Evaluating the Efficacy of Guidelines for Managing Paediatric Vernal Keratoconjunctivitis and Bacterial Keratoconjunctivitis in the Emergency Eye Clinic

Tu Michelle Ly, Marianthi Bourlaki, Shelagh Baynham,Abdulrahman Abodarahim
The Royal Wolverhampton NHS Trust

The Royal Wolverhampton NHS Trust

INTRODUCTION

- **Vernal keratoconjunctivitis** (VKC) and **bacterial keratoconjunctivitis** (BKC) are interchangeably **misdiagnosed** in paediatric patients in the emergency eye clinic (EEC) due to their similar ocular presentation.
- **VKC** is a chronic allergic conjunctivitis predominantly affecting children.
- **VKC** can be sight-threatening and delayed or incorrect diagnosis of VKC leads to patients receiving suboptimal treatment.
- The **management** is distinct from BKC, thus correct diagnosis is paramount.
- This study aimed to **identify knowledge gaps among EEC** staff and assess the value of implementing guidelines to improve the management of paediatric VKC and BKC

METHODS

PRE-IMPLEMENTATION SURVEY

- Prior to producing the guidelines, we conducted a survey to evaluate the need for guidelines on managing paediatric VKC and BKC in the EEC, which captured self-reported confidence in managing VKC and BKC, referral patterns to paediatric ophthalmology, and current use of any existing guidelines.

PRODUCING THE LOCAL GUIDELINES

- Based on these findings, we developed local guidelines guided by protocols from other ophthalmology units in the region and the Royal College of Ophthalmologists' recommendations for chronic allergic eye disease.
- Our guidelines contained a seven-page document that was disseminated to all clinical staff. They were also printed and placed in the folder containing all other emergency guidelines in the EEC.
- Our guidelines detailed key differences in history, such as lid crusting, symptoms worse in the morning and recurrent chalazia in BKC compared to seasonal symptoms and atopy in VKC.
- It also detailed examination findings, including blepharitis, marginal keratitis, chalazion and corneal vascularisation in BKC, and cobblestone papillae, Horner-Trantas dots, shield ulcers, and corneal vascularisation in VKC. Management strategies for mild, moderate, severe, and sight-threatening disease for BKC and VKC were described, in addition to criteria for referral to paediatric ophthalmology.
- The guidelines were formally implemented in the EEC.
- The guidelines were presented at our governance meeting

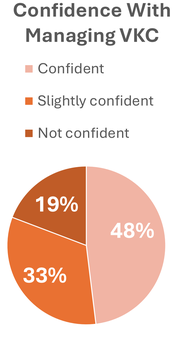
POST-IMPLEMENTATION SURVEY

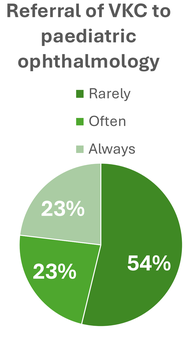
- After seven months of the guideline being in use, a follow-up survey was conducted to evaluate clinicians' perceptions of the guideline's efficacy.

RESULTS

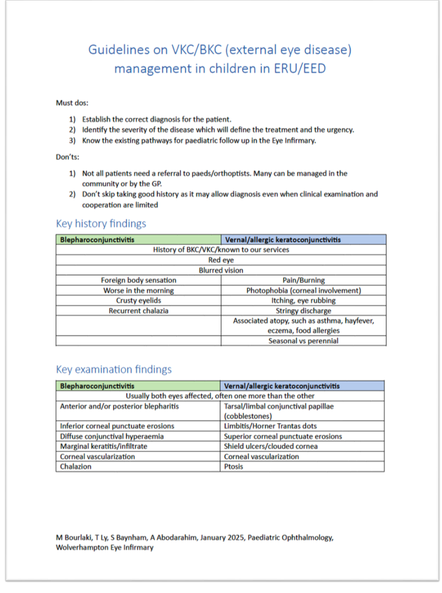
PRE-IMPLEMENTATION SURVEY

- In the pre-implementation survey, 13 staff responded:
 - 46% ophthalmology specialty trainees (OSTs)
 - 23% ophthalmic nurse practitioners (ONPs)
 - 15% consultants
 - 15% locally employed doctors.
- Most respondents (85%) were in favour of implementing local guidelines for the management of VKC and BKC in the EEC.





FIRST PAGE OF OUR GUIDELINES



Guidelines on VKC/BKC (external eye disease) management in children in ERU/EED

Must dos:

1) Establish the correct diagnosis for the patient.
2) Identify the severity of the disease which will define the treatment and the urgency.
3) Know the existing pathways for paediatric follow up in the Eye Infirmary.

Don'ts:

1) Not all patients need a referral to paeds/orthoptists. Many can be managed in the community or by the GP.
2) Don't skip taking good history as it may allow diagnosis even when clinical examination and cooperation are limited

Key history findings

Blepharoconjunctivitis	Vernal/allergic keratoconjunctivitis
History of BKC/VKC/known to our services	
Red eye	
Blurred vision	
Foreign body sensation	Pain/Burning
Worse in the morning	Photophobia (corneal involvement)
Crusty eyelids	Itching, eye rubbing
Recurrent chalazia	Stringy discharge
	Associated atopy, such as asthma, hayfever, eczema, food allergies
	Seasonal vs perennial

Key examination findings

Blepharoconjunctivitis	Vernal/allergic keratoconjunctivitis
Usually both eyes affected, often one more than the other	
Anterior and/or posterior blepharitis	Tarsal/limbal conjunctival papillae (cobblestones)
Inferior corneal punctuate erosions	Limbitis/Horner Trantas dots
Diffuse conjunctival hyperaemia	Superior corneal punctuate erosions
Marginal keratitis/infiltrate	Shield ulcers/clouded cornea
Corneal vascularization	Corneal vascularization
Chalazion	Ptosis

M Bourlaki, T Ly, S Baynham, A Abodarahim, January 2025, Paediatric Ophthalmology, Wolverhampton Eye Infirmary

POST-IMPLEMENTATION SURVEY

- After seven months of guideline implementation, 11 staff completed a post-implementation survey, including
 - 36.4% OSTs
 - 18.2% locally employed doctors
 - 45.5% ONPs
- Confidence in managing VKC and BKC patients improved following the implementation;
 - 75% of OSTs, 100% of locally employed doctors, and 40% of ONPs felt confident with managing these two conditions.
- Referral frequency increased:
 - 100% of OSTs, 50% of locally employed doctors, and 40% of ONPs often referring to paediatric ophthalmology.
- Our guidelines specify which cases of VKC or BKC should be referred to paediatric ophthalmology and the recommended referral timeframe.
- 63.6% of respondents reported using the guidelines, the non-users were ONPs, as they required doctor review before independent referral.
- Overall, 72.7% found the guidelines helpful in managing VKC and BKC in the emergency eye clinic.

CONCLUSIONS

- Our project highlights significant knowledge gaps among EEC staff, with many reporting low confidence in managing paediatric VKC and BKC.
- The guidelines improved staff confidence, supported standardised management, and reinforced the importance of a multidisciplinary approach for this potentially sight-threatening condition.