required (and/or the need for referral).

HISTORY TAKING: GUIDANCE

Good history taking should answer the following questions:

- What is the patient complaining of?
- How did they develop this?
- What are the nuances of the complaint?
- What is their past medical history (look for disorders of possible significance such as Sjogren's syndrome, rheumatoid arthritis, SLE, etc)?
- Is there anything that they do that could be exacerbating the problem, e.g. sitting at their computer all day or exposed to the wind (evaporation)?

Symptoms and signs do not necessarily correlate:^{4,5} there are several categories of patients with DED.



A patient with no pain but many signs may have neurotrophic keratopathy, in which the patient has serious corneal damage but has lost sensation in their eye;⁶ this is often secondary to infections such as Herpes simplex.⁷ Equally, patients with a high symptom burden may sometimes have mild underlying disease: pain with no signs is termed neuropathic corneal disease (NCD). Awareness and guidance about this disorder are relatively low.⁸ NCD is a real problem for patients, and can significantly impact their quality of life: they should not be simply sent home with lubricants. It is important to manage symptoms if they are occurring; although 'treatment stepladders' are available to guide treatment pathways,¹ these should be personalised to the patient's own requirements.

Referral is an important consideration and

may be a necessary step. However, this may not always need to be referral to the hospital's eye service. Non-prescribing or non-specialist optometrists may be able to refer patients to local prescribing colleagues or those with a special interest in DED. However, if a patient has signs of severe DED, urgent referral to the hospital eye service is recommended.

Education for other primary care practitioners

The approach in general practice and in the pharmacy setting will necessarily be symptom-driven, rather than sign-driven, as the equipment to assess signs is not available in these settings. DED is often associated with other systemic diseases, such as rheumatoid arthritis and Sjogren's syndrome⁹ – most GPs will already be familiar with this.

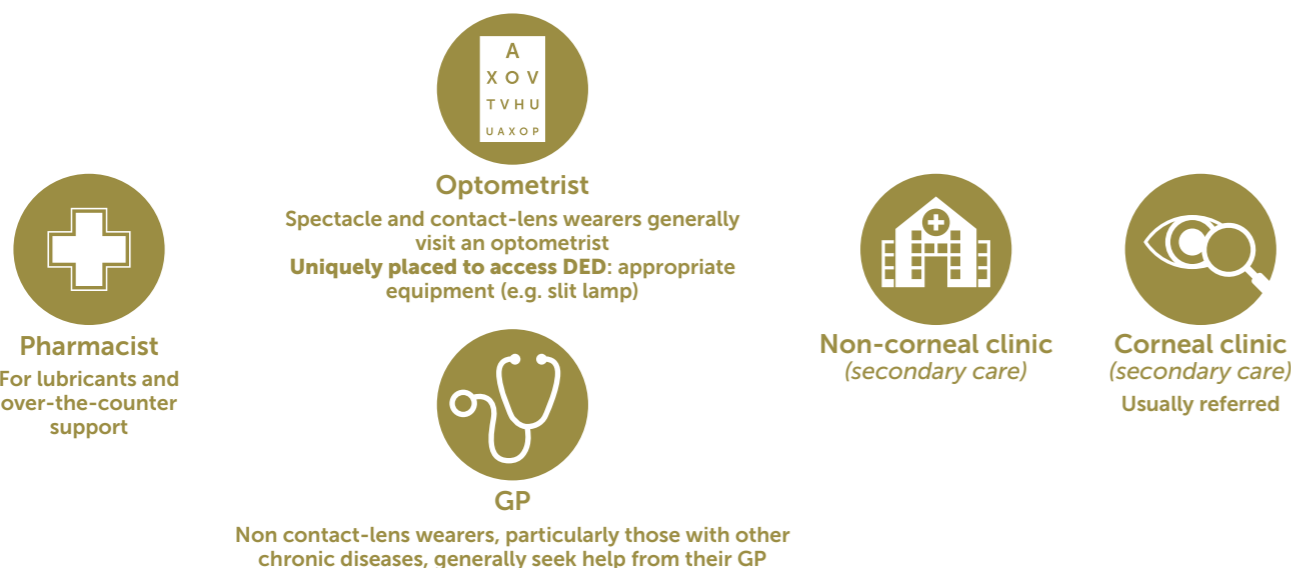
Many patients will initially approach their pharmacist, so upskilling pharmacists is a key step to ensure they can provide appropriate advice. There is a large range of lubricants available in pharmacies, and this range may be all that is available without a prescription – but this large range could be confusing for the patient. Here, the pharmacist can play a valuable role in directing them to an appropriate lubricant. Both GPs and pharmacists should be aware that preservative-free drops may be more suitable for some patients. Any lubricant that can be used with a soft contact lens is preservative free.

Both GPs and pharmacists should also be able to guide the patient on where to go next, if treatment does not resolve the symptoms, and on the likely treatments available during that next step. It is important that specialists are aware of the pathways available for referral in the area, including referral to optometrists where possible. A direct referral to secondary care should only be considered for patients with severe disease.



There is a large range of lubricants available in pharmacies – but the array of options can be confusing for the patient

THE PATIENT PATHWAY FOR DED; FROM WHOM DOES THE PATIENT SEEK HELP?



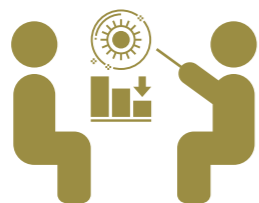
Education in secondary care

Education is important across the spectrum of experience levels in secondary care. For trainees, entry-level education is advisable where possible, including at university level when medical students visit the clinics. Ophthalmology is not often prioritised at medical school, but DED should be covered when discussing patients with certain systemic disorders.

Practising ophthalmologists, like optometrists, must be able to recognise the difference between signs and symptoms, and be aware of the potential disconnect between these in a patient with DED.^{4,5} History taking is equally critical in secondary care and should not be overlooked in the assessment process. Further, even some consultant colleagues may not be familiar with the full stepladder of treatment for DED.

During patient consultations, effective communication is critical. Patients may have already experienced a long journey with their disease, and may be disillusioned by the time they receive an accurate diagnosis. It is essential that ophthalmologists (and optometrists) assessing patients for DED are educated to communicate effectively with their patients to ensure they understand the chronic and relapsing/remitting nature of DED.² Patient understanding of their disease and its management is essential for a positive outcome. It is also important to set expectations around the side-effects that might be expected with certain medications to help patients to adhere to their course of treatment.

Taking an interest in DED research is important, though often deprioritised among corneal specialists. An awareness of ongoing and recent clinical trials and, critically,



It is essential that ophthalmologists and optometrists are educated to communicate effectively to ensure patients understand the chronic and relapsing/remitting nature of DED²

CASE STUDY

Immersive learning

An immersive learning event allowed specialists to witness a series of scripted DED consultation role-plays (featuring an actor as the patient and a real expert in DED as the clinician), immersing themselves in the patient's journey, frustrations and concerns as well as identifying the optimal next steps for management. The patient's perspective and journey were built from real case notes, insights and patient stories to ensure important aspects of the patient experience were conveyed as realistically as possible. The audience was asked to consider various communication approaches taken by the clinician, and how these could impact outcomes. At the end of the session, the lead clinician debriefed the findings, explaining his preferred approach and identifying key take-home points.

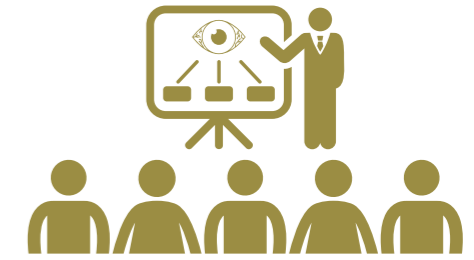
Funded by Santen UK as part of a series focused on ocular disorders, the meeting offered a new way to share important points around patient communication with other clinicians. In a follow-up survey, 96% of respondents reported changes in at least one behaviour as a result of the meeting. Following the success of this first event, additional training sessions have been commissioned.

understanding the limitations of these studies, is essential – for example, flaws in study designs and how to interpret them. Understanding the latest data and how to manage the patient appropriately can result in better and more effective treatment for the patient, as well as time savings for the specialist as the patient may require fewer follow-up visits.

Specialists in a range of other therapeutic areas, including other ophthalmic specialties, need an awareness of DED. Medications for other conditions can be associated with sequelae including DED: for example, patients with glaucoma receive treatments to reduce intraocular pressure (IOP), some of which can lead to or exacerbate DED.¹⁰ Tertiary referrals

are common, but it would be helpful for other specialists whose patients often develop DED (for example, patients with graft-versus-host disease [GVHD]) to understand the next steps in DED care, how they may be able to manage patients themselves and when to refer.

Our aim should be to provide holistic ophthalmic care, and investing in nurse and allied health professional (AHP) education is critical to this. Corneal nurses are highly valuable and becoming increasingly so with the pressures currently on the service: a good corneal nurse is able to use a slit lamp and pick up ocular surface signs, triaging urgent cases in a cost-effective way. Such a shared approach to assessment and delivery of care can improve efficiencies in overstretched clinics. AHPs and nurses are also able to spend time with patients, explaining the disorder and



Specialists in a range of other therapeutic areas, including other ophthalmic specialties, need an awareness of DED

its management. Further, patients may feel happier talking to corneal nurses or AHPs, with whom they often have a good rapport. Improving nurse and AHP education levels can help to further improve patient education and outcomes, allowing consultant time to be reallocated where it is most needed.

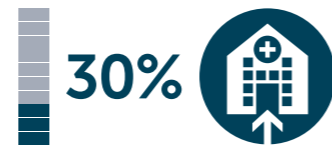


In sum, education of both patients and HCPs is a key enabler for improvement of DED diagnosis and treatment. Through education we can empower patients to take a more active role in management of their own disease. The pandemic has highlighted a need for a centralised repository of credible resources to which clinicians can direct patients. Additionally, appropriately educating all healthcare professionals involved in the management of DED would help to ensure a consistent approach to diagnosis and treatment. Ultimately, education could help to improve outcomes for patients living with DED.

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What is dry eye disease, and why is it important?



Dry eye disease (DED) is a disorder of the tears and the surface of the eye,¹ reportedly affecting between 10–20% of women in the UK;² DED is most common among women and those aged over 50^{2,3} – in fact, double the rate of DED has been seen in postmenopausal women compared with men of a similar age.⁴

The clinical presentation of DED can include burning or stinging of the eyes, redness, and a foreign body sensation.¹ In severe forms, DED can lead to conjunctival scarring and even corneal damage, although these complications are rare.¹ Despite this impact, awareness of DED and its treatment options among the

general public does not seem to be high: a recent international survey, including 151 patients from the UK, reported that, while UK patients with symptoms of DED had been living with those symptoms for an average of three years, only 30% had consulted a healthcare professional.⁵

The impact of DED on quality of life (QoL) is comparable to that of dialysis and angina in severe cases.⁶ Patients with DED are more likely to have difficulties with daily activities, as well as experiencing more pain and more anxiety and/or depression.³ The burden of DED can thus be significant and long-lasting.^{3,5}

How is DED assessed?

Following a comprehensive history, DED can be assessed via a range of tests including blink rate, eyelid closure and the state of the eyelid margin, staining of the ocular surface (generally with fluorescein or lissamine green) and various tests of the tear film.¹ Key tests recommended in the 2017 DEWS II report⁷ include tear breakup time (TBUT), osmolarity of the tear film and ocular surface staining, as

well as a questionnaire to assess the severity of patients' symptoms.

Diagnosis of DED is challenging because symptoms and signs often do not correlate.^{1,8} Patients in severe pain may have limited clinical signs of damage, while those with significant corneal damage may not feel any pain at all as a result of nerve damage.⁹

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